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- Slope inclination 2:1 (H:V) or greater: Sandbags should be placed at a maximum interval of 10 ft. (a closer spacing is more effective), with the first row near the slope toe.

- Turn the ends of the sandbag barrier up slope to prevent runoff from going around the barrier.
- Allow sufficient space up slope from the barrier to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, sand bag barriers should be set back from the slope toe to facilitate cleaning. Where specific site conditions do not allow for a set-back, the sand bag barrier may be constructed on the toe of the slope. To prevent flows behind the barrier, bags can be placed perpendicular to a berm to serve as cross barriers.
- Drainage area should not exceed 5 acres.
- Butt ends of bags tightly.
- Overlap butt joints of row beneath with each successive row.
- Use a pyramid approach when stacking bags.
- In non-traffic areas
  - Height = 18 in. maximum
  - Top width = 24 in. minimum for three or more layer construction
  - Side slope = 2:1 (H:V) or flatter
- In construction traffic areas
  - Height = 12 in. maximum
  - Top width = 24 in. minimum for three or more layer construction.
  - Side slopes = 2:1 (H:V) or flatter.
- See typical sandbag barrier installation details at the end of this fact sheet.

Materials

- ***Sandbag Material:*** Sandbag should be woven polypropylene, polyethylene or polyamide fabric, minimum unit weight of 4 ounces/yd^2, Mullen burst strength exceeding 300 lb/in^2 in conformance with the requirements in ASTM designation D3786, and ultraviolet stability exceeding 70% in conformance with the requirements in ASTM designation D4355. Use of burlap is not an acceptable substitute, as sand can more easily mobilize out of burlap.
- ***Sandbag Size:*** Each sand-filled bag should have a length of 18 in., width of 12 in., thickness of 3 in., and mass of approximately 33 lbs. Bag dimensions are nominal, and may vary based on locally available materials.

- ***Fill Material:*** All sandbag fill material should be non-cohesive, Class 3 (Caltrans Standard Specification, Section 25) or similar permeable material free from clay and deleterious material, such as recycled concrete or asphalt.

Costs

Empty sandbags cost $0.25 - $0.75. Average cost of fill material is $8 per yd^3. Additional labor is required to fill the bags. Pre-filled sandbags are more expensive at $1.50 - $2.00 per bag. These costs are based upon vendor research.

Inspection and Maintenance

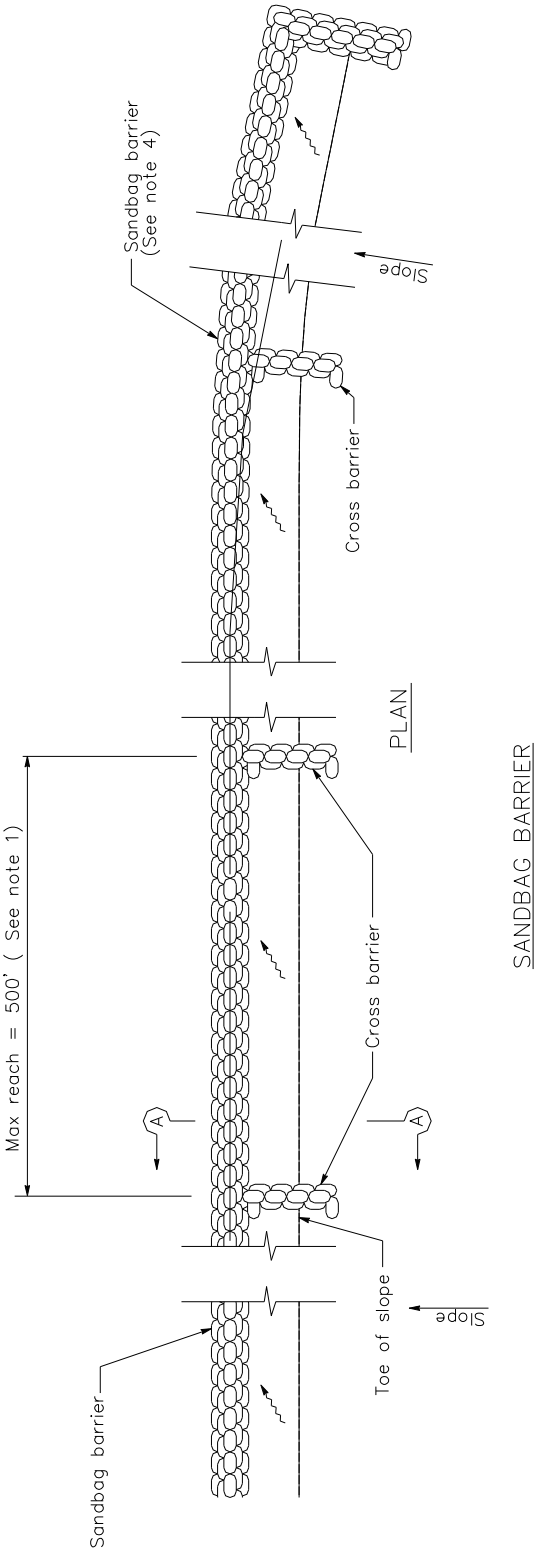
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Sandbags exposed to sunlight will need to be replaced every two to three months due to degradation of the bags.
- Reshape or replace sandbags as needed.
- Repair washouts or other damage as needed.
- Sediment that accumulates behind the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Remove sandbags when no longer needed and recycle sand fill whenever possible and properly dispose of bag material. Remove sediment accumulation, and clean, re-grade, and stabilize the area.

References

Standard Specifications for Construction of Local Streets and Roads, California Department of Transportation (Caltrans), July 2002.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

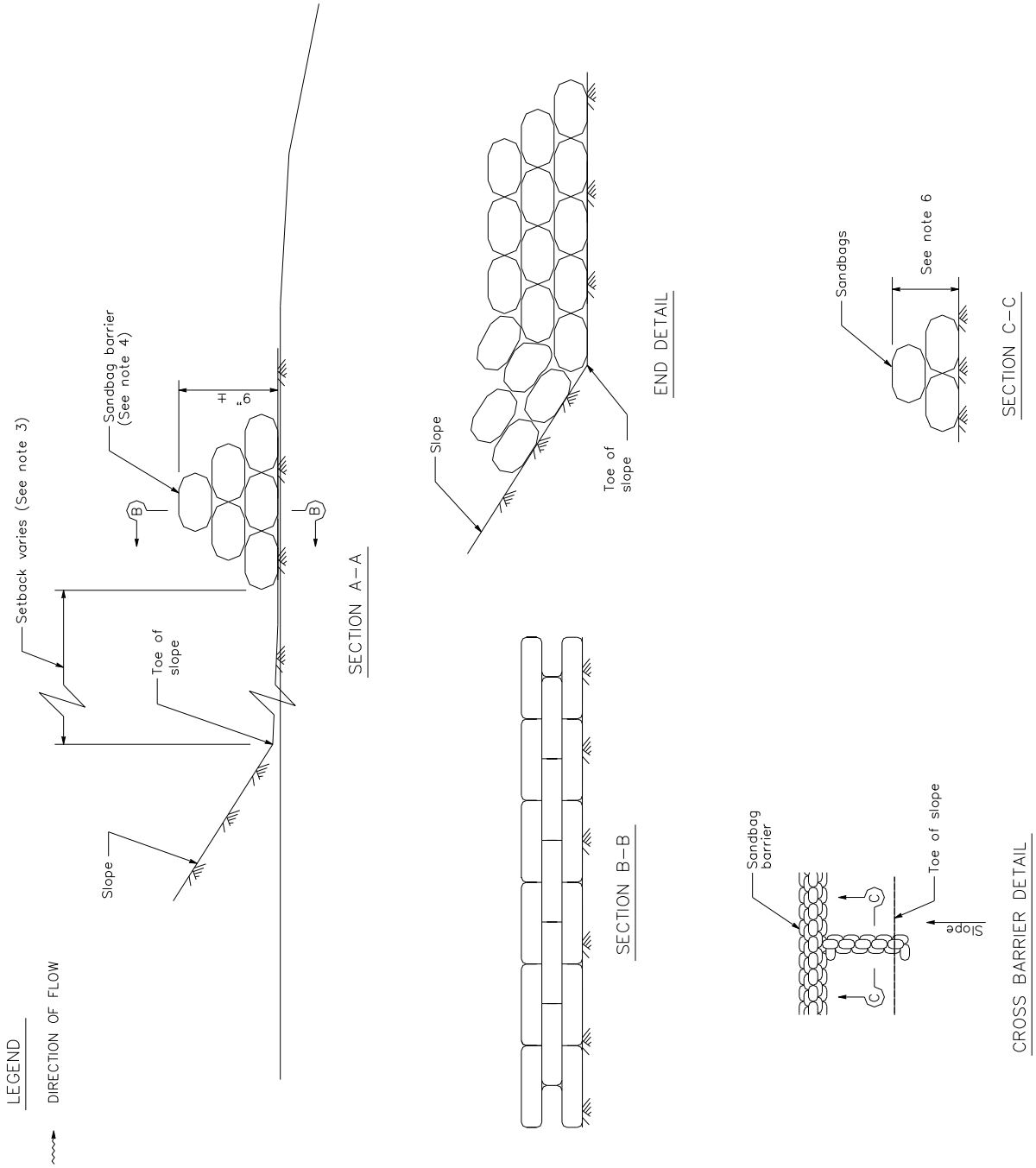
Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.



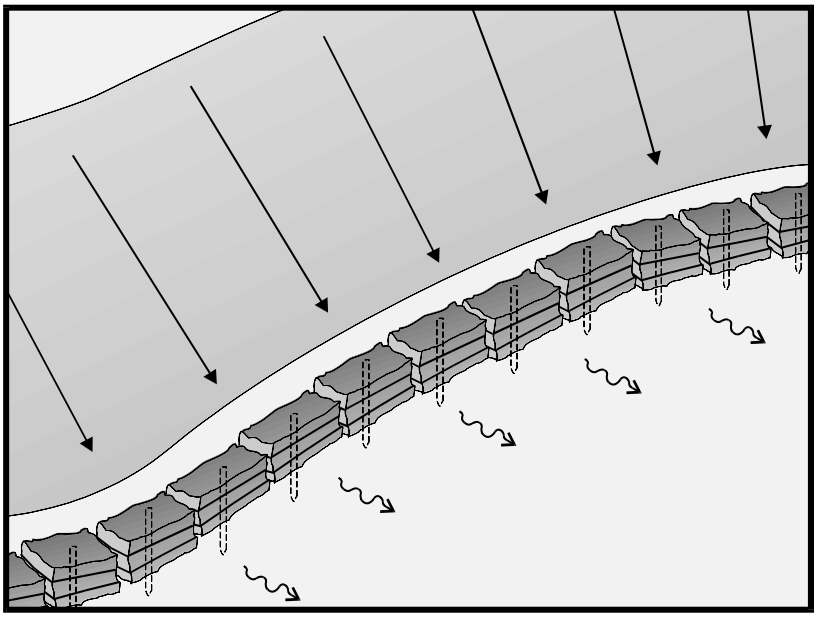
SANDBAG BARRIER

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/2 the height of the linear barrier. In no case shall the reach length exceed 500'.
2. Place sandbags tightly.
3. Dimension may vary to fit field condition.
4. Sandbag barrier shall be a minimum of 3 bags high.
5. The end of the barrier shall be turned up slope.
6. Cross barriers shall be a min of 1/2 and a max of 2/3 the height of the linear barrier.
7. Sandbag rows and layers shall be staggered to eliminate gaps.


LEGEND
DIRECTION OF FLOW
Setback varies (See note 3)
Sandbag barrier (See note 4)
H
B
B
Toe of slope
Slope
SECTION A–A
Slope
Toe of slope
END DETAIL
SECTION B–B
Sandbags
See note 6
SECTION C–C
Sandbag barrier
C
C
Toe of slope
Slope
CROSS BARRIER DETAIL

Straw Bale Barrier SE-9



Description and Purpose

A straw bale barrier is a series of straw bales placed on a level contour to intercept sheet flows. Straw bale barriers pond sheet-flow runoff, allowing sediment to settle out.

Suitable Applications

Straw bale barriers may be suitable:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - As sediment traps at culvert/pipe outlets
  - Below other small cleared areas
  - Along the perimeter of a site
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas
  - Along streams and channels
- As linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow

Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Rolls

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-12 Temporary Silt Dike

SE-14 Biofilter Bags

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- At the top of slopes to divert runoff away from disturbed slopes
- As check dams across mildly sloped construction roads

Limitations

Straw bale barriers:

- Are not to be used for extended periods of time because they tend to rot and fall apart
- Are suitable only for sheet flow on slopes of 10 % or flatter
- Are not appropriate for large drainage areas, limit to one acre or less
- May require constant maintenance due to rotting
- Are not recommended for concentrated flow, inlet protection, channel flow, and live streams
- Cannot be made of bale bindings of jute or cotton
- Require labor-intensive installation and maintenance
- Cannot be used on paved surfaces
- Should not to be used for drain inlet protection
- Should not be used on lined ditches
- May introduce undesirable non-native plants to the area

Implementation

General

A straw bale barrier consists of a row of straw bales placed on a level contour. When appropriately placed, a straw bale barrier intercepts and slows sheet flow runoff, causing temporary ponding. The temporary ponding provides quiescent conditions allowing sediment to settle. Straw bale barriers also interrupt the slope length and thereby reduce erosion by reducing the tendency of sheet flows to concentrate into rivulets, which erode rills, and ultimately gullies, into disturbed, sloped soils.

Straw bale barriers have not been as effective as expected due to improper use. These barriers have been placed in streams and drainage ways where runoff volumes and velocities have caused the barriers to wash out. In addition, failure to stake and entrench the straw bale has allowed undercutting and end flow. Use of straw bale barriers in accordance with this BMP should produce acceptable results.

Design and Layout

- Locate straw bale barriers on a level contour.
  - Slopes up to 10:1 (H:V): Straw bales should be placed at a maximum interval of 50 ft (a closer spacing is more effective), with the first row near the toe of slope.
  - Slopes greater than 10:1 (H:V): Not recommended.

- Turn the ends of the straw bale barrier up slope to prevent runoff from going around the barrier.
- Allow sufficient space up slope from the barrier to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, consider moving the barrier away from the slope toe to facilitate cleaning. To prevent flow behind the barrier, sand bags can be placed perpendicular to the barrier to serve as cross barriers.
- Drainage area should not exceed 1 acre, or 0.25 acre per 100 ft of barrier.
- Maximum flow path to the barrier should be limited to 100 ft.
- Straw bale barriers should consist of two parallel rows.
  - Butt ends of bales tightly
  - Stagger butt joints between front and back row
  - Each row of bales must be trenched in and firmly staked
- Straw bale barriers are limited in height to one bale laid on its side.
- Anchor bales with either two wood stakes or four bars driven through the bale and into the soil. Drive the first stake towards the butt joint with the adjacent bale to force the bales together.
- See attached figure for installation details.

Materials

- ***Straw Bale Size:*** Each straw bale should be a minimum of 14 in. wide, 18 in. in height, 36 in. in length and should have a minimum mass of 50 lbs. The straw bale should be composed entirely of vegetative matter, except for the binding material.
- ***Bale Bindings:*** Bales should be bound by steel wire, nylon or polypropylene string placed horizontally. Jute and cotton binding should not be used. Baling wire should be a minimum diameter of 14 gauge. Nylon or polypropylene string should be approximately 12 gauge in diameter with a breaking strength of 80 lbs force.
- ***Stakes:*** Wood stakes should be commercial quality lumber of the size and shape shown on the plans. Each stake should be free from decay, splits or cracks longer than the thickness of the stake, or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable. Steel bar reinforcement should be equal to a #4 designation or greater. End protection should be provided for any exposed bar reinforcement.

Costs

Straw bales cost $5 - $7 each. Adequate labor should be budgeted for installation and maintenance.

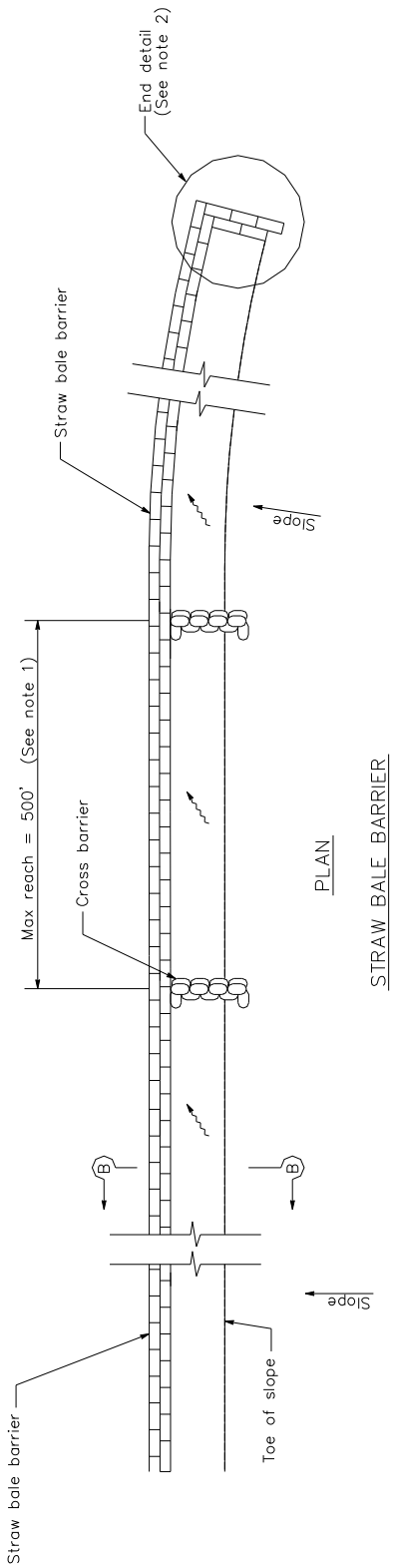
Inspection and Maintenance

Maintenance

- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Straw bales degrade, especially when exposed to moisture. Rotting bales will need to be replaced on a regular basis.
- Replace or repair damaged bales as needed.
- Repair washouts or other damages as needed.
- Sediment that accumulates in the BMP must be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height. Sediment removed during maintenance may be incorporated into earthwork on the site or disposed at an appropriate location.
- Remove straw bales when no longer needed. Remove sediment accumulation, and clean, re-grade, and stabilize the area. Removed sediment should be incorporated in the project or disposed of.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.



PLAN

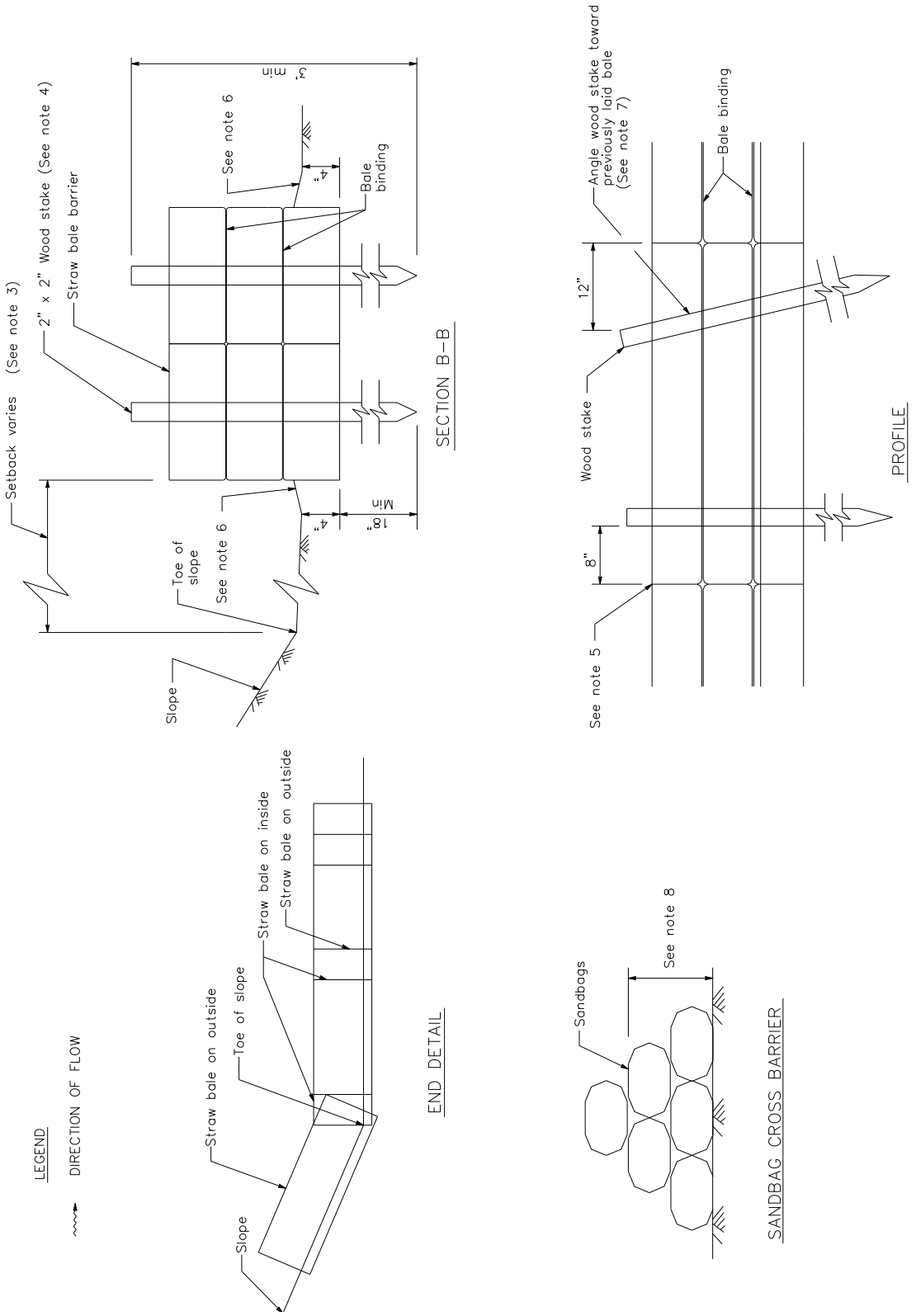
STRAW BALE BARRIER

LEGEND

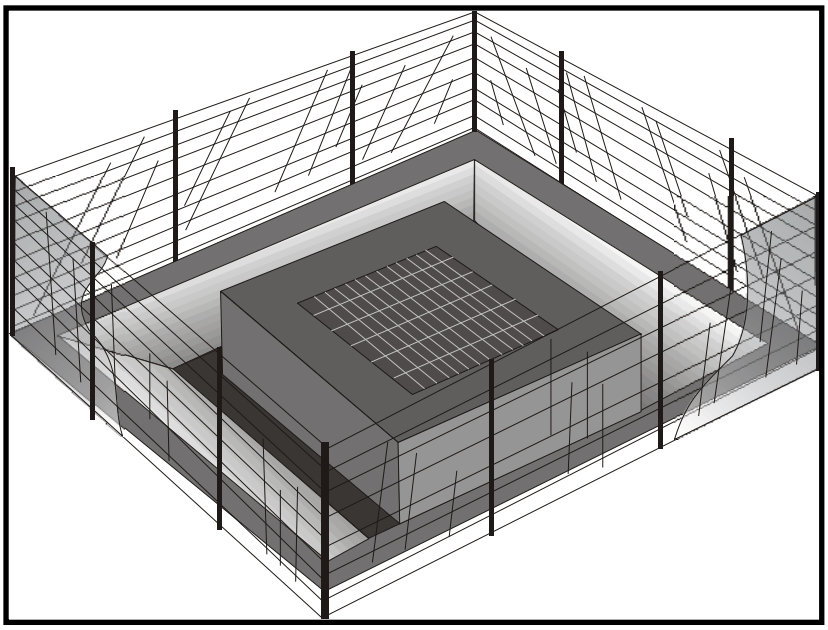
DIRECTION OF FLOW

NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/2 the height of the linear barrier. In no case shall the reach length exceed 500'.
2. The end of barrier shall be turned up slope.
3. Dimension may vary to fit field condition.
4. Stake dimensions are nominal.
5. Place straw bales tightly together.
6. Tamp embedment spoils against sides of installed bales.
7. Drive angled wood stake before vertical stake to ensure tight abutment to adjacent bale.
8. Sandbag cross barriers should be a min of 1/2 and a max of 2/3 the height of the linear barrier.
9. Sandbag rows and layers should be offset to eliminate gaps.


Setback varies (See note 3)
2" x 2" Wood stake (See note 4)
Straw bale barrier
See note 6
Bale binding
Min 3"
4"
Min 18"
Toe of slope
See note 6
Slope
SECTION B-B
Angle wood stake toward previously laid bale (See note 7)
Bale binding
12"
Wood stake
8"
See note 5
PROFILE
Straw bale on inside
Straw bale on outside
Straw bale on outside
Toe of slope
Slope
END DETAIL
Sandbags
See note 8
SANDBAG CROSS BARRIER
LEGEND
DIRECTION OF FLOW

Storm Drain Inlet Protection SE-10



Description and Purpose

Storm drain inlet protection consists of a sediment filter or an impounding area in, around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction. Temporary geotextile storm drain inserts attach underneath storm drain grates to capture and filter storm water.

Suitable Applications

- Every storm drain inlet receiving runoff from unstabilized or otherwise active work areas should be protected. Inlet protection should be used in conjunction with other erosion and sediment controls to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.

Limitations

- Drainage area should not exceed 1 acre.
- In general straw bales should not be used as inlet protection.
- Requires an adequate area for water to pond without encroaching into portions of the roadway subject to traffic.
- Sediment removal may be inadequate to prevent sediment discharges in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use

Categories

EC	Erosion Control	
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☒
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Rolls

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-14 Biofilter Bags

SE-13 Compost Socks and Berms

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other onsite sediment trapping techniques in conjunction with inlet protection.

- Frequent maintenance is required.
- Limit drainage area to 1 acre maximum. For drainage areas larger than 1 acre, runoff should be routed to a sediment-trapping device designed for larger flows. See BMPs SE-2, Sediment Basin, and SE-3, Sediment Traps.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected, and overflow capability is needed.

Implementation

General

Inlet control measures presented in this handbook should not be used for inlets draining more than one acre. Runoff from larger disturbed areas should be first routed through SE-2, Sediment Basin or SE-3, Sediment Trap and/or used in conjunction with other drainage control, erosion control, and sediment control BMPs to protect the site. Different types of inlet protection are appropriate for different applications depending on site conditions and the type of inlet. Alternative methods are available in addition to the methods described/shown herein such as prefabricated inlet insert devices, or gutter protection devices.

Design and Layout

Identify existing and planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed and which method to use.

- The key to successful and safe use of storm drain inlet protection devices is to know where runoff that is directed toward the inlet to be protected will pond or be diverted as a result of installing the protection device.
  - Determine the acceptable location and extent of ponding in the vicinity of the drain inlet. The acceptable location and extent of ponding will influence the type and design of the storm drain inlet protection device.
  - Determine the extent of potential runoff diversion caused by the storm drain inlet protection device. Runoff ponded by inlet protection devices may flow around the device and towards the next downstream inlet. In some cases, this is acceptable; in other cases, serious erosion or downstream property damage can be caused by these diversions. The possibility of runoff diversions will influence whether or not storm drain inlet protection is suitable; and, if suitable, the type and design of the device.
- The location and extent of ponding, and the extent of diversion, can usually be controlled through appropriate placement of the inlet protection device. In some cases, moving the inlet protection device a short distance upstream of the actual inlet can provide more efficient sediment control, limit ponding to desired areas, and prevent or control diversions.
- Seven types of inlet protection are presented below. However, it is recognized that other effective methods and proprietary devices exist and may be selected.

- Silt Fence: Appropriate for drainage basins with less than a 5% slope, sheet flows, and flows under 0.5 cfs.

- Excavated Drop Inlet Sediment Trap: An excavated area around the inlet to trap sediment (SE-3).

- Gravel bag barrier: Used to create a small sediment trap upstream of inlets on sloped, paved streets. Appropriate for sheet flow or when concentrated flow may exceed 0.5 cfs, and where overtopping is required to prevent flooding.

- Block and Gravel Filter: Appropriate for flows greater than 0.5 cfs.

- Temporary Geotextile Storm drain Inserts: Different products provide different features. Refer to manufacturer details for targeted pollutants and additional features.

- Biofilter Bag Barrier: Used to create a small retention area upstream of inlets and can be located on pavement or soil. Biofilter bags slowly filter runoff allowing sediment to settle out. Appropriate for flows under 0.5 cfs.

- Compost Socks: Allow filtered run-off to pass through the compost while retaining sediment and potentially other pollutants (SE-13). Appropriate for flows under 1.0 cfs.

- Select the appropriate type of inlet protection and design as referred to or as described in this fact sheet.

- Provide area around the inlet for water to pond without flooding structures and property.

- Grates and spaces around all inlets should be sealed to prevent seepage of sediment-laden water.

- Excavate sediment sumps (where needed) 1 to 2 ft with 2:1 side slopes around the inlet.

Installation

- ***DI Protection Type 1 - Silt Fence -*** Similar to constructing a silt fence; see BMP SE-1, Silt Fence. Do not place fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced and water flow through the grate will be blocked resulting in flooding. See typical Type 1 installation details at the end of this fact sheet.

  1. Excavate a trench approximately 6 in. wide and 6 in. deep along the line of the silt fence inlet protection device.

  2. Place 2 in. by 2 in. wooden stakes around the perimeter of the inlet a maximum of 3 ft apart and drive them at least 18 in. into the ground or 12 in. below the bottom of the trench. The stakes should be at least 48 in.

  3. Lay fabric along bottom of trench, up side of trench, and then up stakes. See SE-1, Silt Fence, for details. The maximum silt fence height around the inlet is 24 in.

  4. Staple the filter fabric (for materials and specifications, see SE-1, Silt Fence) to wooden stakes. Use heavy-duty wire staples at least 1 in. in length.

5. Backfill the trench with gravel or compacted earth all the way around.

- ***DI Protection Type 2 - Excavated Drop Inlet Sediment Trap -*** Install filter fabric fence in accordance with DI Protection Type 1. Size excavated trap to provide a minimum storage capacity calculated at the rate 67 yd^3/acre of drainage area. See typical Type 2 installation details at the end of this fact sheet.

- ***DI Protection Type 3 - Gravel bag -*** Flow from a severe storm should not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with SE-6, Gravel Bag Berm. Gravel bags should be used due to their high permeability. See typical Type 3 installation details at the end of this fact sheet.

  1. Construct on gently sloping street.

  2. Leave room upstream of barrier for water to pond and sediment to settle.

  3. Place several layers of gravel bags – overlapping the bags and packing them tightly together.

  4. Leave gap of one bag on the top row to serve as a spillway. Flow from a severe storm (e.g., 10 year storm) should not overtop the curb.

- ***DI Protection Type 4 – Block and Gravel Filter -*** Block and gravel filters are suitable for curb inlets commonly used in residential, commercial, and industrial construction. See typical Type 4 installation details at the end of this fact sheet.

  1. Place hardware cloth or comparable wire mesh with 0.5 in. openings over the drop inlet so that the wire extends a minimum of 1 ft beyond each side of the inlet structure. If more than one strip is necessary, overlap the strips. Place woven geotextile over the wire mesh.

  2. Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so that the open ends face outward, not upward. The ends of adjacent blocks should abut. The height of the barrier can be varied, depending on design needs, by stacking combinations of blocks that are 4 in., 8 in., and 12 in. wide. The row of blocks should be at least 12 in. but no greater than 24 in. high.

  3. Place wire mesh over the outside vertical face (open end) of the concrete blocks to prevent stone from being washed through the blocks. Use hardware cloth or comparable wire mesh with 0.5 in. opening.

  4. Pile washed stone against the wire mesh to the top of the blocks. Use 0.75 to 3 in.

- ***DI Protection Type 5 – Temporary Geotextile Insert (proprietary) –*** Many types of temporary inserts are available. Most inserts fit underneath the grate of a drop inlet or inside of a curb inlet and are fastened to the outside of the grate or curb. These inserts are removable and many can be cleaned and reused. Installation of these inserts differs between manufacturers. Please refer to manufacturer instruction for installation of proprietary devices.

- ***DI Protection Type 6 - Biofilter bags*** – Biofilter bags may be used as a substitute for gravel bags in low-flow situations. Biofilter bags should conform to specifications detailed in SE-14, Biofilter bags.

    1. Construct in a gently sloping area.
    2. Biofilter bags should be placed around inlets to intercept runoff flows.
    3. All bag joints should overlap by 6 in.
    4. Leave room upstream for water to pond and for sediment to settle out.
    5. Stake bags to the ground as described in the following detail. Stakes may be omitted if bags are placed on a paved surface.

- ***DI Protection Type 7 – Compost Socks*** – A compost sock can be assembled on site by filling a mesh sock (e.g., with a pneumatic blower). Compost socks do not require special trenching compared to other sediment control methods (e.g., silt fence). Compost socks should conform to specification detailed in SE-13, Compost Socks and Berms.

Costs

- Average annual cost for installation and maintenance of DI Type 1-4 and 6 (one year useful life) is $200 per inlet.
- Temporary geotextile inserts are proprietary and cost varies by region. These inserts can often be reused and may have greater than 1 year of use if maintained and kept undamaged. Average cost per insert ranges from $50-75 plus installation, but costs can exceed $100. This cost does not include maintenance.
- See SE-13 for Compost Sock cost information.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Silt Fences. If the fabric becomes clogged, torn, or degrades, it should be replaced. Make sure the stakes are securely driven in the ground and are in good shape (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes. At a minimum, remove the sediment behind the fabric fence when accumulation reaches one-third the height of the fence or barrier height.
- Gravel Filters. If the gravel becomes clogged with sediment, it should be carefully removed from the inlet and either cleaned or replaced. Since cleaning gravel at a construction site may be difficult, consider using the sediment-laden stone as fill material and put fresh stone around the inlet. Inspect bags for holes, gashes, and snags, and replace bags as needed. Check gravel bags for proper arrangement and displacement.

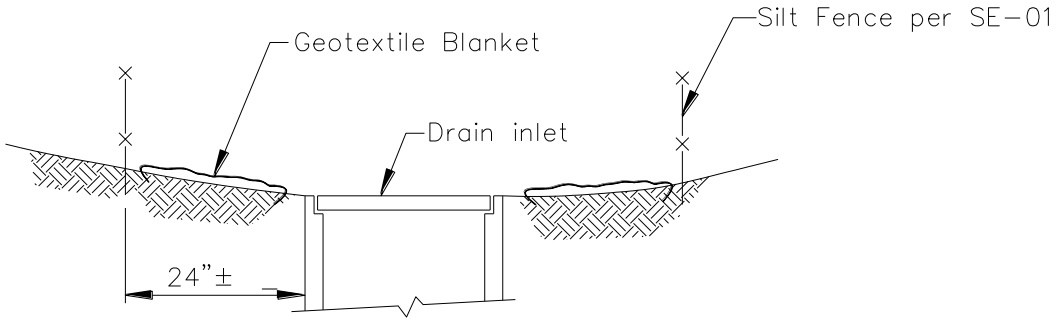
- Sediment that accumulates in the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Inspect and maintain temporary geotextile insert devices according to manufacturer's specifications.
- Remove storm drain inlet protection once the drainage area is stabilized.
    - Clean and regrade area around the inlet and clean the inside of the storm drain inlet, as it should be free of sediment and debris at the time of final inspection.

References

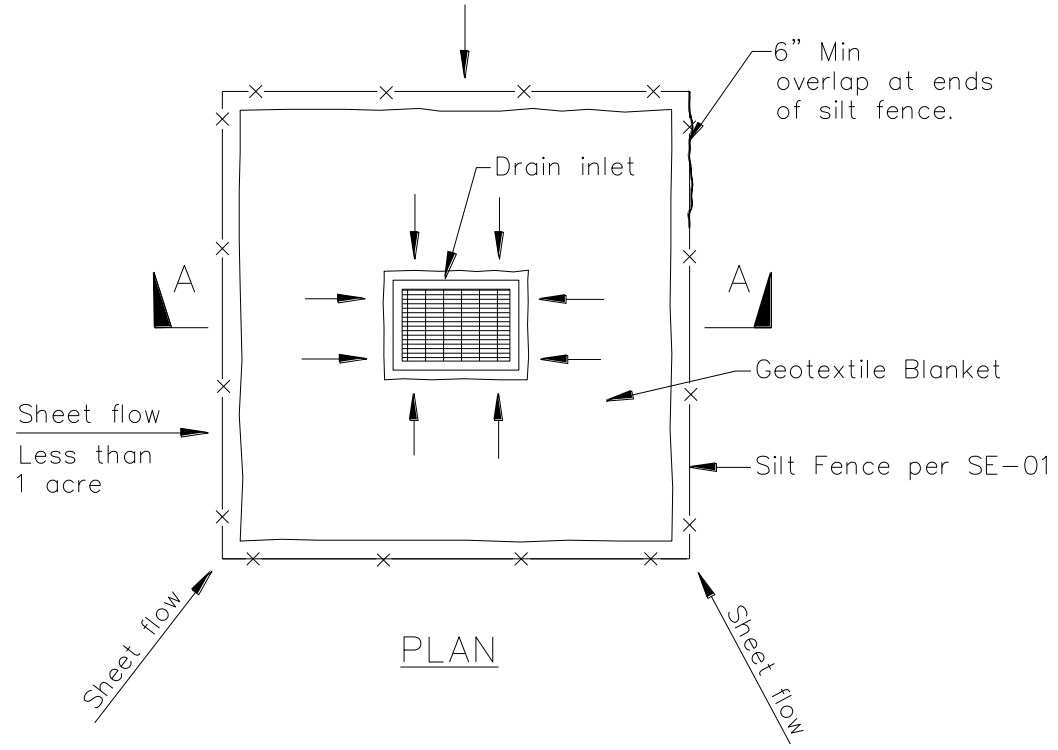
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management Manual for The Puget Sound Basin, Washington State Department of Ecology, Public Review Draft, 1991.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.



SECTION A–A

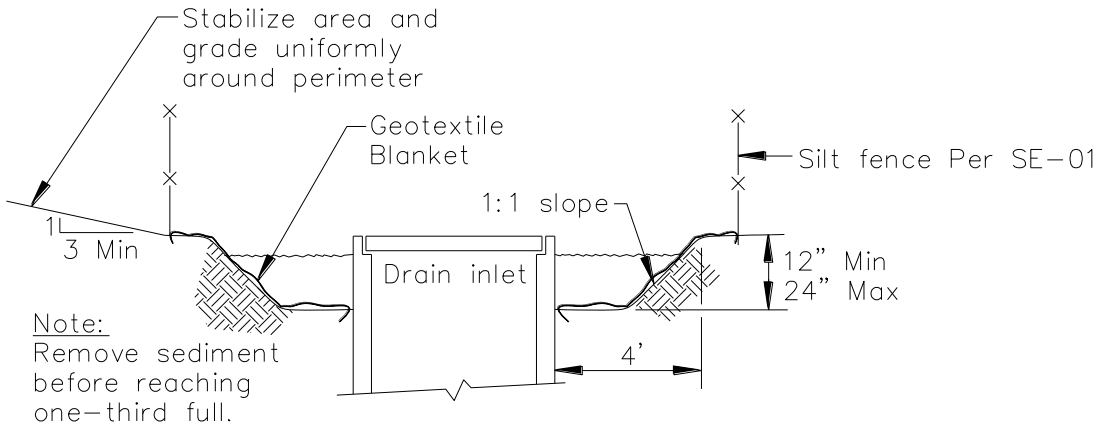


PLAN

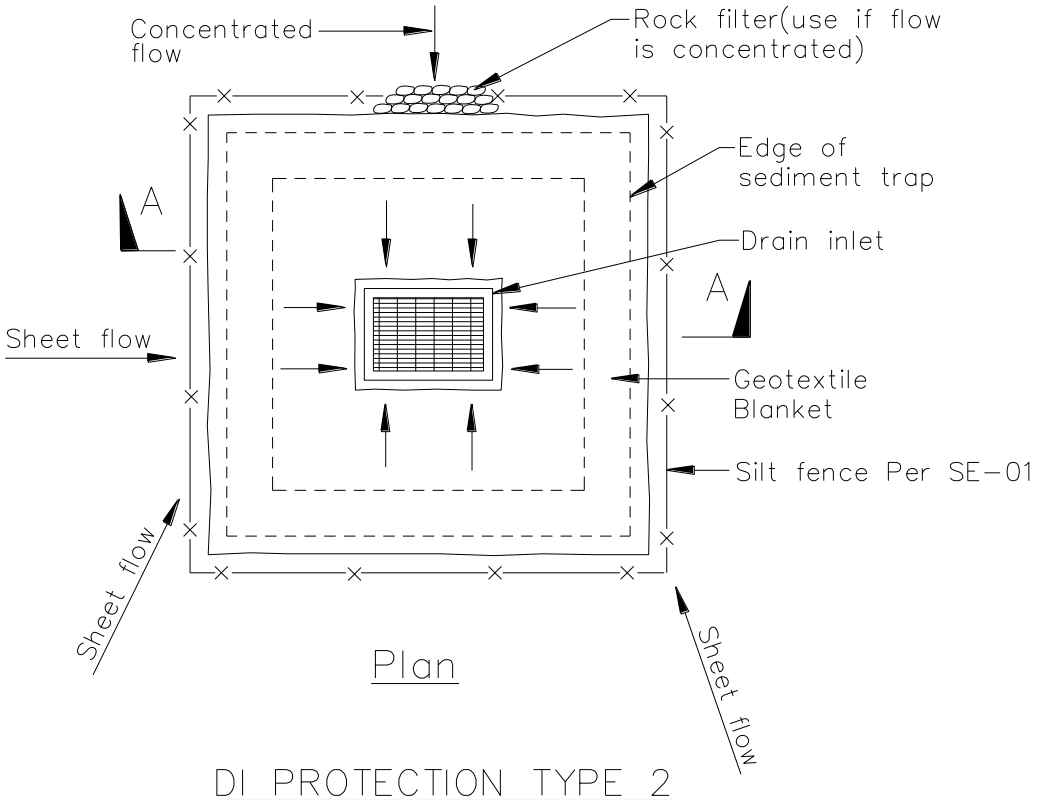
DI PROTECTION TYPE 1
NOT TO SCALE

NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.



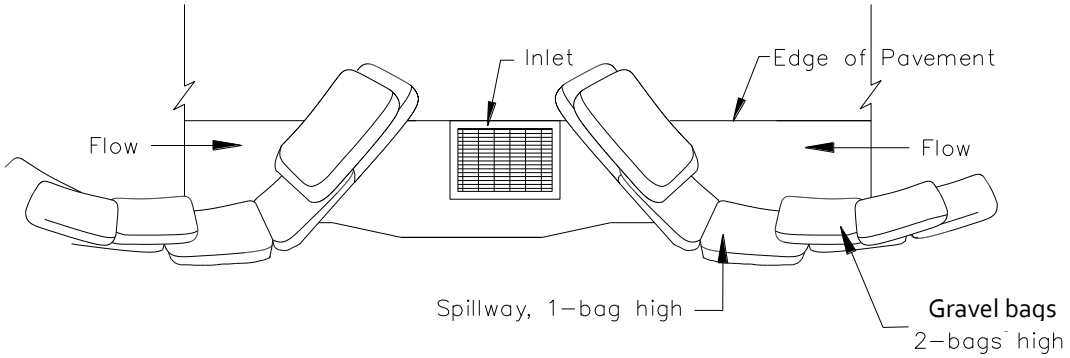
Section A–A



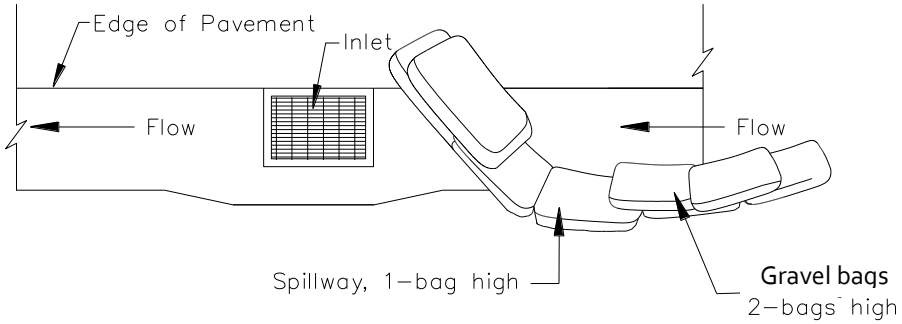
Plan

DI PROTECTION TYPE 2
NOT TO SCALE

Notes
1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.



TYPICAL PROTECTION FOR INLET ON SUMP

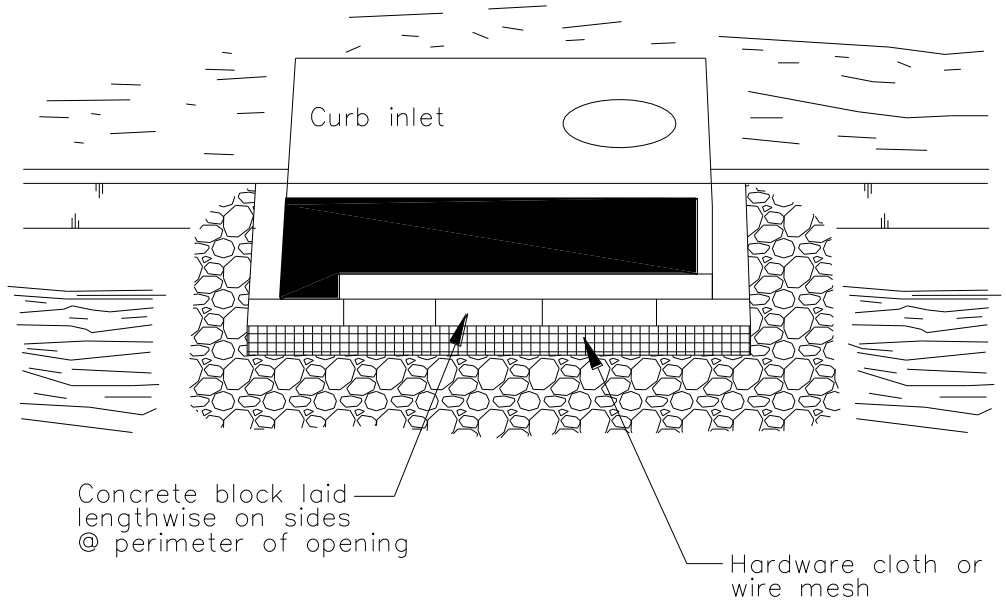


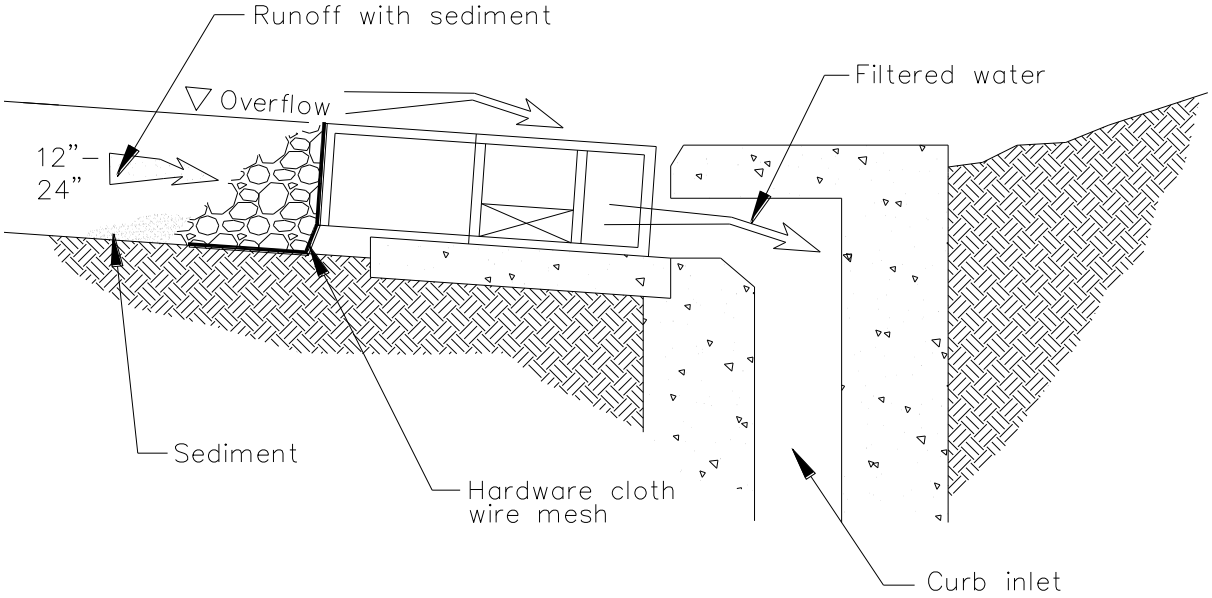
TYPICAL PROTECTION FOR INLET ON GRADE

NOTES:

1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.
6. Protection can be effective even if it is not immediately adjacent to the inlet provided that the inlet is protected from potential sources of pollution.

DI PROTECTION TYPE 3
NOT TO SCALE

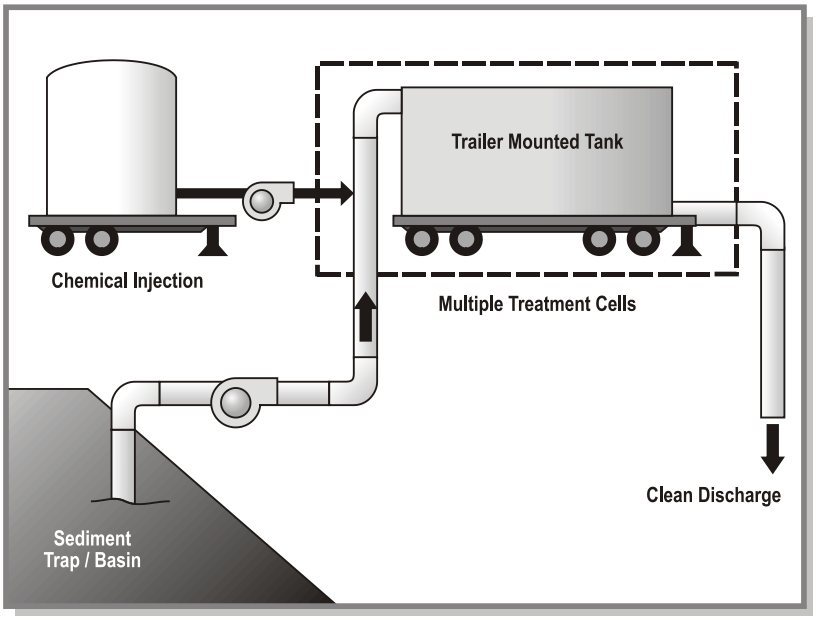




DI PROTECTION – TYPE 4

NOT TO SCALE

Active Treatment Systems SE-11



Categories

EC	Erosion Control	☑
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

Active Treatment Systems (ATS) reduce turbidity of construction site runoff by introducing chemicals to stormwater through direct dosing or an electrical current to enhance flocculation, coagulation, and settling of the suspended sediment. Coagulants and flocculants are used to enhance settling and removal of suspended sediments and generally include inorganic salts and polymers (USACE, 2001). The increased flocculation aids in sedimentation and ability to remove fine suspended sediments, thus reducing stormwater runoff turbidity and improving water quality.

Suitable Applications

ATS can reliably provide exceptional reductions of turbidity and associated pollutants and should be considered where turbid discharges to sediment and turbidity sensitive waters cannot be avoided using traditional BMPs. Additionally, it may be appropriate to use an ATS when site constraints inhibit the ability to construct a correctly sized sediment basin, when clay and/or highly erosive soils are present, or when the site has very steep or long slope lengths.

Limitations

Dischargers choosing to utilize chemical treatment in an ATS must follow all guidelines of the Construction General Permit Attachment F – Active Treatment System Requirements. General limitations are as follows:

- Numeric Effluent Limit (NEL) for all discharges (10 NTU daily flow-weighted average)
- Limited availability of chemical residual testing procedures that meet permit requirements for flow-through treatment
- Specific field and classroom ATS training required to operate equipment
- Batch treatment requires extensive toxicity testing of effluent
- Batch treatment requires large footprint to accommodate treatment cells
- Requires additional filtration to remove residual floc and treatment chemicals prior to discharge
- Petroleum based polymers should not be used
- Requires site-specific design and equipment
- Limited discharge rates depending on receiving water body
- Labor intensive operation and maintenance
- ATS costs are higher on a unit basis for smaller sites that would be expected to have a lower volume of treated runoff
- ATS costs are seasonably variable due to increases or decreases in rainfall volumes

Implementation

Turbidity is difficult to control once fine particles are suspended in stormwater runoff from a construction site. Sedimentation ponds are effective at removing larger particulate matter by gravity settling, but are ineffective at removing smaller particulates such as clay and fine silt. Sediment ponds are typically designed to remove sediment no smaller than medium silt (0.02 mm). ATS may be used to reduce the turbidity of stormwater runoff. With an ATS, very high turbidities can be reduced to levels comparable to what is found in streams during dry weather.

Criteria for ATS Product Use

Chemically treated stormwater discharged from construction sites must be non-toxic to aquatic organisms. The following protocol should be used to evaluate chemicals proposed for stormwater treatment at construction sites. Authorization to use a chemical in the field based on this protocol does not relieve the applicant from responsibility for meeting all discharge and receiving water criteria applicable to a site.

- An ATS Plan, which includes an Operation and Maintenance component, a Monitoring, Sampling and Reporting component, a Health and Safety component, and a Spill Prevention component must be prepared and submitted to the Regional Water Quality Control Board (RWQCB).

- Treatment chemicals should be approved by EPA for potable water use or otherwise be demonstrated to be protective of human health and the environment. Chemical residual or whole effluent toxicity testing is required.

- Prior to field use of chemical treatment, jar tests are to be conducted to demonstrate that turbidity reduction necessary to meet the NELs and receiving water criteria can be achieved. Test conditions, including but not limited to raw water quality and jar test procedures, should be indicative of field conditions. Although these small-scale tests cannot be expected to reproduce performance under field conditions, they are indicative of treatment capability. A minimum of six site-specific jar tests must be conducted per chemical.

- The proposed maximum dosage should be at least a factor of five lower than the no observed effects concentration (NOEC).

- Effluent discharge from an ATS to a receiving water is conditional upon the favorable results of full-scale whole effluent bioassay/toxicity testing for batch treatment systems and upon chemical residuals testing for flow-through systems.

- Contact the RWQCB for a list of treatment chemicals that may be pre-approved for use.

Active Treatment System Design Considerations

The design and operation of an ATS should take into consideration the factors that determine optimum, cost-effective performance. While site characteristics will influence system design, it is important to recognize the following overriding considerations:

- The right chemical must be used at the right dosage. A dosage that is either too low or too high will not produce the lowest turbidity. There is an optimum dosage rate. This is a situation where the adage "adding more is always better" is not the case.

- The coagulant must be mixed rapidly into the water to insure proper dispersion.

- The mixing system for batch treatment must be sized to provide adequate mixing for the design storage volume. Lack of adequate mixing during the flocculation phase results in flocs that are too small and/or insufficiently dense. Too much mixing can rapidly destroy floc as it is formed.

- Care must be taken in the design of the withdrawal system to minimize outflow velocities and to prevent floc discharge. The discharge should be directed through a filtration system such as sand, bag, or cartridge filter that would catch any unintended floc discharge.

- ATS is also regulated for pH of the discharge. A pH-adjusting chemical should be added into the treated water to control pH if the selected coagulant requires alteration of the pH of the discharge outside of the acceptable range.

Active Treatment System Design

ATS can be designed as batch treatment systems using either ponds or portable trailer-mounted tanks, or as flow-through systems using any number of proprietary designed systems.

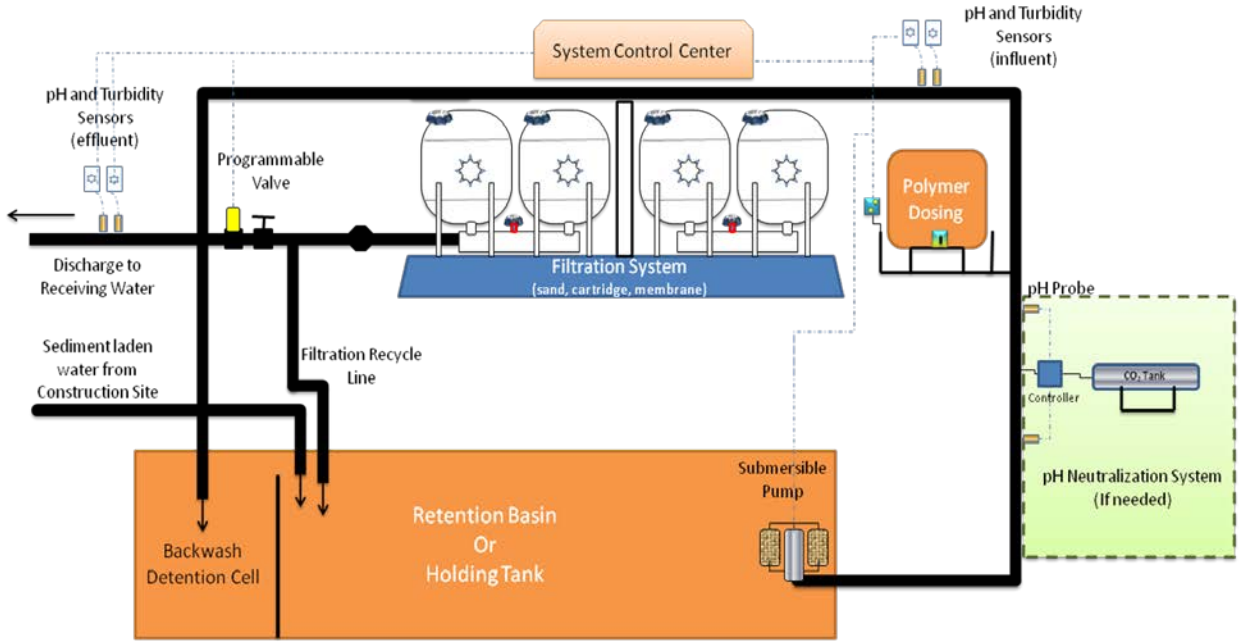


Figure has been adapted from Port of Seattle response to Washington Dept. of Ecology Action Order 2948

Batch Treatment

Batch Treatment systems consist of the stormwater collection system (either temporary diversion or the permanent site drainage system); a sediment basin, trap or holding tanks; pumps; a chemical feed system; treatment cells; and, interconnecting piping.

Batch treatment systems should use a minimum of two lined treatment cells. Multiple treatment cells allow for clarification of treated water while other cells are being filled or emptied. Treatment cells may be basins, traps, or tanks. Portable tanks may also be suitable for some sites.

The following equipment should be located in a secured, covered location:

- The chemical injector
- Secondary contaminant for acid, caustic, buffering compound, and treatment chemical
- Emergency shower and eyewash
- Monitoring equipment which consists of a pH meter and a turbidimeter (if not already within the instrumentation panel of the chemical injector)

Flow-through Treatment

At a minimum, a flow-through ATS system consists of the stormwater collection system (either temporary diversion or the permanent site drainage system), an untreated stormwater storage pond or holding tank, and a chemically enhanced filtration system.

Stormwater is collected at interception point(s) on the site and is diverted by gravity or by pumping to an untreated stormwater storage pond or other untreated stormwater holding area.

The stormwater is stored until treatment occurs. It is important that the holding pond be large enough to provide adequate storage.

Stormwater is then pumped from the untreated stormwater storage pond to the chemically enhanced filtration system where polymer is added. Adjustments to pH may be necessary before chemical addition. The filtration system continually monitors the stormwater for turbidity and pH. If the discharge water is out of the acceptable turbidity or pH range, the water is recycled to the untreated stormwater pond (or holding tank) where it can be retreated. Flow through systems must ensure that:

- Cumulative flow volume shall be recorded daily. The data recording system shall have the capacity to record a minimum of seven days of continuous data.
- Instrumentation systems are interfaced with system control to provide auto shutoff or recirculation in the event that effluent measurements exceed turbidity or pH.
- Upon system upset, power failure, or other catastrophic event, the ATS will default to a recirculation mode or safe shut down.
- The instrumentation system provides a method for controlling coagulant dose, to prevent potential overdosing.

Sizing Criteria

An ATS shall be designed and approved by a Certified Professional in Erosion and Sediment Control (CPESC), a Certified Professional in Storm Water Quality (CPSWQ); a California registered civil engineer; or any other California registered engineer.

ATS must be designed to capture and treat (within 72 hours) runoff from the 10-year 24-hour storm event. The runoff volume of the watershed area to be treated from this size storm event is required to be calculated using the Rational Method with a runoff coefficient of 1.

If sediment basins are used to capture flow-through or batch treatment, see SE-2, Sediment Basin, for design criteria. Bypass should be provided around the ATS to accommodate extreme storm events. Primary settling should be encouraged in the sediment basin/storage pond. A forebay with access for maintenance may be beneficial.

The permissible discharge rate governed by potential downstream effect should be used to calculate the recommended size of the treatment cells. Local requirements related to Phase I or Phase II NPDES permit thresholds should be considered in developing maximum discharge rates the ATS Plan.

Costs

Costs for ATS may be significant due to equipment rental requirements and cost of chemicals. ATS cost is lower on a treated unit-basis for large construction sites with large volumes of runoff.

Inspection and Maintenance

ATS must be operated and maintained by individuals with experience in their use and trained in accordance with training requirements below. ATS should be monitored continuously while in

use. A designated responsible person shall be on site daily at all times during treatment operations. Daily on-site visual monitoring of the system for proper performance shall be conducted and recorded in the project data log. The name, phone number, and training documentation of the person responsible for system operation and monitoring shall be included in the project data log.

The following monitoring requirements and results should be recorded in the data log:

Operational and Compliance Monitoring

- Effluent flow rate and volume shall be continuously monitored and recorded at 15- minute or less intervals.
- Influent and effluent pH must be continuously monitored and recorded at 15-minute or less intervals.
- Influent and effluent turbidity (expressed in NTU) must be continuously monitored and recorded at 15-minute or less intervals.
- The type and amount of chemical used for pH adjustment, if any, shall be monitored and recorded.
- Dose rate of chemical used in the ATS system (expressed in mg/L) shall be monitored and reported 15-minutes after startup and every 8 hours of operation.
- Laboratory duplicates – monthly laboratory duplicates for residual coagulant analysis must be performed and records shall be maintained onsite.
- Effluent shall be monitored and recorded for residual chemical/additive levels.
- If a residual chemical/additive test does not exist and the ATS is operating in a batch treatment mode of operation refer to the toxicity monitoring requirements below.

Toxicity Monitoring

Batch Treatment

Toxicity testing for systems operated in batch treatment mode should be made in accordance with the following:

- Acute toxicity testing on effluent samples representing effluent from each batch prior to discharge shall be undertaken. All bioassays shall be sent to a laboratory certified by the Department of Health Services (DHS) Environmental Laboratory Accreditation Program (ELAP). The required field of testing number for Whole Effluent Toxicity (WET) testing is E113.
- Acute toxicity tests shall be conducted with the following species and protocols. The methods to be used in the acute toxicity testing shall be those outlined for a 96-hour acute test in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, USEPA-841-R-02-012" for Fathead minnow, *Pimephales promelas*. Rainbow trout, *Oncorhynchus mykiss*, may be used as a substitute for fathead minnow.

All toxicity tests shall meet quality assurance criteria and test acceptability criteria in the most recent versions of the EPA test method for WET testing.

Flow-through Treatment

Toxicity testing for systems operated in flow-through treatment mode should be made in accordance with the following:

- A residual chemical test method shall be used that has a method detection limit (MDL) of 10% or less than the maximum allowable threshold concentration (MATC) for the specific coagulant in use and for the most sensitive species of the chemical used. The MATC is equal to the geometric mean of the No Observed Effect Concentration (NOEC) and Lowest Observed Effect Concentration (LOEC) Acute and Chronic toxicity results for most sensitive species determined for the specific coagulant.
- The residual chemical test method shall produce a result within one hour of sampling.
- A California State certified laboratory shall validate the selected residual chemical test. Specifically the lab will review the test protocol, test parameters, and the detection limit of the coagulant. The discharger shall electronically submit this documentation as part of the ATS Plan.

Numeric Effluent Limit (NEL) Compliance:

All chemically treated stormwater must be sampled and tested for compliance with pH and turbidity limits. These limits have been established by the Construction General Permit. Sampling and testing for other pollutants may also be necessary at some sites. Turbidity limits have been set as 10 NTU as a daily flow-weighted average or 20 NTU from a single sample. pH must be within the range of 6.0 to 9.0 standard units. It is often possible to discharge treated stormwater that has a lower turbidity than the receiving water and that matches the pH.

Treated stormwater samples and measurements should be taken from the discharge pipe or another location representative of the nature of the treated stormwater discharge. Samples used for determining compliance with the water quality standards in the receiving water should not be taken from the treatment pond prior to decanting. Compliance with the water quality standards is determined in the receiving water.

Operator Training:

Operators shall have training specific to using an ATS and liquid coagulants for stormwater discharges in California. The training shall be in the form of a formal class with a certificate and requirements for testing and certificate renewal. Training shall include a minimum of eight hours classroom and 32 hours field training.

Standard BMPs:

Erosion and sediment control BMPs should be implemented throughout the site to prevent erosion and discharge of sediment to the ATS. Some types of chemical coagulation and flocculation are only achievable in water below a certain turbidity; therefore minimizing the amount of sediment reaching the system will increase the likelihood of meeting effluent limits and will potentially lower costs of chemical dosing.

Sediment Removal and Disposal

- Sediment shall be removed from the storage or treatment cells as necessary to ensure that the cells maintain their required water storage (i.e., volume) capability.
- Handling and disposal of all solids generated during ATS operations shall be done in accordance with all local, state, and federal laws and regulations.
- If sediment is determined to be non-toxic, it may be incorporated into the site away from drainages.

References

Engineering and Design – Precipitation/Coagulation/Flocculation. United States Army Corps of Engineers, EM 1110-1-4012, 2001.

Evaluation of Active Treatment Systems (ATS) for Construction Site Runoff. California Building and Industry Association (prepared by Geosyntec Consultants), 2008.

Stormwater Management Manual for Western Washington, Volume II – Construction Stormwater Pollution Prevention, Washington State Department of Ecology, August 2001.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Manufactured Linear Sediment Controls (MLSC) SE-12






Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☒
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Roll

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

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Description and Purpose

Manufactured linear sediment controls (MLSC) are pre-manufactured devices that are typically specified and installed for drainage and sediment control on the perimeter of disturbed sites or stockpiles and as check dams within channels. Typically, MLSCs can be reused.

This fact sheet is intended to provide guidance on BMP selection and implementation of proprietary or vendor-supplied products, for sediment control. Products should be evaluated for project-specific implementation and used if determined to be appropriate by the SWPPP Preparer.

Suitable Applications

MLSCs are generally used in areas as a substitute for fiber rolls and silt fences in sediment control applications to slow down runoff water, divert drainage or contain fines and sediment. MLSCs are a linear control and application suitability varies based on the specific product type. They may be suitable:

- On paved surfaces for perimeter protection.
- As check structures in channels.
- Along the perimeter of disturbed sites in lieu of silt fence.

- At operational storm drains as a form of inlet protection.
- Around temporary stockpiles or material/equipment storage areas.
- At the interface between graveled driveways and pavement.
- Along the toe of exposed and erodible slopes.

Limitations

- Limitations vary by product. Product manufacturer's printed product use instructions should be reviewed by the SWPPP Preparer to determine the project-specific applicability of MLSCs.

Implementation

General

When appropriately placed, MLSCs intercept and slow sheet flow runoff, causing temporary ponding. The temporary ponding provides quiescent conditions allowing sediment to settle. The device is porous, which allows the ponded runoff to flow slowly through the device, releasing the runoff as sheet flows. Generally, MLSCs should be used in conjunction with temporary soil stabilization controls up-slope to provide an effective combination of erosion and sediment control.

Design and Layout

- MLSCs used on soil should be trenched or attached to the ground per manufacturer specifications in a manner that precludes runoff or ponded water from flowing around or under the device.
- MLSCs designed for use on asphalt or concrete may be attached using a variety of methods, including nailing the device to the pavement, or using a high strength adhesive.
- Follow manufacturer written specifications when installing MLSCs.
- Allow sufficient space up-slope from the silt dike to allow ponding, and to provide room for sediment storage.
- For installation near the toe of the slope, MLSCs should be set back 3 feet from the slope toe to facilitate cleaning. Where site conditions do not allow set back, the sediment control may be constructed on the toe of the slope. To prevent flows behind the barrier, sand or gravel bags can be placed perpendicular and between the sediment control and slope to serve as a barrier to parallel flow.
- Drainage area should not exceed 5 acres.

Materials

- Several manufactured products are available. The following search terms or combination of terms can be used with an internet search engine to find manufactured linear sediment controls:

- "silt barrier"
- "reusable silt fence"
- "silt fence alternative" or
- "perimeter sediment control"

Costs

Manufacturers should be contacted directly for current pricing.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Reshape or replace sections of damaged MLSCs as needed.
- Repair washouts or other damage as needed.
- Sediment that accumulates behind the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Remove MLSCs when no longer needed. Remove sediment accumulation and clean, re-grade, and stabilize the area. Removed sediment should be incorporated in the project or disposed of properly.

References

City of Elko Construction Site Best Management Practices Handbook, December 2005.

Construction Site Best Management Practices Handbook, June 2008 Update, Truckee Meadows Regional Stormwater Quality Management Program, June 2008.

Complying with the Edwards Aquifer Rules Technical Guidance on Best Management Practices, Texas Commission on Environmental Quality, Revised July 2005, Addendum Sheet, January26, 2011.

Stormwater Management Manual for Western Washington Volume II, Construction Stormwater Pollution Prevention, Washington State Department of Ecology, February 2005.

Compost Socks and Berms SE-13



Description and Purpose

Compost socks and berms act as three-dimensional biodegradable filtering structures to intercept runoff where sheet flow occurs and are generally placed at the site perimeter or at intervals on sloped areas. Compost socks are generally a mesh sock containing compost and a compost berm is a dike of compost, trapezoidal in cross section. When employed to intercept sheet flow, both BMPs are placed perpendicular to the flow of runoff, allowing filtered runoff to pass through the compost and retaining sediment (and potentially other pollutants). A compost sock can be assembled on site by filling a mesh sock (e.g. with a pneumatic blower). The compost berm should be constructed using a backhoe or equivalent and/or a pneumatic delivery (blower) system and should be properly compacted. Compost socks and berms act as filters, reduce runoff velocities, and in some cases, aid in establishing vegetation.

Compost is organic, biodegradable, and renewable. Compost provides soil structure that allows water to infiltrate the compost medium which helps prevent rill erosion and the retained moisture promotes seed germination and vegetation growth, in addition to providing organic matter and nutrients important for fostering vegetation. Compost improves soil quality and productivity, as well as erosion and sediment control.

Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☒
Bacteria	☒
Oil and Grease	☒
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Roll

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-14 Biofilter Bags

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The compost of the compost sock or berm can be selected that targets site specific objectives in capturing sediment and other pollutants, supporting vegetation, or additional erosion control.

Compost is typically derived from combinations of feedstocks, biosolids, leaf and yard trimmings, manure, wood, or mixed solid waste. Many types of compost are products of municipal recycle or "Greenwaste" programs. Compost is organic and biodegradable and can be left onsite. There are many types of compost with a variety of properties with specific functions, and accordingly compost selection is an important design consideration in the application of this type of erosion and sediment control.

Suitable Applications

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow (compost berms should only be used at the top of slopes or on slopes 4:1 (H:V) or flatter, all other slope applications should use compost socks)
- Along the perimeter of a project
- As check dams in unlined ditches (compost socks only)
- Down-slope of exposed soil areas
- At operational storm drains as a form of inlet protection (compost socks only)
- Around temporary stockpiles

Compost socks and berms do not require special trenching or BMP removal compared to other sediment control methods (e.g. silt fence or fiber rolls). Compost socks and berms can remain in place after earth disturbing activities are completed or the compost components can be spread over the site providing nutrients for plant growth and augmenting soil structure. BMPs that remain in place are particularly advantageous below embankments, especially adjacent streams, by limiting re-entry and the disturbance to sensitive areas.

Compost can be pre-seeded prior to application (recommended by the EPA for construction site stormwater runoff control and required for compost socks) or seeded after installation (for compost berms only). The compost medium can also remove pollutants in stormwater including heavy metals; oil and grease; and hydrocarbons.

Limitations

- Compost can potentially leach nutrients (dissolved phosphorus and nitrogen) into runoff and potentially impact water quality. Compost should not be used directly upstream from nutrient impaired waterbodies (Adams et. al, 2008).
- Compost may also contain other undesirable constituents that are detrimental to water quality. Compost should be obtained from a supplier certified by the California Integrated Waste Management Board or compost should otherwise meet the environmental health standards of Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7. Carefully consider the qualifications and experience of any compost producer/supplier.

- Application by hand is more time intensive and potentially costly. Using a pneumatic blower truck is the recommended cost effective method of assembly.
- Compost socks and berms should not be employed at the base of slopes greater than 2:1 (H:V). They can be employed with other erosion control methods for steeper slopes.
- Difficult to move once saturated.
- Compost berms should not be applied in areas of concentrated flows.
- Compost socks and berms are easy to fix; however, they are susceptible to damage by frequent traffic. Compost socks can be used around heavy machinery, but regular disturbance decreases sock performance.

Implementation

Compost Materials

- California Compost Regulations (Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7, Section 17868.3) define and require a quality of compost for application. Compost should comply with all physical and chemical requirements. Specific requirements are provided in **Table 1**, taken from Caltrans Standard Special Provision 10-1 (SSP 10-1), Erosion Control (Compost Blanket).
- The compost producer should be fully permitted as specified under the California Integrated Waste Management Board, Local Enforcement Agencies and any other State and Local Agencies that regulate Solid Waste Facilities. If exempt from State permitting requirements, the composting facility should certify that it follows guidelines and procedures for production of compost meeting the environmental health standards of Title 14, California Code of Regulations, Division 7, Chapter 3.1, Article 7.
- The compost producer should be a participant in United States Composting Council's Seal of Testing Assurance program.
- Compost medium parameter specifications for compost socks and berms have been developed to assist in compost selection, such as those provided by the American Association of State Highway Transportation Officials (AASHTO).
- Particle size is important parameter for selecting compost. Well consolidated coarser grades of compost (e.g. small and large pieces) perform better for filtration objectives, while finer grades better support vegetation. Particle size of the compost should be selected based on site conditions, such as expected precipitation, and filtration goals and / or long term plant nutrients.
- Compost moisture should be considered for composition quality and application purposes. A range of 30-50% is typical. Compost that is too dry is hard to apply and compost that is too wet is more difficult (and more expensive) to transport. For arid or semi-arid areas, or for application during the dry season, use compost with greater moisture content than areas with wetter climates. For wetter or more humid climates or for application during the wet season, drier composts can be used as the compost will absorb moisture from the ambient air.

- If vegetation establishment is a desired function of the compost, a compost sample should be inspected by a qualified individual. Vegetation has different nutrient and moisture needs.
- Organic content of the compost is also important and should range from 30 to 65% depending on site conditions.
- Compost should not be derived from mixed municipal solid waste and should be reasonably free of visible contaminates.
- Compost should not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Metal concentrations in compost should not exceed the maximum metal concentrations listed under Title 14, California Code of Regulations, Division 7, Chapter 3.1, Section 17868.2.
- Compost should not possess objectionable odors.
- Compost should be weed free.

Table 1. Physical/Chemical Requirements of Compost
Reference - Caltrans SSP-10 Erosion Control Blanket (Compost)

Property	Test Method	Requirement
pH	*TMECC 04.11-A Elastometric pH 1:5 Slurry Method pH Units	6.0–8.0
Soluble Salts	TMECC 04.10-A Electrical Conductivity 1:5 Slurry Method dS/m (mmhos/cm)	0-10.0
Moisture Content	TMECC 03.09-A Total Solids & Moisture at 70+/- 5 deg C % Wet Weight Basis	30-60
Organic Matter Content	TMECC 05.07-A Loss-On-Ignition Organic Matter Method (LOI) % Dry Weight Basis	30–65
Maturity	TMECC 05.05-A Germination and Vigor Seed Emergence Seedling Vigor % Relative to Positive Control	 80 or Above 80 or Above
Stability	TMECC 05.08-B Carbon Dioxide Evolution Rate mg CO_2-C/g OM per day	8 or below
Particle Size	TMECC 02.02-B Sample Sieving for Aggregate Size Classification % Dry Weight Basis	100% Passing, 3 inch 90-100% Passing, 1 inch 65-100% Passing, 3/4 inch 0 - 75% Passing, 1/4 inch Maximum length 6 inches
Pathogen	TMECC 07.01-B Fecal Coliform Bacteria < 1000 MPN/gram dry wt.	Pass
Pathogen	TMECC 07.01-B Salmonella < 3 MPN/4 grams dry wt.	Pass
Physical Contaminants	TMECC 02.02-C Man Made Inert Removal and Classification: Plastic, Glass and Metal % > 4mm fraction	Combined Total: < 1.0
Physical Contaminants	TMECC 02.02-C Man Made Inert Removal and Classification: Sharps (Sewing needles, straight pins and hypodermic needles) % > 4mm fraction	None Detected

*TMECC refers to "Test Methods for the Examination of Composting and Compost," published by the United States Department of Agriculture and the United States Compost Council (USCC).

Installation

- Prior to application, prepare locations for socks and berms by removing brush and thick vegetation. The compost of the sock and/or berm should be allowed to come in full contact with the ground surface.

- Select method to apply the compost sock or berm. A pneumatic blower is most cost effective and most adaptive in applying compost to steep, rough terrain, and hard to reach locations.

- The compost of the berm should be distributed evenly to the surface, compacted, and shaped trapezoidal in cross section. Berm design is generally consists of a base two times the height. AASHTO specification MP 9-03 provides compost berm dimensions based on anticipated

site precipitation (AASHTO, 2003 and USEPA, 2009). State agencies, such as Oregon Department of Environmental Quality (ODEQ) have developed berm dimension based on slope steepness and length (ODEQ, 2004).

- Compost socks can be assembled on site by filling mesh socks with the selected compost. Mesh socks can be tied at one end, filled, and then tied at the other end. The ends of socks can be interlocked until the desired length is achieved. The sock diameter is a function of slope steepness and length. Again, ASSHTO provides specifications for various parameters. Compost socks range from 8" to 18", but are typically 12" to 18" in diameter.

- Compost socks are typically placed in contours perpendicular to sheet flow. They can also be placed in V formation on a slope. Compost socks need to be anchored, typically stakes, through the center of the sock. To prevent water flowing around them, the ends of compost socks should be placed upslope.

- Locate compost socks and berms on level contours spaced as follows:

  - Slope inclination of 4:1 (H:V) or flatter: Socks and/or berms should be placed at a maximum interval of 20 ft.

  - Slope inclination between 4:1 and 2:1 (H:V): Socks should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).

  - Slope inclination 2:1 (H:V) or greater: Socks should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).

- Place perimeter socks and berms using a j-hook installation. Use of vegetation will also provide additional anchoring.

- Compost socks and berms can be placed around the perimeter of an affected area, like a silt fence, if the area is flat or on a contour. Do not place these socks and berms where ponded water could become an issue.

- If used at the toe of slopes, the compost sock or berm should at a minimum of 5 to 10 feet away.

- Use additional anchoring and erosion control BMPs in conjunction of the compost socks and berms as needed.

- Consider using compost berms or socks as necessary at the top and/or bottom of the slope for additional erosion control performance.

- Compost socks and berms can also be effective over rocky and frozen ground if installed properly.

- It is recommended that the drainage areas of these compost BMPs do not exceed 0.25 acre per 100 feet placement interval and runoff does not exceed 1 cubic foot per second.

Costs

Recently obtained vendor costs indicated $3.50 per linear foot for compost berm application and $2.00 per linear foot for 8" socks and $2.50 per linear foot for 12"socks. Costs do not include final compost sock or berm functions at the end of construction activities, including spreading or removal, if required. ODEQ estimates that compost berms cost 30 percent less than silt fences to install.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Once damage is identified, mend or reapply the sock or berm as needed. Washed out areas should be replaced. If the sock or berm height is breached during a storm, an additional sock can be stacked to increase the sock height and similarly the berm dimensions can be increased, as applicable. An additional sock or berm may be installed upslope, as needed. It may be necessary to apply an additional type of stormwater BMP, such as a compost blanket.

- Sediment contained by the sock or berm should be removed prior reaching 1/3 of the exposed height of the BMP. The sediment can be stabilized with the compost sock or berm with vegetation at the end of construction activities.

- Care should be exercised to minimize the damage to protected areas while making repairs, as any area damaged will require reapplication of BMPs.

- Limit traffic to minimize damage to BMPs or impede vegetation establishment.

References

An analysis of Composting as an Environmental Remediation Technology, U.S. Environmental Protection Agency (USEPA), Solid Waste and Emergency Response (5305W), EPA530-R-8-008, 1998.

Characteristics of Compost: Moisture Holding and Water Quality Improvement, Center for Research in Water Resources, Kirchoff, C., Malina, J., and Barrett, M., 2003.

Compost Utilization for Erosion Control, The University of Georgia College of Agricultural and Environmental Sciences, pubs.caes.uga.edu/caespubs/pubcd/B1200.htm, Faucette, B. and Risse, M., 2001.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Standard Special Provision 10-1, Erosion Control (Compost Blanket), State of California Department of Transportation (Caltrans). 2007 Update.

Evaluation of Environmental Benefits and Impacts of Compost and Industry Standard Erosion and Sediment Controls Measures Used in Construction Activities, Dissertation, Institute of Ecology, University of Georgia, Faucette, B., 2004.

National Pollutant Discharge Elimination System (NPDES), Compost Blankets, U.S. Environmental Protection Agency (USEPA). http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=118, 2009.

Standard Specifications for Transportation Materials and Methods of Sampling and Testing, Designation MP-9, Compost for Erosion/Sediment Control (Filter Berms), Provisional, American Association of State Highway Transportation Officials (AASHTO), 2003.

Stormwater Best Management Practices (BMPs) Field Trials of Erosion Control Compost in Reclamation of Rock Quarry Operations, Nonpoint Source Protection Program CWA §319(h), Texas Commission on Environmental Quality, Adams, T., McFarland, A., Hauck, L., Barrett, M., and Eck, B., 2008.

Biofilter Bags SE-14



Description and Purpose

Biofilter bags, or bio-bags, are a multi-purpose sediment control BMP consisting of a plastic mesh bag filled with 100% recycled wood product waste. Biofilter bags come in a variety of sizes (30" x 18" and 30" x 9" being common) and generally have between 1-2 cubic yards of recycled wood waste (or wood chips). Biofilter bags work by detaining flow and allowing a slow rate of discharge through the wood media. This action removes suspended sediment through gravity settling of the detained water and filtration within the bag.

Suitable Applications

Biofilter bags are a short-term BMP that can be rapidly deployed, maintained, and replaced. Biofilter bags can be an effective short-term solution to place in developed rills to prevent further erosion until permanent measures can be established. Suitable short-term applications include:

- As a linear sediment control measure:
  - Below the toe of slopes and erodible slopes
  - Below other small cleared areas
  - Along the perimeter of a site (with low-expected flow)
  - Down slope of exposed soil areas
  - Around temporary stockpiles and spoil areas
  - Parallel to a roadway to keep sediment off paved areas

Categories

EC	Erosion Control	
SE	Sediment Control	☑
TR	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-4 Check Dams

SE-5 Fiber Roll

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-10 Storm Drain Inlet Protection

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- Along streams and channels

- As linear erosion control measure:
  - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
  - At the top of slopes to divert runoff away from disturbed slopes
  - As check dams across mildly sloped construction roads
- Inlet Protection (See SE-10)
- Supplement to silt fences or other sediment control devices

Limitations

- Short life-span (maximum usefulness of 2-3 months and should be replaced more frequently if needed); regular maintenance and replacement required to ensure effectiveness. Bags will rapidly fill with sediment and reduce permeability.
- Easily damaged by construction vehicles.
- If not properly staked, will fail on slope applications.
- If improperly installed can allow undercutting or side-cutting flow.
- Not effective where water velocities or volumes are high.
- Potentially buoyant and easily displaced if not properly installed.

Implementation

General

Biofilter bags are a relatively low cost temporary BMP that are easily deployed and have a simple installation that can be performed by hand. Without proper installation, however, biofilter bags can fail due to their light weight, potential displacement, and multiple joint locations. One of the benefits of utilizing biofilter bags is that the media (wood-product) can be recycled or used onsite when no longer needed (where acceptable).

Design and Layout – Linear control

- Locate biofilter bags on level contours.
  - Slopes between 20:1 and 4:1 (H:V): Biofilter bags should be placed at a maximum interval of 20 ft, with the first row near the slope toe.
  - Slopes between 4:1 and 2:1 (H:V): Biofilter bags should be placed at a maximum interval of 15 ft, with the first row near the slope toe.
  - Slopes 2:1 (H:V) or steeper: Biofilter bags should be placed at a maximum interval of 10 ft., with the first row placed the slope toe.

- Turn the ends of the biofilter bag barriers up slope to prevent runoff from going around the berm.
- Allow sufficient space up slope from the biofilter bag berm to allow ponding, and to provide room for sediment storage.
- Stake biofilter bags into a 1 to 2 in. deep trench with a width equal to the bag.
  - Drive one stake at each end of the bag.
  - Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- Biofilter bags should be overlapped (6 in.), not abutted.

Costs

Pre-filled biofilter bags cost approximately $2.50-$3.50 per bag, dependent upon size.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Biofilter bags exposed to sunlight will need to be replaced every two to three months due to degrading of the bags.
- Reshape or replace biofilter bags as needed.
- Repair washouts or other damage as needed.
- Sediment that is retained by the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Remove biofilter bag berms when no longer needed. Remove sediment accumulation and clean, re-grade, and stabilize the area. Biofilter media may be used on-site, if allowed.

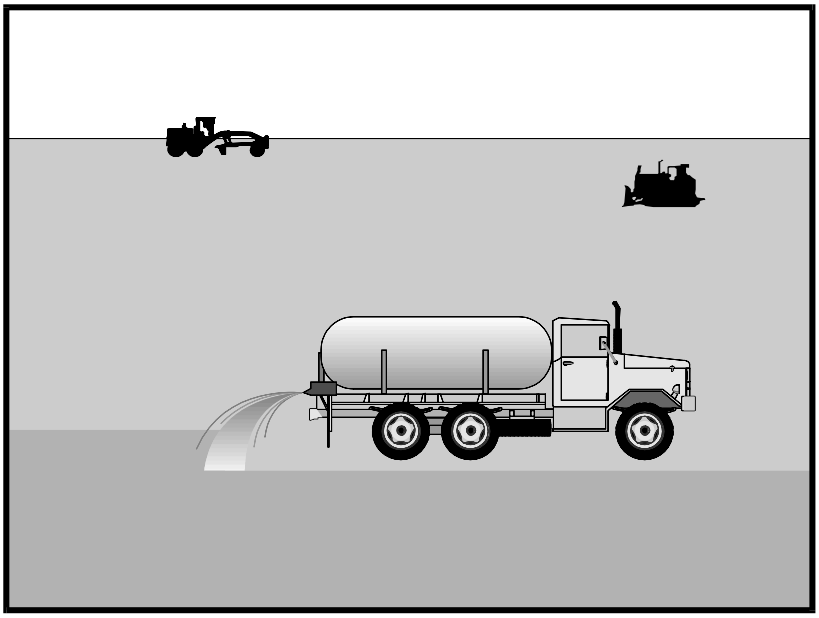
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Wind Erosion Control WE-1



Categories		
EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	☑
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-5 Soil Binders

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Description and Purpose

Wind erosion or dust control consists of applying water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

California's Mediterranean climate, with a short "wet" season and a typically long, hot "dry" season, allows the soils to thoroughly dry out. During the dry season, construction activities are at their peak, and disturbed and exposed areas are increasingly subject to wind erosion, sediment tracking and dust generated by construction equipment. Site conditions and climate can make dust control more of an erosion problem than water based erosion. Additionally, many local agencies, including Air Quality Management Districts, require dust control and/or dust control permits in order to comply with local nuisance laws, opacity laws (visibility impairment) and the requirements of the Clean Air Act. Wind erosion control is required to be implemented at all construction sites greater than 1 acre by the General Permit.

Suitable Applications

Most BMPs that provide protection against water-based erosion will also protect against wind-based erosion and dust control requirements required by other agencies will generally meet wind erosion control requirements for water quality protection. Wind erosion control BMPs are suitable during the following construction activities:

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- Construction vehicle traffic on unpaved roads
- Drilling and blasting activities
- Soils and debris storage piles
- Batch drop from front-end loaders
- Areas with unstabilized soil
- Final grading/site stabilization

Limitations

- Watering prevents dust only for a short period (generally less than a few hours) and should be applied daily (or more often) to be effective.
- Over watering may cause erosion and track-out.
- Oil or oil-treated subgrade should not be used for dust control because the oil may migrate into drainageways and/or seep into the soil.
- Chemical dust suppression agents may have potential environmental impacts. Selected chemical dust control agents should be environmentally benign.
- Effectiveness of controls depends on soil, temperature, humidity, wind velocity and traffic.
- Chemical dust suppression agents should not be used within 100 feet of wetlands or water bodies.
- Chemically treated subgrades may make the soil water repellant, interfering with long-term infiltration and the vegetation/re-vegetation of the site. Some chemical dust suppressants may be subject to freezing and may contain solvents and should be handled properly.
- In compacted areas, watering and other liquid dust control measures may wash sediment or other constituents into the drainage system.
- If the soil surface has minimal natural moisture, the affected area may need to be pre-wetted so that chemical dust control agents can uniformly penetrate the soil surface.

Implementation

Dust Control Practices

Dust control BMPs generally stabilize exposed surfaces and minimize activities that suspend or track dust particles. The following table presents dust control practices that can be applied to varying site conditions that could potentially cause dust. For heavily traveled and disturbed areas, wet suppression (watering), chemical dust suppression, gravel asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, and haul truck covers can be employed as dust control applications. Permanent or temporary vegetation and mulching can be employed for areas of occasional or no construction traffic. Preventive measures include minimizing surface areas to be disturbed, limiting onsite vehicle traffic to 15 mph or less, and controlling the number and activity of vehicles on a site at any given time.

Chemical dust suppressants include: mulch and fiber based dust palliatives (e.g. paper mulch with gypsum binder), salts and brines (e.g. calcium chloride, magnesium chloride), non-petroleum based organics (e.g. vegetable oil, lignosulfonate), petroleum based organics (e.g. asphalt emulsion, dust oils, petroleum resins), synthetic polymers (e.g. polyvinyl acetate, vinyls, acrylic), clay additives (e.g. bentonite, montimorillonite) and electrochemical products (e.g. enzymes, ionic products).

Site Condition	Dust Control Practices							
	Permanent Vegetation	Mulching	Wet Suppression (Watering)	Chemical Dust Suppression	Gravel or Asphalt	Temporary Gravel Construction Entrances/Equipment Wash Down	Synthetic Covers	Minimize Extent of Disturbed Area
Disturbed Areas not Subject to Traffic	x	x	x	x	x			x
Disturbed Areas Subject to Traffic			x	x	x	x		x
Material Stockpiles		x	x	x			x	x
Demolition			x			x	x	
Clearing/ Excavation			x	x				x
Truck Traffic on Unpaved Roads			x	x	x	x	x	
Tracking					x	x		

Additional preventive measures include:

- Schedule construction activities to minimize exposed area (see EC-1, Scheduling).
- Quickly treat exposed soils using water, mulching, chemical dust suppressants, or stone/gravel layering.
- Identify and stabilize key access points prior to commencement of construction.
- Minimize the impact of dust by anticipating the direction of prevailing winds.
- Restrict construction traffic to stabilized roadways within the project site, as practicable.
- Water should be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment should be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit should be available at all times to apply water or dust palliative to the project.
- If reclaimed waste water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality

Control Board (RWQCB) requirements. Non-potable water should not be conveyed in tanks or drain pipes that will be used to convey potable water and there should be no connection between potable and non-potable supplies. Non-potable tanks, pipes, and other conveyances should be marked, "NON-POTABLE WATER - DO NOT DRINK."

- Pave or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.
- Provide covers for haul trucks transporting materials that contribute to dust.
- Provide for rapid clean up of sediments deposited on paved roads. Furnish stabilized construction road entrances and wheel wash areas.
- Stabilize inactive areas of construction sites using temporary vegetation or chemical stabilization methods.

For chemical stabilization, there are many products available for chemically stabilizing gravel roadways and stockpiles. If chemical stabilization is used, the chemicals should not create any adverse effects on stormwater, plant life, or groundwater and should meet all applicable regulatory requirements.

Costs

Installation costs for water and chemical dust suppression vary based on the method used and the length of effectiveness. Annual costs may be high since some of these measures are effective for only a few hours to a few days.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Check areas protected to ensure coverage.
- Most water-based dust control measures require frequent application, often daily or even multiple times per day. Obtain vendor or independent information on longevity of chemical dust suppressants.

References

Best Management Practices and Erosion Control Manual for Construction Sites, Flood Control District of Maricopa County, Arizona, September 1992.

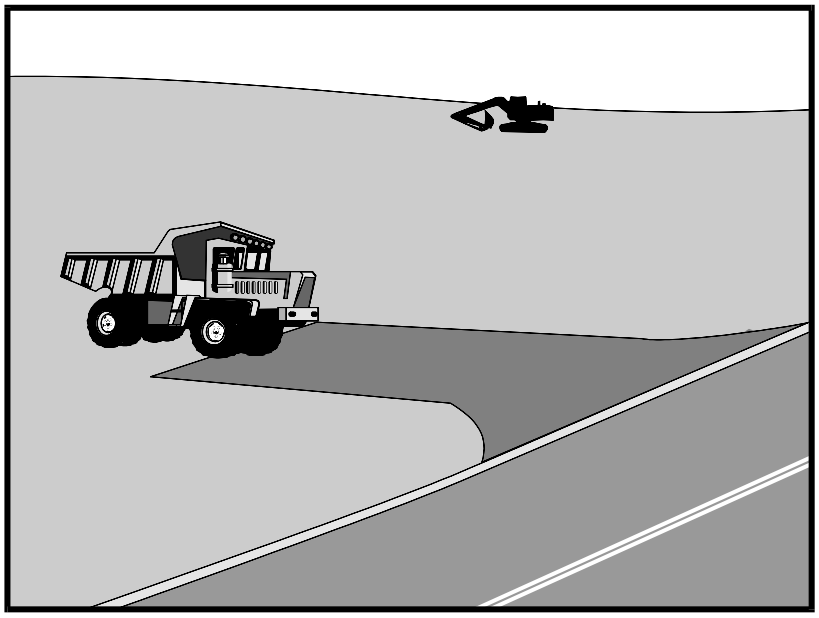
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Stabilized Construction Entrance / Exit TC-1



Description and Purpose

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Suitable Applications

Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Limitations

- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water runoff.

Categories

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Stabilized Construction Entrance/Exit TC-1

Implementation

General

A stabilized construction entrance is a pad of aggregate underlain with filter cloth located at any point where traffic will be entering or leaving a construction site to or from a public right of way, street, alley, sidewalk, or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights of way or streets. Reducing tracking of sediments and other pollutants onto paved roads helps prevent deposition of sediments into local storm drains and production of airborne dust.

Where traffic will be entering or leaving the construction site, a stabilized construction entrance should be used. NPDES permits require that appropriate measures be implemented to prevent tracking of sediments onto paved roadways, where a significant source of sediments is derived from mud and dirt carried out from unpaved roads and construction sites.

Stabilized construction entrances are moderately effective in removing sediment from equipment leaving a construction site. The entrance should be built on level ground. Advantages of the Stabilized Construction Entrance/Exit is that it does remove some sediment from equipment and serves to channel construction traffic in and out of the site at specified locations. Efficiency is greatly increased when a washing rack is included as part of a stabilized construction entrance/exit.

Design and Layout

- Construct on level ground where possible.
- Select 3 to 6 in. diameter stones.
- Use minimum depth of stones of 12 in. or as recommended by soils engineer.
- Construct length of 50 ft or maximum site will allow, and 10 ft minimum width or to accommodate traffic.
- Rumble racks constructed of steel panels with ridges and installed in the stabilized entrance/exit will help remove additional sediment and to keep adjacent streets clean.
- Provide ample turning radii as part of the entrance.
- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment trapping device before discharge.
- Design stabilized entrance/exit to support heaviest vehicles and equipment that will use it.

- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
- Implement SE-7, Street Sweeping and Vacuuming, as needed.
- All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at completion of construction

Costs

Average annual cost for installation and maintenance may vary from $1,200 to $4,800 each, averaging $2,400 per entrance. Costs will increase with addition of washing rack, and sediment trap. With wash rack, costs range from $1,200 - $6,000 each, averaging $3,600 per entrance.

References

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas, USEPA Agency, 2002.

Proposed Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, Work Group Working Paper, USEPA, April 1992.

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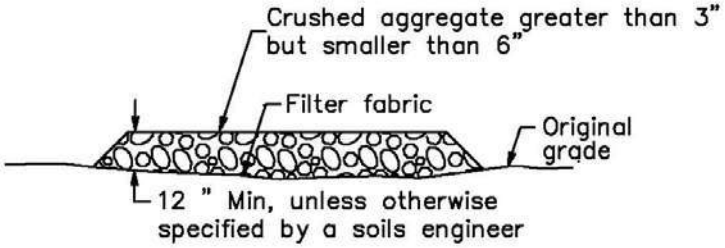
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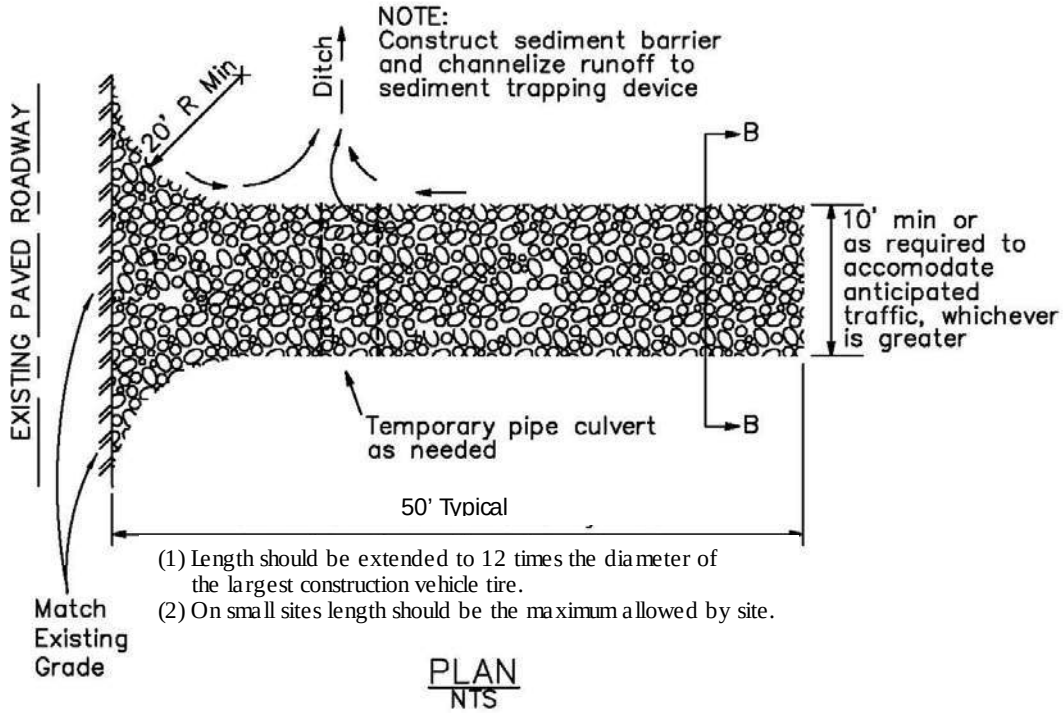
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Stabilized Construction Entrance / Exit TC-1

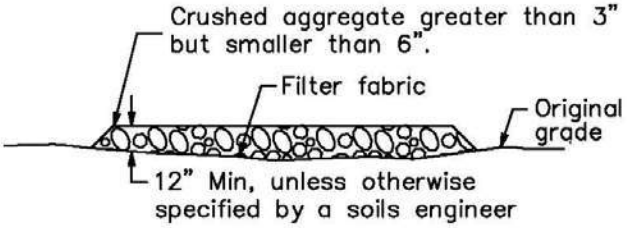


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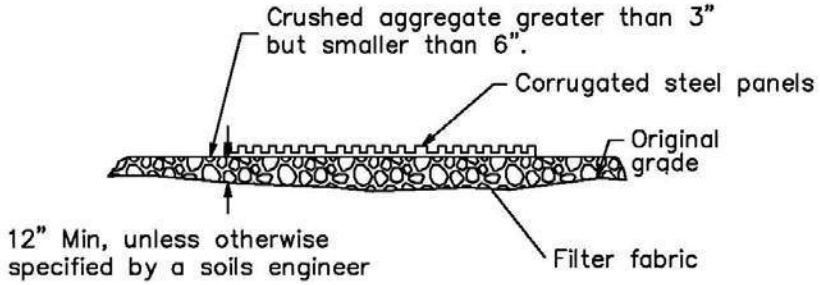


(1) Length should be extended to 12 times the diameter of the largest construction vehicle tire.
(2) On small sites length should be the maximum allowed by site.

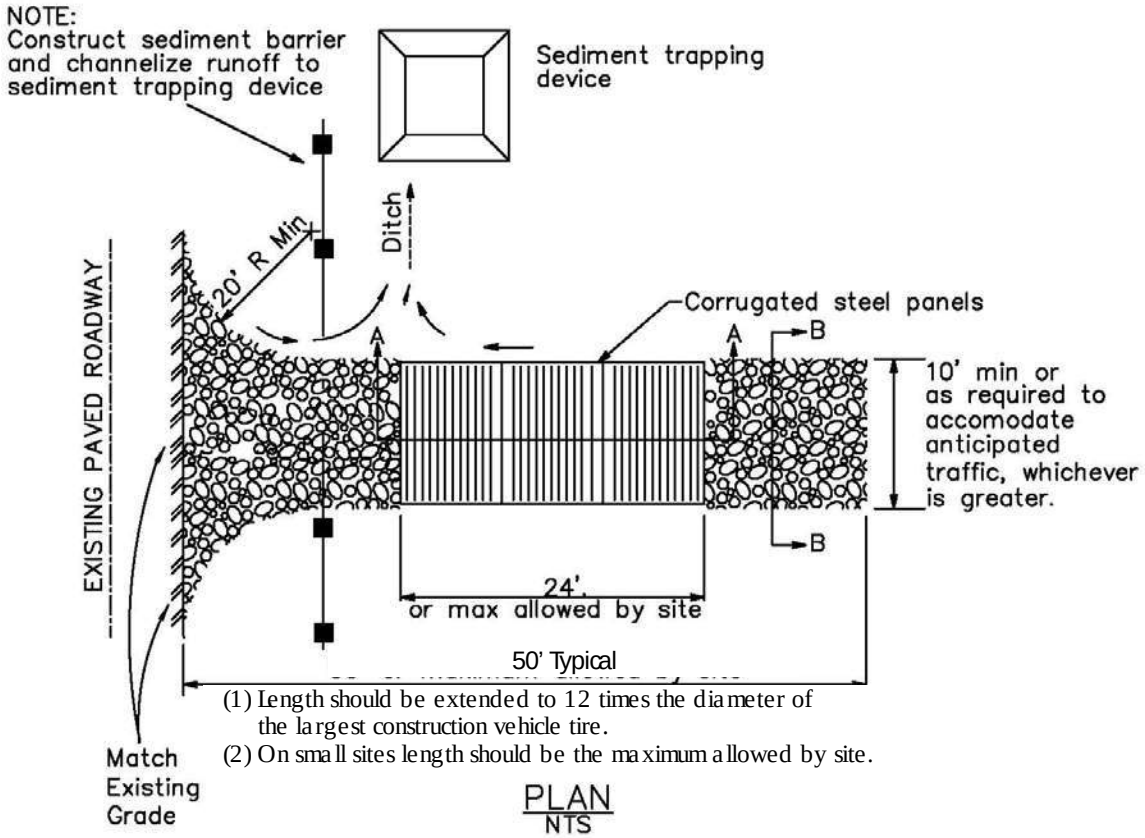
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SECTION B–B
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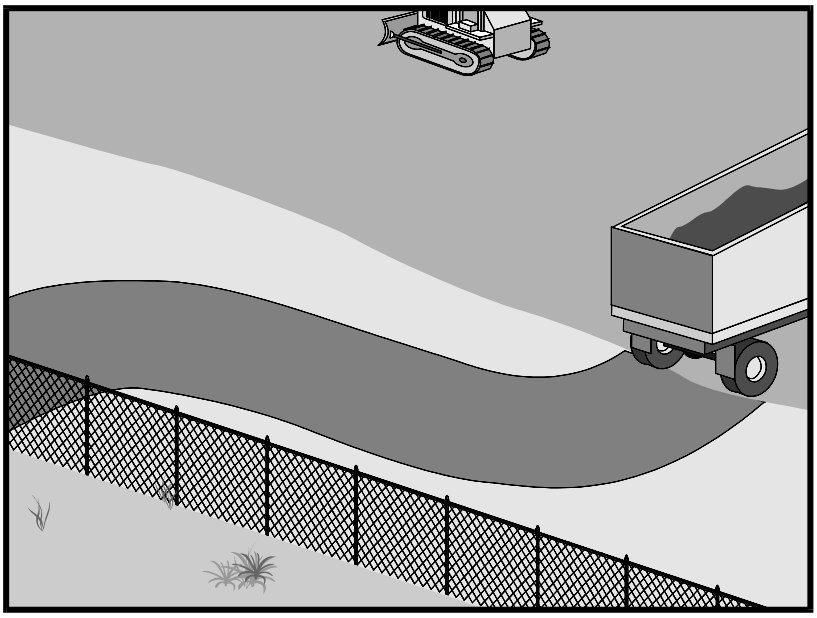
SECTION A–A
NOT TO SCALE



(1) Length should be extended to 12 times the diameter of the largest construction vehicle tire.
(2) On small sites length should be the maximum allowed by site.

PLAN
NTS

Stabilized Construction Roadway TC-2



Categories

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

Access roads, subdivision roads, parking areas, and other onsite vehicle transportation routes should be stabilized immediately after grading, and frequently maintained to prevent erosion and control dust.

Suitable Applications

This BMP should be applied for the following conditions:

- Temporary Construction Traffic:
  - Phased construction projects and offsite road access
  - Construction during wet weather
- Construction roadways and detour roads:
  - Where mud tracking is a problem during wet weather
  - Where dust is a problem during dry weather
  - Adjacent to water bodies
  - Where poor soils are encountered

Limitations

- The roadway must be removed or paved when construction is complete.

- Certain chemical stabilization methods may cause stormwater or soil pollution and should not be used. See WE-1, Wind Erosion Control.
- Management of construction traffic is subject to air quality control measures. Contact the local air quality management agency.
- Materials will likely need to be removed prior to final project grading and stabilization.
- Use of this BMP may not be applicable to very short duration projects.

Implementation

General

Areas that are graded for construction vehicle transport and parking purposes are especially susceptible to erosion and dust. The exposed soil surface is continually disturbed, leaving no opportunity for vegetative stabilization. Such areas also tend to collect and transport runoff waters along their surfaces. During wet weather, they often become muddy quagmires that generate significant quantities of sediment that may pollute nearby streams or be transported offsite on the wheels of construction vehicles. Dirt roads can become so unstable during wet weather that they are virtually unusable.

Efficient construction road stabilization not only reduces onsite erosion but also can significantly speed onsite work, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather

Installation/Application Criteria

Permanent roads and parking areas should be paved as soon as possible after grading. As an alternative where construction will be phased, the early application of gravel or chemical stabilization may solve potential erosion and stability problems. Temporary gravel roadway should be considered during the rainy season and on slopes greater than 5%.

Temporary roads should follow the contour of the natural terrain to the maximum extent possible. Slope should not exceed 15%. Roadways should be carefully graded to drain transversely. Provide drainage swales on each side of the roadway in the case of a crowned section or one side in the case of a super elevated section. Simple gravel berms without a trench can also be used.

Installed inlets should be protected to prevent sediment laden water from entering the storm sewer system (SE-10, Storm Drain Inlet Protection). In addition, the following criteria should be considered.

- Road should follow topographic contours to reduce erosion of the roadway.
- The roadway slope should not exceed 15%.
- Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust (WE-1, Wind Erosion Control).
- Properly grade roadway to prevent runoff from leaving the construction site.
- Design stabilized access to support heaviest vehicles and equipment that will use it.

- Stabilize roadway using aggregate, asphalt concrete, or concrete based on longevity, required performance, and site conditions. The use of cold mix asphalt or asphalt concrete (AC) grindings for stabilized construction roadway is not allowed.
- Coordinate materials with those used for stabilized construction entrance/exit points.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Keep all temporary roadway ditches clear.
- When no longer required, remove stabilized construction roadway and re-grade and repair slopes.
- Periodically apply additional aggregate on gravel roads.
- Active dirt construction roads are commonly watered three or more times per day during the dry season.

Costs

Gravel construction roads are moderately expensive, but cost is often balanced by reductions in construction delay. No additional costs for dust control on construction roads should be required above that needed to meet local air quality requirements.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

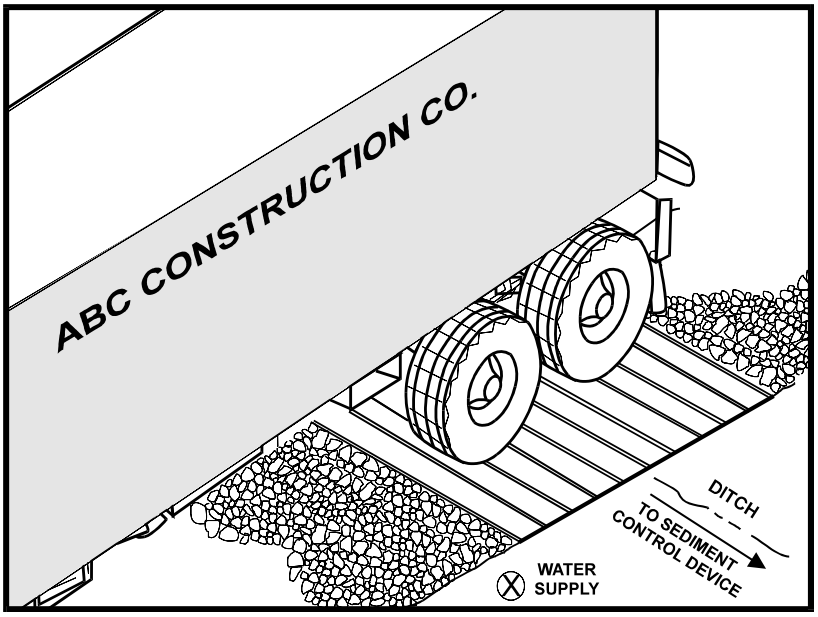
Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1991.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Entrance/Outlet Tire Wash TC-3



Description and Purpose

A tire wash is an area located at stabilized construction access points to remove sediment from tires and under carriages and to prevent sediment from being transported onto public roadways.

Suitable Applications

Tire washes may be used on construction sites where dirt and mud tracking onto public roads by construction vehicles may occur.

Limitations

- The tire wash requires a supply of wash water.
- A turnout or doublewide exit is required to avoid having entering vehicles drive through the wash area.
- Do not use where wet tire trucks leaving the site leave the road dangerously slick.

Implementation

- Incorporate with a stabilized construction entrance/exit. See TC-1, Stabilized Construction Entrance/Exit.
- Construct on level ground when possible, on a pad of coarse aggregate greater than 3 in. but smaller than 6 in. A geotextile fabric should be placed below the aggregate.
- Wash rack should be designed and constructed/manufactured for anticipated traffic loads.

Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

TC-1 Stabilized Construction Entrance/Exit

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- Provide a drainage ditch that will convey the runoff from the wash area to a sediment trapping device. The drainage ditch should be of sufficient grade, width, and depth to carry the wash runoff.
- Use hoses with automatic shutoff nozzles to prevent hoses from being left on.
- Require that all employees, subcontractors, and others that leave the site with mud caked tires and undercarriages to use the wash facility.
- Implement SC-7, Street Sweeping and Vacuuming, as needed.

Costs

Costs are low for installation of wash rack.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Remove accumulated sediment in wash rack and/or sediment trap to maintain system performance.
- Inspect routinely for damage and repair as needed.

References

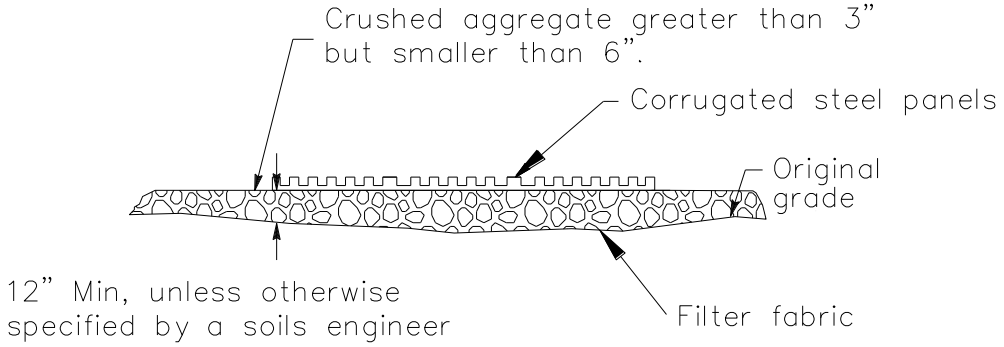
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

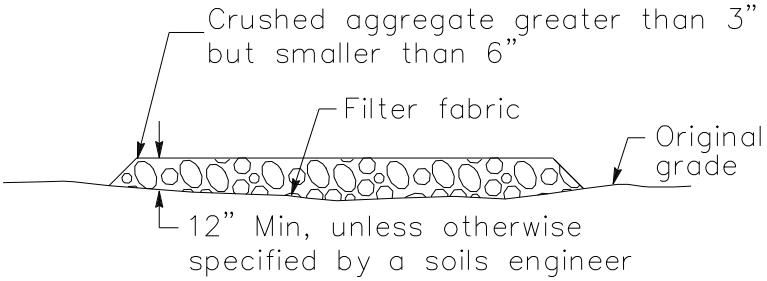
Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

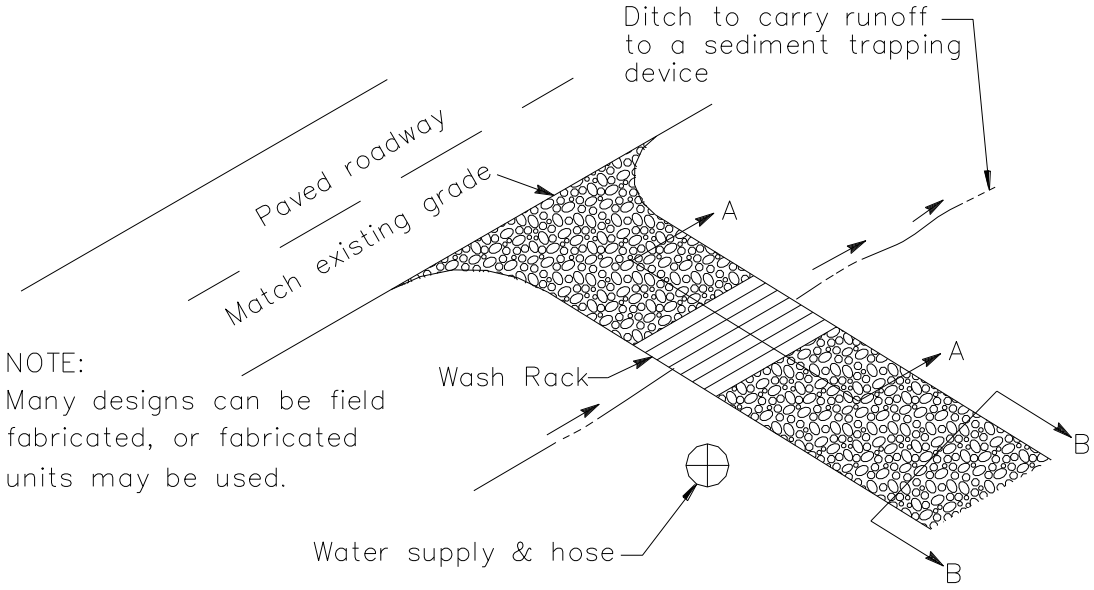
Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.



SECTION A–A
NOT TO SCALE



SECTION B–B
NTS



TYPICAL TIRE WASH
NOT TO SCALE

Section 4
Non-Stormwater Management and Material Management BMPs

4.1 Non-Stormwater Management BMPs

The discharge of materials other than stormwater and authorized non-stormwater discharges is prohibited by NPDES regulations as well as other local codes and ordinances. It is recognized that certain authorized non-stormwater discharges may be necessary for the completion of construction projects. Such discharges include but are not limited to irrigation of vegetative erosion control measures, and pipe flushing and testing.

Non-stormwater management BMPs are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source or eliminating off-site discharge. These practices involve day-to-day operations of the construction site and are usually under the control of the contractor. These BMPs are also referred to as "good housekeeping practices" which involve keeping a clean, orderly construction site.

Non-stormwater management BMPs also include procedures and practices designed to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning, fueling, and maintenance operations to stormwater drainage systems or to watercourses.

Table 4-1 lists the non-stormwater management BMPs. All these BMPs must be implemented depending on the conditions and applicability of deployment described as part of the BMP. The key to implementing these BMPs is to maintain a clean site and keep water, runoff, and run-on away from potential pollutants, including bare soil. In general, conduct construction activities so that: potential pollutants are not discharged directly to drainage systems; generation of potential pollutants is limited; and pollutants that are generated are contained and cleaned up immediately and are therefore not available for later discharge. These BMPs are fundamental to water quality protection and all sites must implement non-stormwater BMPs appropriate for the construction activities being performed.

Table 4-1 Non-Stormwater Management BMPs

BMP#	BMP Name
NS-1	Water Conservation Practices[2]
NS-2	Dewatering Operations[1, 3]
NS-3	Paving and Grinding Operations[1, 3]
NS-4	Temporary Stream Crossing[1, 2]
NS-5	Clear Water Diversion[2]
NS-6	Illicit Connection/Discharge[1, 2]
NS-7	Potable Water/Irrigation[1, 2]
NS-8	Vehicle and Equipment Cleaning[1, 2]
NS-9	Vehicle and Equipment Fueling[1, 2]
NS-10	Vehicle and Equipment Maintenance[1, 2]
NS-11	Pile Driving Operations[1, 2]
NS-12	Concrete Curing[1, 3]
NS-13	Concrete Finishing[1, 3]
NS-14	Material Over Water[1, 2]
NS-15	Demolition Adjacent to Water[1, 2]
NS-16	Temporary Batch Plants[1, 3]

1) BMP fact sheet updated in 2009
2) BMP fact sheet updated in 2011
3) BMP fact sheet updated in 2012

It is recommended that owners and contractors be vigilant regarding implementation of these BMPs, including making their implementation a condition of continued employment, and part of all prime and subcontract agreements. By doing so, the chance of inadvertent violation by an uncaring individual can be prevented, potentially saving thousands of dollars in fines and project delays. Also, if procedures are not properly implemented and/or if BMPs are compromised then the discharge may be subject to additional sampling and analysis requirements for non-visible pollutants contained in the General Permit. (See section 2.5.5 of this handbook.)

4.2 Waste Management & Materials Pollution Control BMPs

Waste management and materials pollution control BMPs, like non-stormwater management BMPs, are source control BMPs that prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with stormwater. These BMPs also involve day-to-day operations of the construction site, and are under the control of the contractor, and are additional "good housekeeping practices" which involve keeping a clean, orderly construction site. These BMPs are fundamental to water quality protection and all sites must implement waste management and/or materials pollution control non-stormwater BMPs appropriate for the construction activities being performed.

Table 4-2 Waste Management & Materials Pollution Control BMPs

BMP#	BMP Name
WM-1	Material Delivery and Storage[1]
WM-2	Material Use[1]
WM-3	Stockpile Management[1, 2, 3]
WM-4	Spill Prevention and Control[1, 2]
WM-5	Solid Waste Management[1, 2]
WM-6	Hazardous Waste Management[1, 2]
WM-7	Contaminated Soil Management[1, 2]
WM-8	Concrete Waste Management[1, 3]
WM-9	Sanitary/ Septic Waste Management[1]
WM-10	Liquid Waste Management[1]

1) BMP fact sheet updated in 2009
2) BMP fact sheet updated in 2011
3) BMP fact sheet updated in 2012

Waste management consists of implementing procedural and structural BMPs for handling, storing, and disposing of wastes generated by a construction project to prevent the release of waste materials into stormwater runoff or discharges through proper management of the following types of wastes:

- Solid
- Sanitary
- Concrete
- Hazardous
- Equipment-related wastes

Materials pollution control (also called materials handling) consists of implementing procedural and structural BMPs in the handling of, storing, and the using of construction materials. The BMPs are intended to prevent the release of pollutants during stormwater and non-stormwater discharges. The objective is to prevent or reduce the opportunity for contamination of

stormwater runoff from construction materials by covering and/or providing secondary containment of storage areas and/or by taking adequate precautions when handling materials. These controls must be implemented for all applicable activities, material usage, and site conditions. The discharge of construction materials or wastes from a site is prohibited.

Table 4-2 lists the waste management and materials pollution control BMPs. It is important to note that these BMPs should be implemented depending on the conditions/applicability of deployment described as part of the BMP.

4.3 Fact Sheet Format

A BMP fact sheet is a short document that presents detailed information about a particular BMP. Typically each fact sheet contains the information outlined in **Figure 4-1**. Completed fact sheets for each of the above activities are provided in Section 4.4.

The fact sheets also contain side bar presentations with information on BMP categories, targeted constituents, removal effectiveness, and potential alternatives.

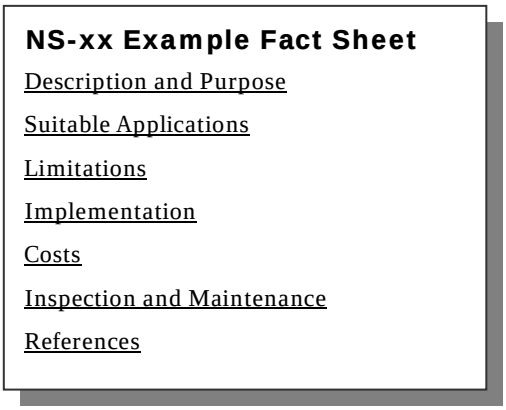


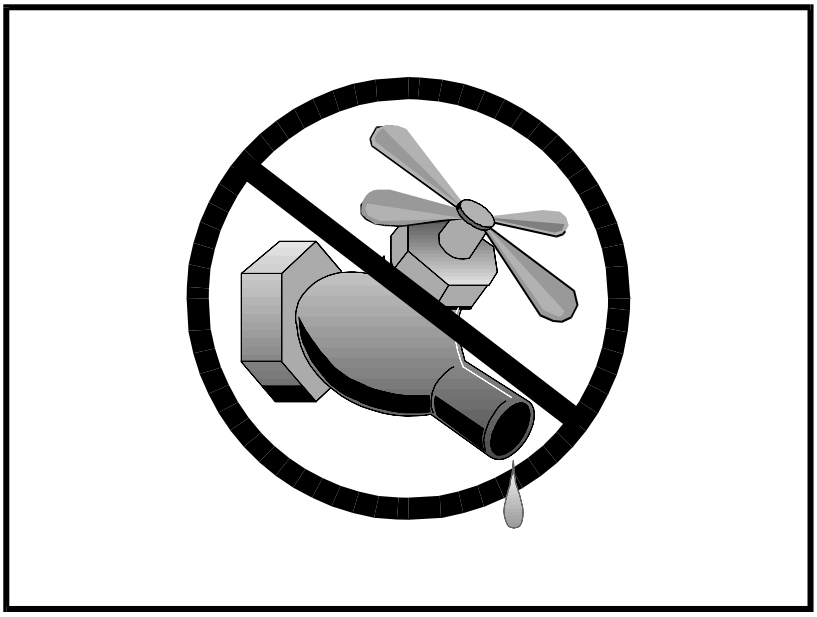
Figure 4-1
Example Fact Sheet

4.4 BMP Fact Sheets

BMP Fact Sheets for non-stormwater management and waste management and materials pollution control follow. The BMP fact sheets are individually page numbered and are suitable for inclusions in SWPPPs. Copies of the fact sheets can be individually downloaded from the CASQA BMP Handbook Portal at http://www.casqa.org.

BMP fact sheets are guidance and intended to provide a range of information about the BMPs. The BMP fact sheets should not be interpreted as CGP requirements. CASQA recognizes that there may be alternative public domain and/or proprietary practices performing similar function. Alternative products should be evaluated for project-specific implementation and used if determined to be appropriate by the QSD. Fact sheets do not address site-specific implementation application needs and modifications. The QSD should provide site specific implementation requirements in the SWPPP.

Water Conservation Practices NS-1



Categories

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Description and Purpose

Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and the transport of pollutants offsite. These practices can reduce or eliminate non-stormwater discharges.

Suitable Applications

Water conservation practices are suitable for all construction sites where water is used, including piped water, metered water, trucked water, and water from a reservoir.

Limitations

- None identified.

Implementation

- Keep water equipment in good working condition.
- Stabilize water truck filling area.
- Repair water leaks promptly.
- Washing of vehicles and equipment on the construction site is discouraged.
- Avoid using water to clean construction areas. If water must be used for cleaning or surface preparation, surface should be swept and vacuumed first to remove dirt. This will minimize amount of water required.

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- Direct construction water runoff to areas where it can soak into the ground or be collected and reused.
- Authorized non-stormwater discharges to the storm drain system, channels, or receiving waters are acceptable with the implementation of appropriate BMPs.
- Lock water tank valves to prevent unauthorized use.

Costs

The cost is small to none compared to the benefits of conserving water.

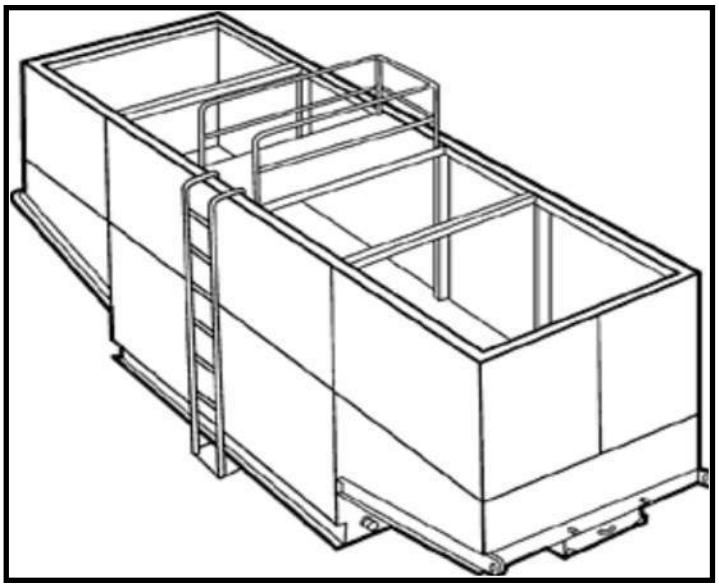
Inspection and Maintenance

- Inspect and verify that activity based BMPs are in place prior to the commencement of authorized non-stormwater discharges.
- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges are occuring.
- Repair water equipment as needed to prevent unintended discharges.
  - Water trucks
  - Water reservoirs (water buffalos)
  - Irrigation systems
  - Hydrant connections

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Dewatering Operations NS-2



Categories		
EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

SE-5: Fiber Roll

SE-6: Gravel Bag Berm

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Description and Purpose

Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation (stormwater) must be removed from a work location to proceed with construction work or to provide vector control.

The General Permit incorporates Numeric Action Levels (NAL) for turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Discharges from dewatering operations can contain high levels of fine sediment that, if not properly treated, could lead to exceedances of the General Permit requirements or Basin Plan standards.

The dewatering operations described in this fact sheet are not Active Treatment Systems (ATS) and do not include the use of chemical coagulations, chemical flocculation or electrocoagulation.

Suitable Applications

These practices are implemented for discharges of non-stormwater from construction sites. Non-stormwaters include, but are not limited to, groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area to facilitate construction.

Practices identified in this section are also appropriate for implementation when managing the removal of accumulated

precipitation (stormwater) from depressed areas at a construction site.

Stormwater mixed with non-stormwater should be managed as non-stormwater.

Limitations

- Dewatering operations will require, and should comply with applicable local and project-specific permits and regulations. In some areas, all dewatering activities, regardless of the discharge volume, require a dewatering permit.
- Site conditions will dictate design and use of dewatering operations.
- The controls discussed in this fact sheet primarily address sediment. Other secondary pollutant removal benefits are discussed where applicable.
- The controls detailed in this fact sheet only allow for minimal settling time for sediment particles. Use only when site conditions restrict the use of the other control methods.
- Avoid dewatering discharges where possible by using the water for dust control.

Implementation

- A Construction Site Monitoring Plan (CSMP) should be included in the project Stormwater Pollution Prevention Plan (SWPPP).
- Regional Water Quality Control Board (RWQCB) Regions may require notification and approval prior to any discharge of water from construction sites.
- The destination of discharge from dewatering activities will typically determine the type of permit required for the discharge. For example, when discharging to a water of the U.S., a dewatering permit may be required through the site's governing RWQCB. When discharging to a sanitary sewer or Municipal Separate Storm Sewer System (MS4), a permit may need to be obtained from the owner of the sanitary sewer or MS4 in addition to obtaining an RWQCB dewatering permit. Additional permits or permissions from other agencies may be required for dewatering cofferdams or diversions.
- Dewatering discharges should not cause erosion at the discharge point. Appropriate BMPs should be implemented to maintain compliance with all applicable permits.
- Maintain dewatering records in accordance with all local and project-specific permits and regulations.

Sediment Treatment

A variety of methods can be used to treat water during dewatering operations. Several devices are presented below and provide options to achieve sediment removal. The sediment particle size and permit or receiving water limitations on sediment or turbidity are key considerations for selecting sediment treatment option(s); in some cases, the use of multiple devices may be appropriate. Use of other enhanced treatment methods (i.e., introduction of chemicals or electric current to enhance flocculation and removal of sediment) must comply with: 1) for storm drain or surface water discharges, the requirements for Active Treatment Systems (see SE-11); or 2) for sanitary sewer discharges, the requirements of applicable sanitary sewer discharge permits.

Sediment Basin (see also SE-2)

Description:

- A sediment basin is a temporary basin with a controlled release structure that is formed by excavation or construction of an embankment to detain sediment-laden runoff and allow sediment to settle out before discharging. Sediment basins are generally larger than Sediment Traps (SE-3) and have a designed outlet structure.

Appropriate Applications:

- Effective for the removal of trash, gravel, sand, silt, some metals that settle out with the sediment.

Implementation:

- Excavation and construction of related facilities is required.
- Temporary sediment basins should be fenced if safety is a concern.
- Outlet protection is required to prevent erosion at the outfall location.

Maintenance:

- Maintenance is required for safety fencing, vegetation, embankment, inlet and outlet, as well as other features.
- Removal of sediment is required when the storage volume is reduced by one-third.

Sediment Trap (See also SE-3)

Description:

- A sediment trap is a temporary basin formed by excavation and/or construction of an earthen embankment across a waterway or low drainage area to detain sediment-laden runoff and allow sediment to settle out before discharging. Sediment traps are generally smaller than Sediment Basins (SE-2) and do not have a designed outlet (but do have a spillway or overflow).

Appropriate Applications:

Effective for the removal of large and medium sized particles (sand and gravel) and some metals that settle out with the sediment.

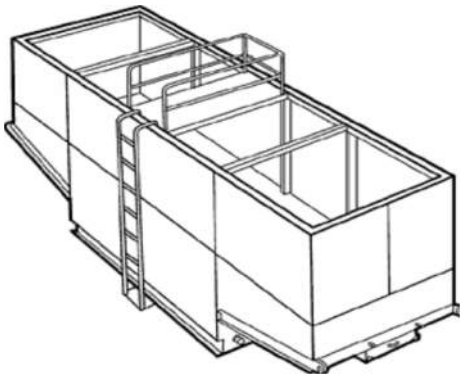
Implementation:

- Excavation and construction of related facilities is required.
- Trap inlets should be located to maximize the travel distance to the trap outlet.
- Use rock or vegetation to protect the trap outlets against erosion.

Maintenance:

- Maintenance is required for vegetation, embankment, inlet and outfall structures, as well as other features.
- Removal of sediment is required when the storage volume is reduced by one-third.

Weir Tanks



Description:

- A weir tank separates water and waste by using weirs. The configuration of the weirs (over and under weirs) maximizes the residence time in the tank and determines the waste to be removed from the water, such as oil, grease, and sediments.

Appropriate Applications:

- The tank removes trash, some settleable solids (gravel, sand, and silt), some visible oil and grease, and some metals (removed with sediment). To achieve high levels of flow, multiple tanks can be used in parallel. If additional treatment is desired, the tanks can be placed in series or as pre-treatment for other methods.

Implementation:

- Tanks are delivered to the site by the vendor, who can provide assistance with set-up and operation.
- Tank size will depend on flow volume, constituents of concern, and residency period required. Vendors should be consulted to appropriately size tank.
- Treatment capacity (i.e., volume and number of tanks) should provide at a minimum the required volume for discrete particle settling for treatment design flows.

Maintenance:

- Periodic cleaning is required based on visual inspection or reduced flow.
- Oil and grease disposal should be conducted by a licensed waste disposal company.

Dewatering Tanks



Description:

- A dewatering tank removes debris and sediment. Flow enters the tank through the top, passes through a fabric filter, and is discharged through the bottom of the tank. The filter separates the solids from the liquids.

Appropriate Applications:

- The tank removes trash, gravel, sand, and silt, some visible oil and grease, and some metals (removed with sediment). To achieve high levels of flow, multiple tanks can be used in parallel. If additional treatment is desired, the tanks can be placed in series or as pre-treatment for other methods.

Implementation:

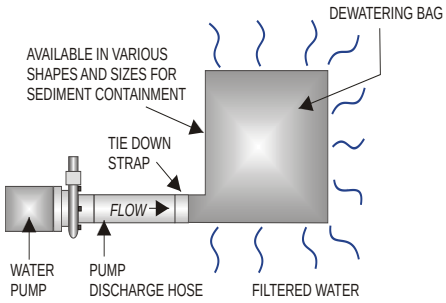
- Tanks are delivered to the site by the vendor, who can provide assistance with set-up and operation.
- Tank size will depend on flow volume, constituents of concern, and residency period required. Vendors should be consulted to appropriately size tank.

Maintenance:

- Periodic cleaning is required based on visual inspection or reduced flow.
- Oil and grease disposal should be conducted by licensed waste disposal company.

Gravity Bag Filter





Description:

- A gravity bag filter, also referred to as a dewatering bag, is a square or rectangular bag made of non-woven geotextile fabric that collects gravel, sand, silt, and fines.

Appropriate Applications:

- Effective for the removal of sediments (gravel, sand, silt, and fines). Some metals are removed with the sediment.

Implementation:

- Water is pumped into one side of the bag and seeps through the top, bottom, and sides of the bag.
- Place filter bag on pavement or a gravel bed or paved surface. Avoid placing a dewatering bag on unprotected bare soil. If placing the bag on bare soil is unavoidable, a secondary barrier should be used, such as a rock filter bed placed beneath and beyond the edges of the bag to, prevent erosion and capture sediments that escape the bag.
- Perimeter control around the downstream end of the bag should be implemented. Secondary sediment controls are important especially in the initial stages of discharge, which tend to allow fines to pass through the bag.

Maintenance:

- Inspection of the flow conditions, bag condition, bag capacity, and the secondary barrier (as applicable) is required.
- Replace the bag when it no longer filters sediment or passes water at a reasonable rate.
- Caution should be taken when removing and disposing of the bag, to prevent the release of captured sediment
- Properly dispose of the bag offsite. If sediment is removed from the bag prior to disposal (bags can potentially be reused depending upon their condition), dispose of sediment in accordance with the general maintenance procedures described at the end of this BMP Fact Sheet.

Sand Media Particulate Filter





Description:

- Water is treated by passing it through canisters filled with sand media. Generally, sand filters provide a final level of treatment. They are often used as a secondary or higher level of treatment after a significant amount of sediment and other pollutants have been removed using other methods.

Appropriate Applications:

- Effective for the removal of trash, gravel, sand, and silt and some metals, as well as the reduction of biochemical oxygen demand (BOD) and turbidity.
- Sand filters can be used for stand-alone treatment or in conjunction with bag and cartridge filtration if further treatment is required.
- Sand filters can also be used to provide additional treatment to water treated via settling or basic filtration.

Implementation:

- The filters require delivery to the site and initial set up. The vendor can provide assistance with installation and operation.

Maintenance:

- The filters require regular service to monitor and maintain the level of the sand media. If subjected to high loading rates, filters can plug quickly.
- Venders generally provide data on maximum head loss through the filter. The filter should be monitored daily while in use, and cleaned when head loss reaches target levels.
- If cleaned by backwashing, the backwash water may need to be hauled away for disposal, or returned to the upper end of the treatment train for another pass through the series of dewatering BMPs.

Pressurized Bag Filter





Description:

- A pressurized bag filter is a unit composed of single filter bags made from polyester felt material. The water filters through the unit and is discharged through a header. Vendors provide bag filters in a variety of configurations. Some units include a combination of bag filters and cartridge filters for enhanced contaminant removal.

Appropriate Applications:

- Effective for the removal of sediment (sand and silt) and some metals, as well as the reduction of BOD, turbidity, and hydrocarbons. Oil absorbent bags are available for hydrocarbon removal.

- Filters can be used to provide secondary treatment to water treated via settling or basic filtration.

Implementation:

- The filters require delivery to the site and initial set up. The vendor can provide assistance with installation and operation.

Maintenance:

- The filter bags require replacement when the pressure differential equals or exceeds the manufacturer's recommendation.

Cartridge Filter



Description:

- Cartridge filters provide a high degree of pollutant removal by utilizing a number of individual cartridges as part of a larger filtering unit. They are often used as a secondary or higher (polishing) level of treatment after a significant amount of sediment and other pollutants are removed. Units come with various cartridge configurations (for use in series with bag filters) or with a larger single cartridge filtration unit (with multiple filters within).

Appropriate Applications:

- Effective for the removal of sediment (sand, silt, and some clays) and metals, as well as the reduction of BOD, turbidity, and hydrocarbons. Hydrocarbons can effectively be removed with special resin cartridges.

- Filters can be used to provide secondary treatment to water treated via settling or basic filtration.

Implementation:

- The filters require delivery to the site and initial set up. The vendor can provide assistance.

Maintenance:

- The cartridges require replacement when the pressure differential equals or exceeds the manufacturer's recommendation.

Costs

- Sediment control costs vary considerably depending on the dewatering and sediment treatment system that is selected. Pressurized filters tend to be more expensive than gravity settling, but are often more effective. Simple tanks are generally rented on a long-term basis (one or more months) and can range from $360 per month for a 1,000 gallon tank to $2,660 per month for a 10,000 gallon tank. Mobilization and demobilization costs vary considerably.

Inspection and Maintenance

- Inspect and verify that dewatering BMPs are in place and functioning prior to the commencement of activities requiring dewatering.

- Inspect dewatering BMPs daily while dewatering activities are being conducted.

- Inspect all equipment before use. Monitor dewatering operations to ensure they do not cause offsite discharge or erosion.
- Sample dewatering discharges as required by the General Permit.
- Unit-specific maintenance requirements are included with the description of each unit.
- Sediment removed during the maintenance of a dewatering device may be either spread onsite and stabilized, or disposed of at a disposal site as approved by the owner.
- Sediment that is commingled with other pollutants should be disposed of in accordance with all applicable laws and regulations and as approved by the owner.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

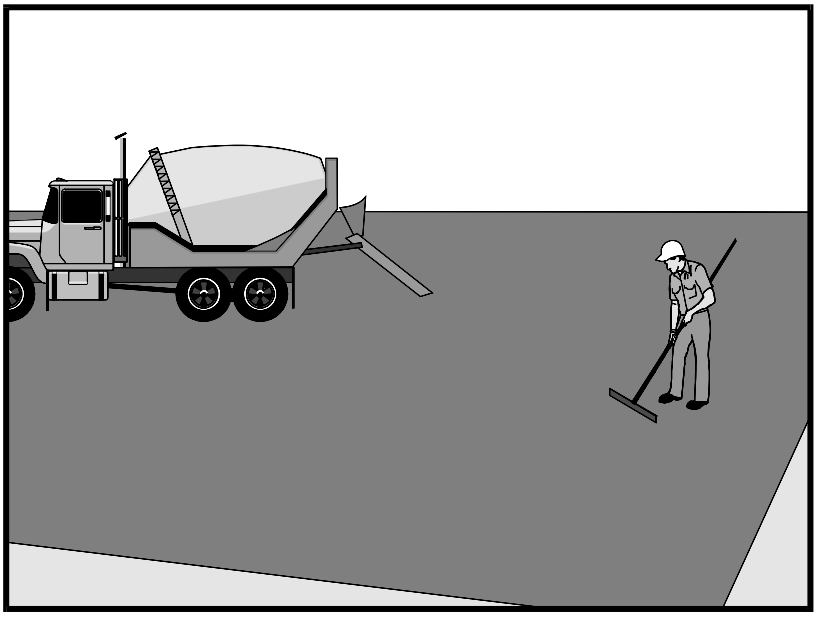
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Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Labor Surcharge & Equipment Rental Rates, April 1, 2002 through March 31, 2003, California Department of Transportation (Caltrans).

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Paving and Grinding Operations NS-3



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☒

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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Description and Purpose

Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runon and runoff pollution, properly disposing of wastes, and training employees and subcontractors.

The General Permit incorporates Numeric Action Levels (NAL) for pH and turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials associated with paving and grinding operations, including mortar, concrete, and cement and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

Limitations

- Paving opportunities may be limited during wet weather.

  Discharges of freshly paved surfaces may raise pH to environmentally harmful levels and trigger permit violations.

Implementation

General

- Avoid paving during the wet season when feasible.
- Reschedule paving and grinding activities if rain is forecasted.
- Train employees and sub-contractors in pollution prevention and reduction.
- Store materials away from drainage courses to prevent stormwater runon (see WM-1, Material Delivery and Storage).
- Protect drainage courses, particularly in areas with a grade, by employing BMPs to divert runoff or to trap and filter sediment.
- Stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses. These materials should be stored consistent with WM-3, Stockpile Management.
- Disposal of PCC (Portland cement concrete) and AC (asphalt concrete) waste should be in conformance with WM-8, Concrete Waste Management.

Saw Cutting, Grinding, and Pavement Removal

- Shovel or vacuum saw-cut slurry and remove from site. Cover or barricade storm drains during saw cutting to contain slurry.
- When paving involves AC, the following steps should be implemented to prevent the discharge of grinding residue, uncompacted or loose AC, tack coats, equipment cleaners, or unrelated paving materials:
  - AC grindings, pieces, or chunks used in embankments or shoulder backing should not be allowed to enter any storm drains or watercourses. Install inlet protection and perimeter controls until area is stabilized (i.e. cutting, grinding or other removal activities are complete and loose material has been properly removed and disposed of)or permanent controls are in place. Examples of temporary perimeter controls can be found in EC-9, Earth Dikes and Drainage Swales; SE-1, Silt Fence; SE-5, Fiber Rolls, or SE-13 Compost Socks and Berms
  - Collect and remove all broken asphalt and recycle when practical. Old or spilled asphalt should be recycled or disposed of properly.
- Do not allow saw-cut slurry to enter storm drains or watercourses. Residue from grinding operations should be picked up by a vacuum attachment to the grinding machine, or by sweeping, should not be allowed to flow across the pavement, and should not be left on the surface of the pavement. See also WM-8, Concrete Waste Management, and WM-10, Liquid Waste Management.
- Pavement removal activities should not be conducted in the rain.
- Collect removed pavement material by mechanical or manual methods. This material may be recycled for use as shoulder backing or base material.

- If removed pavement material cannot be recycled, transport the material back to an approved storage site.

Asphaltic Concrete Paving

- If paving involves asphaltic cement concrete, follow these steps:

  - Do not allow sand or gravel placed over new asphalt to wash into storm drains, streets, or creeks. Vacuum or sweep loose sand and gravel and properly dispose of this waste by referring to WM-5, Solid Waste Management.

  - Old asphalt should be disposed of properly. Collect and remove all broken asphalt from the site and recycle whenever possible.

Portland Cement Concrete Paving

- Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect waste materials by dry methods, such as sweeping or shoveling, and return to aggregate base stockpile or dispose of properly. Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in WM-8, Concrete Waste Management, or pump the water to the sanitary sewer if authorized by the local wastewater authority.

Sealing Operations

- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate should not be allowed to enter any storm drain or water courses. Apply temporary perimeter controls until structure is stabilized (i.e. all sealing operations are complete and cured and loose materials have been properly removed and disposed).

- Inlet protection (SE-10, Storm Drain Inlet Protection) should be used during application of seal coat, tack coat, slurry seal, and fog seal.

- Seal coat, tack coat, slurry seal, or fog seal should not be applied if rainfall is predicted to occur during the application or curing period.

Paving Equipment

- Leaks and spills from paving equipment can contain toxic levels of heavy metals and oil and grease. Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials and dispose of in accordance with the applicable regulations. See NS-10, Vehicle and Equipment Maintenance, WM-4, Spill Prevention and Control, and WM-10, Liquid Waste Management.

- Substances used to coat asphalt transport trucks and asphalt spreading equipment should not contain soap and should be non-foaming and non-toxic.

- Paving equipment parked onsite should be parked over plastic to prevent soil contamination.

- Clean asphalt coated equipment offsite whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in WM-5, Solid Waste Management. Any cleaning onsite should follow NS-8, Vehicle and Equipment Cleaning.

Thermoplastic Striping

- Thermoplastic striper and pre-heater equipment shutoff valves should be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the stormwater drainage system, or watercourses.
- Pre-heaters should be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move.
- Do not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible, recycle thermoplastic material.

Raised/Recessed Pavement Marker Application and Removal

- Do not transfer or load bituminous material near drain inlets, the stormwater drainage system, or watercourses.
- Melting tanks should be loaded with care and not filled to beyond six inches from the top to leave room for splashing.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large-scale projects, use mechanical or manual methods to collect excess bituminous material from the roadway after removal of markers.

Costs

- All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of paving and grinding operations.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Sample stormwater runoff required by the General Permit.
- Keep ample supplies of drip pans or absorbent materials onsite.
- Inspect and maintain machinery regularly to minimize leaks and drips.

References

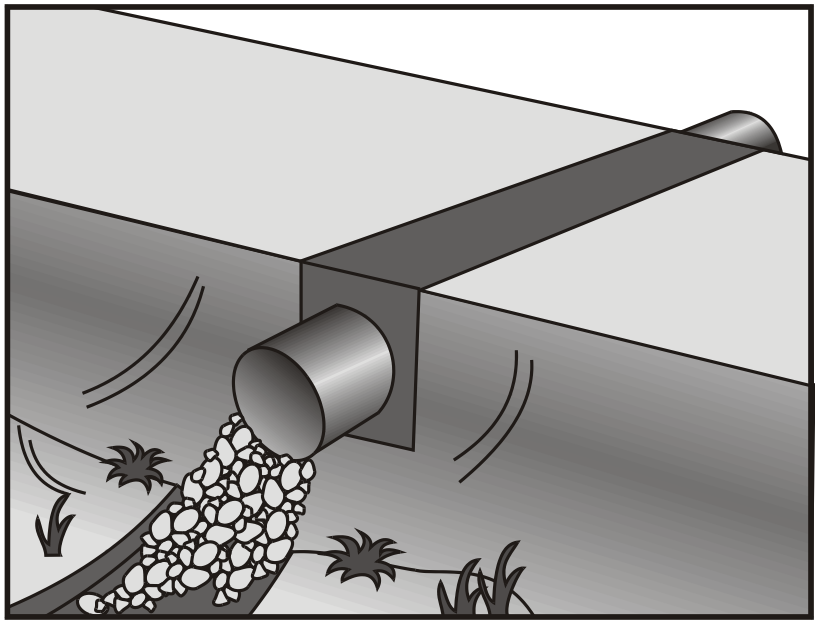
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Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Temporary Stream Crossing NS-4



Categories		
EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☒
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

A temporary stream crossing is a temporary culvert, ford or bridge placed across a waterway to provide access for construction purposes for a period of less than one year. Temporary access crossings are not intended to maintain traffic for the public. The temporary access will eliminate erosion and downstream sedimentation caused by vehicles.

Suitable Applications

Temporary stream crossings should be installed at all designated crossings of perennial and intermittent streams on the construction site, as well as for dry channels that may be significantly eroded by construction traffic.

Temporary streams crossings are installed at sites:

- Where appropriate permits have been secured (404 Permits, and 401 Certifications)
- Where construction equipment or vehicles need to frequently cross a waterway
- When alternate access routes impose significant constraints
- When crossing perennial streams or waterways causes significant erosion
- Where construction activities will not last longer than one year

- Where appropriate permits have been obtained for the stream crossing

Limitations

The following limitations may apply:

- Installation and removal will usually disturb the waterway.
- Installation may require Regional Water Quality Control Board (RWQCB) 401 Certification, U.S. Army Corps of Engineers 404 permit and approval by California Department of Fish and Game. If numerical-based water quality standards are mentioned in any of these and other related permits, testing and sampling may be required.
- Installation may require dewatering or temporary diversion of the stream. See NS-2, Dewatering Operations and NS-5, Clear Water Diversion.
- Installation may cause a constriction in the waterway, which can obstruct flood flow and cause flow backups or washouts. If improperly designed, flow backups can increase the pollutant load through washouts and scouring.
- Use of natural or other gravel in the stream for construction of Cellular Confinement System (CCS) ford crossing will be contingent upon approval by fisheries agencies.
- Ford crossings may degrade water quality due to contact with vehicles and equipment.
- May be expensive for a temporary improvement.
- Requires other BMPs to minimize soil disturbance during installation and removal.
- Fords should only be used in dry weather.

Implementation

General

The purpose of this BMP is to provide a safe, erosion-free access across a stream for construction equipment. Minimum standards and specifications for the design, construction, maintenance, and removal of the structure should be established by an engineer registered in California. Temporary stream crossings may be necessary to prevent construction equipment from causing erosion of the stream and tracking sediment and other pollutants into the stream.

Temporary stream crossings are used as access points to construction sites when other detour routes may be too long or burdensome for the construction equipment. Often heavy construction equipment must cross streams or creeks, and detour routes may impose too many constraints such as being too narrow or poor soil strength for the equipment loadings. Additionally, the contractor may find a temporary stream crossing more economical for light–duty vehicles to use for frequent crossings, and may have less environmental impact than construction of a temporary access road.

Location of the temporary stream crossing should address:

- Site selection where erosion potential is low.

- Areas where the side slopes from site runoff will not spill into the side slopes of the crossing.

The following types of temporary stream crossings should be considered:

- **Culverts** – A temporary culvert is effective in controlling erosion but will cause erosion during installation and removal. A temporary culvert can be easily constructed and allows for heavy equipment loads.

- **Fords** - Appropriate during the dry season in arid areas. Used on dry washes and ephemeral streams, and low-flow perennial streams. CCS, a type of ford crossing, is also appropriate for use in streams that would benefit from an influx of gravels. A temporary ford provides little sediment and erosion control and is ineffective in controlling erosion in the stream channel. A temporary ford is the least expensive stream crossing and allows for maximum load limits. It also offers very low maintenance. Fords are more appropriate during the dry ice season and in arid areas of California.

- **Bridges** - Appropriate for streams with high flow velocities, steep gradients and where temporary restrictions in the channel are not allowed.

Design

During the long summer construction season in much of California, rainfall is infrequent and many streams are dry. Under these conditions, a temporary ford may be sufficient. A ford is not appropriate if construction will continue through the winter rainy season, if summer thunderstorms are likely, or if the stream flows during most of the year. Temporary culverts and bridges should then be considered and, if used, should be sized to pass a significant design storm (i.e., at least a 10-year storm). The temporary stream crossing should be protected against erosion, both to prevent excessive sedimentation in the stream and to prevent washout of the crossing.

Design and installation requires knowledge of stream flows and soil strength. Designs should be prepared under direction of, and approved by, a registered civil engineer and for bridges, a registered structural engineer. Both hydraulic and construction loading requirements should be considered with the following:

- Comply with any special requirements for culvert and bridge crossings, particularly if the temporary stream crossing will remain through the rainy season.

- Provide stability in the crossing and adjacent areas to withstand the design flow. The design flow and safety factor should be selected based on careful evaluation of the risks due to over topping, flow backups, or washout.

- Install sediment traps immediately downstream of crossings to capture sediments. See SE-3, Sediment Trap.

- Avoid oil or other potentially hazardous materials for surface treatment.

- Culverts are relatively easy to construct and able to support heavy equipment loads.

- Fords are the least expensive of the crossings, with maximum load limits.

- CCS crossing structures consist of clean, washed gravel and cellular confinement system blocks. CCS are appropriate for streams that would benefit from an influx of gravel; for example, salmonid streams, streams or rivers below reservoirs, and urban, channelized streams. Many urban stream systems are gravel-deprived due to human influences, such as dams, gravel mines, and concrete channels.
- CCS allow designers to use either angular or naturally occurring rounded gravel, because the cells provide the necessary structure and stability. In fact, natural gravel is optimal for this technique, because of the habitat improvement it will provide after removal of the CCS.
- A gravel depth of 6 to 12 in. for a CCS structure is sufficient to support most construction equipment.
- An advantage of a CCS crossing structure is that relatively little rock or gravel is needed, because the CCS provides the stability.
- Bridges are generally more expensive to design and construct, but provide the least disturbance of the streambed and constriction of the waterway flows.

Construction and Use

- Stabilize construction roadways, adjacent work area, and stream bottom against erosion.
- Construct during dry periods to minimize stream disturbance and reduce costs.
- Construct at or near the natural elevation of the streambed to prevent potential flooding upstream of the crossing.
- Install temporary erosion control BMPs in accordance with erosion control BMP fact sheets to minimize erosion of embankment into flow lines.
- Any temporary artificial obstruction placed within flowing water should only be built from material, such as clean gravel or sandbags, that will not introduce sediment or silt into the watercourse.
- Temporary water body crossings and encroachments should be constructed to minimize scour. Cobbles used for temporary water body crossings or encroachments should be clean, rounded river cobble.
- Vehicles and equipment should not be driven, operated, fueled, cleaned, maintained, or stored in the wet or dry portions of a water body where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed.
- The exterior of vehicles and equipment that will encroach on the water body within the project should be maintained free of grease, oil, fuel, and residues.
- Drip pans should be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than one hour.

- Disturbance or removal of vegetation should not exceed the minimum necessary to complete operations. Precautions should be taken to avoid damage to vegetation by people or equipment. Disturbed vegetation should be replaced with the appropriate soil stabilization measures.

- Riparian vegetation, when removed pursuant to the provisions of the work, should be cut off no lower than ground level to promote rapid re-growth. Access roads and work areas built over riparian vegetation should be covered by a sufficient layer of clean river run cobble to prevent damage to the underlying soil and root structure. The cobble must be removed upon completion of project activities.

- Conceptual temporary stream crossings are shown in the attached figures.

Costs

Caltrans Construction Cost index for temporary bridge crossings is $45-$95/ft^2.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Check for blockage in the channel, sediment buildup or trapped debris in culverts, blockage behind fords or under bridges.

- Check for erosion of abutments, channel scour, riprap displacement, or piping in the soil.

- Check for structural weakening of the temporary crossings, such as cracks, and undermining of foundations and abutments.

- Remove sediment that collects behind fords, in culverts, and under bridges periodically.

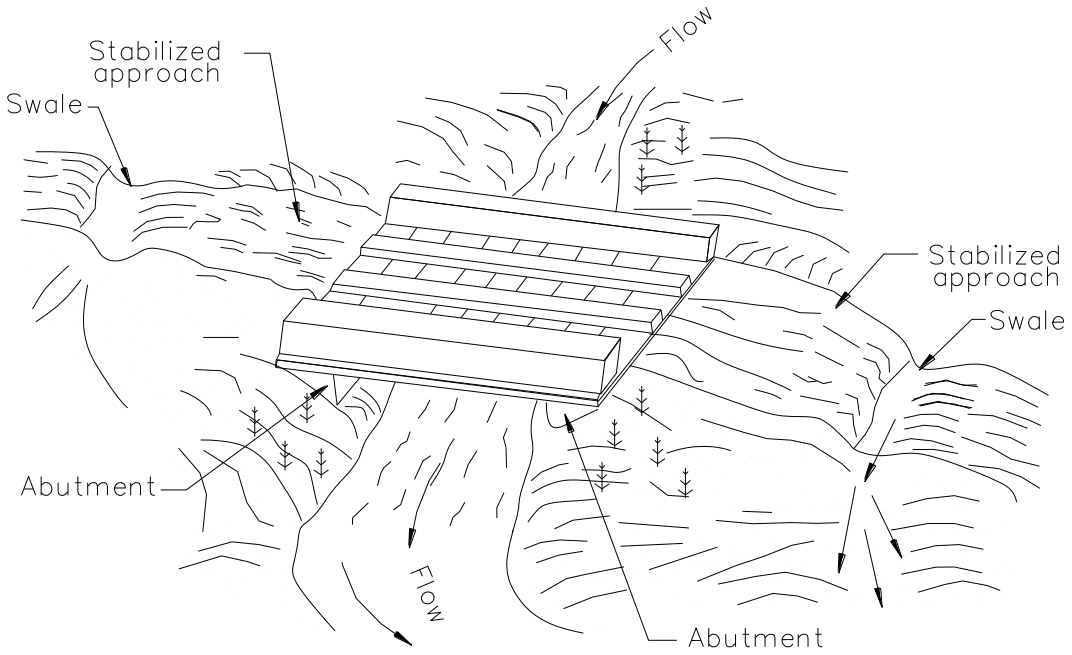
- Replace lost or displaced aggregate from inlets and outlets of culverts and cellular confinement systems.

- Remove temporary crossing promptly when it is no longer needed.

References

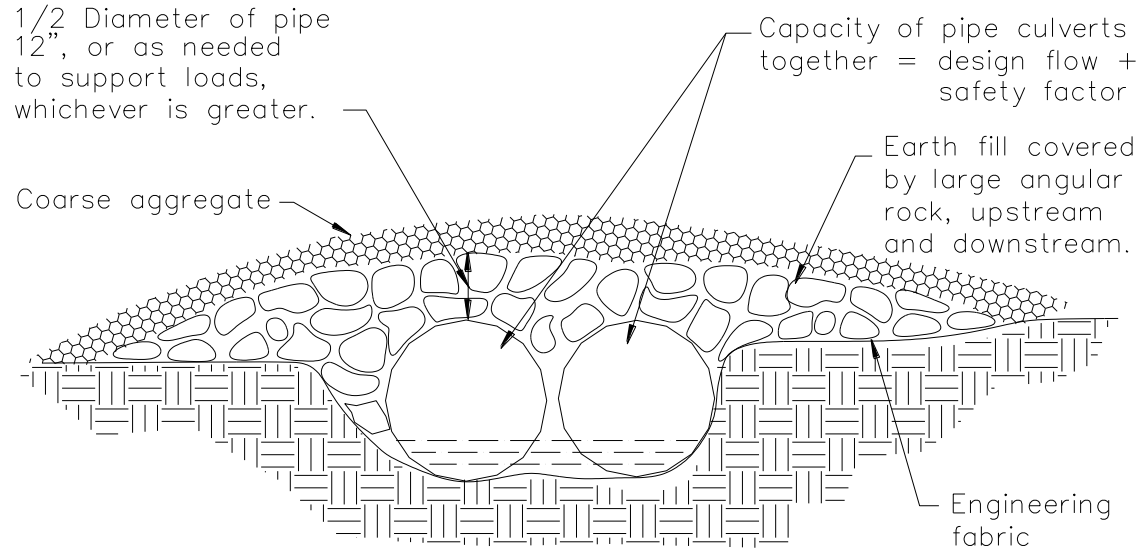
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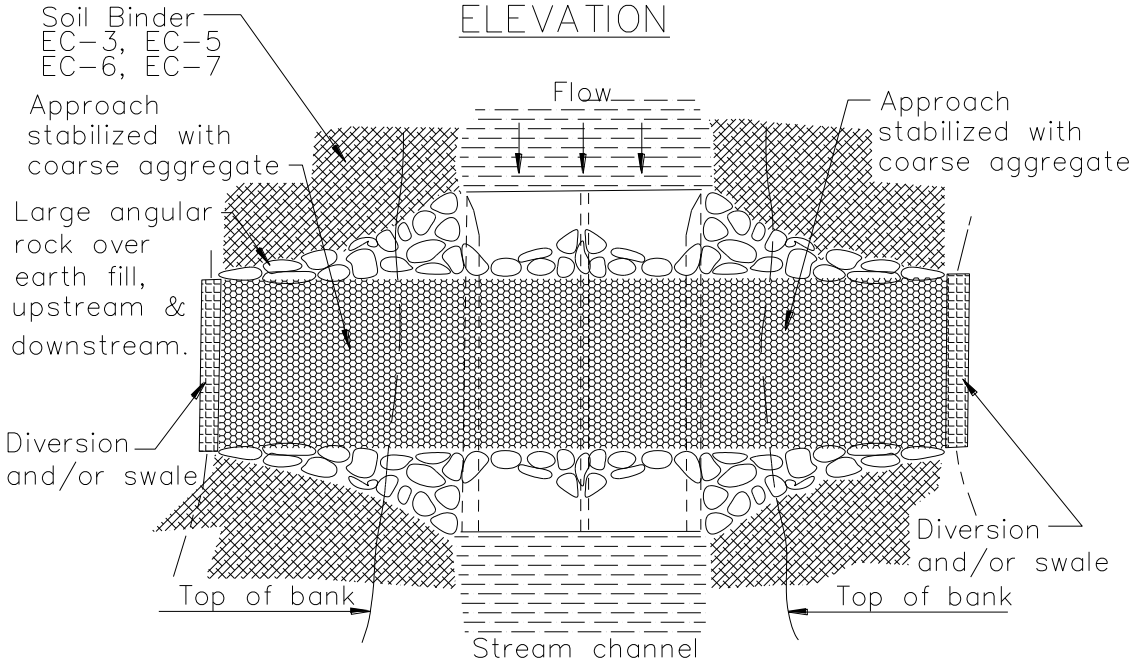


NOTE:
Surface flow of road diverted by swale and/or dike.

TYPICAL BRIDGE CROSSING
NOT TO SCALE

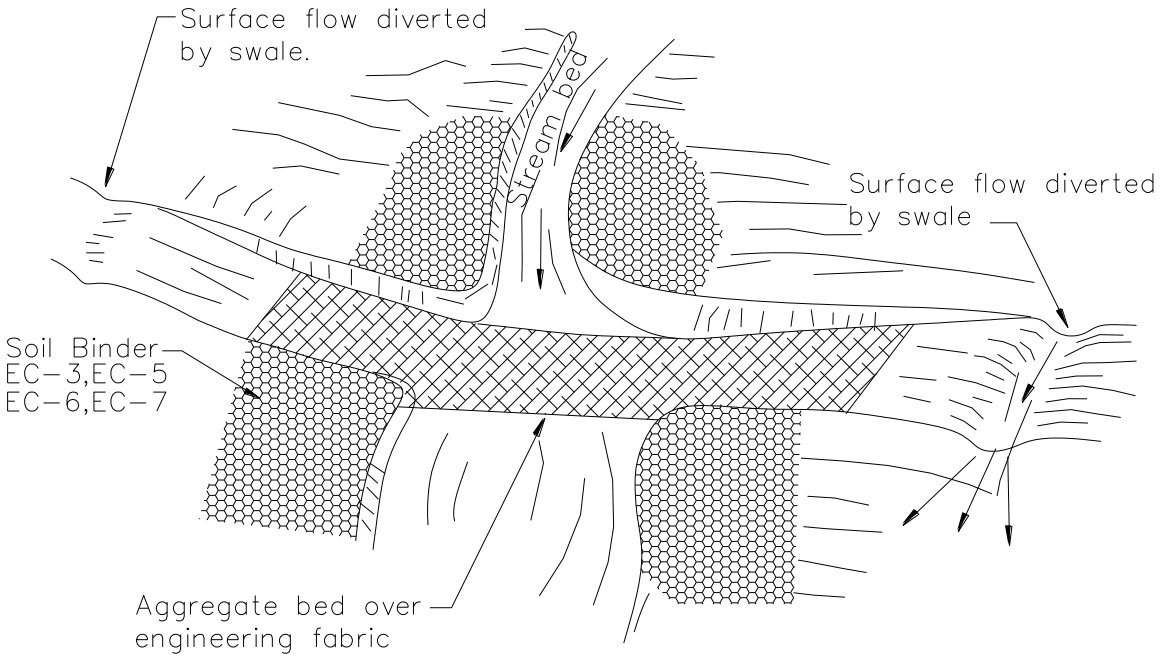


ELEVATION

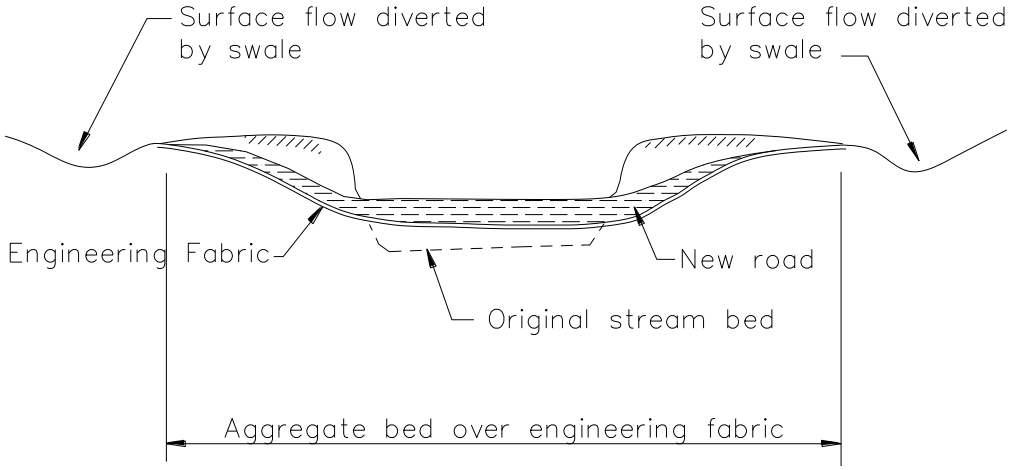


PLAN VIEW

TYPICAL CULVERT CROSSING
NOT TO SCALE

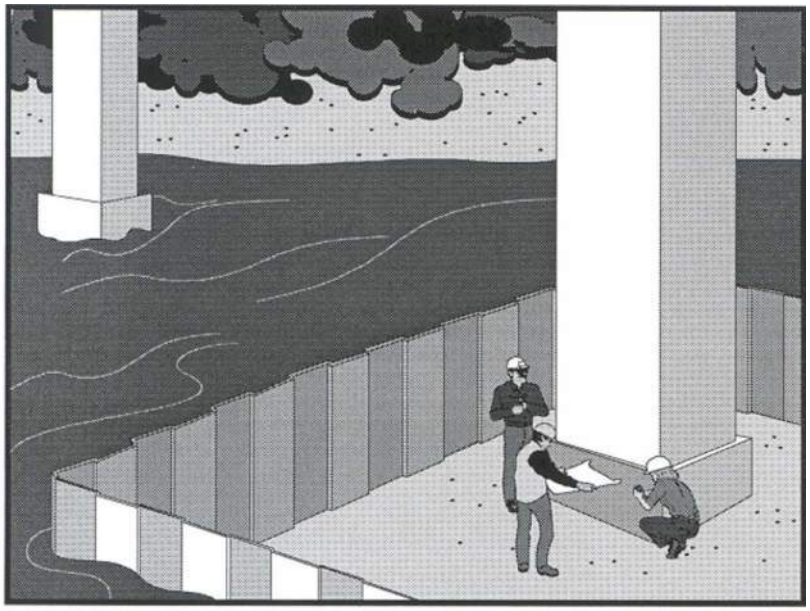


Aggregate approch
1:5 (V:H) Maximum slope on road



TYPICAL FORD CROSSING
NOT TO SCALE

Clear Water Diversion NS-5



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

Clear water diversion consists of a system of structures and measures that intercept clear surface water runoff upstream of a project, transport it around the work area, and discharge it downstream with minimal water quality degradation from either the project construction operations or the construction of the diversion. Clear water diversions are used in a waterway to enclose a construction area and reduce sediment pollution from construction work occurring in or adjacent to water. Structures commonly used as part of this system include diversion ditches, berms, dikes, slope drains, rock, gravel bags, wood, aqua barriers, cofferdams, filter fabric or turbidity curtains, drainage and interceptor swales, pipes, or flumes.

Suitable Applications

A clear water diversion is typically implemented where appropriate permits (1601 Agreement) have been secured and work must be performed in a flowing stream or water body.

- Clear water diversions are appropriate for isolating construction activities occurring within or near a water body such as streambank stabilization, or culvert, bridge, pier or abutment installation. They may also be used in combination with other methods, such as clear water bypasses and/or pumps.
- Pumped diversions are suitable for intermittent and low flow streams.
- Excavation of a temporary bypass channel, or passing the flow through a heavy pipe (called a “flume”) with a trench

excavated under it, is appropriate for the diversion of streams less than 20 ft wide, with flow rates less than 100 cfs.

- Clear water diversions incorporating clean washed gravel may be appropriate for use in salmonid spawning streams.

Limitations

- Diversion and encroachment activities will usually disturb the waterway during installation and removal of diversion structures.
- Installation may require Regional Water Quality Control Board (RWQCB) 401 Certification, U.S. Army Corps of Engineers 404 permit and approval by California Department of Fish and Game. If numerical-based water quality standards are mentioned in any of these and other related permits, testing and sampling may be required.
- Diversion and encroachment activities may constrict the waterway, which can obstruct flood flows and cause flooding or washouts. Diversion structures should not be installed without identifying potential impacts to the stream channel.
- Diversion or isolation activities are not appropriate in channels where there is insufficient stream flow to support aquatic species in the area dewatered as a result of the diversion.
- Diversion or isolation activities are inappropriate in deep water unless designed or reviewed by an engineer registered in California.
- Diversion or isolation activities should not completely dam stream flow.
- Dewatering and removal may require additional sediment control or water treatment. See NS-2, Dewatering Operations.
- Not appropriate if installation, maintenance, and removal of the structures will disturb sensitive aquatic species of concern.

Implementation

General

- Implement guidelines presented in EC-12, Streambank Stabilization to minimize impacts to streambanks.
- Where working areas encroach on flowing streams, barriers adequate to prevent the flow of muddy water into streams should be constructed and maintained between working areas and streams. During construction of the barriers, muddying of streams should be held to a minimum.
- Diversion structures must be adequately designed to accommodate fluctuations in water depth or flow volume due to tides, storms, flash floods, etc.
- Heavy equipment driven in wet portions of a water body to accomplish work should be completely clean of petroleum residue, and water levels should be below the fuel tanks, gearboxes, and axles of the equipment unless lubricants and fuels are sealed such that inundation by water will not result in discharges of fuels, oils, greases, or hydraulic fluids.

- Excavation equipment buckets may reach out into the water for the purpose of removing or placing fill materials. Only the bucket of the crane/ excavator/backhoe may operate in a water body. The main body of the crane/excavator/backhoe should not enter the water body except as necessary to cross the stream to access the work site.
- Stationary equipment such as motors and pumps located within or adjacent to a water body, should be positioned over drip pans.
- When any artificial obstruction is being constructed, maintained, or placed in operation, sufficient water should, at all times, be allowed to pass downstream to maintain aquatic life.
- Equipment should not be parked below the high water mark unless allowed by a permit.
- Disturbance or removal of vegetation should not exceed the minimum necessary to complete operations. Precautions should be taken to avoid damage to vegetation by people or equipment. Disturbed vegetation should be replaced with the appropriate erosion control measures.
- Riparian vegetation approved for trimming as part of the project should be cut off no lower than ground level to promote rapid re-growth. Access roads and work areas built over riparian vegetation should be covered by a sufficient layer of clean river run cobble to prevent damage to the underlying soil and root structure. The cobble should be removed upon completion of project activities.
- Drip pans should be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than 1 hour.
- Where possible, avoid or minimize diversion and encroachment impacts by scheduling construction during periods of low flow or when the stream is dry. Scheduling should also consider seasonal releases of water from dams, fish migration and spawning seasons, and water demands due to crop irrigation.
- Construct diversion structures with materials free of potential pollutants such as soil, silt, sand, clay, grease, or oil.

Temporary Diversions and Encroachments

- Construct diversion channels in accordance with EC-9, Earth Dikes and Drainage Swales.
- In high flow velocity areas, stabilize slopes of embankments and diversion ditches using an appropriate liner, in accordance with EC-7, Geotextiles and Mats, or use rock slope protection.
- Where appropriate, use natural streambed materials such as large cobbles and boulders for temporary embankment and slope protection, or other temporary soil stabilization methods.
- Provide for velocity dissipation at transitions in the diversion, such as the point where the stream is diverted to the channel and the point where the diverted stream is returned to its natural channel. See also EC-10, Velocity Dissipation Devices.

Temporary Dry Construction Areas

- When dewatering behind temporary structures to create a temporary dry construction area, such as cofferdams, pass pumped water through a sediment-settling device, such as a portable tank or settling basin, before returning water to the water body. See also NS-2, Dewatering Operations.

- Any substance used to assemble or maintain diversion structures, such as form oil, should be non-toxic and non-hazardous.

- Any material used to minimize seepage underneath diversion structures, such as grout, should be non-toxic, non-hazardous, and as close to a neutral pH as possible.

Comparison of Diversion and Isolation Techniques:

- Gravel bags are relatively inexpensive, but installation and removal can be labor intensive. It is also difficult to dewater the isolated area. Sandbags should not be used for this technique in rivers or streams, as sand should never be put into or adjacent to a stream, even if encapsulated in geotextile.

- Gravel Bag Berms (SE-6) used in conjunction with an impermeable membrane are cost effective, and can be dewatered relatively easily. If spawning gravel is used, the impermeable membrane can be removed from the stream, and the gravel can be spread out and left as salmonid spawning habitat if approved in the permit. Only clean, washed gravel should be used for both the gravel bag and gravel berm techniques.

- Cofferdams are relatively expensive, but frequently allow full dewatering. Also, many options now available are relatively easy to install.

- Sheet pile enclosures are a much more expensive solution, but do allow full dewatering. This technique is not well suited to small streams, but can be effective on large rivers or lakes, and where staging and heavy equipment access areas are available.

- K-rails are an isolation method that does not allow full dewatering, but can be used in small to large watercourses, and in fast-water situations.

- A relatively inexpensive isolation method is filter fabric isolation. This method involves placement of gravel bags or continuous berms to 'key-in' the fabric, and subsequently staking the fabric in place. This method should be used in relatively calm water, and can be used in smaller streams. Note that this is not a dewatering method, but rather a sediment isolation method.

- Turbidity curtains should be used where sediment discharge to a stream is unavoidable. They can also be used for in-stream construction, when dewatering an area is not required.

- When used in watercourses or streams, cofferdams must be used in accordance with permit requirements.

- Manufactured diversion structures should be installed following manufacturer's specifications.

- Filter fabric and turbidity curtain isolation installation methods can be found in the specific technique descriptions that follow.

Filter Fabric Isolation Technique

Definition and Purpose

A filter fabric isolation structure is a temporary structure built into a waterway to enclose a construction area and reduce sediment pollution from construction work in or adjacent to water. This structure is composed of filter fabric, gravel bags, and steel t-posts.

Appropriate Applications

- Filter fabric may be used for construction activities such as streambank stabilization, or culvert, bridge, pier or abutment installation. It may also be used in combination with other methods, such as clean water bypasses and/or pumps.
- Filter fabric isolation is relatively inexpensive. This method involves placement of gravel bags or continuous berms to 'key-in' the fabric, and subsequently staking the fabric in place.
- If spawning gravel is used, all other components of the isolation can be removed from the stream, and the gravel may be spread out and left as salmonid spawning habitat if approved in the permit. Whether spawning gravel or other types of gravel are used, only clean washed gravel should be used as infill for the gravel bags or continuous berm.
- This method should be used in relatively calm water, and can be used in smaller streams. This is not a dewatering method, but rather a sediment isolation method.
- Water levels inside and outside the fabric curtain must be about the same, as differential heads will cause the curtain to collapse.

Limitations

- Do not use if the installation, maintenance and removal of the structures will disturb sensitive aquatic species of concern.
- Filter fabrics are not appropriate for projects where dewatering is necessary.
- Filter fabrics are not appropriate to completely dam stream flow.

Design and Installation

- For the filter fabric isolation method, a non-woven or heavy-duty fabric is recommended over standard silt fence. Using rolled geotextiles allows non-standard widths to be used.
- Anchor filter fabric with gravel bags filled with clean, washed gravel. Do not use sand. If a bag should split open, the gravel can be left in the stream, where it can provide aquatic habitat benefits. If a sandbag splits open in a watercourse, the sand could cause a decrease in water quality, and could bury sensitive aquatic habitat.
- Another anchor alternative is a continuous berm, made with the Continuous Berm Machine. This is a gravel-filled bag that can be made in very long segments. The length of the berms is usually limited to 18 ft for ease of handling (otherwise, it gets too heavy to move).

- Place the fabric on the bottom of the stream, and place either a bag of clean, washed gravel or a continuous berm over the bottom of the silt fence fabric, such that a bag-width of fabric lies on the stream bottom. The bag should be placed on what will be the outside of the isolation area.
- Pull the fabric up, and place a metal t-post immediately behind the fabric, on the inside of the isolation area; attach the silt fence to the post with three diagonal nylon ties.
- Continue placing fabric as described above until the entire work area has been isolated, staking the fabric at least every 6 ft.

Inspection and Maintenance

- Immediately repair any gaps, holes or scour.
- Remove and properly dispose of sediment buildup.
- Remove BMP upon completion of construction activity. Recycle or reuse if applicable.
- Revegetate areas disturbed by BMP removal if needed.

Turbidity Curtain Isolation Technique

Definition and Purpose

A turbidity curtain is a fabric barrier used to isolate the near shore work area. The barriers are intended to confine the suspended sediment. The curtain is a floating barrier, and thus does not prevent water from entering the isolated area; rather, it prevents suspended sediment from getting out.

Appropriate Applications

Turbidity curtains should be used where sediment discharge to a stream is unavoidable. They are used when construction activities adjoin quiescent waters, such as lakes, ponds, and slow flowing rivers. The curtains are designed to deflect and contain sediment within a limited area and provide sufficient retention time so that the sediment particles will fall out of suspension.

Limitations

- Turbidity curtains should not be used in flowing water; they are best suited for use in ponds, lakes, and very slow-moving rivers.
- Turbidity curtains should not be placed across the width of a channel.
- Removing sediment that has been deflected and settled out by the curtain may create a discharge problem through the resuspension of particles and by accidental dumping by the removal equipment.

Design and Installation

- Turbidity curtains should be oriented parallel to the direction of flow.
- The curtain should extend the entire depth of the watercourse in calm-water situations.
- In wave conditions, the curtain should extend to within 1 ft of the bottom of the watercourse, such that the curtain does not stir up sediment by hitting the bottom repeatedly. If it is

desirable for the curtain to reach the bottom in an active-water situation, a pervious filter fabric may be used for the bottom 1 ft.

- The top of the curtain should consist of flexible flotation buoys, and the bottom should be held down by a load line incorporated into the curtain fabric. The fabric should be a brightly colored impervious mesh.
- The curtain should be held in place by anchors placed at least every 100 ft.
- First, place the anchors, then tow the fabric out in a furled condition, and connect to the anchors. The anchors should be connected to the flotation devices, and not to the bottom of the curtain. Once in place, cut the furling lines, and allow the bottom of the curtain to sink.
- Consideration must be given to the probable outcome of the removal procedure. It must be determined if it will create more of a sediment problem through re-suspension of the particles or by accidental dumping of material during removal. It is recommended that the soil particles trapped by the turbidity curtain only be removed if there has been a significant change in the original contours of the affected area in the watercourse.
- Particles should always be allowed to settle for a minimum of 6 to 12 hours prior to their removal or prior to removal of the turbidity curtain.

Maintenance and Inspection:

- The curtain should be inspected for holes or other problems, and any repairs needed should be made promptly.
- Allow sediment to settle for 6 to 12 hours prior to removal of sediment or curtain. This means that after removing sediment, wait an additional 6 to 12 hours before removing the curtain.
- To remove, install furling lines along the curtain, detach from anchors, and tow out of the water.

K-rail River Isolation

Definition and Purpose

This temporary sediment control or stream isolation method uses K-rails to form the sediment deposition area, or to isolate the in-stream or near-bank construction area.

Barriers are placed end-to-end in a pre-designed configuration and gravel-filled bags are used at the toe of the barrier and at their abutting ends to seal and prevent movement of sediment beneath or through the barrier walls.

Appropriate Applications

The K-rail isolation can be used in streams with higher water velocities than many other isolation techniques.

- This technique is also useful at the toe of embankments, and cut or fill slopes.

Limitations

- The K-rail method should not be used to dewater a project site, as the barrier is not watertight.

Design and Installation

- To create a floor for the K-rail, move large rocks and obstructions. Place washed gravel and gravel-filled bags to create a level surface for K-rails to sit. Washed gravel should always be used.
- Place the bottom two K-rails adjacent to each other, and parallel to the direction of flow; fill the center portion with gravel bags. Then place the third K-rail on top of the bottom two. There should be sufficient gravel bags between the bottom K-rails such that the top rail is supported by the gravel. Place plastic sheeting around the K-rails, and secure at the bottom with gravel bags.
- Further support can be added by pinning and cabling the K-rails together. Also, large riprap and boulders can be used to support either side of the K-rail, especially where there is strong current.

Inspection and Maintenance:

- The barrier should be inspected and any leaks, holes, or other problems should be addressed immediately.
- Sediment should be allowed to settle for at least 6 to 12 hours prior to removal of sediment, and for 6 to 12 hours prior to removal of the barrier.

Stream Diversions

The selection of which stream diversion technique to use will depend upon the type of work involved, physical characteristics of the site, and the volume of water flowing through the project.

Advantages of a Pumped Diversion

- Downstream sediment transport can be nearly eliminated.
- Dewatering of the work area is possible.
- Pipes can be moved around to allow construction operations.
- The dams can serve as temporary access to the site.
- Increased flows can be managed by adding more pumping capacity.

Disadvantages of a Pumped Diversion

- Flow volume is limited by pump capacity.
- A pumped diversion requires 24 hour monitoring of pumps.
- Sudden rain could overtop dams.
- Erosion at the outlet.

- Minor in-stream disturbance is required to install and remove dams.

Advantages of Excavated Channels and Flumes

- Excavated channels isolate work from water flow and allow dewatering.
- Excavated channels can handle larger flows than pumps.

Disadvantages of Excavated Channels and Flumes

- Bypass channel or flume must be sized to handle flows, including possible floods.
- Channels must be protected from erosion.
- Flow diversion and re-direction with small dams involves in-stream disturbance and mobilization of sediment.

Design and Installation

- Installation guidelines will vary based on existing site conditions and type of diversion used.
- Pump capacity must be sufficient for design flow.
- A standby pump is required in case a primary pump fails.
- Dam materials used to create dams upstream and downstream of diversion should be erosion resistant; materials such as steel plate, sheet pile, sandbags, continuous berms, inflatable water bladders, etc., would be acceptable.

When constructing a diversion channel, begin excavation of the channel at the proposed downstream end, and work upstream. Once the watercourse to be diverted is reached and the excavated channel is stable, breach the upstream end and allow water to flow down the new channel. Once flow has been established in the diversion channel, install the diversion weir in the main channel; this will force all water to be diverted from the main channel.

Inspection and Maintenance

- Pumped diversions require 24 hour monitoring of pumps.
- Inspect embankments and diversion channels for damage to the linings, accumulating debris, sediment buildup, and adequacy of the slope protection. Remove debris and repair linings and slope protection as required. Remove holes, gaps, or scour.
- Upon completion of work, the diversion or isolation structure should be removed and flow should be redirected through the new culvert or back into the original stream channel. Recycle or reuse if applicable.
- Revegetate areas disturbed by BMP removal if needed.

Costs

Costs of clear water diversion vary considerably and can be very high.

Inspection and Maintenance

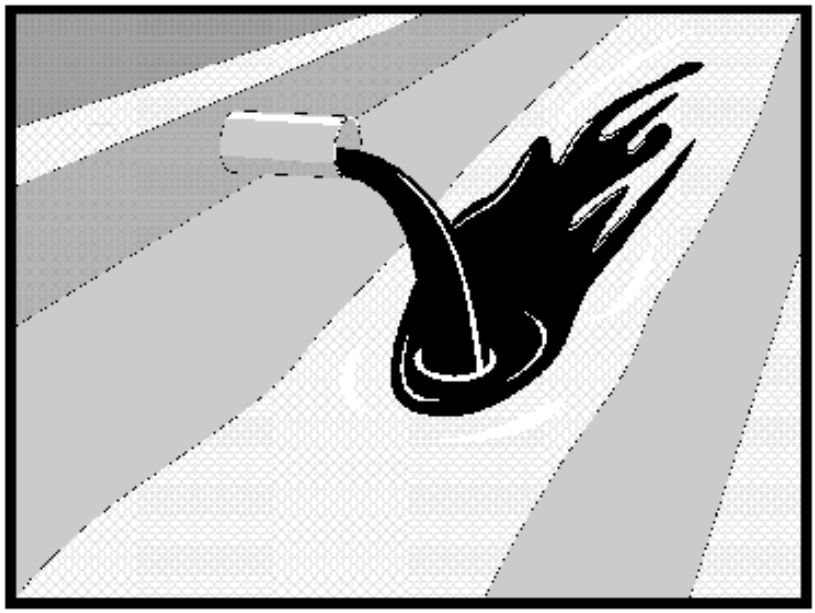
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Refer to BMP-specific inspection and maintenance requirements.

References

California Bank and Shore Rock Slope Protection Design – Practitioners Guide and Field Evaluations of Riprap Methods, Caltrans Study No. F90TL03, October, 2000.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Illicit Connection / Discharge NS-6



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Procedures and practices designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Illicit connection/discharge and reporting is applicable anytime an illicit connection or discharge is discovered or illegally dumped material is found on the construction site.

Limitations

Illicit connections and illegal discharges or dumping, for the purposes of this BMP, refer to discharges and dumping caused by parties other than the contractor. If pre-existing hazardous materials or wastes are known to exist onsite, they should be identified in the SWPPP and handled as set forth in the SWPPP.

Implementation

Planning

- Review the SWPPP. Pre-existing areas of contamination should be identified and documented in the SWPPP.
- Inspect site before beginning the job for evidence of illicit connections, illegal dumping or discharges. Document any pre-existing conditions and notify the owner.

- Inspect site regularly during project execution for evidence of illicit connections, illegal dumping or discharges.
- Observe site perimeter for evidence for potential of illicitly discharged or illegally dumped material, which may enter the job site.

Identification of Illicit Connections and Illegal Dumping or Discharges

- **General –** unlabeled and unidentifiable material should be treated as hazardous.
- **Solids** - Look for debris, or rubbish piles. Solid waste dumping often occurs on roadways with light traffic loads or in areas not easily visible from the traveled way.
- **Liquids** - signs of illegal liquid dumping or discharge can include:
  - Visible signs of staining or unusual colors to the pavement or surrounding adjacent soils
  - Pungent odors coming from the drainage systems
  - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes
  - Abnormal water flow during the dry weather season
- **Urban Areas** - Evidence of illicit connections or illegal discharges is typically detected at storm drain outfall locations or at manholes. Signs of an illicit connection or illegal discharge can include:
  - Abnormal water flow during the dry weather season
  - Unusual flows in sub drain systems used for dewatering
  - Pungent odors coming from the drainage systems
  - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes
  - Excessive sediment deposits, particularly adjacent to or near active offsite construction projects
- **Rural Areas** - Illicit connections or illegal discharges involving irrigation drainage ditches are detected by visual inspections. Signs of an illicit discharge can include:
  - Abnormal water flow during the non-irrigation season
  - Non-standard junction structures
  - Broken concrete or other disturbances at or near junction structures

Reporting

Notify the owner of any illicit connections and illegal dumping or discharge incidents at the time of discovery. For illicit connections or discharges to the storm drain system, notify the local stormwater management agency. For illegal dumping, notify the local law enforcement agency.

Cleanup and Removal

The responsibility for cleanup and removal of illicit or illegal dumping or discharges will vary by location. Contact the local stormwater management agency for further information.

Costs

Costs to look for and report illicit connections and illegal discharges and dumping are low. The best way to avoid costs associated with illicit connections and illegal discharges and dumping is to keep the project perimeters secure to prevent access to the site, to observe the site for vehicles that should not be there, and to document any waste or hazardous materials that exist onsite before taking possession of the site.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect the site regularly to check for any illegal dumping or discharge.
- Prohibit employees and subcontractors from disposing of non-job related debris or materials at the construction site.
- Notify the owner of any illicit connections and illegal dumping or discharge incidents at the time of discovery.

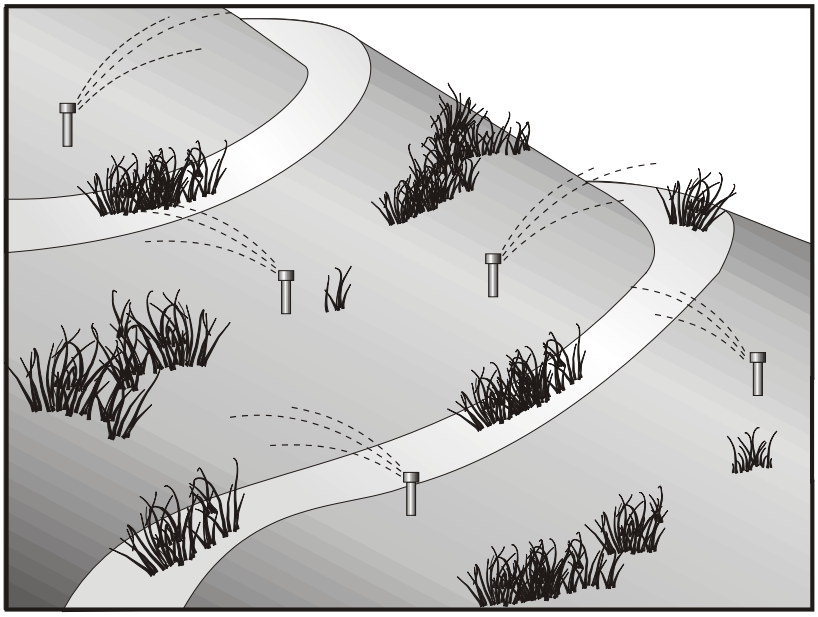
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Potable Water/Irrigation NS-7



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	☑

Potential Alternatives

None

Description and Purpose

Potable Water/Irrigation consists of practices and procedures to manage the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, lawn or garden watering, planned and unplanned discharges from potable water sources, water line flushing, and hydrant flushing.

Suitable Applications

Implement this BMP whenever potable water or irrigation water discharges occur at or enter a construction site.

Limitations

None identified.

Implementation

- Direct water from offsite sources around or through a construction site, where feasible, in a way that minimizes contact with the construction site.
- Discharges from water line flushing should be reused for landscaping purposes where feasible.
- Shut off the water source to broken lines, sprinklers, or valves as soon as possible to prevent excess water flow.
- Protect downstream stormwater drainage systems and watercourses from water pumped or bailed from trenches excavated to repair water lines.

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- Inspect irrigated areas within the construction limits for excess watering. Adjust watering times and schedules to ensure that the appropriate amount of water is being used and to minimize runoff. Consider factors such as soil structure, grade, time of year, and type of plant material in determining the proper amounts of water for a specific area.

Costs

Cost to manage potable water and irrigation are low and generally considered to be a normal part of related activities.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events..
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Repair broken water lines as soon as possible.
- Inspect irrigated areas regularly for signs of erosion and/or discharge.

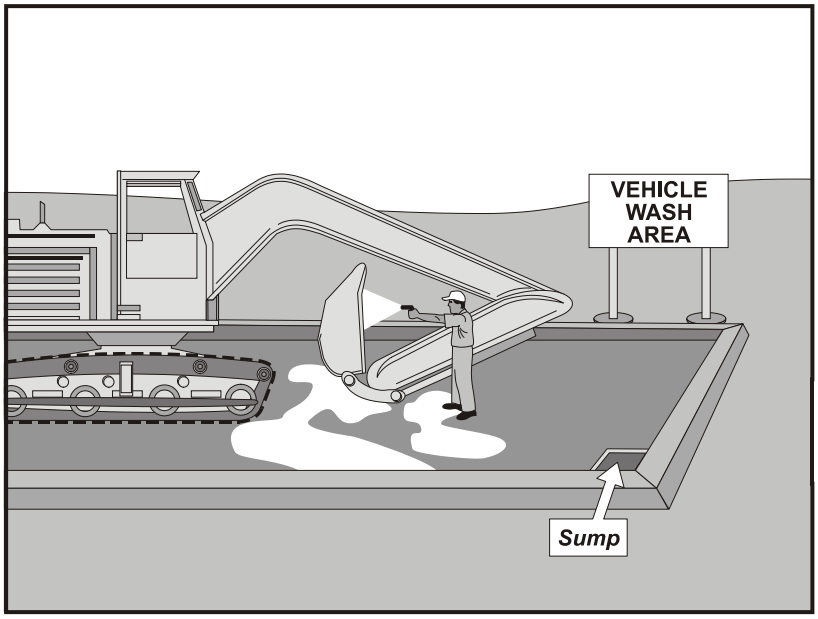
References

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Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Vehicle and Equipment Cleaning NS-8



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Vehicle and equipment cleaning procedures and practices eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations. Procedures and practices include but are not limited to: using offsite facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water; and training employees and subcontractors in proper cleaning procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment cleaning is performed.

Limitations

Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Implementation

Other options to washing equipment onsite include contracting with either an offsite or mobile commercial washing business. These businesses may be better equipped to handle and dispose of the wash waters properly. Performing this work offsite can also be economical by eliminating the need for a separate washing operation onsite.

If washing operations are to take place onsite, then:

- Use phosphate-free, biodegradable soaps.
- Educate employees and subcontractors on pollution prevention measures.
- Do not permit steam cleaning onsite. Steam cleaning can generate significant pollutant concentrates.
- Cleaning of vehicles and equipment with soap, solvents or steam should not occur on the project site unless resulting wastes are fully contained and disposed of. Resulting wastes should not be discharged or buried, and must be captured and recycled or disposed according to the requirements of WM-10, Liquid Waste Management or WM-6, Hazardous Waste Management, depending on the waste characteristics. Minimize use of solvents. Use of diesel for vehicle and equipment cleaning is prohibited.
- All vehicles and equipment that regularly enter and leave the construction site must be cleaned offsite.
- When vehicle and equipment washing and cleaning must occur onsite, and the operation cannot be located within a structure or building equipped with appropriate disposal facilities, the outside cleaning area should have the following characteristics:
  - Located away from storm drain inlets, drainage facilities, or watercourses
  - Paved with concrete or asphalt and bermed to contain wash waters and to prevent runon and runoff
  - Configured with a sump to allow collection and disposal of wash water
  - No discharge of wash waters to storm drains or watercourses
  - Used only when necessary
- When cleaning vehicles and equipment with water:
  - Use as little water as possible. High-pressure sprayers may use less water than a hose and should be considered
  - Use positive shutoff valve to minimize water usage
  - Facility wash racks should discharge to a sanitary sewer, recycle system or other approved discharge system and must not discharge to the storm drainage system, watercourses, or to groundwater

Costs

Cleaning vehicles and equipment at an offsite facility may reduce overall costs for vehicle and equipment cleaning by eliminating the need to provide similar services onsite. When onsite cleaning is needed, the cost to establish appropriate facilities is relatively low on larger, long-duration projects, and moderate to high on small, short-duration projects.

Inspection and Maintenance

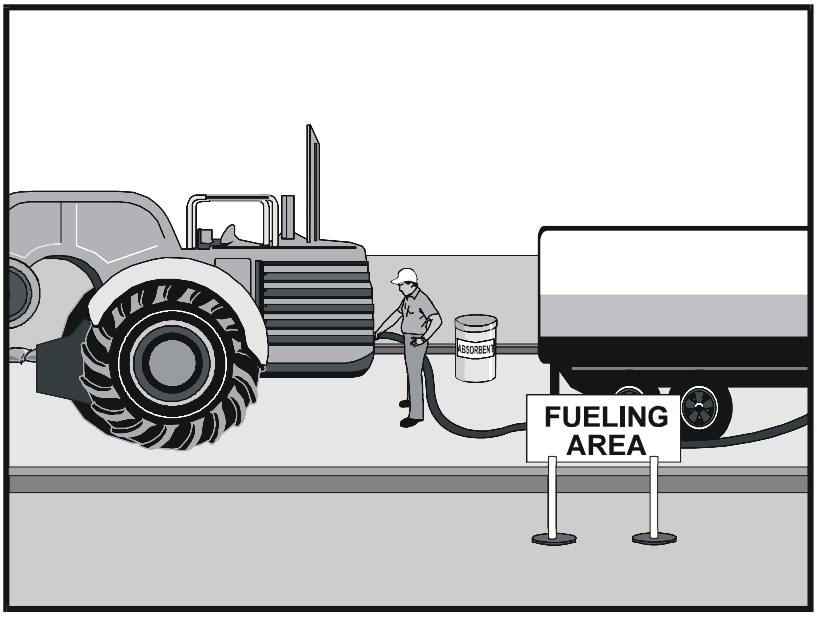
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspection and maintenance is minimal, although some berm repair may be necessary.
- Monitor employees and subcontractors throughout the duration of the construction project to ensure appropriate practices are being implemented.
- Inspect sump regularly and remove liquids and sediment as needed.
- Prohibit employees and subcontractors from washing personal vehicles and equipment on the construction site.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Swisher, R.D. Surfactant Biodegradation, Marcel Decker Corporation, 1987.

Vehicle and Equipment Fueling NS-9



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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Description and Purpose

Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment fueling takes place.

Limitations

Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. Sending vehicles and equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/ Exit.

Implementation

- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.
- Discourage "topping-off" of fuel tanks.

- Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use.
- Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.
- Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the adsorbent materials promptly and dispose of properly.
- Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and large excavators, most vehicles should be able to travel to a designated area with little lost time.
- Train employees and subcontractors in proper fueling and cleanup procedures.
- When fueling must take place onsite, designate an area away from drainage courses to be used. Fueling areas should be identified in the SWPPP.
- Dedicated fueling areas should be protected from stormwater runon and runoff, and should be located at least 50 ft away from downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas.
- Protect fueling areas with berms and dikes to prevent runon, runoff, and to contain spills.
- Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.
- Use vapor recovery nozzles to help control drips as well as air pollution where required by Air Quality Management Districts (AQMD).
- Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Costs

- All of the above measures are low cost except for the capital costs of above ground tanks that meet all local environmental, zoning, and fire codes.

Inspection and Maintenance

- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.
- Keep ample supplies of spill cleanup materials onsite.

- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.

References

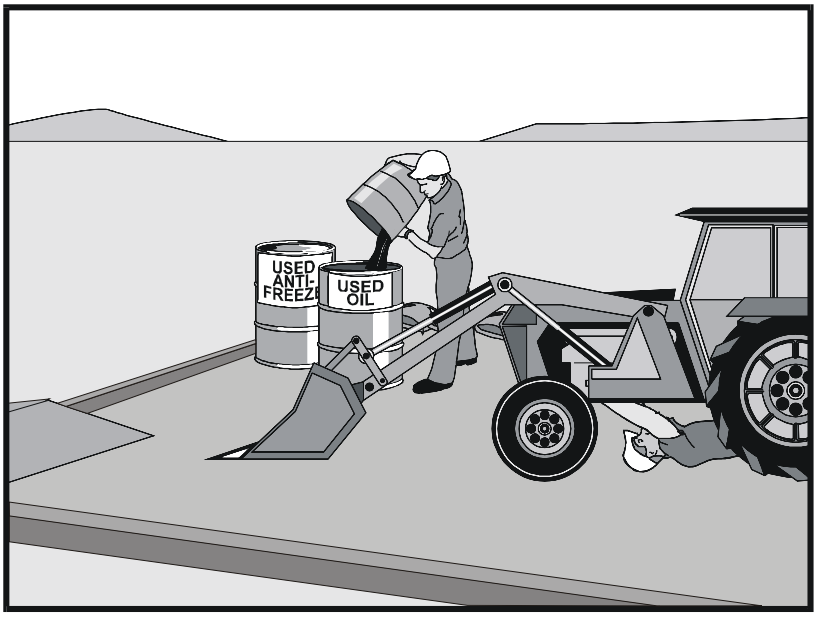
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Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Vehicle & Equipment Maintenance NS-10



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Description and Purpose

Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a "dry and clean site". The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.

Suitable Applications

These procedures are suitable on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Limitations

Onsite vehicle and equipment maintenance should only be used where it is impractical to send vehicles and equipment offsite for maintenance and repair. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Outdoor vehicle or equipment maintenance is a potentially significant source of stormwater pollution. Activities that can contaminate stormwater include engine repair and service, changing or replacement of fluids, and outdoor equipment storage and parking (engine fluid leaks). For further information on vehicle or equipment servicing, see NS-8,

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Vehicle and Equipment Cleaning, and NS-9, Vehicle and Equipment Fueling.

Implementation

- Use offsite repair shops as much as possible. These businesses are better equipped to handle vehicle fluids and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate maintenance area.
- If maintenance must occur onsite, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from stormwater runon and runoff, and should be located at least 50 ft from downstream drainage facilities and watercourses.
- Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices.
- Use adsorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
- Inspect onsite vehicles and equipment daily at startup for leaks, and repair immediately.
- Keep vehicles and equipment clean; do not allow excessive build-up of oil and grease.
- Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids. Provide secondary containment and covers for these materials if stored onsite.
- Train employees and subcontractors in proper maintenance and spill cleanup procedures.
- Drip pans or plastic sheeting should be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than 1 hour.
- For long-term projects, consider using portable tents or covers over maintenance areas if maintenance cannot be performed offsite.
- Consider use of new, alternative greases and lubricants, such as adhesive greases, for chassis lubrication and fifth-wheel lubrication.
- Properly dispose of used oils, fluids, lubricants, and spill cleanup materials.
- Do not place used oil in a dumpster or pour into a storm drain or watercourse.
- Properly dispose of or recycle used batteries.
- Do not bury used tires.

- Repair leaks of fluids and oil immediately.

Listed below is further information if you must perform vehicle or equipment maintenance onsite.

Safer Alternative Products

- Consider products that are less toxic or hazardous than regular products. These products are often sold under an "environmentally friendly" label.
- Consider use of grease substitutes for lubrication of truck fifth-wheels. Follow manufacturers label for details on specific uses.
- Consider use of plastic friction plates on truck fifth-wheels in lieu of grease. Follow manufacturers label for details on specific uses.

Waste Reduction

Parts are often cleaned using solvents such as trichloroethylene, trichloroethane, or methylene chloride. Many of these cleaners are listed in California Toxic Rule as priority pollutants. These materials are harmful and must not contaminate stormwater. They must be disposed of as a hazardous waste. Reducing the number of solvents makes recycling easier and reduces hazardous waste management costs. Often, one solvent can perform a job as well as two different solvents. Also, if possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. For example, replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check the list of active ingredients to see whether it contains chlorinated solvents. The "chlor" term indicates that the solvent is chlorinated. Also, try substituting a wire brush for solvents to clean parts.

Recycling and Disposal

Separating wastes allows for easier recycling and may reduce disposal costs. Keep hazardous wastes separate, do not mix used oil solvents, and keep chlorinated solvents (like,-trichloroethane) separate from non-chlorinated solvents (like kerosene and mineral spirits). Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around. Provide cover and secondary containment until these materials can be removed from the site.

Oil filters can be recycled. Ask your oil supplier or recycler about recycling oil filters.

Do not dispose of extra paints and coatings by dumping liquid onto the ground or throwing it into dumpsters. Allow coatings to dry or harden before disposal into covered dumpsters.

Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Costs

All of the above are low cost measures. Higher costs are incurred to setup and maintain onsite maintenance areas.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Keep ample supplies of spill cleanup materials onsite.
- Maintain waste fluid containers in leak proof condition.
- Vehicles and equipment should be inspected on each day of use. Leaks should be repaired immediately or the problem vehicle(s) or equipment should be removed from the project site.
- Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.

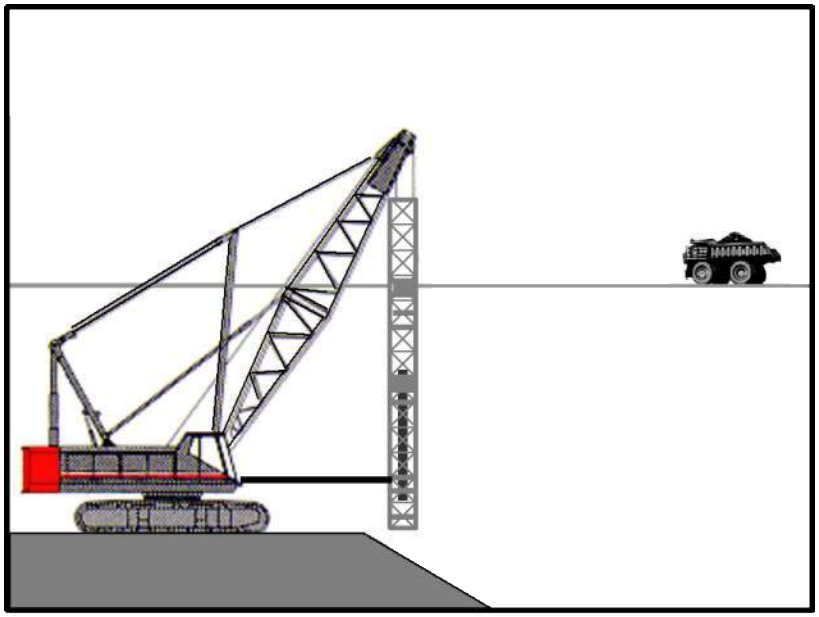
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Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Pile Driving Operations NS-11



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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Description and Purpose

The construction and retrofit of bridges and retaining walls often include driving piles for foundation support and shoring operations. Driven piles are typically constructed of precast concrete, steel, or timber. Driven sheet piles are also used for shoring and cofferdam construction. Proper control and use of equipment, materials, and waste products from pile driving operations will reduce or eliminate the discharge of potential pollutants to the storm drain system, watercourses, and waters of the United States.

Suitable Applications

These procedures apply to all construction sites near or adjacent to a watercourse or groundwater where permanent and temporary pile driving (impact and vibratory) takes place, including operations using pile shells as well as construction of cast-in-steel-shell and cast-in-drilled-hole piles.

Limitations

None identified.

Implementation

- Use drip pans or absorbent pads during vehicle and equipment operation, maintenance, cleaning, fueling, and storage. Refer to NS-8, Vehicle and Equipment Cleaning, NS-9, Vehicle and Equipment Fueling, and NS-10, Vehicle and Equipment Maintenance.

- Have spill kits and cleanup materials available at all locations of pile driving. Refer to WM-4, Spill Prevention and Control.
- Equipment that is stored or in use in streambeds, or on docks, barges, or other structures over water bodies should be kept leak free.
- Park equipment over plastic sheeting or equivalent where possible. Plastic is not a substitute for drip pans or absorbent pads. The storage or use of equipment in streambeds or other bodies of water must comply with all applicable permits.
- Implement other BMPs as applicable, such as NS-2, Dewatering Operations, WM-5, Solid Waste Management, WM-6, Hazardous Waste Management, and WM-10, Liquid Waste Management.
- When not in use, store pile-driving equipment away from concentrated flows of stormwater, drainage courses, and inlets. Protect hammers and other hydraulic attachments from runon and runoff by placing them on plywood and covering them with plastic or a comparable material prior to the onset of rain.
- Use less hazardous products, e.g., vegetable oil, when practicable.

Costs

All of the above measures can be low cost.

Inspection and Maintenance

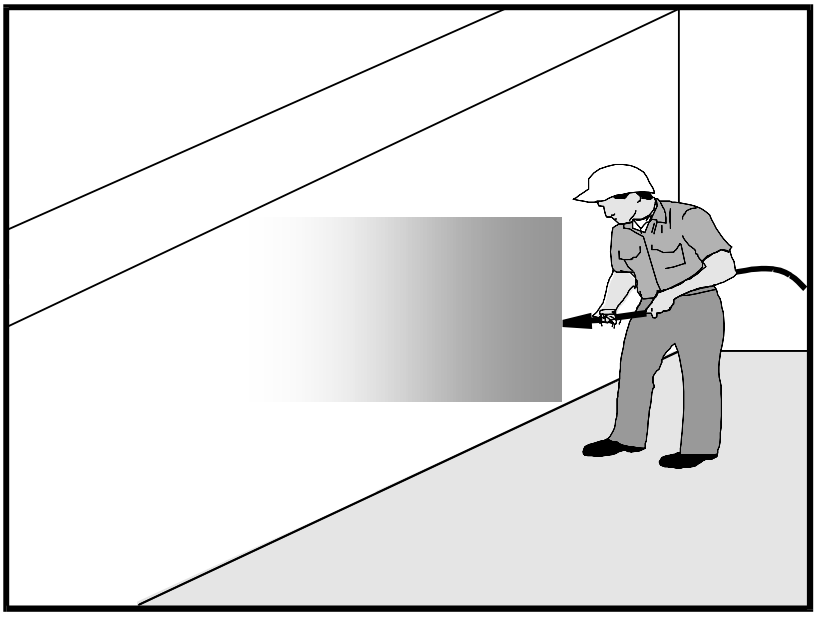
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspect equipment every day at startup and repair equipment as needed (i.e., worn or damaged hoses, fittings, and gaskets). Recheck equipment at shift changes or at the end of the day and scheduled repairs as needed.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Concrete Curing NS-12



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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Description and Purpose

Concrete curing is used in the construction of structures such as bridges, retaining walls, pump houses, large slabs, and structured foundations. Concrete curing includes the use of both chemical and water methods.

Concrete and its associated curing materials have basic chemical properties that can raise the pH of water to levels outside of the permitted range. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Proper procedures and care should be taken when managing concrete curing materials to prevent them from coming into contact with stormwater flows, which could result in a high pH discharge.

Suitable Applications

Suitable applications include all projects where Portland Cement Concrete (PCC) and concrete curing chemicals are placed where they can be exposed to rainfall, runoff from other areas, or where runoff from the PCC will leave the site.

Limitations

- Runoff contact with concrete waste can raise pH levels in the water to environmentally harmful levels and trigger permit violations.

Implementation

Chemical Curing

- Avoid over spray of curing compounds.
- Minimize the drift by applying the curing compound close to the concrete surface. Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.
- Use proper storage and handling techniques for concrete curing compounds. Refer to WM-1, Material Delivery and Storage.
- Protect drain inlets prior to the application of curing compounds.
- Refer to WM-4, Spill Prevention and Control.

Water Curing for Bridge Decks, Retaining Walls, and other Structures

- Direct cure water away from inlets and watercourses to collection areas for evaporation or other means of removal in accordance with all applicable permits. See WM-8 Concrete Waste Management.
- Collect cure water at the top of slopes and transport to a concrete waste management area in a non-erosive manner. See EC-9 Earth Dikes and Drainage Swales, EC-10, Velocity Dissipation Devices, and EC-11, Slope Drains.
- Utilize wet blankets or a similar method that maintains moisture while minimizing the use and possible discharge of water.

Education

- Educate employees, subcontractors, and suppliers on proper concrete curing techniques to prevent contact with discharge as described herein.
- Arrange for the QSP or the appropriately trained contractor's superintendent or representative to oversee and enforce concrete curing procedures.

Costs

All of the above measures are generally low cost.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.

- Sample non-stormwater discharges and stormwater runoff that contacts uncured and partially cured concrete as required by the General Permit.
- Ensure that employees and subcontractors implement appropriate measures for storage, handling, and use of curing compounds.
- Inspect cure containers and spraying equipment for leaks.

References

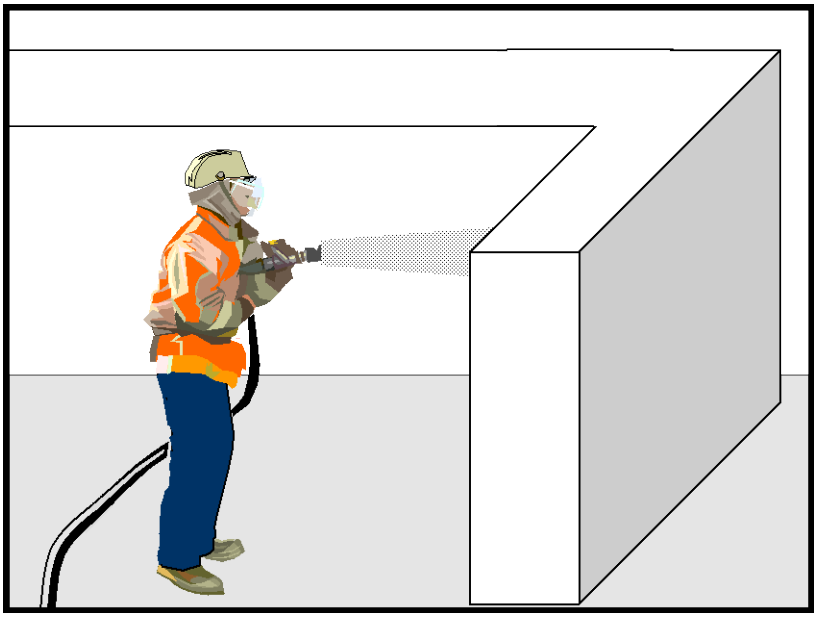
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Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Concrete Finishing NS-13



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	☑

Potential Alternatives

None

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Description and Purpose

Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Stormwater and non-stormwater exposed to concrete finishing by-products may have a high pH and may contain chemicals, metals, and fines. Proper procedures and implementation of appropriate BMPs can minimize the impact that concrete-finishing methods may have on stormwater and non-stormwater discharges.

The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Concrete and its associated curing materials have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures apply to all construction locations where concrete finishing operations are performed.

Limitations

- Runoff contact with concrete waste can raise pH levels in the water to environmentally harmful levels and trigger permit violations.

Implementation

- Collect and properly dispose of water from high-pressure water blasting operations.
- Collect contaminated water from blasting operations at the top of slopes. Transport or dispose of contaminated water while using BMPs such as those for erosion control. Refer to EC-9, Earth Dikes and Drainage Swales, EC-10, Velocity Dissipation Devices, and EC-11, Slope Drains.
- Direct water from blasting operations away from inlets and watercourses to collection areas for infiltration or other means of removal (dewatering). Refer to NS-2 Dewatering Operations.
- Protect inlets during sandblasting operations. Refer to SE-10, Storm Drain Inlet Protection.
- Refer to WM-8, Concrete Waste Management for disposal of concrete debris.
- Minimize the drift of dust and blast material as much as possible by keeping the blasting nozzle close to the surface.
- When blast residue contains a potentially hazardous waste, refer to WM-6, Hazardous Waste Management.

Education

- Educate employees, subcontractors, and suppliers on proper concrete finishing techniques to prevent contact with discharge as described herein.
- Arrange for the QSP or the appropriately trained contractor's superintendent or representative to oversee and enforce concrete finishing procedures.

Costs

These measures are generally of low cost.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Sample non-stormwater discharges and stormwater runoff that contacts concrete dust and debris as required by the General Permit.

- Sweep or vacuum up debris from sandblasting at the end of each shift.
- At the end of each work shift, remove and contain liquid and solid waste from containment structures, if any, and from the general work area.
- Inspect containment structures for damage prior to use and prior to onset of forecasted rain.

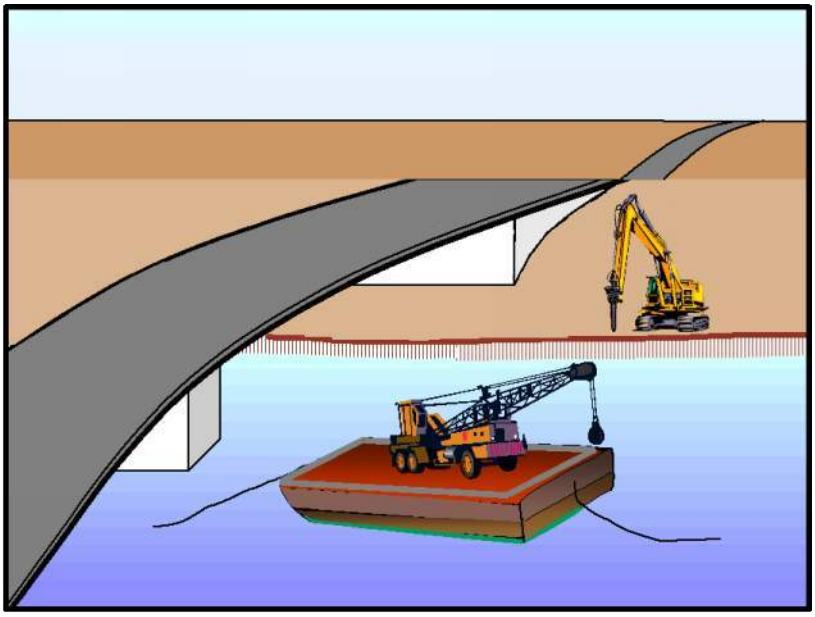
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Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Material Over Water NS-14



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Procedures for the proper use, storage, and disposal of materials and equipment on barges, boats, temporary construction pads, or similar locations that minimize or eliminate the discharge of potential pollutants to a watercourse.

Suitable Applications

Applies where materials and equipment are used on barges, boats, docks, and other platforms over or adjacent to a watercourse including waters of the United States. These procedures should be implemented for construction materials and wastes (solid and liquid), soil or dredging materials, or any other materials that may cause or contribute to exceedances of water quality standards.

Limitations

Dredge and fill activities are regulated by the US Army Corps of Engineers and Regional Boards under Section 404/401 of the Clean Water Act.

Implementation

- Refer to WM-1, Material Delivery and Storage and WM-4, Spill Prevention and Control.
- Use drip pans and absorbent materials for equipment and vehicles and ensure that an adequate supply of spill clean up materials is available.
- Drip pans should be placed under all vehicles and equipment placed on docks, barges, or other structures over

water bodies when the vehicle or equipment is expected to be idle for more than 1 hour.

- Maintain equipment in accordance with NS-10, Vehicle and Equipment Maintenance. If a leaking line cannot be repaired, remove equipment from over the water.
- Provide watertight curbs or toe boards to contain spills and prevent materials, tools, and debris from leaving the barge, platform, dock, etc.
- Secure all materials to prevent discharges to receiving waters via wind.
- Identify types of spill control measures to be employed, including the storage of such materials and equipment. Ensure that staff is trained regarding the use of the materials, deployment and access of control measures, and reporting measures.
- In case of spills, contact the local Regional Board as soon as possible but within 48 hours.
- Refer to WM-5, Solid Waste Management (non-hazardous) and WM-6, Hazardous Waste Management. Ensure the timely and proper removal of accumulated wastes
- Comply with all necessary permits required for construction within or near the watercourse, such as Regional Water Quality Control Board, U.S. Army Corps of Engineers, Department of Fish and Game or and other local permitting.
- Discharges to waterways should be reported to the Regional Water Quality Control Board immediately upon discovery. A written discharge notification must follow within 7 days. Follow the spill reporting procedures contained in SWPPP.

Costs

These measures are generally of low to moderate cost. Exceptions are areas for temporary storage of materials, engine fluids, or wastewater pump out.

Inspection and Maintenance

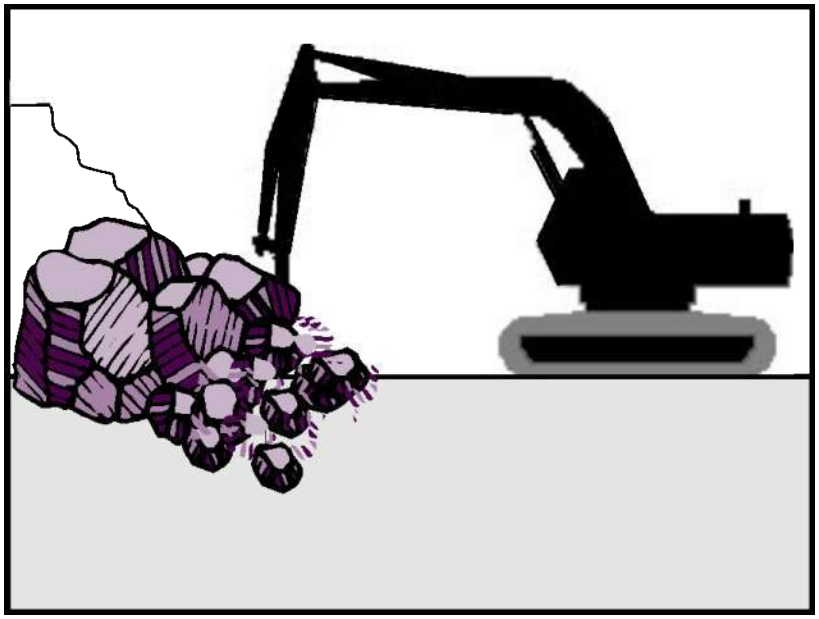
- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Ensure that employees and subcontractors implement the appropriate measures for storage and use of materials and equipment.
- Inspect and maintain all associated BMPs and perimeter controls to ensure continuous protection of the water courses, including waters of the United States.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Demolition Adjacent to Water NS-15



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Procedures to protect water bodies from debris and wastes associated with structure demolition or removal over or adjacent to watercourses.

Suitable Applications

Full bridge demolition and removal, partial bridge removal (barrier rail, edge of deck) associated with bridge widening projects, concrete channel removal, or any other structure removal that could potentially affect water quality.

Limitations

None identified.

Implementation

- Refer to NS-5, Clear Water Diversion, to direct water away from work areas.
- Use attachments on construction equipment such as backhoes to catch debris from small demolition operations.
- Use covers or platforms to collect debris.
- Platforms and covers are to be approved by the owner.
- Stockpile accumulated debris and waste generated during demolition away from watercourses and in accordance with WM-3, Stockpile Management.
- Ensure safe passage of wildlife, as necessary.

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- Discharges to waterways shall be reported to the Regional Water Quality Control Board immediately upon discovery. A written discharge notification must follow within 7 days. Follow the spill reporting procedures in the SWPPP.

- For structures containing hazardous materials, i.e., lead paint or asbestos, refer to BMP WM-6, Hazardous Waste Management. For demolition work involving soil excavation around lead-painted structures, refer to WM-7, Contaminated Soil Management.

Costs

Cost may vary according to the combination of practices implemented.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

- Any debris-catching devices shall be emptied regularly. Collected debris shall be removed and stored away from the watercourse and protected from runon and runoff.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Temporary Batch Plants NS-16



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

The construction of roads, bridges, retaining walls, and other large structures in remote areas, often requires temporary batch plant facilities to manufacture Portland Cement Concrete (PCC) or asphalt cement (AC). Temporary batch plant facilities typically consist of silos containing fly ash, lime, and cement; heated tanks of liquid asphalt; sand and gravel material storage areas; mixing equipment; above ground storage tanks containing concrete additives and water; and designated areas for sand and gravel truck unloading, concrete truck loading, and concrete truck washout. Proper control and use of equipment, materials, and waste products from temporary batch plant facilities will reduce the discharge of potential pollutants to the storm drain system or watercourses, reduce air emissions, and mitigate noise impacts.

The General Permit draft incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements). Many types of batch plant materials, including mortar, concrete, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows which may cause an exceedance of the General Permit requirements.

Suitable Applications

These procedures typically apply to construction sites where temporary batch plant facilities are used; however, some of the

practices described are applicable to construction sites with general concrete use.

Limitations

The General Permit for discharges of stormwater associated with industrial activities (General Industrial Permit) may be applicable to temporary batch plants.

Specific permit requirements or mitigation measures such as Air Resources Board (ARB), Air Quality Management District (AQMD), Air Pollution Control District (APCD, Regional Water Quality Control Board (RWQCB), county ordinances and city ordinances may require alternative mitigation measures for temporary batch plants. Contact the local regulatory agencies to determine if a permit is required.

Implementation

Planning

- Temporary batch plants may be subject to the General Industrial Permit. To obtain a copy of this permit and the application forms, visit http://www.waterboards.ca.gov or contact the State Water Resources Control Board.
- Proper planning, design, and construction of temporary batch plants should be implemented to minimize potential water quality, air pollution, and noise impacts associated with temporary batch plants.
- BMPs and a Construction Site Monitoring Plan (CSMP) should be included in the project Stormwater Pollution Prevention Plan (SWPPP). BMPs should be implemented, inspected, and maintained in accordance with these plans.
- Temporary batch plants should be managed to comply with AQMD Statewide Registration Program and/or local AQMD Portable Equipment Registration requirements.
- Construct temporary batch plants downwind of existing developments whenever possible.
- Placement of access roads should be planned to mitigate water and air quality impacts.

Layout and Design

- Temporary batch plants should be properly located and designed to mitigate water quality impacts to receiving water bodies. Batch plants should be located away from watercourses, drainage courses, and drain inlets. Batch plants should be located to minimize the potential for stormwater runon onto the site.
- Temporary batch plant facilities (including associated stationary equipment and stockpiles) should be located at least 300 ft from any recreational area, school, residence, or other structure not associated with the construction project.
- Construct continuous interior AC or PCC berms around batch plant equipment (mixing equipment, silos, concrete drop points, conveyor belts, admixture tanks, etc.) to facilitate proper containment and cleanup of releases. Rollover or flip top curbs or dikes should be placed at ingress and egress points (SE-12, Temporary Silt Dike).
- Direct runoff from the paved or unpaved portion of the batch plant into a sump and pipe to a lined washout area or dewatering tank.

- Direct stormwater and non-stormwater runoff from unpaved portions of batch plant facility to catchment ponds or tanks.
- Construct and remove concrete washout facilities in accordance with WM-8, Concrete Waste Management.
- Layout of a typical batch plant and associated BMP is located at the end of this BMP fact sheet.

Operational Procedures

- Washout of concrete trucks should be conducted in a designated area in accordance with WM-8, Concrete Waste Management.
- Do not dispose of concrete into drain inlets, the stormwater drainage system, or watercourses.
- Washing of concrete mixing and transport equipment (including concrete truck washout) should occur in a designated area in accordance with WM-8, Concrete Waste Management.
- Washing equipment, tools, or vehicles to remove PCC should be conducted in accordance with NS-7, Potable Water/Irrigation, NS-8, Vehicle and Equipment Cleaning, and WM-8, Concrete Waste Management..
- All dry material transfer points should be ducted through a fabric or cartridge type filter unless there are no visible emissions from the transfer point.
- Equip all bulk storage silos, including auxiliary bulk storage trailers, with fabric or cartridge type filter(s).
- Maintain silo vent filters in proper operating condition.
- Equip silos and auxiliary bulk storage trailers with dust-tight service hatches.
- Fabric dust collection system should be capable of controlling particulate matter in accordance with the California Air Resources Control Board and local Air Pollution Control District Regulations.
- Fabric dust collectors (except for vent filters) should be equipped with an operational pressure differential gauge to measure the pressure drop across the filters.
- All transfer points should be equipped with a wet suppression system to control fugitive particulate emissions unless there are no visible emissions.
- All conveyors should be covered, unless the material being transferred results in no visible emissions.
- There should be no visible emissions beyond the property line, while the equipment is being operated.
- Collect dust emissions from the loading of open-bodied trucks, at the drip point of dry batch plants, or dust emissions from the drum feed for central mix plants.

- Equip silos and auxiliary bulk storage trailers with a visible and/or audible warning mechanism to warn operators that the silo or trailer is full.

- All open-bodied vehicles transporting material should be loaded with a final layer of wet sand and the truck should be covered with a tarp to reduce emissions.

Tracking Control

- Plant roads (batch truck and material delivery truck roads) and areas between stockpiles and conveyor hoppers should be stabilized (TC-2, Stabilized Construction Roadway), watered, treated with dust-suppressant chemicals (WE-1, Wind Erosion Control), or paved with a cohesive hard surface that can be repeatedly swept, maintained intact, and cleaned as necessary to control dust emissions.

- Trucks should not track PCC from plants onto public roads. Use appropriate practices from TC-1, Stabilized Construction Entrance/Exit, to prevent tracking.

Materials Storage

- WM-1, Material Delivery and Storage, should be implemented at all batch plants using concrete components or compounds. An effective strategy is to cover and contain materials.

- WM-2, Material Use should be conducted in a way to minimize or eliminate the discharge of materials to storm drain system or watercourse.

- Ensure that finer materials are not dispersed into the air during operations, such as unloading of cement delivery trucks.

- Stockpiles should be covered and enclosed with perimeter sediment barriers per WM-3, Stockpile Management. Uncovered stockpiles should be sprayed with water and/or dust-suppressant chemicals as necessary to control dust emissions, unless the stockpiled material results in no visible emissions. An operable stockpile watering system should be onsite at all times.

- Store bagged and boxed materials on pallets and cover or store in a completely enclosed storage area on non-working days and prior to rain.

- Minimize stockpiles of demolished PCC by recycling them in a timely manner.

- Provide secondary containment for liquid materials (WM-1, Material Delivery and Storage, WM-10, Liquid Waste Management). Containment should provide sufficient volume to contain precipitation from a 25-year storm plus 10% of the aggregate volume of all containers or plus 100% of the largest container, whichever is greater.

- Handle solid and liquid waste in accordance with WM-5, Solid Waste Management, WM-10, Liquid Waste Management, and WM-8, Concrete Waste Management.

- Maintain adequate supplies of spill cleanup materials and train staff to respond to spills per WM-4, Spill Prevention and Control.

- Immediately contain and clean up spilled cement and fly ash and contain.

Equipment Maintenance

- Equipment should be maintained to prevent fluid leaks and spills per NS-9, Vehicle and Equipment Fueling, and NS-10, Vehicle and Equipment Maintenance.
- Maintain adequate supplies of spill cleanup materials and train staff to respond to spills per WM-4, Spill Prevention and Control.
- Incorporate other BMPs such as WM-5, Solid Waste Management, WM-6, Hazardous Waste Management, and WM-10, Liquid Waste Management.

Costs

Costs will vary depending on the size of the facility and combination of BMPs implemented.

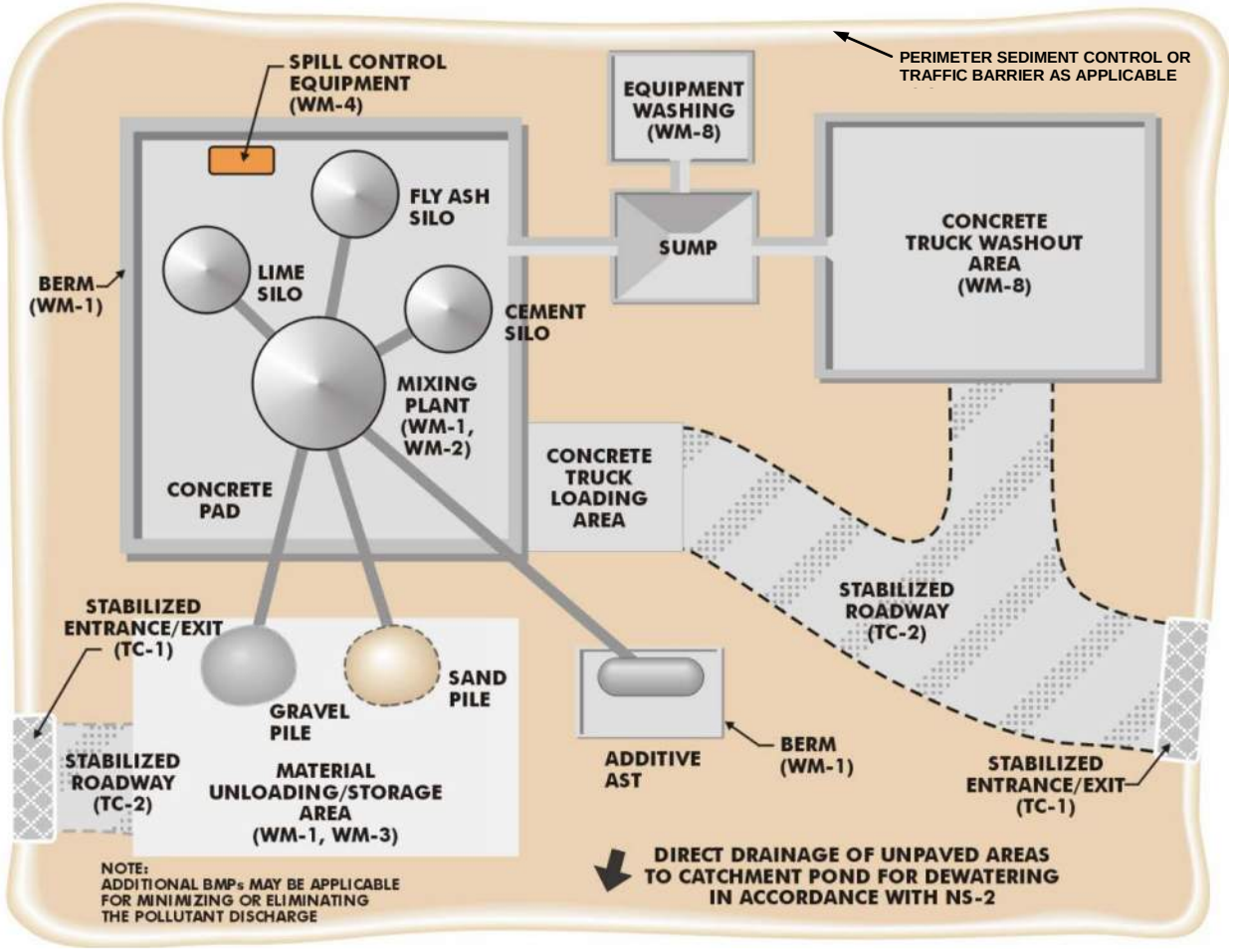
Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Sample non-stormwater discharges and stormwater runoff that contacts cementitious materials or fly ash as required by the General Permit.
- Inspect and repair equipment (for damaged hoses, fittings, and gaskets).
- Inspect and maintain a Stabilized Construction Entrance/Exit (TC-1) as needed.
- Inspect and maintain stabilized haul roads as needed (TC-2, Stabilized Construction Roadway).
- Inspect and maintain materials and waste storage areas as needed.

References

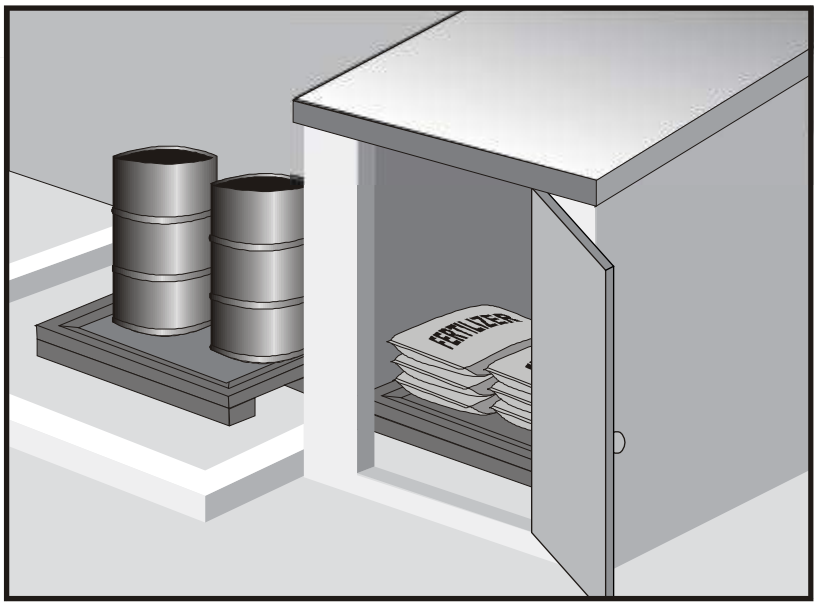
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.



Typical Temporary Batch

Material Delivery and Storage WM-1



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Description and Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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- Asphalt and concrete components
- Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Concrete compounds
- Other materials that may be detrimental if released to the environment

Limitations

- Space limitation may preclude indoor storage.
- Storage sheds often must meet building and fire code requirements.

Implementation

The following steps should be taken to minimize risk:

- Chemicals must be stored in water tight containers with appropriate secondary containment or in a storage shed.
- When a material storage area is located on bare soil, the area should be lined and bermed.
- Use containment pallets or other practical and available solutions, such as storing materials within newly constructed buildings or garages, to meet material storage requirements.
- Stack erodible landscape material on pallets and cover when not in use.
- Contain all fertilizers and other landscape materials when not in use.
- Temporary storage areas should be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) should be available on-site for all materials stored that have the potential to effect water quality.
- Construction site areas should be designated for material delivery and storage.
- Material delivery and storage areas should be located away from waterways, if possible.
    - Avoid transport near drainage paths or waterways.
    - Surround with earth berms or other appropriate containment BMP. See EC-9, Earth Dikes and Drainage Swales.
    - Place in an area that will be paved.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA30.
- An up to date inventory of materials delivered and stored onsite should be kept.

- Hazardous materials storage onsite should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- Keep ample spill cleanup supplies appropriate for the materials being stored. Ensure that cleanup supplies are in a conspicuous, labeled area.
- Employees and subcontractors should be trained on the proper material delivery and storage practices.
- Employees trained in emergency spill cleanup procedures must be present when dangerous materials or liquid chemicals are unloaded.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose of materials and any contaminated soil. See WM-7, Contaminated Soil Management. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.

Material Storage Areas and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 should be stored in approved containers and drums and should not be overfilled. Containers and drums should be placed in temporary containment facilities for storage.
- A temporary containment facility should provide for a spill containment volume able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility should be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be collected and placed into drums. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids should be sent to an approved disposal site.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Materials should be covered prior to, and during rain events.
- Materials should be stored in their original containers and the original product labels should be maintained in place in a legible condition. Damaged or otherwise illegible labels should be replaced immediately.

- Bagged and boxed materials should be stored on pallets and should not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials should be covered during non-working days and prior to and during rain events.
- Stockpiles should be protected in accordance with WM-3, Stockpile Management.
- Materials should be stored indoors within existing structures or completely enclosed storage sheds when available.
- Proper storage instructions should be posted at all times in an open and conspicuous location.
- An ample supply of appropriate spill clean up material should be kept near storage areas.
- Also see WM-6, Hazardous Waste Management, for storing of hazardous wastes.

Material Delivery Practices

- Keep an accurate, up-to-date inventory of material delivered and stored onsite.
- Arrange for employees trained in emergency spill cleanup procedures to be present when dangerous materials or liquid chemicals are unloaded.

Spill Cleanup

- Contain and clean up any spill immediately.
- Properly remove and dispose of any hazardous materials or contaminated soil if significant residual materials remain on the ground after construction is complete. See WM-7, Contaminated Soil Management.
- See WM-4, Spill Prevention and Control, for spills of chemicals and/or hazardous materials.
- If spills or leaks of materials occur that are not contained and could discharge to surface waters, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

Cost

- The largest cost of implementation may be in the construction of a materials storage area that is covered and provides secondary containment.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Keep storage areas clean and well organized, including a current list of all materials onsite.
- Inspect labels on containers for legibility and accuracy.

- Repair or replace perimeter controls, containment structures, covers, and liners as needed to maintain proper function.

References

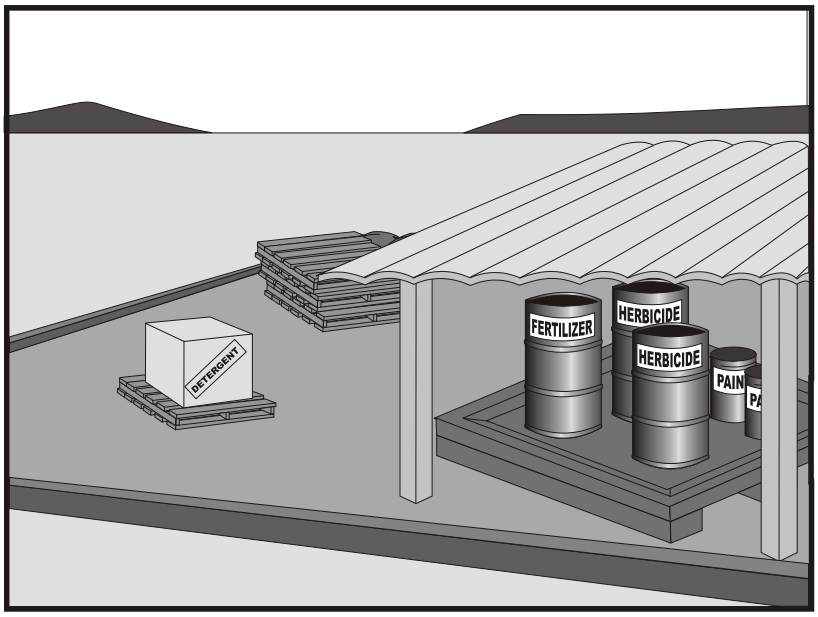
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Material Use WM-2



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for use at all construction projects. These procedures apply when the following materials are used or prepared onsite:

- Pesticides and herbicides
- Fertilizers
- Detergents
- Petroleum products such as fuel, oil, and grease
- Asphalt and other concrete components
- Other hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Other materials that may be detrimental if released to the environment

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Limitations

Safer alternative building and construction products may not be available or suitable in every instance.

Implementation

The following steps should be taken to minimize risk:

- Minimize use of hazardous materials onsite.
- Follow manufacturer instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Train personnel who use pesticides. The California Department of Pesticide Regulation and county agricultural commissioners license pesticide dealers, certify pesticide applicators, and conduct onsite inspections.
- The preferred method of termiticide application is soil injection near the existing or proposed structure foundation/slab; however, if not feasible, soil drench application of termiticides should follow EPA label guidelines and the following recommendations (most of which are applicable to most pesticide applications):
  - Do not treat soil that is water-saturated or frozen.
  - Application shall not commence within 24-hours of a predicted precipitation event with a 40% or greater probability. Weather tracking must be performed on a daily basis prior to termiticide application and during the period of termiticide application.
  - Do not allow treatment chemicals to runoff from the target area. Apply proper quantity to prevent excess runoff. Provide containment for and divert stormwater from application areas using berms or diversion ditches during application.
  - Dry season: Do not apply within 10 feet of storm drains. Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds).
  - Wet season: Do not apply within 50 feet of storm drains or aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds) unless a vegetative buffer is present (if so, refer to dry season requirements).
  - Do not make on-grade applications when sustained wind speeds are above 10 mph (at application site) at nozzle end height.
  - Cover treatment site prior to a rain event in order to prevent run-off of the pesticide into non-target areas. The treated area should be limited to a size that can be backfilled and/or covered by the end of the work shift. Backfilling or covering of the treated area shall be done by the end of the same work shift in which the application is made.
  - The applicator must either cover the soil him/herself or provide written notification of the above requirement to the contractor on site and to the person commissioning the

application (if different than the contractor). If notice is provided to the contractor or the person commissioning the application, then they are responsible under the Federal Insecticide Fungicide, and Rodenticide Act (FIFRA) to ensure that: 1) if the concrete slab cannot be poured over the treated soil within 24 hours of application, the treated soil is covered with a waterproof covering (such as polyethylene sheeting), and 2) the treated soil is covered if precipitation is predicted to occur before the concrete slab is scheduled to be poured.

- Do not over-apply fertilizers, herbicides, and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Unless on steep slopes, till fertilizers into the soil rather than hydraulic application. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried offsite by runoff. Do not apply these chemicals before predicted rainfall.
- Train employees and subcontractors in proper material use.
- Supply Material Safety Data Sheets (MSDS) for all materials.
- Dispose of latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, with other construction debris.
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container.
- Mix paint indoors or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain, or watercourse. Dispose of any paint thinners, residue, and sludge(s) that cannot be recycled, as hazardous waste.
- For water-based paint, clean brushes to the extent practicable, and rinse to a drain leading to a sanitary sewer where permitted, or contain for proper disposal off site. For oil-based paints, clean brushes to the extent practicable, and filter and reuse thinners and solvents.
- Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
- Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials onsite when practical.
- Document the location, time, chemicals applied, and applicator's name and qualifications.
- Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.
- Discontinue use of erodible landscape material within 2 days prior to a forecasted rain event and materials should be covered and/or bermed.

- Provide containment for material use areas such as masons' areas or paint mixing/preparation areas to prevent materials/pollutants from entering stormwater.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Ensure employees and subcontractors throughout the job are using appropriate practices.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

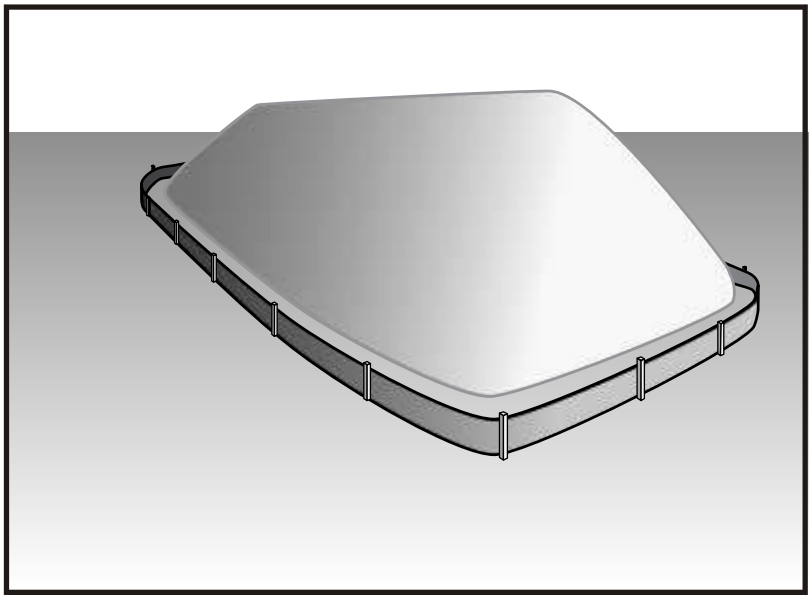
Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Comments on Risk Assessments Risk Reduction Options for Cypermethrin: Docket No. OPP–2005–0293; California Stormwater Quality Association (CASQA) letter to USEPA, 2006.Environmental Hazard and General Labeling for Pyrethroid Non-Agricultural Outdoor Products, EPA-HQ-OPP-2008-0331-0021; USEPA, 2008.

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Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Stockpile Management WM-3



Categories		
EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☒
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Description and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called "cold mix" asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other loose materials.

Limitations

- Plastic sheeting as a stockpile protection is temporary and hard to manage in windy conditions. Where plastic is used, consider use of plastic tarps with nylon reinforcement which may be more durable than standard sheeting.
- Plastic sheeting can increase runoff volume due to lack of infiltration and potentially cause perimeter control failure.
- Plastic sheeting breaks down faster in sunlight.
- The use of Plastic materials and photodegradable plastics should be avoided.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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- On larger sites, a minimum of 50 ft separation from concentrated flows of stormwater, drainage courses, and inlets is recommended.
- After 14 days of inactivity, a stockpile is non-active and requires further protection described below. All stockpiles are required to be protected as non-active stockpiles immediately if they are not scheduled to be used within 14 days.
- Protect all stockpiles from stormwater runon using temporary perimeter sediment barriers such as compost berms (SE-13), temporary silt dikes (SE-12), fiber rolls (SE-5), silt fences (SE-1), sandbags (SE-8), gravel bags (SE-6), or biofilter bags (SE-14). Refer to the individual fact sheet for each of these controls for installation information.
- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information, see WE-1, Wind Erosion Control.
- Manage stockpiles of contaminated soil in accordance with WM-7, Contaminated Soil Management.
- Place bagged materials on pallets and under cover.
- Ensure that stockpile coverings are installed securely to protect from wind and rain.
- Some plastic covers withstand weather and sunlight better than others. Select cover materials or methods based on anticipated duration of use.

Protection of Non-Active Stockpiles

A stockpile is considered non-active if it either is not used for 14 days or if it is scheduled not to be used for 14 days or more. Stockpiles need to be protected immediately if they are not scheduled to be used within 14 days. Non-active stockpiles of the identified materials should be protected as follows:

Soil stockpiles

- Soil stockpiles should be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
- Temporary vegetation should be considered for topsoil piles that will be stockpiled for extended periods.

Stockpiles of Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub base

- Stockpiles should be covered and protected with a temporary perimeter sediment barrier at all times.

Stockpiles of "cold mix"

- Cold mix stockpiles should be placed on and covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Stockpiles of fly ash, stucco, hydrated lime

- Stockpiles of materials that may raise the pH of runoff (i.e., basic materials) should be covered with plastic and surrounded by a berm.

Stockpiles/Storage of wood (Pressure treated with chromated copper arsenate or ammoniacal copper zinc arsenate

- Treated wood should be covered with plastic sheeting or comparable material at all times and surrounded by a berm.

Protection of Active Stockpiles

A stockpile is active when it is being used or is scheduled to be used within 14 days of the previous use. Active stockpiles of the identified materials should be protected as follows:

- All stockpiles should be covered and protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of "cold mix" and treated wood, and basic materials should be placed on and covered with plastic sheeting or comparable material and surrounded by a berm prior to the onset of precipitation.
- The downstream perimeter of an active stockpile should be protected with a linear sediment barrier or berm and runoff should be diverted around or away from the stockpile on the upstream perimeter.

Costs

For cost information associated with stockpile protection refer to the individual erosion or sediment control BMP fact sheet considered for implementation (For example, refer to SE-1 Silt Fence for installation of silt fence around the perimeter of a stockpile.)

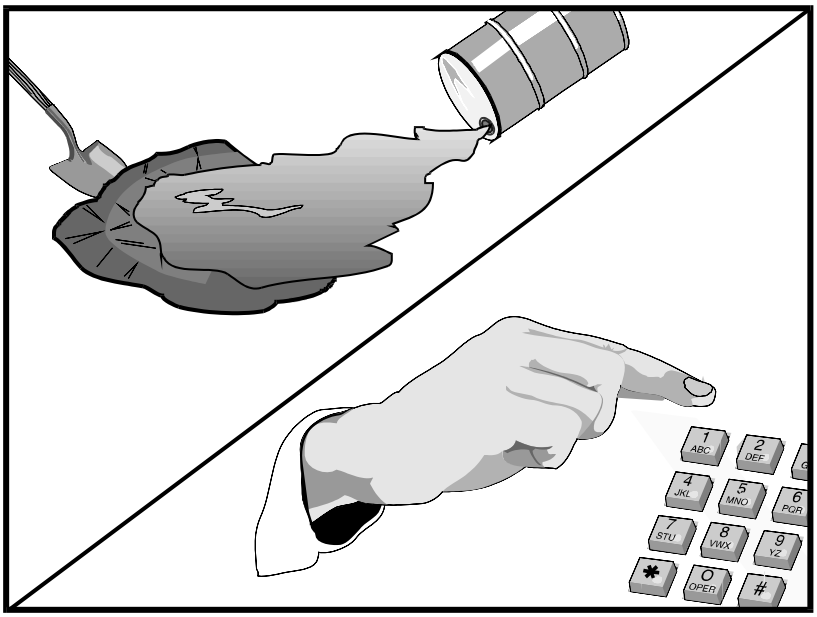
Inspection and Maintenance

- Stockpiles must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- It may be necessary to inspect stockpiles covered with plastic sheeting more frequently during certain conditions (for example, high winds or extreme heat).
- Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.
- Sediment shall be removed when it reaches one-third of the barrier height.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Spill Prevention and Control WM-4



Description and Purpose

Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

This best management practice covers only spill prevention and control. However, WM-1, Materials Delivery and Storage, and WM-2, Material Use, also contain useful information, particularly on spill prevention. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

This BMP is suitable for all construction projects. Spill control procedures are implemented anytime chemicals or hazardous substances are stored on the construction site, including the following materials:

- Soil stabilizers/binders
- Dust palliatives
- Herbicides
- Growth inhibitors
- Fertilizers
- Deicing/anti-icing chemicals

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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- Fuels
- Lubricants
- Other petroleum distillates

Limitations

- In some cases it may be necessary to use a private spill cleanup company.
- This BMP applies to spills caused by the contractor and subcontractors.
- Procedures and practices presented in this BMP are general. Contractor should identify appropriate practices for the specific materials used or stored onsite

Implementation

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

- Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.
- Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

- To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.
- Store hazardous materials and wastes in covered containers and protect from vandalism.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- Train employees in spill prevention and cleanup.
- Designate responsible individuals to oversee and enforce control measures.
- Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise clean up activities.
- Do not bury or wash spills with water.

- Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
- Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with WM-10, Liquid Waste Management.
- Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
- Place proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.
- Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

- Clean up leaks and spills immediately.
- Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to either a certified laundry (rags) or disposed of as hazardous waste.
- Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Absorbent materials should be promptly removed and disposed of properly.
- Follow the practice below for a minor spill:
  - Contain the spread of the spill.
  - Recover spilled materials.
  - Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

- Spills should be cleaned up immediately:
  - Contain spread of the spill.
  - Notify the project foreman immediately.
  - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
  - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
  - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps should be taken:
  - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
  - Notify the Governor's Office of Emergency Services Warning Center, (916) 845-8911.
  - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.
  - Notification should first be made by telephone and followed up with a written report.
  - The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.
  - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, Cal/OSHA, etc.

Reporting

- Report significant spills to local agencies, such as the Fire Department; they can assist in cleanup.
- Federal regulations require that any significant oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours).

Use the following measures related to specific activities:

Vehicle and Equipment Maintenance

- If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
- Regularly inspect onsite vehicles and equipment for leaks and repair immediately
- Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.
- Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
- Place drip pans or absorbent materials under paving equipment when not in use.
- Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around
- Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
- Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

- If fueling must occur onsite, use designate areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.
- Discourage "topping off" of fuel tanks.
- Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

Costs

Prevention of leaks and spills is inexpensive. Treatment and/ or disposal of contaminated soil or water can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Keep ample supplies of spill control and cleanup materials onsite, near storage, unloading, and maintenance areas.
- Update your spill prevention and control plan and stock cleanup materials as changes occur in the types of chemicals onsite.

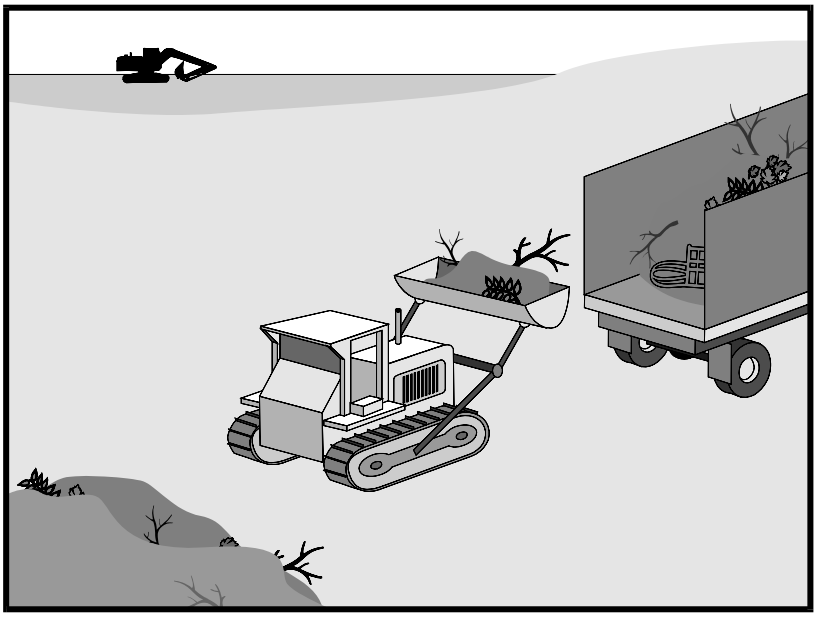
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Solid Waste Management WM-5



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials

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- Highway planting wastes, including vegetative material, plant containers, and packaging materials

Limitations

Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Implementation

The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Locate containers in a covered area or in a secondary containment.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Cover waste containers at the end of each work day and when it is raining.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Education

- Have the contractor's superintendent or representative oversee and enforce proper solid waste management procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.

- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Minimize production of solid waste materials wherever possible.

Collection, Storage, and Disposal

- Littering on the project site should be prohibited.
- To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines should be a priority.
- Trash receptacles should be provided in the contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage systems, or watercourses.
- Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project.
- Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.
- Construction debris and waste should be removed from the site biweekly or more frequently as needed.
- Construction material visible to the public should be stored or stacked in an orderly manner.
- Stormwater runon should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters should be securely covered from wind and rain by covering the waste with tarps or plastic.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.

- For disposal of hazardous waste, see WM-6, Hazardous Waste Management. Have hazardous waste hauled to an appropriate disposal and/or recycling facility.

- Salvage or recycle useful vegetation debris, packaging and surplus building materials when practical. For example, trees and shrubs from land clearing can be used as a brush barrier, or converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur

- Inspect construction waste area regularly.

- Arrange for regular waste collection.

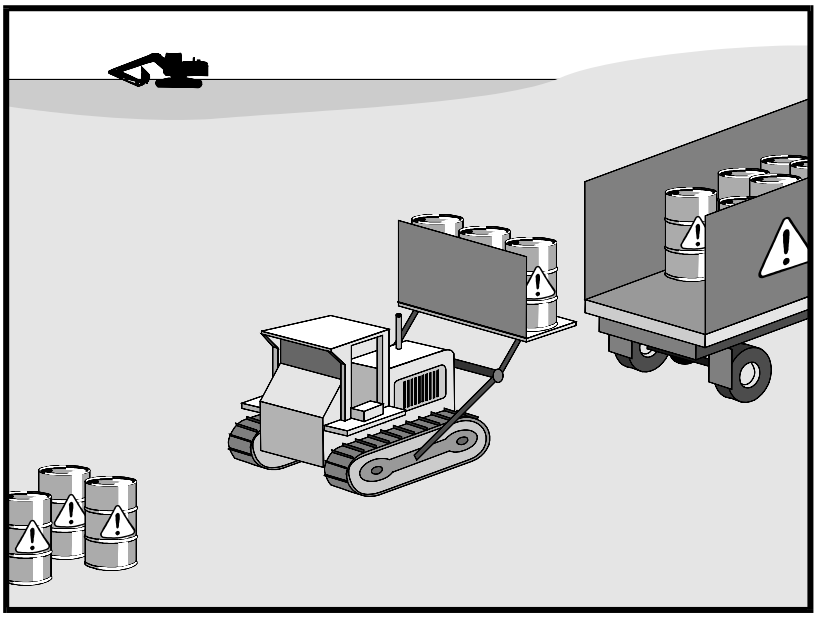
References

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Hazardous Waste Management WM-6



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper material use, waste disposal, and training of employees and subcontractors.

Suitable Applications

This best management practice (BMP) applies to all construction projects. Hazardous waste management practices are implemented on construction projects that generate waste from the use of:

- Petroleum Products
- Asphalt Products
- Concrete Curing Compounds
- Pesticides
- Palliatives
- Acids
- Septic Wastes
- Paints
- Stains
- Solvents
- Wood Preservatives
- Roofing Tar
- Any materials deemed a hazardous waste in California, Title 22 Division 4.5, or listed in 40 CFR Parts 110, 117, 261, or 302

In addition, sites with existing structures may contain wastes, which must be disposed of in accordance with federal, state, and local regulations. These wastes include:

- Sandblasting grit mixed with lead-, cadmium-, or chromium-based paints
- Asbestos
- PCBs (particularly in older transformers)

Limitations

- Hazardous waste that cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.
- Nothing in this BMP relieves the contractor from responsibility for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.
- This BMP does not cover aerially deposited lead (ADL) soils. For ADL soils refer to WM-7, Contaminated Soil Management.

Implementation

The following steps will help reduce stormwater pollution from hazardous wastes:

Material Use

- Wastes should be stored in sealed containers constructed of a suitable material and should be labeled as required by Title 22 CCR, Division 4.5 and 49 CFR Parts 172, 173, 178, and 179.
- All hazardous waste should be stored, transported, and disposed as required in Title 22 CCR, Division 4.5 and 49 CFR 261-263.
- Waste containers should be stored in temporary containment facilities that should comply with the following requirements:
  - Temporary containment facility should provide for a spill containment volume equal to 1.5 times the volume of all containers able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest tank within its boundary, whichever is greater.
  - Temporary containment facility should be impervious to the materials stored there for a minimum contact time of 72 hours.
  - Temporary containment facilities should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be placed into drums after each rainfall. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. Non-hazardous liquids should be sent to an approved disposal site.
  - Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.

- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.

- Throughout the rainy season, temporary containment facilities should be covered during non-working days, and prior to rain events. Covered facilities may include use of plastic tarps for small facilities or constructed roofs with overhangs.

- Drums should not be overfilled and wastes should not be mixed.

- Unless watertight, containers of dry waste should be stored on pallets.

- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application. Allow time for infiltration and avoid excess material being carried offsite by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with federal and state regulations.

- Paint brushes and equipment for water and oil based paints should be cleaned within a contained area and should not be allowed to contaminate site soils, watercourses, or drainage systems. Waste paints, thinners, solvents, residues, and sludges that cannot be recycled or reused should be disposed of as hazardous waste. When thoroughly dry, latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths should be disposed of as solid waste.

- Do not clean out brushes or rinse paint containers into the dirt, street, gutter, storm drain, or stream. "Paint out" brushes as much as possible. Rinse water-based paints to the sanitary sewer. Filter and reuse thinners and solvents. Dispose of excess oil-based paints and sludge as hazardous waste.

- The following actions should be taken with respect to temporary contaminant:

  - Ensure that adequate hazardous waste storage volume is available.

  - Ensure that hazardous waste collection containers are conveniently located.

  - Designate hazardous waste storage areas onsite away from storm drains or watercourses and away from moving vehicles and equipment to prevent accidental spills.

  - Minimize production or generation of hazardous materials and hazardous waste on the job site.

  - Use containment berms in fueling and maintenance areas and where the potential for spills is high.

  - Segregate potentially hazardous waste from non-hazardous construction site debris.

  - Keep liquid or semi-liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.

- Clearly label all hazardous waste containers with the waste being stored and the date of accumulation.
- Place hazardous waste containers in secondary containment.
- Do not allow potentially hazardous waste materials to accumulate on the ground.
- Do not mix wastes.
- Use all of the product before disposing of the container.
- Do not remove the original product label; it contains important safety and disposal information.

Waste Recycling Disposal

- Select designated hazardous waste collection areas onsite.
- Hazardous materials and wastes should be stored in covered containers and protected from vandalism.
- Place hazardous waste containers in secondary containment.
- Do not mix wastes, this can cause chemical reactions, making recycling impossible and complicating disposal.
- Recycle any useful materials such as used oil or water-based paint.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Arrange for regular waste collection before containers overflow.
- Make sure that hazardous waste (e.g., excess oil-based paint and sludge) is collected, removed, and disposed of only at authorized disposal areas.

Disposal Procedures

- Waste should be disposed of by a licensed hazardous waste transporter at an authorized and licensed disposal facility or recycling facility utilizing properly completed Uniform Hazardous Waste Manifest forms.
- A Department of Health Services certified laboratory should sample waste to determine the appropriate disposal facility.
- Properly dispose of rainwater in secondary containment that may have mixed with hazardous waste.
- Attention is directed to "Hazardous Material", "Contaminated Material", and "Aerially Deposited Lead" of the contract documents regarding the handling and disposal of hazardous materials.

Education

- Educate employees and subcontractors on hazardous waste storage and disposal procedures.
- Educate employees and subcontractors on potential dangers to humans and the environment from hazardous wastes.
- Instruct employees and subcontractors on safety procedures for common construction site hazardous wastes.
- Instruct employees and subcontractors in identification of hazardous and solid waste.
- Hold regular meetings to discuss and reinforce hazardous waste management procedures (incorporate into regular safety meetings).
- The contractor's superintendent or representative should oversee and enforce proper hazardous waste management procedures and practices.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Warning signs should be placed in areas recently treated with chemicals.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- If a container does spill, clean up immediately.

Costs

All of the above are low cost measures.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events..
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur
- Hazardous waste should be regularly collected.
- A foreman or construction supervisor should monitor onsite hazardous waste storage and disposal procedures.
- Waste storage areas should be kept clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

- Hazardous spills should be cleaned up and reported in conformance with the applicable Material Safety Data Sheet (MSDS) and the instructions posted at the project site.
- The National Response Center, at (800) 424-8802, should be notified of spills of federal reportable quantities in conformance with the requirements in 40 CFR parts 110, 117, and 302. Also notify the Governors Office of Emergency Services Warning Center at (916) 845-8911.
- A copy of the hazardous waste manifests should be provided.

References

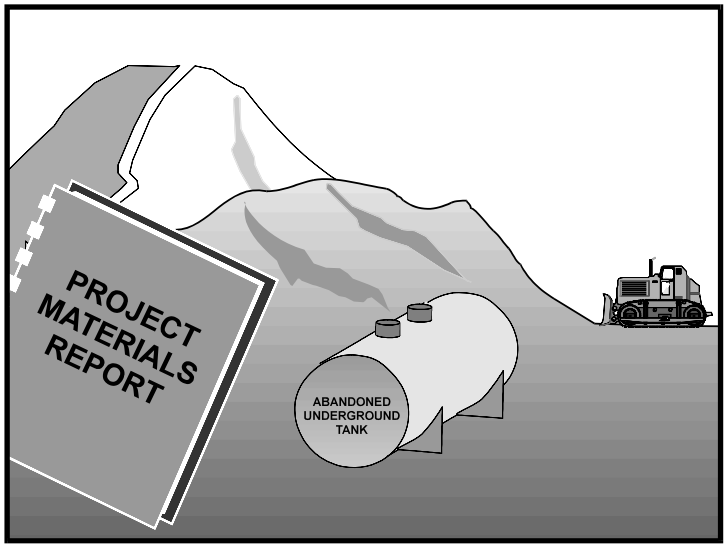
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Contaminated Soil Management WM-7



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

Suitable Applications

Contaminated soil management is implemented on construction projects in highly urbanized or industrial areas where soil contamination may have occurred due to spills, illicit discharges, aerial deposition, past use and leaks from underground storage tanks.

Limitations

Contaminated soils that cannot be treated onsite must be disposed of offsite by a licensed hazardous waste hauler. The presence of contaminated soil may indicate contaminated water as well. See NS-2, Dewatering Operations, for more information.

The procedures and practices presented in this BMP are general. The contractor should identify appropriate practices and procedures for the specific contaminants known to exist or discovered onsite.

Implementation

Most owners and developers conduct pre-construction environmental assessments as a matter of routine. Contaminated soils are often identified during project planning and development with known locations identified in the plans, specifications and in the SWPPP. The contractor should review applicable reports and investigate appropriate call-outs in the

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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plans, specifications, and SWPPP. Recent court rulings holding contractors liable for cleanup costs when they unknowingly move contaminated soil highlight the need for contractors to confirm a site assessment is completed before earth moving begins.

The following steps will help reduce stormwater pollution from contaminated soil:

- Conduct thorough, pre-construction inspections of the site and review documents related to the site. If inspection or reviews indicated presence of contaminated soils, develop a plan before starting work.
- Look for contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
- Prevent leaks and spills. Contaminated soil can be expensive to treat and dispose of properly. However, addressing the problem before construction is much less expensive than after the structures are in place.
- The contractor may further identify contaminated soils by investigating:
  - Past site uses and activities
  - Detected or undetected spills and leaks
  - Acid or alkaline solutions from exposed soil or rock formations high in acid or alkaline forming elements
  - Contaminated soil as evidenced by discoloration, odors, differences in soil properties, abandoned underground tanks or pipes, or buried debris.
  - Suspected soils should be tested at a certified laboratory.

Education

- Have employees and subcontractors complete a safety training program which meets 29 CFR 1910.120 and 8 CCR 5192 covering the potential hazards as identified, prior to performing any excavation work at the locations containing material classified as hazardous.
- Educate employees and subcontractors in identification of contaminated soil and on contaminated soil handling and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).

Handling Procedures for Material with Aerially Deposited Lead (ADL)

- Materials from areas designated as containing (ADL) may, if allowed by the contract special provisions, be excavated, transported, and used in the construction of embankments and/or backfill.
- Excavation, transportation, and placement operations should result in no visible dust.
- Caution should be exercised to prevent spillage of lead containing material during transport.

- Quality should be monitored during excavation of soils contaminated with lead.

Handling Procedures for Contaminated Soils

- Minimize onsite storage. Contaminated soil should be disposed of properly in accordance with all applicable regulations. All hazardous waste storage will comply with the requirements in Title 22, CCR, Sections 66265.250 to 66265.260.
- Test suspected soils at an approved certified laboratory.
- Work with the local regulatory agencies to develop options for treatment or disposal if the soil is contaminated.
- Avoid temporary stockpiling of contaminated soils or hazardous material.
- Take the following precautions if temporary stockpiling is necessary:
  - Cover the stockpile with plastic sheeting or tarps.
  - Install a berm around the stockpile to prevent runoff from leaving the area.
  - Do not stockpile in or near storm drains or watercourses.
- Remove contaminated material and hazardous material on exteriors of transport vehicles and place either into the current transport vehicle or into the excavation prior to the vehicle leaving the exclusion zone.
- Monitor the air quality continuously during excavation operations at all locations containing hazardous material.
- Procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material.
- Collect water from decontamination procedures and treat or dispose of it at an appropriate disposal site.
- Collect non-reusable protective equipment, once used by any personnel, and dispose of at an appropriate disposal site.
- Install temporary security fence to surround and secure the exclusion zone. Remove fencing when no longer needed.
- Excavate, transport, and dispose of contaminated material and hazardous material in accordance with the rules and regulations of the following agencies (the specifications of these agencies supersede the procedures outlined in this BMP):
  - United States Department of Transportation (USDOT)
  - United States Environmental Protection Agency (USEPA)
  - California Environmental Protection Agency (CAL-EPA)

- California Division of Occupation Safety and Health Administration (CAL-OSHA)
- Local regulatory agencies

Procedures for Underground Storage Tank Removals

- Prior to commencing tank removal operations, obtain the required underground storage tank removal permits and approval from the federal, state, and local agencies that have jurisdiction over such work.
- To determine if it contains hazardous substances, arrange to have tested, any liquid or sludge found in the underground tank prior to its removal.
- Following the tank removal, take soil samples beneath the excavated tank and perform analysis as required by the local agency representative(s).
- The underground storage tank, any liquid or sludge found within the tank, and all contaminated substances and hazardous substances removed during the tank removal and transported to disposal facilities permitted to accept such waste.

Water Control

- All necessary precautions and preventive measures should be taken to prevent the flow of water, including ground water, from mixing with hazardous substances or underground storage tank excavations. Such preventative measures may consist of, but are not limited to, berms, cofferdams, grout curtains, freeze walls, and seal course concrete or any combination thereof.
- If water does enter an excavation and becomes contaminated, such water, when necessary to proceed with the work, should be discharged to clean, closed top, watertight transportable holding tanks, treated, and disposed of in accordance with federal, state, and local laws.

Costs

Prevention of leaks and spills is inexpensive. Treatment or disposal of contaminated soil can be quite expensive.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Arrange for contractor's Water Pollution Control Manager, foreman, and/or construction supervisor to monitor onsite contaminated soil storage and disposal procedures.
- Monitor air quality continuously during excavation operations at all locations containing hazardous material.
- Coordinate contaminated soils and hazardous substances/waste management with the appropriate federal, state, and local agencies.

- Implement WM-4, Spill Prevention and Control, to prevent leaks and spills as much as possible.

References

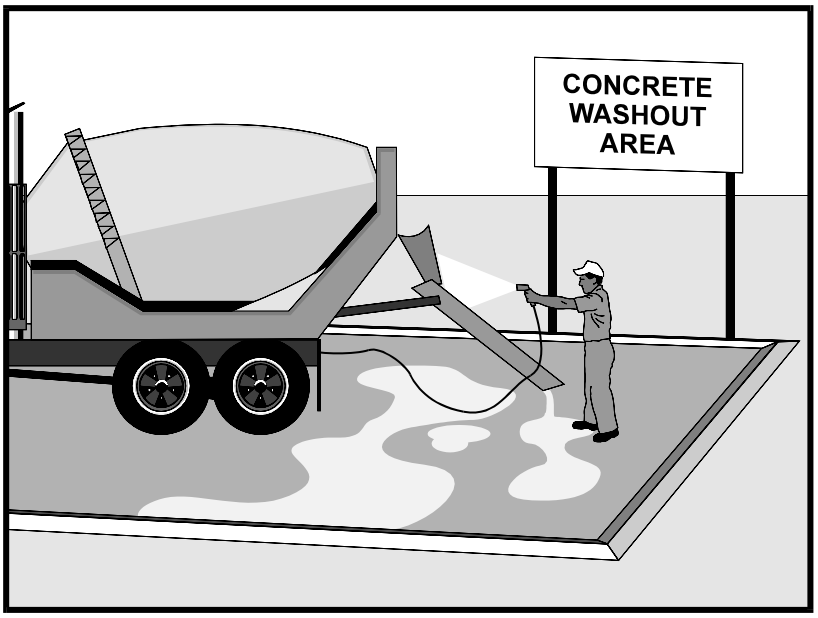
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity, 430/9-73-007, USEPA, 1973.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Concrete Waste Management WM-8



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☒
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

Prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area, and by employee and subcontractor training.

The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows and raising pH to levels outside the accepted range.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Slurries containing portland cement concrete (PCC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition.
- Concrete trucks and other concrete-coated equipment are washed onsite.

- Mortar-mixing stations exist.
- Stucco mixing and spraying.
- See also NS-8, Vehicle and Equipment Cleaning.

Limitations

- Offsite washout of concrete wastes may not always be possible.
- Multiple washouts may be needed to assure adequate capacity and to allow for evaporation.

Implementation

The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Store dry and wet materials under cover, away from drainage areas. Refer to WM-1, Material Delivery and Storage for more information.
- Avoid mixing excess amounts of concrete.
- Perform washout of concrete trucks in designated areas only, where washout will not reach stormwater.
- Do not wash out concrete trucks into storm drains, open ditches, streets, streams or onto the ground. Trucks should always be washed out into designated facilities.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:
  - On larger sites, it is recommended to locate washout areas at least 50 feet from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
  - Washout wastes into the temporary washout where the concrete can set, be broken up, and then disposed properly.
  - Washouts shall be implemented in a manner that prevents leaching to underlying soils. Washout containers must be water tight and washouts on or in the ground must be lined with a suitable impervious liner, typically a plastic type material.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.
- See typical concrete washout installation details at the end of this fact sheet.

Education

- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.

- Arrange for contractor's superintendent or representative to oversee and enforce concrete waste management procedures.
- Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready-mix concrete supplier before any deliveries are made.

Concrete Demolition Wastes

- Stockpile concrete demolition waste in accordance with BMP WM-3, Stockpile Management.
- Dispose of or recycle hardened concrete waste in accordance with applicable federal, state or local regulations.

Concrete Slurry Wastes

- PCC and AC waste should not be allowed to enter storm drains or watercourses.
- PCC and AC waste should be collected and disposed of or placed in a temporary concrete washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below).
- A foreman or construction supervisor should monitor onsite concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.
- Saw-cut concrete slurry should not be allowed to enter storm drains or watercourses. Residue from grinding operations should be picked up by means of a vacuum attachment to the grinding machine or by sweeping. Saw cutting residue should not be allowed to flow across the pavement and should not be left on the surface of the pavement. See also NS-3, Paving and Grinding Operations; and WM-10, Liquid Waste Management.
- Concrete slurry residue should be disposed in a temporary washout facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below) and allowed to dry. Dispose of dry slurry residue in accordance with WM-5, Solid Waste Management.

Onsite Temporary Concrete Washout Facility, Transit Truck Washout Procedures

- Temporary concrete washout facilities should be located a minimum of 50 ft from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Temporary concrete washout facilities should be constructed above grade or below grade at the option of the contractor. Temporary concrete washout facilities should be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.

- Temporary washout facilities should have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Temporary washout facilities should be lined to prevent discharge to the underlying ground or surrounding area.
- Washout of concrete trucks should be performed in designated areas only.
- Only concrete from mixer truck chutes should be washed into concrete wash out.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed of or recycled offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of per WM-5, Solid Waste Management. Dispose of or recycle hardened concrete on a regular basis.
- Temporary Concrete Washout Facility (Type Above Grade)
  - Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft; however, smaller sites or jobs may only need a smaller washout facility. With any washout, always maintain a sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.
  - Materials used to construct the washout area should conform to the provisions detailed in their respective BMPs (e.g., SE-8 Sandbag Barrier).
  - Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
  - Alternatively, portable removable containers can be used as above grade concrete washouts. Also called a “roll-off”; this concrete washout facility should be properly sealed to prevent leakage, and should be removed from the site and replaced when the container reaches 75% capacity.
- Temporary Concrete Washout Facility (Type Below Grade)
  - Temporary concrete washout facilities (type below grade) should be constructed as shown on the details at the end of this BMP, with a recommended minimum length and minimum width of 10 ft. The quantity and volume should be sufficient to contain all liquid and concrete waste generated by washout operations.
  - Lath and flagging should be commercial type.
  - Plastic lining material should be a minimum of 10 mil polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

- The base of a washout facility should be free of rock or debris that may damage a plastic liner.

Removal of Temporary Concrete Washout Facilities

- When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and properly disposed or recycled in accordance with federal, state or local regulations. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and properly disposed or recycled in accordance with federal, state or local regulations..

- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Costs

All of the above are low cost measures. Roll-0ff concrete washout facilities can be more costly than other measures due to removal and replacement; however, provide a cleaner alternative to traditional washouts. The type of washout facility, size, and availability of materials will determine the cost of the washout.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

- Temporary concrete washout facilities should be maintained to provide adequate holding capacity with a minimum freeboard of 4 in. for above grade facilities and 12 in. for below grade facilities. Maintaining temporary concrete washout facilities should include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials should be removed and properly disposed or recycled in accordance with federal, state or local regulations.

- Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.

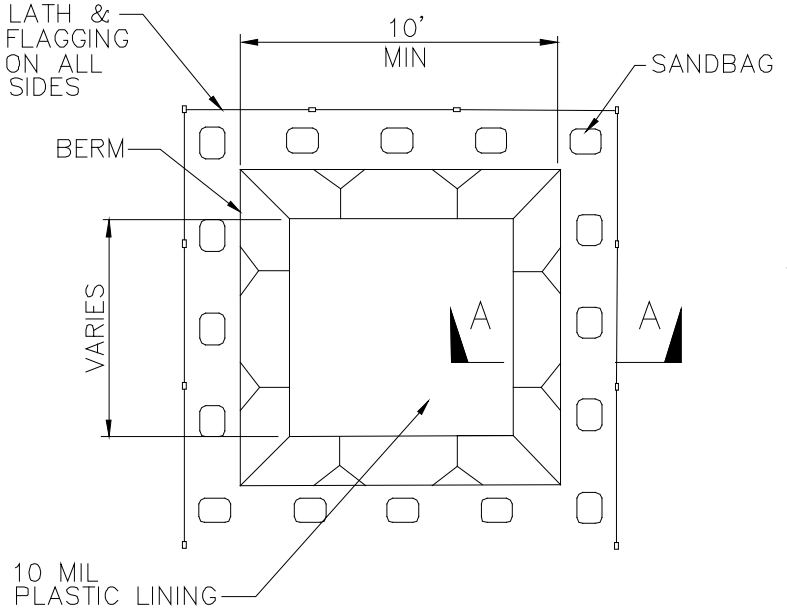
- Inspect washout facilities for damage (e.g. torn liner, evidence of leaks, signage, etc.). Repair all identified damage.

References

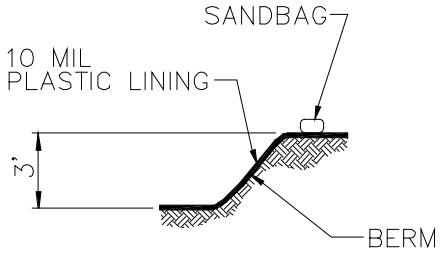
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000, Updated March 2003.

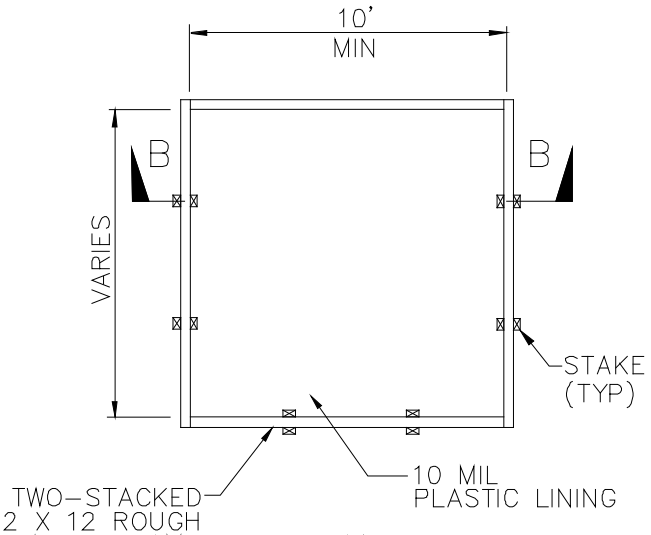
Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.



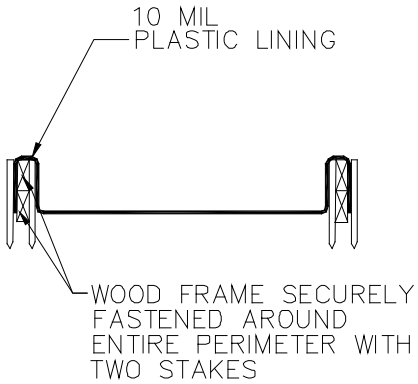
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TYPE "BELOW GRADE"



SECTION A–A
NOT TO SCALE



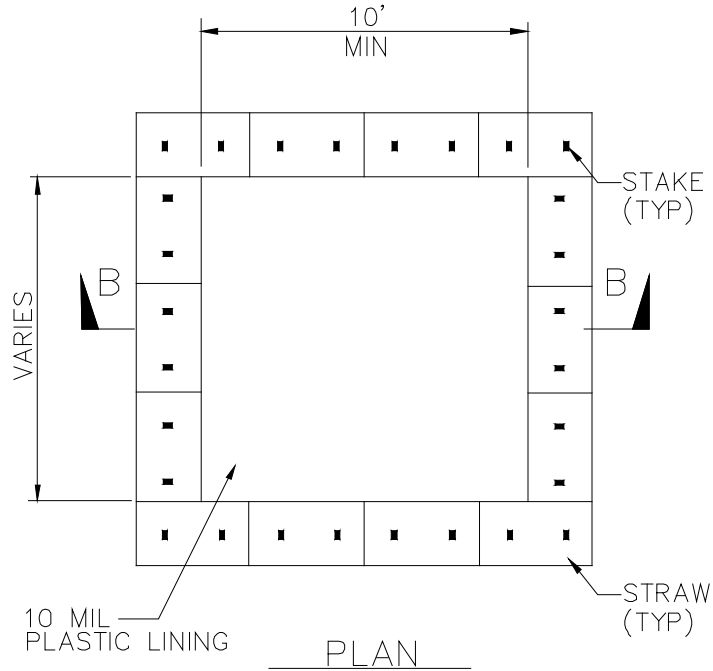
PLAN
NOT TO SCALE
TYPE "ABOVE GRADE"



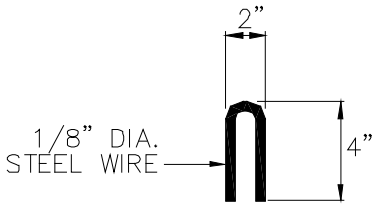
SECTION B–B
NOT TO SCALE

NOTES

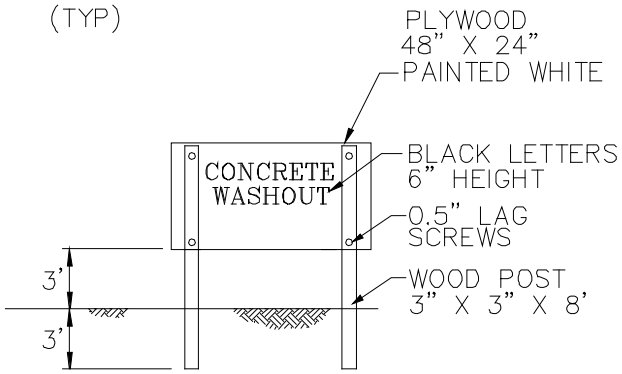
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2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.



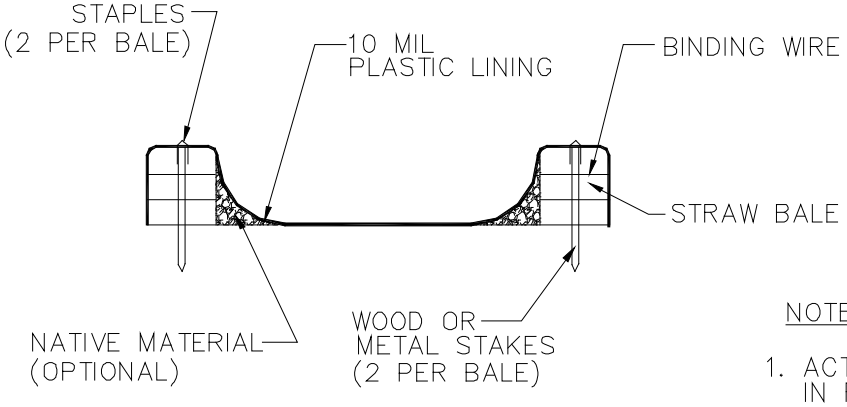
PLAN
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TYPE "ABOVE GRADE"
WITH STRAW BALES



STAPLE DETAIL



CONCRETE WASHOUT
SIGN DETAIL
(OR EQUIVALENT)

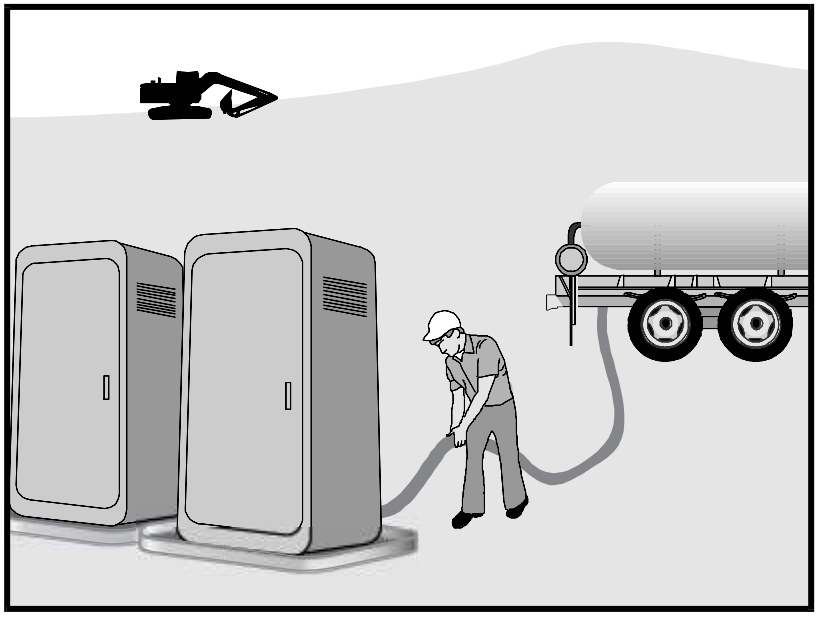


SECTION B–B
NOT TO SCALE

NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Sanitary/Septic Waste Management WM-9



Description and Purpose

Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Applications

Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Limitations

None identified.

Implementation

Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. If site conditions allow, place portable facilities a minimum of 50 feet from drainage conveyances and traffic areas. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	☑
Oil and Grease	
Organics	☑

Potential Alternatives

None

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- Temporary sanitary facilities must be equipped with containment to prevent discharge of pollutants to the stormwater drainage system of the receiving water.
- Consider safety as well as environmental implications before placing temporary sanitary facilities.
- Wastewater should not be discharged or buried within the project site.
- Sanitary and septic systems that discharge directly into sanitary sewer systems, where permissible, should comply with the local health agency, city, county, and sewer district requirements.
- Only reputable, licensed sanitary and septic waste haulers should be used.
- Sanitary facilities should be located in a convenient location.
- Temporary septic systems should treat wastes to appropriate levels before discharging.
- If using an onsite disposal system (OSDS), such as a septic system, local health agency requirements must be followed.
- Temporary sanitary facilities that discharge to the sanitary sewer system should be properly connected to avoid illicit discharges.
- Sanitary and septic facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities overflow.
- If a spill does occur from a temporary sanitary facility, follow federal, state and local regulations for containment and clean-up.

Education

- Educate employees, subcontractors, and suppliers on sanitary and septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary and septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary and septic waste.
- Hold regular meetings to discuss and reinforce the use of sanitary facilities (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Costs

All of the above are low cost measures.

Inspection and Maintenance

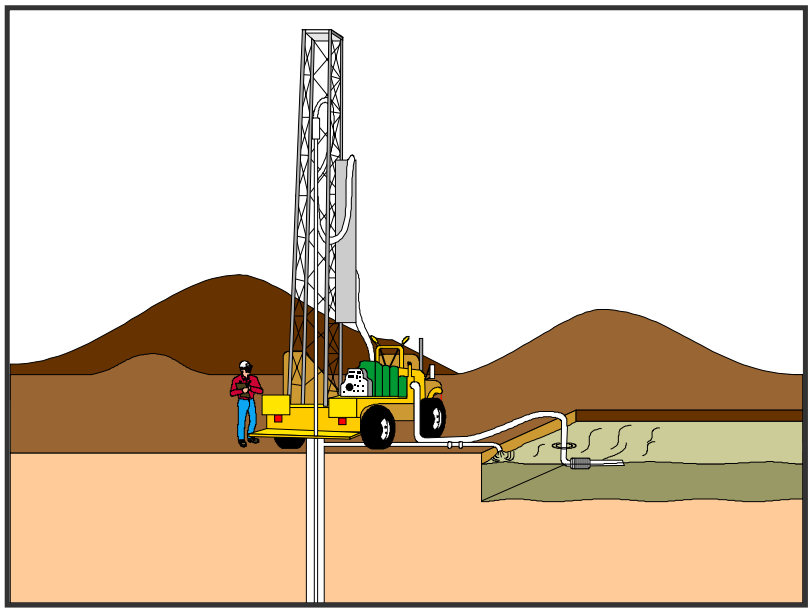
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Arrange for regular waste collection.
- If high winds are expected, portable sanitary facilities must be secured with spikes or weighed down to prevent over turning.
- If spills or leaks from sanitary or septic facilities occur that are not contained and discharge from the site, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Liquid Waste Management WM-10



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

Suitable Applications

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous by-products, residuals, or wastes:

- Drilling slurries and drilling fluids
- Grease-free and oil-free wastewater and rinse water
- Dredgings
- Other non-stormwater liquid discharges not permitted by separate permits

Limitations

- Disposal of some liquid wastes may be subject to specific laws and regulations or to requirements of other permits secured for the construction project (e.g., NPDES permits, Army Corps permits, Coastal Commission permits, etc.).
- Liquid waste management does not apply to dewatering operations (NS-2 Dewatering Operations), solid waste management (WM-5, Solid Waste Management), hazardous wastes (WM-6, Hazardous Waste Management), or

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concrete slurry residue (WM-8, Concrete Waste Management).

- Typical permitted non-stormwater discharges can include: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; flows from riparian habitats and wetlands; and discharges or flows from emergency fire fighting activities.

Implementation

General Practices

- Instruct employees and subcontractors how to safely differentiate between non-hazardous liquid waste and potential or known hazardous liquid waste.
- Instruct employees, subcontractors, and suppliers that it is unacceptable for any liquid waste to enter any storm drainage device, waterway, or receiving water.
- Educate employees and subcontractors on liquid waste generating activities and liquid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Verify which non-stormwater discharges are permitted by the statewide NPDES permit; different regions might have different requirements not outlined in this permit.
- Apply NS-8, Vehicle and Equipment Cleaning for managing wash water and rinse water from vehicle and equipment cleaning operations.

Containing Liquid Wastes

- Drilling residue and drilling fluids should not be allowed to enter storm drains and watercourses and should be disposed of.
- If an appropriate location is available, drilling residue and drilling fluids that are exempt under Title 23, CCR § 2511(g) may be dried by infiltration and evaporation in a containment facility constructed in conformance with the provisions concerning the Temporary Concrete Washout Facilities detailed in WM-8, Concrete Waste Management.
- Liquid wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud, should be contained and not allowed to flow into drainage channels or receiving waters prior to treatment.
- Liquid wastes should be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank.
- Containment devices must be structurally sound and leak free.
- Containment devices must be of sufficient quantity or volume to completely contain the liquid wastes generated.

- Precautions should be taken to avoid spills or accidental releases of contained liquid wastes. Apply the education measures and spill response procedures outlined in WM-4, Spill Prevention and Control.

- Containment areas or devices should not be located where accidental release of the contained liquid can threaten health or safety or discharge to water bodies, channels, or storm drains.

Capturing Liquid Wastes

- Capture all liquid wastes that have the potential to affect the storm drainage system (such as wash water and rinse water from cleaning walls or pavement), before they run off a surface.

- Do not allow liquid wastes to flow or discharge uncontrolled. Use temporary dikes or berms to intercept flows and direct them to a containment area or device for capture.

- Use a sediment trap (SE-3, Sediment Trap) for capturing and treating sediment laden liquid waste or capture in a containment device and allow sediment to settle.

Disposing of Liquid Wastes

- A typical method to handle liquid waste is to dewater the contained liquid waste, using procedures such as described in NS-2, Dewatering Operations, and SE-2, Sediment Basin, and dispose of resulting solids per WM-5, Solid Waste Management.

- Methods of disposal for some liquid wastes may be prescribed in Water Quality Reports, NPDES permits, Environmental Impact Reports, 401 or 404 permits, and local agency discharge permits, etc. Review the SWPPP to see if disposal methods are identified.

- Liquid wastes, such as from dredged material, may require testing and certification whether it is hazardous or not before a disposal method can be determined.

- For disposal of hazardous waste, see WM-6, Hazardous Waste Management.

- If necessary, further treat liquid wastes prior to disposal. Treatment may include, though is not limited to, sedimentation, filtration, and chemical neutralization.

Costs

Prevention costs for liquid waste management are minimal. Costs increase if cleanup or fines are involved.

Inspection and Maintenance

- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly during the rainy season and of two-week intervals in the non-rainy season to verify continued BMP implementation.

- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.

- Remove deposited solids in containment areas and capturing devices as needed and at the completion of the task. Dispose of any solids as described in WM-5, Solid Waste Management.

- Inspect containment areas and capturing devices and repair as needed.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Appendix H: BMP Inspection Form

BMP INSPECTION REPORT

Date and Time of Inspection:	Date Report Written:

Inspection Type: (Circle one)	Weekly *Complete Parts I,II,III and VII*	Pre-Qualifying Precipitation Event (QPE) *Complete Parts I,II,III,IV and VII*	During QPE *Complete Parts I, II, III, V, and VII*	Post-QPE *Complete Parts I,II,III,VI and VII*	*Inactive Project Complete Parts I,II,III and VII*

Part I. General Information

Site Information

Construction Site Name:	
Construction stage and completed activities:	Approximate area of site that is exposed:

Photos Taken: (Circle one)	Yes	No	Photo Reference IDs:

Weather

Estimate storm beginning: (date and time)	Estimate storm duration: (hours)
Estimate time since last storm: (days or hours)	Rain gauge reading and location: (in)

Is a "Qualifying Precipitation Event" predicted or did one occur (i.e., any weather pattern with a 50% chance of 0.5" or more within a 24-hr period when 0.5" has been forecast and continues on subsequent 24-hour periods when 0.25" of precipitation or more is forecast)? (Y/N)
If yes, summarize forecast:

Exception Documentation (explanation required if inspection could not be conducted). Visual inspections are not required outside of business hours or during dangerous weather conditions such as electrical storms, flooding, and high winds above 40 miles per hour.

Inspector Information

Inspector Name:	Inspector Title:

Inspector Certification:	Date:

Part II. BMP Observations. Describe deficiencies in Part III.			
Minimum BMPs for Risk Level _____ Sites	Adequately designed, implemented and effective (yes, no, N/A)	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Construction Materials			
Inventory of products (excluding materials designed to be outdoors)			
Stockpiled construction materials not actively in use are covered and bermed			
All chemicals are stored in watertight containers with appropriate secondary containment, or in a completely enclosed storage shed			
Construction materials are minimally exposed to precipitation			
BMPs preventing the off-site tracking of materials are implemented and properly effective			
Good Housekeeping for Waste Management			
Wash/rinse water and materials are prevented from being disposed into the storm drain system			
Portable toilets are contained to prevent discharges of waste			
Sanitation facilities are clean and with no apparent for leaks and spills			
Equipment is in place to cover waste disposal containers at the end of business day and during rain events			
Discharges from waste disposal containers are prevented from discharging to the storm drain system / receiving water			
Stockpiled waste material is securely protected from wind and rain if not actively in use			
Procedures are in place for addressing hazardous and non-hazardous spills			
Appropriate spill response personnel are assigned and trained			
Equipment and materials for cleanup of spills is available onsite			
Washout areas (e.g., concrete) are contained appropriately to prevent discharge or infiltration into the underlying soil			
Good Housekeeping for Vehicle Storage and Maintenance			
Measures are in place to prevent oil, grease, or fuel from leaking into the ground, storm drains, or surface waters			
All equipment or vehicles are fueled, maintained, and stored in a designated area with appropriate BMPs			
Vehicle and equipment leaks are cleaned immediately and disposed of properly			

Part II. BMP Observations Continued. Describe deficiencies in Part III.			
Minimum BMPs for Risk Level _____ Sites	Adequately designed, implemented and effective (yes, no, N/A)	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Landscape Materials			
Stockpiled landscape materials such as mulches and topsoil are contained and covered when not actively in use			
Erodible landscape material has not been applied 2 days before a forecasted rain event or during an event			
Erodible landscape materials are applied at quantities and rates in accordance with manufacturer recommendations			
Bagged erodible landscape materials are stored on pallets and covered			
Good Housekeeping for Air Deposition of Site Materials			
Good housekeeping measures are implemented onsite to control the air deposition of site materials and from site operations			
Non-Stormwater Management			
Non-Stormwater discharges are properly controlled			
Vehicles are washed in a manner to prevent non-stormwater discharges to surface waters or drainage systems			
Streets are cleaned in a manner to prevent unauthorized non-stormwater discharges to surface waters or drainage systems.			
Erosion Controls			
Wind erosion controls are effectively implemented			
Effective soil cover is provided for disturbed areas inactive (i.e., not scheduled to be disturbed for 14 days) as well as finished slopes, open space, utility backfill, and completed lots			
The use of plastic materials is limited in cases when a more sustainable, environmentally friendly alternative exists.			
Sediment Controls			
Perimeter controls are established and effective at controlling erosion and sediment discharges from the site			
Entrances and exits are stabilized to control erosion and sediment discharges from the site			
Sediment basins are properly maintained			
Inspect immediate access roads prior to forecasted precipitation			
Linear sediment control along toe of slope, face of slope an at grade breaks (Risk Level 2 & 3 Only)			
Limit construction activity to and from site to entrances and exits that employ effective controls to prevent offsite tracking (Risk Level 2 & 3 Only)			
Ensure all storm, drain inlets and perimeter controls, runoff control BMPs and pollutants controls at entrances and exits			

are maintained and protected from activities the reduce their effectiveness (Risk Level 2 & 3 Only)			
Run-On and Run-Off Controls			
Run-on to the site is effectively managed and directed away from all disturbed areas.			
Other			
Are the project SWPPP and BMP plan up to date, available onsite and being properly implemented?			
Is the posting of the project's unique WDID number, waiver identification number, and site and project contact information publicly accessible?			

Part III. Descriptions of BMP Deficiencies		
Deficiency	**Repairs Implemented: Note - Repairs must begin within 72 hours of identification and, complete repairs as soon as possible.**	
	Start Date	**Action**
1.		
2.		
3.		
4.		

Part IV. Additional Pre-QPE Observations. Note the presence or absence of floating and suspended materials, sheen, discoloration, turbidity, odors, and source(s) of pollutants(s).	
	Yes, No, N/A
Do stormwater storage and containment areas have adequate freeboard? If no, complete Part III.	
Are drainage areas free of spills, leaks, or uncontrolled pollutant sources? If no, complete Part VII and describe below.	
Notes:	
Are stormwater storage and containment areas free of leaks? If no, complete Parts III and/or VII and describe below.	
Notes:	

Part V. Additional During-QPE Observations. If BMPs cannot be inspected during inclement weather, list the results of visual inspections at all relevant outfalls, discharge points, and downstream locations. Note odors or visible sheen on the surface of discharges. Complete Part VII (Corrective Actions) as needed.	
Outfall, Discharge Point, or Other Downstream Location	
Location	Description
Location	Description
Location	Description
Location	Description

Part VI. Additional Post-QPE Observations. Visually observe (inspect) stormwater discharges at all discharge locations within 96 hours after each qualifying precipitation event, and observe (inspect) the discharge of stored or contained stormwater that is derived from and discharged subsequent to a qualifying precipitation event producing precipitation of ½ inch or more at the time of discharge. Complete Part VII (Corrective Actions) as needed.	
Discharge Location, Storage or Containment Area	**Visual Observation**

Part VII. Additional Corrective Actions Required. Identify additional corrective actions not included with BMP Deficiencies (Part III) above. Note if SWPPP change is required.	
Required Actions	**Implementation Date**

Appendix I: Training Forms

Contractor Personnel Training Log

Stormwater Management Training Log and Documentation

Project Name: _____

WDID #: _____

Stormwater Management Topic: (check as appropriate)

☐ Good Housekeeping BMPs ☐ Erosion Control BMPs

☐ Sediment Control BMPs ☐ Tracking Control

☐ Non-Stormwater Management BMPs ☐ Waste Management & Pollution Control BMPs

☐ BMP Implementation Activities ☐ Advanced BMPs

☐ Identification of QSPs and QSP Delegates

Training Objective: _____

Date: _____ Instructor: _____

Training Length (hours): _____

Attendee Roster (Attach additional forms if necessary)

Name	Company	Phone

QSP Delegate Training Log

Stormwater Management Training Log and Documentation

Project Name: _____

WDID #: _____

QSP Delegate Name: _____

Delegated Responsibilities:

☐ Stormwater Visual Inspections

☐ Sampling

☐ BMP Inspections

☐ BMP Maintenance and Repair

Foundational Training

Topic	Date Completed	QSP Trainer
☐ Roles and Responsibilities		
☐ Forecast Information		
☐ Documentation and Reporting Procedures		

Site-Specific Training

Topic	Date Completed	QSP Trainer
☐ Visual Inspections		
☐ Sample Collection Procedures		
☐ Sample Reporting Procedures		
☐ BMP Implementation		

As needed, attach proof of external training (e.g., course completion certificates, credentials for the QSP Delegate).

Appendix J: Responsible Parties

Identification of QSP and QSP Delegates

Project Name: _____

WDID #: _____

The following are QSPs and QSP Delegates associated with this project

Name of Personnel(1)	QSP Number, or state "Delegate"	Company	Date

(1) If additional QSPs or QSP Delegates are required on the job site add additional lines

Appendix K: Contractors and Subcontractors

Contractor Name:	
Title:	
Contractor Company:	
Address	
Phone Number:	
Phone Number (24/7)	
[Add additional rows, if needed]	

Appendix L: Calculations

Appendix M: Weather Reports

The discharger must obtain the precipitation forecast information from the National Weather Service Forecast Office (http://forecast.weather.gov). A printed copy with the date and time of printing should be retained in this Appendix.

Appendix N: Monitoring Records

Place completed BMP Inspection Forms, photographic documentation, Effluent Sampling, Receiving Water, and Dewatering Field Logs, Monitoring Exceptions, NAL Exceedance Reports, and Receiving Water Monitoring Trigger Exceptions in this appendix.

Appendix O: Example Storm Event Monitoring Forms

Rain Gauge Log Sheet				
Construction Site Name:				
WDID #:				
Date (mm/dd/yy)	Time (24-hr)	Initials	Rainfall Depth (Inches)	Notes:

Risk Level 1, 2, 3 ***Visual Inspection Field Log Sheet***					
Date and Time of Inspection:				Report Date:	
Inspection Type:	☐ Weekly	☐ Pre Qualifying Precipitation Event (QPE)	☐ During QPE	☐ Post QPE	☐ Dewatering Discharge
Site Information					
Construction Site Name:					
Construction stage and completed activities:				Approximate area of exposed site:	
Weather and Observations					
Date Rain Predicted to Occur:			Predicted % chance of precipitation (PoP): Predicted quantity of precipitation (QPF):		
Estimate storm beginning: _____ (date and time)		Estimate storm duration:_____ (hours)	Estimate time since last storm: _____ (days or hours)	Rain gauge reading:_____ (inches)	
Observations: If yes identify location					
Odors	Yes ☐	No ☐			
Floating material	Yes ☐	No ☐			
Suspended Material	Yes ☐	No ☐			
Sheen	Yes ☐	No ☐			
Discolorations	Yes ☐	No ☐			
Turbidity	Yes ☐	No ☐			
Site Inspections					
Outfalls or BMPs Evaluated			**Deficiencies Noted**		
(add additional sheets or attached detailed BMP Inspection Checklists)					
Photos Taken:	Yes ☐	No ☐	Photo Reference IDs:		
Corrective Actions Identified (note if SWPPP/REAP change is needed)					
Inspector Information					
Inspector Name:			Inspector Title:		
Signature:				Date:	

Risk Level 1, 2, 3 ***Effluent Sampling Field Log Sheets***			
Construction Site Name:		Date:	Time Start:
Sampler:			
Sampling Event Type:	☐ Stormwater	☐ Dewatering Discharge	☐ Non-visible pollutant
Field Meter Calibration			
pH Meter ID No./Desc.: Calibration Date/Time:		Turbidity Meter ID No./Desc.: Calibration Date/Time:	

Field pH and Turbidity Measurements			
Discharge Location Description	pH	Turbidity	Time

Grab Samples Collected		
Discharge Location Description	Sample Type	Time

Additional Sampling Notes:
Time End:

Risk Level 3 ***Receiving Water Sampling Field Log Sheets***		
Construction Site Name:	Date:	Time Start:
Sampler:		
Receiving Water Description and Observations		
Receiving Water Name/ID:		
Observations:		
Odors Yes ☐ No ☐		
Floating material Yes ☐ No ☐		
Suspended Material Yes ☐ No ☐		
Sheen Yes ☐ No ☐		
Discolorations Yes ☐ No ☐		
Turbidity Yes ☐ No ☐		
Field Meter Calibration		
pH Meter ID No./Desc.: Calibration Date/Time:	Turbidity Meter ID No./Desc.: Calibration Date/Time:	

Field pH and Turbidity Measurements			
Upstream Location			
Type	Result	Time	Notes
pH			
Turbidity			
Downstream Location			
Type	Result	Time	Notes
pH			
Turbidity			
Additional Sampling Notes:			
Time End:			

NAL Exceedance Evaluation Summary Report	Page __ of __
Project Name	
Project WDID	
Project Location	
Date of Exceedance	
Type of Exceedance	**NAL ☐ pH ☐ Turbidity** **☐ Other (specify) _____**
Measurement or Analytical Method	**☐ Field meter** **(Sensitivity: _____)** **☐ Lab method (specify) _____** **(Minimum Level: _____)** **(MDL: _____)**
Calculated Daily Average	**☐ pH _____ pH units** **☐ Turbidity _____ NTU**
Rain Gauge Measurement	**_____ inches**
Visual Observations on Day of Exceedance	

NAL Exceedance Evaluation Summary Report	Page __ of __
Description of BMPs in Place at Time of Event	
Initial Assessment of Cause	
Corrective Actions Taken (deployed after exceedance)	
Additional Corrective Actions Proposed	
Report Completed By	_____ **(Print Name, Title)**
Signature	_____

CHAIN-OF-CUSTODY **DATE:** **Lab ID:**

DESTINATION LAB: ATTN: **ADDRESS:** **Office Phone:** **Cell Phone:**							REQUESTED ANALYSIS				Notes:
SAMPLED BY:											
Contact:											
Project Name											
Client Sample ID	**Sample Date**	**Sample Time**	**Sample Matrix**	**Container #**	**Container Type**	**Container Pres.**					

SENDER COMMENTS:	**RELINQUISHED BY**	
	Signature:	
	Print:	
	Company:	
	Date:	TIME:
LABORATORY COMMENTS:	**RECEIVED BY**	
	Signature:	
	Print:	
	Company:	
	Date:	TIME:

Appendix P:Field Meter Instructions

Appendix Q: Supplemental Information

Appendix R: Active Treatment System and Passive Treatment Plans

Appendix S:Construction General Permit

Copies of the Construction Stormwater General Permit may be downloaded from the State Water Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

10 May 2024

Mr. Matthew Davidson, P.E.
Development Manager
GIC Vernon LLC
3333 Michelson Drive, Suite 1050
Irvine, CA 92612

Subject: Red Fill Soils Observation & Testing Letter Report
3049 E Vernon Avenue Vernon, CA 90058
Langan Project No.: 721040502

Dear Mr. Davidson,

In accordance with your request, Langan CA, Inc. (Langan) has prepared this letter report for GIC Vernon LLC (Client) to summarize the red fill soil discovered at 3049 E Vernon Avenue in Vernon, California (subject property) during the site demolition activities. The subject property location is shown in Figure 1, the discovered soil locations are shown in Figure 2, and the soil exceedance locations are shown in Figure 3.

BACKGROUND

The subject property was used as a meat processing and distribution facility from the 1920s to 2023. In May 2023, Langan conducted a concurrent Geotechnical and Phase II Environmental Site Assessment (ESA) in preparation for proposed redevelopment at the subject property (shown on Figure 1).

Geotechnical Investigation

As a part of initial geotechnical due diligence performed on the property in May of 2023, ten geotechnical borings (B-1 through B-10) were advanced using a hollow-stem auger to a maximum of 37 feet below the existing ground surface (bgs). Six additional borings were installed for the purpose of field percolation testing (FP-1 through FP-6) to approximately 50 to 65 feet bgs. The geotechnical borings are shown on Figure 2. The boring logs are included in Attachment 1.

Red fill soils were not identified in the geotechnical borings. As outlined in the report, limited fill soils were encountered at the subject property. Further details regarding the geotechnical investigation are described in the *Geotechnical Report for Proposed Industrial Building Development 3163 East Vernon Avenue* prepared by Langan and dated July 14, 2023.

Phase II ESA

As a part of environmental due diligence performed on the property in May of 2023, environmental samples were collected from the geotechnical Borings B-1 through B-10.

Additionally, borings B-11 through B-14 were advanced via direct push technology. The soil borings were advanced to depths between 12 and 35 feet bgs. Four hand auger borings (ISB-01 through ISB-04) were advanced inside the buildings between depths of 5 and 10 feet below the slab. The locations of previous environmental borings are shown on Figure 2. Red fill soils were not identified in the environmental borings.

Soil samples collected from the borings were analyzed for volatile organic compounds (VOCs) (USEPA 8260B), semi-volatile organic compounds (SVOCs) (USEPA 8270 SIM), CAM 17 Metals (USEPA 6010B), pesticides (USEPA 8081A), polychlorinated biphenyls (PCBs) (USEPA 8082), polyfluoroalkyl substances (PFAS) (537.1/QSM 5.3/1633) and asbestos (PLM). The sample results were compared to San Francisco Bay Regional Water Quality Control Board (SFB RWQCB) Commercial/Industrial and Construction Worker: Shallow Soil Exposure Environmental Screening Levels (ESLs), 2019 Rev. 2.

Arsenic was detected at a concentration above the Southern California average background concentration (12 mg/kg[1]) in B-11-10 at 34.4 mg/kg; lead was detected above the commercial/industrial ESL (320 mg/kg) and construction worker ESL (160 mg/kg) in B-11-10 at 1,100 mg/kg; and nickel was detected above the construction worker ESL (86 mg/kg) in B-11-10 at 136 mg/kg.

Additional information can be found in the *Phase II ESA for Smithfield Packaged Meats Corporation 3049, 3094, 3095, 3163, and 3200 East Vernon Avenue Vernon, California* prepared by Langan and dated May 30, 2023.

Soil Management Plan and Implementation Oversight

Based on the analytical results from the Phase II ESA, Langan prepared a Soil Management Plan (SMP), dated 13 October 2023, for the subject property. The subject property is currently undergoing demolition by American Wrecking, Inc. (the contractor). Langan conducts field observation oversight and testing services on a weekly basis in support of the on-going demolition at the subject property. Per the SMP, Langan began visiting the subject property on 27 December 2023 to collect samples of red fill soil encountered by the contractor while excavating and removing the former footings below the former bacon processing facility.

DEMOLITION AND TRENCHING

Three trenches (Trench 1 through 3) were advanced in the northern portion of the subject property, where the red fill soil was identified during demolition and removal of building foundations by the contractor, on 27 December 2023. Trench 1 was approximately 19 feet by 32 feet by 6.5 feet, Trench 2 was approximately 14 feet by 28 feet by 7 feet, and Trench 3 was

[1] California Department of Toxic Substances Control (DTSC), Human and Ecological Risk Office (HERO). Human Health Risk Assessment (HHRA) Note Number 11, Southern California Ambient Arsenic Screening Level. 28 December 2020.

approximately 15 feet by 30 feet by 9 feet. On 9 January 2024, a fourth trench was advanced. Trench 4 was approximately 16 feet by 35 feet by 12 feet. The trenches were backfilled following sampling and observation.

A Langan geologist, under the direction of a State of California Licensed Professional Geologist/Engineer, observed and described soil characteristics using visual procedures in accordance with the Unified Soil Classification System. Color, moisture content, grain size, and other soil characteristics were recorded on trench logs. Soil was screened for staining, odors, and organic vapors using a photoionization detector (PID) and recorded on the trench logs. The trench logs are provided in Attachment 2.

SOIL SAMPLING

During the demolition of the buildings and associated trenching, Langan observed red fill soil from approximately 3 to 6.5 feet bgs in Trench 1, from approximately 5 to 7 feet bgs in Trench 2, and from approximately 6 to 9 feet bgs in Trench 3. The red fill soil was observed to be between approximately 2 and 3.5 feet thick in the trenches. Glass, bone, metal, and apparent asphalt pieces were also present in the trenches. The soil did not have an odor and had a maximum PID reading of 0.2 parts per million (ppm). One in-situ characterization sample (RS-1) was collected from Trench 1 at approximately 6 feet bgs.

During additional demolition and trenching on 09 January 2024, Langan observed the red fill soil from approximately 2 to 8 feet bgs in Trench 4. Four additional samples (RS-2-2, RS-2-4, RS-2-6, and RS-2-8) were collected from Trench 4 for further characterization of the red fill soil. RS-2-6 was analyzed, and the remaining samples were placed on hold until further notice. Langan collected an additional sample of the red fill soil (RS-3-2) at 2 feet bgs from an approximately 6-inch layer of the material exposed near the western boundary of the former meat processing area (shown on Figure 2). PID readings were 0.0 ppm.

On 27 February 2024, sample S1-02272024 was collected at approximately 2 feet bgs from a 6-inch layer of red fill soil exposed in a footing trench in the northeastern meat processing area. Three additional samples S2-0227204, S3-02272024, and S4-02272024 were collected at approximately 4 feet bgs from a red fill soil layer exposed in a footing trench at the northwestern meat processing area. Sample S3-02272024 was analyzed, and the remaining samples were placed on hold pending further notice. Footing and soil sample locations are shown in Figure 2.

The samples were collected using a stainless-steel trowel from the excavator bucket. The samples were collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The samples were then transported under a chain of custody to Eurofins Calscience in Tustin, California, or Advanced Technology Laboratory (ATL) in Signal Hill, California.

Sample RS-1 was analyzed for the following compounds.

Analysis Type	USEPA Method
California Code of Regulations, Title 22 Metals	6010B/7471A
Total Petroleum Hydrocarbons (TPH)	8015B
Volatile Organic Compounds (VOCs)	8260B/5035

The additional red fill soil samples were only analyzed for metals. A photographic log of the trenches and the soil sampling is provided in Attachment 3.

ANALYTICAL RESULTS

The analytical results for metals, VOCs, and TPH were compared to the SFB RWQCB Commercial/Industrial and Construction Worker Soil Environmental Screening Levels (ESLs) (2019, Revision 2).

No TPH or VOCs were detected at levels exceeding any of the applicable screening levels. The following nine metals exceeded one or more applicable screening levels:

- Antimony was detected above the RWQCB Commercial/Industrial ESL and the RWQCB Construction Worker ESL of 160 milligrams per kilogram (mg/kg) and 50 mg/kg respectively at 284 mg/kg in RS-1, 1,100 mg/kg in RS-2-6, and 660 mg/kg in RS-3-2.
- Arsenic was detected above the Southern California background concentration of 12 mg/kg at 21.9 mg/kg in RS-1, 84 mg/kg in RS-2-6, and 23 mg/kg in RS-3-2.
- Barium was detected above the Construction Worker ESL of 3,000 mg/kg at 3,800 mg/kg in RS-2-6.
- Lead was detected above the RWQCB Commercial/Industrial ESL and the RWQCB Construction Worker ESL 320 mg/kg and 160 mg/kg respectively at 29,700 mg/kg in RS-1, 26,000 mg/kg in RS-2-6, 54,000 mg/kg in RS-3-2, 3,500 mg/kg in S1_02272024, and 2,400 mg/kg in S3_02272024.
- Nickel was detected above the RWQCB Construction Worker ESL of 86 mg/kg at 190 mg/kg in RS-2-6 and RS-3-2.
- Mercury was detected above the RWQCB Construction Worker ESL 44 mg/kg at 65.3 mg/kg in RS-1.

A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided as Attachment 4.

CONCLUSION

Based on the sporadic and apparently limited extent of red fill soils observed during the demolition and removal of building foundations in the northern portion of the subject property, it is likely that the red fill soils were placed to attain finish surface elevation of the historic buildings in these limited locations during the construction of the foundations and building slabs in these limited locations at the subject property. It is anticipated that crushed concrete located onsite will

be placed over areas of red fill soils intermittently until final development. It is proposed that red fill soils that are undisturbed during site redevelopment remain in place and that the red fill soils encountered during redevelopment be managed in accordance with the SMP.

We appreciate the opportunity to assist you with this project. If you have questions, or need information clarified, please call.

Sincerely yours,

Langan Engineering and Environmental Services, Inc.



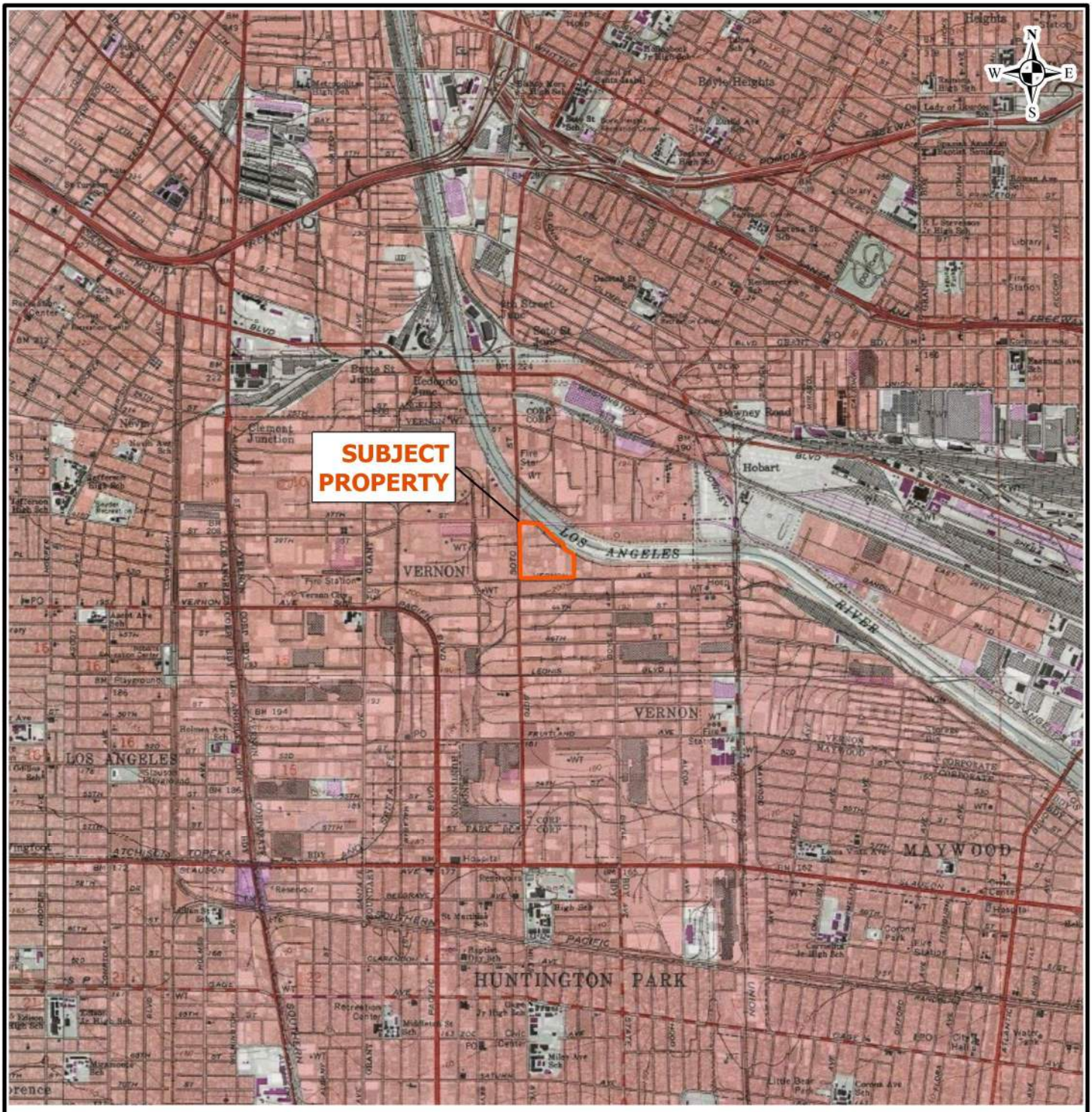
Megan Ritsema
Senior Staff Engineer



Robert S. (Rory) Johnston, PE, RCE 42332
Managing Principal

Enclosure: Figure 1 – Subject Property Location Map
Figure 2 – Red Fill Soil Location Map
Figure 3 – Soil Exceedance Location Map
Table 1 – Soil Analytical Results
Attachment 1 – Boring Logs
Attachment 2 – Trench Logs
Attachment 3 – Photographic Log
Attachment 4 – Laboratory Analytical Reports

Figures



Legend

Subject Property

Notes:
1. Site located in the Los Angeles USGS Quadrangle.
2. Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
3. All features shown are approximate.

3,000 0 3,000
SCALE IN FEET

LANGAN
Langan Engineering and Environmental Services, Inc.
515 South Flower Street, Suite 2860
Los Angeles, CA 90071
T: 213.314.8100 F: 213.314.8101
www.langan.com

Project	3049 EAST VERNON AVE VERNON LOS ANGELES COUNTY CALIFORNIA
Figure Title	SUBJECT PROPERTY LOCATION MAP
Project No.	721040501
Date	1/9/2024
Scale	1"=3,000 feet
Drawn By	KA
Figure	1

© 2024 Langan

Path: \\langan.com\data\LAX\data5\721040501\Project Data\ArcGIS\APRX_APRX 721040501\721040501.aprx



Legend

- Boring Location
- Field Percolation Test Location
- Hand Auger Boring Location
- Red Soil Present
- **(2-2.5ft)** Depth Range of Red Soil Present
- Red Soil Present
- Subject Property
- Building Outline

Notes:
1. Aerial imagery provided by Nearmap. Flown on 01/12/2024.
2. All locations shown are approximate.

250 0 250
SCALE IN FEET

LANGAN

Langan Engineering and Environmental Services, Inc.

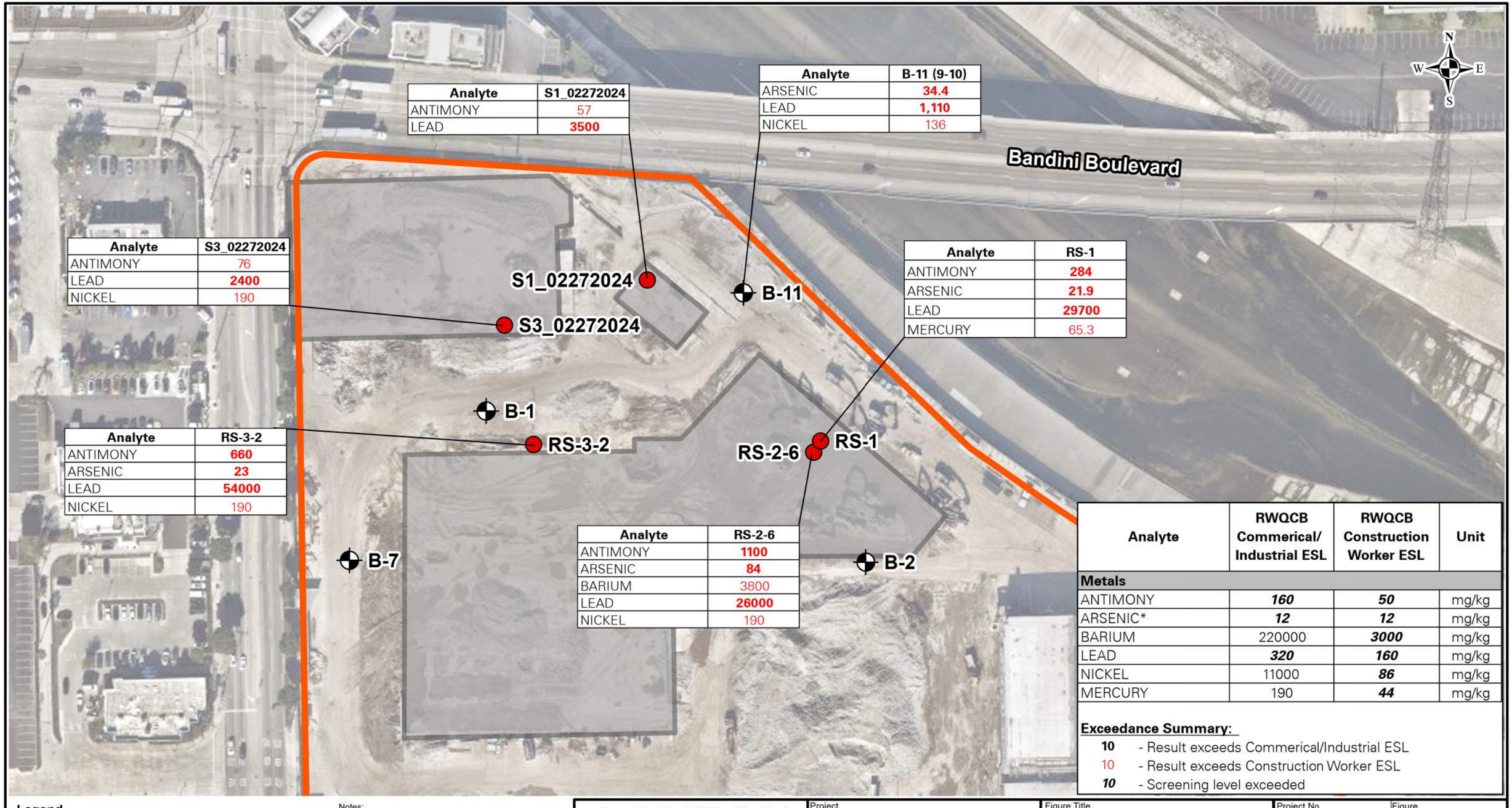
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Project	3163 EAST VERNON AVE VERNON LOS ANGELES COUNTY CALIFORNIA
Figure Title	RED FILL SOIL LOCATION MAP
Project No.	721040501
Date	5/2/2024
Scale	1" = 250 feet
Drawn By	AC
Figure	2

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Path: \\langan.com\data\LAX\data5\721040501\Project Data\ArcGIS\APRX_APRX 721040501\721040501.aprx



Analyte	S1_02272024
ANTIMONY	57
LEAD	**3500**

Analyte	B-11 (9-10)
ARSENIC	**34.4**
LEAD	**1,110**
NICKEL	136

Analyte	S3_02272024
ANTIMONY	76
LEAD	**2400**
NICKEL	190

Analyte	RS-1
ANTIMONY	**284**
ARSENIC	**21.9**
LEAD	**29700**
MERCURY	65.3

Analyte	RS-3-2
ANTIMONY	**660**
ARSENIC	**23**
LEAD	**54000**
NICKEL	190

Analyte	RS-2-6
ANTIMONY	**1100**
ARSENIC	**84**
BARIUM	3800
LEAD	**26000**
NICKEL	190

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Unit
Metals			
ANTIMONY	***160***	***50***	mg/kg
ARSENIC*	***12***	***12***	mg/kg
BARIUM	220000	***3000***	mg/kg
LEAD	***320***	***160***	mg/kg
NICKEL	11000	***86***	mg/kg
MERCURY	190	***44***	mg/kg

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL

10 - Result exceeds Construction Worker ESL

10 - Screening level exceeded

Legend

- Boring Location
- Red Soil Present
- Subject Property
- Building Outline

Notes:
1. Aerial imagery provided by Nearmap. Flown on 01/26/2023.
2. All locations of are approximate.
3. * Below accepted background arsenic level of 12 mg/kg.
4. Hazardous trigger is the minimum of the TTLC, 10xSTLC, and 20xTCLP.

100 0 100
SCALE IN FEET

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Project
3163 EAST VERNON AVE
VERNON
LOS ANGELES COUNTY CALIFORNIA

Figure Title
SOIL EXCEEDANCE LOCATION MAP

Project No.	Figure
721040501	3
Date: 5/2/2024	
Scale: 1" = 100'	
Drawn By: TO	

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Tables

Table 1: Soil Analytical Results - TPH and Metals

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	RS-1					RS-2-6					RS-3-2					S1_02272024					S3_02272024				
			Feature	Red fill soil					Red fill soil					Red fill soil					Red fill soil					Red fill soil				
			Sample Type	In-situ					In-situ					In-situ					In-situ					In-situ				
			Sample Date	12/27/2023					1/9/2024					1/9/2024					2/27/2024					2/27/2024				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Total Petroleum Hydrocarbons																												
TPH GRO	2000	1800	mg/kg	ND	U	0.055	0.099	1	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
TPH DRO	1200	1100	mg/kg	440	F1	11	24	1	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
TPH MRO	180000	54000	mg/kg	270	-	3.7	4.9	1	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Metals																												
ANTIMONY	***160***	***50***	mg/kg	**284**	-	14.5	50.8	25	**1100**	-	7.7	20	10	**660**	-	0.77	2	1	57	-	3.9	10	5	76	-	3.9	10	5
ARSENIC*	***12***	***12***	mg/kg	**21.9**	-	7.06	15.2	25	**84**	-	7.1	20	10	**23**	-	0.71	2	1	ND	-	3.5	10	5	ND	-	3.5	10	5
BARIUM	220000	***3000***	mg/kg	2040	B	0.721	15.2	25	3800	-	0.58	10	10	920	-	0.06	1	1	630	-	0.29	5	5	360	-	0.29	5	5
BERYLLIUM	230	27	mg/kg	ND	U	0.35	2.54	25	ND	-	0.31	10	10	ND	-	0.03	1	1	ND	-	0.16	5	5	ND	-	0.16	5	5
CADMIUM	1100	51	mg/kg	18.5	-	0.832	2.54	25	43	-	0.57	10	10	18	-	0.06	1	1	14	-	0.28	5	5	10	-	0.28	5	5
CHROMIUM, TOTAL	NS	NS	mg/kg	64	-	0.944	5.08	25	160	-	0.99	10	10	110	-	0.1	1	1	58	-	0.5	5	5	37	-	0.5	5	5
COBALT	350	28	mg/kg	12.7	-	1.05	5.08	25	26	-	0.76	10	10	18	-	0.08	1	1	15	-	0.38	5	5	12	-	0.38	5	5
COPPER	47000	14000	mg/kg	7600	-	4.86	10.2	25	5000	-	11	50	50	9400	-	2.2	10	10	840	-	1.1	5	5	820	-	1.1	5	5
LEAD	***320***	***160***	mg/kg	**29700**	-	4.15	20.3	50	**26000**	-	9	50	50	**54000**	-	18	100	100	**3500**	-	0.9	5	5	**2400**	-	0.9	5	5
MOLYBDENUM	5800	1800	mg/kg	ND	U	2.61	10.2	25	18	-	0.97	10	10	17	-	0.1	1	1	ND	-	0.48	5	5	ND	-	0.48	5	5
NICKEL	11000	***86***	mg/kg	71.3	-	1.84	10.2	25	190	-	0.43	10	10	190	-	0.04	1	1	57	-	0.22	5	5	77	-	0.22	5	5
SELENIUM	5800	1700	mg/kg	ND	U	6.2	15.2	25	ND	-	8.2	20	10	ND	-	0.82	2	1	ND	-	4.1	10	5	ND	-	4.1	10	5
SILVER	5800	1800	mg/kg	14.6	-	0.731	7.61	25	59	-	2.7	10	10	14	-	0.27	1	1	ND	-	1.4	5	5	ND	-	1.4	5	5
THALLIUM	12	3.5	mg/kg	ND	U	10.7	50.8	25	ND	-	3.5	20	10	ND	-	0.35	2	1	ND	-	1.8	10	5	ND	-	1.8	10	5
VANADIUM	5800	470	mg/kg	15.7	-	0.853	5.08	25	63	-	2	10	10	23	-	0.2	1	1	45	-	1	5	5	34	-	1	5	5
ZINC	350000	110000	mg/kg	5140	-	5.87	25.4	25	15000	-	3	20	10	8300	-	3	20	10	1900	-	1.5	10	5	3500	-	1.5	10	5
MERCURY	190	***44***	mg/kg	65.3	F2	3.33	8.68	100	ND	-	0.01	0.1	1	0.43	-	0.01	0.1	1	0.51	-	0.01	0.1	1	0.74	-	0.01	0.1	1

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2

* Arsenic is compared to the Southern California background level of 12 mg/kg.

mg/kg - milligrams per kilogram

NS - No Standard

ND - Not Detected

Q - Qualifier

MDL - Method Detection Limit

RL - Reporting Limit

DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.

U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.

B – Compound found in blank sample.

F1 – MS and/or MSD recovery exceeds control limits

F2 – MS/MSD RPD exceeds control limits

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL

10 - Result exceeds Construction Worker ESL

10 - Screening level exceeded

Table 1: Soil Analytical Results - VOCs

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	RS-1				
			Feature	Red fill soil				
			Sample Type	In-situ				
			Sample Date	12/27/2023				
			Unit	Result	Q	MDL	RL	DF
Volatile Organic Compounds								
1,1,1,2-TETRACHLOROETHANE	8.9	190	mg/kg	ND	U	0.00026	0.00089	1
1,1,1-TRICHLOROETHANE	7300	7200	mg/kg	ND	U	0.00021	0.00089	1
1,1,2,2-TETRACHLOROETHANE	2.7	49	mg/kg	ND	U	0.00048	0.0018	1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NS	NS	mg/kg	ND	U	0.00041	0.0089	1
1,1,2-TRICHLOROETHANE	5.1	6.3	mg/kg	ND	U	0.00041	0.00089	1
1,1-DICHLOROETHANE	16	370	mg/kg	ND	U	0.00025	0.00089	1
1,1-DICHLOROETHENE	350	350	mg/kg	ND	U	0.00024	0.00089	1
1,1-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.00034	0.0018	1
1,2,3-TRICHLOROBENZENE	NS	NS	mg/kg	ND	U	0.00033	0.0018	1
1,2,3-TRICHLOROPROPANE	0.11	0.83	mg/kg	ND	U	0.00037	0.0018	1
1,2,4-TRICHLOROBENZENE	110	240	mg/kg	ND	U	0.00036	0.0018	1
1,2,4-TRIMETHYLBENZENE	NS	NS	mg/kg	ND	U	0.00053	0.0018	1
1,2-DIBROMO-3-CHLOROPROPANE	0.059	1.1	mg/kg	ND	U	0.003	0.0089	1
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.16	3.3	mg/kg	ND	U	0.00018	0.00089	1
1,2-DICHLOROBENZENE	9400	7800	mg/kg	ND	U	0.00022	0.00089	1
1,2-DICHLOROETHANE	2.1	45	mg/kg	ND	U	0.00025	0.00089	1
1,2-DICHLOROPROPANE	4.4	66	mg/kg	ND	U	0.00024	0.00089	1
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	NS	NS	mg/kg	ND	U	0.00024	0.0018	1
1,3-DICHLOROBENZENE	NS	NS	mg/kg	ND	U	0.00022	0.00089	1
1,3-DICHLOROPROPANE	NS	NS	mg/kg	ND	U	0.00026	0.00089	1
1,4-DICHLOROBENZENE	12	280	mg/kg	ND	U	0.00027	0.00089	1
2,2-DICHLOROPROPANE	NS	NS	mg/kg	ND	U	0.00024	0.0044	1
2-CHLOROTOLUENE	NS	NS	mg/kg	ND	U	0.00022	0.00089	1
2-HEXANONE	NS	NS	mg/kg	ND	U	0.0027	0.018	1
4-CHLOROTOLUENE	NS	NS	mg/kg	ND	U	0.00021	0.00089	1
ACETONE	670000	270000	mg/kg	0.047	-	0.0087	0.018	1
BENZENE	1.4	33	mg/kg	0.029	-	0.00023	0.00089	1
BROMOBENZENE	NS	NS	mg/kg	ND	U	0.00019	0.00089	1
BROMOCHLOROMETHANE	NS	NS	mg/kg	ND	U	0.00039	0.0018	1
BROMODICHLOROMETHANE	1.3	28	mg/kg	ND	U	0.00029	0.00089	1
BROMOFORM	80	1200	mg/kg	ND	U	0.0012	0.0044	1
BROMOMETHANE	30	29	mg/kg	ND	U	0.0058	0.018	1
BUTANE, 2-METHOXY-2-METHYL	NS	NS	mg/kg	ND	U	0.00017	0.00089	1
CARBON DISULFIDE	NS	NS	mg/kg	ND	U	0.00036	0.0089	1
CARBON TETRACHLORIDE	2.7	53	mg/kg	ND	U	0.00027	0.00089	1
CHLOROBENZENE	1300	1200	mg/kg	ND	U	0.00024	0.00089	1
CHLORODIBROMOMETHANE	39	290	mg/kg	ND	U	0.00024	0.0018	1
CHLOROETHANE	59000	59000	mg/kg	ND	U	0.00066	0.0018	1
CHLOROFORM	1.4	34	mg/kg	0.00063	J	0.00052	0.00089	1
CHLOROFORM	1.4	34	mg/kg	0.00063	J	0.00052	0.00089	1
CHLOROMETHANE	470	470	mg/kg	ND	U	0.0014	0.018	1
CIS-1,2-DICHLOROETHYLENE	85	78	mg/kg	ND	U	0.0003	0.00089	1
CIS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.00031	0.00089	1
CYMENE	NS	NS	mg/kg	ND	U	0.00025	0.00089	1
DIBROMOMETHANE	NS	NS	mg/kg	ND	U	0.00027	0.00089	1
DICHLORODIFLUOROMETHANE	NS	NS	mg/kg	ND	U	0.0004	0.0018	1
ETHANOL	NS	NS	mg/kg	ND	U	0.082	0.22	1
ETHYL ACETATE	NS	NS	mg/kg	NA	-	-	-	-
ETHYL ETHER	NS	NS	mg/kg	NA	-	-	-	-
ETHYL TERT-BUTYL ETHER	NS	NS	mg/kg	ND	U	0.00021	0.00089	1
ETHYLBENZENE	26	540	mg/kg	0.0025	-	0.00018	0.00089	1
HEXACHLOROBUTADIENE	5.3	100	mg/kg	NA	-	-	-	-
ISOPROPYL ETHER	NS	NS	mg/kg	ND	U	0.00044	0.00089	1
ISOPROPYLBENZENE (CUMENE)	NS	NS	mg/kg	ND	U	0.00025	0.00089	1
M,P-XYLENE	NS	NS	mg/kg	0.0017	J	0.00042	0.0018	1
METHYL ETHYL KETONE (2-BUTANONE)	200000	120000	mg/kg	ND	U	0.004	0.018	1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	140000	140000	mg/kg	ND	U *+	0.0026	0.018	1
METHYLENE CHLORIDE	25	490	mg/kg	ND	U	0.0028	0.0089	1
NAPHTHALENE	17	400	mg/kg	ND	U *+	0.0035	0.0089	1
N-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.00019	0.00089	1
N-PROPYLBENZENE	NS	NS	mg/kg	0.00029	J	0.00023	0.0018	1
O-XYLENE (1,2-DIMETHYLBENZENE)	NS	NS	mg/kg	0.00069	J	0.00023	0.00089	1
SEC-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.00024	0.00089	1
STYRENE	33000	25000	mg/kg	ND	U	0.00028	0.00089	1
T-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.00023	0.00089	1
TERT-BUTYL ALCOHOL	NS	NS	mg/kg	ND	U	0.0062	0.018	1
TERT-BUTYL METHYL ETHER	210	4100	mg/kg	ND	U	0.00017	0.0018	1
TETRACHLOROETHYLENE(PCE)	2.7	33	mg/kg	ND	U	0.0002	0.00089	1
TOLUENE	5300	4700	mg/kg	0.012	-	0.00024	0.00089	1
TRANS-1,2-DICHLOROETHENE	600	570	mg/kg	ND	U	0.00027	0.00089	1
TRANS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.00025	0.0018	1
TRICHLOROETHYLENE (TCE)	6.1	18	mg/kg	ND	U	0.00034	0.0018	1
TRICHLOROFLUOROMETHANE	NS	NS	mg/kg	0.00069	J	0.00024	0.0089	1
VINYL ACETATE	NS	NS	mg/kg	ND	U	0.0035	0.0089	1
VINYL CHLORIDE	0.15	3.4	mg/kg	ND	U	0.00034	0.00089	1

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2
mg/kg - milligrams per kilogram
NA - Not Analyzed
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
*+ – LCS and/or LCSD is outside acceptable limits, high bias.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Screening level exceeded

Attachment 1

Boring Logs

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Log of Boring **B-1** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 206
Drilling Company: ABC Liovin	Date Started: 05/04/2023 — Date Finished: 05/04/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+206.0		0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet.
	+205.7	AC = 4-inch thick; No base.							
		Artificial Fill (af) Silty SAND (SM), brown, moist, fine sand, trace concrete and glass fragments. [FILL]	1						
	+203.5		2						
		Quaternary Young Alluvium (Qya) Silty SAND (SM) to Sandy SILT (ML), brown, loose to medium stiff, moist, fine sand.	3						
			4						
			5	S-1	SPT	18	2 2 3	0	
			6						
			7						
	+198.0		8						
		SAND (SW), light brown, medium dense, moist, fine to coarse sand, trace fine gravel.	9						
			10	S-2	CR	14	5 10 17	0	WC = 2.6% DD = 109.7 pcf
			11						
			12						
	+193.0		13						
		SAND (SP), light brown, medium dense, moist, fine to medium sand.	14						
			15	S-3	SPT	18	5 11 13	1.2	
			16						
			17						
	+188.0		18						
		SAND with Silt (SP-SM), light brown, medium dense, moist, fine sand, trace fine gravel.	19						
			20						

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Log of Boring **B-1** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 206

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+186.0		20	S-4	CR	18	7 13 24	0.2	WC = 8.7% DD = 110.5 pcf
		Fine to medium sand, no gravel.	21						
		Interbeds, brown, silty fine sand (SM) , 1 to 2 inches thick.	22						
			23						
			24						
			25	S-5	SPT	18	9 11 12	0	
			26						
			27						
	+178.0		28						
		CLAY with Sand (CL), brown, very stiff, moist, fine sand.	29						
			30	S-6	CR	18	5 6 23	0	LL = 25, PL = 15, PI = 10
	+174.5		31						
		Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 27 feet.	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-2** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 206
Drilling Company: ABC Liovin	Date Started: 05/03/2023 / Date Finished: 05/03/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 3 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed - / Undisturbed - / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in		Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+206.0		0						
	+205.5	AC = 4-inch thick; No base.							
		Artificial Fill (af) Silty SAND (SM) and Sandy SILT (ML), dark brown, moist, scattered gravel and pieces of broken clay pipe. [FILL]	1						
			2						
	+203.0		3						
		Total Depth = 3 feet Groundwater not encountered. Backfilled with soil cuttings. **Boring abandoned due to potentially buried utility.**	4						
			5						
			6						
			7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-3** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	204.0		0						
	203.6	PCC = 5-inch thick, No base.							
		Artificial Fill (af) SAND (SP), light brown, moist, fine to medium sand, trace fine to coarse gravel, trace silt. [FILL]	1						Bulk sample collected from 0-5 feet. Corrosion and chemical test. Expansion Index.
			2						
			3						
	200.0		4						
		Silty SAND (SM), brown, loose, moist, fine sand, some fine gravel, trace clay. [FILL]	5	S-1	CR	18	2 3 7	0	WC = 10.7% DD = 106.0 pcf
	197.5		6						
		Quaternary Young Alluvium (Qya) SAND (SP), light brown, medium dense, moist, fine to coarse sand, trace fine gravel.	7						
			8						
			9						
			10	S-2	SPT	18	3 7 9	0	
			11						
			12						
	191.0		13						
		SAND with Silt (SP-SM), light brown, medium dense, moist, fine to medium sand.	14						
			15	S-3	CR	18	8 9 13	0	WC = 8.6% DD = 112.2 pcf
			16						
			17						
	186.0		18						
		SAND (SP), light brown, medium dense, moist, fine to medium sand.	19						
			20						

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Log of Boring **B-3** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0		20					0.1	
			21	S-4	SPT	15	7 11 16		
			22						
	+181.0	SAND (SW), light brown, dense, moist, fine to coarse sand and gravel.	23						
			24						
			25					0	WC = 2.6% DD = 103.7 pcf
			26	S-5	CR	18	13 21 28		
			27						
			28						
			29						
		Fine to medium sand, no gravel.	30					0.3	
	+173.5	Sandy CLAY (CL), brown, very stiff, moist, very fine to fine sand.	31	S-6A/6B	SPT	18	10 7 10		
	+172.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-4** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 201
Drilling Company: ABC Liovin	Date Started: 05/03/2023 / Date Finished: 05/03/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+201.0	PCC = 7-inch thick, Base = 12-inch thick.	0						Hand auger from 0-6 feet.
	+199.4	**Artificial Fill (af)** Silty SAND (SM), light brown, slightly moist. [FILL]	1						
	+198.5	**Quaternary Young Alluvium (Qya)** Silty SAND (SM), light brown, slightly moist.	2						
			3						
			4						
		Grayish brown, loose, fine sand, micaceous.	5	S-1	SPT	18	2 3 4	0.3	
			6						
			7						
	+193.0	SAND with Silt (SW-SM), light brown, dense, slightly moist, fine to coarse sand.	8						
			9						
			10	S-2	CR	18	7 18 27	0.1	WC = 5.1% DD = 110.5 pcf
			11						
			12						
	+188.0	SAND with Some Silt (SP-SM), light brown, medium dense, slightly moist, medium to coarse sand.	13						
			14						
			15	S-3	SPT	18	7 12 13	0.1	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-4** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 201

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+181.0	Dense, medium sand.	20	S-4	CR	18	6 18 31	0	WC = 4.6% DD = 110.1 pcf
	+178.0	SAND with Silt (SP-SM), light brown, dense, slightly moist, medium sand, some fine and coarse sand.	25	S-5	SPT	18	10 20 24	0.4	
		Very moist, fine to coarse sand.	30	S-6	CR	18	21 38 22	0	WC = 4.5% DD = 124.4 pcf
	+169.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	45						

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Log of Boring **B-5** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/03/2023 / Date Finished: 05/03/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+204.0		0						Hand auger from 0-5 feet.
	+203.6	AC = 3-inch thick, Base = 2-inch thick.	1						
		Artificial Fill (af) Silty SAND (SM), brownish gray, very loose, slightly moist, fine sand. [FILL]	2						
	+202.0	**Quaternary Young Alluvium (Qya)** Silty SAND (SM), brownish gray, very loose, slightly moist, fine sand.	3						
			4						
			5	S-1	SPT	18	2 2 1	0	
			6						
			7						
	+196.0	SAND (SW), light brown, medium dense, slightly moist to moist, fine to coarse sand, occasional pebbles, some silt.	8						
			9						
			10	S-2	CR	18	4 8 15	0	% Passing #200 = 4
			11						
			12						
	+191.0	SAND with Silt (SW-SM), light brown, medium dense, very moist, fine to coarse sand, some iron oxide/limonite staining, poor subhorizontal bedding, no pebbles.	13						
			14						
			15	S-3	SPT	18	5 9 13	0	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-5** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0	Slightly moist, medium sand, no iron oxide/limonite staining.	20	S-4	CR	18	8 14 21	0	WC = 22.5% DD = 86.7 pcf
		Occasional fine pebbles.	25	S-5	SPT	18	8 14 15	0	
	+176.0	Gravelly SAND with Silt (SP-SM), light brown, very dense, moist, subrounded to subangular fine to medium gravel, iron oxide/limonite staining.	30	S-6	CR	17	11 31 50/5"	0	
	+172.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	45						

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Log of Boring **B-6** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 202
Drilling Company: ABC Liovin	Date Started: 05/04/2023 — Date Finished: 05/04/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	202.0	AC = 5-inch thick, Base = 12-inch thick.	0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet. Compaction Test.
	200.5	**Artificial Fill (af)** Silty SAND (SM), brown, moist, fine sand, trace fine gravel. [FILL]	1						
	199.5	**Quaternary Young Alluvium (Qya)** SAND with Silt (SP-SM), brown, loose, moist, fine sand, trace fine gravel.	2						
	197.0	Silty SAND (SM), brown, loose, moist, fine sand, trace fine gravel.	5	S-1	CR	18	4 5 5	0	
	192.0	SAND with Silt (SP-SM), brown, medium dense, moist, fine sand, trace fine gravel.	10	S-2	SPT	18	3 8 10	0.1	
		Light brown, fine to coarse sand.	15	S-3	CR	18	2 8 11	0.1	WC = 25.2% DD = 83.5 pcf
	184.0	SAND (SP), light brown, medium dense, moist, fine to medium sand, trace fine gravel.	18						
			20						

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Log of Boring **B-6** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+182.0		20					0	
			21	S-4	SPT	18	7 12 15		
			22						
	+179.0	SAND (SW), light brown, dense, moist, fine to coarse sand, trace fine gravel.	23						
			24						
			25					0	WC = 25.0% DD = 95.4 pcf
			26	S-5	CR	18	8 13 20		
			27						
	+174.0	SAND (SP), light brown, medium dense, moist, fine to medium sand, trace fine gravel.	28						
			29						
			30					0	
			31	S-6	SPT	18	8 14 19		
	+170.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-7** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 206
Drilling Company: ABC Liovin	Date Started: 05/04/2023 / Date Finished: 05/04/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 4 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+206.0		0						Hand auger from 0-6 feet.
	+205.5	AC = 6-inch thick, No base.							
		Artificial Fill (af) Silty SAND (SM), light brown, moist, fine sand. [FILL]	1						
	+203.5		2						
		Quaternary Young Alluvium (Qya) Silty SAND (SM), light brown, loose, moist, fine sand.	3						
			4						
			5						WC = 15.1% DD = 101.3 pcf
			6	S-1	CR	18	2 3 8	0	
			7						
	+197.5		8						
		SAND (SP), light brown, medium dense, moist, fine sand.	9						
			10	S-2	SPT	18	3 6 11	0	
			11						
	+193.0		12						
		SAND (SW), light brown, dense, moist, fine to coarse sand, trace fine gravel.	13						
			14						
			15	S-3	CR	16	12 25 36	0	Poor sample recovery; Bag sample taken.
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-7** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 206

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+186.0		20	S-4	SPT	16	9 19 25	0.5	
			21						
			22						
			23						
			24						
			25	S-5	CR	18	21 33 40	0.3	WC = 7.9% DD = 99.0 pcf
			26						
			27						
	+178.0	Clayey SAND (SC), brown, dense, moist, fine sand.	28						
			29						
			30	S-6	SPT	18	8 20 20	0	High fines content.
			31						
			32						
	+173.0	Silty SAND (SM) to Sandy SILT (ML), brown, dense to very stiff, moist, very fine to fine sand, trace iron oxide staining.	33						
			34						
			35	S-7	CR	18	13 19 26	0	WC = 22.8% DD = 92.7 pcf
			36						
	+169.5	Total Depth = 36.5 feet Groundwater not encountered. Vapor probes installed at 10 and 28.5 feet.	37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-8** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks
	+204.0		0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet. R-Value Test.
	+203.4	AC = 4-inch thick, PCC = 3-inch thick.							
		Artificial Fill (af) SAND with Silt (SP-SM), brown, moist, fine to medium sand, trace fine gravel. [FILL]	1						
			2						
	+201.0		3						
		Quaternary Young Alluvium (Qya) SAND (SP), light brown, medium dense, moist, fine sand, trace silt.	4						
			5	S-1	SPT	18	5 5 8	0.7	
			6						
			7						
			8						
			9						
		Fine to medium sand, no silt.	10	S-2	CR	18	4 8 9	0	
			11						
			12						
			13						
			14						
		Trace fine gravel.	15	S-3	SPT	18	7 12 12	1.9	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-8** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0	Dense.	20	S-4	CR	18	10 19 33	0	WC = 3.4% DD = 105.8 pcf
			21						
			22						
			23						
			24						
		Medium dense, fine to coarse sand, no gravel.	25	S-5	SPT	18	9 12 17	2.4	
			26						
			27						
			28						
			29						
		Fine to medium sand.	30	S-6	CR	15	4 11 11	0.1	S-6A : WC = 3.4% DD = 103.3 pcf S-6B: WC = 13.6% DD = 122.1 pcf
	+172.8		31						
		Sandy CLAY (CL), brown, very stiff, moist, very fine to fine sand.	32						
			33						
			34						
		Very fine to medium sand, trace fine gravel.	35	S-7	SPT	18	3 5 10	1.1	
	+167.5		36						
		Total Depth = 36.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-9** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 4 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+204.0		0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet.
	+203.7	AC = 2-inch thick, Base = 2-inch thick.							
		Artificial Fill (af) SAND (SP), brown, moist, fine sand, trace silt. [FILL]	1						
	+202.0		2						
		Quaternary Young Alluvium (Qya) SAND with Silt (SP-SM), brown, moist, fine sand.	3						
			4						
		Loose.	5	S-1	CR	14	2 2 4	0	
			6						
			7						
			8						
			9						
		Medium dense.	10	S-2	SPT	15	4 5 7	0.7	% Passing #200 = 8
			11						
	+191.5		12						
		SAND (SW), light brown, medium dense, moist, fine to coarse sand, trace fine gravel.	13						
			14						
			15	S-3	CR	16	11 18 23	0.5	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-9** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0	Dense, fine to medium sand.	20	S-4	SPT	18	6 13 17	0.4	
			21						
			22						
			23						
			24						
		Fine to coarse sand.	25	S-5	CR	16	11 17 30	0	
			26						
			27						
			28						
			29						
		Fine to medium sand.	30	S-6	SPT	18	8 17 17	1.1	
			31						
			32						
			33						
			34						
		Increased moisture.	35	S-7	CR	18	13 17 23	0.1	
	+168.0		36						
	+167.5	Silty SAND (SM), brown, dense, moist, fine sand.							
		Total Depth = 36.5 feet Groundwater not encountered. Boring backfilled with bentonite cement grout and topped with soil cutting and asphalt patched.	37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-10** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 203
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+203.0		0						Hand auger from 0-5 feet.
	+202.6	AC = 3-inch thick, Base = 2-inch thick.							
		Artificial Fill (af) SAND (SP), brown, moist, fine sand, trace silt. [FILL]	1						
	+201.0		2						
		Quaternary Young Alluvium (Qya) Silty SAND (SM), brown, loose, moist, fine sand.	3						
			4						
			5	S-1	SPT	18	1 1 3	1.1	% Passing #200 = 21
			6						
			7						
			8						
			9						
	+193.0		10						
		SAND with Silt (SP-SM), light brown, medium dense, fine to medium sand, trace fine gravel.	11	S-2	CR	18	9 15 17	1.4	
			12						
			13						
			14						
	+188.0		15						
		Silty SAND (SM), light brown, medium dense, fine to medium sand, no gravel.	16	S-3	SPT	18	4 8 11	2.5	
			17						
	+185.0		18						
		SAND with Silt (SP-SM), light brown, dense, moist, fine to coarse sand, trace fine gravel.	19						
			20						

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Log of Boring **B-10** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 203

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+183.0		20					0	
			21	S-4	CR	18	9 23 40		
			22						
	+180.0	Silty SAND (SM), brown, medium dense, moist, fine sand.	23						
			24						
			25	S-5A/5B	SPT	18	5 10 17	2.4	
	+177.0	SAND (SP), light brown, medium dense, moist, fine to medium sand.	26						
			27						
			28						
	+174.5	Silty SAND(SM), brown, medium dense, moist, fine sand.	29						
			30	S-6	CR	16	5 17 24	0	LL = 23, PL = NP
			31						
			32						
	+170.0	Sandy CLAY (CL), brown, stiff, moist, very fine to fine sand.	33						
			34						
			35	S-7	SPT	18	4 6 7	0.7	
	+166.5	Total Depth = 36.5 feet Groundwater not encountered. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched.	36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **FP-1** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 202
Drilling Company: 2R Drilling	Date Started: 05/05/2023 / Date Finished: 05/05/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 65.8 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed: 13 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: S. Wilkins
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+202.0		0						
	+201.8	AC = 0.25-inch thick.							
		Artificial Fill (af) Silty SAND (SM), grayish brown, slightly moist, fine to medium sand. [FILL] Brown, moist, some fine to coarse gravel, few mortar fragments.	1						
			2						
			3						
	+198.0		4						
		Quaternary Young Alluvium (Qya) SAND with Silt (SP-SM), grayish brown, medium dense, moist, fine to medium sand.	5						Perforated PVC
	+196.5	SAND (SP), light yellowish to grayish brown, medium dense, slightly moist, fine to medium sand, some fine gravel.	6	S-1	CR	18	6 8 10		
			7						
			8						
			9						
	+192.0		10						
		SAND with Silt (SP-SM), light yellowish to grayish brown, medium dense, slightly moist, fine sand, some fine gravel, increased fines content.	11	S-2	CR	18	5 14 9		
			12						
			13						
			14						
	+187.0		15						
		SAND (SP), light yellowish to grayish brown, medium dense, slightly moist, fine to medium sand, fine gravel.	16	S-3	CR	18	7 21 23		
			17						
			18						
			19						
			20						

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Log of Boring **FP-1** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+182.0		20						
	+181.0	SAND with Silt (SP-SM), light gray, dense, fine sand.	21	S-4	CR	18	9 25 26		
			22						
			23						
			24						
	+177.0	SAND (SP), light yellowish to grayish brown, dense, slightly moist, fine to coarse sand, some fine to coarse gravel.	25	S-5	CR	18	18 25 40		
			26						
	+174.0	CLAY (CL), dark yellowish brown and black mottled, very stiff, moist to very moist, few fine sand, some silt.	27						
			28						
			29						
			30	S-6	CR	18	7 13 22		
			31						
			32						
			33						
	+168.0	Sandy CLAY (CL), yellowish brown, stiff, moist, fine sand.	34						
			35	S-7	CR	18	7 19 18		
			36						
			37						Solid PVC
			38						
			39						
		Increased sand content.	40	S-8	CR	18	9 25 43		
	+161.0		41						
	+160.5	Clayey SAND (SC), olive gray, dense, moist, fine to medium sand.	42						
		SAND with Silt (SP-SM), yellow, dense, moist, fine sand.	43						
			44						
			45						

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Log of Boring **FP-1** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+157.0	Very dense, fine to medium sand.	45	S-9	CR	12	22 50		
			46						
			47						
			48						
			49						
	+152.0	Gravelly SAND (SP-GP), light yellow, very dense, slightly moist, fine to coarse sand and gravel.	50	S-10	CR	12	25 50/5"		
			51						
			52						
			53						
			54						
		Fine to medium sand, decreased gravel content.	55	S-11	CR	10	40 50/4"		
			56						
			57						
			58						
			59						
			60	S-12	CR	10	20 50/4"		
	+140.0		61						
		SAND with Silt (SP-SM), off-white, very dense, slightly moist, fine to medium sand, few coarse sand, fine gravel.	62						
			63						
			64						
			65	S-13	CR	10	27 50/4"		
	+136.2		66						
		Total Depth = 65.8 feet Groundwater not encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	67						
			68						
			69						
			70						

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Log of Boring **FP-2** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: 2R Drilling	Date Started: 05/05/2023 / Date Finished: 05/05/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 51.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed: 10 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: S. Wilkins
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+204.0		0						
	+203.5	AC = 2.5-inch thick, Base = 4-inch thick.							
		Artificial Fill (af) Sandy CLAY (CL), dark gray, moist, fine to coarse sand, few asphalt fragments. [FILL]	1						
	+202.5	**Quaternary Young Alluvium (Qya)** Silty SAND (SM), dark olive gray, loose, moist, very fine to fine sand, slightly micaceous.	2						
			3						
			4						
			5	S-1	CR	18	5 5 5		Perforated PVC
			6						
			7						
			8						
	+195.0		9						
		SAND with Silt (SP-SM), off-white to gray, medium dense, moist, fine to medium sand, some fine to coarse gravel.	10	S-2	CR	18	5 9 12		
			11						
			12						
			13						
			14						
		Off-white to light yellow, no gravel.	15	S-3	CR	18	9 14 16		
			16						
			17						
			18						
			19						
			20						

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Log of Boring **FP-2** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+184.0	Dense, few fine to coarse gravel.	20	S-4	CR	18	5 19 35		
	+179.0	Silty SAND (SM), gray to olive brown, medium dense, moist, fine to coarse sand, few fine gravel, increasing clay with depth.	25	S-5	CR	18	5 9 11		
	+176.0	SAND with Silt (SP-SM), gray, dense, slightly moist, fine sand.	28	S-6	CR	18	11 28 37		Solid PVC
	+168.5	Wet.	35	S-7	CR	18	8 12 17		
	+168.0	Silty SAND (SM), gray, medium dense, wet, very fine to fine sand.							
		Sandy SILT (ML), olive brown, very stiff, wet, very fine sand, micaceous.	37						
	+165.0	CLAY (CL), reddish brown, stiff, very moist, fine sand, some silt.	39	S-8	CR	18	3 7 10		
	+161.0	Sandy CLAY (CL), reddish brown, stiff, very moist, fine sand.	43						
			45						

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Log of Boring **FP-2** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+159.0		45						
	+158.0	Clayey SAND (SC), reddish brown, very dense, very moist, fine sand.	46	S-9	CR	17	21 36 50/5"		
	+156.0	SAND with Silt (SP-SM), yellow to off-white and black mottled, very dense, moist, fine to medium sand.	47 48 49 50						
	+152.5	Total Depth = 51.5 feet Groundwater not encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	S-10	CR	17	7 37 50/5"		

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Log of Boring **FP-3** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 203
Drilling Company: 2R Drilling	Date Started: 05/25/2023 / Date Finished: 05/25/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 50 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+203.0	**Artificial Fill (af)** Sandy SILT (ML), brow, moist.	0						
	+201.0	**Native Young Alluvial Fan Deposits (Qyf)** Silty SAND (SM), brown, slightly moist.	1						
	+198.0	Silty SAND (SM) and Sandy SILT (ML), brown, loose to medium stiff, very moist to moist, clay in sampler shoe.	2						
	+195.5	Silty Sand (SM), light brown, medium dense, dry to slighlyt moist.	3						
	+193.0	Silty SAND with Gravel (SM-SW), light brown with some orangish brown, medium dense, dry to slightly moist, fine to coarse sand, fine to medium gravel, well-graded.	4						
			5	S-1	SPT	18	1 2 3		
			6						
			7						Solid PVC
			8	S-2	CR	18	6 16 20		
			9						
			10						
			11	S-3	SPT	18	3 9 9		
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
	+183.0		20						

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Log of Boring **FP-3** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 203

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+183.0	Silty SAND (SM) and Sandy SILT (ML), brown, medium dense to very stiff, moist, fine to coarse sand, occasional gravel.	20	S-4	CR	18	9 12 12		
	+173.0	CLAY with Sand (CL), reddish brown with light reddish brown and gray brown mottle, very stiff, moist, fine to medium sand, maganese-oxide staining.	30	S-5	SPT	18	4 10 16		
	+163.0	SAND (SW), light brown, very dense, slighlty moist, fine to coarse sand, occasional fine gravel.	40	S-6	CR	18	22 40 47		
			45						

Annular Material

Solid PVC

Perforated PVC

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Log of Boring **FP-3** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 203

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+158.0		45						
			46						
			47						Perforated PVC
			48						
	+154.5	SAND with Silt (SM), light brown, very dense, slightly moist.	49	S-7	SPT	18	20 25 25		
	+153.0	Total Depth = 50 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	50						
			51						
			52						
			53						
			54						
			55						
			56						
			57						
			58						
			59						
			60						
			61						
			62						
			63						
			64						
			65						
			66						
			67						
			68						
			69						
			70						

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Log of Boring **FP-4** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 202
Drilling Company: 2R Drilling	Date Started: 05/25/2023 / Date Finished: 05/25/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 50 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+202.0	**Artificial Fill (af)** Silty SAND (SM), brown, slightly moist.	0						
	+197.0	Silty SAND with Gravel (SM), brown, medium dense, moist, fine to coarse sand, medium to coarse gravel, concrete in sampler shoe.	5	S-1	CR	18	8 18 22		
	+194.5	**Native Young Alluvial Fan Deposits (Qyf)** Silty SAND (SM), brown, loose, slightly moist, medium sand.	8	S-2	SPT	18	2 3 4		Solid PVC
	+192.0	Sandy CLAY (CL) and Clayey SAND (SC), brown, medium dense to very stiff, moist.	10	S-3	CR	18	7 11 11		
	+182.0		20						

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Log of Boring **FP-4** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+182.0	Silty SAND (SM), to SAND with Silt (SP-SM), brown, medium dense, slighlty moist, occasional fine gravel.	20	S-4	SPT	18	5 7 8		
			21						
			22						
			23						
			24						
			25						Annular Material
			26						
			27						Solid PVC
			28						
			29						
	+172.0	CLAY with Sand (CL), dark reddish brown, very stiff, moist to very moist.	30	S-5	CR	18	6 9 18		
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
	+162.0	Sandy CLAY (CL), brown with orange brown mottle, stiff, moist to very moist, medium to fine sand.	40	S-6	SPT	18	2 4 6		
			41						
			42						Perforated PVC
			43						
			44						
			45						

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Log of Boring **FP-4** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+157.0		45						
			46						
			47						Perforated PVC
			48						
	+153.5	SAND with Silt (SP-SM) to Silty SAND (SM), light brown, very desne, dry to slighlty moist, fine to very coarse sand, occasional gravel.	49	S-7	CR	18	38 50 55		
	+152.0	Total Depth = 50 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	50						
			51						
			52						
			53						
			54						
			55						
			56						
			57						
			58						
			59						
			60						
			61						
			62						
			63						
			64						
			65						
			66						
			67						
			68						
			69						
			70						

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Log of Boring **FP-5** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 196
Drilling Company: 2R Drilling	Date Started: 05/25/2023 / Date Finished: 05/25/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 50 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+196.0		0						
	+195.7	AC = 4-inches thick.							
		Silty SAND (SM), brown, slightly moist to moist.	1						
	+194.0		2						
		Silty SAND (SM), brown.	3						
			4						
	+191.0		5						
		SAND with Silt (SP-SM), light grayish brown, medium dense, dry, fine to medium sand, occasional coarse sand.	6	S-1	CR	18	3 6 11		
	+188.5		7						
		Silty SAND (SM), light brown, medium dense, slightly moist.	8	S-2	SPT	18	3 5 6		Solid PVC
			9						
		Brown, occasional fine to coarse gravel, well-graded.	10	S-3	CR	18	5 9 18		
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Log of Boring **FP-5** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 196

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+176.0	Light brown.	20	S-4	SPT	18	7 9 13		
	+166.0	SILT with Sand (ML), reddish brown with light reddish brown mottle, stiff, moist to very moist, medium sand.	30	S-5	CR	18	6 9 12		
		Reddish brown, occasional gravel.	40						
	+156.0	Silty SAND (SM), reddish brown, medium dense, dry to slighlty moist, fine to coarse sand, occasiona fine gravel.	40	S-6	SPT	18	7 13 15		
			45						

Annular Material

Solid PVC

Perforated PVC

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Log of Boring **FP-5** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 196

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+151.0		45						
			46						
			47						Perforated PVC
			48						
	+147.5	Silty SAND (SM) to Sandy SILT (ML), brown and reddish brown, hard to very dense, moist, maganese-oxide staining.	49	S-7	CR	18	15 32 42		
	+146.0	Total Depth = 50 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	50						
			51						
			52						
			53						
			54						
			55						
			56						
			57						
			58						
			59						
			60						
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			69						
			70						

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Log of Boring **FP-6** Sheet 1 of 4

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 198
Drilling Company: 2R Drilling	Date Started: 05/26/2023 / Date Finished: 05/26/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 75 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)
	+198.0	**Artificial Fill**	0					
	+196.5	**Native Young Alluvial Fan Deposits (Qyf)** Silty SAND (SM), brown, slightly moist.	1					
			2					
			3					
			4					
		Brown with orangish brown mottle, oose, fine to very fine sand.	5	S-1	CR	18	3 4 6	
			6					
			7					
		Brown and brownish gray, stratifies, approximately 4-inch thick interbed of medium to coarse sand, subhorizontal contact, some clay in sampler shoe.	8	S-2	SPT	18	2 2 2	
			9					
	+188.0		10					
		SAND with Silt (SP-SM) and Silty SAND (SM), light brown, medium dense, slightly moist to dry, partially stratified.	11	S-3	CR	18	6 10 13	
			12					
			13					
			14					
			15					
			16					
			17					
			18					
			19					
	+178.0		20					

Well Diagram: Solid PVC

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Log of Boring **FP-6** Sheet 2 of 4

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 198

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+178.0	SAND with SILT (SP-SM), light brown, medium dense, dry, medium sand.	20	S-4	SPT	18	5 8 12		
	+168.0	SAND with Silt and Gravel (SW), light brown, very dense, dry, well-graded fine to coarse sand, fine to medium gravel.	30	S-5	CR	17	25 56 50/5"		
	+158.0	CLAY with Sand (CL), orangish brown and grayish brown mottled, very stiff, moist, maganese-oxide mottline, some globular medium gravel, concretionary.	40	S-6	SPT	18	4 7 9		
			45						

Solid PVC

Annular Material

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Log of Boring **FP-6** Sheet 3 of 4

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 198

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+153.0	Clay sand in cuttings.	45–70						
	+148.0	SAND with Silt (SP-SM), light brown, very dense, dry to slighlyt moist, fine to medium sand, some coarse sand.		S-7	CR	18	15 35 48		Solid PVC
	+138.0	Silty SAND (SM), light brown, dense, dry to slighlyt moist, fine to medium sand.		S-8	SPT	18	12 22 23		Perforated PVC
	+128.0								

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Log of Boring **FP-6** Sheet 4 of 4

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 198

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+128.0	SAND with Silt and Clay (SW), brown with light brown mottle, very dense, slightly moist, well-graded.	70	S-9	CR	5	50/5"		
	+124.5	SAND with Silt and Gravel (SP-SW), light brown, dense, dry, well-graded, medium to coarse sand, fine to medium gravel.	74	S-10	SPT	18	12 21 23		Perforated PVC
	+123.0	Total Depth = 75 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	75						

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Log of Boring **ISB-01** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/09/2023 — Date Finished: 05/09/2023
Drilling Equipment: Hand Auger	Completion Depth: 10 ft — Rock Depth: -
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 3 — Undisturbed - — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - — Weight (lbs): - — Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0						Started drilling at 5/9/2023 07:49
		Brown SILT with fine sand and trace clay, dry-moist	1	ISB-01-S$		12			Hanby = 10-50 ppm gas in soil
			2						
			3						
			4						
			5	ISB-01-5.0		12			Hanby = not detected
			6						
			7						
		Poorly graded fine SAND (SP), dry	8						
			9	ISB-01-10.0		12			
		Total Depth = 10 feet Groundwater not encountered	10						Hanby = not detected
			11						
			12						
			13						
			14						
			15						

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Log of Boring **ISB-02** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/09/2023 / Date Finished: 05/09/2023
Drilling Equipment: Hand Auger	Completion Depth: 4 ft / Rock Depth: 4 ft
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 2 / Undisturbed - / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - / Weight (lbs): - / Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0						Started drilling at 5/9/2023 10:28
		Grey, well graded SAND (SW) with gravel and trace clay, moist	1	ISB-02-S$		12			Hanby = not detected
			2						
		Brownish-grey, well graded SAND to GRAVEL (SWG) with clay and trace silt, dry to moist	3	ISB-02-4.0		12			
		Dark to light brown, well graded SAND to GRAVEL (SWG), with silt and trace clay, dry to moist	4						Hanby = 100-200 ppm diesel
		Refusal encountered Total depth = 4 feet Groundwater not encountered	5						
			6						
			7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						

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Log of Boring **ISB-03** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/08/2023 / Date Finished: 05/08/2023
Drilling Equipment: Hand Auger	Completion Depth: 1 ft / Rock Depth: 1 ft
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 1 / Undisturbed - / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - / Weight (lbs): - / Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0	ISB-03-SS					Started drilling at 5/8/2023 10:06
		Foam				6		0.7	Hanby = 400 ppm PAH or 1,000 ppm #2 fuel oil
		Brown, silty SAND (SM), moist	1						
		Refusal encountered Total depth = 1 feet Groundwater not encountered	2						
			3						
			4						
			5						
			6						
			7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						

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Log of Boring **ISB-04** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/08/2023 — Date Finished: 05/08/2023
Drilling Equipment: Hand Auger	Completion Depth: 10 ft — Rock Depth: -
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 3 — Undisturbed - — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - — Weight (lbs): - — Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0						Started drilling at 5/8/2023 12:15
		Poorly graded, tan clean SAND (SP), moist	1	ISB-04-S$		12			Hanby = not detected
			2						
			3						
			4						
		Poorly graded, tan clean SAND (SP) with trace gravel, moist	5	ISB-04-5.0		12		0	Hanby = not detected
			6						
			7						
			8						
			9	ISB-04-10.0		12			
		Total depth = 10 feet Groundwater not encountered	10					0	Hanby = not detected
			11						
			12						
			13						
			14						
			15						

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Attachment 2

Trench Logs

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 1**
		PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 12/27/23	Date finished: 12/27/23	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
0						GM	Light grayish brown silty fine sand, some fine to coarse gravel, moist
3						SWG	Dark reddish brown medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of metal and brick debris, moist
6	RS-1				0.2		
6.5							Ended trench at 6.5' bgs

LANGAN

Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/17/24

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 2**	PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 12/27/23	Date finished: 12/27/23	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
1–4						GM	Grayish brown silty fine sand, some fine to coarse gravel, trace metal debris, moist
4–5						SM	Light gray, silty fine sand, trace fine to coarse gravel, moist
5–6						SWG	Dark reddish brown, medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of glass, metal, and brick debris, moist
7							Ended trench at 7' bgs
8–10							

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Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/17/24

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 3**
		PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 12/27/23	Date finished: 12/27/23	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
0							Grayish brown silty fine sand, some fine to coarse gravel, trace metal debris, moist
3						GM	
6						SWG	Dark reddish brown, medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of glass, asphalt, metal, and brick debris, moist
9							Ended trench at 9' bgs

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Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/17/24

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 4**
		PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 01/09/24	Date finished: 01/09/24	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
1						GM	Light grayish brown silty fine sand, some fine to coarse gravel, moist
2	RS-2-2'						
3						SWG	Red to dark reddish brown medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of glass, bone, asphalt, metal, and brick, moist
4	RS-2-4'						
5							
6	RS-2-6'						
7							
8	RS-2-8'						
9						SM	Light brown silty fine to medium sand, moist
10							
11							
12							Ended trench at 12' bgs
13							
14							

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Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/11/24

Attachment 3
Photographic Log

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
1	12/27/23

Direction Photo Taken:

Southwest

Description:

Trench 1



Photo No.	Date:
2	12/27/23

Direction Photo Taken:

West

Description:

RS-1 sample from excavator bucket



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
3	12/27/23

Direction Photo Taken:

South

Description:

Trench 2



Photo No.	Date:
4	12/27/23

Direction Photo Taken:

Southeast

Description:

Trench 3



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
5	01/09/24

Direction Photo Taken:

Southeast

Description:

Trench 4



Photo No.	Date:
6	01/09/24

Direction Photo Taken:

North

Description:

RS-3 collected near the western side of subject property



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
7	2/27/24

Direction Photo Taken:

Northeast

Description:

S3_02272024 from footing trench



Photo No.	Date:
8	2/27/24

Direction Photo Taken:

West

Description:

S1_02272024 from footing trench



Attachment 4
Laboratory Analytical Reports

January 11, 2024

Megan Ritsema
Langan Engineering & Environmental Services
18575 Jamboree Road, suite 150
Irvine, CA 92612
Tel: (949) 561-9200
Fax:(949) 255-8641

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 2400037
Client Reference : GIC Vernon / 721040501

Enclosed are the results for sample(s) received on January 09, 2024 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or Project.Management@atlglobal.com.

Sincerely,



Lena Davidkov, Client Services
lena.davidkov@atlglobal.com
Authorized to Release on 01/11/24 13:49 on Behalf of



Amy Leung
Laboratory Director

The test results in this report relate exclusively to the samples as received by the laboratory, and meet the requirements of the methodology under which they were reported; any exceptions are noted within the report and/ or case narrative.

The cover letter/ signature page and the case narrative are integral parts of this analytical report; the absence of any portion of the report renders the report invalid. This report shall not be reproduced except in full, and shall have the express written approval of the laboratory, and the original client firm to do so

.

The electronic signature on this report is signed by an authorized signatory of Advanced Technology Laboratories, and is intended to be legally binding as the equivalent of a handwritten signature.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	01/11/2024

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RS-3-2	2400037-01	Soil	1/09/24 12:00	1/09/24 14:57
RS-2-2	2400037-02	Soil	1/09/24 12:30	1/09/24 14:57
RS-2-4	2400037-03	Soil	1/09/24 12:42	1/09/24 14:57
RS-2-6	2400037-04	Soil	1/09/24 12:50	1/09/24 14:57
RS-2-8	2400037-05	Soil	1/09/24 13:10	1/09/24 14:57

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Notes and Definitions

M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
E	Result value is above quantitation range and therefore, estimated.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury **Analyst: AA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2400037-01	RS-3-2	**0.43**	mg/kg	0.10	1	B4A0599	01/09/2024	01/10/24 11:44	
2400037-04	RS-2-6	**ND**	mg/kg	0.10	1	B4A0599	01/09/2024	01/10/24 11:51	

Client Sample ID: RS-3-2

Lab ID: 2400037-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: ICP

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**660**	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Arsenic	**23**	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Barium	**920**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Beryllium	ND	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Cadmium	**18**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Chromium	**110**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Cobalt	**18**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Copper	**9400**	10	10	B4A0598	01/09/2024	01/10/24 17:45	
Lead	**54000**	100	100	B4A0598	01/09/2024	01/11/24 11:59	
Molybdenum	**17**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Nickel	**190**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Selenium	ND	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Silver	**14**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Thallium	ND	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Vanadium	**23**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Zinc	**8300**	20	10	B4A0598	01/09/2024	01/10/24 17:45	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Client Sample ID: RS-2-6

Lab ID: 2400037-04

Title 22 Metals by ICP-AES EPA 6010B **Analyst: ICP**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**1100**	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Arsenic	**84**	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Barium	**3800**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Beryllium	ND	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Cadmium	**43**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Chromium	**160**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Cobalt	**26**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Copper	**5000**	50	50	B4A0598	01/09/2024	01/11/24 12:01	
Lead	**26000**	50	50	B4A0598	01/09/2024	01/11/24 12:01	
Molybdenum	**18**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Nickel	**190**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Selenium	ND	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Silver	**59**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Thallium	ND	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Vanadium	**63**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Zinc	**15000**	20	10	B4A0598	01/09/2024	01/10/24 17:42	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0598 - EPA 3050B_S										
Blank (B4A0598-BLK1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	ND	2.0	0.77							
Arsenic	ND	2.0	0.71							
Barium	ND	1.0	0.06							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.06							
Chromium	ND	1.0	0.10							
Cobalt	ND	1.0	0.08							
Copper	ND	1.0	0.22							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.10							
Nickel	ND	1.0	0.04							
Selenium	ND	2.0	0.82							
Silver	ND	1.0	0.27							
Thallium	ND	2.0	0.35							
Vanadium	ND	1.0	0.20							
Zinc	ND	2.0	0.30							
LCS (B4A0598-BS1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	27.8413	2.0	0.77	25.0000		111	83.4 - 116			
Arsenic	23.4272	2.0	0.71	25.0000		93.7	71.9 - 127			
Barium	25.2646	1.0	0.06	25.0000		101	67.3 - 127			
Beryllium	23.4252	1.0	0.03	25.0000		93.7	83.9 - 117			
Cadmium	24.0630	1.0	0.06	25.0000		96.3	84.7 - 115			
Chromium	24.8346	1.0	0.10	25.0000		99.3	85.8 - 112			
Cobalt	24.9956	1.0	0.08	25.0000		100	81.1 - 120			
Copper	25.3242	1.0	0.22	25.0000		101	85.3 - 119			
Lead	27.5308	1.0	0.18	25.0000		110	82.8 - 120			
Molybdenum	26.7512	1.0	0.10	25.0000		107	89.9 - 123			
Nickel	24.7989	1.0	0.04	25.0000		99.2	85.1 - 117			
Selenium	21.4289	2.0	0.82	25.0000		85.7	83.3 - 119			
Silver	12.5197	1.0	0.27	12.5000		100	65 - 130			
Thallium	25.7895	2.0	0.35	25.0000		103	87.3 - 118			
Vanadium	23.9162	1.0	0.20	25.0000		95.7	81.3 - 110			
Zinc	23.8446	2.0	0.30	25.0000		95.4	84.3 - 123			
Matrix Spike (B4A0598-MS1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	855.359	2.0	0.77	25.0000	657.534	791	-5.11 - 158			M2
Arsenic	46.7897	2.0	0.71	25.0000	22.6741	96.5	16.6 - 159			
Barium	1146.05	1.0	0.06	25.0000	915.771	921	-15.4 - 203			M2
Beryllium	22.1416	1.0	0.03	25.0000	ND	88.6	17.7 - 163			
Cadmium	37.6864	1.0	0.06	25.0000	17.5454	80.6	22.1 - 162			
Chromium	855.336	1.0	0.10	25.0000	105.934	3000	4.21 - 195			M2

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0598 - EPA 3050B_S (continued)										
Matrix Spike (B4A0598-MS1) - Continued			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Cobalt	40.9408	1.0	0.08	25.0000	17.5513	93.6	7.96 - 169			
Copper	11329.6	1.0	0.22	25.0000	7487.96	15400	10.1 - 194			M2, E
Lead	34178.4	1.0	0.18	25.0000	35956.4	-7110	-9.73 - 182			M2, E
Molybdenum	36.4611	1.0	0.10	25.0000	17.3378	76.5	7.42 - 164			
Nickel	172.322	1.0	0.04	25.0000	188.614	-65.2	16.2 - 177			M2
Selenium	ND	2.0	0.82	25.0000	ND	NR	17.3 - 155			M2
Silver	25.4751	1.0	0.27	12.5000	13.7150	94.1	4.72 - 158			
Thallium	15.4801	2.0	0.35	25.0000	ND	61.9	-11.6 - 133			
Vanadium	44.3684	1.0	0.20	25.0000	23.0737	85.2	-0.621 - 177			
Zinc	5293.08	2.0	0.30	25.0000	5533.92	-963	-17.4 - 208			M2, E
Matrix Spike Dup (B4A0598-MSD1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	841.529	2.0	0.77	25.0000	657.534	736	-5.11 - 158	1.63	20	M2
Arsenic	45.9929	2.0	0.71	25.0000	22.6741	93.3	16.6 - 159	1.72	20	
Barium	1155.11	1.0	0.06	25.0000	915.771	957	-15.4 - 203	0.788	20	M2
Beryllium	22.2985	1.0	0.03	25.0000	ND	89.2	17.7 - 163	0.706	20	
Cadmium	37.4913	1.0	0.06	25.0000	17.5454	79.8	22.1 - 162	0.519	20	
Chromium	855.504	1.0	0.10	25.0000	105.934	3000	4.21 - 195	0.0196	20	M2
Cobalt	40.9401	1.0	0.08	25.0000	17.5513	93.6	7.96 - 169	0.00173	20	
Copper	11360.4	1.0	0.22	25.0000	7487.96	15500	10.1 - 194	0.272	20	M2, E
Lead	38107.8	1.0	0.18	25.0000	35956.4	8610	-9.73 - 182	10.9	20	M2, E
Molybdenum	36.0083	1.0	0.10	25.0000	17.3378	74.7	7.42 - 164	1.25	20	
Nickel	171.604	1.0	0.04	25.0000	188.614	-68.0	16.2 - 177	0.418	20	M2
Selenium	ND	2.0	0.82	25.0000	ND	NR	17.3 - 155	NR	20	M2
Silver	25.3964	1.0	0.27	12.5000	13.7150	93.5	4.72 - 158	0.310	20	
Thallium	15.0476	2.0	0.35	25.0000	ND	60.2	-11.6 - 133	2.83	20	
Vanadium	44.4738	1.0	0.20	25.0000	23.0737	85.6	-0.621 - 177	0.237	20	
Zinc	5287.48	2.0	0.30	25.0000	5533.92	-986	-17.4 - 208	0.106	20	M2, E

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0599 - EPA 7471_S										
Blank (B4A0599-BLK1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	ND	0.10	0.01							
LCS (B4A0599-BS1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.404150	0.10	0.01	0.416667		97.0	75.1 - 123			
Matrix Spike (B4A0599-MS1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.576141	0.10	0.01	0.416667	0.425465	36.2	15.2 - 179			
Matrix Spike Dup (B4A0599-MSD1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.636684	0.10	0.01	0.416667	0.425465	50.7	15.2 - 179	9.98	20	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0599 - EPA 7471_S									
Post Spike (B4A0599-PS1)		**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.009132		5.00000E-3	0.005106	80.5	85 - 115			M2

ADVANCED TECHNOLOGY LABORATORIES

3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

CHAIN OF CUSTODY RECORD

Page 1 of 1

2400037

FOR LABORATORY USE ONLY		ATLCOC Ver:20210101
Method of Transport: ☑ Client ☐ ATL ☐ FedEx ☐ OnTrac ☐ GSO ☐ Other:	Sample Conditions Upon Receipt	
	1. CHILLED ☐ ☐	5. # OF SAMPLES MATCH COC ☑ ☐
	2. HEADSPACE (VOA) < 6mm ☐ ☐	6. PRESERVED ☐ ☐
	3. CONTAINER INTACT ☑ ☐	7. Cooler Temp (°C) 2.9
	4. SEALED ☐ ☑	8. THERMOMETER ID:

Company: Langan Engineering
Address: 18575 Jamboree Rd Tel: (714)699-0899
City: Irvine State: CA Zip: 92612 Fax: Langan

SEND REPORT TO:
Attn: Megan Ritsema Email: mritsema@langan.com
Company: Langan
Address: 18575 Jamboree Rd Suite 150
City: Irvine State: CA Zip: 92612

SEND INVOICE TO: ☐ same as SEND REPORT TO
Attn: megan Ritsema Email:
Company: Email:
Address:
City: State: Zip:

EDD: ☒ Excel ☐ EDF ☐ Equis ☒ PDF
QA/QC: ☒ Routine ☐ Caltrans Legal ☐ RWQCB Level IV

Project Name: GIC Vernon
Project No.: 721040501
Sampler:
Quote #:
PO #:

ITEM	Lab ID (For Lab Use Only)	Sample Description: Sample ID	Location	Date	Time	Title 22 Metals	Hold	Sample Matrix: Solid	Water	Wastewater	Non-aqueous	Other:	Turnaround Time (TAT)	Container: Quantity	Type: 1=Tube; 2=VOA; 3=Liter; 4=Pint; 5=Jar; 6=Total; 7 = Canister	Material: 1=Glass; 2=Plastic; 3=Metal	Preservative: 1=HCl; 2=NaHSO4; 3=H2SO4; 4=HNO3; 5=NaOH; 6=ZnAc; 7=MeOH; 8=NH4Cl2O3	Remarks
1	1	RS-3-2	Red Soil - East	01/09/24	1200	X		X					1	1	5	1	0	
2	2	RS-2-2	Red Soil trench	01/09/24	1230		X	X					H	1	5	1	0	H
3	3	RS-2-4	"	"	1242		X	X					H	1	5	1	0	H
4	4	RS-2-6	"	"	1250	X		X					1	1	5	1	0	
5	5	RS-2-8	"	"	1310		X	X					H	1	5	1	0	H
6																		
7																		
8																		
9																		
10																		

(Special Instructions, Comments, Notes, etc.)

H = hold until further notice

By relinquishing samples to ATL, I hereby agree that I have read and accept ATL's Terms and Conditions, as stated in www.atlglobal.com/terms-and-conditions.

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Rachel Owen	01/09/24	1457	Dannyle	01/09/24	14:57
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

March 01, 2024

Megan Ritsema
Langan Engineering & Environmental Services
18575 Jamboree Road, suite 150
Irvine, CA 92612
Tel: (949) 561-9200
Fax:(949) 255-8641

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 2400269
Client Reference : GIC Vernon / 721040501

Enclosed are the results for sample(s) received on February 28, 2024 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or Project.Management@atlglobal.com.

Sincerely,



Lena Davidkov, Client Services
lena.davidkov@atlglobal.com
Authorized to Release on 03/01/24 07:16 on Behalf of



Amy Leung
Laboratory Director

The test results in this report relate exclusively to the samples as received by the laboratory, and meet the requirements of the methodology under which they were reported; any exceptions are noted within the report and/ or case narrative.

The cover letter/ signature page and the case narrative are integral parts of this analytical report; the absence of any portion of the report renders the report invalid. This report shall not be reproduced except in full, and shall have the express written approval of the laboratory, and the original client firm to do so

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The electronic signature on this report is signed by an authorized signatory of Advanced Technology Laboratories, and is intended to be legally binding as the equivalent of a handwritten signature.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	03/01/2024

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S1_02272024	2400269-01	Soil	2/27/24 9:10	2/28/24 9:00
S3_02272024	2400269-03	Soil	2/27/24 9:20	2/28/24 9:00

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	03/01/2024

Notes and Definitions

M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
E	Result value is above quantitation range and therefore, estimated.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury **Analyst: AA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2400269-01	S1_02272024	**0.51**	mg/kg	0.10	1	B4B0777	02/28/2024	02/29/24 12:55	
2400269-03	S3_02272024	**0.74**	mg/kg	0.10	1	B4B0777	02/28/2024	02/29/24 12:57	

Client Sample ID: S1_02272024

Lab ID: 2400269-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: ICP

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**57**	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Arsenic	ND	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Barium	**630**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Beryllium	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Cadmium	**14**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Chromium	**58**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Cobalt	**15**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Copper	**840**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Lead	**3500**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Molybdenum	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Nickel	**57**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Selenium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Silver	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Thallium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Vanadium	**45**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Zinc	**1900**	10	5	B4B0766	02/28/2024	02/28/24 14:16	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Client Sample ID: S3_02272024

Lab ID: 2400269-03

Title 22 Metals by ICP-AES EPA 6010B **Analyst: ICP**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**76**	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Arsenic	ND	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Barium	**360**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Beryllium	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Cadmium	**10**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Chromium	**37**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Cobalt	**12**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Copper	**820**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Lead	**2400**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Molybdenum	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Nickel	**77**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Selenium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Silver	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Thallium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Vanadium	**34**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Zinc	**3500**	10	5	B4B0766	02/28/2024	02/28/24 14:18	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0766 - EPA 3050B_S										
Blank (B4B0766-BLK1)						Prepared: 2/28/2024 Analyzed: 2/28/2024				
Antimony	ND	2.0	0.77							
Arsenic	ND	2.0	0.71							
Barium	ND	1.0	0.06							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.06							
Chromium	ND	1.0	0.10							
Cobalt	ND	1.0	0.08							
Copper	ND	1.0	0.22							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.10							
Nickel	ND	1.0	0.04							
Selenium	ND	2.0	0.82							
Silver	ND	1.0	0.27							
Thallium	ND	2.0	0.35							
Vanadium	ND	1.0	0.20							
Zinc	ND	2.0	0.30							
LCS (B4B0766-BS1)						Prepared: 2/28/2024 Analyzed: 2/28/2024				
Antimony	25.4625	2.0	0.77	25.0000		102	83.4 - 116			
Arsenic	23.9288	2.0	0.71	25.0000		95.7	71.9 - 127			
Barium	24.4408	1.0	0.06	25.0000		97.8	67.3 - 127			
Beryllium	23.4890	1.0	0.03	25.0000		94.0	83.9 - 117			
Cadmium	25.6542	1.0	0.06	25.0000		103	84.7 - 115			
Chromium	24.4875	1.0	0.10	25.0000		98.0	85.8 - 112			
Cobalt	25.3706	1.0	0.08	25.0000		101	81.1 - 120			
Copper	24.8272	1.0	0.22	25.0000		99.3	85.3 - 119			
Lead	24.9475	1.0	0.18	25.0000		99.8	82.8 - 120			
Molybdenum	27.4134	1.0	0.10	25.0000		110	89.9 - 123			
Nickel	25.3685	1.0	0.04	25.0000		101	85.1 - 117			
Selenium	22.6713	2.0	0.82	25.0000		90.7	83.3 - 119			
Silver	12.1750	1.0	0.27	12.5000		97.4	65 - 130			
Thallium	25.3561	2.0	0.35	25.0000		101	87.3 - 118			
Vanadium	23.2457	1.0	0.20	25.0000		93.0	81.3 - 110			
Zinc	25.6969	2.0	0.30	25.0000		103	84.3 - 123			
Matrix Spike (B4B0766-MS1)			**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/28/2024				
Antimony	96.3250	2.0	0.77	25.0000	57.0878	157	-5.11 - 158			
Arsenic	28.3948	2.0	0.71	25.0000	5.42947	91.9	16.6 - 159			
Barium	635.324	1.0	0.06	25.0000	633.026	9.19	-15.4 - 203			
Beryllium	24.2221	1.0	0.03	25.0000	3.26700	83.8	17.7 - 163			
Cadmium	39.9244	1.0	0.06	25.0000	14.2863	103	22.1 - 162			
Chromium	78.6502	1.0	0.10	25.0000	58.1689	81.9	4.21 - 195			

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0766 - EPA 3050B_S (continued)										
Matrix Spike (B4B0766-MS1) - Continued			**Source: 2400269-01**				Prepared: 2/28/2024 Analyzed: 2/28/2024			
Cobalt	39.1748	1.0	0.08	25.0000	15.4208	95.0	7.96 - 169			
Copper	1148.46	1.0	0.22	25.0000	835.873	1250	10.1 - 194			M2
Lead	2823.12	1.0	0.18	25.0000	3504.34	-2720	-9.73 - 182			M2, E
Molybdenum	44.1195	1.0	0.10	25.0000	0.671302	174	7.42 - 164			M2
Nickel	78.3984	1.0	0.04	25.0000	57.2101	84.8	16.2 - 177			
Selenium	6.87162	2.0	0.82	25.0000	ND	27.5	17.3 - 155			
Silver	16.9451	1.0	0.27	12.5000	3.69034	106	4.72 - 158			
Thallium	15.3543	2.0	0.35	25.0000	ND	61.4	-11.6 - 133			
Vanadium	65.2731	1.0	0.20	25.0000	45.2821	80.0	-0.621 - 177			
Zinc	1878.82	2.0	0.30	25.0000	1948.76	-280	-17.4 - 208			M2
Matrix Spike Dup (B4B0766-MSD1)			**Source: 2400269-01**				Prepared: 2/28/2024 Analyzed: 2/28/2024			
Antimony	95.9714	2.0	0.77	25.0000	57.0878	156	-5.11 - 158	0.368	20	
Arsenic	28.3330	2.0	0.71	25.0000	5.42947	91.6	16.6 - 159	0.218	20	
Barium	629.730	1.0	0.06	25.0000	633.026	-13.2	-15.4 - 203	0.884	20	
Beryllium	24.2689	1.0	0.03	25.0000	3.26700	84.0	17.7 - 163	0.193	20	
Cadmium	39.4860	1.0	0.06	25.0000	14.2863	101	22.1 - 162	1.10	20	
Chromium	78.3436	1.0	0.10	25.0000	58.1689	80.7	4.21 - 195	0.390	20	
Cobalt	38.8023	1.0	0.08	25.0000	15.4208	93.5	7.96 - 169	0.955	20	
Copper	1136.90	1.0	0.22	25.0000	835.873	1200	10.1 - 194	1.01	20	M2
Lead	2804.29	1.0	0.18	25.0000	3504.34	-2800	-9.73 - 182	0.669	20	M2, E
Molybdenum	43.6707	1.0	0.10	25.0000	0.671302	172	7.42 - 164	1.02	20	M2
Nickel	77.1460	1.0	0.04	25.0000	57.2101	79.7	16.2 - 177	1.61	20	
Selenium	7.20149	2.0	0.82	25.0000	ND	28.8	17.3 - 155	4.69	20	
Silver	17.2479	1.0	0.27	12.5000	3.69034	108	4.72 - 158	1.77	20	
Thallium	15.2907	2.0	0.35	25.0000	ND	61.2	-11.6 - 133	0.415	20	
Vanadium	65.6958	1.0	0.20	25.0000	45.2821	81.7	-0.621 - 177	0.646	20	
Zinc	1859.93	2.0	0.30	25.0000	1948.76	-355	-17.4 - 208	1.01	20	M2

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0777 - EPA 7471_S										
Blank (B4B0777-BLK1)						Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	ND	0.10	0.01							
LCS (B4B0777-BS1)						Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.389083	0.10	0.01	0.416667		93.4	75.1 - 123			
Matrix Spike (B4B0777-MS1)			**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.704018	0.10	0.01	0.416667	0.505173	47.7	15.2 - 179			
Matrix Spike Dup (B4B0777-MSD1)			**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.748860	0.10	0.01	0.416667	0.505173	58.5	15.2 - 179	6.17	20	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0777 - EPA 7471_S									
Post Spike (B4B0777-PS1)		**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.009081		5.00000E-3	0.006062	60.4	85 - 115			M2

ADVANCED TECHNOLOGY LABORATORIES
3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

CHAIN OF CUSTODY RECORD

Page 1 of 1

Instruction: Complete all shaded areas.

24 00269

For Laboratory Use Only ATLCOC Ver:20210101

Method of Transport	Sample Conditions Upon Receipt					
	Condition	Y	N	Condition	Y	N
☐ Client ☐ ATL	1. CHILLED	☑	☐	5. # OF SAMPLES MATCH COC	☑	☐
☑ FedEx ☐ OnTrac	2. HEADSPACE (V0A) < 6mm	☐	☐	6. PRESERVED	☐	☑
☐ GSO	3. CONTAINER INTACT	☑	☐	7. COOLER TEMP, deg C:	3.1	
☐ Other:	4. SEALED	☐	☑	8. THERMOMETER ID:		

Company:	Langan CA, Inc.	Address:	515 S Flower St, Ste 1060	Tel:	626-244-4533
		City:	Los Angeles	State: CA Zip:	Fax:

SEND REPORT TO:		SEND INVOICE TO: ☑ same as SEND REPORT TO	
Attn:	Megan Ritsema	Attn:	Megan Ritsema
Email:	mritsema@langan.com	Email:	
Company:	Langan CA, Inc.	Company:	
Address:	18575 Jamboree Rd, Ste 150	Address:	
City:	Irvine	City:	
State:	CA	State:	
Zip:	92612	Zip:	

EDD: ☑ Excel ☐ EDF ☐ Equis ☑ PDF

QA/QC: ☑ Routine ☐ Caltrans ☐ Legal ☐ RWQCB ☐ Level IV ☐ ____

Project Name: GIC Vernon
Project No.: 721040501
Quote #:
PO #:
Sampler: Katherine Thomas KThomas@Langan.com

ITEM	Lab ID (For Lab Use Only)	Sample Description: Sample ID	Location	Date	Time	Requested Analysis: 6010 / 7000 (Title 22 Metals)	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Sample Matrix: Select Soil Matrix	Solid	Select Water Matrix	Select Wastewater Matrix	Select Non-aqueous Matrix	Enter Custom Matrix	Turnaround Time (TAT)	Container: Quantity	Type: 1=Tube; 2=VOA; 3=Liter; 4=Pint; 5=Jar; 6=Tedlar; 7=Canister	Material: 1=Glass; 2=Plastic; 3=Metal	Preservative: 1=HCl; 2=HNO3; 3=H2SO4; 4=4C; 5=ZnAc2; 6=NaOH; 7=NA2S2O3	Remarks
1	1	S1_02272024	Eastern excavation	02/27/24	0910	X																	X					48hrs	1	5	1		
2	2	S2_02272024	Western excavation-southern	02/27/24	0915	X																	X					Hold	1	5	1		Hold
3	3	S3_02272024	Western excavation-middle	02/27/24	0920	X																	X					48hrs	1	5	1		
4	4	S4_02272024	Western excavation-northern	02/27/24	0925	X																	X					Hold	1	5	1		Hold
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	

(Special Instructions, Comments, Notes, etc.)

Hold item 2 and item 4 until further instruction.

By relinquishing samples to ATL, I hereby agree that I have read and accept ATL's Terms and Conditions, as stated in www.atlglobal.com/terms-and-conditions.

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Katherine Thomas	02 27 2024	1320			
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
FedEx				2/28/24	9:00
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

ORIGIN ID:RBFA (626) 244-4533
KATHERINE ELISE THOMAS

1620 S CABANA AVE

WEST COVINA, CA 91790
UNITED STATES US

SHIP DATE: 27FEB24
ACTWGT: 36.10 LB
CAD: 6754076/SSF02500
DIMS: 25x14x14 IN

BILL CREDIT CARD

Part # 156297-435 AHLS EXP 11/24

TO **ADVANCED TECHNOLOGY LAB**

3275 WALNUT AVE

SIGNAL HILL CA 90755

(562) 989-4045 REF:

INV:

PO: DEPT:

FedEx Express

REL# 3785346

TRK# 0201 2714 9305 6514

WED - 28 FEB 8:00A
FIRST OVERNIGHT

91 LGBA

AHS
90755
CA-US LAX

ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Ritsema
Langan Engineering & Environmental Srvcs
18575 Jamboree Road
Suite 150
Irvine, California 92612

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JOB DESCRIPTION

721040501

JOB NUMBER

570-166113-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

my EOL

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Vikas Patel, Project Manager I
Vikas.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).

GC Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
570-166113-1

Receipt
The samples were received on 12/27/2023 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS VOA
Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-396551. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8260B: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 570-396551 recovered outside control limits for the following analytes: 4-Methyl-2-pentanone (MIBK). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8260B: The following analyte(s) recovered outside control limits for the LCSD associated with analytical batch 570-396551: Naphthalene. This is not indicative of a systematic control problem because this was random marginal exceedances. Qualified results have been reported.

Method 8260B: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: BS-1 (570-166113-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method 8015B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-396277 and analytical batch 570-396768 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015B: An incorrect volume of surrogate spiking solution was inadvertently added the following samples: RS-1 (570-166113-1), BS-1 (570-166113-2), (LCS 570-396277/27-A), (LCSD 570-396277/28-A), (570-166113-D-1-B MS) and (570-166113-D-1-C MSD). Percent recoveries are based on the amount spiked.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6010B: The serial dilution performed for the following sample associated with batch 570-396975 was outside control limits for Barium: (570-165106-A-19-B SD ^25)

Method 6010B: The method blank for preparation batch 570-396615 and analytical batch 570-396975 contained Barium above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-396615 and analytical batch 570-396975 were outside control limits for Lead and Antimony. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 6010B: The following sample was diluted due to the nature of the sample matrix: RS-1 (570-166113-1). Elevated reporting limits (RLs) are provided.

Method 7471A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 570-397227 and analytical batch 570-397417 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 570-166113-2 Eurofins Calscience

Job Narrative
570-166113-2

Receipt
The samples were received on 12/27/2023 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.047		0.018	0.0087	mg/Kg	1		8260B	Total/NA
Benzene	0.029		0.00089	0.00023	mg/Kg	1		8260B	Total/NA
Chloroform	0.00063	J	0.00089	0.00052	mg/Kg	1		8260B	Total/NA
Ethylbenzene	0.0025		0.00089	0.00018	mg/Kg	1		8260B	Total/NA
N-Propylbenzene	0.00029	J	0.0018	0.00023	mg/Kg	1		8260B	Total/NA
o-Xylene	0.00069	J	0.00089	0.00023	mg/Kg	1		8260B	Total/NA
m,p-Xylene	0.0017	J	0.0018	0.00042	mg/Kg	1		8260B	Total/NA
Toluene	0.012		0.00089	0.00024	mg/Kg	1		8260B	Total/NA
Trichlorofluoromethane	0.00069	J	0.0089	0.00024	mg/Kg	1		8260B	Total/NA
Diesel Range Organics [C10-C28]	270		4.9	3.7	mg/Kg	1		8015B	Total/NA
TPH as Motor Oil (C17-C44)	440	F1	24	11	mg/Kg	1		8015B	Total/NA
Oil Range Organics (C18-C40)	430		4.9	3.7	mg/Kg	1		8015B	Total/NA
Silver	14.6		7.61	0.731	mg/Kg	25		6010B	Total/NA
Arsenic	21.9		15.2	7.06	mg/Kg	25		6010B	Total/NA
Barium	2040	B	15.2	0.721	mg/Kg	25		6010B	Total/NA
Cadmium	18.5		2.54	0.832	mg/Kg	25		6010B	Total/NA
Cobalt	12.7		5.08	1.05	mg/Kg	25		6010B	Total/NA
Chromium	64.0		5.08	0.944	mg/Kg	25		6010B	Total/NA
Copper	7600		10.2	4.86	mg/Kg	25		6010B	Total/NA
Nickel	71.3		10.2	1.84	mg/Kg	25		6010B	Total/NA
Antimony	284		50.8	14.5	mg/Kg	25		6010B	Total/NA
Vanadium	15.7		5.08	0.853	mg/Kg	25		6010B	Total/NA
Zinc	5140		25.4	5.87	mg/Kg	25		6010B	Total/NA
Lead	29700		20.3	4.15	mg/Kg	50		6010B	Total/NA
Mercury	65.3	F2	8.68	3.33	mg/Kg	100		7471A	Total/NA

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.19	J	0.43	0.090	mg/Kg	500		8260B	Total/NA
o-Xylene	0.18	J	0.43	0.11	mg/Kg	500		8260B	Total/NA
m,p-Xylene	0.55	J	0.87	0.21	mg/Kg	500		8260B	Total/NA
Styrene	1.1		0.43	0.14	mg/Kg	500		8260B	Total/NA
Trichlorofluoromethane	8.5		4.3	0.12	mg/Kg	500		8260B	Total/NA
Diesel Range Organics [C10-C28]	660		24	19	mg/Kg	5		8015B	Total/NA
TPH as Motor Oil (C17-C44)	940		120	55	mg/Kg	5		8015B	Total/NA
Oil Range Organics (C18-C40)	920		24	19	mg/Kg	5		8015B	Total/NA
Arsenic	6.02		2.97	1.38	mg/Kg	5		6010B	Total/NA
Barium	161	B	2.97	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.934		0.495	0.0683	mg/Kg	5		6010B	Total/NA
Cadmium	0.801		0.495	0.162	mg/Kg	5		6010B	Total/NA
Cobalt	4.23		0.990	0.204	mg/Kg	5		6010B	Total/NA
Chromium	42.2		0.990	0.184	mg/Kg	5		6010B	Total/NA
Copper	224		1.98	0.949	mg/Kg	5		6010B	Total/NA
Molybdenum	1.13	J	1.98	0.510	mg/Kg	5		6010B	Total/NA
Nickel	23.2		1.98	0.358	mg/Kg	5		6010B	Total/NA
Antimony	8.37	J	9.90	2.83	mg/Kg	5		6010B	Total/NA
Vanadium	20.1		0.990	0.166	mg/Kg	5		6010B	Total/NA
Zinc	377		4.95	1.14	mg/Kg	5		6010B	Total/NA
Lead	562		1.98	0.405	mg/Kg	5		6010B	Total/NA
Mercury	0.779		0.0801	0.0308	mg/Kg	1		7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.00089	0.00026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,1-Trichloroethane	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2,2-Tetrachloroethane	ND		0.0018	0.00048	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0089	0.00041	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2-Trichloroethane	ND		0.00089	0.00041	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloroethane	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloroethene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloropropene	ND		0.0018	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,3-Trichlorobenzene	ND		0.0018	0.00033	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,3-Trichloropropane	ND		0.0018	0.00037	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,4-Trichlorobenzene	ND		0.0018	0.00036	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,4-Trimethylbenzene	ND		0.0018	0.00053	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dibromo-3-Chloropropane	ND		0.0089	0.0030	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dibromoethane	ND		0.00089	0.00018	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichlorobenzene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichloroethane	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichloropropane	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3,5-Trimethylbenzene	ND		0.0018	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3-Dichlorobenzene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3-Dichloropropane	ND		0.00089	0.00026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,4-Dichlorobenzene	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2,2-Dichloropropane	ND		0.0044	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Butanone (MEK)	ND		0.018	0.0040	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Chlorotoluene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Hexanone	ND		0.018	0.0027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
4-Chlorotoluene	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
4-Methyl-2-pentanone (MIBK)	ND	*+	0.018	0.0026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Acetone	**0.047**		0.018	0.0087	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Benzene	**0.029**		0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromobenzene	ND		0.00089	0.00019	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromochloromethane	ND		0.0018	0.00039	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromodichloromethane	ND		0.00089	0.00029	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromoform	ND		0.0044	0.0012	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromomethane	ND		0.018	0.0058	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
cis-1,2-Dichloroethene	ND		0.00089	0.00030	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
cis-1,3-Dichloropropene	ND		0.00089	0.00031	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Carbon disulfide	ND		0.0089	0.00036	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Carbon tetrachloride	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chlorobenzene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloroethane	ND		0.0018	0.00066	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloroform	**0.00063**	**J**	0.00089	0.00052	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloromethane	ND		0.018	0.0014	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dibromochloromethane	ND		0.0018	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dibromomethane	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dichlorodifluoromethane	ND		0.0018	0.00040	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Di-isopropyl ether (DIPE)	ND		0.00089	0.00044	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethanol	ND		0.22	0.082	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethylbenzene	**0.0025**		0.00089	0.00018	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethyl-t-butyl ether (ETBE)	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RS-1
Date Collected: 12/27/23 07:20
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Methylene Chloride	ND		0.0089	0.0028	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0018	0.00017	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Naphthalene	ND	*+	0.0089	0.0035	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
n-Butylbenzene	ND		0.00089	0.00019	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
N-Propylbenzene	**0.00029**	**J**	0.0018	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
o-Xylene	**0.00069**	**J**	0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
m,p-Xylene	**0.0017**	**J**	0.0018	0.00042	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
p-Isopropyltoluene	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
sec-Butylbenzene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Styrene	ND		0.00089	0.00028	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
trans-1,2-Dichloroethene	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
trans-1,3-Dichloropropene	ND		0.0018	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Tert-amyl-methyl ether (TAME)	ND		0.00089	0.00017	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
tert-Butyl alcohol (TBA)	ND		0.018	0.0062	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
tert-Butylbenzene	ND		0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Tetrachloroethene	ND		0.00089	0.00020	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Toluene	**0.012**		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Trichloroethene	ND		0.0018	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Trichlorofluoromethane	**0.00069**	**J**	0.0089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Vinyl acetate	ND		0.0089	0.0035	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Vinyl chloride	ND		0.00089	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*32 - 179*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
Dibromofluoromethane (Surr)	*96*		*58 - 147*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*12/27/23 17:12*	*12/27/23 23:51*	*1*

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,1-Trichloroethane	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2,2-Tetrachloroethane	ND		0.87	0.24	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.3	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2-Trichloroethane	ND		0.43	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloroethane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloroethene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloropropene	ND		0.87	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,3-Trichlorobenzene	ND		0.87	0.16	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,3-Trichloropropane	ND		0.87	0.18	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,4-Trichlorobenzene	ND		0.87	0.18	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,4-Trimethylbenzene	ND		0.87	0.26	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dibromo-3-Chloropropane	ND		4.3	1.4	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dibromoethane	ND		0.43	0.089	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichlorobenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichloroethane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichloropropane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00

Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,3-Dichlorobenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,3-Dichloropropane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,4-Dichlorobenzene	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2,2-Dichloropropane	ND		2.2	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Butanone (MEK)	ND		8.7	2.0	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Chlorotoluene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Hexanone	ND		8.7	1.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
4-Chlorotoluene	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
4-Methyl-2-pentanone (MIBK)	ND		8.7	1.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Acetone	ND		8.7	4.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Benzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromobenzene	ND		0.43	0.090	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromochloromethane	ND		0.87	0.19	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromodichloromethane	ND		0.43	0.14	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromoform	ND		2.2	0.57	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromomethane	ND		8.7	2.9	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
cis-1,2-Dichloroethene	ND		0.43	0.15	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
cis-1,3-Dichloropropene	ND		0.43	0.15	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Carbon disulfide	ND		4.3	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Carbon tetrachloride	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chlorobenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloroethane	ND		0.87	0.32	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloroform	ND		0.43	0.26	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloromethane	ND		8.7	0.67	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dibromochloromethane	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dibromomethane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dichlorodifluoromethane	ND		0.87	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Di-isopropyl ether (DIPE)	ND		0.43	0.22	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethanol	ND		110	40	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethylbenzene	**0.19**	**J**	0.43	0.090	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethyl-t-butyl ether (ETBE)	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Isopropylbenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Methylene Chloride	ND		4.3	1.4	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Methyl-t-Butyl Ether (MTBE)	ND		0.87	0.081	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Naphthalene	ND		4.3	1.7	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
n-Butylbenzene	ND		0.43	0.091	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
N-Propylbenzene	ND		0.87	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
o-Xylene	**0.18**	**J**	0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
m,p-Xylene	**0.55**	**J**	0.87	0.21	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
p-Isopropyltoluene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
sec-Butylbenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Styrene	**1.1**		0.43	0.14	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
trans-1,2-Dichloroethene	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
trans-1,3-Dichloropropene	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Tert-amyl-methyl ether (TAME)	ND		0.43	0.084	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
tert-Butyl alcohol (TBA)	ND		8.7	3.0	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
tert-Butylbenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Tetrachloroethene	ND		0.43	0.097	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00

Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Trichloroethene	ND		0.87	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Trichlorofluoromethane	**8.5**		4.3	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Vinyl acetate	ND		4.3	1.7	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Vinyl chloride	ND		0.43	0.16	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*32 - 179*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
Dibromofluoromethane (Surr)	*112*		*58 - 147*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
Toluene-d8 (Surr)	*100*		*80 - 120*	*12/27/23 17:12*	*12/28/23 12:59*	*500*

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 8015B - Gasoline Range Organics - (GC)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.099	0.055	mg/Kg		01/03/24 16:36	01/03/24 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*42 - 126*	*01/03/24 16:36*	*01/03/24 21:48*	*1*

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.097	0.054	mg/Kg		01/03/24 16:36	01/03/24 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*42 - 126*	*01/03/24 16:36*	*01/03/24 22:07*	*1*

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	270		4.9	3.7	mg/Kg		12/27/23 15:56	12/29/23 01:21	1
TPH as Motor Oil (C17-C44)	440	F1	24	11	mg/Kg		12/27/23 15:56	12/29/23 01:21	1
Oil Range Organics (C18-C40)	430		4.9	3.7	mg/Kg		12/27/23 15:56	12/29/23 01:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*89*		*60 - 138*	*12/27/23 15:56*	*12/29/23 01:21*	*1*

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	660		24	19	mg/Kg		12/27/23 15:56	12/29/23 01:43	5
TPH as Motor Oil (C17-C44)	940		120	55	mg/Kg		12/27/23 15:56	12/29/23 01:43	5
Oil Range Organics (C18-C40)	920		24	19	mg/Kg		12/27/23 15:56	12/29/23 01:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*95*		*60 - 138*	*12/27/23 15:56*	*12/29/23 01:43*	*5*

Method: SW846 6010B - Metals (ICP)

Client Sample ID: RS-1
Date Collected: 12/27/23 07:20
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	**14.6**		7.61	0.731	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Arsenic	**21.9**		15.2	7.06	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Barium	**2040**	**B**	15.2	0.721	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Beryllium	ND		2.54	0.350	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Cadmium	**18.5**		2.54	0.832	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Cobalt	**12.7**		5.08	1.05	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Chromium	**64.0**		5.08	0.944	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Copper	**7600**		10.2	4.86	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Molybdenum	ND		10.2	2.61	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Nickel	**71.3**		10.2	1.84	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Antimony	**284**		50.8	14.5	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Selenium	ND		15.2	6.20	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Thallium	ND		50.8	10.7	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Vanadium	**15.7**		5.08	0.853	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Zinc	**5140**		25.4	5.87	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Lead	**29700**		20.3	4.15	mg/Kg		12/28/23 10:40	12/28/23 20:32	50

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.49	0.143	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Arsenic	**6.02**		2.97	1.38	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Barium	**161**	**B**	2.97	0.141	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Beryllium	**0.934**		0.495	0.0683	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Cadmium	**0.801**		0.495	0.162	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Cobalt	**4.23**		0.990	0.204	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Chromium	**42.2**		0.990	0.184	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Copper	**224**		1.98	0.949	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Molybdenum	**1.13**	**J**	1.98	0.510	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Nickel	**23.2**		1.98	0.358	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Antimony	**8.37**	**J**	9.90	2.83	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Selenium	ND		2.97	1.21	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Thallium	ND		9.90	2.09	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Vanadium	**20.1**		0.990	0.166	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Zinc	**377**		4.95	1.14	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Lead	**562**		1.98	0.405	mg/Kg		12/28/23 10:40	12/28/23 18:17	5

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	65.3	F2	8.68	3.33	mg/Kg		12/29/23 13:05	12/30/23 11:43	100

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.779		0.0801	0.0308	mg/Kg		12/29/23 13:05	12/30/23 08:50	1

Surrogate Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(32-179)	(80-120)	(58-147)	(80-120)
570-166113-1	RS-1	103	93	96	101
570-166113-2	BS-1	115	106	112	100
LCS 570-396551/3	Lab Control Sample	95	92	97	102
LCS 570-396650/4	Lab Control Sample	103	101	105	100
LCSD 570-396551/4	Lab Control Sample Dup	88	93	93	101
LCSD 570-396650/5	Lab Control Sample Dup	105	98	101	102
MB 570-396551/6	Method Blank	90	95	96	100
MB 570-396650/10	Method Blank	109	102	107	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		BFB1
Lab Sample ID	Client Sample ID	(42-126)
570-166113-1	RS-1	103
570-166113-2	BS-1	81
LCS 570-398155/1-A	Lab Control Sample	107
LCSD 570-398155/2-A	Lab Control Sample Dup	110
MB 570-398155/3-A	Method Blank	109

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		OTCSN1
Lab Sample ID	Client Sample ID	(60-138)
570-166113-1	RS-1	89
570-166113-1 MS	RS-1	90
570-166113-1 MSD	RS-1	91
570-166113-2	BS-1	95
LCS 570-396277/27-A	Lab Control Sample	97
LCS 570-396277/2-A	Lab Control Sample	106
LCSD 570-396277/28-A	Lab Control Sample Dup	99
LCSD 570-396277/3-A	Lab Control Sample Dup	103
MB 570-396277/1-A	Method Blank	124

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-396551/6
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.0010	0.00029	mg/Kg			12/27/23 23:06	1
1,1,1-Trichloroethane	ND		0.0010	0.00023	mg/Kg			12/27/23 23:06	1
1,1,2,2-Tetrachloroethane	ND		0.0020	0.00054	mg/Kg			12/27/23 23:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.010	0.00046	mg/Kg			12/27/23 23:06	1
1,1,2-Trichloroethane	ND		0.0010	0.00046	mg/Kg			12/27/23 23:06	1
1,1-Dichloroethane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,1-Dichloroethene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
1,1-Dichloropropene	ND		0.0020	0.00039	mg/Kg			12/27/23 23:06	1
1,2,3-Trichlorobenzene	ND		0.0020	0.00038	mg/Kg			12/27/23 23:06	1
1,2,3-Trichloropropane	ND		0.0020	0.00042	mg/Kg			12/27/23 23:06	1
1,2,4-Trichlorobenzene	ND		0.0020	0.00041	mg/Kg			12/27/23 23:06	1
1,2,4-Trimethylbenzene	ND		0.0020	0.00060	mg/Kg			12/27/23 23:06	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0033	mg/Kg			12/27/23 23:06	1
1,2-Dibromoethane	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
1,2-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
1,2-Dichloroethane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,2-Dichloropropane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,3,5-Trimethylbenzene	ND		0.0020	0.00027	mg/Kg			12/27/23 23:06	1
1,3-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
1,3-Dichloropropane	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
1,4-Dichlorobenzene	ND		0.0010	0.00031	mg/Kg			12/27/23 23:06	1
2,2-Dichloropropane	ND		0.0050	0.00027	mg/Kg			12/27/23 23:06	1
2-Butanone (MEK)	ND		0.020	0.0045	mg/Kg			12/27/23 23:06	1
2-Chlorotoluene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
2-Hexanone	ND		0.020	0.0031	mg/Kg			12/27/23 23:06	1
4-Chlorotoluene	ND		0.0010	0.00024	mg/Kg			12/27/23 23:06	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0029	mg/Kg			12/27/23 23:06	1
Acetone	ND		0.020	0.0098	mg/Kg			12/27/23 23:06	1
Benzene	ND		0.0010	0.00026	mg/Kg			12/27/23 23:06	1
Bromobenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
Bromochloromethane	ND		0.0020	0.00044	mg/Kg			12/27/23 23:06	1
Bromodichloromethane	ND		0.0010	0.00033	mg/Kg			12/27/23 23:06	1
Bromoform	ND		0.0050	0.0013	mg/Kg			12/27/23 23:06	1
Bromomethane	ND		0.020	0.0066	mg/Kg			12/27/23 23:06	1
cis-1,2-Dichloroethene	ND		0.0010	0.00034	mg/Kg			12/27/23 23:06	1
cis-1,3-Dichloropropene	ND		0.0010	0.00035	mg/Kg			12/27/23 23:06	1
Carbon disulfide	ND		0.010	0.00040	mg/Kg			12/27/23 23:06	1
Carbon tetrachloride	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
Chlorobenzene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Chloroethane	ND		0.0020	0.00074	mg/Kg			12/27/23 23:06	1
Chloroform	ND		0.0010	0.00059	mg/Kg			12/27/23 23:06	1
Chloromethane	ND		0.020	0.0015	mg/Kg			12/27/23 23:06	1
Dibromochloromethane	ND		0.0020	0.00027	mg/Kg			12/27/23 23:06	1
Dibromomethane	ND		0.0010	0.00031	mg/Kg			12/27/23 23:06	1
Dichlorodifluoromethane	ND		0.0020	0.00045	mg/Kg			12/27/23 23:06	1
Di-isopropyl ether (DIPE)	ND		0.0010	0.00050	mg/Kg			12/27/23 23:06	1
Ethanol	ND		0.25	0.092	mg/Kg			12/27/23 23:06	1
Ethylbenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-396551/6
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl-t-butyl ether (ETBE)	ND		0.0010	0.00024	mg/Kg			12/27/23 23:06	1
Isopropylbenzene	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
Methylene Chloride	ND		0.010	0.0031	mg/Kg			12/27/23 23:06	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	0.00019	mg/Kg			12/27/23 23:06	1
Naphthalene	ND		0.010	0.0039	mg/Kg			12/27/23 23:06	1
n-Butylbenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
N-Propylbenzene	ND		0.0020	0.00026	mg/Kg			12/27/23 23:06	1
o-Xylene	ND		0.0010	0.00026	mg/Kg			12/27/23 23:06	1
m,p-Xylene	ND		0.0020	0.00047	mg/Kg			12/27/23 23:06	1
p-Isopropyltoluene	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
sec-Butylbenzene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Styrene	ND		0.0010	0.00032	mg/Kg			12/27/23 23:06	1
trans-1,2-Dichloroethene	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
trans-1,3-Dichloropropene	ND		0.0020	0.00028	mg/Kg			12/27/23 23:06	1
Tert-amyl-methyl ether (TAME)	ND		0.0010	0.00019	mg/Kg			12/27/23 23:06	1
tert-Butyl alcohol (TBA)	ND		0.020	0.0070	mg/Kg			12/27/23 23:06	1
tert-Butylbenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
Tetrachloroethene	ND		0.0010	0.00022	mg/Kg			12/27/23 23:06	1
Toluene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Trichloroethene	ND		0.0020	0.00039	mg/Kg			12/27/23 23:06	1
Trichlorofluoromethane	ND		0.010	0.00027	mg/Kg			12/27/23 23:06	1
Vinyl acetate	ND		0.010	0.0039	mg/Kg			12/27/23 23:06	1
Vinyl chloride	ND		0.0010	0.00038	mg/Kg			12/27/23 23:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*32 - 179*		*12/27/23 23:06*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*12/27/23 23:06*	*1*
Dibromofluoromethane (Surr)	*96*		*58 - 147*		*12/27/23 23:06*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*12/27/23 23:06*	*1*

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.0500	0.05375		mg/Kg		107	80 - 125
1,1,1-Trichloroethane	0.0500	0.04974		mg/Kg		99	78 - 130
1,1,2,2-Tetrachloroethane	0.0500	0.05495		mg/Kg		110	80 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05592		mg/Kg		112	73 - 130
1,1,2-Trichloroethane	0.0500	0.04837		mg/Kg		97	80 - 123
1,1-Dichloroethane	0.0500	0.05767		mg/Kg		115	79 - 124
1,1-Dichloroethene	0.0500	0.05847		mg/Kg		117	74 - 132
1,1-Dichloropropene	0.0500	0.04863		mg/Kg		97	78 - 130
1,2,3-Trichlorobenzene	0.0500	0.05835		mg/Kg		117	80 - 123
1,2,3-Trichloropropane	0.0500	0.04905		mg/Kg		98	79 - 120
1,2,4-Trichlorobenzene	0.0500	0.05992		mg/Kg		120	80 - 125
1,2,4-Trimethylbenzene	0.0500	0.05205		mg/Kg		104	80 - 124
1,2-Dibromo-3-Chloropropane	0.0500	0.04712		mg/Kg		94	67 - 120

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dibromoethane	0.0500	0.05302		mg/Kg		106	80 - 120
1,2-Dichlorobenzene	0.0500	0.05664		mg/Kg		113	80 - 120
1,2-Dichloroethane	0.0500	0.04898		mg/Kg		98	77 - 120
1,2-Dichloropropane	0.0500	0.05734		mg/Kg		115	80 - 126
1,3,5-Trimethylbenzene	0.0500	0.05273		mg/Kg		105	80 - 121
1,3-Dichlorobenzene	0.0500	0.05909		mg/Kg		118	80 - 120
1,3-Dichloropropane	0.0500	0.05010		mg/Kg		100	80 - 120
1,4-Dichlorobenzene	0.0500	0.05436		mg/Kg		109	80 - 120
2,2-Dichloropropane	0.0500	0.05103		mg/Kg		102	73 - 135
2-Butanone (MEK)	0.0500	0.05271		mg/Kg		105	67 - 136
2-Chlorotoluene	0.0500	0.05006		mg/Kg		100	80 - 120
2-Hexanone	0.0500	0.05899		mg/Kg		118	70 - 137
4-Chlorotoluene	0.0500	0.05242		mg/Kg		105	80 - 121
4-Methyl-2-pentanone (MIBK)	0.0500	0.06319	*+ me	mg/Kg		126	74 - 124
Acetone	0.0500	0.05494		mg/Kg		110	61 - 142
Benzene	0.0500	0.05218		mg/Kg		104	80 - 120
Bromobenzene	0.0500	0.05469		mg/Kg		109	80 - 120
Bromochloromethane	0.0500	0.05451		mg/Kg		109	80 - 120
Bromodichloromethane	0.0500	0.05274		mg/Kg		105	80 - 125
Bromoform	0.0500	0.05698		mg/Kg		114	74 - 138
Bromomethane	0.0500	0.04258		mg/Kg		85	58 - 136
cis-1,2-Dichloroethene	0.0500	0.05208		mg/Kg		104	80 - 124
cis-1,3-Dichloropropene	0.0500	0.05171		mg/Kg		103	80 - 123
Carbon disulfide	0.0500	0.05247		mg/Kg		105	68 - 128
Carbon tetrachloride	0.0500	0.05120		mg/Kg		102	75 - 140
Chlorobenzene	0.0500	0.05170		mg/Kg		103	80 - 120
Chloroethane	0.0500	0.05084		mg/Kg		102	76 - 137
Chloroform	0.0500	0.04449		mg/Kg		89	80 - 121
Chloromethane	0.0500	0.05242		mg/Kg		105	74 - 133
Dibromochloromethane	0.0500	0.05362		mg/Kg		107	80 - 132
Dibromomethane	0.0500	0.05539		mg/Kg		111	80 - 120
Dichlorodifluoromethane	0.0500	0.04163		mg/Kg		83	63 - 146
Di-isopropyl ether (DIPE)	0.0500	0.06299		mg/Kg		126	73 - 132
Ethanol	0.500	0.5602		mg/Kg		112	46 - 159
Ethylbenzene	0.0500	0.05194		mg/Kg		104	80 - 120
Ethyl-t-butyl ether (ETBE)	0.0500	0.05844		mg/Kg		117	77 - 129
Isopropylbenzene	0.0500	0.05513		mg/Kg		110	80 - 122
Methylene Chloride	0.0500	0.04911		mg/Kg		98	74 - 120
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05206		mg/Kg		104	79 - 123
Naphthalene	0.0500	0.06075		mg/Kg		121	79 - 121
n-Butylbenzene	0.0500	0.05503		mg/Kg		110	79 - 131
N-Propylbenzene	0.0500	0.05451		mg/Kg		109	80 - 122
o-Xylene	0.0500	0.05031		mg/Kg		101	80 - 120
m,p-Xylene	0.100	0.1003		mg/Kg		100	80 - 120
p-Isopropyltoluene	0.0500	0.05657		mg/Kg		113	80 - 126
sec-Butylbenzene	0.0500	0.05568		mg/Kg		111	80 - 125
Styrene	0.0500	0.05322		mg/Kg		106	80 - 120
trans-1,2-Dichloroethene	0.0500	0.05265		mg/Kg		105	75 - 123
trans-1,3-Dichloropropene	0.0500	0.05292		mg/Kg		106	80 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tert-amyl-methyl ether (TAME)	0.0500	0.05587		mg/Kg		112	80 - 120
tert-Butyl alcohol (TBA)	0.250	0.2634		mg/Kg		105	74 - 123
tert-Butylbenzene	0.0500	0.05947		mg/Kg		119	80 - 124
Tetrachloroethene	0.0500	0.05484		mg/Kg		110	80 - 122
Toluene	0.0500	0.05485		mg/Kg		110	80 - 120
Trichloroethene	0.0500	0.05505		mg/Kg		110	80 - 127
Trichlorofluoromethane	0.0500	0.04668		mg/Kg		93	70 - 144
Vinyl acetate	0.0500	0.05212		mg/Kg		104	71 - 125
Vinyl chloride	0.0500	0.05675		mg/Kg		114	79 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*32 - 179*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*58 - 147*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.0500	0.05248		mg/Kg		105	80 - 125	2	20
1,1,1-Trichloroethane	0.0500	0.04620		mg/Kg		92	78 - 130	7	20
1,1,2,2-Tetrachloroethane	0.0500	0.05615		mg/Kg		112	80 - 124	2	20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05217		mg/Kg		104	73 - 130	7	20
1,1,2-Trichloroethane	0.0500	0.04781		mg/Kg		96	80 - 123	1	20
1,1-Dichloroethane	0.0500	0.05403		mg/Kg		108	79 - 124	7	20
1,1-Dichloroethene	0.0500	0.05314		mg/Kg		106	74 - 132	10	20
1,1-Dichloropropene	0.0500	0.04631		mg/Kg		93	78 - 130	5	20
1,2,3-Trichlorobenzene	0.0500	0.05789		mg/Kg		116	80 - 123	1	20
1,2,3-Trichloropropane	0.0500	0.05100		mg/Kg		102	79 - 120	4	20
1,2,4-Trichlorobenzene	0.0500	0.05910		mg/Kg		118	80 - 125	1	20
1,2,4-Trimethylbenzene	0.0500	0.05048		mg/Kg		101	80 - 124	3	20
1,2-Dibromo-3-Chloropropane	0.0500	0.04767		mg/Kg		95	67 - 120	1	20
1,2-Dibromoethane	0.0500	0.05092		mg/Kg		102	80 - 120	4	20
1,2-Dichlorobenzene	0.0500	0.05742		mg/Kg		115	80 - 120	1	20
1,2-Dichloroethane	0.0500	0.04788		mg/Kg		96	77 - 120	2	20
1,2-Dichloropropane	0.0500	0.05473		mg/Kg		109	80 - 126	5	20
1,3,5-Trimethylbenzene	0.0500	0.05146		mg/Kg		103	80 - 121	2	20
1,3-Dichlorobenzene	0.0500	0.05826		mg/Kg		117	80 - 120	1	20
1,3-Dichloropropane	0.0500	0.04928		mg/Kg		99	80 - 120	2	20
1,4-Dichlorobenzene	0.0500	0.05494		mg/Kg		110	80 - 120	1	20
2,2-Dichloropropane	0.0500	0.04808		mg/Kg		96	73 - 135	6	20
2-Butanone (MEK)	0.0500	0.05705		mg/Kg		114	67 - 136	8	20
2-Chlorotoluene	0.0500	0.04902		mg/Kg		98	80 - 120	2	20
2-Hexanone	0.0500	0.06225		mg/Kg		124	70 - 137	5	20
4-Chlorotoluene	0.0500	0.05250		mg/Kg		105	80 - 121	0	20
4-Methyl-2-pentanone (MIBK)	0.0500	0.06586	*+ me	mg/Kg		132	74 - 124	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetone			0.0500	0.05546		mg/Kg		111	61 - 142	1	23
Benzene			0.0500	0.05025		mg/Kg		100	80 - 120	4	20
Bromobenzene			0.0500	0.05394		mg/Kg		108	80 - 120	1	20
Bromochloromethane			0.0500	0.05232		mg/Kg		105	80 - 120	4	20
Bromodichloromethane			0.0500	0.05154		mg/Kg		103	80 - 125	2	20
Bromoform			0.0500	0.05769		mg/Kg		115	74 - 138	1	20
Bromomethane			0.0500	0.04159		mg/Kg		83	58 - 136	2	20
cis-1,2-Dichloroethene			0.0500	0.04909		mg/Kg		98	80 - 124	6	20
cis-1,3-Dichloropropene			0.0500	0.05117		mg/Kg		102	80 - 123	1	20
Carbon disulfide			0.0500	0.04914		mg/Kg		98	68 - 128	7	20
Carbon tetrachloride			0.0500	0.04823		mg/Kg		96	75 - 140	6	20
Chlorobenzene			0.0500	0.05018		mg/Kg		100	80 - 120	3	20
Chloroethane			0.0500	0.05164		mg/Kg		103	76 - 137	2	20
Chloroform			0.0500	0.04300		mg/Kg		86	80 - 121	3	20
Chloromethane			0.0500	0.05289		mg/Kg		106	74 - 133	1	20
Dibromochloromethane			0.0500	0.05222		mg/Kg		104	80 - 132	3	20
Dibromomethane			0.0500	0.05391		mg/Kg		108	80 - 120	3	20
Dichlorodifluoromethane			0.0500	0.04094		mg/Kg		82	63 - 146	2	20
Di-isopropyl ether (DIPE)			0.0500	0.06038		mg/Kg		121	73 - 132	4	20
Ethanol			0.500	0.5624		mg/Kg		112	46 - 159	0	30
Ethylbenzene			0.0500	0.05082		mg/Kg		102	80 - 120	2	20
Ethyl-t-butyl ether (ETBE)			0.0500	0.05660		mg/Kg		113	77 - 129	3	20
Isopropylbenzene			0.0500	0.05371		mg/Kg		107	80 - 122	3	20
Methylene Chloride			0.0500	0.04753		mg/Kg		95	74 - 120	3	20
Methyl-t-Butyl Ether (MTBE)			0.0500	0.04988		mg/Kg		100	79 - 123	4	20
Naphthalene			0.0500	0.06276	*+ me	mg/Kg		126	79 - 121	3	20
n-Butylbenzene			0.0500	0.05415		mg/Kg		108	79 - 131	2	20
N-Propylbenzene			0.0500	0.05259		mg/Kg		105	80 - 122	4	20
o-Xylene			0.0500	0.04847		mg/Kg		97	80 - 120	4	20
m,p-Xylene			0.100	0.09691		mg/Kg		97	80 - 120	3	20
p-Isopropyltoluene			0.0500	0.05640		mg/Kg		113	80 - 126	0	20
sec-Butylbenzene			0.0500	0.05421		mg/Kg		108	80 - 125	3	20
Styrene			0.0500	0.05195		mg/Kg		104	80 - 120	2	20
trans-1,2-Dichloroethene			0.0500	0.04944		mg/Kg		99	75 - 123	6	20
trans-1,3-Dichloropropene			0.0500	0.05223		mg/Kg		104	80 - 124	1	20
Tert-amyl-methyl ether (TAME)			0.0500	0.05527		mg/Kg		111	80 - 120	1	20
tert-Butyl alcohol (TBA)			0.250	0.2690		mg/Kg		108	74 - 123	2	20
tert-Butylbenzene			0.0500	0.05663		mg/Kg		113	80 - 124	5	20
Tetrachloroethene			0.0500	0.05156		mg/Kg		103	80 - 122	6	20
Toluene			0.0500	0.05284		mg/Kg		106	80 - 120	4	20
Trichloroethene			0.0500	0.05313		mg/Kg		106	80 - 127	4	20
Trichlorofluoromethane			0.0500	0.04611		mg/Kg		92	70 - 144	1	20
Vinyl acetate			0.0500	0.05027		mg/Kg		101	71 - 125	4	20
Vinyl chloride			0.0500	0.05650		mg/Kg		113	79 - 133	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*32 - 179*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Dibromofluoromethane (Surr)	93		58 - 147
Toluene-d8 (Surr)	101		80 - 120

Lab Sample ID: MB 570-396650/10
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
1,1,1-Trichloroethane	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
1,1,2,2-Tetrachloroethane	ND		0.10	0.027	mg/Kg			12/28/23 10:56	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.023	mg/Kg			12/28/23 10:56	50
1,1,2-Trichloroethane	ND		0.050	0.023	mg/Kg			12/28/23 10:56	50
1,1-Dichloroethane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,1-Dichloroethene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,1-Dichloropropene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
1,2,3-Trichlorobenzene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
1,2,3-Trichloropropane	ND		0.10	0.021	mg/Kg			12/28/23 10:56	50
1,2,4-Trichlorobenzene	ND		0.10	0.021	mg/Kg			12/28/23 10:56	50
1,2,4-Trimethylbenzene	ND		0.10	0.030	mg/Kg			12/28/23 10:56	50
1,2-Dibromo-3-Chloropropane	ND		0.50	0.17	mg/Kg			12/28/23 10:56	50
1,2-Dibromoethane	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
1,2-Dichlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,2-Dichloroethane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,2-Dichloropropane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,3,5-Trimethylbenzene	ND		0.10	0.013	mg/Kg			12/28/23 10:56	50
1,3-Dichlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,3-Dichloropropane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
1,4-Dichlorobenzene	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
2,2-Dichloropropane	ND		0.25	0.014	mg/Kg			12/28/23 10:56	50
2-Butanone (MEK)	ND		1.0	0.23	mg/Kg			12/28/23 10:56	50
2-Chlorotoluene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
2-Hexanone	ND		1.0	0.15	mg/Kg			12/28/23 10:56	50
4-Chlorotoluene	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.15	mg/Kg			12/28/23 10:56	50
Acetone	ND		1.0	0.49	mg/Kg			12/28/23 10:56	50
Benzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Bromobenzene	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
Bromochloromethane	ND		0.10	0.022	mg/Kg			12/28/23 10:56	50
Bromodichloromethane	ND		0.050	0.016	mg/Kg			12/28/23 10:56	50
Bromoform	ND		0.25	0.066	mg/Kg			12/28/23 10:56	50
Bromomethane	ND		1.0	0.33	mg/Kg			12/28/23 10:56	50
cis-1,2-Dichloroethene	ND		0.050	0.017	mg/Kg			12/28/23 10:56	50
cis-1,3-Dichloropropene	ND		0.050	0.017	mg/Kg			12/28/23 10:56	50
Carbon disulfide	ND		0.50	0.020	mg/Kg			12/28/23 10:56	50
Carbon tetrachloride	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
Chlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Chloroethane	ND		0.10	0.037	mg/Kg			12/28/23 10:56	50

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-396650/10
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.050	0.029	mg/Kg			12/28/23 10:56	50
Chloromethane	ND		1.0	0.077	mg/Kg			12/28/23 10:56	50
Dibromochloromethane	ND		0.10	0.014	mg/Kg			12/28/23 10:56	50
Dibromomethane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
Dichlorodifluoromethane	ND		0.10	0.023	mg/Kg			12/28/23 10:56	50
Di-isopropyl ether (DIPE)	ND		0.050	0.025	mg/Kg			12/28/23 10:56	50
Ethanol	ND		13	4.6	mg/Kg			12/28/23 10:56	50
Ethylbenzene	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
Ethyl-t-butyl ether (ETBE)	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
Isopropylbenzene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
Methylene Chloride	ND		0.50	0.16	mg/Kg			12/28/23 10:56	50
Methyl-t-Butyl Ether (MTBE)	ND		0.10	0.0094	mg/Kg			12/28/23 10:56	50
Naphthalene	ND		0.50	0.20	mg/Kg			12/28/23 10:56	50
n-Butylbenzene	ND		0.050	0.011	mg/Kg			12/28/23 10:56	50
N-Propylbenzene	ND		0.10	0.013	mg/Kg			12/28/23 10:56	50
o-Xylene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
m,p-Xylene	ND		0.10	0.024	mg/Kg			12/28/23 10:56	50
p-Isopropyltoluene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
sec-Butylbenzene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
Styrene	ND		0.050	0.016	mg/Kg			12/28/23 10:56	50
trans-1,2-Dichloroethene	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
trans-1,3-Dichloropropene	ND		0.10	0.014	mg/Kg			12/28/23 10:56	50
Tert-amyl-methyl ether (TAME)	ND		0.050	0.0097	mg/Kg			12/28/23 10:56	50
tert-Butyl alcohol (TBA)	ND		1.0	0.35	mg/Kg			12/28/23 10:56	50
tert-Butylbenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Tetrachloroethene	ND		0.050	0.011	mg/Kg			12/28/23 10:56	50
Toluene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Trichloroethene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
Trichlorofluoromethane	ND		0.50	0.014	mg/Kg			12/28/23 10:56	50
Vinyl acetate	ND		0.50	0.20	mg/Kg			12/28/23 10:56	50
Vinyl chloride	ND		0.050	0.019	mg/Kg			12/28/23 10:56	50

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*32 - 179*		*12/28/23 10:56*	*50*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*12/28/23 10:56*	*50*
Dibromofluoromethane (Surr)	*107*		*58 - 147*		*12/28/23 10:56*	*50*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/28/23 10:56*	*50*

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.0500	0.05191		mg/Kg		104	80 - 125
1,1,1-Trichloroethane	0.0500	0.05399		mg/Kg		108	78 - 130
1,1,2,2-Tetrachloroethane	0.0500	0.04914		mg/Kg		98	80 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05543		mg/Kg		111	73 - 130
1,1,2-Trichloroethane	0.0500	0.04938		mg/Kg		99	80 - 123

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethane	0.0500	0.05302		mg/Kg		106	79 - 124
1,1-Dichloroethene	0.0500	0.05460		mg/Kg		109	74 - 132
1,1-Dichloropropene	0.0500	0.05299		mg/Kg		106	78 - 130
1,2,3-Trichlorobenzene	0.0500	0.05079		mg/Kg		102	80 - 123
1,2,3-Trichloropropane	0.0500	0.05176		mg/Kg		104	79 - 120
1,2,4-Trichlorobenzene	0.0500	0.05103		mg/Kg		102	80 - 125
1,2,4-Trimethylbenzene	0.0500	0.04995		mg/Kg		100	80 - 124
1,2-Dibromo-3-Chloropropane	0.0500	0.04757		mg/Kg		95	67 - 120
1,2-Dibromoethane	0.0500	0.04784		mg/Kg		96	80 - 120
1,2-Dichlorobenzene	0.0500	0.04970		mg/Kg		99	80 - 120
1,2-Dichloroethane	0.0500	0.04815		mg/Kg		96	77 - 120
1,2-Dichloropropane	0.0500	0.05504		mg/Kg		110	80 - 126
1,3,5-Trimethylbenzene	0.0500	0.05058		mg/Kg		101	80 - 121
1,3-Dichlorobenzene	0.0500	0.05007		mg/Kg		100	80 - 120
1,3-Dichloropropane	0.0500	0.05305		mg/Kg		106	80 - 120
1,4-Dichlorobenzene	0.0500	0.04994		mg/Kg		100	80 - 120
2,2-Dichloropropane	0.0500	0.05619		mg/Kg		112	73 - 135
2-Butanone (MEK)	0.0500	0.05076		mg/Kg		102	67 - 136
2-Chlorotoluene	0.0500	0.05075		mg/Kg		102	80 - 120
2-Hexanone	0.0500	0.05051		mg/Kg		101	70 - 137
4-Chlorotoluene	0.0500	0.05206		mg/Kg		104	80 - 121
4-Methyl-2-pentanone (MIBK)	0.0500	0.04993		mg/Kg		100	74 - 124
Acetone	0.0500	0.05716		mg/Kg		114	61 - 142
Benzene	0.0500	0.05030		mg/Kg		101	80 - 120
Bromobenzene	0.0500	0.05128		mg/Kg		103	80 - 120
Bromochloromethane	0.0500	0.05368		mg/Kg		107	80 - 120
Bromodichloromethane	0.0500	0.05367		mg/Kg		107	80 - 125
Bromoform	0.0500	0.04760		mg/Kg		95	74 - 138
Bromomethane	0.0500	0.04326		mg/Kg		87	58 - 136
cis-1,2-Dichloroethene	0.0500	0.05246		mg/Kg		105	80 - 124
cis-1,3-Dichloropropene	0.0500	0.05089		mg/Kg		102	80 - 123
Carbon disulfide	0.0500	0.05336		mg/Kg		107	68 - 128
Carbon tetrachloride	0.0500	0.05543		mg/Kg		111	75 - 140
Chlorobenzene	0.0500	0.05165		mg/Kg		103	80 - 120
Chloroethane	0.0500	0.04873		mg/Kg		97	76 - 137
Chloroform	0.0500	0.04755		mg/Kg		95	80 - 121
Chloromethane	0.0500	0.04450		mg/Kg		89	74 - 133
Dibromochloromethane	0.0500	0.05277		mg/Kg		106	80 - 132
Dibromomethane	0.0500	0.05507		mg/Kg		110	80 - 120
Dichlorodifluoromethane	0.0500	0.04863		mg/Kg		97	63 - 146
Di-isopropyl ether (DIPE)	0.0500	0.05440		mg/Kg		109	73 - 132
Ethanol	0.500	0.4519		mg/Kg		90	46 - 159
Ethylbenzene	0.0500	0.05079		mg/Kg		102	80 - 120
Ethyl-t-butyl ether (ETBE)	0.0500	0.05320		mg/Kg		106	77 - 129
Isopropylbenzene	0.0500	0.05417		mg/Kg		108	80 - 122
Methylene Chloride	0.0500	0.04900		mg/Kg		98	74 - 120
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05416		mg/Kg		108	79 - 123
Naphthalene	0.0500	0.04859		mg/Kg		97	79 - 121
n-Butylbenzene	0.0500	0.05227		mg/Kg		105	79 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
N-Propylbenzene			0.0500	0.05247		mg/Kg		105	80 - 122		
o-Xylene			0.0500	0.05075		mg/Kg		101	80 - 120		
m,p-Xylene			0.100	0.09853		mg/Kg		99	80 - 120		
p-Isopropyltoluene			0.0500	0.05066		mg/Kg		101	80 - 126		
sec-Butylbenzene			0.0500	0.05150		mg/Kg		103	80 - 125		
Styrene			0.0500	0.05228		mg/Kg		105	80 - 120		
trans-1,2-Dichloroethene			0.0500	0.05053		mg/Kg		101	75 - 123		
trans-1,3-Dichloropropene			0.0500	0.05088		mg/Kg		102	80 - 124		
Tert-amyl-methyl ether (TAME)			0.0500	0.05064		mg/Kg		101	80 - 120		
tert-Butyl alcohol (TBA)			0.250	0.2574		mg/Kg		103	74 - 123		
tert-Butylbenzene			0.0500	0.05048		mg/Kg		101	80 - 124		
Tetrachloroethene			0.0500	0.05134		mg/Kg		103	80 - 122		
Toluene			0.0500	0.05166		mg/Kg		103	80 - 120		
Trichloroethene			0.0500	0.05165		mg/Kg		103	80 - 127		
Trichlorofluoromethane			0.0500	0.05618		mg/Kg		112	70 - 144		
Vinyl acetate			0.0500	0.04885		mg/Kg		98	71 - 125		
Vinyl chloride			0.0500	0.04569		mg/Kg		91	79 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*32 - 179*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*58 - 147*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			0.0500	0.05064		mg/Kg		101	80 - 125	2	20
1,1,1-Trichloroethane			0.0500	0.05261		mg/Kg		105	78 - 130	3	20
1,1,2,2-Tetrachloroethane			0.0500	0.05117		mg/Kg		102	80 - 124	4	20
1,1,2-Trichloro-1,2,2-trifluoroethane			0.0500	0.05440		mg/Kg		109	73 - 130	2	20
1,1,2-Trichloroethane			0.0500	0.05009		mg/Kg		100	80 - 123	1	20
1,1-Dichloroethane			0.0500	0.05312		mg/Kg		106	79 - 124	0	20
1,1-Dichloroethene			0.0500	0.05338		mg/Kg		107	74 - 132	2	20
1,1-Dichloropropene			0.0500	0.05061		mg/Kg		101	78 - 130	5	20
1,2,3-Trichlorobenzene			0.0500	0.05136		mg/Kg		103	80 - 123	1	20
1,2,3-Trichloropropane			0.0500	0.05014		mg/Kg		100	79 - 120	3	20
1,2,4-Trichlorobenzene			0.0500	0.05171		mg/Kg		103	80 - 125	1	20
1,2,4-Trimethylbenzene			0.0500	0.04959		mg/Kg		99	80 - 124	1	20
1,2-Dibromo-3-Chloropropane			0.0500	0.05096		mg/Kg		102	67 - 120	7	20
1,2-Dibromoethane			0.0500	0.04948		mg/Kg		99	80 - 120	3	20
1,2-Dichlorobenzene			0.0500	0.05149		mg/Kg		103	80 - 120	4	20
1,2-Dichloroethane			0.0500	0.04980		mg/Kg		100	77 - 120	3	20
1,2-Dichloropropane			0.0500	0.05451		mg/Kg		109	80 - 126	1	20
1,3,5-Trimethylbenzene			0.0500	0.04944		mg/Kg		99	80 - 121	2	20
1,3-Dichlorobenzene			0.0500	0.05044		mg/Kg		101	80 - 120	1	20

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3-Dichloropropane	0.0500	0.05266		mg/Kg		105	80 - 120	1	20
1,4-Dichlorobenzene	0.0500	0.04951		mg/Kg		99	80 - 120	1	20
2,2-Dichloropropane	0.0500	0.05445		mg/Kg		109	73 - 135	3	20
2-Butanone (MEK)	0.0500	0.04896		mg/Kg		98	67 - 136	4	20
2-Chlorotoluene	0.0500	0.04918		mg/Kg		98	80 - 120	3	20
2-Hexanone	0.0500	0.04814		mg/Kg		96	70 - 137	5	20
4-Chlorotoluene	0.0500	0.05056		mg/Kg		101	80 - 121	3	20
4-Methyl-2-pentanone (MIBK)	0.0500	0.05139		mg/Kg		103	74 - 124	3	20
Acetone	0.0500	0.04626		mg/Kg		93	61 - 142	21	23
Benzene	0.0500	0.05061		mg/Kg		101	80 - 120	1	20
Bromobenzene	0.0500	0.05144		mg/Kg		103	80 - 120	0	20
Bromochloromethane	0.0500	0.05155		mg/Kg		103	80 - 120	4	20
Bromodichloromethane	0.0500	0.05337		mg/Kg		107	80 - 125	1	20
Bromoform	0.0500	0.04881		mg/Kg		98	74 - 138	3	20
Bromomethane	0.0500	0.04321		mg/Kg		86	58 - 136	0	20
cis-1,2-Dichloroethene	0.0500	0.04984		mg/Kg		100	80 - 124	5	20
cis-1,3-Dichloropropene	0.0500	0.04993		mg/Kg		100	80 - 123	2	20
Carbon disulfide	0.0500	0.05183		mg/Kg		104	68 - 128	3	20
Carbon tetrachloride	0.0500	0.05429		mg/Kg		109	75 - 140	2	20
Chlorobenzene	0.0500	0.05057		mg/Kg		101	80 - 120	2	20
Chloroethane	0.0500	0.04849		mg/Kg		97	76 - 137	0	20
Chloroform	0.0500	0.04584		mg/Kg		92	80 - 121	4	20
Chloromethane	0.0500	0.04336		mg/Kg		87	74 - 133	3	20
Dibromochloromethane	0.0500	0.05214		mg/Kg		104	80 - 132	1	20
Dibromomethane	0.0500	0.05541		mg/Kg		111	80 - 120	1	20
Dichlorodifluoromethane	0.0500	0.04654		mg/Kg		93	63 - 146	4	20
Di-isopropyl ether (DIPE)	0.0500	0.05284		mg/Kg		106	73 - 132	3	20
Ethanol	0.500	0.4594		mg/Kg		92	46 - 159	2	30
Ethylbenzene	0.0500	0.04928		mg/Kg		99	80 - 120	3	20
Ethyl-t-butyl ether (ETBE)	0.0500	0.05352		mg/Kg		107	77 - 129	1	20
Isopropylbenzene	0.0500	0.05272		mg/Kg		105	80 - 122	3	20
Methylene Chloride	0.0500	0.04780		mg/Kg		96	74 - 120	2	20
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05248		mg/Kg		105	79 - 123	3	20
Naphthalene	0.0500	0.04978		mg/Kg		100	79 - 121	2	20
n-Butylbenzene	0.0500	0.05221		mg/Kg		104	79 - 131	0	20
N-Propylbenzene	0.0500	0.05088		mg/Kg		102	80 - 122	3	20
o-Xylene	0.0500	0.04968		mg/Kg		99	80 - 120	2	20
m,p-Xylene	0.100	0.09467		mg/Kg		95	80 - 120	4	20
p-Isopropyltoluene	0.0500	0.05095		mg/Kg		102	80 - 126	1	20
sec-Butylbenzene	0.0500	0.05084		mg/Kg		102	80 - 125	1	20
Styrene	0.0500	0.05084		mg/Kg		102	80 - 120	3	20
trans-1,2-Dichloroethene	0.0500	0.05080		mg/Kg		102	75 - 123	1	20
trans-1,3-Dichloropropene	0.0500	0.05270		mg/Kg		105	80 - 124	4	20
Tert-amyl-methyl ether (TAME)	0.0500	0.05125		mg/Kg		103	80 - 120	1	20
tert-Butyl alcohol (TBA)	0.250	0.2538		mg/Kg		102	74 - 123	1	20
tert-Butylbenzene	0.0500	0.05090		mg/Kg		102	80 - 124	1	20
Tetrachloroethene	0.0500	0.05132		mg/Kg		103	80 - 122	0	20
Toluene	0.0500	0.05111		mg/Kg		102	80 - 120	1	20
Trichloroethene	0.0500	0.05129		mg/Kg		103	80 - 127	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Trichlorofluoromethane			0.0500	0.05488		mg/Kg		110	70 - 144	2	20
Vinyl acetate			0.0500	0.04729		mg/Kg		95	71 - 125	3	20
Vinyl chloride			0.0500	0.04559		mg/Kg		91	79 - 133	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*32 - 179*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*58 - 147*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 570-398155/3-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398155

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.098	0.055	mg/Kg		01/03/24 16:36	01/03/24 21:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*42 - 126*	*01/03/24 16:36*	*01/03/24 21:09*	*1*

Lab Sample ID: LCS 570-398155/1-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398155

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)			1.97	1.651		mg/Kg		84	70 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*42 - 126*

Lab Sample ID: LCSD 570-398155/2-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398155

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)			1.96	1.810		mg/Kg		92	70 - 124	9	18

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*42 - 126*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-396277/1-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 396277

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		5.0	3.8	mg/Kg		12/27/23 10:21	12/28/23 22:25	1
TPH as Motor Oil (C17-C44)	ND		25	11	mg/Kg		12/27/23 10:21	12/28/23 22:25	1
Oil Range Organics (C18-C40)	ND		5.0	3.8	mg/Kg		12/27/23 10:21	12/28/23 22:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*124*		*60 - 138*	*12/27/23 10:21*	*12/28/23 22:25*	*1*

Lab Sample ID: LCS 570-396277/27-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TPH as Motor Oil (C17-C44)			400	414.6		mg/Kg		104	77 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*97*		*60 - 138*

Lab Sample ID: LCS 570-396277/2-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	385.6		mg/Kg		96	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*106*		*60 - 138*

Lab Sample ID: LCSD 570-396277/28-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)			400	405.8		mg/Kg		101	77 - 125	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*99*		*60 - 138*

Lab Sample ID: LCSD 570-396277/3-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	376.9		mg/Kg		94	80 - 130	2	20

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 570-396277/3-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Octacosane (Surr)	*103*		*60 - 138*

Lab Sample ID: 570-166113-1 MS
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 396277

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
TPH as Motor Oil (C17-C44)	440	F1	396	900.8	E	mg/Kg		117	44 - 161

Surrogate	MS %Recovery	MS Qualifier	Limits
n-Octacosane (Surr)	*90*		*60 - 138*

Lab Sample ID: 570-166113-1 MSD
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 396277

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)	440	F1	389	1130	E F1	mg/Kg		178	44 - 161	23	37

Surrogate	MSD %Recovery	MSD Qualifier	Limits
n-Octacosane (Surr)	*91*		*60 - 138*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-396615/1-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 396615

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.51	0.145	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Arsenic	ND		3.02	1.40	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Barium	0.1587	J	3.02	0.143	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Beryllium	ND		0.503	0.0693	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Cadmium	ND		0.503	0.165	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Cobalt	ND		1.01	0.207	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Chromium	ND		1.01	0.187	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Copper	ND		2.01	0.963	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Molybdenum	ND		2.01	0.518	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Nickel	ND		2.01	0.364	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Antimony	ND		10.1	2.87	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Selenium	ND		3.02	1.23	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Thallium	ND		10.1	2.12	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Vanadium	ND		1.01	0.169	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Zinc	ND		5.03	1.16	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Lead	ND		2.01	0.411	mg/Kg		12/28/23 07:24	12/28/23 17:19	5

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 570-396615/2-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396615

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	24.5	23.94		mg/Kg		98	80 - 120
Arsenic	49.0	46.07		mg/Kg		94	80 - 120
Barium	49.0	47.46		mg/Kg		97	80 - 120
Beryllium	49.0	45.38		mg/Kg		93	80 - 120
Cadmium	49.0	45.91		mg/Kg		94	80 - 120
Cobalt	49.0	46.78		mg/Kg		95	80 - 120
Chromium	49.0	46.75		mg/Kg		95	80 - 120
Copper	49.0	46.05		mg/Kg		94	80 - 120
Molybdenum	49.0	46.84		mg/Kg		96	80 - 120
Nickel	49.0	47.05		mg/Kg		96	80 - 120
Antimony	49.0	48.71		mg/Kg		99	80 - 120
Selenium	49.0	45.28		mg/Kg		92	80 - 120
Thallium	49.0	47.13		mg/Kg		96	80 - 120
Vanadium	49.0	46.46		mg/Kg		95	80 - 120
Zinc	49.0	45.32		mg/Kg		92	80 - 120
Lead	49.0	46.71		mg/Kg		95	80 - 120

Lab Sample ID: LCSD 570-396615/3-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396615

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	25.3	22.90		mg/Kg		91	80 - 120	4	20
Arsenic	50.5	43.84		mg/Kg		87	80 - 120	5	20
Barium	50.5	45.92		mg/Kg		91	80 - 120	3	20
Beryllium	50.5	43.56		mg/Kg		86	80 - 120	4	20
Cadmium	50.5	43.80		mg/Kg		87	80 - 120	5	20
Cobalt	50.5	45.16		mg/Kg		89	80 - 120	4	20
Chromium	50.5	44.94		mg/Kg		89	80 - 120	4	20
Copper	50.5	43.99		mg/Kg		87	80 - 120	5	20
Molybdenum	50.5	44.77		mg/Kg		89	80 - 120	5	20
Nickel	50.5	44.85		mg/Kg		89	80 - 120	5	20
Antimony	50.5	46.99		mg/Kg		93	80 - 120	4	20
Selenium	50.5	43.16		mg/Kg		85	80 - 120	5	20
Thallium	50.5	45.13		mg/Kg		89	80 - 120	4	20
Vanadium	50.5	44.52		mg/Kg		88	80 - 120	4	20
Zinc	50.5	43.36		mg/Kg		86	80 - 120	4	20
Lead	50.5	44.66		mg/Kg		88	80 - 120	4	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-397227/1-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 397227

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786	0.0302	mg/Kg		12/29/23 13:05	12/30/23 08:38	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-397227/2-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 397227

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.377	0.4009		mg/Kg		106	80 - 120		

Lab Sample ID: LCSD 570-397227/3-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 397227

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.385	0.4055		mg/Kg		105	80 - 120	1	10

Lab Sample ID: 570-166113-1 MS
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 397227

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	65.3	F2	0.392	61.72	4	mg/Kg		-913	80 - 120		

Lab Sample ID: 570-166113-1 MSD
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 397227

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	65.3	F2	0.408	88.14	4 F2	mg/Kg		5596	80 - 120	35	20

Marginal Exceedance (ME) Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,1,1,2-Tetrachloroethane	0.0500	0.05375		mg/Kg	107	80 - 125	73 - 133	
1,1,1-Trichloroethane	0.0500	0.04974		mg/Kg	99	78 - 130	69 - 139	
1,1,2,2-Tetrachloroethane	0.0500	0.05495		mg/Kg	110	80 - 124	73 - 131	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05592		mg/Kg	112	73 - 130	64 - 140	
1,1,2-Trichloroethane	0.0500	0.04837		mg/Kg	97	80 - 123	73 - 130	
1,1-Dichloroethane	0.0500	0.05767		mg/Kg	115	79 - 124	72 - 132	
1,1-Dichloroethene	0.0500	0.05847		mg/Kg	117	74 - 132	64 - 142	
1,1-Dichloropropene	0.0500	0.04863		mg/Kg	97	78 - 130	69 - 139	
1,2,3-Trichlorobenzene	0.0500	0.05835		mg/Kg	117	80 - 123	73 - 130	
1,2,3-Trichloropropane	0.0500	0.04905		mg/Kg	98	79 - 120	72 - 127	
1,2,4-Trichlorobenzene	0.0500	0.05992		mg/Kg	120	80 - 125	73 - 133	
1,2,4-Trimethylbenzene	0.0500	0.05205		mg/Kg	104	80 - 124	73 - 131	
1,2-Dibromo-3-Chloropropane	0.0500	0.04712		mg/Kg	94	67 - 120	58 - 129	
1,2-Dibromoethane	0.0500	0.05302		mg/Kg	106	80 - 120	73 - 127	
1,2-Dichlorobenzene	0.0500	0.05664		mg/Kg	113	80 - 120	73 - 127	
1,2-Dichloroethane	0.0500	0.04898		mg/Kg	98	77 - 120	70 - 127	
1,2-Dichloropropane	0.0500	0.05734		mg/Kg	115	80 - 126	72 - 134	
1,3,5-Trimethylbenzene	0.0500	0.05273		mg/Kg	105	80 - 121	73 - 128	
1,3-Dichlorobenzene	0.0500	0.05909		mg/Kg	118	80 - 120	73 - 127	
1,3-Dichloropropane	0.0500	0.05010		mg/Kg	100	80 - 120	73 - 127	
1,4-Dichlorobenzene	0.0500	0.05436		mg/Kg	109	80 - 120	73 - 127	
2,2-Dichloropropane	0.0500	0.05103		mg/Kg	102	73 - 135	63 - 145	
2-Butanone (MEK)	0.0500	0.05271		mg/Kg	105	67 - 136	56 - 148	
2-Chlorotoluene	0.0500	0.05006		mg/Kg	100	80 - 120	73 - 127	
2-Hexanone	0.0500	0.05899		mg/Kg	118	70 - 137	59 - 148	
4-Chlorotoluene	0.0500	0.05242		mg/Kg	105	80 - 121	73 - 128	
4-Methyl-2-pentanone (MIBK)	0.0500	0.06319	*+ me	mg/Kg	126	74 - 124	66 - 132	ME
Acetone	0.0500	0.05494		mg/Kg	110	61 - 142	48 - 156	
Benzene	0.0500	0.05218		mg/Kg	104	80 - 120	73 - 127	
Bromobenzene	0.0500	0.05469		mg/Kg	109	80 - 120	73 - 127	
Bromochloromethane	0.0500	0.05451		mg/Kg	109	80 - 120	73 - 127	
Bromodichloromethane	0.0500	0.05274		mg/Kg	105	80 - 125	73 - 133	
Bromoform	0.0500	0.05698		mg/Kg	114	74 - 138	63 - 149	
Bromomethane	0.0500	0.04258		mg/Kg	85	58 - 136	45 - 149	
cis-1,2-Dichloroethene	0.0500	0.05208		mg/Kg	104	80 - 124	73 - 131	
cis-1,3-Dichloropropene	0.0500	0.05171		mg/Kg	103	80 - 123	73 - 130	
Carbon disulfide	0.0500	0.05247		mg/Kg	105	68 - 128	58 - 138	
Carbon tetrachloride	0.0500	0.05120		mg/Kg	102	75 - 140	64 - 151	
Chlorobenzene	0.0500	0.05170		mg/Kg	103	80 - 120	73 - 127	
Chloroethane	0.0500	0.05084		mg/Kg	102	76 - 137	66 - 147	
Chloroform	0.0500	0.04449		mg/Kg	89	80 - 121	73 - 128	
Chloromethane	0.0500	0.05242		mg/Kg	105	74 - 133	64 - 143	
Dibromochloromethane	0.0500	0.05362		mg/Kg	107	80 - 132	71 - 141	
Dibromomethane	0.0500	0.05539		mg/Kg	111	80 - 120	73 - 127	
Dichlorodifluoromethane	0.0500	0.04163		mg/Kg	83	63 - 146	49 - 160	
Di-isopropyl ether (DIPE)	0.0500	0.06299		mg/Kg	126	73 - 132	63 - 142	
Ethanol	0.500	0.5602		mg/Kg	112	46 - 159	27 - 178	
Ethylbenzene	0.0500	0.05194		mg/Kg	104	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	0.0500	0.05844		mg/Kg	117	77 - 129	68 - 138	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Isopropylbenzene	0.0500	0.05513		mg/Kg	110	80 - 122	73 - 129	
Methylene Chloride	0.0500	0.04911		mg/Kg	98	74 - 120	66 - 128	
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05206		mg/Kg	104	79 - 123	72 - 130	
Naphthalene	0.0500	0.06075		mg/Kg	121	79 - 121	72 - 128	
n-Butylbenzene	0.0500	0.05503		mg/Kg	110	79 - 131	70 - 140	
N-Propylbenzene	0.0500	0.05451		mg/Kg	109	80 - 122	73 - 129	
o-Xylene	0.0500	0.05031		mg/Kg	101	80 - 120	73 - 127	
m,p-Xylene	0.100	0.1003		mg/Kg	100	80 - 120	73 - 127	
p-Isopropyltoluene	0.0500	0.05657		mg/Kg	113	80 - 126	72 - 134	
sec-Butylbenzene	0.0500	0.05568		mg/Kg	111	80 - 125	73 - 133	
Styrene	0.0500	0.05322		mg/Kg	106	80 - 120	73 - 127	
trans-1,2-Dichloroethene	0.0500	0.05265		mg/Kg	105	75 - 123	67 - 131	
trans-1,3-Dichloropropene	0.0500	0.05292		mg/Kg	106	80 - 124	73 - 131	
Tert-amyl-methyl ether (TAME)	0.0500	0.05587		mg/Kg	112	80 - 120	73 - 127	
tert-Butyl alcohol (TBA)	0.250	0.2634		mg/Kg	105	74 - 123	66 - 131	
tert-Butylbenzene	0.0500	0.05947		mg/Kg	119	80 - 124	73 - 131	
Tetrachloroethene	0.0500	0.05484		mg/Kg	110	80 - 122	73 - 129	
Toluene	0.0500	0.05485		mg/Kg	110	80 - 120	73 - 127	
Trichloroethene	0.0500	0.05505		mg/Kg	110	80 - 127	72 - 135	
Trichlorofluoromethane	0.0500	0.04668		mg/Kg	93	70 - 144	58 - 156	
Vinyl acetate	0.0500	0.05212		mg/Kg	104	71 - 125	62 - 134	
Vinyl chloride	0.0500	0.05675		mg/Kg	114	79 - 133	70 - 142	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
71	4	1

ME = Marginal Exceedance

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,1,1,2-Tetrachloroethane	0.0500	0.05248		mg/Kg	105	80 - 125	73 - 133	
1,1,1-Trichloroethane	0.0500	0.04620		mg/Kg	92	78 - 130	69 - 139	
1,1,2,2-Tetrachloroethane	0.0500	0.05615		mg/Kg	112	80 - 124	73 - 131	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05217		mg/Kg	104	73 - 130	64 - 140	
1,1,2-Trichloroethane	0.0500	0.04781		mg/Kg	96	80 - 123	73 - 130	
1,1-Dichloroethane	0.0500	0.05403		mg/Kg	108	79 - 124	72 - 132	
1,1-Dichloroethene	0.0500	0.05314		mg/Kg	106	74 - 132	64 - 142	
1,1-Dichloropropene	0.0500	0.04631		mg/Kg	93	78 - 130	69 - 139	
1,2,3-Trichlorobenzene	0.0500	0.05789		mg/Kg	116	80 - 123	73 - 130	
1,2,3-Trichloropropane	0.0500	0.05100		mg/Kg	102	79 - 120	72 - 127	
1,2,4-Trichlorobenzene	0.0500	0.05910		mg/Kg	118	80 - 125	73 - 133	
1,2,4-Trimethylbenzene	0.0500	0.05048		mg/Kg	101	80 - 124	73 - 131	
1,2-Dibromo-3-Chloropropane	0.0500	0.04767		mg/Kg	95	67 - 120	58 - 129	
1,2-Dibromoethane	0.0500	0.05092		mg/Kg	102	80 - 120	73 - 127	
1,2-Dichlorobenzene	0.0500	0.05742		mg/Kg	115	80 - 120	73 - 127	
1,2-Dichloroethane	0.0500	0.04788		mg/Kg	96	77 - 120	70 - 127	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,2-Dichloropropane	0.0500	0.05473		mg/Kg	109	80 - 126	72 - 134	
1,3,5-Trimethylbenzene	0.0500	0.05146		mg/Kg	103	80 - 121	73 - 128	
1,3-Dichlorobenzene	0.0500	0.05826		mg/Kg	117	80 - 120	73 - 127	
1,3-Dichloropropane	0.0500	0.04928		mg/Kg	99	80 - 120	73 - 127	
1,4-Dichlorobenzene	0.0500	0.05494		mg/Kg	110	80 - 120	73 - 127	
2,2-Dichloropropane	0.0500	0.04808		mg/Kg	96	73 - 135	63 - 145	
2-Butanone (MEK)	0.0500	0.05705		mg/Kg	114	67 - 136	56 - 148	
2-Chlorotoluene	0.0500	0.04902		mg/Kg	98	80 - 120	73 - 127	
2-Hexanone	0.0500	0.06225		mg/Kg	124	70 - 137	59 - 148	
4-Chlorotoluene	0.0500	0.05250		mg/Kg	105	80 - 121	73 - 128	
4-Methyl-2-pentanone (MIBK)	0.0500	0.06586	*+ me	mg/Kg	132	74 - 124	66 - 132	ME
Acetone	0.0500	0.05546		mg/Kg	111	61 - 142	48 - 156	
Benzene	0.0500	0.05025		mg/Kg	100	80 - 120	73 - 127	
Bromobenzene	0.0500	0.05394		mg/Kg	108	80 - 120	73 - 127	
Bromochloromethane	0.0500	0.05232		mg/Kg	105	80 - 120	73 - 127	
Bromodichloromethane	0.0500	0.05154		mg/Kg	103	80 - 125	73 - 133	
Bromoform	0.0500	0.05769		mg/Kg	115	74 - 138	63 - 149	
Bromomethane	0.0500	0.04159		mg/Kg	83	58 - 136	45 - 149	
cis-1,2-Dichloroethene	0.0500	0.04909		mg/Kg	98	80 - 124	73 - 131	
cis-1,3-Dichloropropene	0.0500	0.05117		mg/Kg	102	80 - 123	73 - 130	
Carbon disulfide	0.0500	0.04914		mg/Kg	98	68 - 128	58 - 138	
Carbon tetrachloride	0.0500	0.04823		mg/Kg	96	75 - 140	64 - 151	
Chlorobenzene	0.0500	0.05018		mg/Kg	100	80 - 120	73 - 127	
Chloroethane	0.0500	0.05164		mg/Kg	103	76 - 137	66 - 147	
Chloroform	0.0500	0.04300		mg/Kg	86	80 - 121	73 - 128	
Chloromethane	0.0500	0.05289		mg/Kg	106	74 - 133	64 - 143	
Dibromochloromethane	0.0500	0.05222		mg/Kg	104	80 - 132	71 - 141	
Dibromomethane	0.0500	0.05391		mg/Kg	108	80 - 120	73 - 127	
Dichlorodifluoromethane	0.0500	0.04094		mg/Kg	82	63 - 146	49 - 160	
Di-isopropyl ether (DIPE)	0.0500	0.06038		mg/Kg	121	73 - 132	63 - 142	
Ethanol	0.500	0.5624		mg/Kg	112	46 - 159	27 - 178	
Ethylbenzene	0.0500	0.05082		mg/Kg	102	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	0.0500	0.05660		mg/Kg	113	77 - 129	68 - 138	
Isopropylbenzene	0.0500	0.05371		mg/Kg	107	80 - 122	73 - 129	
Methylene Chloride	0.0500	0.04753		mg/Kg	95	74 - 120	66 - 128	
Methyl-t-Butyl Ether (MTBE)	0.0500	0.04988		mg/Kg	100	79 - 123	72 - 130	
Naphthalene	0.0500	0.06276	*+ me	mg/Kg	126	79 - 121	72 - 128	ME
n-Butylbenzene	0.0500	0.05415		mg/Kg	108	79 - 131	70 - 140	
N-Propylbenzene	0.0500	0.05259		mg/Kg	105	80 - 122	73 - 129	
o-Xylene	0.0500	0.04847		mg/Kg	97	80 - 120	73 - 127	
m,p-Xylene	0.100	0.09691		mg/Kg	97	80 - 120	73 - 127	
p-Isopropyltoluene	0.0500	0.05640		mg/Kg	113	80 - 126	72 - 134	
sec-Butylbenzene	0.0500	0.05421		mg/Kg	108	80 - 125	73 - 133	
Styrene	0.0500	0.05195		mg/Kg	104	80 - 120	73 - 127	
trans-1,2-Dichloroethene	0.0500	0.04944		mg/Kg	99	75 - 123	67 - 131	
trans-1,3-Dichloropropene	0.0500	0.05223		mg/Kg	104	80 - 124	73 - 131	
Tert-amyl-methyl ether (TAME)	0.0500	0.05527		mg/Kg	111	80 - 120	73 - 127	
tert-Butyl alcohol (TBA)	0.250	0.2690		mg/Kg	108	74 - 123	66 - 131	
tert-Butylbenzene	0.0500	0.05663		mg/Kg	113	80 - 124	73 - 131	
Tetrachloroethene	0.0500	0.05156		mg/Kg	103	80 - 122	73 - 129	

Marginal Exceedance (ME) Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Toluene	0.0500	0.05284		mg/Kg	106	80 - 120	73 - 127	
Trichloroethene	0.0500	0.05313		mg/Kg	106	80 - 127	72 - 135	
Trichlorofluoromethane	0.0500	0.04611		mg/Kg	92	70 - 144	58 - 156	
Vinyl acetate	0.0500	0.05027		mg/Kg	101	71 - 125	62 - 134	
Vinyl chloride	0.0500	0.05650		mg/Kg	113	79 - 133	70 - 142	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
71	4	2

ME = Marginal Exceedance

GC/MS VOA

Prep Batch: 396494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	5035	
570-166113-2	BS-1	Total/NA	Solid	5035	

Analysis Batch: 396551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8260B	396494
MB 570-396551/6	Method Blank	Total/NA	Solid	8260B	
LCS 570-396551/3	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 570-396551/4	Lab Control Sample Dup	Total/NA	Solid	8260B	

Analysis Batch: 396650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-2	BS-1	Total/NA	Solid	8260B	396494
MB 570-396650/10	Method Blank	Total/NA	Solid	8260B	
LCS 570-396650/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 570-396650/5	Lab Control Sample Dup	Total/NA	Solid	8260B	

GC VOA

Prep Batch: 398155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	5030C	
570-166113-2	BS-1	Total/NA	Solid	5030C	
MB 570-398155/3-A	Method Blank	Total/NA	Solid	5030C	
LCS 570-398155/1-A	Lab Control Sample	Total/NA	Solid	5030C	
LCSD 570-398155/2-A	Lab Control Sample Dup	Total/NA	Solid	5030C	

Analysis Batch: 398200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8015B	398155
570-166113-2	BS-1	Total/NA	Solid	8015B	398155
MB 570-398155/3-A	Method Blank	Total/NA	Solid	8015B	398155
LCS 570-398155/1-A	Lab Control Sample	Total/NA	Solid	8015B	398155
LCSD 570-398155/2-A	Lab Control Sample Dup	Total/NA	Solid	8015B	398155

GC Semi VOA

Prep Batch: 396277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	3550C	
570-166113-2	BS-1	Total/NA	Solid	3550C	
MB 570-396277/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-396277/27-A	Lab Control Sample	Total/NA	Solid	3550C	
LCS 570-396277/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-396277/28-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
LCSD 570-396277/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-166113-1 MS	RS-1	Total/NA	Solid	3550C	
570-166113-1 MSD	RS-1	Total/NA	Solid	3550C	

Analysis Batch: 396308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-396277/2-A	Lab Control Sample	Total/NA	Solid	8015B	396277

GC Semi VOA (Continued)

Analysis Batch: 396308 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-396277/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	396277

Analysis Batch: 396768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8015B	396277
570-166113-2	BS-1	Total/NA	Solid	8015B	396277
MB 570-396277/1-A	Method Blank	Total/NA	Solid	8015B	396277
LCS 570-396277/27-A	Lab Control Sample	Total/NA	Solid	8015B	396277
LCSD 570-396277/28-A	Lab Control Sample Dup	Total/NA	Solid	8015B	396277
570-166113-1 MS	RS-1	Total/NA	Solid	8015B	396277
570-166113-1 MSD	RS-1	Total/NA	Solid	8015B	396277

Metals

Prep Batch: 396615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	3050B	
570-166113-2	BS-1	Total/NA	Solid	3050B	
MB 570-396615/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 570-396615/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-396615/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	

Analysis Batch: 396975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	6010B	396615
570-166113-2	BS-1	Total/NA	Solid	6010B	396615
MB 570-396615/1-A ^5	Method Blank	Total/NA	Solid	6010B	396615
LCS 570-396615/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	396615
LCSD 570-396615/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	396615

Analysis Batch: 397006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	6010B	396615

Prep Batch: 397227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	7471A	
570-166113-2	BS-1	Total/NA	Solid	7471A	
MB 570-397227/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-397227/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-397227/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-166113-1 MS	RS-1	Total/NA	Solid	7471A	
570-166113-1 MSD	RS-1	Total/NA	Solid	7471A	

Analysis Batch: 397417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	7471A	397227
570-166113-2	BS-1	Total/NA	Solid	7471A	397227
MB 570-397227/1-A	Method Blank	Total/NA	Solid	7471A	397227
LCS 570-397227/2-A	Lab Control Sample	Total/NA	Solid	7471A	397227
LCSD 570-397227/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	397227

Metals (Continued)

Analysis Batch: 397417 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1 MS	RS-1	Total/NA	Solid	7471A	397227
570-166113-1 MSD	RS-1	Total/NA	Solid	7471A	397227

Lab Chronicle

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.63 g	5 mL	396494	12/27/23 17:12	X7LQ	EET CAL 4
Total/NA	Analysis	8260B		1	5 g	5 mL	396551	12/27/23 23:51	AJ4K	EET CAL 4
	Instrument ID: GCMSQ									
Total/NA	Prep	5030C			5.04 g	5 mL	398155	01/03/24 16:36	NR	EET CAL 4
Total/NA	Analysis	8015B		1	5 g	5 mL	398200	01/03/24 21:48	A9VE	EET CAL 4
	Instrument ID: GC73									
Total/NA	Prep	3550C			10.29 g	10 mL	396277	12/27/23 15:56	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	396768	12/29/23 01:21	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			1.97 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		50			397006	12/28/23 20:32	P1R	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	3050B			1.97 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		25			396975	12/28/23 18:25	P1R	EET CAL 4
	Instrument ID: ICP9									
Total/NA	Prep	7471A			0.48 g	50 mL	397227	12/29/23 13:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		100			397417	12/30/23 11:43	ECX6	EET CAL 4
	Instrument ID: HG7									

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.763 g	5 mL	396494	12/27/23 17:12	X7LQ	EET CAL 4
Total/NA	Analysis	8260B		500	5 g	5 mL	396650	12/28/23 12:59	AH8S	EET CAL 4
	Instrument ID: GCMSCC									
Total/NA	Prep	5030C			5.13 g	5 mL	398155	01/03/24 16:36	NR	EET CAL 4
Total/NA	Analysis	8015B		1	5 g	5 mL	398200	01/03/24 22:07	A9VE	EET CAL 4
	Instrument ID: GC73									
Total/NA	Prep	3550C			10.35 g	10 mL	396277	12/27/23 15:56	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		5	10 mL	10 mL	396768	12/29/23 01:43	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.02 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			396975	12/28/23 18:17	P1R	EET CAL 4
	Instrument ID: ICP9									
Total/NA	Prep	7471A			0.52 g	50 mL	397227	12/29/23 13:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			397417	12/30/23 08:50	ECX6	EET CAL 4
	Instrument ID: HG7									

Laboratory References:
EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4175	02-02-24

Method Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	EET CAL 4
8015B	Gasoline Range Organics - (GC)	SW846	EET CAL 4
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7471A	Mercury (CVAA)	SW846	EET CAL 4
3050B	Preparation, Metals	SW846	EET CAL 4
3550C	Ultrasonic Extraction	SW846	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4
5035	Closed System Purge and Trap	SW846	EET CAL 4
7471A	Preparation, Mercury	SW846	EET CAL 4

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-166113-1	RS-1	Solid	12/27/23 07:20	12/27/23 11:00
570-166113-2	BS-1	Solid	12/27/23 08:10	12/27/23 11:00

Erick Ovalle

From: Megan Ritsema <mritsema@langan.com>
Sent: Wednesday, January 3, 2024 3:32 PM
To: Erick Ovalle
Cc: Vikas Patel
Subject: RE: 570-166113 - GRO rush request

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Erick,

Yes, please add.

Thank you,

Megan Ritsema
Senior Staff Engineer

LANGAN

Direct: 949.561.9244
Mobile: 714.699.0899
File Sharing Link
www.langan.com

CALIFORNIA NEW JERSEY NEW YORK CONNECTICUT MASSACHUSETTS PENNSYLVANIA VIRGINIA WASHINGTON, DC
OHIO ILLINOIS NORTH CAROLINA TENNESSEE FLORIDA TEXAS ARIZONA COLORADO UTAH WASHINGTON
ATHENS CALGARY DUBAI LONDON PANAMA



From: Erick Ovalle <Erick.Ovalle@et.eurofinsus.com>
Sent: Wednesday, January 3, 2024 3:30 PM
To: Megan Ritsema <mritsema@langan.com>
Cc: Vikas Patel <Vikas.Patel@et.eurofinsus.com>
Subject: [External] 570-166113 - GRO rush request

Hi Megan,

Per our conversation, we can add GRO on job 570-166113 on rush for results tomorrow. Please confirm if you would like us to proceed with the added changes.

Best Regards,

Erick Ovalle
Project Manager

Learn more about eCOC – our NEW electronic COC application



Eurofins Environment Testing Southwest, LLC
2841 Dow Ave, Suite 100
Tustin, CA 92780

P: +1 714 895 5494
D: +1 657 210-6331
M: +1 657 250-2681

Email: Erick.Ovalle@et.eurofinsus.com
Website: www.eurofinsUS.com/Calscience

Please note: In order to continue to provide critical testing services, **Eurofins Environment Testing laboratories in the US are maintaining our courier services and continue to sample, analyze and report all test data as usual.** The situation around COVID-19 continues to be fluid and we are continuing to follow local and government mandates as applicable. For up-to-date business information, visit our website and follow us on Facebook and LinkedIn.

Links to use:

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166113

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For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-166113 Chain of Custody

CHAIN-OF-CUSTODY RECORD

DATE: 12/27/23

PAGE: 1 OF 1

LABORATORY CLIENT: Langan

ADDRESS: 18575 Jamboree Rd. Suite 150

CITY: Irvine STATE: CA ZIP: 92612

TEL: (714)699-0899 E-MAIL: mritsema@langan.com

CLIENT PROJECT NAME / NO.: 721040501

PROJECT CONTACT: Megan Ritsema

P.O. NO.:

LAB CONTACT OR QUOTE NO.:

GLOBAL ID:

LOG CODE:

SAMPLER(S): (PRINT) Rachel Owen

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☒ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ STANDARD

EDD:

☐ COELT EDF ☐ OTHER

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH(g) GRO	TPH(d) DRO	TPH C6-C36 C6-C44	TPH DRO, MRO, o2o m 8015	BTEX / MTBE 8260	VOCs (8260)	Oxygenates (8260)	Prep (5035) En Core Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs 8270 8270 SIM	T22 Metals 6010/747X 6020/747X	Cr(VI) 7196 7199 218.6					
	RS-1	12/27/23	0720	S	4		X					X		X							X						
	BS-1	12/27/23	0810	S	4		X					X		X							X						

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:
Rachel Owen	12/27/23	1100	[signature]	12/27/23	11:00
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:

Attachment "Chain_of_Custody_General_Color_221004rev.xls" to "US Eurofins Calscience - CoC Templates"
Printed by Jenny Magana, d. Tue 04 Oct 2022 16:31 PDT

3.6/3-5 SGL

Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Srvcs

Job Number: 570-166113-2

Login Number: 166113
List Number: 1
Creator: Vitente, Precy

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SOIL MANAGEMENT PLAN PROGRESS REPORT

December 2023 to June 2024

for

3049, 3095, and 3163 E Vernon Avenue (North Property) Vernon, California

Prepared For:

GIC Vernon LLC
3333 Michelson Drive, Suite 1050
Irvine, California 92612

Prepared By:

Langan CA, Inc.
18575 Jamboree Road, Suite 150
Irvine, California 92612



Megan Ritsema
Project Engineer



Robert S. (Rory) Johnston, PE, RCE 42332
Managing Principal

31 July 2024
Langan Project No. 721040502

LANGAN

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FIGURES

Figure 1 Subject Property Location Map

Figure 2 Sample Location Map

Figure 3 Soil Exceedance Location Map

TABLES

Table 1 Soil Analytical Results

APPENDICES

Appendix A Soil Management Plan

Appendix B Red Fill Soils Observation and Testing Letter Report

Appendix C Photographic Log

Appendix D Laboratory Analytical Reports

1.0 INTRODUCTION

In accordance with your request, Langan CA, Inc. (Langan) has prepared this progress report for GIC Vernon LLC (Client) to summarize the soil management plan implementation services that Langan completed at 3049, 3095, and 3163 E Vernon Avenue in Vernon, California ("subject property" or "north property") during site demolition activities. This report covers the period of December 2023 through June 2024.

The subject property location is shown in Figure 1.

2.0 BACKGROUND

The subject property was used as a meat processing and distribution facility from the 1920s to 2023. In May 2023, Langan conducted a concurrent Geotechnical and Phase II Environmental Site Assessment (ESA) for the subject property and southern adjoining property in preparation for proposed redevelopment at the subject property (shown on Figure 1).

Based on the analytical results from the Phase II ESA, Langan prepared a Soil Management Plan (SMP), dated 13 October 2023, for the subject property and southern adjoining property (Appendix A). Between December 2023 and June 2024, Langan conducted field visits, documented the onsite activities, and performed testing services once per week during the demolition at the subject property. The following sections summarize the activities documented and the results of the environmental analytical testing conducted.

3.0 MATERIALS ENCOUNTERED

3.1 Red Fill Soils

Red fill soils were identified by American Wrecking, Inc. (the contractor) while excavating and removing footings below the former bacon processing facility. Langan conducted a site visit on 27 December 2023 to document the locations of the materials and to collect samples. Sample locations and analytical data for the red fill soils is summarized in the 10 May 2024 *Red Fill Soils Observation and Testing Letter Report* prepared by Langan (Appendix B).

3.2 Black Soil Near Retaining Wall

An area containing black discolored soil was identified by the contractor while conducing demolition activities near a retaining wall in the northwest portion of the subject property. Langan collected a sample of the black soil (BS-1) on 27 December 2023. The sample was collected into

laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The sample was then transported under a chain of custody to Eurofins Calscience (Eurofins) in Tustin, California. The sample location is shown on Figure 2. A photograph of the material is provided in Appendix C.

Sample BS-1 was analyzed for metals via United States Environmental Protection Agency (USEPA) Method 6010B/7471A, total petroleum hydrocarbons (TPH) via USEPA Method 8015B, and volatile organic compounds (VOCs) via USEPA Method 8260B/5035. The analytical results for metals (excluding arsenic), TPH, and VOCs were compared to the San Francisco Bay Regional Water Quality Control Board (SFB RWQCB) Commercial/Industrial and Construction Worker Soil Environmental Screening Levels (ESLs) (2019, Revision 2). Arsenic results were compared to the Southern California background concentration of 12 mg/kg[1].

Metals were also compared to the hazardous material screening criteria triggers: the California Title 22 Total Threshold Limit Concentration (TTLC), ten times the California Title 22 Soluble Threshold Limit Concentration (STLC) value (STLC trigger), and twenty times the Toxicity Characteristic Leaching Procedure (TCLP) value (TCLP trigger).

TPH and VOCs were not detected at levels exceeding the applicable screening levels. Of the metals, lead was detected at 562 milligrams per kilogram (mg/kg), exceeding the Commercial/Industrial ESL (320 mg/kg), Construction Worker ESL (160 mg/kg), and the STLC and TCLP hazardous trigger values (50 and 100 mg/kg). A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided in Appendix D.

The vertical and areal extent of the black material was not confirmed during the sampling activities. Therefore, the volume could not be estimated. The material is located in the northwestern portion of the property, near the red fill soils discussed above. The material was left in place and will be characterized and handled along with the red fill soils, based on the guidelines of the SMP.

3.3 Liquid Smoke Stockpile

While conducting demolition activities at the bacon processing facility, the contractor identified stained material under two large ovens. The approximately 70 cubic yards of material was then

[1] https://dtsc.ca.gov/wp-content/uploads/sites/31/2020/12/HHRA-11-Ambient-Arsenic-levels-in-SoCal-Final-A.pdf

stockpiled for characterization. Langan collected a sample (SP1-1) of the black soil on 3 January 2024. The sample was collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The sample was then transported under a chain of custody to Eurofins. The sample location is shown on Figure 2. A photograph of the material is provided in Appendix C.

Sample SP1-1 was analyzed for metals via USEPA Method 6010B/7471A, TPH via USEPA Method 8015B, and VOCs via USEPA Method 8260B/5035. The analytical results for metals (excluding arsenic), TPH, and VOCs were compared to the SFB RWQCB Commercial/Industrial and Construction Worker ESLs. Arsenic results were compared to the Southern California background concentration of 12 mg/kg. Metals were also compared to the hazardous material screening criteria trigger.

Metals, TPH, and VOCs were not detected at levels exceeding the applicable screening levels. A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided in Appendix D.

To expedite the demolition activities, the contractor hauled this material off-site. The approximately 70 cubic yards of material was mixed with other waste materials and disposed offsite at El Sobrante Landfill in Corona, California on 25 January 2024.

3.4 Stained Soil Near Possible Elevator Shaft (east)

The contractor identified a possible elevator shaft area with stained soil in the northwest portion of the subject property. Langan collected four samples of the stained soil (ES-1 through ES-4) on 9 January 2024. The samples were collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The samples were then transported under a chain of custody to Advanced Technology Laboratory (ATL) in Signal Hill, California. Samples ES-2 through ES-4 were placed on hold. The sample location for ES-1 is shown on Figure 2. A photograph of the material is provided in Appendix C.

Sample ES-1 was analyzed for metals via USEPA Method 6010B/7471A, TPH via USEPA Method 8015B, VOCs via USEPA Method 8260B/5035, and polychlorinated biphenyls (PCBs) via USEPA Method 8082. The analytical results for metals (excluding arsenic), TPH, VOCs, and PCBs were compared to the SFB RWQCB Commercial/Industrial and Construction Worker ESLs. Arsenic results were compared to the Southern California background concentration of 12 mg/kg. Metals were also compared to the hazardous material screening criteria trigger.

TPH, VOCs, and PCBs were not detected at levels exceeding any of the applicable screening levels. Of the metals, chromium was detected at 53 mg/kg, exceeding the STLC hazardous trigger value (50 mg/kg). Additionally, lead was detected at 200 milligrams per kilogram (mg/kg), exceeding the Construction Worker ESL (160 mg/kg) and the STLC and TCLP hazardous trigger values (50 and 100 mg/kg). A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided in Appendix D.

The material is located in the northwestern portion of the property, near the red fill soils discussed above. The material was left in place and will be characterized and handled along with the red fill soils, based on the guidelines of the SMP.

3.5 Stained Soil and Orange-Brown Soil Near Possible Elevator Shaft (west)

The contractor identified a second possible elevator shaft area (west of the first one identified) with stained soil and orange-brown soil in the northwest portion of the subject property. Langan collected five samples of the stained soil (ES2-4', ES2-6', ES2-8', ES2-10', and ES2-19') and two samples of the orange-brown soil (OBS-1-2' and OBS-1-3') on 16 January 2024. The samples were collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The samples were then transported under a chain of custody to ATL. Samples ES2-4', ES2-8', ES2-10', ES2-19', and OBS-1-3' were placed on hold. The sample locations for ES2-6' and OBS-1-2' are shown on Figure 2. A photograph of the materials is provided in Appendix C.

Samples ES2-6' and OBS-1-2' were analyzed for metals via USEPA Method 6010B/7471A, TPH via USEPA Method 8015B, and VOCs via USEPA Method 8260B/5035. Sample ES2-6' was also analyzed for PCBs via USEPA Method 8082. The analytical results for metals (excluding arsenic), TPH, VOCs, and PCBs were compared to the SFB RWQCB Commercial/Industrial and Construction Worker ESLs. Arsenic results were compared to the Southern California background concentration of 12 mg/kg. Metals were also compared to the hazardous material screening criteria trigger.

Metals, TPH, and VOCs were not detected at levels exceeding any of the applicable screening levels for OBS-1-2'. Metals, VOCs, and PCBs were not detected at levels exceeding any of the applicable screening levels. TPH diesel range organics (DRO) was detected at 1,600 mg/kg, exceeding the Commercial/Industrial ESL (1,200 mg/kg) and the Construction Worker ESL (1,100 mg/kg). A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided in Appendix D.

The material is located in the northwestern portion of the property, near the red fill soils discussed above. The material was left in place and will be characterized and handled along with the red fill soils, based on the guidelines of the SMP. Based on the preliminary sampling, the orange-brown soil can be utilized as fill on the subject property.

3.6 Yellow Soil Near Basement

Yellow soil was identified by the contractor while conducting demolition activities near the basement in the southwest portion of the property. Langan collected four samples of the yellow soil (YS-01 through YS-04) on 9 April 2024. The samples were collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The samples were then transported under a chain of custody to ATL. The sample locations are shown on Figure 2. A photograph of the material is provided in Appendix C.

Samples YS-01 through YS-04 were analyzed for metals via USEPA Method 6010B/7471A, TPH via USEPA Method 8015B, and VOCs via USEPA Method 8260B/5035. The analytical results for metals (excluding arsenic), VOCs, and TPH were compared to the SFB RWQCB Commercial/Industrial and Construction Worker ESLs. Arsenic results were compared to the Southern California background concentration of 12 mg/kg. Metals were also compared to the hazardous material screening criteria trigger.

Metals, TPH, and VOCs were not detected at levels exceeding any of the applicable screening levels. A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided in Appendix D.

The vertical and areal extent of the yellow soil was not confirmed during the sampling activities. Therefore, the volume could not be estimated. Based on the preliminary sampling, the yellow soil can be utilized as fill on the subject property.

3.7 Soil Mixed with Brick and Debris Near Basement

Soil mixed with brick and debris was identified by the contractor while conducting demolition activities near the basement in the southwest portion of the property. Langan collected two samples of the soil (RBr-1-041724 and RBr-2-041724) on 17 April 2024. The samples were collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The samples were then transported under a chain of custody to ATL. Sample RBr-2-041724 was placed on hold. The sample location for RBr-1-041724 is shown on Figure 2. A photograph of the material is provided in Appendix C.

Sample RBr-1-041724 was analyzed for metals via USEPA Method 6010B/7471A. The analytical results (excluding arsenic) were compared to the SFB RWQCB Commercial/Industrial and Construction Worker ESLs. Arsenic results were compared to the Southern California background concentration of 12 mg/kg. Metals were also compared to the hazardous material screening criteria trigger.

Of the metals, chromium was detected at 53 mg/kg, exceeding the STLC hazardous trigger value (50 mg/kg). At the Client's request, the sample was also analyzed for STLC chromium. The STLC chromium result was 0.18 milligrams per liter (mg/L), below the STLC limit of 5 mg/L. A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided in Appendix D.

Although analytical testing indicates that the soil sampled was non-hazardous, the contractor identified asbestos-containing materials (ACM) within the soil mixed with brick and debris. Approximately 920 cubic yards of the mixed material was disposed offsite, under a South Coast Air Quality Management District (SCAQMD) Procedure 5 Plan, at Azusa Land Reclamation in Azusa, California and La Paz County Landfill in Parker, Arizona between 1 May and 20 May 2024.

3.8 Dark Soil Near Basement

Dark soil mixed with brick was identified by the contractor while conducting demolition activities near the basement in the southwest portion of the property. Langan collected two samples of the dark soil (DS-01 and DS-02) on 6 May 2024. The samples were collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The samples were then transported under a chain of custody to Enthalpy Analytical (Enthalpy) in Orange, California. Sample DS-01 was placed on hold. The sample location for DS-02 is shown on Figure 2. A photograph of the material is provided in Appendix C.

Sample DS-02 was analyzed for metals via USEPA Method 6010B/7471A, TPH via USEPA Method 8015B, and VOCs via USEPA Method 8260B/5035. The analytical results (excluding arsenic) were compared to the SFB RWQCB Commercial/Industrial and Construction Worker ESLs. Arsenic results were compared to the Southern California background concentration of 12 mg/kg. Metals were also compared to the hazardous material screening criteria trigger.

Of the metals, lead was detected at 130 mg/kg, exceeding the STLC and TCLP hazardous trigger values (50 and 100 mg/kg). Additionally, zinc was detected at 3,400 mg/kg, exceeding the STLC hazardous trigger value (2,500 mg/kg). At the Client's request, the sample was also analyzed for

STLC and TCLP lead and STLC and TCLP Zinc. The STLC and TCLP lead results were 0.16 mg/L and non-detect, respectively. The STLC lead result was below the STLC limit of 5 mg/L. The STLC and TCLP zinc results were 29 mg/L and 1.3 mg/L, respectively. The STLC zinc result was below the STLC limit of 250 mg/L. There is no TCLP limit for zinc. A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided in Appendix D.

The vertical and areal extent of the dark soil was not confirmed during the sampling activities. Therefore, the volume could not be estimated. Based on the preliminary sampling, the dark soil can be utilized as fill on the subject property. The brick was crushed and stockpiled onsite.

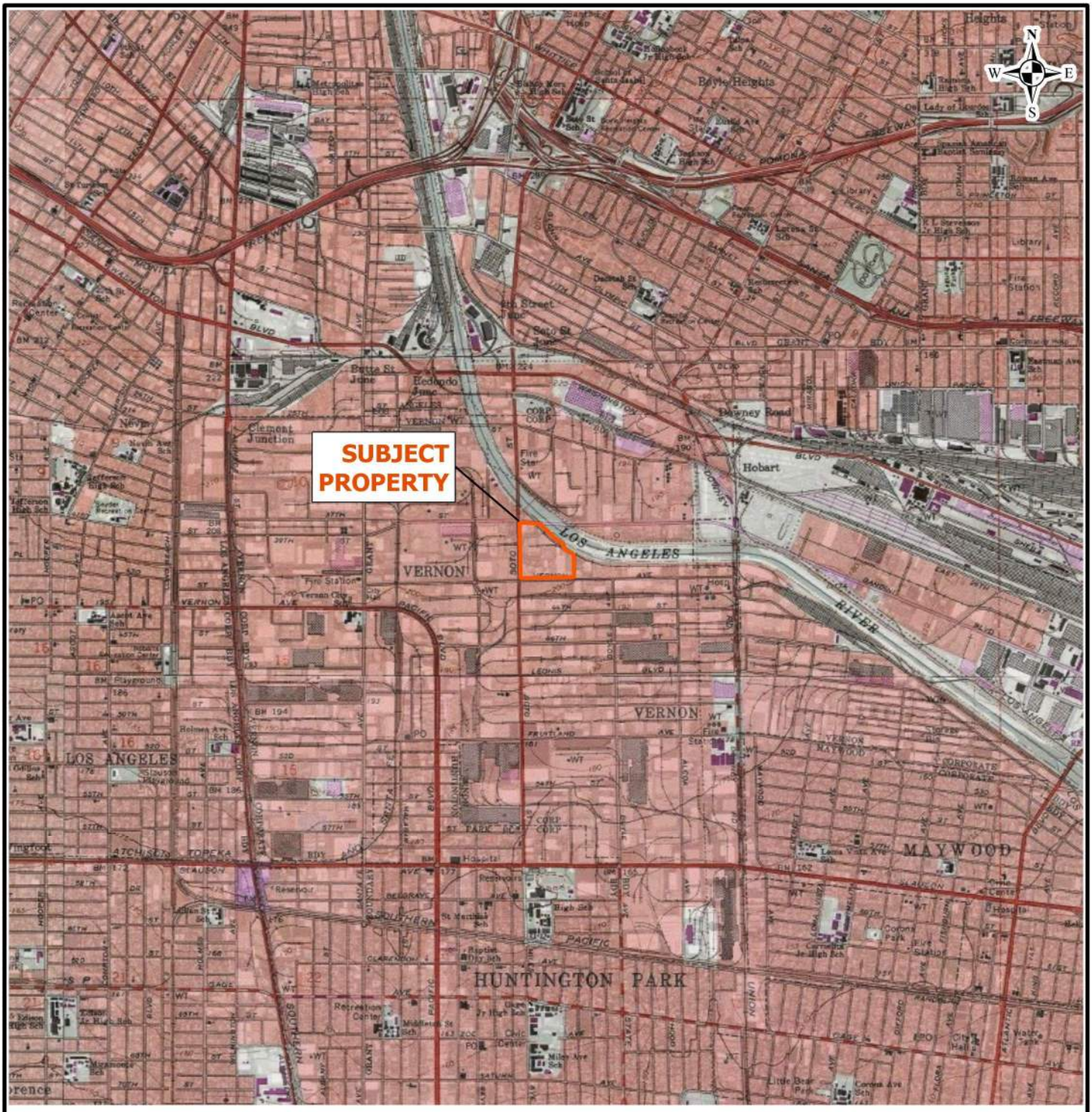
4.0 CONCLUSIONS

The approximately 70 cubic yard liquid smoke stockpile was disposed offsite at El Sobrante Landfill in Corona, California on 25 January 2024. Approximately 920 cubic yards of the soil mixed with brick and debris containing ACM was disposed offsite, under a SCAQMD Procedure 5 Plan, at Azusa Land Reclamation in Azusa, California and La Paz County Landfill in Parker, Arizona between 1 May and 20 May 2024.

Based on preliminary sampling, the orange-brown soil near possible elevator shaft (west), yellow soil near basement, and dark soil near basement can be utilized as fill on the subject property. The black soil near the retaining wall and the stained soil near both possible elevator shafts in the northwestern portion of the subject property were left in place and will be characterized and handled along with the red fill soils, based on the guidelines of the SMP.

Other areas of potentially impacted soil were not identified during the demolition activities at the subject property. Additionally, no underground storage tanks (USTs) or indicators of USTs (fill islands, vent pumps, fill lines) were identified during the demolition activities conducted to date.

FIGURES



Legend

Subject Property

Notes:
1. Site located in the Los Angeles USGS Quadrangle.
2. Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
3. All features shown are approximate.

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Project	3049 EAST VERNON AVE VERNON LOS ANGELES COUNTY CALIFORNIA
Figure Title	SUBJECT PROPERTY LOCATION MAP
Project No.	721040501
Date	1/9/2024
Scale	1"=3,000 feet
Drawn By	KA
Figure	1

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Legend

- Sample Location
- Subject Property

Notes:
1. Aerial imagery provided by Nearmap. Flown on 01/12/2024.
2. All locations shown are approximate.

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Project
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LOS ANGELES COUNTY CALIFORNIA

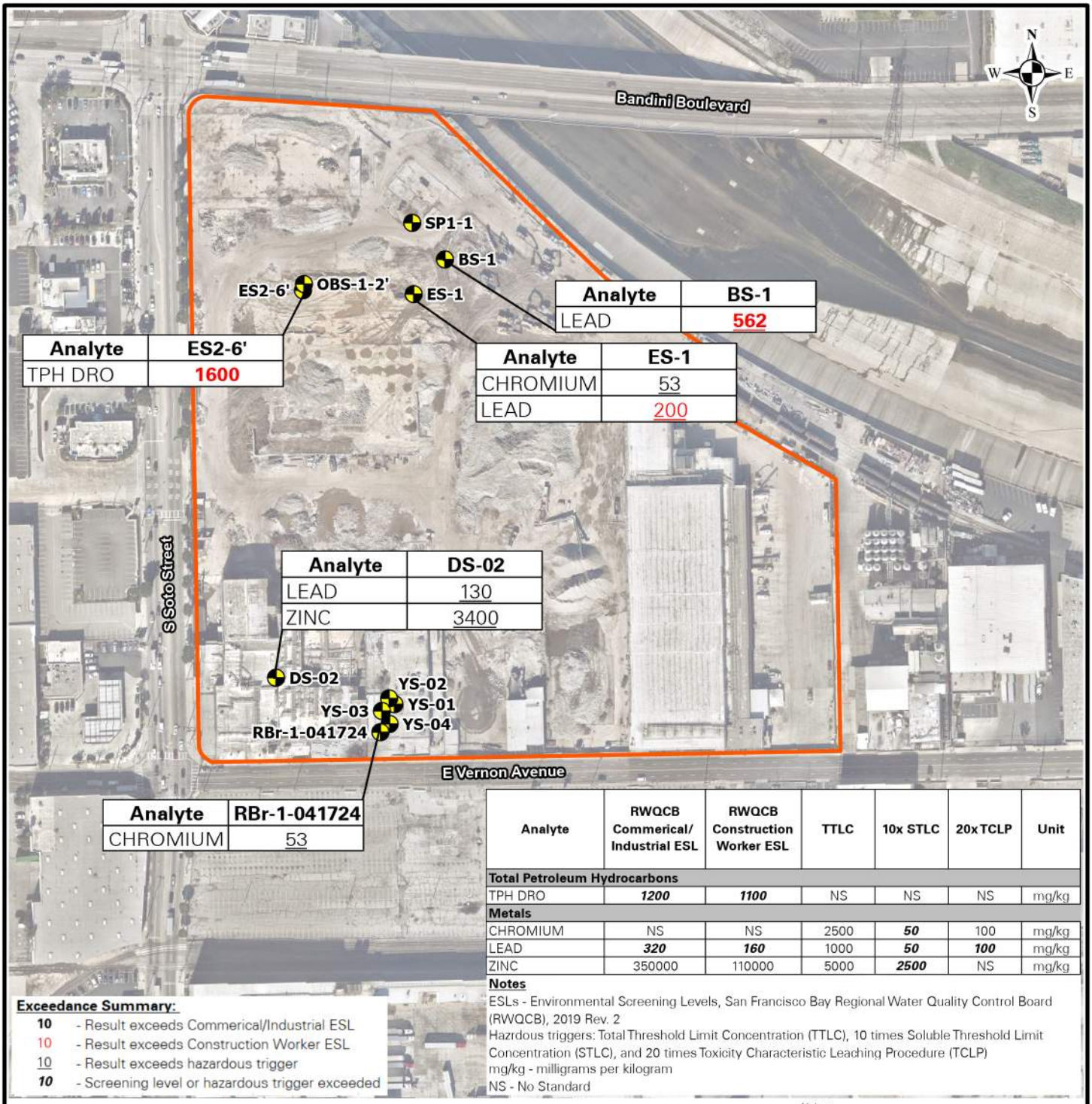
Figure Title
SAMPLE LOCATION MAP

Project No.	721040501
Date	7/5/2024
Scale	1" = 200 feet
Drawn By	TO

Figure 2

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Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	TTLC	10x STLC	20x TCLP	Unit
Total Petroleum Hydrocarbons						
TPH DRO	***1200***	***1100***	NS	NS	NS	mg/kg
Metals						
CHROMIUM	NS	NS	2500	***50***	100	mg/kg
LEAD	***320***	***160***	1000	***50***	***100***	mg/kg
ZINC	350000	110000	5000	***2500***	NS	mg/kg

Notes

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2

Hazrdous triggers: Total Threshold Limit Concentration (TTLC), 10 times Soluble Threshold Limit Concentration (STLC), and 20 times Toxicity Characteristic Leaching Procedure (TCLP)

mg/kg - milligrams per kilogram

NS - No Standard

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL

10 - Result exceeds Construction Worker ESL

10 - Result exceeds hazardous trigger

10 - Screening level or hazardous trigger exceeded

Legend

Sample Location

Subject Property

Notes:
1. Aerial imagery provided by Nearmap. Flown on 01/12/2024.
2. All locations shown are approximate.

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VERNON

LOS ANGELES COUNTY CALIFORNIA

Figure Title: SOIL EXCEEDANCE LOCATION MAP

Project No.	721040501
Date	7/15/2024
Scale	1" = 250 feet
Drawn By	TO
Figure	3

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TABLES

Table 1: Soil Analytical Results - TPH and Metals

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	TTLC	10x STLC	20x TCLP	Sample Name	BS-1					SP1-1					ES-1					ES2-6'				
						Feature	Black soil near retaining wall					"Liquid Smoke" stockpile sample					Stained soil near possible elevator shaft					Stained soil near second possible elevator shaft				
						Sample Type	In-situ					Stockpile					In-situ					In-situ				
						Sample Date	12/27/2023					1/3/2024					1/9/2024					1/16/2024				
						Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Total Petroleum Hydrocarbons																										
TPH GRO	2000	1800	NS	NS	NS	mg/kg	ND	U	0.054	0.097	1	ND	U	0.069	0.12	1	2.9	-	0.02	1	1	ND	-	0.01	0.59	1
TPH DRO	***1200***	***1100***	NS	NS	NS	mg/kg	940	-	55	120	5	350	-	14	30	1	ND	-	0.87	200	20	**1600**	-	0.02	5	0.591
TPH MRO	180000	54000	NS	NS	NS	mg/kg	660	-	19	24	5	350	-	4.6	6	1	ND	-	0.87	200	20	3700	-	0.02	5	1
Metals																										
ANTIMONY	160	50	500	150	NS	mg/kg	8.37	J	2.83	9.9	5	ND	U	3.5	12.3	5	4.1	-	0.77	2	1	ND	-	0.77	2	1
ARSENIC*	12	12	500	50	100	mg/kg	6.02	-	1.38	2.97	5	7.01	-	1.71	3.68	5	2.2	-	0.71	2	1	2.2	-	0.71	2	1
BARIUM	220000	3000	10000	1000	2000	mg/kg	161	B	0.141	2.97	5	145	-	0.174	3.68	5	68	-	0.06	1	1	70	-	0.06	1	1
BERYLLIUM	230	27	75	7.5	NS	mg/kg	0.934	-	0.0683	0.495	5	1.67	-	0.0846	0.613	5	ND	-	0.03	1	1	ND	-	0.03	1	1
CADMIUM	1100	51	100	10	20	mg/kg	0.801	-	0.162	0.495	5	0.905	-	0.201	0.613	5	2.5	-	0.06	1	1	ND	-	0.06	1	1
CHROMIUM, TOTAL	NS	NS	2500	***50***	100	mg/kg	42.2	-	0.184	0.99	5	46.4	-	0.228	1.23	5	53	-	0.1	1	1	12	-	0.1	1	1
COBALT	350	28	8000	800	NS	mg/kg	4.23	-	0.204	0.99	5	3.96	-	0.253	1.23	5	8.8	-	0.08	1	1	7	-	0.08	1	1
COPPER	47000	14000	2500	250	NS	mg/kg	224	-	0.949	1.98	5	46.6	-	1.18	2.45	5	82	-	0.22	1	1	14	-	0.22	1	1
LEAD	***320***	***160***	1000	***50***	***100***	mg/kg	**562**	-	0.405	1.98	5	21.8	-	0.502	2.45	5	200	-	0.18	1	1	4.8	-	0.18	1	1
MOLYBDENUM	5800	1800	2500	2500	NS	mg/kg	1.13	J	0.51	1.98	5	3.28	-	0.632	2.45	5	9.3	-	0.1	1	1	ND	-	0.1	1	1
NICKEL	11000	86	2000	200	NS	mg/kg	23.2	-	0.358	1.98	5	25.7	-	0.444	2.45	5	34	-	0.04	1	1	9.2	-	0.04	1	1
SELENIUM	5800	1700	100	10	20	mg/kg	ND	U	1.21	2.97	5	ND	U	1.5	3.68	5	ND	-	0.82	2	1	ND	-	0.82	2	1
SILVER	5800	1800	500	50	100	mg/kg	ND	U	0.143	1.49	5	ND	U	0.177	1.84	5	ND	-	0.27	1	1	ND	-	0.27	1	1
THALLIUM	12	3.5	700	70	NS	mg/kg	ND	U	2.09	9.9	5	ND	U	2.58	12.3	5	ND	-	0.35	2	1	ND	-	0.35	2	1
VANADIUM	5800	470	2400	240	NS	mg/kg	20.1	-	0.166	0.99	5	21	-	0.206	1.23	5	21	-	0.2	1	1	29	-	0.2	1	1
ZINC	350000	110000	5000	***2500***	NS	mg/kg	377	-	1.14	4.95	5	421	-	1.42	6.13	5	220	-	0.3	2	1	59	-	0.3	2	1
MERCURY	190	44	20	2	4	mg/kg	0.779	-	0.0308	0.0801	1	0.0566	J	0.0391	0.102	1	0.17	-	0.01	0.1	1	ND	-	0.01	0.1	1
STLC																										
Chromium	NS	NS	-	5	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Lead	NS	NS	-	5	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Zinc	NS	NS	-	250	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
TCLP																										
Lead	NS	NS	-	-	5	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Zinc	NS	NS	-	-	NS	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2
* Arsenic is compared to the Southern California background level of 12 mg/kg.
Hazrdous triggers: Total Threshold Limit Concentration (TTLC), 10 times Soluble Threshold Limit Concentration (STLC), and 20 times Toxicity Characteristic Leaching Procedure (TCLP)
Metals analyzed by STLC/TCLP were compared to the Federal and State Hazardous Waste Criteria.
mg/kg - milligrams per kilogram
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
B – Compound found in blank sample.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Result exceeds hazardous trigger
10 - Screening level or hazardous trigger exceeded

Table 1: Soil Analytical Results - TPH and Metals

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	TTLC	10x STLC	20x TCLP	Sample Name	OBS-1-2'					YS-01					YS-02					YS-03				
						Feature	Orange-brown soil near second possible elevator shaft					Yellow soil near eastern basement					Yellow soil near eastern basement					Yellow soil near eastern basement				
						Sample Type	In-situ					In-situ					In-situ					In-situ				
						Sample Date	1/16/2024					4/9/2024					4/9/2024					4/9/2024				
						Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Total Petroleum Hydrocarbons																										
TPH GRO	2000	1800	NS	NS	NS	mg/kg	ND	-	0.02	0.67	1	ND	-	0.02	0.99	1	ND	-	0.02	0.99	1	ND	-	0.02	1	1
TPH DRO	***1200***	***1100***	NS	NS	NS	mg/kg	1000	-	0.02	5	0.675	34	-	0.02	5	1	32	-	0.02	5	1	ND	-	0.02	5	1
TPH MRO	180000	54000	NS	NS	NS	mg/kg	2000	-	0.02	5	1	ND	-	0.02	5	1	ND	-	0.02	5	1	ND	-	0.02	5	1
Metals																										
ANTIMONY	160	50	500	150	NS	mg/kg	ND	-	0.77	2	1	ND	-	0.77	2	1	ND	-	0.77	2	1	ND	-	0.77	2	1
ARSENIC*	12	12	500	50	100	mg/kg	2.7	-	0.71	2	1	ND	-	0.71	2	1	ND	-	0.71	2	1	ND	-	0.71	2	1
BARIUM	220000	3000	10000	1000	2000	mg/kg	57	-	0.06	1	1	52	-	0.06	1	1	42	-	0.06	1	1	50	-	0.06	1	1
BERYLLIUM	230	27	75	7.5	NS	mg/kg	ND	-	0.03	1	1	ND	-	0.03	1	1	ND	-	0.03	1	1	ND	-	0.03	1	1
CADMIUM	1100	51	100	10	20	mg/kg	ND	-	0.06	1	1	ND	-	0.06	1	1	ND	-	0.06	1	1	ND	-	0.06	1	1
CHROMIUM, TOTAL	NS	NS	2500	***50***	100	mg/kg	12	-	0.1	1	1	20	-	0.1	1	1	21	-	0.1	1	1	20	-	0.1	1	1
COBALT	350	28	8000	800	NS	mg/kg	5.3	-	0.08	1	1	3.7	-	0.08	1	1	3.1	-	0.08	1	1	2.8	-	0.08	1	1
COPPER	47000	14000	2500	250	NS	mg/kg	17	-	0.22	1	1	6.8	-	0.22	1	1	4.9	-	0.22	1	1	5.1	-	0.22	1	1
LEAD	***320***	***160***	1000	***50***	***100***	mg/kg	15	-	0.18	1	1	2.8	-	0.18	1	1	1.2	-	0.18	1	1	1	-	0.18	1	1
MOLYBDENUM	5800	1800	2500	2500	NS	mg/kg	ND	-	0.1	1	1	ND	-	0.1	1	1	ND	-	0.1	1	1	ND	-	0.1	1	1
NICKEL	11000	86	2000	200	NS	mg/kg	7.3	-	0.04	1	1	8.6	-	0.04	1	1	9.1	-	0.04	1	1	7.3	-	0.04	1	1
SELENIUM	5800	1700	100	10	20	mg/kg	ND	-	0.82	2	1	ND	-	0.82	2	1	ND	-	0.82	2	1	ND	-	0.82	2	1
SILVER	5800	1800	500	50	100	mg/kg	ND	-	0.27	1	1	ND	-	0.27	1	1	ND	-	0.27	1	1	ND	-	0.27	1	1
THALLIUM	12	3.5	700	70	NS	mg/kg	ND	-	0.35	2	1	ND	-	0.35	2	1	ND	-	0.35	2	1	ND	-	0.35	2	1
VANADIUM	5800	470	2400	240	NS	mg/kg	27	-	0.2	1	1	24	-	0.2	1	1	20	-	0.2	1	1	22	-	0.2	1	1
ZINC	350000	110000	5000	***2500***	NS	mg/kg	44	-	0.3	2	1	28	-	0.3	2	1	19	-	0.3	2	1	18	-	0.3	2	1
MERCURY	190	44	20	2	4	mg/kg	ND	-	0.01	0.1	1	ND	-	0.01	0.1	1	ND	-	0.01	0.1	1	ND	-	0.01	0.1	1
STLC																										
Chromium	NS	NS	-	5	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Lead	NS	NS	-	5	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Zinc	NS	NS	-	250	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
TCLP																										
Lead	NS	NS	-	-	5	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Zinc	NS	NS	-	-	NS	mg/L	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2
* Arsenic is compared to the Southern California background level of 12 mg/kg.
Hazrdous triggers: Total Threshold Limit Concentration (TTLC), 10 times Soluble Threshold Limit Concentration (STLC), and 20 times Toxicity Characteristic Leaching Procedure (TCLP)
Metals analyzed by STLC/TCLP were compared to the Federal and State Hazardous Waste Criteria.
mg/kg - milligrams per kilogram
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
B – Compound found in blank sample.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Result exceeds hazardous trigger
10 - Screening level or hazardous trigger exceeded

Table 1: Soil Analytical Results - TPH and Metals

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	TTLC	10x STLC	20x TCLP	Sample Name	YS-04					RBr-1-041724					DS-02				
						Feature	Yellow soil near eastern basement					Soil mixed with brick and debris near basement area					Dark soil in basement area of main building				
						Sample Type	In-situ					In-situ					Stockpile				
						Sample Date	4/9/2024					4/17/2024					5/6/2024				
						Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Total Petroleum Hydrocarbons																					
TPH GRO	2000	1800	NS	NS	NS	mg/kg	ND	-	0.02	1	1	NA	-	-	-	-	0.094	J	0.044	4.3	1.4
TPH DRO	***1200***	***1100***	NS	NS	NS	mg/kg	ND	-	0.02	5	1	NA	-	-	-	-	640	-	35	100	10
TPH MRO	180000	54000	NS	NS	NS	mg/kg	ND	-	0.02	5	1	NA	-	-	-	-	1300	-	35	200	10
Metals																					
ANTIMONY	160	50	500	150	NS	mg/kg	ND	-	0.77	2	1	ND	-	0.77	2	1	3.4	-	1.9	2.9	0.95
ARSENIC*	12	12	500	50	100	mg/kg	ND	-	0.71	2	1	2.1	-	0.71	2	1	3.2	-	0.46	0.95	0.95
BARIUM	220000	3000	10000	1000	2000	mg/kg	29	-	0.06	1	1	140	-	0.06	1	1	55	-	0.31	0.95	0.95
BERYLLIUM	230	27	75	7.5	NS	mg/kg	ND	-	0.03	1	1	ND	-	0.03	1	1	0.052	J	0.046	0.48	0.95
CADMIUM	1100	51	100	10	20	mg/kg	ND	-	0.06	1	1	9.6	-	0.06	1	1	3.3	-	0.11	0.48	0.95
CHROMIUM, TOTAL	NS	NS	2500	***50***	100	mg/kg	17	-	0.1	1	1	53	-	0.1	1	1	9.6	-	0.87	0.95	0.95
COBALT	350	28	8000	800	NS	mg/kg	2.1	-	0.08	1	1	11	-	0.08	1	1	2.6	-	0.09	0.48	0.95
COPPER	47000	14000	2500	250	NS	mg/kg	4	-	0.22	1	1	37	-	0.22	1	1	36	-	0.56	0.95	0.95
LEAD	***320***	***160***	1000	***50***	***100***	mg/kg	ND	-	0.18	1	1	27	-	0.18	1	1	130	-	0.44	0.95	0.95
MOLYBDENUM	5800	1800	2500	2500	NS	mg/kg	ND	-	0.1	1	1	4.5	-	0.1	1	1	2.2	-	0.75	0.95	0.95
NICKEL	11000	86	2000	200	NS	mg/kg	6.5	-	0.04	1	1	18	-	0.04	1	1	15	-	0.55	0.95	0.95
SELENIUM	5800	1700	100	10	20	mg/kg	ND	-	0.82	2	1	ND	-	0.82	2	1	ND	-	0.93	2.9	0.95
SILVER	5800	1800	500	50	100	mg/kg	ND	-	0.27	1	1	ND	-	0.27	1	1	ND	-	0.14	0.48	0.95
THALLIUM	12	3.5	700	70	NS	mg/kg	ND	-	0.35	2	1	ND	-	0.35	2	1	ND	-	0.55	2.9	0.95
VANADIUM	5800	470	2400	240	NS	mg/kg	16	-	0.2	1	1	30	-	0.2	1	1	8.2	-	0.34	0.95	0.95
ZINC	350000	110000	5000	***2500***	NS	mg/kg	14	-	0.3	2	1	220	-	0.3	2	1	3400	-	26	48	9.5
MERCURY	190	44	20	2	4	mg/kg	ND	-	0.01	0.1	1	ND	-	0.01	0.1	1	0.044	J	0.037	0.15	0.95
STLC																					
Chromium	NS	NS	-	5	-	mg/L	NA	-	-	-	-	0.18	-	0.0095	0.1	5	NA	-	-	-	-
Lead	NS	NS	-	5	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	0.16	-	0.044	0.15	10
Zinc	NS	NS	-	250	-	mg/L	NA	-	-	-	-	NA	-	-	-	-	29	-	0.031	0.6	10
TCLP																					
Lead	NS	NS	-	-	5	mg/L	NA	-	-	-	-	NA	-	-	-	-	ND	-	0.0017	0.015	1
Zinc	NS	NS	-	-	NS	mg/L	NA	-	-	-	-	NA	-	-	-	-	1.3	-	0.0039	0.06	1

Notes:

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10 - Result exceeds Construction Worker ESL
10 - Result exceeds hazardous trigger
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Table 1: Soil Analytical Results - VOCs

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	BS-1					SP1-1					ES-1				
			Feature	Black soil near retaining wall					"Liquid Smoke" stockpile sample					Stained soil near possible elevator shaft				
			Sample Type	In-situ					Stockpile					In-situ				
			Sample Date	12/27/2023					1/3/2024					1/9/2024				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Volatile Organic Compounds																		
ETHYLBENZENE	26	540	mg/kg	0.19	J	0.09	0.43	500	ND	U	0.00017	0.00083	1	ND	-	0.0012	0.003	0.616
STYRENE	33000	25000	mg/kg	1.1	-	0.14	0.43	500	0.00099	-	0.00026	0.00083	1	ND	-	0.00095	0.003	0.616
CIS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.15	0.43	500	ND	U	0.00029	0.00083	1	ND	-	0.0022	0.003	0.616
TRANS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.12	0.87	500	ND	U	0.00023	0.0017	1	ND	-	0.0017	0.003	0.616
N-PROPYLBENZENE	NS	NS	mg/kg	ND	U	0.11	0.87	500	ND	U	0.00022	0.0017	1	ND	-	0.0013	0.003	0.616
N-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.091	0.43	500	ND	U	0.00018	0.00083	1	ND	-	0.0013	0.003	0.616
4-CHLOROTOLUENE	NS	NS	mg/kg	ND	U	0.1	0.43	500	ND	U	0.0002	0.00083	1	ND	-	0.00099	0.003	0.616
1,4-DICHLOROBENZENE	12	280	mg/kg	ND	U	0.13	0.43	500	ND	U	0.00026	0.00083	1	ND	-	0.001	0.003	0.616
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.16	3.3	mg/kg	ND	U	0.089	0.43	500	ND	U	0.00017	0.00083	1	ND	-	0.0012	0.003	0.616
3-CHLOROPROPENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,2-DICHLOROETHANE	2.1	45	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00023	0.00083	1	ND	-	0.0011	0.003	0.616
VINYL ACETATE	NS	NS	mg/kg	ND	U	1.7	4.3	500	ND	U	0.0033	0.0083	1	ND	-	0.028	0.031	0.616
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	140000	140000	mg/kg	ND	U	1.3	8.7	500	ND	U	0.0024	0.017	1	NA	-	-	-	-
ISOPROPYL ETHER	NS	NS	mg/kg	ND	U	0.22	0.43	500	ND	U	0.00042	0.00083	1	ND	-	0.0012	0.003	0.616
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	NS	NS	mg/kg	ND	U	0.12	0.87	500	ND	U	0.00022	0.0017	1	ND	-	0.0013	0.003	0.616
BROMOBENZENE	NS	NS	mg/kg	ND	U	0.09	0.43	500	ND	U	0.00017	0.00083	1	ND	-	0.00093	0.003	0.616
TOLUENE	5300	4700	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00022	0.00083	1	ND	-	0.001	0.003	0.616
CHLOROBENZENE	1300	1200	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00022	0.00083	1	ND	-	0.00081	0.003	0.616
TRANS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,2,4-TRICHLOROBENZENE	110	240	mg/kg	ND	U	0.18	0.87	500	ND	U	0.00034	0.0017	1	ND	-	0.0011	0.003	0.616
CHLORODIBROMOMETHANE	39	290	mg/kg	ND	U	0.12	0.87	500	ND	U	0.00023	0.0017	1	ND	-	0.001	0.003	0.616
TETRACHLOROETHYLENE(PCE)	2.7	33	mg/kg	ND	U	0.097	0.43	500	ND	U	0.00019	0.00083	1	ND	-	0.0021	0.003	0.616
XYLENE (TOTAL)	2500	2400	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
SEC-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00023	0.00083	1	ND	-	0.0014	0.003	0.616
ETHYL ACETATE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,3-DICHLOROPROPANE	NS	NS	mg/kg	ND	U	0.13	0.43	500	ND	U	0.00025	0.00083	1	ND	-	0.001	0.003	0.616
CIS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	85	78	mg/kg	ND	U	0.15	0.43	500	ND	U	0.00028	0.00083	1	ND	-	0.0021	0.003	0.616
TRANS-1,2-DICHLOROETHENE	600	570	mg/kg	ND	U	0.13	0.43	500	ND	U	0.00025	0.00083	1	ND	-	0.0012	0.003	0.616
TERT-BUTYL METHYL ETHER	210	4100	mg/kg	ND	U	0.081	0.87	500	ND	U	0.00016	0.0017	1	ND	-	0.0012	0.003	0.616
M,P-XYLENE	NS	NS	mg/kg	0.55	J	0.21	0.87	500	0.00046	J	0.00039	0.0017	1	ND	-	0.0019	0.006	0.616
1,3-DICHLOROBENZENE	NS	NS	mg/kg	ND	U	0.11	0.43	500	ND	U	0.00021	0.00083	1	ND	-	0.0012	0.003	0.616
CARBON TETRACHLORIDE	2.7	53	mg/kg	ND	U	0.13	0.43	500	ND	U	0.00025	0.00083	1	ND	-	0.0013	0.003	0.616
1,1-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.17	0.87	500	ND	U	0.00032	0.0017	1	ND	-	0.0024	0.003	0.616
2-HEXANONE	NS	NS	mg/kg	ND	U	1.3	8.7	500	ND	U	0.0026	0.017	1	NA	-	-	-	-
2,2-DICHLOROPROPANE	NS	NS	mg/kg	ND	U	0.12	2.2	500	ND	U	0.00023	0.0042	1	ND	-	0.0025	0.003	0.616
ETHYL ETHER	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	ND	-	0.0079	0.031	0.616
1,1,1,2-TETRACHLOROETHANE	8.9	190	mg/kg	ND	U	0.13	0.43	500	ND	U	0.00024	0.00083	1	ND	-	0.0012	0.003	0.616
ETHYL TERT-BUTYL ETHER	NS	NS	mg/kg	ND	U	0.1	0.43	500	ND	U	0.0002	0.00083	1	ND	-	0.0011	0.003	0.616
ETHANOL	NS	NS	mg/kg	ND	U	40	110	500	0.44	-	0.077	0.21	1	NA	-	-	-	-
ACETONE	670000	270000	mg/kg	ND	U	4.3	8.7	500	0.11	-	0.0082	0.017	1	NA	-	-	-	-
CHLOROFORM	1.4	34	mg/kg	ND	U	0.26	0.43	500	ND	U	0.00049	0.00083	1	ND	-	0.0013	0.003	0.616
BENZENE	1.4	33	mg/kg	ND	U	0.11	0.43	500	ND	U	0.00021	0.00083	1	ND	-	0.0013	0.003	0.616
1,1,1-TRICHLOROETHANE	7300	7200	mg/kg	ND	U	0.1	0.43	500	ND	U	0.00019	0.00083	1	ND	-	0.0015	0.003	0.616
BROMOMETHANE	30	29	mg/kg	ND	U	2.9	8.7	500	ND	U	0.0055	0.017	1	ND	-	0.0017	0.003	0.616
CHLOROMETHANE	470	470	mg/kg	ND	U	0.67	8.7	500	ND	U	0.0013	0.017	1	ND	-	0.0015	0.003	0.616
DIBROMOMETHANE	NS	NS	mg/kg	ND	U	0.13	0.43	500	ND	U	0.00025	0.00083	1	ND	-	0.0028	0.003	0.616
BROMOCHLOROMETHANE	NS	NS	mg/kg	ND	U	0.19	0.87	500	ND	U	0.00037	0.0017	1	ND	-	0.001	0.003	0.616
CHLOROETHANE	59000	59000	mg/kg	ND	U	0.32	0.87	500	ND	U	0.00062	0.0017	1	ND	-	0.0021	0.003	0.616
VINYL CHLORIDE	0.15	3.4	mg/kg	ND	U	0.16	0.43	500	ND	U	0.00032	0.00083	1	ND	-	0.0013	0.003	0.616
METHYLENE CHLORIDE	25	490	mg/kg	ND	U	1.4	4.3	500	ND	U	0.0026	0.0083	1	ND	-	0.0013	0.006	0.616
CARBON DISULFIDE	NS	NS	mg/kg	ND	U	0.17	4.3	500	0.0029	J	0.00033	0.0083	1	ND	-	0.0017	0.003	0.616
BROMOFORM	80	1200	mg/kg	ND	U	0.57	2.2	500	ND	U	0.0011	0.0042	1	ND	-	0.00095	0.003	0.616
BROMODICHLOROMETHANE	1.3	28	mg/kg	ND	U	0.14	0.43	500	ND	U	0.00027	0.00083	1	ND	-	0.002	0.003	0.616
1,1-DICHLOROETHANE	16	370	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00023	0.00083	1	ND	-	0.0012	0.003	0.616
1,1-DICHLOROETHENE	350	350	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00022	0.00083	1	ND	-	0.0015	0.003	0.616
TERT-BUTYL ALCOHOL	NS	NS	mg/kg	ND	U	3	8.7	500	0.0094	J	0.0058	0.017	1	ND	-	0.0078	0.062	0.616
TRICHLOROFLUOROMETHANE	NS	NS	mg/kg	8.5	-	0.12	4.3	500	0.0085	-	0.00023	0.0083	1	ND	-	0.0021	0.003	0.616
DICHLORODIFLUOROMETHANE	NS	NS	mg/kg	ND	U	0.2	0.87	500	ND	U	0.00038	0.0017	1	ND	-	0.0019	0.003	0.616
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NS	NS	mg/kg	ND	U	0.2	4.3	500	ND	U	0.00038	0.0083	1	ND	-	0.0024	0.003	0.616
1,2-DICHLOROPROPANE	4.4	66	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00023	0.00083	1	ND	-	0.0021	0.003	0.616
METHYL ETHYL KETONE (2-BUTANONE)	200000	120000	mg/kg	ND	U	2	8.7	500	0.019	-	0.0038	0.017	1	NA	-	-	-	-
1,1,2-TRICHLOROETHANE	5.1	6.3	mg/kg	ND	U	0.2	0.43	500	ND	U	0.00039	0.00083	1	ND	-	0.0014	0.003	0.616
TRICHLOROETHYLENE (TCE)	6.1	18	mg/kg	ND	U	0.17	0.87	500	ND	U	0.00032	0.0017	1	0.003	-	0.0013	0.003	0.616
1,1,2,2-TETRACHLOROETHANE	2.7	49	mg/kg	ND	U	0.24	0.87	500	ND	U	0.00045	0.0017	1	ND	-	0.00099	0.003	0.616
1,2,3-TRICHLOROBENZENE	NS	NS	mg/kg	ND	U	0.16	0.87	500	ND	U	0.00031	0.0017	1	ND	-	0.0012	0.003	0.616
HEXACHLOROBUTADIENE	5.3	100	mg/kg	NA	-	-	-	-	NA	-	-	-	-	ND	-	0.0011	0.003	0.616
NAPHTHALENE	17	400	mg/kg	ND	U	1.7	4.3	500	ND	U	0.0033	0.0083	1	ND	-	0.00087	0.003	0.616
O-XYLENE (1,2-DIMETHYLBENZENE)	NS	NS	mg/kg	0.18	J	0.11	0.43	500	ND	U	0.00021	0.00083	1	ND	-	0.0011	0.003	0.616
2-CHLOROTOLUENE	NS	NS	mg/kg	ND	U	0.11	0.43	500	ND	U	0.00021	0.00083	1	ND	-	0.0014	0.003	0.616
1,2-DICHLOROBENZENE	9400	7800	mg/kg	ND	U	0.11	0.43	500	ND	U	0.00021	0.00083	1	ND	-	0.0011	0.003	0.616
1,2,4-TRIMETHYLBENZENE	NS	NS	mg/kg	ND	U	0.26	0.87	500	ND	U	0.0005	0.0017	1	ND	-	0.0014	0.003	0.616
1,2-DIBROMO-3-CHLOROPROPANE	0.059	1.1	mg/kg	ND	U	1.4	4.3	500	ND	U	0.0028	0.0083	1	ND	-	0.0021	0.006	0.616
1,2,3-TRICHLOROPROPANE	0.11	0.83	mg/kg	ND	U	0.18	0.87	500	ND	U	0.00035	0.0017	1	ND	-	0.001	0.003	0.616
T-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.11	0.43	500	ND	U	0.00021	0.00083	1	ND	-	0.0013	0.003	0.616
ISOPROPYLBENZENE (CUMENE)	NS	NS	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00023	0.00083	1	ND	-	0.0015	0.003	0.616
BUTANE, 2-METHOXY-2-METHYL	NS	NS	mg/kg	ND	U	0.084	0.43	500	ND	U	0.00016	0.00083	1	ND	-	0.0022	0.003	0.616
CYMENE	NS	NS	mg/kg	ND	U	0.12	0.43	500	ND	U	0.00023	0.00083	1	0.005	-	0.0014	0.003	0.616

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2
mg/kg - milligrams per kilogram
NA - Not Analyzed
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
*+ – LCS and/or LCSD is outside acceptable limits, high bias.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Screening level exceeded

Table 1: Soil Analytical Results - VOCs

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	ES2-6'					OBS-1-2'					YS-01				
			Feature	Stained soil near second possible elevator shaft					Orange-brown soil near second possible elevator shaft					Yellow soil near eastern basement				
			Sample Type	In-situ					In-situ					In-situ				
			Sample Date	1/16/2024					1/16/2024					4/9/2024				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Volatile Organic Compounds																		
ETHYLBENZENE	26	540	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
STYRENE	33000	25000	mg/kg	ND	-	0.0009	0.003	0.582	ND	-	0.001	0.003	0.659	ND	-	1.2	4.0	1
CIS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	0.002	0.003	0.582	ND	-	0.0023	0.003	0.659	ND	-	2.8	4.0	1
TRANS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	0.0016	0.003	0.582	ND	-	0.0018	0.003	0.659	ND	-	2.2	4.0	1
N-PROPYLBENZENE	NS	NS	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
N-BUTYLBENZENE	NS	NS	mg/kg	ND	-	0.0013	0.003	0.582	ND	-	0.0014	0.003	0.659	ND	-	1.8	4.0	1
4-CHLOROTOLUENE	NS	NS	mg/kg	ND	-	0.00093	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.3	4.0	1
1,4-DICHLOROBENZENE	12	280	mg/kg	ND	-	0.00095	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.3	4.0	1
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.16	3.3	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0012	0.003	0.659	ND	-	1.5	4.0	1
3-CHLOROPROPENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,2-DICHLOROETHANE	2.1	45	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0012	0.003	0.659	ND	-	1.5	4.0	1
VINYL ACETATE	NS	NS	mg/kg	ND	-	0.027	0.029	0.582	ND	-	0.03	0.033	0.659	ND	-	37	40	1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	140000	140000	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
ISOPROPYL ETHER	NS	NS	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	NS	NS	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
BROMOBENZENE	NS	NS	mg/kg	ND	-	0.00088	0.003	0.582	ND	-	0.00099	0.003	0.659	ND	-	1.2	4.0	1
TOLUENE	5300	4700	mg/kg	ND	-	0.00098	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.3	4.0	1
CHLOROBENZENE	1300	1200	mg/kg	ND	-	0.00077	0.003	0.582	ND	-	0.00087	0.003	0.659	ND	-	1.1	4.0	1
TRANS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,2,4-TRICHLOROBENZENE	110	240	mg/kg	ND	-	0.001	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.4	4.0	1
CHLORODIBROMOMETHANE	39	290	mg/kg	ND	-	0.00096	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.3	4.0	1
TETRACHLOROETHYLENE(PCE)	2.7	33	mg/kg	ND	-	0.002	0.003	0.582	ND	-	0.0023	0.003	0.659	ND	-	2.7	4.0	1
XYLENE (TOTAL)	2500	2400	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
SEC-BUTYLBENZENE	NS	NS	mg/kg	ND	-	0.0013	0.003	0.582	ND	-	0.0015	0.003	0.659	ND	-	1.9	4.0	1
ETHYL ACETATE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,3-DICHLOROPROPANE	NS	NS	mg/kg	ND	-	0.00097	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.3	4.0	1
CIS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	85	78	mg/kg	ND	-	0.002	0.003	0.582	ND	-	0.0023	0.003	0.659	ND	-	2.8	4.0	1
TRANS-1,2-DICHLOROETHENE	600	570	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
TERT-BUTYL METHYL ETHER	210	4100	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.5	4.0	1
M,P-XYLENE	NS	NS	mg/kg	ND	-	0.0018	0.006	0.582	ND	-	0.002	0.007	0.659	ND	-	2.5	8.0	1
1,3-DICHLOROBENZENE	NS	NS	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0012	0.003	0.659	ND	-	1.5	4.0	1
CARBON TETRACHLORIDE	2.7	53	mg/kg	ND	-	0.0013	0.003	0.582	ND	-	0.0014	0.003	0.659	ND	-	1.7	4.0	1
1,1-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	0.0022	0.003	0.582	ND	-	0.0025	0.003	0.659	ND	-	3.1	4.0	1
2-HEXANONE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
2,2-DICHLOROPROPANE	NS	NS	mg/kg	ND	-	0.0024	0.003	0.582	ND	-	0.0027	0.003	0.659	ND	-	3.2	4.0	1
ETHYL ETHER	NS	NS	mg/kg	ND	-	0.0074	0.029	0.582	ND	-	0.0084	0.033	0.659	ND	-	10	40	1
1,1,1,2-TETRACHLOROETHANE	8.9	190	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
ETHYL TERT-BUTYL ETHER	NS	NS	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0012	0.003	0.659	ND	-	1.5	4.0	1
ETHANOL	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
ACETONE	670000	270000	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
CHLOROFORM	1.4	34	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
BENZENE	1.4	33	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.6	4.0	1
1,1,1-TRICHLOROETHANE	7300	7200	mg/kg	ND	-	0.0015	0.003	0.582	ND	-	0.0017	0.003	0.659	ND	-	2.0	4.0	1
BROMOMETHANE	30	29	mg/kg	ND	-	0.0017	0.003	0.582	ND	-	0.0019	0.003	0.659	ND	-	2.3	4.0	1
CHLOROMETHANE	470	470	mg/kg	ND	-	0.0015	0.003	0.582	ND	-	0.0017	0.003	0.659	ND	-	2.0	4.0	1
DIBROMOMETHANE	NS	NS	mg/kg	ND	-	0.0027	0.003	0.582	ND	-	0.003	0.003	0.659	ND	-	3.7	4.0	1
BROMOCHLOROMETHANE	NS	NS	mg/kg	ND	-	0.00095	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.3	4.0	1
CHLOROETHANE	59000	59000	mg/kg	ND	-	0.002	0.003	0.582	ND	-	0.0022	0.003	0.659	ND	-	2.7	4.0	1
VINYL CHLORIDE	0.15	3.4	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0014	0.003	0.659	ND	-	1.7	4.0	1
METHYLENE CHLORIDE	25	490	mg/kg	ND	-	0.0012	0.006	0.582	ND	-	0.0014	0.007	0.659	ND	-	1.7	8.0	1
CARBON DISULFIDE	NS	NS	mg/kg	ND	-	0.0016	0.003	0.582	ND	-	0.0018	0.003	0.659	ND	-	2.2	4.0	1
BROMOFORM	80	1200	mg/kg	ND	-	0.0009	0.003	0.582	ND	-	0.001	0.003	0.659	ND	-	1.2	4.0	1
BROMODICHLOROMETHANE	1.3	28	mg/kg	ND	-	0.0019	0.003	0.582	ND	-	0.0021	0.003	0.659	ND	-	2.6	4.0	1
1,1-DICHLOROETHANE	16	370	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.5	4.0	1
1,1-DICHLOROETHENE	350	350	mg/kg	ND	-	0.0014	0.003	0.582	ND	-	0.0016	0.003	0.659	ND	-	1.9	4.0	1
TERT-BUTYL ALCOHOL	NS	NS	mg/kg	ND	-	0.0074	0.058	0.582	ND	-	0.0083	0.066	0.659	ND	-	10	80	1
TRICHLOROFLUOROMETHANE	NS	NS	mg/kg	ND	-	0.002	0.003	0.582	ND	-	0.0022	0.003	0.659	ND	-	2.7	4.0	1
DICHLORODIFLUOROMETHANE	NS	NS	mg/kg	ND	-	0.0018	0.003	0.582	ND	-	0.002	0.003	0.659	ND	-	2.5	4.0	1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NS	NS	mg/kg	ND	-	0.0023	0.003	0.582	ND	-	0.0026	0.003	0.659	ND	-	3.1	4.0	1
1,2-DICHLOROPROPANE	4.4	66	mg/kg	ND	-	0.002	0.003	0.582	ND	-	0.0022	0.003	0.659	ND	-	2.7	4.0	1
METHYL ETHYL KETONE (2-BUTANONE)	200000	120000	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,1,2-TRICHLOROETHANE	5.1	6.3	mg/kg	ND	-	0.0014	0.003	0.582	ND	-	0.0015	0.003	0.659	ND	-	1.9	4.0	1
TRICHLOROETHYLENE (TCE)	6.1	18	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0014	0.003	0.659	ND	-	1.7	4.0	1
1,1,2,2-TETRACHLOROETHANE	2.7	49	mg/kg	ND	-	0.00094	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.3	4.0	1
1,2,3-TRICHLOROBENZENE	NS	NS	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0013	0.003	0.659	ND	-	1.5	4.0	1
HEXACHLOROBUTADIENE	5.3	100	mg/kg	ND	-	0.001	0.003	0.582	ND	-	0.0012	0.003	0.659	ND	-	1.4	4.0	1
NAPHTHALENE	17	400	mg/kg	ND	-	0.00082	0.003	0.582	ND	-	0.00093	0.003	0.659	ND	-	1.1	4.0	1
O-XYLENE (1,2-DIMETHYLBENZENE)	NS	NS	mg/kg	ND	-	0.001	0.003	0.582	ND	-	0.0012	0.003	0.659	ND	-	1.4	4.0	1
2-CHLOROTOLUENE	NS	NS	mg/kg	ND	-	0.0014	0.003	0.582	ND	-	0.0015	0.003	0.659	ND	-	1.9	4.0	1
1,2-DICHLOROBENZENE	9400	7800	mg/kg	ND	-	0.0011	0.003	0.582	ND	-	0.0012	0.003	0.659	ND	-	1.4	4.0	1
1,2,4-TRIMETHYLBENZENE	NS	NS	mg/kg	ND	-	0.0014	0.003	0.582	ND	-	0.0015	0.003	0.659	ND	-	1.9	4.0	1
1,2-DIBROMO-3-CHLOROPROPANE	0.059	1.1	mg/kg	ND	-	0.002	0.006	0.582	ND	-	0.0023	0.007	0.659	ND	-	2.8	8.0	1
1,2,3-TRICHLOROPROPANE	0.11	0.83	mg/kg	ND	-	0.00098	0.003	0.582	ND	-	0.0011	0.003	0.659	ND	-	1.4	4.0	1
T-BUTYLBENZENE	NS	NS	mg/kg	ND	-	0.0012	0.003	0.582	ND	-	0.0014	0.003	0.659	ND	-	1.7	4.0	1
ISOPROPYLBENZENE (CUMENE)	NS	NS	mg/kg	ND	-	0.0014	0.003	0.582	ND	-	0.0016	0.003	0.659	ND	-	1.9	4.0	1
BUTANE, 2-METHOXY-2-METHYL	NS	NS	mg/kg	ND	-	0.002	0.003	0.582	ND	-	0.0023	0.003	0.659	ND	-	2.8	4.0	1
CYMENE	NS	NS	mg/kg	ND	-	0.0014	0.003	0.582	ND	-	0.0015	0.003	0.659	ND	-	1.9	4.0	1

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019
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NA - Not Analyzed
NS - No Standard
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Q - Qualifier
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Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
*+ – LCS and/or LCSD is outside acceptable limits, high bias.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Screening level exceeded

Table 1: Soil Analytical Results - VOCs

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	YS-02					YS-03					YS-04				
			Feature	Yellow soil near eastern basement					Yellow soil near eastern basement					Yellow soil near eastern basement				
			Sample Type	In-situ					In-situ					In-situ				
			Sample Date	4/9/2024					4/9/2024					4/9/2024				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Volatile Organic Compounds																		
ETHYLBENZENE	26	540	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
STYRENE	33000	25000	mg/kg	ND	-	1.3	4.2	1	ND	-	1.4	4.6	1	ND	-	1.3	4.3	1
CIS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	2.9	4.2	1	ND	-	3.3	4.6	1	ND	-	3.0	4.3	1
TRANS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	2.3	4.2	1	ND	-	2.6	4.6	1	ND	-	2.3	4.3	1
N-PROPYLBENZENE	NS	NS	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
N-BUTYLBENZENE	NS	NS	mg/kg	ND	-	1.8	4.2	1	ND	-	2.0	4.6	1	ND	-	1.9	4.3	1
4-CHLOROTOLUENE	NS	NS	mg/kg	ND	-	1.3	4.2	1	ND	-	1.5	4.6	1	ND	-	1.4	4.3	1
1,4-DICHLOROBENZENE	12	280	mg/kg	ND	-	1.4	4.2	1	ND	-	1.5	4.6	1	ND	-	1.4	4.3	1
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.16	3.3	mg/kg	ND	-	1.6	4.2	1	ND	-	1.7	4.6	1	ND	-	1.6	4.3	1
3-CHLOROPROPENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,2-DICHLOROETHANE	2.1	45	mg/kg	ND	-	1.5	4.2	1	ND	-	1.7	4.6	1	ND	-	1.6	4.3	1
VINYL ACETATE	NS	NS	mg/kg	ND	-	38	42	1	ND	-	43	46	1	ND	-	39	43	1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	140000	140000	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
ISOPROPYL ETHER	NS	NS	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	NS	NS	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
BROMOBENZENE	NS	NS	mg/kg	ND	-	1.3	4.2	1	ND	-	1.4	4.6	1	ND	-	1.3	4.3	1
TOLUENE	5300	4700	mg/kg	ND	-	1.4	4.2	1	ND	-	1.6	4.6	1	ND	-	1.4	4.3	1
CHLOROBENZENE	1300	1200	mg/kg	ND	-	1.1	4.2	1	ND	-	1.2	4.6	1	ND	-	1.1	4.3	1
TRANS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,2,4-TRICHLOROBENZENE	110	240	mg/kg	ND	-	1.4	4.2	1	ND	-	1.6	4.6	1	ND	-	1.5	4.3	1
CHLORODIBROMOMETHANE	39	290	mg/kg	ND	-	1.4	4.2	1	ND	-	1.5	4.6	1	ND	-	1.4	4.3	1
TETRACHLOROETHYLENE(PCE)	2.7	33	mg/kg	ND	-	2.9	4.2	1	ND	-	3.2	4.6	1	ND	-	2.9	4.3	1
XYLENE (TOTAL)	2500	2400	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
SEC-BUTYLBENZENE	NS	NS	mg/kg	ND	-	1.9	4.2	1	ND	-	2.1	4.6	1	ND	-	2.0	4.3	1
ETHYL ACETATE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,3-DICHLOROPROPANE	NS	NS	mg/kg	ND	-	1.4	4.2	1	ND	-	1.6	4.6	1	ND	-	1.4	4.3	1
CIS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	85	78	mg/kg	ND	-	2.9	4.2	1	ND	-	3.2	4.6	1	ND	-	3.0	4.3	1
TRANS-1,2-DICHLOROETHENE	600	570	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
TERT-BUTYL METHYL ETHER	210	4100	mg/kg	ND	-	1.6	4.2	1	ND	-	1.8	4.6	1	ND	-	1.6	4.3	1
M,P-XYLENE	NS	NS	mg/kg	ND	-	2.6	8.4	1	ND	-	2.8	9.3	1	ND	-	2.6	8.5	1
1,3-DICHLOROBENZENE	NS	NS	mg/kg	ND	-	1.6	4.2	1	ND	-	1.7	4.6	1	ND	-	1.6	4.3	1
CARBON TETRACHLORIDE	2.7	53	mg/kg	ND	-	1.8	4.2	1	ND	-	2.0	4.6	1	ND	-	1.9	4.3	1
1,1-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	3.2	4.2	1	ND	-	3.6	4.6	1	ND	-	3.3	4.3	1
2-HEXANONE	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
2,2-DICHLOROPROPANE	NS	NS	mg/kg	ND	-	3.4	4.2	1	ND	-	3.8	4.6	1	ND	-	3.4	4.3	1
ETHYL ETHER	NS	NS	mg/kg	ND	-	11	42	1	ND	-	12	46	1	ND	-	11	43	1
1,1,1,2-TETRACHLOROETHANE	8.9	190	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
ETHYL TERT-BUTYL ETHER	NS	NS	mg/kg	ND	-	1.5	4.2	1	ND	-	1.7	4.6	1	ND	-	1.6	4.3	1
ETHANOL	NS	NS	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
ACETONE	670000	270000	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
CHLOROFORM	1.4	34	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
BENZENE	1.4	33	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.7	4.3	1
1,1,1-TRICHLOROETHANE	7300	7200	mg/kg	ND	-	2.1	4.2	1	ND	-	2.3	4.6	1	ND	-	2.1	4.3	1
BROMOMETHANE	30	29	mg/kg	ND	-	2.4	4.2	1	ND	-	2.6	4.6	1	ND	-	2.4	4.3	1
CHLOROMETHANE	470	470	mg/kg	ND	-	2.1	4.2	1	ND	-	2.3	4.6	1	ND	-	2.1	4.3	1
DIBROMOMETHANE	NS	NS	mg/kg	ND	-	3.9	4.2	1	ND	-	4.3	4.6	1	ND	-	3.9	4.3	1
BROMOCHLOROMETHANE	NS	NS	mg/kg	ND	-	1.4	4.2	1	ND	-	1.5	4.6	1	ND	-	1.4	4.3	1
CHLOROETHANE	59000	59000	mg/kg	ND	-	2.8	4.2	1	ND	-	3.1	4.6	1	ND	-	2.9	4.3	1
VINYL CHLORIDE	0.15	3.4	mg/kg	ND	-	1.8	4.2	1	ND	-	1.9	4.6	1	ND	-	1.8	4.3	1
METHYLENE CHLORIDE	25	490	mg/kg	ND	-	1.7	8.4	1	ND	-	1.9	9.3	1	ND	-	1.8	8.5	1
CARBON DISULFIDE	NS	NS	mg/kg	ND	-	2.3	4.2	1	ND	-	2.6	4.6	1	ND	-	2.4	4.3	1
BROMOFORM	80	1200	mg/kg	ND	-	1.3	4.2	1	ND	-	1.4	4.6	1	ND	-	1.3	4.3	1
BROMODICHLOROMETHANE	1.3	28	mg/kg	ND	-	2.7	4.2	1	ND	-	3.0	4.6	1	ND	-	2.8	4.3	1
1,1-DICHLOROETHANE	16	370	mg/kg	ND	-	1.6	4.2	1	ND	-	1.8	4.6	1	ND	-	1.6	4.3	1
1,1-DICHLOROETHENE	350	350	mg/kg	ND	-	2.0	4.2	1	ND	-	2.3	4.6	1	ND	-	2.1	4.3	1
TERT-BUTYL ALCOHOL	NS	NS	mg/kg	ND	-	11	84	1	ND	-	12	93	1	ND	-	11	85	1
TRICHLOROFLUOROMETHANE	NS	NS	mg/kg	ND	-	2.8	4.2	1	ND	-	3.1	4.6	1	ND	-	2.9	4.3	1
DICHLORODIFLUOROMETHANE	NS	NS	mg/kg	ND	-	2.6	4.2	1	ND	-	2.9	4.6	1	ND	-	2.6	4.3	1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NS	NS	mg/kg	ND	-	3.3	4.2	1	ND	-	3.6	4.6	1	ND	-	3.3	4.3	1
1,2-DICHLOROPROPANE	4.4	66	mg/kg	ND	-	2.8	4.2	1	ND	-	3.2	4.6	1	ND	-	2.9	4.3	1
METHYL ETHYL KETONE (2-BUTANONE)	200000	120000	mg/kg	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
1,1,2-TRICHLOROETHANE	5.1	6.3	mg/kg	ND	-	2.0	4.2	1	ND	-	2.2	4.6	1	ND	-	2.0	4.3	1
TRICHLOROETHYLENE (TCE)	6.1	18	mg/kg	ND	-	1.7	4.2	1	ND	-	1.9	4.6	1	ND	-	1.8	4.3	1
1,1,2,2-TETRACHLOROETHANE	2.7	49	mg/kg	ND	-	1.3	4.2	1	ND	-	1.5	4.6	1	ND	-	1.4	4.3	1
1,2,3-TRICHLOROBENZENE	NS	NS	mg/kg	ND	-	1.6	4.2	1	ND	-	1.8	4.6	1	ND	-	1.6	4.3	1
HEXACHLOROBUTADIENE	5.3	100	mg/kg	ND	-	1.5	4.2	1	ND	-	1.6	4.6	1	ND	-	1.5	4.3	1
NAPHTHALENE	17	400	mg/kg	ND	-	1.2	4.2	1	ND	-	1.3	4.6	1	ND	-	1.2	4.3	1
O-XYLENE (1,2-DIMETHYLBENZENE)	NS	NS	mg/kg	ND	-	1.5	4.2	1	ND	-	1.6	4.6	1	ND	-	1.5	4.3	1
2-CHLOROTOLUENE	NS	NS	mg/kg	ND	-	1.9	4.2	1	ND	-	2.2	4.6	1	ND	-	2.0	4.3	1
1,2-DICHLOROBENZENE	9400	7800	mg/kg	ND	-	1.5	4.2	1	ND	-	1.7	4.6	1	ND	-	1.5	4.3	1
1,2,4-TRIMETHYLBENZENE	NS	NS	mg/kg	ND	-	2.0	4.2	1	ND	-	2.2	4.6	1	ND	-	2.0	4.3	1
1,2-DIBROMO-3-CHLOROPROPANE	0.059	1.1	mg/kg	ND	-	2.9	8.4	1	ND	-	3.2	9.3	1	ND	-	2.9	8.5	1
1,2,3-TRICHLOROPROPANE	0.11	0.83	mg/kg	ND	-	1.4	4.2	1	ND	-	1.6	4.6	1	ND	-	1.4	4.3	1
T-BUTYLBENZENE	NS	NS	mg/kg	ND	-	1.8	4.2	1	ND	-	2.0	4.6	1	ND	-	1.8	4.3	1
ISOPROPYLBENZENE (CUMENE)	NS	NS	mg/kg	ND	-	2.0	4.2	1	ND	-	2.2	4.6	1	ND	-	2.1	4.3	1
BUTANE, 2-METHOXY-2-METHYL	NS	NS	mg/kg	ND	-	2.9	4.2	1	ND	-	3.3	4.6	1	ND	-	3.0	4.3	1
CYMENE	NS	NS	mg/kg	ND	-	2.0	4.2	1	ND	-	2.2	4.6	1	ND	-	2.0	4.3	1

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019
mg/kg - milligrams per kilogram
NA - Not Analyzed
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
*+ – LCS and/or LCSD is outside acceptable limits, high bias.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Screening level exceeded

Table 1: Soil Analytical Results - VOCs

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	DS-02				
			Feature	Dark soil in basement area of main building				
			Sample Type	Stockpile				
			Sample Date	5/6/2024				
			Unit	Result	Q	MDL	RL	DF
Volatile Organic Compounds								
ETHYLBENZENE	26	540	mg/kg	ND	-	0.053	0.24	48
STYRENE	33000	25000	mg/kg	ND	-	0.045	0.24	48
CIS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	0.043	0.24	48
TRANS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	0.056	0.24	48
N-PROPYLBENZENE	NS	NS	mg/kg	ND	-	0.039	0.24	48
N-BUTYLBENZENE	NS	NS	mg/kg	ND	-	0.056	0.24	48
4-CHLOROTOLUENE	NS	NS	mg/kg	ND	-	0.039	0.24	48
1,4-DICHLOROBENZENE	12	280	mg/kg	ND	-	0.041	0.24	48
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.16	3.3	mg/kg	ND	-	0.03	0.24	48
3-CHLOROPROPENE	NS	NS	mg/kg	ND	-	0.0009	0.006	1.1
1,2-DICHLOROETHANE	2.1	45	mg/kg	ND	-	0.0013	0.006	1.1
VINYL ACETATE	NS	NS	mg/kg	NA	-	-	-	-
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	140000	140000	mg/kg	ND	-	0.082	0.24	48
ISOPROPYL ETHER	NS	NS	mg/kg	NA	-	-	-	-
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	NS	NS	mg/kg	ND	-	0.034	0.24	48
BROMOBENZENE	NS	NS	mg/kg	ND	-	0.043	0.24	48
TOLUENE	5300	4700	mg/kg	ND	-	0.049	0.24	48
CHLOROBENZENE	1300	1200	mg/kg	ND	-	0.044	0.24	48
TRANS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	ND	-	0.021	0.24	48
1,2,4-TRICHLOROBENZENE	110	240	mg/kg	ND	-	0.065	0.24	48
CHLORODIBROMOMETHANE	39	290	mg/kg	ND	-	0.04	0.24	48
TETRACHLOROETHYLENE(PCE)	2.7	33	mg/kg	ND	-	0.036	0.24	48
XYLENE (TOTAL)	2500	2400	mg/kg	ND	-	-	0.24	48
SEC-BUTYLBENZENE	NS	NS	mg/kg	ND	-	0.036	0.24	48
ETHYL ACETATE	NS	NS	mg/kg	NA	-	-	-	-
1,3-DICHLOROPROPANE	NS	NS	mg/kg	ND	-	0.042	0.24	48
CIS-1,4-DICHLORO-2-BUTENE	NS	NS	mg/kg	ND	-	0.054	0.24	48
CIS-1,2-DICHLOROETHYLENE	85	78	mg/kg	ND	-	0.0019	0.006	1.1
TRANS-1,2-DICHLOROETHENE	600	570	mg/kg	ND	-	0.0013	0.006	1.1
TERT-BUTYL METHYL ETHER	210	4100	mg/kg	ND	-	0.001	0.006	1.1
M,P-XYLENE	NS	NS	mg/kg	ND	-	0.12	0.48	48
1,3-DICHLOROBENZENE	NS	NS	mg/kg	ND	-	0.036	0.24	48
CARBON TETRACHLORIDE	2.7	53	mg/kg	ND	-	0.0017	0.006	1.1
1,1-DICHLOROPROPENE	NS	NS	mg/kg	ND	-	0.0014	0.006	1.1
2-HEXANONE	NS	NS	mg/kg	NA	-	-	-	-
2,2-DICHLOROPROPANE	NS	NS	mg/kg	ND	-	0.001	0.006	1.1
ETHYL ETHER	NS	NS	mg/kg	NA	-	-	-	-
1,1,1,2-TETRACHLOROETHANE	8.9	190	mg/kg	ND	-	0.055	0.24	48
ETHYL TERT-BUTYL ETHER	NS	NS	mg/kg	NA	-	-	-	-
ETHANOL	NS	NS	mg/kg	NA	-	-	-	-
ACETONE	670000	270000	mg/kg	0.091	J	0.067	0.11	1.1
CHLOROFORM	1.4	34	mg/kg	0.015	-	0.0008	0.006	1.1
BENZENE	1.4	33	mg/kg	0.002	J	0.0013	0.006	1.1
1,1,1-TRICHLOROETHANE	7300	7200	mg/kg	ND	-	0.0014	0.006	1.1
BROMOMETHANE	30	29	mg/kg	ND	-	0.0025	0.006	1.1
CHLOROMETHANE	470	470	mg/kg	ND	-	0.0025	0.006	1.1
DIBROMOMETHANE	NS	NS	mg/kg	ND	-	0.053	0.24	48
BROMOCHLOROMETHANE	NS	NS	mg/kg	ND	-	0.0018	0.006	1.1
CHLOROETHANE	59000	59000	mg/kg	ND	-	0.0015	0.006	1.1
VINYL CHLORIDE	0.15	3.4	mg/kg	ND	-	0.0025	0.006	1.1
METHYLENE CHLORIDE	25	490	mg/kg	ND	-	0.0041	0.006	1.1
CARBON DISULFIDE	NS	NS	mg/kg	NA	-	-	-	-
BROMOFORM	80	1200	mg/kg	ND	-	0.042	0.24	48
BROMODICHLOROMETHANE	1.3	28	mg/kg	ND	-	0.039	0.24	48
1,1-DICHLOROETHANE	16	370	mg/kg	ND	-	0.0019	0.006	1.1
1,1-DICHLOROETHENE	350	350	mg/kg	ND	-	0.0014	0.006	1.1
TERT-BUTYL ALCOHOL	NS	NS	mg/kg	NA	-	-	-	-
TRICHLOROFLUOROMETHANE	NS	NS	mg/kg	ND	-	0.0016	0.006	1.1
DICHLORODIFLUOROMETHANE	NS	NS	mg/kg	ND	-	0.0019	0.006	1.1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NS	NS	mg/kg	ND	-	0.0009	0.006	1.1
1,2-DICHLOROPROPANE	4.4	66	mg/kg	ND	-	0.03	0.24	48
METHYL ETHYL KETONE (2-BUTANONE)	200000	120000	mg/kg	0.031	J	0.0081	0.11	1.1
1,1,2-TRICHLOROETHANE	5.1	6.3	mg/kg	ND	-	0.032	0.24	48
TRICHLOROETHYLENE (TCE)	6.1	18	mg/kg	ND	-	0.037	0.24	48
1,1,2,2-TETRACHLOROETHANE	2.7	49	mg/kg	ND	-	0.052	0.24	48
1,2,3-TRICHLOROBENZENE	NS	NS	mg/kg	ND	-	0.056	0.24	48
HEXACHLOROBUTADIENE	5.3	100	mg/kg	ND	-	0.054	0.24	48
NAPHTHALENE	17	400	mg/kg	ND	-	0.07	0.24	48
O-XYLENE (1,2-DIMETHYLBENZENE)	NS	NS	mg/kg	ND	-	0.05	0.24	48
2-CHLOROTOLUENE	NS	NS	mg/kg	ND	-	0.05	0.24	48
1,2-DICHLOROBENZENE	9400	7800	mg/kg	ND	-	0.042	0.24	48
1,2,4-TRIMETHYLBENZENE	NS	NS	mg/kg	ND	-	0.045	0.24	48
1,2-DIBROMO-3-CHLOROPROPANE	0.059	1.1	mg/kg	ND	-	0.075	0.24	48
1,2,3-TRICHLOROPROPANE	0.11	0.83	mg/kg	ND	-	0.07	0.24	48
T-BUTYLBENZENE	NS	NS	mg/kg	ND	-	0.032	0.24	48
ISOPROPYLBENZENE (CUMENE)	NS	NS	mg/kg	ND	-	0.041	0.24	48
BUTANE, 2-METHOXY-2-METHYL	NS	NS	mg/kg	NA	-	-	-	-
CYMENE	NS	NS	mg/kg	ND	-	0.036	0.24	48

Notes:

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mg/kg - milligrams per kilogram
NA - Not Analyzed
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
*+ – LCS and/or LCSD is outside acceptable limits, high bias.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Screening level exceeded

Table 1: Soil Analytical Results - PCBs

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	ES-1					ES2-6'				
			Feature	Stained soil near possible elevator shaft					Stained soil near second possible elevator shaft				
			Sample Type	In-situ					In-situ				
			Sample Date	1/9/2024					1/16/2024				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Polychlorinated Biphenyls													
Aroclor 1016	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1221	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1232	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1242	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1248	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1254	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1260	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1262	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1
Aroclor 1268	NS	NS	mg/kg	ND	-	0.0061	0.016	1	ND	-	0.0061	0.016	1

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2
mg/kg - milligrams per kilogram
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
B – Compound found in blank sample.
F1 – MS and/or MSD recovery exceeds control limits
F2 – MS/MSD RPD exceeds control limits

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Result exceeds hazardous trigger
10 - Screening level or hazardous trigger exceeded

APPENDIX A

SOIL MANAGEMENT PLAN

GIC Vernon
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue
Vernon, California

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13 October 2023
Project No. 721040501

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SOIL MANAGEMENT PLAN
GIC Vernon
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue
Vernon, California, 90058

1.0 INTRODUCTION

On behalf of Goodman (the Owner), Langan Engineering and Environmental Services, Inc. (Langan) has prepared this Soil Management Plan (SMP) for the approximately 29.2-acre property located at 3049, 3094, 3095, 3163, and 3200 East Vernon Avenue in the City of Vernon, California (the subject property). A subject property location map is provided as **Figure 1**. The subject property is identified as Los Angeles County Assessor Parcel Numbers (APNs):

- 6303-005-034
- 6303-005-035
- 6303-005-036
- 6303-013-052
- 6303-013-053
- 6303-013-054
- 6303-054-055

The historic use of the subject property described in Section 2.1.

The purpose of the SMP is to provide guidance on the handling of excavated soils encountered during grading and demolition during the subject property redevelopment activities (discussed further in Section 2.3).

Langan serves as the Environmental Consultant for the Owner, and it is understood that the Owner will provide the SMP to the pertinent contractors, as required.

2.0 SUBJECT PROPERTY DESCRIPTION

2.1 Subject Property Description and Location

The subject property consists of approximately 29.2-acres in the City of Vernon in Los Angeles County, California and is divided into a northern portion and southern portion of the subject property by East Vernon Avenue. The main entrance is located on South Soto Street, along the western border of the subject property, and the truck entrance is located on East Vernon Avenue. The current buildings on the subject property total approximately 688,038-square-feet and the

exterior areas are paved with asphalt and concrete. A Subject Property Plan is included as **Figure 2**.

2.2 Physical Setting

2.2.1 Geology

Subsurface soils at the subject property, observed during the May 2023 Phase II Environmental Site Assessment (ESA) performed by Langan, consisted of fill material between 1.5 to 6 feet in thickness and underlying native soils to the boring terminus. The fill soils encountered consist of loose to medium dense sand, silty sand, and sand with silt.

The underlying native soils consist of alluvial deposits composed of loose sand and medium stiff silt to depths of approximately five to 12.5 feet below ground surface (bgs). The upper alluvial sand and silt were typically underlain by medium dense to dense sand and silty sand to depths of approximately 24 to 35 feet bgs within the north portion of the subject property and to depths of approximately 33 to 40 feet within the south portion of the subject property.

A fine-grained layer consisting primarily of stiff to very stiff clayey and silty soils was encountered beneath the medium dense to very dense sand and silty sand to depths of approximately 38 to 46 feet bgs within the north portion of the subject property and 45 to 52 feet bgs within the south portion of the subject property.

2.2.2 Hydrogeology

The nearest surface water body is the Los Angeles River (LA River), which is located along the northeastern property line. In the vicinity of the subject property, LA River is channelized by concrete with a downstream flow to the south, towards Long Beach.

During environmental and geotechnical subsurface investigations completed in 2023 by Langan, groundwater was not encountered to the maximum drilled depth of approximately 75 feet bgs. According to the *Seismic Hazard Evaluation of the Los Angeles and South Gate 7.5-Minute Quadrangles, Los Angeles County, California, Seismic Hazard Zone Reports 029 & 34*, the historical high groundwater level at the subject property is greater than approximately 60 feet bgs.

2.3 Proposed Development

The Environmental Consultant understands that the Owner plans to redevelop the subject property. Redevelopment will include demolition, grading, and construction. The use of the

subject property will remain industrial.

3.0 SUMMARY OF PREVIOUS INVESTIGATIONS

3.1 Subject Property Background

As indicated in the May 2023 Langan Phase I ESA, the subject property was first developed for industrial use in approximately 1920 and has been iteratively developed since then. The industrial use included meat processing (1920 to 2023), fiberboard manufacturing (1928 to 1956), and auto repair and servicing (1920 to 2023). Since 1920, the meat packing facility expanded its operations to the entirety of the subject property north of East Vernon Avenue. South of East Vernon Avenue, the subject property was occupied with a gas station (1948 to 1952) and a paving company (1933 to 1967).

Three recognized environmental concerns (RECs) were identified for the subject property:

- REC-1 Historical Industrial Activity: There has been approximately 100-years of industrial activity on the subject property with associated infrastructure including rail spurs, electrical substations, vehicle maintenance and repair areas, hydraulic lifts, and hazardous materials storage. Potential constituents of concern associated with this REC include petroleum constituents, chlorinated solvents, polychlorinated biphenyls (PCBs), creosote, metals, and asbestos in the soil.

- REC-2 Petroleum Underground Storage Tanks (USTs): The EDR database report includes listings for 24 USTs of single-wall steel construction potentially installed on the subject property between 1929 and 1981. Langan reviewed supporting information for six USTs, but the statuses of the other 18 are unknown. The unknown statuses of the USTs, and age of the USTs indicated by available records indicate a potential for soil and soil vapor impacts at the subject property.

- REC-3 Industrial Activity in the Surrounding Area: There has been approximately 100 years of industrial activity on the adjacent properties and in the surrounding area of the subject property. Operations included a battery smelting and recycling facility, oil and gas production, meat packing and auto repair facilities. The current and historical operations in the vicinity of the subject property and the potential off-site sources of hazardous substances may have impacted the media on the subject property.

3.2 Previous Environmental Investigation Findings

The work scope and findings of Langan's May 30, 2023 *Phase II Environmental Site Investigation, 3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California*, are summarized below, with a specific focus on findings relevant to subject property soils and worker health and safety.

3.2.1 Langan - Phase II Environmental Site Assessment Report

Langan conducted a subsurface investigation at the subject property in between May 3 through 12, 2023, to attempt to delineate potential impacts to soil and soil vapor identified in the May 2023 Phase I ESA. Activities included the installation and sampling of 13 soil boring locations and 20 temporary soil vapor points. Investigation locations are shown on **Figure 3**.

Select soil samples collected from borings were analyzed by the following laboratory methods. See **Appendix A** for analytical results summary tables and **Appendix B** for laboratory analytical reports.

- Volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260B
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270 SIM
- California Administrative Manual (CAM) 17 Metals by EPA Method 6010B
- Pesticides by EPA Method 8081A
- Polychlorinated biphenyls (PCBs) by EPA Method 8082
- Asbestos by Polarized Light Microscopy (PLM)

Additionally, Hanby® total petroleum hydrocarbon (TPH) test kits were used in the field during drilling to evaluate the presence of TPH at five-foot intervals in each boring. During drilling, soils were screened for VOCs using a photoionization detector (PID) with readings measured in parts per million (ppm).

Soil vapor samples were collected from soil borings from temporary soil vapor probes at approximately 10 feet bgs and approximately 30 to 35 feet bgs in each boring. Soil vapor samples were analyzed by the following methods. See **Appendix A** for analytical results summary tables and **Appendix B** for laboratory analytical reports.

- VOCs by EPA Method TO-15;
- Fixed Gas (Methane, Oxygen, Carbon Dioxide) by ASTM Method D-1946; and
- Helium by ASTM Method D-1946.

3.3 Evaluation of Data

3.3.1 Evaluation of Soil Data

Based on the data collected from Langan's previous investigation, soil impacts are summarized in the section below and shown on **Figure 4**.

The results of the soil analyses were compared to San Francisco Bay Regional Water Quality

Control Board (SFB RWQCB)[1] Commercial/Industrial and Construction Worker Shallow Soil Exposure Environmental Screening Levels (ESLs), 2019 Rev. 2. Metal exceedances were detected for arsenic, lead, and nickel. Concentrations of arsenic above the Southern California background levels (12 milligrams per kilogram [mg/kg]) was detected in one sample (B-11-10) at a concentration of 34.4 mg/kg. Lead was detected above the commercial/industrial and construction worker ESL in one sample (B-11-10) at a concentration of 1,100 mg/kg. Nickel was detected above the construction worker ESL with a concentration of 136 mg/kg in one sample (B-11-10).

It should be recognized that unanticipated conditions in terms of impacted soils and vapors can be encountered during the earthwork and project development activities. The absence of impacts in areas or for chemicals not listed or described in the Phase II may not preclude the presence of such materials on the project.

Summaries of metals detected in the following locations of concern are identified in Tables 1 to 3 below:

Table 1: Sumps, Piping, Industrial Wastewater Infrastructure

Boring ID	Location of concern	Detected constituents	Exceedances
B-2	Proximity to the central industrial wastewater (IWW) sump and abandoned-in-place rail spur.	Arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Field screening for VOCs: 40 ppm	Arsenic – commercial/industrial and construction worker ESL
B-3	Proximity to IWW piping and historical auto repair shops.	Arsenic, barium, hexavalent chromium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: 10 ppm	Arsenic – commercial/industrial and construction worker ESL
B-11	Proximity to abandoned-in-place rail spur and IWW sumps.	Arsenic, barium, cadmium, hexavalent chromium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: between 10 ppm and 700 ppm	None
B-12	Interior point in main building accessible by drill rig. Proximity to abandoned-in-place UST and catchment basins.	Barium, chromium, cobalt, copper, nickel, vanadium, and zinc.	None

Table 2: Petroleum Related Operations (historical service stations and off-site oil and gas operations)

Boring ID	Location of concern	Detected constituents	Exceedances
B-1	Proximity to former auto repair shop and adjacent to auto maintenance facility.	Arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc.	Arsenic – commercial/industrial and construction worker ESL
B-3	Proximity to IWW piping and historical auto repair shops.	Arsenic, barium, hexavalent chromium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: 10 ppm	Arsenic – commercial/industrial and construction worker ESL

[1] SFB RWQCB set standards that other regions, including the Los Angeles Region, follow.

Boring ID	Location of concern	Detected constituents	Exceedances
B-4	Proximity to eastern property boundary, off-property leaking UST case, and historical oil and gas operations to the south.	Arsenic, barium, chromium, cobalt, copper, nickel, vanadium, and zinc. Hanby® field screening for TPH: between 25 ppm and 75 ppm	Arsenic – commercial/industrial and construction worker ESL
B-5	Proximity to historical gas station operating in the mid-20th century.	Arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: 350 ppm	Arsenic – commercial/industrial and construction worker ESL
B-6	Proximity to historical auto maintenance area and railroad in operation since the early 20th century.	Arsenic, barium, hexavalent chromium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: 50 ppm	Arsenic – commercial/industrial and construction worker ESL
B-7	Proximity to historical auto maintenance area and former fueling station.	Arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: between 75 ppm and >1,000 ppm.	Arsenic – commercial/industrial and construction worker ESL
B-8	Proximity to historical auto repair shops.	Arsenic, barium, chromium, cobalt, copper, nickel, vanadium, and zinc.	Arsenic – commercial/industrial and construction worker ESL
B-9	Proximity to historical gas station and rail spur in the southern portion.	Arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: 700 ppm	Arsenic – commercial/industrial and construction worker ESL
B-10	Proximity to historical paving company.	Arsenic, barium, chromium, cobalt, copper, nickel, vanadium, and zinc.	Arsenic – commercial/industrial and construction worker ESL
B-12	Interior point in main building accessible by drill rig. Proximity to abandoned-in-place UST and catchment basins.	Barium, chromium, cobalt, copper, nickel, vanadium, and zinc.	None
B-13	Proximity to former auto maintenance area, historical auto repair areas, former UST, and catchment basins.	Barium, chromium, cobalt, copper, nickel, vanadium, and zinc.	None

Table 3: Abandoned rail spurs and active railroads – Metals

Boring ID	Location of concern	Detected constituents	Exceedances
B-2	Proximity to the central industrial wastewater (IWW) sump and abandoned-in-place rail spur.	Arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for VOCs: 40 ppm	Arsenic – commercial/industrial and construction worker ESL
B-6	Proximity to historical auto maintenance area and railroad in operation since the early 20th century.	Arsenic, barium, hexavalent chromium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: 50 ppm	Arsenic – commercial/industrial and construction worker ESL
B-9	Proximity to historical gas station and rail spur in the southern portion.	Arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: 700 ppm	Arsenic – commercial/industrial and construction worker ESL
B-11	Proximity to abandoned-in-place rail spur and IWW sumps.	Arsenic, barium, cadmium, hexavalent chromium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc. Hanby® field screening for TPH: between 10 ppm and 700 ppm	Arsenic – California background; commercial/industrial and construction worker ESL Lead – commercial/industrial and construction worker ESL Nickel – construction worker ESL

Metals were detected in all soil sample analyses. In addition to arsenic, lead, and nickel, detected metals included antimony, barium, cadmium, chromium, hexavalent chromium, cobalt, copper, mercury, silver, vanadium, and zinc. Other than the exceedances of ESLs described for lead, arsenic, and nickel, metals were not detected above respective commercial/industrial or construction work ESLs.

Given the historical use of the subject property, potential unknown impacted areas in soil may be encountered during future grading and other development activities.

3.3.2 Evaluation of Soil Vapor Data

Based on the data collected to date, the current understanding of the extent of shallow soil vapor impacts within the anticipated depths of excavation during redevelopment (approximately zero to 30 feet bgs) are summarized in the section below and shown on **Figure 5**.

Results of the soil vapor analyses were compared to the SFB RWQCB Commercial/Industrial Subslab/Soil Gas Vapor Intrusion ESLs, 2019 Rev. 2. Chloroform was detected in eight of the soil borings above the ESL (18 micrograms per cubic meter [ug/m^3]) ranging from 25 ug/m^3 (B4-SG-30) to 390 ug/m^3 (B12-SG-10). Tetrachloroethylene (PCE) was detected above the ESL (67 ug/m^3) in six soil vapor samples ranging from 110 ug/m^3 (B3-SG-30) to 590 ug/m^3 (B2-SG-10). VOCs were detected in all soil vapor samples below respective commercial/industrial ESLs, with the exception of chloroform and PCE, as described above.

Summaries of VOCs detected in the following locations of concern are identified in Tables 4 through 6 below:

Table 4: Sumps, Piping, Industrial Wastewater Infrastructure – VOCs

Boring ID	Location of concern	Detected constituents	Exceedances
B-2	Proximity to the central industrial wastewater (IWW) sump and abandoned-in-place rail spur.	1,1,2-Trichloro-1,2,2-Trifluoroethane, acetone, benzene, chloroform, ethyl acetate isopropanol, M,P-xylene, methyl ethyl ketone (2-Butanone), methylene chloride, n-hexane, o-xylene, PCE, TCE, toluene, and trichlorofluoromethane. Field screening for VOCs: 40 ppm	Chloroform – commercial/industrial ESL PCE – commercial/industrial ESL
B-3	Proximity to IWW piping and historical auto repair shops.	1,1,2-Trichloro-1,2,2-Trifluoroethane, 2-haxanone, acetone, carbon tetrachloride, chloroform, ethyl acetate, isopropanol, methyl ethyl ketone (2-Butanone), methyl isobutyl ketone (4-Methyl-2-Pentanone), methylene chloride, n-hexane, o-xylene, tert-butyl alcohol, PCE, tetrahydrofuran, TCE, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: 10 ppm	Chloroform – commercial/industrial ESL PCE – commercial/industrial ESL

Boring ID	Location of concern	Detected constituents	Exceedances
B-11	Proximity to abandoned-in-place rail spur and IWW sumps.	Acetone, carbon tetrachloride, chloroform, n-hexane, tert-butyl alcohol, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: between 10 ppm and 700 ppm	Chloroform – commercial/industrial ESL
B-12	Interior point in main building accessible by drill rig. Proximity to abandoned-in-place UST and catchment basins.	1,1-Dichloroethene, acetone, chloroform, isopropanol, methyl ethyl ketone (2-Butanone), methyl isobutyl ketone (4-Methyl-2-Pentanone), PCE, toluene, and trichlorofluoromethane.	Chloroform – commercial/industrial ESL

Table 5: Petroleum Related Operations (historical service stations and off-site oil and gas operations) –

Boring ID	Location of concern	Detected constituents	Exceedances
B-1	Proximity to former auto repair shop and adjacent to auto maintenance facility.	Acetone, carbon disulfide, ethyl acetate, M,P-xylene, methyl ethyl ketone (2-Butanone), methylene chloride, tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane.	None
B-3	Proximity to IWW piping and historical auto repair shops.	1,1,2-Trichloro-1,2,2-Trifluoroethane, 2-haxanone, acetone, carbon tetrachloride, chloroform, ethyl acetate, isopropanol, methyl ethyl ketone (2-Butanone), methyl isobutyl ketone (4-Methyl-2-Pentanone), methylene chloride, n-hexane, o-xylene, tert-butyl alcohol, PCE, tetrahydrofuran, TCE, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: 10 ppm	Chloroform – commercial/industrial ESL PCE – commercial/industrial ESL
B-4	Proximity to eastern property boundary, off-property leaking UST case, and historical oil and gas operations to the south.	1,1-Difluoroethane, acetone, chloroform, ethyl acetate, isopropanol, methyl ethyl ketone (2-Butanone), methyl isobutyl ketone (4-Methyl-2-Pentanone), methylene chloride, n-hexane, tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: between 25 ppm and 75 ppm	Chloroform – commercial/industrial ESL
B-5	Proximity to historical gas station operating in the mid-20th century.	Acetone, chloroform, ethyl acetate, isopropanol, methyl ethyl ketone (2-Butanone), tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: 350 ppm	Chloroform – commercial/industrial ESL PCE – commercial/industrial ESL
B-6	Proximity to historical auto maintenance area and railroad in operation since the early 20th century.	2-Hexanone (MBK), acetone, chloroform, ethyl acetate, methyl ethyl ketone (2-Butanone), tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: 50 ppm	None
B-7	Proximity to historical auto maintenance area and former fueling station.	2-Hexanone (MBK), acetone, chloroform, ethyl acetate, isopropanol, methyl ethyl ketone (2-Butanone), tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: between 75 ppm and >1,000 ppm	Chloroform – commercial/industrial ESL PCE – commercial/industrial ESL

Boring ID	Location of concern	Detected constituents	Exceedances
B-8	Proximity to historical auto repair shops.	Acetone, chloroform, ethyl acetate, isopropanol, methyl ethyl ketone (2-Butanone), tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane.	Chloroform – commercial/industrial ESL
B-12	Interior point in main building accessible by drill rig. Proximity to abandoned-in-place UST and catchment basins.	1,1-Dichloroethene, acetone, chloroform, isopropanol, methyl ethyl ketone (2-Butanone), methyl isobutyl ketone (4-Methyl-2-Pentanone), PCE, toluene, and trichlorofluoromethane.	Chloroform – commercial/industrial ESL
B-13	Proximity to former auto maintenance area, historical auto repair areas, former UST, and catchment basins.	Acetone, carbon tetrachloride, chloroform, dichlorodifluoromethane, ethyl acetate, isopropanol, methyl ethyl ketone (2-Butanone), tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane.	Chloroform – commercial/industrial ESL

Table 6: Abandoned rail spurs and active railroads – VOCs

Boring ID	Location of concern	Detected constituents	Exceedances
B-2	Proximity to the central industrial wastewater (IWW) sump and abandoned-in-place rail spur.	1,1,2-Trichloro-1,2,2-Trifluoroethane, acetone, benzene, chloroform, ethyl acetate isopropanol, M,P-xylene, methyl ethyl ketone (2-Butanone), methylene chloride, n-hexane, o-xylene, PCE, TCE, toluene, and trichlorofluoromethane.	Chloroform – commercial/industrial ESL PCE – commercial/industrial ESL
B-6	Proximity to historical auto maintenance area and railroad in operation since the early 20th century.	2-Hexanone (MBK), acetone, chloroform, ethyl acetate, methyl ethyl ketone (2-Butanone), tert-butyl alcohol, PCE, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: 50 ppm	None
B-11	Proximity to abandoned-in-place rail spur and IWW sumps.	Acetone, carbon tetrachloride, chloroform, n-hexane, tert-butyl alcohol, toluene, and trichlorofluoromethane. Hanby® field screening for TPH: between 10 ppm and 700 ppm	Chloroform – commercial/industrial ESL

4.0 WORK PLANS

The following will be completed prior to soil disturbance activities, as appropriate for the phase of work.

4.1 Health and Safety Plan

On-site contractors will be required to prepare Health and Safety Plans (HASPs) per 29 Code of Federal Regulations (CFR) 1910 and 1926, that address OSHA health safety and all other applicable federal, state (e.g., Cal OSHA), and local regulations. The HASPs should address the potential for impacted soils and shallow soil vapor in work areas, with identified procedures that will be implemented for the protection of on-site workers. The Contractor's HASPs will be reviewed by the Environmental Consultant and implemented by the Contractors.

4.2 Excavation and Sampling Plans

If additional evidence of impacts are observed during soil disturbance activities, soils should be segregated and stockpiled for evaluation/sampling. In consultation with the Environmental Consultant, additional plans should be developed based on the stockpile sample results and by the nature and extent of the sample results, impacts, excavation and confirmatory sampling plans should be considered for soil disturbance in these areas.

4.3 Air Quality Mitigation Plan

4.3.1 Permits

4.3.1.1 Dust Monitoring – SCAQMD Rule 403

South Coast Air Quality Management District (SCAQMD) permit for Rule 403 will be applicable during the construction and grading phases of this project. The Contractor will need to complete and submit a Large Operation Notification to SCAQMD within at least 7 days of qualifying as a large operation, as defined in Rule 403. The Contractor will be required to comply with the implementation of best available dust control measures during active operations capable of generating fugitive dust as identified in the rule. Documentation related to the implementation of the permit, including the Large Operation Notification, daily records of dust control actions taken, and any air monitoring records or other forms related to the permit shall be provided to the Owner and Environmental Consultant and a copy shall be maintained by the Contractor for at least three years. A copy of Rule 403 is included in **Appendix C**.

4.3.1.2 Toxic Air Particulate Monitoring – SCAQMD Rule 1466

SCAQMD Rule 1466 regulates the amount of particulate emissions from soils with toxic air contaminants, including arsenic, lead, and nickel, during earth-moving activities, such as grading and excavation. The Contractor will be responsible for notifying the SCAQMD of the planned field activities at least 72 hours and no more than 30 days prior to conducting earth-moving activities and adhering to the permit for the duration of permitted activities within the permitted area. Particulate matter measurements conducted by the Contractor will be recorded daily and maintained on-site throughout the duration of field activities in accordance with the SCAQMD Rule 1466. Documentation related to the implementation of the permit, shall be provided to the Owner and Environmental Consultant and a copy shall be maintained by the Contractor for at least three years. A copy of Rule 1466 is included in **Appendix C**.

4.3.1.3 VOC Monitoring – SCAQMD Rule 1166

SCAQMD Rule 1166 permit regulates the management of VOC-contaminated soil during excavation or grading. If encountered conditions or observations are made during construction

and demolition activities to indicate that a permit under Rule 1166 is required, the Environmental Consultant will be responsible for notifying the SCAQMD of the planned field activities and obtaining the required permit. The Contractor will be responsible for adhering to the permit for the duration of permitted activities in the permitted area. Activities that can trigger work under Rule 1166 may include:

- Excavation of a UST or piping which has stored VOCs
- Excavation or grading of soil known to contain VOC material including gasoline, diesel, crude oil, lubricant, waste oil, adhesive, paint, stain, solvent, resin, monomer, and/or any other material containing VOCs
- The handling or storage of VOC-contaminated soil (soil which registers > 50 ppm or greater using an organic vapor analyzer calibrated with hexane) at or from an excavation or grading site.
- The treatment of VOC-contaminated soil at a facility, i.e. on-site treatment options such as land farming or via rotary kiln treatment..

A copy of Rule 1166 is included in **Appendix C**.

5.0 SOILS MANAGEMENT PROCEDURES

The sections below detail the general soil management procedures to be implemented at the subject property.

All on-site work that involves disturbances of soil should be conducted in a manner that minimizes worker exposure and protects public health and the environment from potential contaminants, including dust, and should be in accordance with the soil management methods described within this plan.

It is assumed that all soil disturbances will be conducted under a site-specific construction Stormwater Pollution Prevention Plan (SWPPP), to be prepared and monitored for compliance by Goodman's Qualified SWPPP Practitioner (QSP).

To the extent possible, soils should be segregated based on the location from which the soil was excavated. During excavation and soil handling, soils should be screened regularly by a combination of PID measurements, Hanby® TPH test kits, or olfactory and visual observations. If evidence that soil is impacts is observed, then soil will be excavated and placed in a separate stockpile and managed as impacted soil potentially requiring off-site disposal. It is understood

that the Environmental Consultant will screen soils, document results, and record stockpile locations and volumes, as required.

These soils will be characterized via sampling to determine proper disposition. Options include on-site management and/or disposal off-site at a licensed disposal facility, depending on sample results. Soil designated for off-site disposal will be transported to the appropriate licensed facilities for the identified contamination as recommended by the Contractor and reviewed by the Environmental Consultant. As disposal facilities are identified, facility and waste profile information should be amended to the SMP.

The soil and waste staging areas will be located prior to the start of field activities. The staging areas may be relocated periodically throughout the project to accommodate the progression of the subject property development activities.

In general, all stockpiled soils will need to be characterized via sampling, to determine disposition as discussed in detail in Section 6.3.

5.1 Subject Property Constituents of Concern and Previously Identified Soil Impacts

Based on the analytical data presented in the summary of previous investigations, the constituents of concern (COCs) at the subject property include arsenic, lead, nickel, chloroform, and PCE. Additional COCs that were not identified in the previous investigation may be present at the subject property. Analytical results detailing exceedances of screening levels per location are presented in **Figure 4** for soil and **Figure 5** for soil vapor, respectively.

5.2 Stockpile Management

5.2.1 General Guidelines

Soil stockpiles generated from known areas of impacts or with indications of impacts are to be covered and underlain with polyethylene sheeting and kept covered at all times to prevent soil transport by wind or rainwater runoff. Broken or ripped tarps must be promptly replaced. When not covered, the soil stockpile surfaces should be kept visibly moist by water spray, or other suitable effective means. While stockpiles are in place, the stockpile should be inspected and maintained by the Contractor daily, and before and after every storm event.

Impacted stockpiles should be kept to one area of the subject property and be well labeled and/or marked as an area with suspected or known contaminated soils. In addition, the stockpile should be identified on a subject property plan for proper documentation of its location and extent.

Stockpile areas should be appropriately managed by the Contractor to control stormwater run-on and run-off in accordance with applicable laws and regulations. Best management practices should always be implemented for erosion and sediment control. Top sheeting must be adequately secured so that all surface areas are covered.

5.3 Stockpile Sampling

Soil stockpiles will be sampled by the Environmental Consultant, as required. Sampling protocol will be predicated on the off-site disposal facilities' requirements. The contactor is required to provide a list of proposed disposal facilities no later than two weeks prior to the commencement of excavation activities. The proposed disposal facilities are to be approved by Goodman and the Environmental Consultant at least 3 days prior to exporting.

5.3.1 Stockpile Sampling

Stockpile sampling will be performed in coordination with the Environmental Consultant and consistent with guidance, such as EPA SW-846 Compendium, Chapter 9: Sampling Plan[2], DTSC Information Advisory Clean Imported Fill Material Fact Sheet[3], and disposal facility profiling requirements.

5.3.2 Analytical Testing

Samples of stockpiled soil will require chemical testing, including, but not limited to, the following, for on-site reuse:

- TPH-DRO and TPH-MRO by EPA Method 8015 Modified by EPA Method 3630;
- TPH-GRO by EPA Method 8015 Modified;
- VOCs by EPA Method 8260;

To screen the material for disposal requirements (as required by the approved disposal facility), the soil results will be compared to:

- California Code of Regulations (CCR), Title 22, Total Threshold Limit Value (TTLC)
- 10 times the California CCR Title 22 Soluble Threshold Limit Value (STLC) value
- 20 times the TCLP value

[2] https://www.epa.gov/hw-sw846/chapter-nine-sw-846-compendium-sampling-plans
[3] https://dtsc.ca.gov/information-advisory-clean-imported-fill-material-fact-sheet/

The 10X STLC and 20X TCLP are triggers to determine if the soil samples need to be further analyzed for leaching by STLC or TCLP to determine if the stockpile may be classified as hazardous.

If the 95% UCL of the results exceed TTLC, the soil will be considered hazardous by California Title 22, and will be disposed of off-site.

If the 95% UCL of the results do not exceed TTLC but are above STLC and TCLP hazardous triggers, the samples will be analyzed for STLC and/or TCLP, as appropriate. The 95% UCL of the results of the STLC and/or TCLP analysis will be compared to their respective limits to establish the appropriate reuse or disposal option as indicated above.

Based on the data collected, an alternative approach (e.g., composite sampling) may be followed as outlined in ASTM D6009-19: Standard Guide for Sampling Waste Piles or other ASTM standards (**Appendix D**). Additional chemical tests may be warranted if soil disposition is to be at a disposal facility. Specific required tests should be requested from the planned disposal facility.

5.4 Disposition of Soils

The results of the sampling and analysis will be used as a guide to evaluate the following proposed dispositions of soils.

5.4.1 General Reuse

Soil for general on-site reuse will meet one of the following criteria:

- PID readings below 50 ppm;
- Dataset results in all concentrations that do not exceed applicable SLs; or
- Dataset analytical results with calculated 95% UCL concentrations below applicable SLs and hazardous waste criteria

5.4.2 Conditional Reuse

Upon the Owner's approval, soil may be retained and proposed for reuse under asphalt cover if 95% UCL concentrations are above applicable SLs but below hazardous waste criteria. This decision may depend on an expanded risk or other evaluations, alternative measures of soil isolation or enhanced land use restriction covenants, and coordination with the Department of Toxic Substances Control (DTSC).

5.4.3 Off-Site Soil Disposal

Soil considered for off-site landfill disposal will meet one of the following criteria:

- PID readings above 1,000 ppm;
- Dataset results in all concentrations of a certain constituent that exceed applicable SLs; or
- Dataset analytical results with calculated 95% UCL concentrations above applicable SLs and/or hazardous waste criteria

Soil identified for disposal off-site will be sourced from a stockpile that has been chemically tested and profiled. Soil will be directly loaded from the stockpile into a container, dump truck, or trailer and immediately transported to the licensed soil disposal facility. The material is be handled and transported in accordance with applicable Department of Transportation (DOT) regulations and other applicable local, state, and federal regulations. All transport of the stockpiled materials will be performed by licensed haulers with current permits in accordance with appropriate local, state, and federal regulations. Loaded vehicles leaving the subject property will be appropriately placarded, lined and securely covered in accordance with applicable federal, state, local, and DOT requirements (or other applicable transportation requirements).

Before transporting soil off-site, trucks must use a tarp cover (or equivalent) and soil must be sufficiently wetted during loading to avoid generating dust. Excess soil should be removed from bumpers, fenders, or other exterior surfaces of the cargo compartment where soil may collect. Haul trucks transporting soil off-site must follow established subject property access protocols, as required, to meet the requirements of the subject property's construction SWPPP.

If warranted, site personnel may be stationed at the access and egress points to monitor inflow into and outflow from the subject property, document truck number, destination, and truck ticket number. Contractor site personnel must inspect all trucks exiting the subject property and must conduct necessary cleaning to prevent track out.

Soil excavated and removed from the subject property will be tracked using bills of lading, tickets, or manifests to confirm disposal/placement area. The Contractor should provide documentation regarding the exporting, tonnage/yardage, and the receiving facility to the Owner on a weekly basis.

Soil from the subject property shall not be offered as fill material off-site without prior written authorization from the Owner. Labeling requirements for transportation of waste shall be in

accordance with Title 29 of the CFR, Parts 172 and 173, and any other applicable law. Records of exported soil shall be maintained by the Contractor and copies provided to the Owner. A pre-approved list of potential disposal facilities to be used for the project will be appended to this report as **Table 1** as submitted by the Contractor and approved by the Owner.

5.5 Imported Backfill

Soil or crushed material to be imported to the subject property as backfill will be imported from a documented clean source such as a quarry or gravel pit. It is assumed that a documented clean soil source will include environmental soil analytical data. This information should be obtained and compared against criteria presented in the California DTSC Information Advisory Clean Imported Fill Material, dated October 2001. A copy of the advisory is included in **Appendix E** for reference and referral. The appropriateness of the provided test data is be evaluated by Environmental Consultant, with consideration of sample date(s), approximate volume and/or acreage the sample(s) are representative of, and chemical tests conducted.

All data should be received at least five business days prior to the date of the anticipated import date. In the event that additional soil sampling of the imported soil is required, additional time should time should be scheduled for sampling and laboratory turnaround time (two weeks or more).

6.0 IDENTIFICATION AND MANAGEMENT OF UNANTICIPATED CONDITIONS

The sections below describe "Unanticipated Conditions" that require special handling and management under this SMP.

The following conditions, if encountered at the subject property or within areas immediately adjacent to the subject property, shall be considered an "Unanticipated Condition" and may require additional assessment:

- Soil with unusual coloring or staining, which may indicate the presence of VOCs or TPH;
- Soil with strong or unusual odors, which may indicate the presence of VOCs or TPH;
- Oily or shiny soil or soil saturated with free-phase petroleum product;
- Soil vapor indicated by strong or unusual odor;
- Oil or other petroleum hydrocarbon materials;
- Soil screening results indicative of soil impacts above applicable ESLs;
- Unknown or unidentified liquids;

- Buried structures, including, but not limited to, former USTs, pipelines, sumps, or vaults that may potentially contain hazardous materials; and
- Former wells.
- Other Unanticipated Conditions not listed above

Encountering an Unanticipated Condition at the subject property during grading, construction, or development may present a health and safety exposure concern, depending on the nature and extent of hazardous substances or petroleum products that may be associated with the condition. In the event that such conditions are encountered, the Contractor must notify the Owner, stop work in the area, secure the subject property, provide health and safety guidelines for personnel for the new conditions and request the Environmental Consultant to sample and test the soil and advise the Contractor and Owner how to manage any such materials as discussed in Sections 4.2 and 5.4 above. Agency notifications will be required if conditions meet the threshold for reporting.

7.0 HEALTH AND SAFETY MEASURES

Working near contaminated media or encountering an Unanticipated Condition during soil intrusive activities at the subject property may present a health and safety exposure concern, depending on the nature and extent of hazardous substances associated with the condition. The Contractor is responsible for all health and safety controls on the jobsite. Potential routes of exposure to hazardous substances are through the following four exposure pathways:

- Dermal (skin) contact with soil, liquid, or other media containing hazardous substances;
- Inhalation of chemically-affected dust;
- Inhalation of VOCs from contaminated soil or soil gas; and
- Ingestion of soil, liquid, or other media containing hazardous substances.

On-site contractors that may contact potentially contaminated soil or soil vapor at the subject property during demolition or construction activities are required to prepare a site-specific HASP that complies with applicable occupational health and safety standards, including, but not limited to, 29 CFR 1910.120.

All HASPs must be maintained by on-site environmental health and safety personnel. This section is not intended to relieve any person, including contractors or employers, of other mandated worker health and safety planning and training requirements under relevant federal, state, or local statutes. Personnel conducting the work are responsible for reviewing information about subject

property conditions, potential health and safety concerns, and toxicological information for COCs or when preparing a HASP for the subject property. Contractors working in areas of known or suspected impacts must ensure that workers have appropriate health and safety training, site-specific training, and personal protective equipment (PPE) as determined by the relevant HASP.

8.0 SITE VISITS

The Environmental Consultant will conduct periodic site visits and/or continuous observations when soil disturbance operations are occurring, to review the implementation of this SMP and/or to document soil excavation and stockpiling. It is expected that a representative from SCAQMD will also be performing periodic site visits to review implementation of SCAQMD permit conditions during construction.

9.0 REPORTING

The Contractor shall provide documentation of exported soil volumes, including bills of lading or haul tickets, truck numbers, etc. on a minimum of a weekly basis. All documentation regarding the receiving facility shall be submitted to the Owner at least two weeks in advance of the export activities. Any unanticipated conditions will be documented with photos and a description log of the condition. In addition, VOC concentration measurements, dust control methods, and other field screening data will be recorded daily and maintained on-site by the Contractor throughout the duration of field activities in accordance with the permits specified above. All activities associated with the management of soil (including soil disposal from and import onto the subject property) will be documented either in a standalone report that will be provided to the Owner for recordkeeping and SCAQMD permit requirements.

10.0 LIMITATIONS

This SMP has been prepared on behalf of the Owner. The conclusions and recommendations in this report concerning the subject property are the professional opinions of the Environmental Consultant's personnel involved with the project, and this report should not be considered a legal interpretation of existing environmental regulations. Opinions presented herein apply to subject property conditions existing at the time of our assessment and cannot necessarily be taken to apply to subject property changes or conditions of which the Environmental Consultant is not aware and has not had the opportunity to evaluate. The SMP is subject to revisions following any supplemental subsurface investigations performed at the subject property by Environmental Consultant and scheduled before redevelopment activities commence.

11.0 REFERENCES

The following references were reviewed as part of this SMP:

American Society for Testing and Materials (ASTM), D6009-19: Standard Guide for Sampling Waste Piles, October 2019.

California Department of Toxic Substances Control, Information Advisory Clean, Imported Fill Material, October 2001.

Department of Toxic Substances Control, Human and Ecological Risk Office Note 3: DTSC-Modified Recommended Soil, Ambient Air and Tap Water Screening levels, Table 2, June 2020.

Department of Toxic Substances Control, Human and Ecological Risk Office Note 3: DTSC-Modified Recommended Screening Levels for Tap Water that Exceed State or Federal Maximum Contaminant Levels, Table 4, June 2020.

Environmental Protection Agency, Industrial Air Regional Screening Levels, November 2019

Langan 2023, Phase II Investigation Report, 3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, 30 May 2023.

San Francisco Bay Area Regional Water Quality Control Board, Environmental Screening Levels for Groundwater Direct Exposure Human Health Risk Levels – Tap water Cancer Risk and Non-cancer Hazard (2019 Rev 2).

South Coast Air Quality Management District, Rule 403 – Fugitive Dust, Amended 3 June 2005.

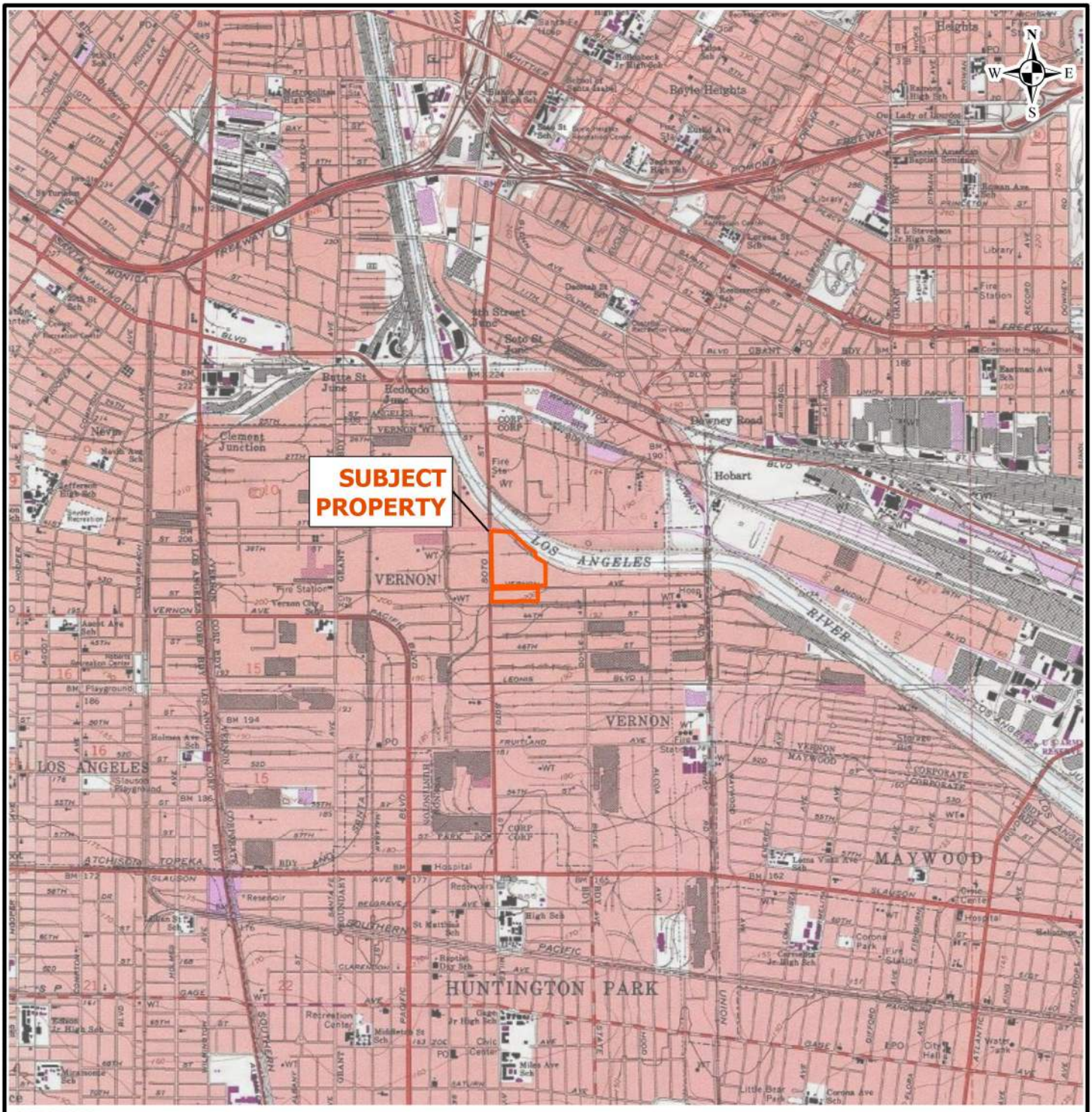
South Coast Air Quality Management District, Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil, Amended 11 May 2001.

South Coast Air Quality Management District, Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants, Amended 4 June 2021.

United States Environmental Protection Agency, Test Methods for Evaluating Solid Waste: Physical / Chemical Methods Compendium (SW-846), Chapter 9: Sampling Plan, September 1986.

United States Environmental Protection Agency, Class I Resource Conservation and Recovery Act Toxicity Characteristic Leaching Procedure, October 2009.

FIGURES



LEGEND

SUBJECT PROPERTY

NOTES:
1. SITE LOCATED IN THE LOS ANGELES USGS QUADRANGLE.
2. TOPOGRAPHIC BASEMAP IS PROVIDED THROUGH LANGAN'S ESRI ARCGIS SOFTWARE LICENSING AND ARCGIS ONLINE, NATIONAL GEOGRAPHIC SOCIETY, I-CUBED.
3. ALL FEATURES SHOWN ARE APPROXIMATE.

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Project	**3049 EAST VERNON AVE** VERNON LOS ANGELES COUNTY CALIFORNIA
Figure Title	**SUBJECT PROPERTY LOCATION MAP**
Project No.	721040501
Date	9/13/2023
Scale	1"=3,000 feet
Drawn By	KA
Figure	1

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LEGEND

- INFERRED GROUNDWATER FLOW DIRECTION
- SUBJECT PROPERTY

NOTES:
1. AERIAL IMAGERY PROVIDED BY NEARMAP. FLOWN ON 01/26/2023.
2. ALL LOCATIONS OF SUBJECT PROPERTY RECONNAISSANCE OBSERVATIONS ARE APPROXIMATE.

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Project	3049 EAST VERNON AVE VERNON LOS ANGELES COUNTY CALIFORNIA
Figure Title	SUBJECT PROPERTY LAYOUT
Project No.	721040501
Date	9/13/2023
Scale	1" = 250 feet
Drawn By	AC
Figure	2

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LEGEND

BORING LOCATIONS

SUBJECT PROPERTY

NOTES:
1. AERIAL IMAGERY PROVIDED BY NEARMAP. FLOWN ON 01/26/2023.
2. ALL LOCATIONS OF SUBJECT PROPERTY RECONNAISSANCE OBSERVATIONS ARE APPROXIMATE.

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Project
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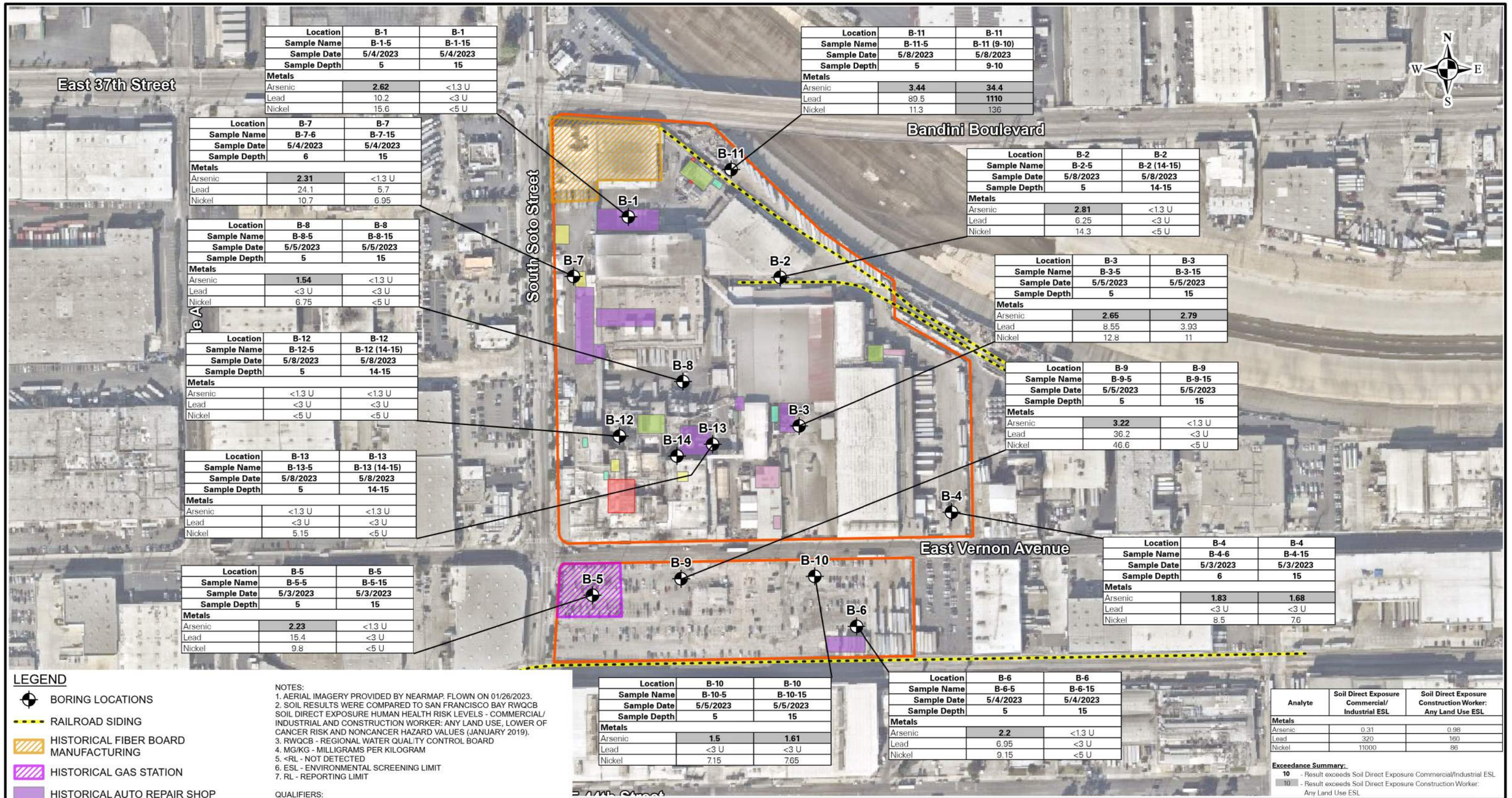
Figure Title
SAMPLE LOCATION MAP

Project No. 721040501
Date 9/13/2023
Scale 1" = 250 feet
Drawn By OG

Figure 3

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Location	B-1	B-1
Sample Name	B-1-5	B-1-15
Sample Date	5/4/2023	5/4/2023
Sample Depth	5	15
Metals		
Arsenic	**2.62**	<1.3 U
Lead	10.2	<3 U
Nickel	15.6	<5 U

Location	B-11	B-11
Sample Name	B-11-5	B-11 (9-10)
Sample Date	5/8/2023	5/8/2023
Sample Depth	5	9-10
Metals		
Arsenic	**3.44**	**34.4**
Lead	89.5	**1110**
Nickel	11.3	136

Location	B-7	B-7
Sample Name	B-7-6	B-7-15
Sample Date	5/4/2023	5/4/2023
Sample Depth	6	15
Metals		
Arsenic	**2.31**	<1.3 U
Lead	24.1	5.7
Nickel	10.7	6.95

Location	B-2	B-2
Sample Name	B-2-5	B-2 (14-15)
Sample Date	5/8/2023	5/8/2023
Sample Depth	5	14-15
Metals		
Arsenic	**2.81**	<1.3 U
Lead	6.25	<3 U
Nickel	14.3	<5 U

Location	B-8	B-8
Sample Name	B-8-5	B-8-15
Sample Date	5/5/2023	5/5/2023
Sample Depth	5	15
Metals		
Arsenic	**1.54**	<1.3 U
Lead	<3 U	<3 U
Nickel	6.75	<5 U

Location	B-3	B-3
Sample Name	B-3-5	B-3-15
Sample Date	5/5/2023	5/5/2023
Sample Depth	5	15
Metals		
Arsenic	**2.65**	**2.79**
Lead	8.55	3.93
Nickel	12.8	11

Location	B-12	B-12
Sample Name	B-12-5	B-12 (14-15)
Sample Date	5/8/2023	5/8/2023
Sample Depth	5	14-15
Metals		
Arsenic	<1.3 U	<1.3 U
Lead	<3 U	<3 U
Nickel	<5 U	<5 U

Location	B-9	B-9
Sample Name	B-9-5	B-9-15
Sample Date	5/5/2023	5/5/2023
Sample Depth	5	15
Metals		
Arsenic	**3.22**	<1.3 U
Lead	36.2	<3 U
Nickel	46.6	<5 U

Location	B-13	B-13
Sample Name	B-13-5	B-13 (14-15)
Sample Date	5/8/2023	5/8/2023
Sample Depth	5	14-15
Metals		
Arsenic	<1.3 U	<1.3 U
Lead	<3 U	<3 U
Nickel	5.15	<5 U

Location	B-4	B-4
Sample Name	B-4-6	B-4-15
Sample Date	5/3/2023	5/3/2023
Sample Depth	6	15
Metals		
Arsenic	**1.83**	**1.68**
Lead	<3 U	<3 U
Nickel	8.5	7.6

Location	B-5	B-5
Sample Name	B-5-5	B-5-15
Sample Date	5/3/2023	5/3/2023
Sample Depth	5	15
Metals		
Arsenic	**2.23**	<1.3 U
Lead	15.4	<3 U
Nickel	9.8	<5 U

Location	B-10	B-10
Sample Name	B-10-5	B-10-15
Sample Date	5/5/2023	5/5/2023
Sample Depth	5	15
Metals		
Arsenic	**1.5**	**1.61**
Lead	<3 U	<3 U
Nickel	7.15	7.65

Location	B-6	B-6
Sample Name	B-6-5	B-6-15
Sample Date	5/4/2023	5/4/2023
Sample Depth	5	15
Metals		
Arsenic	**2.2**	<1.3 U
Lead	6.95	<3 U
Nickel	9.15	<5 U

Analyte	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL
Metals		
Arsenic	0.31	0.98
Lead	320	160
Nickel	11000	86

Exceedance Summary:

10 - Result exceeds Soil Direct Exposure Commercial/Industrial ESL

10 - Result exceeds Soil Direct Exposure Construction Worker: Any Land Use ESL

LEGEND

- BORING LOCATIONS
- RAILROAD SIDING
- HISTORICAL FIBER BOARD MANUFACTURING
- HISTORICAL GAS STATION
- HISTORICAL AUTO REPAIR SHOP
- HISTORICAL SUBSTATION
- HISTORICAL UST
- ENGINE ROOM
- MAINTENANCE BUILDINGS
- HAZARDOUS WASTE STORAGE AREA
- SUBJECT PROPERTY

NOTES:
1. AERIAL IMAGERY PROVIDED BY NEARMAP. FLOWN ON 01/26/2023.
2. SOIL RESULTS WERE COMPARED TO SAN FRANCISCO BAY RWQCB SOIL DIRECT EXPOSURE HUMAN HEALTH RISK LEVELS - COMMERCIAL/ INDUSTRIAL AND CONSTRUCTION WORKER: ANY LAND USE, LOWER OF CANCER RISK AND NONCANCER HAZARD VALUES (JANUARY 2019).
3. RWQCB - REGIONAL WATER QUALITY CONTROL BOARD
4. MG/KG - MILLIGRAMS PER KILOGRAM
5. <RL - NOT DETECTED
6. ESL - ENVIRONMENTAL SCREENING LIMIT
7. RL - REPORTING LIMIT

QUALIFIERS:
U - THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.

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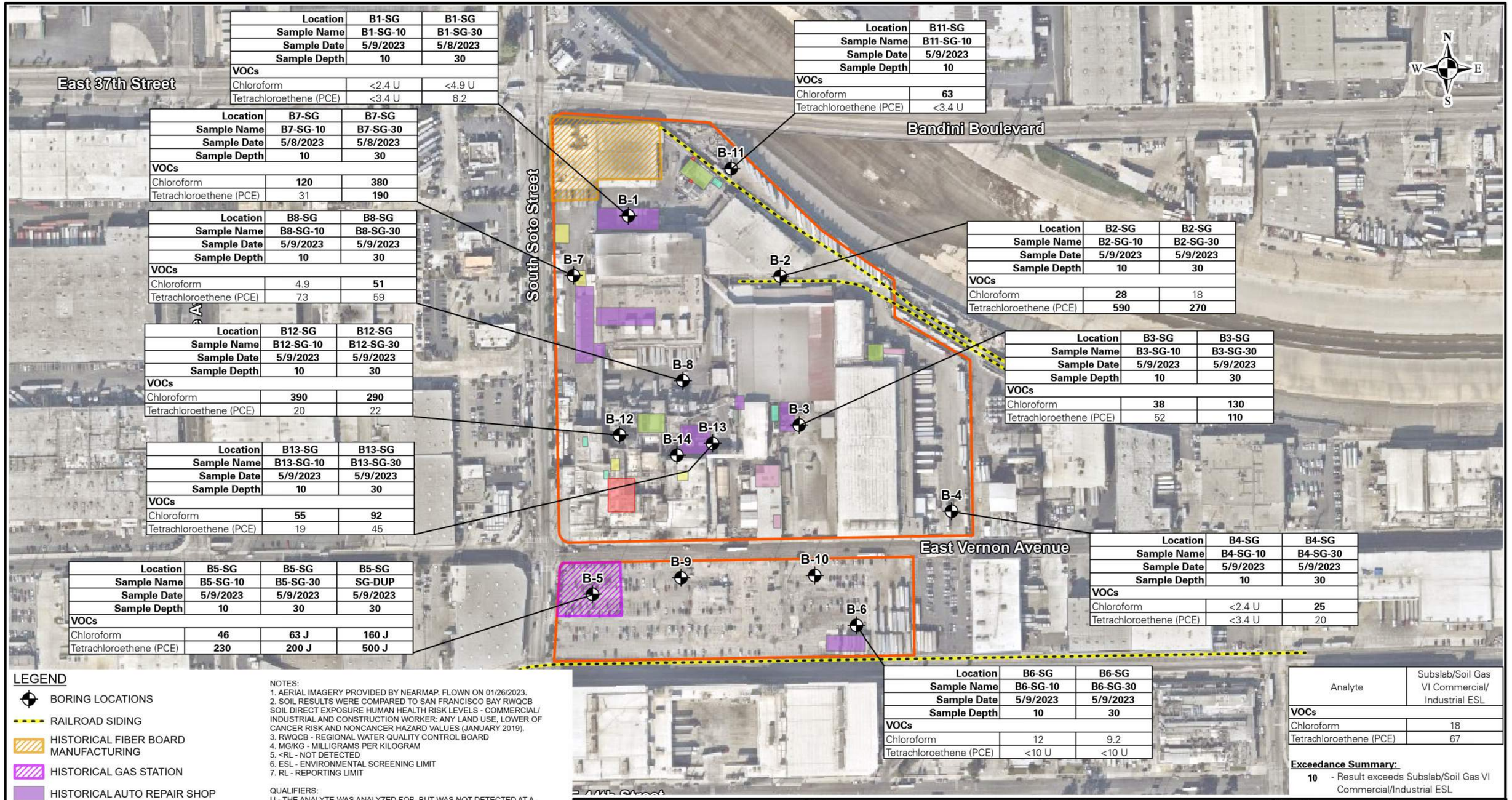
Project
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VERNON
LOS ANGELES COUNTY CALIFORNIA

Figure Title
SOIL SAMPLE RESULTS EXCEEDANCE SUMMARY

Project No. 721040501
Date 9/13/2023
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Figure 4

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Location	B1-SG	B1-SG
Sample Name	B1-SG-10	B1-SG-30
Sample Date	5/9/2023	5/8/2023
Sample Depth	10	30
VOCs		
Chloroform	<2.4 U	<4.9 U
Tetrachloroethene (PCE)	<3.4 U	8.2

Location	B11-SG
Sample Name	B11-SG-10
Sample Date	5/9/2023
Sample Depth	10
VOCs	
Chloroform	**63**
Tetrachloroethene (PCE)	<3.4 U

Location	B7-SG	B7-SG
Sample Name	B7-SG-10	B7-SG-30
Sample Date	5/8/2023	5/8/2023
Sample Depth	10	30
VOCs		
Chloroform	**120**	**380**
Tetrachloroethene (PCE)	31	**190**

Location	B2-SG	B2-SG
Sample Name	B2-SG-10	B2-SG-30
Sample Date	5/9/2023	5/9/2023
Sample Depth	10	30
VOCs		
Chloroform	**28**	18
Tetrachloroethene (PCE)	**590**	**270**

Location	B8-SG	B8-SG
Sample Name	B8-SG-10	B8-SG-30
Sample Date	5/9/2023	5/9/2023
Sample Depth	10	30
VOCs		
Chloroform	4.9	**51**
Tetrachloroethene (PCE)	7.3	59

Location	B3-SG	B3-SG
Sample Name	B3-SG-10	B3-SG-30
Sample Date	5/9/2023	5/9/2023
Sample Depth	10	30
VOCs		
Chloroform	**38**	**130**
Tetrachloroethene (PCE)	52	**110**

Location	B12-SG	B12-SG
Sample Name	B12-SG-10	B12-SG-30
Sample Date	5/9/2023	5/9/2023
Sample Depth	10	30
VOCs		
Chloroform	**390**	**290**
Tetrachloroethene (PCE)	20	22

Location	B13-SG	B13-SG
Sample Name	B13-SG-10	B13-SG-30
Sample Date	5/9/2023	5/9/2023
Sample Depth	10	30
VOCs		
Chloroform	**55**	**92**
Tetrachloroethene (PCE)	19	45

Location	B4-SG	B4-SG
Sample Name	B4-SG-10	B4-SG-30
Sample Date	5/9/2023	5/9/2023
Sample Depth	10	30
VOCs		
Chloroform	<2.4 U	**25**
Tetrachloroethene (PCE)	<3.4 U	20

Location	B5-SG	B5-SG	B5-SG
Sample Name	B5-SG-10	B5-SG-30	SG-DUP
Sample Date	5/9/2023	5/9/2023	5/9/2023
Sample Depth	10	30	30
VOCs			
Chloroform	**46**	**63 J**	**160 J**
Tetrachloroethene (PCE)	**230**	**200 J**	**500 J**

Location	B6-SG	B6-SG
Sample Name	B6-SG-10	B6-SG-30
Sample Date	5/9/2023	5/9/2023
Sample Depth	10	30
VOCs		
Chloroform	12	9.2
Tetrachloroethene (PCE)	<10 U	<10 U

Analyte	Subslab/Soil Gas VI Commercial/ Industrial ESL
VOCs	
Chloroform	18
Tetrachloroethene (PCE)	67

Exceedance Summary:

10 - Result exceeds Subslab/Soil Gas VI Commercial/Industrial ESL

LEGEND

- BORING LOCATIONS
- RAILROAD SIDING
- HISTORICAL FIBER BOARD MANUFACTURING
- HISTORICAL GAS STATION
- HISTORICAL AUTO REPAIR SHOP
- HISTORICAL SUBSTATION
- HISTORICAL UST
- ENGINE ROOM
- MAINTENANCE BUILDINGS
- HAZARDOUS WASTE STORAGE AREA
- SUBJECT PROPERTY

NOTES:
1. AERIAL IMAGERY PROVIDED BY NEARMAP. FLOWN ON 01/26/2023.
2. SOIL RESULTS WERE COMPARED TO SAN FRANCISCO BAY RWQCB SOIL DIRECT EXPOSURE HUMAN HEALTH RISK LEVELS - COMMERCIAL/ INDUSTRIAL AND CONSTRUCTION WORKER: ANY LAND USE, LOWER OF CANCER RISK AND NONCANCER HAZARD VALUES (JANUARY 2019).
3. RWQCB - REGIONAL WATER QUALITY CONTROL BOARD
4. MG/KG - MILLIGRAMS PER KILOGRAM
5. <RL - NOT DETECTED
6. ESL - ENVIRONMENTAL SCREENING LIMIT
7. RL - REPORTING LIMIT

QUALIFIERS:
U - THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.
J - THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.

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SCALE IN FEET

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Project
3049 EAST VERNON AVE
VERNON
LOS ANGELES COUNTY CALIFORNIA

Figure Title
SOIL VAPOR SCREENING LIMIT EXCEEDANCES

Project No. 721040501
Date 9/13/2023
Scale 1" = 250 feet
Drawn By OG
Figure 5

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Path: \\langan.com\data\LAX\data5\721040501\Project Data\ArcGIS\APRX_APRX 721040501\721040501.aprx

TABLES

To be submitted by Contractor and approved by Owner.

APPENDIX A

Appendix D
Summary of Soil Vapor Analytical Results
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California

Analyte	CAS Number	Subslab/ Soil Gas VI Commercial/ Industrial ESL	Location	B1-SG	B1-SG	B2-SG	B2-SG	B3-SG	B3-SG	B4-SG	B4-SG	B5-SG	B5-SG	B5-SG
			Sample Name	B1-SG-10	B1-SG-30	B2-SG-10	B2-SG-30	B3-SG-10	B3-SG-30	B4-SG-10	B4-SG-30	B5-SG-10	B5-SG-30	SG-DUP
			Sample Date	05/09/2023	05/08/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023
			Sample Depth	10	30	10	30	10	30	10	30	10	30	30
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	630-20-6	55	ug/m3	<3.4 U	<6.9 U	<10 U	<6.9 U	<10 U	<3.4 U	<3.4 U	<10 U	<6.9 U	<3.4 U	<10 U
1,1,1-Trichloroethane	71-55-6	150,000	ug/m3	<2.7 U	<5.5 U	<8.2 U	<5.5 U	<8.2 U	<2.7 U	<2.7 U	<8.2 U	<5.5 U	<2.7 U	<8.2 U
1,1,2,2-Tetrachloroethane	79-34-5	7	ug/m3	<3.4 U	<6.9 U	<10 U	<6.9 U	<10 U	<3.4 U	<3.4 U	<10 U	<6.9 U	<3.4 U	<10 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	NS	ug/m3	<3.8 U	<7.7 U	<11 U	8.7	<11 U	7	<3.8 U	<11 U	<7.7 U	<3.8 U	<11 U
1,1,2-Trichloroethane	79-00-5	26	ug/m3	<2.7 U	<5.5 U	<8.2 U	<5.5 U	<8.2 U	<2.7 U	<2.7 U	<8.2 U	<5.5 U	<2.7 U	<8.2 U
1,1-Dichloroethane	75-34-3	260	ug/m3	<2 U	<4.1 U	<6.1 U	<4.1 U	<6.1 U	<2 U	<2 U	<6.1 U	<4.1 U	<2 U	<6.1 U
1,1-Dichloroethene	75-35-4	10,000	ug/m3	<2 U	<4 U	<6 U	<4 U	<6 U	<2 U	<2 U	<6 U	<4 U	<2 U	<6 U
1,1-Difluoroethane	75-37-6	NS	ug/m3	<14 U	<27 U	<41 U	<27 U	<41 U	<14 U	<14 U	26,000 J	<27 U	<14 U	<41 U
1,2,4-Trichlorobenzene	120-82-1	290	ug/m3	<3.7 U	<7.4 U	<11 U	<7.4 U	<11 U	<3.7 U	<3.7 U	<11 U	<7.4 U	<3.7 U	<11 U
1,2,4-Trimethylbenzene	95-63-6	NS	ug/m3	<2.5 U	<4.9 U	<7.4 U	<4.9 U	<7.4 U	<2.5 U	<2.5 U	<7.4 U	<4.9 U	<2.5 U	<7.4 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	0.68	ug/m3	<3.8 U	<7.7 U	<12 U	<7.7 U	<12 U	<3.8 U	<3.8 U	<12 U	<7.7 U	<3.8 U	<12 U
1,2-Dichlorobenzene	95-50-1	29,000	ug/m3	<3 U	<6 U	<9 U	<6 U	<9 U	<3 U	<3 U	<9 U	<6 U	<3 U	<9 U
1,2-Dichloroethane	107-06-2	16	ug/m3	<2 U	<4.1 U	<6.1 U	<4.1 U	<6.1 U	<2 U	<2 U	<6.1 U	<4.1 U	<2 U	<6.1 U
1,2-Dichloropropane	78-87-5	41	ug/m3	<2.3 U	<4.6 U	<6.9 U	<4.6 U	<6.9 U	<2.3 U	<2.3 U	<6.9 U	<4.6 U	<2.3 U	<6.9 U
1,2-Dichlorotetrafluoroethane	76-14-2	NS	ug/m3	<3.5 U	<7 U	<10 U	<7 U	<10 U	<3.5 U	<3.5 U	<10 U	<7 U	<3.5 U	<10 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	NS	ug/m3	<2.5 U	<4.9 U	<7.4 U	<4.9 U	<7.4 U	<2.5 U	<2.5 U	<7.4 U	<4.9 U	<2.5 U	<7.4 U
1,3-Butadiene	106-99-0	NS	ug/m3	<1.1 U	<2.2 U	<3.3 U	<2.2 U	<3.3 U	<1.1 U	<1.1 U	<3.3 U	<2.2 U	<1.1 U	<3.3 U
1,3-Dichlorobenzene	541-73-1	NS	ug/m3	<3 U	<6 U	<9 U	<6 U	<9 U	<3 U	<3 U	<9 U	<6 U	<3 U	<9 U
1,4-Dichlorobenzene	106-46-7	37	ug/m3	<3 U	<6 U	<9 U	<6 U	<9 U	<3 U	<3 U	<9 U	<6 U	<3 U	<9 U
1,4-Dioxane (P-Dioxane)	123-91-1	53	ug/m3	<3.6 U	<7.2 U	<11 U	<7.2 U	<11 U	<3.6 U	<3.6 U	<11 U	<7.2 U	<3.6 U	<11 U
2-Hexanone (MBK)	591-78-6	NS	ug/m3	<2.1 U	<4.1 U	<6.2 U	<4.1 U	11	<2.1 U	<2.1 U	<6.2 U	<4.1 U	<2.1 U	<6.2 U
4-Ethyltoluene	622-96-8	NS	ug/m3	<2.5 U	<4.9 U	<7.4 U	<4.9 U	<7.4 U	<2.5 U	<2.5 U	<7.4 U	<4.9 U	<2.5 U	<7.4 U
Acetone	67-64-1	4,500,000	ug/m3	41	230	<36 U	53	480 J	33	25	550	44	36	37
Benzene	71-43-2	14	ug/m3	<1.6 U	<3.2 U	<4.8 U	13	<4.8 U	<1.6 U	<1.6 U	<4.8 U	<3.2 U	<1.6 U	<4.8 U
Bromodichloromethane	75-27-4	11	ug/m3	<3.4 U	<6.7 U	<10 U	<6.7 U	<10 U	<3.4 U	<3.4 U	<10 U	<6.7 U	<3.4 U	<10 U
Bromoform	75-25-2	370	ug/m3	<5.2 U	<10 U	<16 U	<10 U	<16 U	<5.2 U	<5.2 U	<16 U	<10 U	<5.2 U	<16 U
Bromomethane	74-83-9	730	ug/m3	<1.9 U	<3.9 U	<5.8 U	<3.9 U	<5.8 U	<1.9 U	<1.9 U	<5.8 U	<3.9 U	<1.9 U	<5.8 U
Butane, 2-Methoxy-2-Methyl	994-05-8	NS	ug/m3	<2.1 U	<4.2 U	<6.3 U	<4.2 U	<6.3 U	<2.1 U	<2.1 U	<6.3 U	<4.2 U	<2.1 U	<6.3 U
Carbon Disulfide	75-15-0	NS	ug/m3	<1.6 U	5.3	<4.7 U	32	<4.7 U	<1.6 U	<1.6 U	<4.7 U	<3.1 U	<1.6 U	<4.7 U
Carbon Tetrachloride	56-23-5	68	ug/m3	<3.1 U	<6.3 U	<9.4 U	<6.3 U	<9.4 U	19	<3.1 U	<9.4 U	<6.3 U	<3.1 U	<9.4 U
Chlorobenzene	108-90-7	7,300	ug/m3	<2.3 U	<4.6 U	<6.9 U	<4.6 U	<6.9 U	<2.3 U	<2.3 U	<6.9 U	<4.6 U	<2.3 U	<6.9 U
Chloroethane	75-00-3	1,500,000	ug/m3	<1.3 U	<2.6 U	<4 U	<2.6 U	<4 U	<1.3 U	<1.3 U	<4 U	<2.6 U	<1.3 U	<4 U
Chloroform	67-66-3	**18**	ug/m3	<2.4 U	<4.9 U	**28**	18	**38**	**130**	<2.4 U	**25**	**46**	**63 J**	**160 J**
Chloromethane	74-87-3	13,000	ug/m3	<4.1 U	<8.3 U	<12 U	<8.3 U	<12 U	<4.1 U	<4.1 U	<12 U	<8.3 U	<4.1 U	<12 U
Cis-1,2-Dichloroethene	156-59-2	1,200	ug/m3	<2 U	<4 U	<5.9 U	<4 U	<5.9 U	<2 U	<2 U	<5.9 U	<4 U	<2 U	<5.9 U
Cis-1,3-Dichloropropene	10061-01-5	NS	ug/m3	<2.3 U	<4.5 U	<6.8 U	<4.5 U	<6.8 U	<2.3 U	<2.3 U	<6.8 U	<4.5 U	<2.3 U	<6.8 U
Dibromochloromethane	124-48-1	NS	ug/m3	<4.3 U	<8.5 U	<13 U	<8.5 U	<13 U	<4.3 U	<4.3 U	<13 U	<8.5 U	<4.3 U	<13 U
Dichlorodifluoromethane	75-71-8	NS	ug/m3	<2.5 U	<5 U	<7.4 U	<5 U	<7.4 U	<2.5 U	<2.5 U	<7.4 U	<5 U	<2.5 U	<7.4 U
Ethyl Acetate	141-78-6	NS	ug/m3	<1.8 U	37	<5.4 U	19	40	17	<1.8 U	80	18	11 J	29 J
Ethyl Tert-Butyl Ether	637-92-3	NS	ug/m3	<2.1 U	<4.2 U	<6.3 U	<4.2 U	<6.3 U	<2.1 U	<2.1 U	<6.3 U	<4.2 U	<2.1 U	<6.3 U
Ethylbenzene	100-41-4	160	ug/m3	<2.2 U	<4.3 U	<6.5 U	<4.3 U	<6.5 U	<2.2 U	<2.2 U	<6.5 U	<4.3 U	<2.2 U	<6.5 U
Hexachlorobutadiene	87-68-3	19	ug/m3	<5.3 U	<11 U	<16 U	<11 U	<16 U	<5.3 U	<5.3 U	<16 U	<11 U	<5.3 U	<16 U
Isopropanol	67-63-0	NS	ug/m3	<12 U	<25 U	<37 U	55	<37 U	17	21	170	<25 U	12	<37 U
Isopropyl Ether	108-20-3	NS	ug/m3	<2.1 U	<4.2 U	<6.3 U	<4.2 U	<6.3 U	<2.1 U	<2.1 U	<6.3 U	<4.2 U	<2.1 U	<6.3 U
M,P-Xylene	179601-23-1	NS	ug/m3	<2.2 U	5.2	<6.5 U	13	<6.5 U	<2.2 U	<2.2 U	<6.5 U	<4.3 U	<2.2 U	<6.5 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	730,000	ug/m3	2.9	32	<4.4 U	16	36	14	2.2	69	15	9.5 J	24 J
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone	108-10-1	440,000	ug/m3	<2.1 U	<4.1 U	<6.2 U	<4.1 U	<6.2 U	2.3	<2.1 U	<6.2 U	<4.1 U	<2.1 U	<6.2 U
Methylene Chloride	75-09-2	410	ug/m3	14	<21 U	<31 U	<21 U	<31 U	<10 U	<10 U	<31 U	<21 U	<10 U	<31 U
Naphthalene	91-20-3	12	ug/m3	<2.6 U	<5.2 U	<7.9 U	<5.2 U	<7.9 U	<2.6 U	<2.6 U	<7.9 U	<5.2 U	<2.6 U	<7.9 U
n-Hexane	110-54-3	NS	ug/m3	<1.8 U	<3.5 U	<5.3 U	8.1	<5.3 U	1.9	<1.8 U	<5.3 U	<3.5 U	<1.8 U	<5.3 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	ug/m3	<2.2 U	<4.3 U	<6.5 U	4.9	<6.5 U	<2.2 U	<2.2 U	<6.5 U	<4.3 U	<2.2 U	<6.5 U
Styrene	100-42-5	130,000	ug/m3	<2.1 U	<4.3 U	<6.4 U	<4.3 U	<6.4 U	<2.1 U	<2.1 U	<6.4 U	<4.3 U	<2.1 U	<6.4 U
Tert-Butyl Alcohol	75-65-0	NS	ug/m3	2.2	6.4	<4.5 U	<3 U	11	3.8	5.1	28	3.8	3.9 J	11 J
Tert-Butyl Methyl Ether	1634-04-4	1,600	ug/m3	<1.8 U	<3.6 U	<5.4 U	<3.6 U	<5.4 U	<1.8 U	<1.8 U	<5.4 U	<3.6 U	<1.8 U	<5.4 U
Tetrachloroethene (PCE)	127-18-4	**67**	ug/m3	<3.4 U	8.2	**590**	**270**	52	**110**	<3.4 U	20	**230**	**200 J**	**500 J**
Tetrahydrofuran	109-99-9	NS	ug/m3	<1.5 U	<3 U	<4.4 U	<3 U	<4.4 U	3	<1.5 U	<4.4 U	<3 U	<1.5 U	<4.4 U
Toluene	108-88-3	44,000	ug/m3	6.2	95	13	71	15	29	<1.9 U	22	12	4.6	10
Trans-1,2-Dichloroethene	156-60-5	12,000	ug/m3	<2 U	<4 U	<5.9 U	<4 U	<5.9 U	<2 U	<2 U	<5.9 U	<4 U	<2 U	<5.9 U
Trans-1,3-Dichloropropene	10061-02-6	NS	ug/m3	<2.3 U	<4.5 U	<6.8 U	<4.5 U	<6.8 U	<2.3 U	<2.3 U	<6.8 U	<4.5 U	<2.3 U	<6.8 U
Trichloroethene (TCE)	79-01-6	100	ug/m3	<2.7 U	<5.4 U	<8.1 U	5.9	<8.1 U	4.5	<2.7 U	<8.1 U	<5.4 U	<2.7 U	<8.1 U
Trichlorofluoromethane	75-69-4	NS	ug/m3	31	300	36	96	27	29	<2.8 U	36	16	8.7 J	20 J
Vinyl Acetate	108-05-4	NS	ug/m3	<1.8 U	<3.5 U	<5.3 U	<3.5 U	<5.3 U	<1.8 U	<1.8 U	<5.3 U	<3.5 U	<1.8 U	<5.3 U
Vinyl Chloride	75-01-4	5.2	ug/m3	<1.3 U	<2.6 U	<3.8 U	<2.6 U	<3.8 U	<1.3 U	<1.3 U	<3.8 U	<2.6 U	<1.3 U	<3.8 U

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Rev. 2
ug/m3 - microgram per cubic meter
NS - no standard

Appendix D
Summary of Soil Vapor Analytical Results
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California

Analyte	CAS Number	Subslab/ Soil Gas VI Commercial/ Industrial ESL	Location	B6-SG	B6-SG	B7-SG	B7-SG	B8-SG	B8-SG	B11-SG	B12-SG	B12-SG	B13-SG	B13-SG
			Sample Name	B6-SG-10	B6-SG-30	B7-SG-10	B7-SG-30	B8-SG-10	B8-SG-30	B11-SG-10	B12-SG-10	B12-SG-30	B13-SG-10	B13-SG-30
			Sample Date	05/09/2023	05/09/2023	05/08/2023	05/08/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023
			Sample Depth	10	30	10	30	10	30	10	10	30	10	30
			Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	630-20-6	55	ug/m3	<10 U	<10 U	<10 U	<10 U	<3.4 U	<21 U	<3.4 U	<10 U	<3.4 U	<3.4 U	<10 U
1,1,1-Trichloroethane	71-55-6	150,000	ug/m3	<8.2 U	<8.2 U	<8.2 U	<8.2 U	<2.7 U	<16 U	<2.7 U	<8.2 U	<2.7 U	<2.7 U	<8.2 U
1,1,2,2-Tetrachloroethane	79-34-5	7	ug/m3	<10 U	<10 U	<10 U	<10 U	<3.4 U	<21 U	<3.4 U	<10 U	<3.4 U	<3.4 U	<10 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	NS	ug/m3	<11 U	<11 U	<11 U	<11 U	<3.8 U	<23 U	<3.8 U	<11 U	<3.8 U	<3.8 U	<11 U
1,1,2-Trichloroethane	79-00-5	26	ug/m3	<8.2 U	<8.2 U	<8.2 U	<8.2 U	<2.7 U	<16 U	<2.7 U	<8.2 U	<2.7 U	<2.7 U	<8.2 U
1,1-Dichloroethane	75-34-3	260	ug/m3	<6.1 U	<6.1 U	<6.1 U	<6.1 U	<2 U	<12 U	<2 U	<6.1 U	<2 U	<2 U	<6.1 U
1,1-Dichloroethene	75-35-4	10,000	ug/m3	<6 U	<6 U	<6 U	<6 U	<2 U	<12 U	<2 U	6.5	<2 U	<2 U	<6 U
1,1-Difluoroethane	75-37-6	NS	ug/m3	<41 U	<41 U	<41 U	<41 U	<14 U	<81 U	<14 U	<41 U	<14 U	<14 U	<41 U
1,2,4-Trichlorobenzene	120-82-1	290	ug/m3	<11 U	<11 U	<11 U	<11 U	<3.7 U	<22 U	<3.7 U	<11 U	<3.7 U	<3.7 U	<11 U
1,2,4-Trimethylbenzene	95-63-6	NS	ug/m3	<7.4 U	<7.4 U	<7.4 U	<7.4 U	<2.5 U	<15 U	<2.5 U	<7.4 U	<2.5 U	<2.5 U	<7.4 U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	0.68	ug/m3	<12 U	<12 U	<12 U	<12 U	<3.8 U	<23 U	<3.8 U	<12 U	<3.8 U	<3.8 U	<12 U
1,2-Dichlorobenzene	95-50-1	29,000	ug/m3	<9 U	<9 U	<9 U	<9 U	<3 U	<18 U	<3 U	<9 U	<3 U	<3 U	<9 U
1,2-Dichloroethane	107-06-2	16	ug/m3	<6.1 U	<6.1 U	<6.1 U	<6.1 U	<2 U	<12 U	<2 U	<6.1 U	<2 U	<2 U	<6.1 U
1,2-Dichloropropane	78-87-5	41	ug/m3	<6.9 U	<6.9 U	<6.9 U	<6.9 U	<2.3 U	<14 U	<2.3 U	<6.9 U	<2.3 U	<2.3 U	<6.9 U
1,2-Dichlorotetrafluoroethane	76-14-2	NS	ug/m3	<10 U	<10 U	<10 U	<10 U	<3.5 U	<21 U	<3.5 U	<10 U	<3.5 U	<3.5 U	<10 U
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	NS	ug/m3	<7.4 U	<7.4 U	<7.4 U	<7.4 U	<2.5 U	<15 U	<2.5 U	<7.4 U	<2.5 U	<2.5 U	<7.4 U
1,3-Butadiene	106-99-0	NS	ug/m3	<3.3 U	<3.3 U	<3.3 U	<3.3 U	<1.1 U	<6.6 U	<1.1 U	<3.3 U	<1.1 U	<1.1 U	<3.3 U
1,3-Dichlorobenzene	541-73-1	NS	ug/m3	<9 U	<9 U	<9 U	<9 U	<3 U	<18 U	<3 U	<9 U	<3 U	<3 U	<9 U
1,4-Dichlorobenzene	106-46-7	37	ug/m3	<9 U	<9 U	<9 U	<9 U	<3 U	<18 U	<3 U	<9 U	<3 U	<3 U	<9 U
1,4-Dioxane (P-Dioxane)	123-91-1	53	ug/m3	<11 U	<11 U	<11 U	<11 U	<3.6 U	<22 U	<3.6 U	<11 U	<3.6 U	<3.6 U	<11 U
2-Hexanone (MBK)	591-78-6	NS	ug/m3	<6.2 U	7.7	<6.2 U	11	<2.1 U	<12 U	<2.1 U	<6.2 U	<2.1 U	<2.1 U	<6.2 U
4-Ethyltoluene	622-96-8	NS	ug/m3	<7.4 U	<7.4 U	<7.4 U	<7.4 U	<2.5 U	<15 U	<2.5 U	<7.4 U	<2.5 U	<2.5 U	<7.4 U
Acetone	67-64-1	4,500,000	ug/m3	270	510	250	410	48	260	22	<36 U	250 J	23	160
Benzene	71-43-2	14	ug/m3	<4.8 U	<4.8 U	<4.8 U	<4.8 U	<1.6 U	<9.6 U	<1.6 U	<4.8 U	<1.6 U	<1.6 U	<4.8 U
Bromodichloromethane	75-27-4	11	ug/m3	<10 U	<10 U	<10 U	<10 U	<3.4 U	<20 U	<3.4 U	<10 U	<3.4 U	<3.4 U	<10 U
Bromoform	75-25-2	370	ug/m3	<16 U	<16 U	<16 U	<16 U	<5.2 U	<31 U	<5.2 U	<16 U	<5.2 U	<5.2 U	<16 U
Bromomethane	74-83-9	730	ug/m3	<5.8 U	<5.8 U	<5.8 U	<5.8 U	<1.9 U	<12 U	<1.9 U	<5.8 U	<1.9 U	<1.9 U	<5.8 U
Butane, 2-Methoxy-2-Methyl	994-05-8	NS	ug/m3	<6.3 U	<6.3 U	<6.3 U	<6.3 U	<2.1 U	<13 U	<2.1 U	<6.3 U	<2.1 U	<2.1 U	<6.3 U
Carbon Disulfide	75-15-0	NS	ug/m3	<4.7 U	<4.7 U	<4.7 U	<4.7 U	<1.6 U	<9.3 U	<1.6 U	<4.7 U	<1.6 U	<1.6 U	<4.7 U
Carbon Tetrachloride	56-23-5	68	ug/m3	<9.4 U	<9.4 U	<9.4 U	<9.4 U	<3.1 U	<19 U	4	<9.4 U	<3.1 U	3.1	<9.4 U
Chlorobenzene	108-90-7	7,300	ug/m3	<6.9 U	<6.9 U	<6.9 U	<6.9 U	<2.3 U	<14 U	<2.3 U	<6.9 U	<2.3 U	<2.3 U	<6.9 U
Chloroethane	75-00-3	1,500,000	ug/m3	<4 U	<4 U	<4 U	<4 U	<1.3 U	<7.9 U	<1.3 U	<4 U	<1.3 U	<1.3 U	<4 U
Chloroform	67-66-3	**18**	ug/m3	12	9.2	**120**	**380**	4.9	**51**	**63**	**390**	**290**	**55**	**92**
Chloromethane	74-87-3	13,000	ug/m3	<12 U	<12 U	<12 U	<12 U	<4.1 U	<25 U	<4.1 U	<12 U	<4.1 U	<4.1 U	<12 U
Cis-1,2-Dichloroethene	156-59-2	1,200	ug/m3	<5.9 U	<5.9 U	<5.9 U	<5.9 U	<2 U	<12 U	<2 U	<5.9 U	<2 U	<2 U	<5.9 U
Cis-1,3-Dichloropropene	10061-01-5	NS	ug/m3	<6.8 U	<6.8 U	<6.8 U	<6.8 U	<2.3 U	<14 U	<2.3 U	<6.8 U	<2.3 U	<2.3 U	<6.8 U
Dibromochloromethane	124-48-1	NS	ug/m3	<13 U	<13 U	<13 U	<13 U	<4.3 U	<26 U	<4.3 U	<13 U	<4.3 U	<4.3 U	<13 U
Dichlorodifluoromethane	75-71-8	NS	ug/m3	<7.4 U	<7.4 U	<7.4 U	<7.4 U	<2.5 U	<15 U	<2.5 U	<7.4 U	<2.5 U	2.5	<7.4 U
Ethyl Acetate	141-78-6	NS	ug/m3	<5.4 U	48	28	68	12	44	<1.8 U	<5.4 U	<1.8 U	<1.8 U	11
Ethyl Tert-Butyl Ether	637-92-3	NS	ug/m3	<6.3 U	<6.3 U	<6.3 U	<6.3 U	<2.1 U	<13 U	<2.1 U	<6.3 U	<2.1 U	<2.1 U	<6.3 U
Ethylbenzene	100-41-4	160	ug/m3	<6.5 U	<6.5 U	<6.5 U	<6.5 U	<2.2 U	<13 U	<2.2 U	<6.5 U	<2.2 U	<2.2 U	<6.5 U
Hexachlorobutadiene	87-68-3	19	ug/m3	<16 U	<16 U	<16 U	<16 U	<5.3 U	<32 U	<5.3 U	<16 U	<5.3 U	<5.3 U	<16 U
Isopropanol	67-63-0	NS	ug/m3	<37 U	<37 U	68	<37 U	80	<74 U	<12 U	<37 U	190	29	660
Isopropyl Ether	108-20-3	NS	ug/m3	<6.3 U	<6.3 U	<6.3 U	<6.3 U	<2.1 U	<13 U	<2.1 U	<6.3 U	<2.1 U	<2.1 U	<6.3 U
M,P-Xylene	179601-23-1	NS	ug/m3	<6.5 U	<6.5 U	<6.5 U	<6.5 U	<2.2 U	<13 U	<2.2 U	<6.5 U	<2.2 U	<2.2 U	<6.5 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	730,000	ug/m3	17	42	23	57	10	38	<1.5 U	8.3	7.1	6.6	11
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone	108-10-1	440,000	ug/m3	<6.2 U	<6.2 U	<6.2 U	<6.2 U	<2.1 U	<12 U	<2.1 U	6.3	<2.1 U	<2.1 U	<6.2 U
Methylene Chloride	75-09-2	410	ug/m3	<31 U	<31 U	<31 U	<31 U	<10 U	<62 U	<10 U	<31 U	<10 U	<10 U	<31 U
Naphthalene	91-20-3	12	ug/m3	<7.9 U	<7.9 U	<7.9 U	<7.9 U	<2.6 U	<16 U	<2.6 U	<7.9 U	<2.6 U	<2.6 U	<7.9 U
n-Hexane	110-54-3	NS	ug/m3	<5.3 U	<5.3 U	<5.3 U	<5.3 U	<1.8 U	<11 U	27	<5.3 U	<1.8 U	<1.8 U	<5.3 U
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS	ug/m3	<6.5 U	<6.5 U	<6.5 U	<6.5 U	<2.2 U	<13 U	<2.2 U	<6.5 U	<2.2 U	<2.2 U	<6.5 U
Styrene	100-42-5	130,000	ug/m3	<6.4 U	<6.4 U	<6.4 U	<6.4 U	<2.1 U	<13 U	<2.1 U	<6.4 U	<2.1 U	<2.1 U	<6.4 U
Tert-Butyl Alcohol	75-65-0	NS	ug/m3	<4.5 U	7.2	13	<4.5 U	42	12	10	<4.5 U	<1.5 U	9.7	11
Tert-Butyl Methyl Ether	1634-04-4	1,600	ug/m3	<5.4 U	<5.4 U	<5.4 U	<5.4 U	<1.8 U	<11 U	<1.8 U	<5.4 U	<1.8 U	<1.8 U	<5.4 U
Tetrachloroethene (PCE)	127-18-4	**67**	ug/m3	<10 U	<10 U	31	**190**	7.3	59	<3.4 U	20	22	19	45
Tetrahydrofuran	109-99-9	NS	ug/m3	<4.4 U	<4.4 U	<4.4 U	<4.4 U	<1.5 U	<8.9 U	<1.5 U	<4.4 U	<1.5 U	<1.5 U	<4.4 U
Toluene	108-88-3	44,000	ug/m3	19	25	8.1	37	11	76	14	15	20	11	8.2
Trans-1,2-Dichloroethene	156-60-5	12,000	ug/m3	<5.9 U	<5.9 U	<5.9 U	<5.9 U	<2 U	<12 U	<2 U	<5.9 U	<2 U	<2 U	<5.9 U
Trans-1,3-Dichloropropene	10061-02-6	NS	ug/m3	<6.8 U	<6.8 U	<6.8 U	<6.8 U	<2.3 U	<14 U	<2.3 U	<6.8 U	<2.3 U	<2.3 U	<6.8 U
Trichloroethene (TCE)	79-01-6	100	ug/m3	<8.1 U	<8.1 U	<8.1 U	<8.1 U	<2.7 U	<16 U	<2.7 U	<8.1 U	<2.7 U	<2.7 U	<8.1 U
Trichlorofluoromethane	75-69-4	NS	ug/m3	270	210	<8.4 U	78	95	980	31	61	65	8.3	23
Vinyl Acetate	108-05-4	NS	ug/m3	<5.3 U	<5.3 U	<5.3 U	<5.3 U	<1.8 U	<11 U	<1.8 U	<5.3 U	<1.8 U	<1.8 U	<5.3 U
Vinyl Chloride	75-01-4	5.2	ug/m3	<3.8 U	<3.8 U	<3.8 U	<3.8 U	<1.3 U	<7.7 U	<1.3 U	<3.8 U	<1.3 U	<1.3 U	<3.8 U

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2
ug/m3 - microgram per cubic meter
NS - no standard

Appendix D
Summary of Soil Analytical Results
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-1	B-1	B-2	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-4	B-4	B-5	B-5
				Sample Name	B-1-5	B-1-15	B-2-5	B-2 (9-10)	B-2 (14-15)	B-2 (29-30)	B-3-5	B-3-10	B-3-15	B-3-30	B-4-6	B-4-15	B-5-5	B-5-15
				Sample Date	05/04/2023	05/04/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/03/2023	05/03/2023	05/03/2023	05/03/2023
				Sample Depth	5	15	5	9-10	14-15	29-30	5	10	15	30	6	15	5	15
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (VOCs)																		
1,1,1,2-Tetrachloroethane	630-20-6	0.89	190	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,1,1-Trichloroethane	71-55-6	7,300	7,200	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	79-34-5	2.7	49	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,1,2-Trichloroethane	79-00-5	5.1	6.3	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,1-Dichloroethane	75-34-3	16	370	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,1-Dichloroethene	75-35-4	350	350	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,1-Dichloropropene	563-58-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2,3-Trichlorobenzene	87-61-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2,3-Trichloropropane	96-18-4	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	110	240	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2,4-Trimethylbenzene	95-63-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	0.059	1.1	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2-Dibromoethane	106-93-4	0.16	3.3	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	9,400	7,800	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2-Dichloroethane	107-06-2	2.1	45	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,2-Dichloropropane	78-87-5	4.4	66	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,3,5-Trimethylbenzene	108-67-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,3-Dichloropropane	142-28-9	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	12	280	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
2,2-Dichloropropane	594-20-7	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
2-Butanone	78-93-3	200,000	120,000	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
2-Chlorotoluene	95-49-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
4-Chlorotoluene	106-43-4	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Benzene	71-43-2	1.4	33	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Bromobenzene	108-86-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Bromochloromethane	74-97-5	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Bromodichloromethane	75-27-4	1.3	28	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Bromoform	75-25-2	80	1200	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Bromomethane	74-83-9	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Carbon Tetrachloride	56-23-5	0.44	10	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Chlorobenzene	108-90-7	1,300	1,200	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Chloroethane	75-00-3	59,000	59,000	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Chloroform	67-66-3	1.4	34	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Chloromethane	74-87-3	470	470	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
cis-1,2-Dichloroethene	156-59-2	85	78	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
cis-1,3-Dichloropropene	10061-01-5	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Dibromochloromethane	124-48-1	39	290	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Dibromomethane	74-95-3	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Dichlorodifluoromethane	75-71-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Diisopropyl ether	108-20-3	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Ethyl tert-Butyl ether	637-92-3	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Ethylbenzene	100-41-4	26	540	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Freon 113	76-13-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Hexachlorobutadiene	87-68-3	5.3	100	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Isopropyl Benzene	98-82-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
m,p-Xylene	179601-23-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Methylene Chloride	75-09-2	25	490	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
MTBE	1634-04-4	210	4,100	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Naphthalene	91-20-3	17	400	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
n-Butylbenzene	104-51-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
n-Propylbenzene	103-65-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
o-Xylene	95-47-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
p-Isopropyltoluene	99-87-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
sec-Butyl Benzene	135-98-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Styrene	100-42-5	33,000	25,000	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
TAME	994-05-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
TBA	75-65-0	NS	NS	mg/kg	NA	NA	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	NA	NA	NA
tert-Butylbenzene	98-06-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Tetrachloroethene	127-18-4	2.7	33	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Toluene	108-88-3	5,300	4,700	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
trans-1,2-Dichloroethene	156-60-5	600	570	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
trans-1,3-Dichloropropene	10061-02-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Trichloroethene	79-01-6	6.1	18	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Trichlorofluoromethane	75-69-4	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA
Vinyl Chloride	75-01-4	0.15	3.4	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01	NA	NA	NA	NA

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Rev. 2
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-5	B-6	B-6	B-7	B-7	B-7	B-8	B-8	B-8	B-9	B-9	B-10	B-10
				Sample Name	B-5-30	B-6-5	B-6-15	B-7-6	B-7-15	B-7-30	B-8-5	B-8-15	B-8-30	B-9-5	B-9-15	B-10-5	B-10-15
				Sample Date	05/03/2023	05/04/2023	05/04/2023	05/04/2023	05/04/2023	05/04/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
				Sample Depth	30	5	15	6	15	30	5	15	30	5	15	5	15
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (VOCs)																	
1,1,1,2-Tetrachloroethane	630-20-6	0.89	190	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,1,1-Trichloroethane	71-55-6	7,300	7,200	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	79-34-5	2.7	49	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,1,2-Trichloroethane	79-00-5	5.1	6.3	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,1-Dichloroethane	75-34-3	16	370	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,1-Dichloroethene	75-35-4	350	350	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,1-Dichloropropene	563-58-6	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2,3-Trichlorobenzene	87-61-6	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2,3-Trichloropropane	96-18-4	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2,4-Trichlorobenzene	120-82-1	110	240	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2,4-Trimethylbenzene	95-63-6	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2-Dibromo-3-Chloropropane	96-12-8	0.059	1.1	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2-Dibromoethane	106-93-4	0.16	3.3	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	9,400	7,800	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2-Dichloroethane	107-06-2	2.1	45	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,2-Dichloropropane	78-87-5	4.4	66	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,3,5-Trimethylbenzene	108-67-8	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,3-Dichloropropane	142-28-9	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	12	280	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
2,2-Dichloropropane	594-20-7	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
2-Butanone	78-93-3	200,000	120,000	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
2-Chlorotoluene	95-49-8	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
4-Chlorotoluene	106-43-4	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Benzene	71-43-2	1.4	33	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Bromobenzene	108-86-1	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Bromochloromethane	74-97-5	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Bromodichloromethane	75-27-4	1.3	28	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Bromoform	75-25-2	80	1200	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Bromomethane	74-83-9	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Carbon Tetrachloride	56-23-5	0.44	10	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Chlorobenzene	108-90-7	1,300	1,200	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Chloroethane	75-00-3	59,000	59,000	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Chloroform	67-66-3	1.4	34	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Chloromethane	74-87-3	470	470	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
cis-1,2-Dichloroethene	156-59-2	85	78	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
cis-1,3-Dichloropropene	10061-01-5	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Dibromochloromethane	124-48-1	39	290	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Dibromomethane	74-95-3	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Dichlorodifluoromethane	75-71-8	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Diisopropyl ether	108-20-3	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Ethyl tert-Butyl ether	637-92-3	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Ethylbenzene	100-41-4	26	540	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Freon 113	76-13-1	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Hexachlorobutadiene	87-68-3	5.3	100	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Isopropyl Benzene	98-82-8	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
m,p-Xylene	179601-23-1	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Methylene Chloride	75-09-2	25	490	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
MTBE	1634-04-4	210	4,100	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Naphthalene	91-20-3	17	400	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
n-Butylbenzene	104-51-8	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
n-Propylbenzene	103-65-1	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
o-Xylene	95-47-6	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
p-Isopropyltoluene	99-87-6	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
sec-Butyl Benzene	135-98-8	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Styrene	100-42-5	33,000	25,000	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
TAME	994-05-8	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
TBA	75-65-0	NS	NS	mg/kg	<0.05	NA	NA	NA	NA	<0.05	NA	NA	<0.05	NA	NA	NA	NA
tert-Butylbenzene	98-06-6	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Tetrachloroethene	127-18-4	2.7	33	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Toluene	108-88-3	5,300	4,700	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
trans-1,2-Dichloroethene	156-60-5	600	570	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
trans-1,3-Dichloropropene	10061-02-6	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Trichloroethene	79-01-6	6.1	18	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Trichlorofluoromethane	75-69-4	NS	NS	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA
Vinyl Chloride	75-01-4	0.15	3.4	mg/kg	<0.01	NA	NA	NA	NA	<0.01	NA	NA	<0.01	NA	NA	NA	NA

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Re
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Appendix D
Summary of Soil Analytical Results
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-11	B-11	B-12	B-12	B-12	B-12	B-13	B-13	B-13	B-13
				Sample Name	B-11-5	B-11 (9-10)	B-12-5	B-12 (9-10)	B-12 (14-15)	B-12 (29-30.5)	B-13-5	B-13 (9-10)	B-13 (14-15)	B-13 (29-30)
				Sample Date	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023
				Sample Depth	5	9-10	5	9-10	14-15	29-30.5	5	9-10	14-15	29-30
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Volatile Organic Compounds (VOCs)														
1,1,1,2-Tetrachloroethane	630-20-6	0.89	190	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,1,1-Trichloroethane	71-55-6	7,300	7,200	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,1,2,2-Tetrachloroethane	79-34-5	2.7	49	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,1,2-Trichloroethane	79-00-5	5.1	6.3	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,1-Dichloroethane	75-34-3	16	370	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,1-Dichloroethene	75-35-4	350	350	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,1-Dichloropropene	563-58-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2,3-Trichlorobenzene	87-61-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2,3-Trichloropropane	96-18-4	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2,4-Trichlorobenzene	120-82-1	110	240	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2,4-Trimethylbenzene	95-63-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2-Dibromo-3-Chloropropane	96-12-8	0.059	1.1	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2-Dibromoethane	106-93-4	0.16	3.3	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2-Dichlorobenzene	95-50-1	9,400	7,800	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2-Dichloroethane	107-06-2	2.1	45	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,2-Dichloropropane	78-87-5	4.4	66	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,3,5-Trimethylbenzene	108-67-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,3-Dichlorobenzene	541-73-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,3-Dichloropropane	142-28-9	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
1,4-Dichlorobenzene	106-46-7	12	280	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
2,2-Dichloropropane	594-20-7	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
2-Butanone	78-93-3	200,000	120,000	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
2-Chlorotoluene	95-49-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
4-Chlorotoluene	106-43-4	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Benzene	71-43-2	1.4	33	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Bromobenzene	108-86-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Bromochloromethane	74-97-5	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Bromodichloromethane	75-27-4	1.3	28	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Bromoform	75-25-2	80	1200	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Bromomethane	74-83-9	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Carbon Tetrachloride	56-23-5	0.44	10	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Chlorobenzene	108-90-7	1,300	1,200	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Chloroethane	75-00-3	59,000	59,000	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Chloroform	67-66-3	1.4	34	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Chloromethane	74-87-3	470	470	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
cis-1,2-Dichloroethene	156-59-2	85	78	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
cis-1,3-Dichloropropene	10061-01-5	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Dibromochloromethane	124-48-1	39	290	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Dibromomethane	74-95-3	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Dichlorodifluoromethane	75-71-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Diisopropyl ether	108-20-3	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Ethyl tert-Butyl ether	637-92-3	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Ethylbenzene	100-41-4	26	540	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Freon 113	76-13-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Hexachlorobutadiene	87-68-3	5.3	100	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Isopropyl Benzene	98-82-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
m,p-Xylene	179601-23-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Methylene Chloride	75-09-2	25	490	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
MTBE	1634-04-4	210	4,100	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Naphthalene	91-20-3	17	400	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
n-Butylbenzene	104-51-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
n-Propylbenzene	103-65-1	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
o-Xylene	95-47-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
p-Isopropyltoluene	99-87-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
sec-Butyl Benzene	135-98-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Styrene	100-42-5	33,000	25,000	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
TAME	994-05-8	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
TBA	75-65-0	NS	NS	mg/kg	NA	NA	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05
tert-Butylbenzene	98-06-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Tetrachloroethene	127-18-4	2.7	33	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Toluene	108-88-3	5,300	4,700	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
trans-1,2-Dichloroethene	156-60-5	600	570	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
trans-1,3-Dichloropropene	10061-02-6	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Trichloroethene	79-01-6	6.1	18	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Trichlorofluoromethane	75-69-4	NS	NS	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01
Vinyl Chloride	75-01-4	0.15	3.4	mg/kg	NA	NA	NA	<0.01	NA	<0.01	NA	<0.01	NA	<0.01

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Re
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Appendix D
Summary of Soil Analytical Results
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-1	B-1	B-2	B-2	B-2	B-2	B-3	B-3	B-3	B-3	B-4	B-4	B-5	B-5
				Sample Name	B-1-5	B-1-15	B-2-5	B-2 (9-10)	B-2 (14-15)	B-2 (29-30)	B-3-5	B-3-10	B-3-15	B-3-30	B-4-6	B-4-15	B-5-5	B-5-15
				Sample Date	05/04/2023	05/04/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/03/2023	05/03/2023	05/03/2023	05/03/2023
				Sample Depth	5	15	5	9-10	14-15	29-30	5	10	15	30	6	15	5	15
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds (SVOCs)																		
1,2,4-Trichlorobenzene	120-82-1	110	240	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	9400	7800	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
1,2-Dinitrobenzene	528-29-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
1,3-Dinitrobenzene	99-65-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	12	280	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
1,4-Dinitrobenzene	100-25-4	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
1-Methylnaphthalene	90-12-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	58-90-2	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	935-95-5	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	120000	35000	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2,4,6-Trichlorophenol	88-06-2	47	350	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2,4-Dichlorophenol	120-83-2	3500	1100	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2,4-Dimethylphenol	105-67-9	24000	7100	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2,4-Dinitrophenol	51-28-5	2300	710	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
2,4-Dinitrotoluene	121-14-2	11	79	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
2,6-Dichlorophenol	87-65-0	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2,6-Dinitrotoluene	606-20-2	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
2-Chloronaphthalene	91-58-7	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
2-Chlorophenol	95-57-8	5800	1800	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2-Methylnaphthalene	91-57-6	3000	670	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
2-Nitrophenol	88-75-5	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
3,3-Dichlorobenzidine	91-94-1	2.7	20	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
3-/4-Methylphenol (p-/m-Cresol)	65794-96-9	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	534-52-1	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
4-Bromophenyl-phenylether	101-55-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
4-Chloro-3-methylphenol	59-50-7	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
4-Chlorophenyl-phenylether	7005-72-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
4-Nitrophenol	100-02-7	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
Acenaphthene	83-32-9	45000	10000	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Acenaphthylene	208-96-8	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Anthracene	120-12-7	230000	50000	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Azobenzene	103-33-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Benzidine	92-87-5	NS	NS	mg/kg	NA	NA	NA	<0.147	NA	<0.147	NA	<0.147	NA	<0.147	NA	NA	NA	NA
Benzo(a)anthracene	56-55-3	20	110	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Benzo(a)pyrene	50-32-8	2.1	10	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Benzo(b)fluorathene	205-99-2	21	110	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Benzo(g,h,i)perylene	191-24-2	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
benzo(k)fluorathene	207-08-9	210	910	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Benzoic Acid	65-85-0	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
Benzyl Alcohol	100-51-6	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
Bis(2-Chloroethoxy)methane	111-91-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Bis(2-chloroethyl)ether	111-44-4	0.47	6.4	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Bis(2-chloroisopropyl)ether	108-60-1	23	270	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Bis(2-Ethylhexyl)phthalate	117-81-7	160	950	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
Butylbenzylphthalate	85-68-7	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
Carbazole	86-74-8	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Chrysene	218-01-9	2100	9100	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Dibenzo(a,h)anthracene	53-70-3	2.1	11	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Dibenzofuran	132-64-9	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Diethylphthalate	84-66-2	660000	150000	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
Dimethyl phthalate	131-11-3	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Di-n-Octylphthalate	117-84-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Diphenylamine	122-39-4	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Fluoranthene	206-44-0	30000	6700	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Fluorene	86-73-7	30000	6700	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Hexachloro-1,3-butadiene	87-68-3	5.3	100	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Hexachlorobenzene	118-74-1	0.78	7.7	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Hexachlorocyclopentadiene	77-47-4	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Hexachloroethane	67-72-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	193-39-5	21	110	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Isophorone	78-59-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Naphthalene	91-20-3	17	400	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Nitrobenzene	98-95-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
N-Methyl-2-Pyrrolidone (NMP)	872-50-4	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
N-Nitrosodimethylamine	62-75-9	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA
N-nitroso-di-n-propylamine	621-64-7	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Pentachlorophenol	87-86-5	4	20	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
Phenanthrene	85-01-8	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Phenol	108-95-2	350000	98000	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288	NA	NA	NA	NA
Pyrene	129-00-0	23000	5000	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144	NA	NA	NA	NA
Pyridine	110-86-1	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720	NA	NA	NA	NA

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Rev. 2
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-5	B-6	B-6	B-7	B-7	B-7	B-8	B-8	B-8	B-9	B-9	B-10	B-10
				Sample Name	B-5-30	B-6-5	B-6-15	B-7-6	B-7-15	B-7-30	B-8-5	B-8-15	B-8-30	B-9-5	B-9-15	B-10-5	B-10-15
				Sample Date	05/03/2023	05/04/2023	05/04/2023	05/04/2023	05/04/2023	05/04/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
				Sample Depth	30	5	15	6	15	30	5	15	30	5	15	5	15
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds (SVOCs)																	
1,2,4-Trichlorobenzene	120-82-1	110	240	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
1,2-Dichlorobenzene	95-50-1	9400	7800	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
1,2-Dinitrobenzene	528-29-0	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
1,3-Dichlorobenzene	541-73-1	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
1,3-Dinitrobenzene	99-65-0	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
1,4-Dichlorobenzene	106-46-7	12	280	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
1,4-Dinitrobenzene	100-25-4	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
1-Methylnaphthalene	90-12-0	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	58-90-2	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2,3,5,6-Tetrachlorophenol	935-95-5	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2,4,5-Trichlorophenol	95-95-4	120000	35000	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2,4,6-Trichlorophenol	88-06-2	47	350	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2,4-Dichlorophenol	120-83-2	3500	1100	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2,4-Dimethylphenol	105-67-9	24000	7100	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2,4-Dinitrophenol	51-28-5	2300	710	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
2,4-Dinitrotoluene	121-14-2	11	79	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
2,6-Dichlorophenol	87-65-0	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2,6-Dinitrotoluene	606-20-2	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
2-Chloronaphthalene	91-58-7	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
2-Chlorophenol	95-57-8	5800	1800	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2-Methylnaphthalene	91-57-6	3000	670	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	95-48-7	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
2-Nitrophenol	88-75-5	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
3,3-Dichlorobenzidine	91-94-1	2.7	20	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
3-/4-Methylphenol (p-/m-Cresol)	65794-96-9	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	534-52-1	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
4-Bromophenyl-phenylether	101-55-3	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
4-Chloro-3-methylphenol	59-50-7	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
4-Chlorophenyl-phenylether	7005-72-3	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
4-Nitrophenol	100-02-7	NS	NS	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
Acenaphthene	83-32-9	45000	10000	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Acenaphthylene	208-96-8	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Anthracene	120-12-7	230000	50000	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Azobenzene	103-33-3	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Benzidine	92-87-5	NS	NS	mg/kg	<0.147	NA	NA	NA	NA	<0.147	NA	NA	<0.147	NA	NA	NA	NA
Benzo(a)anthracene	56-55-3	20	110	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Benzo(a)pyrene	50-32-8	2.1	10	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Benzo(b)fluorathene	205-99-2	21	110	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Benzo(g,h,i)perylene	191-24-2	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
benzo(k)fluorathene	207-08-9	210	910	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Benzoic Acid	65-85-0	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
Benzyl Alcohol	100-51-6	NS	NS	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
Bis(2-Chloroethoxy)methane	111-91-1	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Bis(2-chloroethyl)ether	111-44-4	0.47	6.4	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Bis(2-chloroisopropyl)ether	108-60-1	23	270	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Bis(2-Ethylhexyl)phthalate	117-81-7	160	950	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
Butylbenzylphthalate	85-68-7	NS	NS	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
Carbazole	86-74-8	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Chrysene	218-01-9	2100	9100	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Dibenzo(a,h)anthracene	53-70-3	2.1	11	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Dibenzofuran	132-64-9	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Diethylphthalate	84-66-2	660000	150000	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
Dimethyl phthalate	131-11-3	NS	NS	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
Di-n-butylphthalate	84-74-2	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Di-n-Octylphthalate	117-84-0	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Diphenylamine	122-39-4	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Fluoranthene	206-44-0	30000	6700	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Fluorene	86-73-7	30000	6700	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Hexachloro-1,3-butadiene	87-68-3	5.3	100	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Hexachlorobenzene	118-74-1	0.78	7.7	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Hexachlorocyclopentadiene	77-47-4	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Hexachloroethane	67-72-1	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	193-39-5	21	110	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Isophorone	78-59-1	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Naphthalene	91-20-3	17	400	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Nitrobenzene	98-95-3	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
N-Methyl-2-Pyrrolidone (NMP)	872-50-4	NS	NS	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
N-Nitrosodimethylamine	62-75-9	NS	NS	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA
N-nitroso-di-n-propylamine	621-64-7	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Pentachlorophenol	87-86-5	4	20	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
Phenanthrene	85-01-8	NS	NS	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Phenol	108-95-2	350000	98000	mg/kg	<0.288	NA	NA	NA	NA	<0.288	NA	NA	<0.288	NA	NA	NA	NA
Pyrene	129-00-0	23000	5000	mg/kg	<0.144	NA	NA	NA	NA	<0.144	NA	NA	<0.144	NA	NA	NA	NA
Pyridine	110-86-1	NS	NS	mg/kg	<0.720	NA	NA	NA	NA	<0.720	NA	NA	<0.720	NA	NA	NA	NA

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Re
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-11	B-11	B-12	B-12	B-12	B-12	B-13	B-13	B-13	B-13
				Sample Name	B-11-5	B-11 (9-10)	B-12-5	B-12 (9-10)	B-12 (14-15)	B-12 (29-30.5)	B-13-5	B-13 (9-10)	B-13 (14-15)	B-13 (29-30)
				Sample Date	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023
				Sample Depth	5	9-10	5	9-10	14-15	29-30.5	5	9-10	14-15	29-30
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Semi-Volatile Organic Compounds (SVOCs)														
1,2,4-Trichlorobenzene	120-82-1	110	240	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
1,2-Dichlorobenzene	95-50-1	9400	7800	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
1,2-Dinitrobenzene	528-29-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
1,3-Dichlorobenzene	541-73-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
1,3-Dinitrobenzene	99-65-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
1,4-Dichlorobenzene	106-46-7	12	280	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
1,4-Dinitrobenzene	100-25-4	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
1-Methylnaphthalene	90-12-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
2,3,4,6-Tetrachlorophenol	58-90-2	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2,3,5,6-Tetrachlorophenol	935-95-5	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2,4,5-Trichlorophenol	95-95-4	120000	35000	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2,4,6-Trichlorophenol	88-06-2	47	350	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2,4-Dichlorophenol	120-83-2	3500	1100	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2,4-Dimethylphenol	105-67-9	24000	7100	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2,4-Dinitrophenol	51-28-5	2300	710	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
2,4-Dinitrotoluene	121-14-2	11	79	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
2,6-Dichlorophenol	87-65-0	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2,6-Dinitrotoluene	606-20-2	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
2-Chloronaphthalene	91-58-7	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
2-Chlorophenol	95-57-8	5800	1800	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2-Methylnaphthalene	91-57-6	3000	670	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
2-Methylphenol (o-Cresol)	95-48-7	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
2-Nitrophenol	88-75-5	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
3,3-Dichlorobenzidine	91-94-1	2.7	20	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
3-/4-Methylphenol (p-/m-Cresol)	65794-96-9	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
4,6-Dinitro-2-methylphenol	534-52-1	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
4-Bromophenyl-phenylether	101-55-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
4-Chloro-3-methylphenol	59-50-7	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
4-Chlorophenyl-phenylether	7005-72-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
4-Nitrophenol	100-02-7	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
Acenaphthene	83-32-9	45000	10000	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Acenaphthylene	208-96-8	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Anthracene	120-12-7	230000	50000	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Azobenzene	103-33-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Benzidine	92-87-5	NS	NS	mg/kg	NA	NA	NA	<0.147	NA	<0.147	NA	<0.147	NA	<0.147
Benzo(a)anthracene	56-55-3	20	110	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Benzo(a)pyrene	50-32-8	2.1	10	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Benzo(b)fluorathene	205-99-2	21	110	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Benzo(g,h,i)perylene	191-24-2	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
benzo(k)fluorathene	207-08-9	210	910	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Benzoic Acid	65-85-0	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
Benzyl Alcohol	100-51-6	NS	NS	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
Bis(2-Chloroethoxy)methane	111-91-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Bis(2-chloroethyl)ether	111-44-4	0.47	6.4	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Bis(2-chloroisopropyl)ether	108-60-1	23	270	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Bis(2-Ethylhexyl)phthalate	117-81-7	160	950	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
Butylbenzylphthalate	85-68-7	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
Carbazole	86-74-8	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Chrysene	218-01-9	2100	9100	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Dibenzo(a,h)anthracene	53-70-3	2.1	11	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Dibenzofuran	132-64-9	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Diethylphthalate	84-66-2	660000	150000	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
Dimethyl phthalate	131-11-3	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
Di-n-butylphthalate	84-74-2	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Di-n-Octylphthalate	117-84-0	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Diphenylamine	122-39-4	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Fluoranthene	206-44-0	30000	6700	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Fluorene	86-73-7	30000	6700	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Hexachloro-1,3-butadiene	87-68-3	5.3	100	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Hexachlorobenzene	118-74-1	0.78	7.7	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Hexachlorocyclopentadiene	77-47-4	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Hexachloroethane	67-72-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Indeno(1,2,3-c,d)pyrene	193-39-5	21	110	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Isophorone	78-59-1	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Naphthalene	91-20-3	17	400	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Nitrobenzene	98-95-3	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
N-Methyl-2-Pyrrolidone (NMP)	872-50-4	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
N-Nitrosodimethylamine	62-75-9	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720
N-nitroso-di-n-propylamine	621-64-7	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Pentachlorophenol	87-86-5	4	20	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
Phenanthrene	85-01-8	NS	NS	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Phenol	108-95-2	350000	98000	mg/kg	NA	NA	NA	<0.288	NA	<0.288	NA	<0.288	NA	<0.288
Pyrene	129-00-0	23000	5000	mg/kg	NA	NA	NA	<0.144	NA	<0.144	NA	<0.144	NA	<0.144
Pyridine	110-86-1	NS	NS	mg/kg	NA	NA	NA	<0.720	NA	<0.720	NA	<0.720	NA	<0.720

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Re
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Appendix D
Summary of Soil Analytical Results
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-1	B-1	B-2	B-2	B-2	B-2	B-3	B-3	B-3
				Sample Name	B-1-5	B-1-15	B-2-5	B-2 (9-10)	B-2 (14-15)	B-2 (29-30)	B-3-5	B-3-10	B-3-15
				Sample Date	05/04/2023	05/04/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/05/2023	05/05/2023	05/05/2023
				Sample Depth	5	15	5	9-10	14-15	29-30	5	10	15
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides													
4,4'-DDD	72-54-8	12	81	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
4,4'-DDE	72-55-9	8.3	57	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
4,4'-DDT	50-29-3	8.5	57	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Aldrin	309-00-2	0.15	7.4	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Alpha Chlordane	5103-71-9	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Alpha Endosulfan	959-98-8	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Beta Endosulfan	33213-65-9	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Chlordane (Technical)	12789-03-6	2.2	14	mg/kg	<0.02 UJ	NA	<0.02 U	NA	NA	NA	<0.2 U	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Dieldrin	60-57-1	0.16	1.1	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Endosulfan Sulfate	1031-07-8	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Endrin	72-20-8	290	74	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Endrin Aldehyde	7421-93-4	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Endrin Ketone	53494-70-5	NS	NS	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Gamma Bhc (Lindane)	58-89-9	2.5	16	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	NS	mg/kg	<0.003 UJ	NA	<0.003 U	NA	NA	NA	<0.03 U	NA	NA
Heptachlor	76-44-8	0.53	3.7	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Heptachlor Epoxide	1024-57-3	0.28	1.9	mg/kg	<0.002 UJ	NA	<0.002 U	NA	NA	NA	<0.02 U	NA	NA
Methoxychlor	72-43-5	4800	1200	mg/kg	<0.006 UJ	NA	<0.006 U	NA	NA	NA	<0.06 U	NA	NA
Toxaphene	8001-35-2	2.2	14	mg/kg	<0.05 UJ	NA	<0.05 U	NA	NA	NA	<0.5 U	NA	NA
Polychlorinated Biphenyl													
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	mg/kg	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	mg/kg	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	mg/kg	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	mg/kg	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	mg/kg	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	mg/kg	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	mg/kg	NA	NA	<0.1 U	NA	NA	NA	NA	NA	NA
Metals													
Antimony	7440-36-0	160	50	mg/kg	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U
Arsenic	7440-38-2	**0.31**	0.98	mg/kg	**2.62**	<1.3 U	**2.81**	NA	<1.3 U	NA	**2.65**	NA	**2.79**
Barium	7440-39-3	220000	3000	mg/kg	171	43.2	148	NA	55.5 J	NA	111	NA	106
Beryllium	7440-41-7	230	27	mg/kg	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U
Cadmium	7440-43-9	1100	51	mg/kg	<0.75 U	<0.75 U	<0.75 U	NA	<0.75 U	NA	<0.75 U	NA	<0.75 U
Chromium, Hexavalent	18540-29-9	6.2	2.8	mg/kg	<0.01 U	<0.01 U	<0.01 U	NA	<0.01 U	NA	0.0903	NA	<0.01 U
Chromium, Total	7440-47-3	NS	NS	mg/kg	24.5	<5 U	21.8	NA	5.3	NA	19.4	NA	17
Cobalt	7440-48-4	350	28	mg/kg	13.8	<5 U	12.9	NA	<5 U	NA	9.8	NA	10.1
Copper	7440-50-8	47000	14000	mg/kg	28.9	<5 U	25.2	NA	<5 U	NA	30.7	NA	20.3
Lead	7439-92-1	**320**	160	mg/kg	10.2	<3 U	6.25	NA	<3 U	NA	8.55	NA	3.93
Mercury	7439-97-6	190	44	mg/kg	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 UJ	NA	<0.5 U	NA	<0.5 U
Molybdenum	7439-98-7	5800	1800	mg/kg	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U
Nickel	7440-02-0	11000	86	mg/kg	15.6	<5 U	14.3	NA	<5 U	NA	12.8	NA	11
Selenium	7782-49-2	5800	1700	mg/kg	<1.1 U	<1.1 U	<1.1 U	NA	<1.1 U	NA	<1.1 U	NA	<1.1 U
Silver	7440-22-4	5800	1800	mg/kg	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U
Thallium	7440-28-0	12	3.5	mg/kg	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U
Vanadium	7440-62-2	5800	470	mg/kg	53.5	13.8	54	NA	14.2	NA	42	NA	46.6
Zinc	7440-66-6	350000	110000	mg/kg	91.5	14.7	63.5	NA	17.6	NA	60.5	NA	48.1

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Rev. 2
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Appendix D
Summary of Soil Analytical Results
3049, 3094, 3095, 3163, and 3200 East Vernon Avenue, Vernon, California

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-3	B-4	B-4	B-5	B-5	B-5	B-6	B-6	B-7
				Sample Name	B-3-30	B-4-6	B-4-15	B-5-5	B-5-15	B-5-30	B-6-5	B-6-15	B-7-6
				Sample Date	05/05/2023	05/03/2023	05/03/2023	05/03/2023	05/03/2023	05/03/2023	05/04/2023	05/04/2023	05/04/2023
				Sample Depth	30	6	15	5	15	30	5	15	6
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides													
4,4'-DDD	72-54-8	12	81	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	72-55-9	8.3	57	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	50-29-3	8.5	57	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	309-00-2	0.15	7.4	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Chlordane	5103-71-9	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Endosulfan	959-98-8	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Endosulfan	33213-65-9	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Technical)	12789-03-6	2.2	14	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	60-57-1	0.16	1.1	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	1031-07-8	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	72-20-8	290	74	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	7421-93-4	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	53494-70-5	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Bhc (Lindane)	58-89-9	2.5	16	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	76-44-8	0.53	3.7	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	1024-57-3	0.28	1.9	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	72-43-5	4800	1200	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	8001-35-2	2.2	14	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyl													
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals													
Antimony	7440-36-0	160	50	mg/kg	NA	<5 U	<5 U	<5 U	<5 U	NA	<5 U	<5 U	<5 U
Arsenic	7440-38-2	**0.31**	0.98	mg/kg	NA	**1.83**	**1.68**	**2.23**	<1.3 U	NA	**2.2**	<1.3 U	**2.31**
Barium	7440-39-3	220000	3000	mg/kg	NA	108	84.5	89	51.5	NA	103	58	105
Beryllium	7440-41-7	230	27	mg/kg	NA	<5 U	<5 U	<5 U	<5 U	NA	<5 U	<5 U	<5 U
Cadmium	7440-43-9	1100	51	mg/kg	NA	<0.75 U	<0.75 U	<0.75 U	<0.75 U	NA	<0.75 U	<0.75 U	<0.75 U
Chromium, Hexavalent	18540-29-9	6.2	2.8	mg/kg	NA	<0.01 U	<0.01 U	<0.01 U	<0.01 U	NA	0.0124	<0.01 U	<0.01 U
Chromium, Total	7440-47-3	NS	NS	mg/kg	NA	13.5	14.1	16.3	7.15	NA	15.9	5.5	16.6
Cobalt	7440-48-4	350	28	mg/kg	NA	9	7.75	8.05	<5 U	NA	9.05	<5 U	8.8
Copper	7440-50-8	47000	14000	mg/kg	NA	12.1	15.8	21.4	5.5	NA	18.6	5.8	22.5
Lead	7439-92-1	**320**	160	mg/kg	NA	<3 U	<3 U	15.4	<3 U	NA	6.95	<3 U	24.1
Mercury	7439-97-6	190	44	mg/kg	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U
Molybdenum	7439-98-7	5800	1800	mg/kg	NA	<5 U	<5 U	<5 U	<5 U	NA	<5 U	<5 U	<5 U
Nickel	7440-02-0	11000	86	mg/kg	NA	8.5	7.6	9.8	<5 U	NA	9.15	<5 U	10.7
Selenium	7782-49-2	5800	1700	mg/kg	NA	<1.1 U	<1.1 U	<1.1 U	<1.1 U	NA	<1.1 U	<1.1 U	<1.1 U
Silver	7440-22-4	5800	1800	mg/kg	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U
Thallium	7440-28-0	12	3.5	mg/kg	NA	<5 U	<5 U	<5 U	<5 U	NA	<5 U	<5 U	<5 U
Vanadium	7440-62-2	5800	470	mg/kg	NA	36.2	37.2	40.5	27.9	NA	42.2	20.2	38.5
Zinc	7440-66-6	350000	110000	mg/kg	NA	45.6	39.6	60.5	22.6	NA	53.5	23.6	66

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Re
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-7	B-7	B-8	B-8	B-8	B-9	B-9	B-10	B-10
				Sample Name	B-7-15	B-7-30	B-8-5	B-8-15	B-8-30	B-9-5	B-9-15	B-10-5	B-10-15
				Sample Date	05/04/2023	05/04/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
				Sample Depth	15	30	5	15	30	5	15	5	15
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides													
4,4'-DDD	72-54-8	12	81	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
4,4'-DDE	72-55-9	8.3	57	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
4,4'-DDT	50-29-3	8.5	57	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Aldrin	309-00-2	0.15	7.4	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Alpha Chlordane	5103-71-9	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Alpha Endosulfan	959-98-8	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Beta Endosulfan	33213-65-9	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Chlordane (Technical)	12789-03-6	2.2	14	mg/kg	NA	NA	<0.02 U	NA	NA	NA	NA	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Dieldrin	60-57-1	0.16	1.1	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	1031-07-8	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Endrin	72-20-8	290	74	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	7421-93-4	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Endrin Ketone	53494-70-5	NS	NS	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Gamma Bhc (Lindane)	58-89-9	2.5	16	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	NS	mg/kg	NA	NA	<0.003 U	NA	NA	NA	NA	NA	NA
Heptachlor	76-44-8	0.53	3.7	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	1024-57-3	0.28	1.9	mg/kg	NA	NA	<0.002 U	NA	NA	NA	NA	NA	NA
Methoxychlor	72-43-5	4800	1200	mg/kg	NA	NA	<0.006 U	NA	NA	NA	NA	NA	NA
Toxaphene	8001-35-2	2.2	14	mg/kg	NA	NA	<0.05 U	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyl													
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals													
Antimony	7440-36-0	160	50	mg/kg	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	<5 U
Arsenic	7440-38-2	**0.31**	0.98	mg/kg	<1.3 U	NA	**1.54**	<1.3 U	NA	**3.22**	<1.3 U	**1.5**	**1.61**
Barium	7440-39-3	220000	3000	mg/kg	57.5	NA	82	60.5	NA	127	51.5	84	90.5
Beryllium	7440-41-7	230	27	mg/kg	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	<5 U
Cadmium	7440-43-9	1100	51	mg/kg	<0.75 U	NA	<0.75 U	<0.75 U	NA	<0.75 U	<0.75 U	<0.75 U	<0.75 U
Chromium, Hexavalent	18540-29-9	6.2	2.8	mg/kg	<0.01 U	NA	<0.01 U	<0.01 U	NA	<0.01 U	<0.01 U	<0.01 U	<0.01 U
Chromium, Total	7440-47-3	NS	NS	mg/kg	10.4	NA	12.2	9	NA	39.8	7.05	12	12.2
Cobalt	7440-48-4	350	28	mg/kg	<5 U	NA	7.6	5.9	NA	11	<5 U	7.35	8.2
Copper	7440-50-8	47000	14000	mg/kg	10.5	NA	9.5	7	NA	43.7	6.05	10.6	11.2
Lead	7439-92-1	**320**	160	mg/kg	5.7	NA	<3 U	<3 U	NA	36.2	<3 U	<3 U	<3 U
Mercury	7439-97-6	190	44	mg/kg	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U
Molybdenum	7439-98-7	5800	1800	mg/kg	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	<5 U
Nickel	7440-02-0	11000	86	mg/kg	6.95	NA	6.75	<5 U	NA	46.6	<5 U	7.15	7.65
Selenium	7782-49-2	5800	1700	mg/kg	<1.1 U	NA	<1.1 U	<1.1 U	NA	<1.1 U	<1.1 U	<1.1 U	<1.1 U
Silver	7440-22-4	5800	1800	mg/kg	<0.5 U	NA	<0.5 U	<0.5 U	NA	<0.5 U	<0.5 U	<0.5 U	<0.5 U
Thallium	7440-28-0	12	3.5	mg/kg	<5 U	NA	<5 U	<5 U	NA	<5 U	<5 U	<5 U	<5 U
Vanadium	7440-62-2	5800	470	mg/kg	23.3	NA	38.7	34	NA	48.4	27.5	33.7	35.5
Zinc	7440-66-6	350000	110000	mg/kg	28.2	NA	37.9	26.7	NA	80.5	21.7	34.3	39.5

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Re
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

Analyte	CAS Number	Soil Direct Exposure Commercial/ Industrial ESL	Soil Direct Exposure Construction Worker: Any Land Use ESL	Location	B-11	B-11	B-12	B-12	B-12	B-12	B-13	B-13	B-13	B-13
				Sample Name	B-11-5	B-11 (9-10)	B-12-5	B-12 (9-10)	B-12 (14-15)	B-12 (29-30.5)	B-13-5	B-13 (9-10)	B-13 (14-15)	B-13 (29-30)
				Sample Date	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023	05/08/2023
				Sample Depth	5	9-10	5	9-10	14-15	29-30.5	5	9-10	14-15	29-30
				Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Pesticides														
4,4'-DDD	72-54-8	12	81	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	72-55-9	8.3	57	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	50-29-3	8.5	57	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	309-00-2	0.15	7.4	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Chlordane	5103-71-9	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alpha Endosulfan	959-98-8	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta Endosulfan	33213-65-9	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane (Technical)	12789-03-6	2.2	14	mg/kg	<0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	60-57-1	0.16	1.1	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	1031-07-8	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	72-20-8	290	74	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Aldehyde	7421-93-4	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin Ketone	53494-70-5	NS	NS	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Bhc (Lindane)	58-89-9	2.5	16	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gamma Chlordane (Trans)	5103-74-2	NS	NS	mg/kg	<0.06 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	76-44-8	0.53	3.7	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor Epoxide	1024-57-3	0.28	1.9	mg/kg	<0.04 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	72-43-5	4800	1200	mg/kg	<0.12 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	8001-35-2	2.2	14	mg/kg	<1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated Biphenyl														
PCB-1016 (Aroclor 1016)	12674-11-2	NS	NS	mg/kg	<0.1 U	NA	<0.1 U	NA	NA	NA	<0.1 U	NA	NA	NA
PCB-1221 (Aroclor 1221)	11104-28-2	NS	NS	mg/kg	<0.1 U	NA	<0.1 U	NA	NA	NA	<0.1 U	NA	NA	NA
PCB-1232 (Aroclor 1232)	11141-16-5	NS	NS	mg/kg	<0.1 U	NA	<0.1 U	NA	NA	NA	<0.1 U	NA	NA	NA
PCB-1242 (Aroclor 1242)	53469-21-9	NS	NS	mg/kg	<0.1 U	NA	<0.1 U	NA	NA	NA	<0.1 U	NA	NA	NA
PCB-1248 (Aroclor 1248)	12672-29-6	NS	NS	mg/kg	<0.1 U	NA	<0.1 U	NA	NA	NA	<0.1 U	NA	NA	NA
PCB-1254 (Aroclor 1254)	11097-69-1	NS	NS	mg/kg	<0.1 U	NA	<0.1 U	NA	NA	NA	<0.1 U	NA	NA	NA
PCB-1260 (Aroclor 1260)	11096-82-5	NS	NS	mg/kg	<0.1 U	NA	<0.1 U	NA	NA	NA	<0.1 U	NA	NA	NA
Metals														
Antimony	7440-36-0	160	50	mg/kg	<5 U	24.4	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA
Arsenic	7440-38-2	**0.31**	0.98	mg/kg	**3.44**	**34.4**	<1.3 U	NA	<1.3 U	NA	<1.3 U	NA	<1.3 U	NA
Barium	7440-39-3	220000	3000	mg/kg	105	1,020	55.5	NA	42.3	NA	61.5	NA	45.5	NA
Beryllium	7440-41-7	230	27	mg/kg	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA
Cadmium	7440-43-9	1100	51	mg/kg	<0.75 U	3.64	<0.75 U	NA	<0.75 U	NA	<0.75 U	NA	<0.75 U	NA
Chromium, Hexavalent	18540-29-9	6.2	2.8	mg/kg	<0.01 U	0.249	<0.01 U	NA	<0.01 U	NA	<0.01 U	NA	<0.01 U	NA
Chromium, Total	7440-47-3	NS	NS	mg/kg	13.9	42.9	8.35	NA	14.7	NA	8.3	NA	6.15	NA
Cobalt	7440-48-4	350	28	mg/kg	8	13.9	5.05	NA	<5 U	NA	5.5	NA	<5 U	NA
Copper	7440-50-8	47000	14000	mg/kg	45.8	800	7.6	NA	5	NA	6.85	NA	<5 U	NA
Lead	7439-92-1	**320**	160	mg/kg	89.5	**1,110**	<3 U	NA	<3 U	NA	<3 U	NA	<3 U	NA
Mercury	7439-97-6	190	44	mg/kg	<0.5 U	0.61	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Molybdenum	7439-98-7	5800	1800	mg/kg	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA
Nickel	7440-02-0	11000	86	mg/kg	11.3	136	<5 U	NA	<5 U	NA	5.15	NA	<5 U	NA
Selenium	7782-49-2	5800	1700	mg/kg	<1.1 U	<1.1 U	<1.1 U	NA	<1.1 U	NA	<1.1 U	NA	<1.1 U	NA
Silver	7440-22-4	5800	1800	mg/kg	<0.5 U	2.89	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA	<0.5 U	NA
Thallium	7440-28-0	12	3.5	mg/kg	<5 U	<5 U	<5 U	NA	<5 U	NA	<5 U	NA	<5 U	NA
Vanadium	7440-62-2	5800	470	mg/kg	40.3	69.5	25.3	NA	21.1	NA	26.3	NA	19.1	NA
Zinc	7440-66-6	350000	110000	mg/kg	93.5	1,150	24.6	NA	18.8	NA	26.9	NA	19.8	NA

ESL - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board, 2019 Rev
mg/kg - miligrams per kilogram
NS - no standard
NA - not analyzed

APPENDIX B

Langan
135 Main Street, Suite 1500
San Francisco, California 94105
Tel: 415.955.5200

RE: VERNON

Work Order No.: 2305105 Rev: 2

Dear Nick Cutler:

Torrent Laboratory, Inc. received 22 sample(s) on May 12, 2023 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.



Kathie Evans
Project Manager

May 19, 2023
Date

Torrent LABORATORY, INC.

Date: 5/19/2023

Client: Langan

Project: VERNON

Work Order: 2305105

CASE NARRATIVE

Unless otherwise indicated in the following narrative, no issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Laboratory, Inc.

REVISIONS

Report revised to include additionally requested data.

Analytical Comments for method 6010B, 2305105-003 MS/MSD, QC Preparation Batch ID 1151065, Note:The % recoveries for Barium are outside of laboratory control limits but % RPD is within limits. The associated LCS/LCSD is within both % Recovery and % RPD limits. No corrective action required.

Analytical Comments for method 6010B, 2305105-003 MS/MSD, QC Preparation Batch ID 1151065, Note:The % recoveries for Mercury are outside of laboratory control limits but % RPD is within limits. The associated LCS/LCSD is within both % Recovery and % RPD limits. No corrective action required.

Rev. 1 (5/19/23)

Report revised to include additionally requested SVOC and VOC data.

Rev. 2 (5/23/23)

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/12/23
Date Reported: 05/19/23

B-2-5 2305105-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	2.81	mg/Kg
Barium	SW6010B	1	0.055	5.00	148	mg/Kg
Chromium	SW6010B	1	0.075	5.00	21.8	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	12.9	mg/Kg
Copper	SW6010B	1	0.20	5.00	25.2	mg/Kg
Lead	SW6010B	1	0.10	3.00	6.25	mg/Kg
Nickel	SW6010B	1	0.50	5.00	14.3	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	54.0	mg/Kg
Zinc	SW6010B	1	0.30	5.00	63.5	mg/Kg

B-2 (9-10) 2305105-002

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-2 (14-15) 2305105-003

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	55.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	5.30	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	14.2	mg/Kg
Zinc	SW6010B	1	0.30	5.00	17.6	mg/Kg

B-2 (29-30) 2305105-006

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-11-5 2305105-007

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	3.44	mg/Kg
Barium	SW6010B	1	0.055	5.00	105	mg/Kg
Chromium	SW6010B	1	0.075	5.00	13.9	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	8.00	mg/Kg
Copper	SW6010B	1	0.20	5.00	45.8	mg/Kg
Lead	SW6010B	1	0.10	3.00	89.5	mg/Kg
Nickel	SW6010B	1	0.50	5.00	11.3	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	40.3	mg/Kg
Zinc	SW6010B	1	0.30	5.00	93.5	mg/Kg

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/12/23
Date Reported: 05/19/23

B-11 (9-10) 2305105-008

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Antimony	SW6010B	1	0.050	5.00	24.4	mg/Kg
Arsenic	SW6010B	1	0.15	1.30	34.4	mg/Kg
Barium	SW6010B	1	0.055	5.00	1020	mg/Kg
Cadmium	SW6010B	1	0.10	0.750	3.64	mg/Kg
Chromium	SW6010B	1	0.075	5.00	42.9	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	13.9	mg/Kg
Copper	SW6010B	1	0.20	5.00	800	mg/Kg
Lead	SW6010B	1	0.10	3.00	1110	mg/Kg
Nickel	SW6010B	1	0.50	5.00	136	mg/Kg
Silver	SW6010B	1	0.15	0.500	2.89	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	69.5	mg/Kg
Zinc	SW6010B	1	0.30	5.00	1150	mg/Kg
Hexavalent Chromium	SW7199	1	3.1	10	249	ug/Kg
Mercury	SW7471B	1	0.083	0.50	0.61	mg/Kg

B-12-5 2305105-009

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	55.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	8.35	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	5.05	mg/Kg
Copper	SW6010B	1	0.20	5.00	7.60	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	25.3	mg/Kg
Zinc	SW6010B	1	0.30	5.00	24.6	mg/Kg

B-12 (9-10) 2305105-010

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-12 (14-15) 2305105-011

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	42.3	mg/Kg
Chromium	SW6010B	1	0.075	5.00	14.7	mg/Kg
Copper	SW6010B	1	0.20	5.00	5.00	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	21.1	mg/Kg
Zinc	SW6010B	1	0.30	5.00	18.8	mg/Kg

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/12/23
Date Reported: 05/19/23

B-13-5 2305105-014

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	61.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	8.30	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	5.50	mg/Kg
Copper	SW6010B	1	0.20	5.00	6.85	mg/Kg
Nickel	SW6010B	1	0.50	5.00	5.15	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	26.3	mg/Kg
Zinc	SW6010B	1	0.30	5.00	26.9	mg/Kg

B-13 (9-10) 2305105-015

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-13 (14-15) 2305105-016

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	45.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	6.15	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	19.1	mg/Kg
Zinc	SW6010B	1	0.30	5.00	19.8	mg/Kg

B-13 (29-30) 2305105-019

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-12 (29-30.5) 2305105-022

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2-5	**Lab Sample ID:**	2305105-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:03		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151158	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	12:37	PH	474858

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2-5	**Lab Sample ID:**	2305105-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:03		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/16/23	12:20:00PM
Prep Batch ID:	1150991	**Prep Analyst:**	AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/17/23	13:24	BJAY	474739

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2-5	**Lab Sample ID:**	2305105-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:03		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/16/23 12:15:00PM
Prep Batch ID:	1150990	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:39	AT	474758
Arsenic	SW6010B	1	0.15	1.30	**2.81**		mg/Kg	05/16/23	20:39	AT	474758
Barium	SW6010B	1	0.055	5.00	**148**		mg/Kg	05/16/23	20:39	AT	474758
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/16/23	20:39	AT	474758
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/16/23	20:39	AT	474758
Chromium	SW6010B	1	0.075	5.00	**21.8**		mg/Kg	05/16/23	20:39	AT	474758
Cobalt	SW6010B	1	0.070	5.00	**12.9**		mg/Kg	05/16/23	20:39	AT	474758
Copper	SW6010B	1	0.20	5.00	**25.2**		mg/Kg	05/16/23	20:39	AT	474758
Lead	SW6010B	1	0.10	3.00	**6.25**		mg/Kg	05/16/23	20:39	AT	474758
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:39	AT	474758
Nickel	SW6010B	1	0.50	5.00	**14.3**		mg/Kg	05/16/23	20:39	AT	474758
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/16/23	20:39	AT	474758
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/16/23	20:39	AT	474758
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/16/23	20:39	AT	474758
Vanadium	SW6010B	1	0.10	5.00	**54.0**		mg/Kg	05/16/23	20:39	AT	474758
Zinc	SW6010B	1	0.30	5.00	**63.5**		mg/Kg	05/16/23	20:39	AT	474758

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2-5	**Lab Sample ID:**	2305105-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:03		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/16/23 9:41:00AM
Prep Batch ID:	1150974	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/16/23	11:46	AK	474707
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/16/23	11:46	AK	474707
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/16/23	11:46	AK	474707
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/16/23	11:46	AK	474707
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/16/23	11:46	AK	474707
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/16/23	11:46	AK	474707
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/16/23	11:46	AK	474707
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**99.0**		%	05/16/23	11:46	AK	474707
DCBP (S)	SW8082A		48 - 135		**93.0**		%	05/16/23	11:46	AK	474707

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2-5	**Lab Sample ID:**	2305105-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:03		
SDG:			

Prep Method:	3546_OCP	**Prep Batch Date/Time:**	5/13/23 10:20:00AM
Prep Batch ID:	1150929	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
alpha-BHC	SW8081B	1	0.25	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
gamma-BHC (Lindane)	SW8081B	1	0.71	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
beta-BHC	SW8081B	1	0.44	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
delta-BHC	SW8081B	1	0.65	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Heptachlor	SW8081B	1	0.27	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Aldrin	SW8081B	1	0.29	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Heptachlor Epoxide	SW8081B	1	0.31	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
gamma-Chlordane	SW8081B	1	1.5	3.0	ND		ug/Kg	05/13/23	21:05	LA	474648
alpha-Chlordane	SW8081B	1	0.36	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
4,4'-DDE	SW8081B	1	0.61	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Endosulfan I	SW8081B	1	0.29	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Dieldrin	SW8081B	1	0.25	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Endrin	SW8081B	1	0.79	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
4,4'-DDD	SW8081B	1	0.64	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Endosulfan II	SW8081B	1	0.34	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
4,4'-DDT	SW8081B	1	0.74	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Endrin Aldehyde	SW8081B	1	0.51	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Methoxychlor	SW8081B	1	2.6	6.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Endosulfan Sulfate	SW8081B	1	0.51	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Endrin Ketone	SW8081B	1	0.43	2.0	ND		ug/Kg	05/13/23	21:05	LA	474648
Chlordane, Technical	SW8081B	1	2.7	20	ND		ug/Kg	05/13/23	21:05	LA	474648
Toxaphene	SW8081B	1	22	50	ND		ug/Kg	05/13/23	21:05	LA	474648
			Acceptance Limits								
Tetrachloro-M-Xylene (S)	SW8081B		48 - 125		**84.0**		%	05/13/23	21:05	LA	474648
Decachlorobiphenyl (S)	SW8081B		38 - 135		**82.7**		%	05/13/23	21:05	LA	474648

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (9-10)	**Lab Sample ID:**	2305105-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:14		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/22/23	15:11	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/22/23	15:11	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/22/23	15:11	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/22/23	15:11	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/22/23	15:11	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/22/23	15:11	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/22/23	15:11	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/22/23	15:11	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/22/23	15:11	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/22/23	15:11	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/22/23	15:11	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/22/23	15:11	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/22/23	15:11	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/22/23	15:11	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/22/23	15:11	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	15:11	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/22/23	15:11	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/22/23	15:11	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	15:11	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/22/23	15:11	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/22/23	15:11	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	15:11	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (9-10)	**Lab Sample ID:**	2305105-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:14		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/22/23	15:11	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/22/23	15:11	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/22/23	15:11	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/22/23	15:11	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/22/23	15:11	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/22/23	15:11	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	15:11	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	15:11	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/22/23	15:11	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/22/23	15:11	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/22/23	15:11	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/22/23	15:11	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/22/23	15:11	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	15:11	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/22/23	15:11	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	15:11	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/22/23	15:11	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/22/23	15:11	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**72.3**		%	05/22/23	15:11	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**63.1**		%	05/22/23	15:11	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**70.1**		%	05/22/23	15:11	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (9-10)	**Lab Sample ID:**	2305105-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:14		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23	11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**75.9**		%	05/22/23	15:11	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**61.7**		%	05/22/23	15:11	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**84.5**		%	05/22/23	15:11	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (9-10)	**Lab Sample ID:**	2305105-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:14		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/20/23	19:32	BP	474889
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	19:32	BP	474889
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	19:32	BP	474889
TBA	SW8260B	1	12	50	ND		ug/Kg	05/20/23	19:32	BP	474889
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	19:32	BP	474889
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	19:32	BP	474889
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	19:32	BP	474889
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	19:32	BP	474889
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (9-10)	**Lab Sample ID:**	2305105-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:14		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	19:32	BP	474889
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/20/23	19:32	BP	474889
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	19:32	BP	474889
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	19:32	BP	474889
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	19:32	BP	474889
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	19:32	BP	474889
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	19:32	BP	474889
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	19:32	BP	474889
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/20/23	19:32	BP	474889
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**121**		%	05/20/23	19:32	BP	474889
(S) Toluene-d8	SW8260B		55.2 - 133		**104**		%	05/20/23	19:32	BP	474889
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**100**		%	05/20/23	19:32	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (14-15)	**Lab Sample ID:**	2305105-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:20		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	7:17	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (14-15)	**Lab Sample ID:**	2305105-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:20		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23	7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:15	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (14-15)	**Lab Sample ID:**	2305105-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:20		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:09	AT	474846
Barium	SW6010B	1	0.055	5.00	**55.5**		mg/Kg	05/18/23	20:09	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:09	AT	474846
Chromium	SW6010B	1	0.075	5.00	**5.30**		mg/Kg	05/18/23	20:09	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Copper	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:09	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:09	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:09	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**14.2**		mg/Kg	05/18/23	20:09	AT	474846
Zinc	SW6010B	1	0.30	5.00	**17.6**		mg/Kg	05/18/23	20:09	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (29-30)	**Lab Sample ID:**	2305105-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:32		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/22/23	15:41	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/22/23	15:41	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/22/23	15:41	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/22/23	15:41	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/22/23	15:41	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/22/23	15:41	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/22/23	15:41	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/22/23	15:41	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/22/23	15:41	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/22/23	15:41	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/22/23	15:41	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/22/23	15:41	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/22/23	15:41	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/22/23	15:41	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/22/23	15:41	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	15:41	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/22/23	15:41	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/22/23	15:41	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	15:41	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/22/23	15:41	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/22/23	15:41	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	15:41	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (29-30)	**Lab Sample ID:**	2305105-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:32		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/22/23	15:41	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/22/23	15:41	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/22/23	15:41	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/22/23	15:41	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/22/23	15:41	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/22/23	15:41	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	15:41	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	15:41	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/22/23	15:41	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/22/23	15:41	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/22/23	15:41	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/22/23	15:41	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/22/23	15:41	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	15:41	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/22/23	15:41	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	15:41	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/22/23	15:41	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/22/23	15:41	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**48.0**		%	05/22/23	15:41	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**43.1**		%	05/22/23	15:41	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**42.4**		%	05/22/23	15:41	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (29-30)	**Lab Sample ID:**	2305105-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:32		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23	11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**57.5**		%	05/22/23	15:41	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**47.5**		%	05/22/23	15:41	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**63.7**		%	05/22/23	15:41	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (29-30)	**Lab Sample ID:**	2305105-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:32		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/20/23	20:07	BP	474889
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:07	BP	474889
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:07	BP	474889
TBA	SW8260B	1	12	50	ND		ug/Kg	05/20/23	20:07	BP	474889
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:07	BP	474889
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	20:07	BP	474889
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	20:07	BP	474889
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:07	BP	474889
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-2 (29-30)	**Lab Sample ID:**	2305105-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 8:32		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:07	BP	474889
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/20/23	20:07	BP	474889
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:07	BP	474889
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:07	BP	474889
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	20:07	BP	474889
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:07	BP	474889
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	20:07	BP	474889
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:07	BP	474889
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/20/23	20:07	BP	474889
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**122**		%	05/20/23	20:07	BP	474889
(S) Toluene-d8	SW8260B		55.2 - 133		**101**		%	05/20/23	20:07	BP	474889
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**99.7**		%	05/20/23	20:07	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11-5	**Lab Sample ID:**	2305105-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:47		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151158	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	12:58	PH	474858

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11-5	**Lab Sample ID:**	2305105-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:47		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/16/23	12:20:00PM
Prep Batch ID:	1150991	**Prep Analyst:**	AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/17/23	13:26	BJAY	474739

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11-5	**Lab Sample ID:**	2305105-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:47		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/16/23 12:15:00PM
Prep Batch ID:	1150990	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:41	AT	474758
Arsenic	SW6010B	1	0.15	1.30	**3.44**		mg/Kg	05/16/23	20:41	AT	474758
Barium	SW6010B	1	0.055	5.00	**105**		mg/Kg	05/16/23	20:41	AT	474758
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/16/23	20:41	AT	474758
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/16/23	20:41	AT	474758
Chromium	SW6010B	1	0.075	5.00	**13.9**		mg/Kg	05/16/23	20:41	AT	474758
Cobalt	SW6010B	1	0.070	5.00	**8.00**		mg/Kg	05/16/23	20:41	AT	474758
Copper	SW6010B	1	0.20	5.00	**45.8**		mg/Kg	05/16/23	20:41	AT	474758
Lead	SW6010B	1	0.10	3.00	**89.5**		mg/Kg	05/16/23	20:41	AT	474758
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:41	AT	474758
Nickel	SW6010B	1	0.50	5.00	**11.3**		mg/Kg	05/16/23	20:41	AT	474758
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/16/23	20:41	AT	474758
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/16/23	20:41	AT	474758
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/16/23	20:41	AT	474758
Vanadium	SW6010B	1	0.10	5.00	**40.3**		mg/Kg	05/16/23	20:41	AT	474758
Zinc	SW6010B	1	0.30	5.00	**93.5**		mg/Kg	05/16/23	20:41	AT	474758

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11-5	**Lab Sample ID:**	2305105-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:47		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/16/23 9:41:00AM
Prep Batch ID:	1150974	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/16/23	12:03	AK	474707
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/16/23	12:03	AK	474707
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/16/23	12:03	AK	474707
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/16/23	12:03	AK	474707
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/16/23	12:03	AK	474707
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/16/23	12:03	AK	474707
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/16/23	12:03	AK	474707
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**99.0**		%	05/16/23	12:03	AK	474707
DCBP (S)	SW8082A		48 - 135		**95.0**		%	05/16/23	12:03	AK	474707

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11-5	**Lab Sample ID:**	2305105-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:47		
SDG:			

Prep Method:	3546_OCP	**Prep Batch Date/Time:**	5/13/23 10:20:00AM
Prep Batch ID:	1150929	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081B	20	5.0	40	ND		ug/Kg	05/13/23	21:19	LA	474648
gamma-BHC (Lindane)	SW8081B	20	14	40	ND		ug/Kg	05/13/23	21:19	LA	474648
beta-BHC	SW8081B	20	8.7	40	ND		ug/Kg	05/13/23	21:19	LA	474648
delta-BHC	SW8081B	20	13	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Heptachlor	SW8081B	20	5.4	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Aldrin	SW8081B	20	5.9	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Heptachlor Epoxide	SW8081B	20	6.1	40	ND		ug/Kg	05/13/23	21:19	LA	474648
gamma-Chlordane	SW8081B	20	29	60	ND		ug/Kg	05/13/23	21:19	LA	474648
alpha-Chlordane	SW8081B	20	7.2	40	ND		ug/Kg	05/13/23	21:19	LA	474648
4,4'-DDE	SW8081B	20	12	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Endosulfan I	SW8081B	20	5.7	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Dieldrin	SW8081B	20	5.0	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Endrin	SW8081B	20	16	40	ND		ug/Kg	05/13/23	21:19	LA	474648
4,4'-DDD	SW8081B	20	13	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Endosulfan II	SW8081B	20	6.8	40	ND		ug/Kg	05/13/23	21:19	LA	474648
4,4'-DDT	SW8081B	20	15	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Endrin Aldehyde	SW8081B	20	10	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Methoxychlor	SW8081B	20	52	120	ND		ug/Kg	05/13/23	21:19	LA	474648
Endosulfan Sulfate	SW8081B	20	10	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Endrin Ketone	SW8081B	20	8.7	40	ND		ug/Kg	05/13/23	21:19	LA	474648
Chlordane, Technical	SW8081B	20	53	400	ND		ug/Kg	05/13/23	21:19	LA	474648
Toxaphene	SW8081B	20	440	1000	ND		ug/Kg	05/13/23	21:19	LA	474648
			Acceptance Limits								
Tetrachloro-M-Xylene (S)	SW8081B		48 - 125		**0.000**	D	%	05/13/23	21:19	LA	474648
Decachlorobiphenyl (S)	SW8081B		38 - 135		**0.000**	D	%	05/13/23	21:19	LA	474648

NOTE: Sample diluted due to the nature of the sample matrix (dark colored extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11 (9-10)	**Lab Sample ID:**	2305105-008A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:50		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151158	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	**249**		ug/Kg	05/19/23	10:50	PH	474858

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11 (9-10)	**Lab Sample ID:**	2305105-008A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:50		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	**0.61**		mg/Kg	05/18/23	13:28	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-11 (9-10)	**Lab Sample ID:**	2305105-008A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 9:50		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	**24.4**		mg/Kg	05/18/23	20:14	AT	474846
Arsenic	SW6010B	1	0.15	1.30	**34.4**		mg/Kg	05/18/23	20:14	AT	474846
Barium	SW6010B	1	0.055	5.00	**1020**		mg/Kg	05/18/23	20:14	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:14	AT	474846
Cadmium	SW6010B	1	0.10	0.750	**3.64**		mg/Kg	05/18/23	20:14	AT	474846
Chromium	SW6010B	1	0.075	5.00	**42.9**		mg/Kg	05/18/23	20:14	AT	474846
Cobalt	SW6010B	1	0.070	5.00	**13.9**		mg/Kg	05/18/23	20:14	AT	474846
Copper	SW6010B	1	0.20	5.00	**800**		mg/Kg	05/18/23	20:14	AT	474846
Lead	SW6010B	1	0.10	3.00	**1110**		mg/Kg	05/18/23	20:14	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:14	AT	474846
Nickel	SW6010B	1	0.50	5.00	**136**		mg/Kg	05/18/23	20:14	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:14	AT	474846
Silver	SW6010B	1	0.15	0.500	**2.89**		mg/Kg	05/18/23	20:14	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:14	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**69.5**		mg/Kg	05/18/23	20:14	AT	474846
Zinc	SW6010B	1	0.30	5.00	**1150**		mg/Kg	05/18/23	20:14	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12-5	**Lab Sample ID:**	2305105-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:55		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	7:38	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12-5	**Lab Sample ID:**	2305105-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:55		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/16/23	12:20:00PM
Prep Batch ID:	1150991	**Prep Analyst:**	AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/17/23	13:28	BJAY	474739

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12-5	**Lab Sample ID:**	2305105-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:55		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/16/23 12:15:00PM
Prep Batch ID:	1150990	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:42	AT	474758
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/16/23	20:42	AT	474758
Barium	SW6010B	1	0.055	5.00	**55.5**		mg/Kg	05/16/23	20:42	AT	474758
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/16/23	20:42	AT	474758
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/16/23	20:42	AT	474758
Chromium	SW6010B	1	0.075	5.00	**8.35**		mg/Kg	05/16/23	20:42	AT	474758
Cobalt	SW6010B	1	0.070	5.00	**5.05**		mg/Kg	05/16/23	20:42	AT	474758
Copper	SW6010B	1	0.20	5.00	**7.60**		mg/Kg	05/16/23	20:42	AT	474758
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/16/23	20:42	AT	474758
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:42	AT	474758
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/16/23	20:42	AT	474758
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/16/23	20:42	AT	474758
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/16/23	20:42	AT	474758
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/16/23	20:42	AT	474758
Vanadium	SW6010B	1	0.10	5.00	**25.3**		mg/Kg	05/16/23	20:42	AT	474758
Zinc	SW6010B	1	0.30	5.00	**24.6**		mg/Kg	05/16/23	20:42	AT	474758

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12-5	**Lab Sample ID:**	2305105-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:55		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/16/23 9:41:00AM
Prep Batch ID:	1150974	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/16/23	12:19	AK	474707
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/16/23	12:19	AK	474707
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/16/23	12:19	AK	474707
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/16/23	12:19	AK	474707
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/16/23	12:19	AK	474707
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/16/23	12:19	AK	474707
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/16/23	12:19	AK	474707
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**114**		%	05/16/23	12:19	AK	474707
DCBP (S)	SW8082A		48 - 135		**107**		%	05/16/23	12:19	AK	474707

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (9-10)	**Lab Sample ID:**	2305105-010A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:59		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/22/23	16:12	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/22/23	16:12	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/22/23	16:12	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/22/23	16:12	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/22/23	16:12	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/22/23	16:12	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/22/23	16:12	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/22/23	16:12	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/22/23	16:12	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/22/23	16:12	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/22/23	16:12	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/22/23	16:12	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/22/23	16:12	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/22/23	16:12	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/22/23	16:12	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	16:12	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/22/23	16:12	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/22/23	16:12	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	16:12	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/22/23	16:12	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/22/23	16:12	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	16:12	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (9-10)	**Lab Sample ID:**	2305105-010A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:59		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/22/23	16:12	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/22/23	16:12	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/22/23	16:12	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/22/23	16:12	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/22/23	16:12	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/22/23	16:12	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	16:12	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	16:12	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/22/23	16:12	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/22/23	16:12	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/22/23	16:12	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/22/23	16:12	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/22/23	16:12	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	16:12	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/22/23	16:12	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	16:12	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/22/23	16:12	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/22/23	16:12	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**58.5**		%	05/22/23	16:12	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**49.9**		%	05/22/23	16:12	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**45.2**		%	05/22/23	16:12	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (9-10)	**Lab Sample ID:**	2305105-010A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:59		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23	11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**61.9**		%	05/22/23	16:12	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**48.2**		%	05/22/23	16:12	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**73.3**		%	05/22/23	16:12	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (9-10)	**Lab Sample ID:**	2305105-010A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:59		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/20/23	20:42	BP	474889
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:42	BP	474889
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:42	BP	474889
TBA	SW8260B	1	12	50	ND		ug/Kg	05/20/23	20:42	BP	474889
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:42	BP	474889
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	20:42	BP	474889
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	20:42	BP	474889
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	20:42	BP	474889
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (9-10)	**Lab Sample ID:**	2305105-010A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 10:59		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:42	BP	474889
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/20/23	20:42	BP	474889
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:42	BP	474889
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	20:42	BP	474889
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	20:42	BP	474889
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	20:42	BP	474889
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	20:42	BP	474889
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	20:42	BP	474889
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/20/23	20:42	BP	474889
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**103**		%	05/20/23	20:42	BP	474889
(S) Toluene-d8	SW8260B		55.2 - 133		**104**		%	05/20/23	20:42	BP	474889
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**99.7**		%	05/20/23	20:42	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (14-15)	**Lab Sample ID:**	2305105-011A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:08		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	8:00	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (14-15)	**Lab Sample ID:**	2305105-011A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:08		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:30	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (14-15)	**Lab Sample ID:**	2305105-011A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:08		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:16	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:16	AT	474846
Barium	SW6010B	1	0.055	5.00	**42.3**		mg/Kg	05/18/23	20:16	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:16	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:16	AT	474846
Chromium	SW6010B	1	0.075	5.00	**14.7**		mg/Kg	05/18/23	20:16	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:16	AT	474846
Copper	SW6010B	1	0.20	5.00	**5.00**		mg/Kg	05/18/23	20:16	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:16	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:16	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:16	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:16	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:16	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:16	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**21.1**		mg/Kg	05/18/23	20:16	AT	474846
Zinc	SW6010B	1	0.30	5.00	**18.8**		mg/Kg	05/18/23	20:16	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13-5	**Lab Sample ID:**	2305105-014A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:10		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151158	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	13:20	PH	474858

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13-5	**Lab Sample ID:**	2305105-014A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:10		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/16/23	12:20:00PM
Prep Batch ID:	1150991	**Prep Analyst:**	AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/17/23	13:34	BJAY	474739

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13-5	**Lab Sample ID:**	2305105-014A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:10		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/16/23 12:15:00PM
Prep Batch ID:	1150990	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:44	AT	474758
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/16/23	20:44	AT	474758
Barium	SW6010B	1	0.055	5.00	**61.5**		mg/Kg	05/16/23	20:44	AT	474758
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/16/23	20:44	AT	474758
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/16/23	20:44	AT	474758
Chromium	SW6010B	1	0.075	5.00	**8.30**		mg/Kg	05/16/23	20:44	AT	474758
Cobalt	SW6010B	1	0.070	5.00	**5.50**		mg/Kg	05/16/23	20:44	AT	474758
Copper	SW6010B	1	0.20	5.00	**6.85**		mg/Kg	05/16/23	20:44	AT	474758
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/16/23	20:44	AT	474758
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/16/23	20:44	AT	474758
Nickel	SW6010B	1	0.50	5.00	**5.15**		mg/Kg	05/16/23	20:44	AT	474758
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/16/23	20:44	AT	474758
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/16/23	20:44	AT	474758
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/16/23	20:44	AT	474758
Vanadium	SW6010B	1	0.10	5.00	**26.3**		mg/Kg	05/16/23	20:44	AT	474758
Zinc	SW6010B	1	0.30	5.00	**26.9**		mg/Kg	05/16/23	20:44	AT	474758

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13-5	**Lab Sample ID:**	2305105-014A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:10		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/16/23 9:41:00AM
Prep Batch ID:	1150974	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/16/23	12:36	AK	474707
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/16/23	12:36	AK	474707
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/16/23	12:36	AK	474707
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/16/23	12:36	AK	474707
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/16/23	12:36	AK	474707
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/16/23	12:36	AK	474707
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/16/23	12:36	AK	474707
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**112**		%	05/16/23	12:36	AK	474707
DCBP (S)	SW8082A		48 - 135		**108**		%	05/16/23	12:36	AK	474707

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (9-10)	**Lab Sample ID:**	2305105-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:15		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/21/23	22:13	MT	474904
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/21/23	22:13	MT	474904
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/21/23	22:13	MT	474904
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/21/23	22:13	MT	474904
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/21/23	22:13	MT	474904
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/21/23	22:13	MT	474904
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/21/23	22:13	MT	474904
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/21/23	22:13	MT	474904
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/21/23	22:13	MT	474904
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/21/23	22:13	MT	474904
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/21/23	22:13	MT	474904
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/21/23	22:13	MT	474904
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/21/23	22:13	MT	474904
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/21/23	22:13	MT	474904
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/21/23	22:13	MT	474904
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	22:13	MT	474904
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/21/23	22:13	MT	474904
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/21/23	22:13	MT	474904
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	22:13	MT	474904
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/21/23	22:13	MT	474904
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/21/23	22:13	MT	474904
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	22:13	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (9-10)	**Lab Sample ID:**	2305105-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:15		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/21/23	22:13	MT	474904
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/21/23	22:13	MT	474904
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/21/23	22:13	MT	474904
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/21/23	22:13	MT	474904
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/21/23	22:13	MT	474904
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/21/23	22:13	MT	474904
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	22:13	MT	474904
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	22:13	MT	474904
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/21/23	22:13	MT	474904
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/21/23	22:13	MT	474904
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/21/23	22:13	MT	474904
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/21/23	22:13	MT	474904
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/21/23	22:13	MT	474904
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	22:13	MT	474904
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/21/23	22:13	MT	474904
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	22:13	MT	474904
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/21/23	22:13	MT	474904
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/21/23	22:13	MT	474904
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**54.7**		%	05/21/23	22:13	MT	474904
Phenol-d6 (S)	SW8270C		24 - 113		**57.6**		%	05/21/23	22:13	MT	474904
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**56.8**		%	05/21/23	22:13	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (9-10)	**Lab Sample ID:**	2305105-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:15		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**56.3**		%	05/21/23	22:13	MT	474904
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**52.4**		%	05/21/23	22:13	MT	474904
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**74.7**		%	05/21/23	22:13	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (9-10)	**Lab Sample ID:**	2305105-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:15		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/20/23	21:17	BP	474889
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:17	BP	474889
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:17	BP	474889
TBA	SW8260B	1	12	50	ND		ug/Kg	05/20/23	21:17	BP	474889
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:17	BP	474889
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	21:17	BP	474889
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	21:17	BP	474889
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:17	BP	474889
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (9-10)	**Lab Sample ID:**	2305105-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:15		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:17	BP	474889
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/20/23	21:17	BP	474889
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:17	BP	474889
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:17	BP	474889
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	21:17	BP	474889
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:17	BP	474889
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	21:17	BP	474889
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:17	BP	474889
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/20/23	21:17	BP	474889
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**128**		%	05/20/23	21:17	BP	474889
(S) Toluene-d8	SW8260B		55.2 - 133		**104**		%	05/20/23	21:17	BP	474889
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**100**		%	05/20/23	21:17	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (14-15)	**Lab Sample ID:**	2305105-016A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:17		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	8:21	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (14-15)	**Lab Sample ID:**	2305105-016A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:17		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:32	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (14-15)	**Lab Sample ID:**	2305105-016A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:17		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:17	AT	474846
Barium	SW6010B	1	0.055	5.00	**45.5**		mg/Kg	05/18/23	20:17	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:17	AT	474846
Chromium	SW6010B	1	0.075	5.00	**6.15**		mg/Kg	05/18/23	20:17	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Copper	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:17	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:17	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:17	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**19.1**		mg/Kg	05/18/23	20:17	AT	474846
Zinc	SW6010B	1	0.30	5.00	**19.8**		mg/Kg	05/18/23	20:17	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (29-30)	**Lab Sample ID:**	2305105-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:24		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/21/23	22:42	MT	474904
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/21/23	22:42	MT	474904
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/21/23	22:42	MT	474904
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/21/23	22:42	MT	474904
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/21/23	22:42	MT	474904
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/21/23	22:42	MT	474904
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/21/23	22:42	MT	474904
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/21/23	22:42	MT	474904
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/21/23	22:42	MT	474904
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/21/23	22:42	MT	474904
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/21/23	22:42	MT	474904
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/21/23	22:42	MT	474904
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/21/23	22:42	MT	474904
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/21/23	22:42	MT	474904
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/21/23	22:42	MT	474904
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	22:42	MT	474904
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/21/23	22:42	MT	474904
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/21/23	22:42	MT	474904
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	22:42	MT	474904
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/21/23	22:42	MT	474904
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/21/23	22:42	MT	474904
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	22:42	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (29-30)	**Lab Sample ID:**	2305105-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:24		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/21/23	22:42	MT	474904
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/21/23	22:42	MT	474904
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/21/23	22:42	MT	474904
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/21/23	22:42	MT	474904
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/21/23	22:42	MT	474904
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/21/23	22:42	MT	474904
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	22:42	MT	474904
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	22:42	MT	474904
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/21/23	22:42	MT	474904
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/21/23	22:42	MT	474904
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/21/23	22:42	MT	474904
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/21/23	22:42	MT	474904
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/21/23	22:42	MT	474904
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	22:42	MT	474904
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/21/23	22:42	MT	474904
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	22:42	MT	474904
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/21/23	22:42	MT	474904
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/21/23	22:42	MT	474904
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**66.9**		%	05/21/23	22:42	MT	474904
Phenol-d6 (S)	SW8270C		24 - 113		**70.2**		%	05/21/23	22:42	MT	474904
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**68.7**		%	05/21/23	22:42	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (29-30)	**Lab Sample ID:**	2305105-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:24		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**70.7**		%	05/21/23	22:42	MT	474904
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**64.9**		%	05/21/23	22:42	MT	474904
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**86.9**		%	05/21/23	22:42	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (29-30)	**Lab Sample ID:**	2305105-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:24		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/20/23	21:52	BP	474889
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:52	BP	474889
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:52	BP	474889
TBA	SW8260B	1	12	50	ND		ug/Kg	05/20/23	21:52	BP	474889
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:52	BP	474889
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	21:52	BP	474889
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/20/23	21:52	BP	474889
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/20/23	21:52	BP	474889
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-13 (29-30)	**Lab Sample ID:**	2305105-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 12:24		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/20/23 11:00:00AM
Prep Batch ID:	1151199	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:52	BP	474889
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/20/23	21:52	BP	474889
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:52	BP	474889
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/20/23	21:52	BP	474889
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	21:52	BP	474889
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/20/23	21:52	BP	474889
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/20/23	21:52	BP	474889
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/20/23	21:52	BP	474889
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/20/23	21:52	BP	474889
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**125**		%	05/20/23	21:52	BP	474889
(S) Toluene-d8	SW8260B		55.2 - 133		**102**		%	05/20/23	21:52	BP	474889
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**101**		%	05/20/23	21:52	BP	474889

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (29-30.5)	**Lab Sample ID:**	2305105-022A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:20		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/21/23	23:12	MT	474904
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/21/23	23:12	MT	474904
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/21/23	23:12	MT	474904
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/21/23	23:12	MT	474904
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/21/23	23:12	MT	474904
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/21/23	23:12	MT	474904
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/21/23	23:12	MT	474904
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/21/23	23:12	MT	474904
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/21/23	23:12	MT	474904
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/21/23	23:12	MT	474904
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/21/23	23:12	MT	474904
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/21/23	23:12	MT	474904
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/21/23	23:12	MT	474904
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/21/23	23:12	MT	474904
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/21/23	23:12	MT	474904
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	23:12	MT	474904
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/21/23	23:12	MT	474904
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/21/23	23:12	MT	474904
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	23:12	MT	474904
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/21/23	23:12	MT	474904
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/21/23	23:12	MT	474904
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	23:12	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (29-30.5)	**Lab Sample ID:**	2305105-022A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:20		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23 10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/21/23	23:12	MT	474904
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/21/23	23:12	MT	474904
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/21/23	23:12	MT	474904
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/21/23	23:12	MT	474904
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/21/23	23:12	MT	474904
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/21/23	23:12	MT	474904
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	23:12	MT	474904
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	23:12	MT	474904
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/21/23	23:12	MT	474904
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/21/23	23:12	MT	474904
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/21/23	23:12	MT	474904
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/21/23	23:12	MT	474904
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/21/23	23:12	MT	474904
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	23:12	MT	474904
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/21/23	23:12	MT	474904
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	23:12	MT	474904
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/21/23	23:12	MT	474904
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/21/23	23:12	MT	474904
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**72.3**		%	05/21/23	23:12	MT	474904
Phenol-d6 (S)	SW8270C		24 - 113		**77.5**		%	05/21/23	23:12	MT	474904
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**75.7**		%	05/21/23	23:12	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (29-30.5)	**Lab Sample ID:**	2305105-022A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:20		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/20/23	10:17:00AM
Prep Batch ID:	1151171	**Prep Analyst:**	NDUM	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**76.9**		%	05/21/23	23:12	MT	474904
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**71.4**		%	05/21/23	23:12	MT	474904
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**91.6**		%	05/21/23	23:12	MT	474904

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (29-30.5)	**Lab Sample ID:**	2305105-022A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:20		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/22/23 9:55:00AM
Prep Batch ID:	1151218	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/22/23	14:29	BP	474921
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	14:29	BP	474921
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	14:29	BP	474921
TBA	SW8260B	1	12	50	ND		ug/Kg	05/22/23	14:29	BP	474921
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	14:29	BP	474921
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	14:29	BP	474921
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	14:29	BP	474921
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	14:29	BP	474921
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/12/23, 10:20 am
Date Reported: 05/19/23

Client Sample ID:	B-12 (29-30.5)	**Lab Sample ID:**	2305105-022A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/08/23 / 11:20		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/22/23 9:55:00AM
Prep Batch ID:	1151218	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	14:29	BP	474921
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/22/23	14:29	BP	474921
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	14:29	BP	474921
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	14:29	BP	474921
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/22/23	14:29	BP	474921
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	14:29	BP	474921
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	14:29	BP	474921
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	14:29	BP	474921
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/22/23	14:29	BP	474921
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**116**		%	05/22/23	14:29	BP	474921
(S) Toluene-d8	SW8260B		55.2 - 133		**104**		%	05/22/23	14:29	BP	474921
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**98.7**		%	05/22/23	14:29	BP	474921

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	3546_OCP	**Prep Date:**	05/13/23	**Prep Batch:**	1150929
Matrix:	Soil	**Analytical Method:**	SW8081B	**Analyzed Date:**	5/13/2023	**Analytical Batch:**	474648
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
alpha-BHC	0.25	2.0	ND	
gamma-BHC (Lindane)	0.71	2.0	ND	
beta-BHC	0.44	2.0	ND	
delta-BHC	0.65	2.0	ND	
Heptachlor	0.27	2.0	ND	
Aldrin	0.29	2.0	ND	
Heptachlor Epoxide	0.31	2.0	ND	
gamma-Chlordane	1.5	3.0	ND	
alpha-Chlordane	0.36	2.0	ND	
4,4'-DDE	0.61	2.0	1.97	
Endosulfan I	0.29	2.0	ND	
Dieldrin	0.25	2.0	ND	
Endrin	0.79	2.0	ND	
4,4'-DDD	0.64	2.0	ND	
Endosulfan II	0.34	2.0	ND	
4,4'-DDT	0.74	2.0	ND	
Endrin Aldehyde	0.51	2.0	ND	
Methoxychlor	2.6	6.0	ND	
Endosulfan Sulfate	0.51	2.0	ND	
Endrin Ketone	0.43	2.0	ND	
Chlordane, Technical	2.7	20	ND	
Toxaphene	22	50	ND	
Tetrachloro-M-Xylene (S)			89.6	
Decachlorobiphenyl (S)			92.9	

Work Order:	2305105	**Prep Method:**	3546_PCB	**Prep Date:**	05/16/23	**Prep Batch:**	1150974
Matrix:	Soil	**Analytical Method:**	SW8082A	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474707
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Aroclor1016	35.0	100	ND	
Aroclor1221	5.00	100	ND	
Aroclor1232	17.0	100	ND	
Aroclor1242	3.00	100	ND	
Aroclor1248	2.00	100	ND	
Aroclor1254	14.0	100	ND	
Aroclor1260	24.0	100	ND	
TCMX (S)			103	
DCBP (S)			87.0	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	3050B	**Prep Date:**	05/16/23	**Prep Batch:**	1150990
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474758
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	0.24	J
Arsenic	0.15	1.30	0.15	
Barium	0.055	5.00	ND	
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.11	J
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.18	J
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	1.4	J

Work Order:	2305105	**Prep Method:**	7471BP	**Prep Date:**	05/16/23	**Prep Batch:**	1150991
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/17/2023	**Analytical Batch:**	474739
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	0.065	
Arsenic	0.15	1.30	ND	
Barium	0.055	5.00	0.19	
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.16	
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.15	
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	ND	

Work Order:	2305105	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
N-Nitrosodimethylamine	46.9	720	ND		
Phenol	43.8	288	ND		
Bis(2-chloroethyl)ether	13.3	144	ND		
2-Chlorophenol	47.7	288	ND		
1,3-Dichlorobenzene	13.1	144	ND		
1,4-Dichlorobenzene	14.6	144	ND		
Benzyl Alcohol	20.5	288	ND		
1,2-Dichlorobenzene	13.5	144	ND		
2-Methylphenol (o-Cresol)	29.3	288	ND		
N-Methyl-2-Pyrrolidone (NMP)	68.0	720	ND		
	12.6	144	ND		
3-/4-Methylphenol (p-/m-Cresol)	31.3	288	ND		
N-nitroso-di-n-propylamine	13.2	144	ND		
Hexachloroethane	17.1	144	ND		
Nitrobenzene	12.8	144	ND		
Isophorone	12.2	144	ND		
2-Nitrophenol	25.4	288	ND		
2,4-Dimethylphenol	22.8	288	ND		
Benzoic Acid	41.7	288	ND		
Bis(2-Chloroethoxy)methane	9.79	144	ND		
Bis(2-chloroisopropyl)ether	12.6	144	ND		
2,4-Dichlorophenol	39.3	288	ND		
1,2,4-Trichlorobenzene	11.8	144	ND		
Naphthalene	10.6	144	ND		
2,6-Dichlorophenol	35.8	288	ND		
Hexachloro-1,3-butadiene	8.34	144	ND		
4-Chloro-3-methylphenol	33.8	288	ND		
2-Methylnaphthalene	10.4	144	ND		
1-Methylnaphthalene	12.2	144	ND		
Hexachlorocyclopentadiene	12.9	144	ND		
2,4,6-Trichlorophenol	35.9	288	ND		
2,4,5-Trichlorophenol	33.4	288	ND		
2-Chloronaphthalene	10.6	144	ND		
1,4-Dinitrobenzene	10.3	144	ND		
Dimethyl phthalate	14.2	720	ND		
1,3-Dinitrobenzene	10.4	144	ND		
Acenaphthylene	8.28	144	ND		
2,6-Dinitrotoluene	11.3	144	ND		
1,2-Dinitrobenzene	15.8	144	ND		
Acenaphthene	10.7	144	ND		
2,4-Dinitrophenol	77.6	720	ND		
4-Nitrophenol	54.7	720	ND		
Dibenzofuran	11.2	144	ND		
2,4-Dinitrotoluene	12.1	144	ND		
2,3,5,6-Tetrachlorophenol	27.6	288	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
2,3,4,6-Tetrachlorophenol	31.5	288	ND	
Diethylphthalate	13.6	720	79.2	
Fluorene	10.3	144	ND	
4-Chlorophenyl-phenylether	9.32	144	ND	
4,6-Dinitro-2-methylphenol	13.4	288	ND	
Diphenylamine	13.0	144	ND	
Azobenzene	114	144	ND	
4-Bromophenyl-phenylether	8.23	144	ND	
Hexachlorobenzene	8.66	144	ND	
Pentachlorophenol	25.0	288	ND	
Phenanthrene	9.32	144	ND	
Anthracene	8.91	144	ND	
Carbazole	10.7	144	ND	
Di-n-butylphthalate	13.5	144	ND	
Fluoranthene	10.0	147	ND	
Benzidine	147	144	ND	
Pyrene	12.0	144	ND	
Butylbenzylphthalate	21.0	720	ND	
Benzo(a)anthracene	9.80	144	ND	
3,3-Dichlorobenzidine	118	144	ND	
Chrysene	15.2	144	ND	
Bis(2-Ethylhexyl)phthalate	15.3	720	ND	
Di-n-Octylphthalate	12.3	144	ND	
Benzo(b)fluorathene	12.0	144	ND	
benzo(k)fluorathene	8.16	144	ND	
Benzo(a)pyrene	9.80	144	ND	
Indeno(1,2,3-c,d)pyrene	13.8	144	ND	
Dibenzo(a,h)anthracene	12.7	144	ND	
Benzo(g,h,i)perylene	12.7	144	ND	
Pyridine	43.8	720	ND	
2-Fluorophenol (S)			88.1	
Phenol-d6 (S)			105	
2,4,6-Tribromophenol (S)			96.0	
2-Fluorobiphenyl (S)			80.2	
Nitrobenzene-d5 (S)			88.9	
p-Terphenyl-d14 (S)			91.7	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Hexavalent Chromium	3.1	10	ND		

Work Order:	2305105	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151158
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474858
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Hexavalent Chromium	3.1	10	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	3546_BNA	**Prep Date:**	05/20/23	**Prep Batch:**	1151171
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/21/2023	**Analytical Batch:**	474904
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
N-Nitrosodimethylamine	46.9	720	ND		
Phenol	43.8	288	ND		
Bis(2-chloroethyl)ether	13.3	144	ND		
2-Chlorophenol	47.7	288	ND		
1,3-Dichlorobenzene	13.1	144	ND		
1,4-Dichlorobenzene	14.6	144	ND		
Benzyl Alcohol	20.5	288	ND		
1,2-Dichlorobenzene	13.5	144	ND		
2-Methylphenol (o-Cresol)	29.3	288	ND		
N-Methyl-2-Pyrrolidone (NMP)	68.0	720	ND		
	12.6	144	ND		
3-/4-Methylphenol (p-/m-Cresol)	31.3	288	ND		
N-nitroso-di-n-propylamine	13.2	144	ND		
Hexachloroethane	17.1	144	ND		
Nitrobenzene	12.8	144	ND		
Isophorone	12.2	144	ND		
2-Nitrophenol	25.4	288	ND		
2,4-Dimethylphenol	22.8	288	ND		
Benzoic Acid	41.7	288	ND		
Bis(2-Chloroethoxy)methane	9.79	144	ND		
Bis(2-chloroisopropyl)ether	12.6	144	ND		
2,4-Dichlorophenol	39.3	288	ND		
1,2,4-Trichlorobenzene	11.8	144	ND		
Naphthalene	10.6	144	ND		
2,6-Dichlorophenol	35.8	288	ND		
Hexachloro-1,3-butadiene	8.34	144	ND		
4-Chloro-3-methylphenol	33.8	288	ND		
2-Methylnaphthalene	10.4	144	ND		
1-Methylnaphthalene	12.2	144	ND		
Hexachlorocyclopentadiene	12.9	144	ND		
2,4,6-Trichlorophenol	35.9	288	ND		
2,4,5-Trichlorophenol	33.4	288	ND		
2-Chloronaphthalene	10.6	144	ND		
1,4-Dinitrobenzene	10.3	144	ND		
Dimethyl phthalate	14.2	720	ND		
1,3-Dinitrobenzene	10.4	144	ND		
Acenaphthylene	8.28	144	ND		
2,6-Dinitrotoluene	11.3	144	ND		
1,2-Dinitrobenzene	15.8	144	ND		
Acenaphthene	10.7	144	ND		
2,4-Dinitrophenol	77.6	720	ND		
4-Nitrophenol	54.7	720	ND		
Dibenzofuran	11.2	144	ND		
2,4-Dinitrotoluene	12.1	144	ND		
2,3,5,6-Tetrachlorophenol	27.6	288	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	3546_BNA	**Prep Date:**	05/20/23	**Prep Batch:**	1151171
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/21/2023	**Analytical Batch:**	474904
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
2,3,4,6-Tetrachlorophenol	31.5	288	ND	
Diethylphthalate	13.6	720	ND	
Fluorene	10.3	144	ND	
4-Chlorophenyl-phenylether	9.32	144	ND	
4,6-Dinitro-2-methylphenol	13.4	288	ND	
Diphenylamine	13.0	144	ND	
Azobenzene	114	144	ND	
4-Bromophenyl-phenylether	8.23	144	ND	
Hexachlorobenzene	8.66	144	ND	
Pentachlorophenol	25.0	288	ND	
Phenanthrene	9.32	144	ND	
Anthracene	8.91	144	ND	
Carbazole	10.7	144	ND	
Di-n-butylphthalate	13.5	144	ND	
Fluoranthene	10.0	147	ND	
Benzidine	147	144	ND	
Pyrene	12.0	144	ND	
Butylbenzylphthalate	21.0	720	ND	
Benzo(a)anthracene	9.80	144	ND	
3,3-Dichlorobenzidine	118	144	ND	
Chrysene	15.2	144	ND	
Bis(2-Ethylhexyl)phthalate	15.3	720	ND	
Di-n-Octylphthalate	12.3	144	ND	
Benzo(b)fluorathene	12.0	144	ND	
benzo(k)fluorathene	8.16	144	ND	
Benzo(a)pyrene	9.80	144	ND	
Indeno(1,2,3-c,d)pyrene	13.8	144	ND	
Dibenzo(a,h)anthracene	12.7	144	ND	
Benzo(g,h,i)perylene	12.7	144	ND	
Pyridine	43.8	720	ND	
2-Fluorophenol (S)			96.9	
Phenol-d6 (S)			106	
2,4,6-Tribromophenol (S)			73.4	
2-Fluorobiphenyl (S)			97.9	
Nitrobenzene-d5 (S)			94.1	
p-Terphenyl-d14 (S)			106	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	5035	**Prep Date:**	05/20/23	**Prep Batch:**	1151199
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/20/2023	**Analytical Batch:**	474889
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	1.2	10	ND	
Chloromethane	1.8	10	ND	
Vinyl Chloride	2.0	10	ND	
Bromomethane	2.7	10	ND	
Chloroethane	3.0	10	ND	
Trichlorofluoromethane	2.1	10	ND	
1,1-Dichloroethene	2.0	10	ND	
Freon 113	1.9	10	ND	
Methylene Chloride	7.1	10	ND	
trans-1,2-Dichloroethene	2.1	10	ND	
MTBE	2.3	10	ND	
TBA	12	50	ND	
Diisopropyl ether	2.3	10	ND	
1,1-Dichloroethane	2.2	10	ND	
Ethyl tert-Butyl ether	2.3	10	ND	
cis-1,2-Dichloroethene	2.2	10	ND	
2,2-Dichloropropane	1.9	10	ND	
Bromochloromethane	2.3	10	ND	
Chloroform	2.4	10	ND	
Carbon Tetrachloride	2.1	10	ND	
1,1,1-Trichloroethane	2.1	10	ND	
1,1-Dichloropropene	2.0	10	ND	
Benzene	2.2	10	ND	
TAME	2.3	10	ND	
1,2-Dichloroethane	2.3	10	ND	
Trichloroethene	1.8	10	ND	
Dibromomethane	1.8	10	ND	
1,2-Dichloropropane	1.9	10	ND	
Bromodichloromethane	2.0	10	ND	
cis-1,3-Dichloropropene	1.6	10	ND	
Toluene	1.8	10	ND	
Tetrachloroethene	1.7	10	ND	
trans-1,3-Dichloropropene	1.6	10	ND	
1,1,2-Trichloroethane	1.8	10	ND	
Dibromochloromethane	1.9	10	ND	
1,3-Dichloropropane	1.8	10	ND	
1,2-Dibromoethane	1.8	10	ND	
Chlorobenzene	1.8	10	ND	
Ethylbenzene	1.7	10	ND	
1,1,1,2-Tetrachloroethane	1.9	10	ND	
m,p-Xylene	3.2	10	ND	
o-Xylene	1.7	10	ND	
Styrene	1.6	10	ND	
Bromoform	1.7	10	ND	
Isopropyl Benzene	1.6	10	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	5035	**Prep Date:**	05/20/23	**Prep Batch:**	1151199
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/20/2023	**Analytical Batch:**	474889
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
n-Propylbenzene	1.6	10	ND	
Bromobenzene	1.8	10	ND	
1,1,2,2-Tetrachloroethane	1.9	10	ND	
2-Chlorotoluene	1.8	10	ND	
1,3,5-Trimethylbenzene	1.6	10	ND	
1,2,3-Trichloropropane	1.9	10	ND	
4-Chlorotoluene	1.6	10	ND	
tert-Butylbenzene	1.6	10	ND	
1,2,4-Trimethylbenzene	1.4	10	ND	
sec-Butyl Benzene	1.6	10	ND	
p-Isopropyltoluene	1.5	10	ND	
1,3-Dichlorobenzene	1.7	10	ND	
1,4-Dichlorobenzene	1.7	10	ND	
n-Butylbenzene	1.5	10	ND	
1,2-Dichlorobenzene	1.8	10	ND	
1,2-Dibromo-3-Chloropropane	1.8	10	ND	
Hexachlorobutadiene	1.4	10	ND	
1,2,4-Trichlorobenzene	1.5	10	ND	
Naphthalene	1.7	10	2.5	
1,2,3-Trichlorobenzene	1.7	10	ND	
2-Butanone	2.3	10	ND	
(S) Dibromofluoromethane			115	
(S) Toluene-d8			103	
(S) 4-Bromofluorobenzene			102	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Dichlorodifluoromethane	1.2	10	ND		
Chloromethane	1.8	10	ND		
Vinyl Chloride	2.0	10	ND		
Bromomethane	2.7	10	ND		
Chloroethane	3.0	10	ND		
Trichlorofluoromethane	2.1	10	ND		
1,1-Dichloroethene	2.0	10	ND		
Freon 113	1.9	10	ND		
Methylene Chloride	7.1	10	ND		
trans-1,2-Dichloroethene	2.1	10	ND		
MTBE	2.3	10	ND		
TBA	12	50	ND		
Diisopropyl ether	2.3	10	ND		
1,1-Dichloroethane	2.2	10	ND		
Ethyl tert-Butyl ether	2.3	10	ND		
cis-1,2-Dichloroethene	2.2	10	ND		
2,2-Dichloropropane	1.9	10	ND		
Bromochloromethane	2.3	10	ND		
Chloroform	2.4	10	ND		
Carbon Tetrachloride	2.1	10	ND		
1,1,1-Trichloroethane	2.1	10	ND		
1,1-Dichloropropene	2.0	10	ND		
Benzene	2.2	10	ND		
TAME	2.3	10	ND		
1,2-Dichloroethane	2.3	10	ND		
Trichloroethene	1.8	10	ND		
Dibromomethane	1.8	10	ND		
1,2-Dichloropropane	1.9	10	ND		
Bromodichloromethane	2.0	10	ND		
cis-1,3-Dichloropropene	1.6	10	ND		
Toluene	1.8	10	ND		
Tetrachloroethene	1.7	10	ND		
trans-1,3-Dichloropropene	1.6	10	ND		
1,1,2-Trichloroethane	1.8	10	ND		
Dibromochloromethane	1.9	10	ND		
1,3-Dichloropropane	1.8	10	ND		
1,2-Dibromoethane	1.8	10	ND		
Chlorobenzene	1.8	10	ND		
Ethylbenzene	1.7	10	ND		
1,1,1,2-Tetrachloroethane	1.9	10	ND		
m,p-Xylene	3.2	10	ND		
o-Xylene	1.7	10	ND		
Styrene	1.6	10	ND		
Bromoform	1.7	10	ND		
Isopropyl Benzene	1.6	10	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305105	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
n-Propylbenzene	1.6	10	ND	
Bromobenzene	1.8	10	ND	
1,1,2,2-Tetrachloroethane	1.9	10	ND	
2-Chlorotoluene	1.8	10	ND	
1,3,5-Trimethylbenzene	1.6	10	ND	
1,2,3-Trichloropropane	1.9	10	ND	
4-Chlorotoluene	1.6	10	ND	
tert-Butylbenzene	1.6	10	ND	
1,2,4-Trimethylbenzene	1.4	10	ND	
sec-Butyl Benzene	1.6	10	ND	
p-Isopropyltoluene	1.5	10	ND	
1,3-Dichlorobenzene	1.7	10	ND	
1,4-Dichlorobenzene	1.7	10	ND	
n-Butylbenzene	1.5	10	ND	
1,2-Dichlorobenzene	1.8	10	ND	
1,2-Dibromo-3-Chloropropane	1.8	10	ND	
Hexachlorobutadiene	1.4	10	ND	
1,2,4-Trichlorobenzene	1.5	10	ND	
Naphthalene	1.7	10	2.5	
1,2,3-Trichlorobenzene	1.7	10	ND	
2-Butanone	2.3	10	ND	
(S) Dibromofluoromethane			114	
(S) Toluene-d8			103	
(S) 4-Bromofluorobenzene			98.7	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305105	**Prep Method:**	3546_OCP	**Prep Date:**	05/13/23	**Prep Batch:**	1150929
Matrix:	Soil	**Analytical Method:**	SW8081B	**Analyzed Date:**	5/13/2023	**Analytical Batch:**	474648
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
gamma-BHC (Lindane)	0.16	2.0	ND	40	81.7	85.6	4.78	25 - 135	30	
Heptachlor	0.11	2.0	ND	40	85.9	90.8	5.37	40 - 130	30	
Aldrin	0.20	2.0	ND	40	86.6	90.2	3.95	25 - 140	30	
delta-BHC	0.15	2.0	ND	40	86.3	91.6	5.91	60 - 130	30	
Heptachlor	0.19	2.0	ND	40	87.4	92.2	5.29	55 - 135	30	
4,4'-DDT	0.13	2.0	ND	40	88.1	94.2	6.86	45 - 140	30	
Tetrachloro-M-Xylene (S)				100	82.9	83.0		48 - 125		
Decachlorobiphenyl (S)				100	93.1	94.9		38 - 135		

Work Order:	2305105	**Prep Method:**	3546_PCB	**Prep Date:**	05/16/23	**Prep Batch:**	1150974
Matrix:	Soil	**Analytical Method:**	SW8082A	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474707
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aroclor1016	53	100	ND	600	137	145	5.43	25 - 145	30	
Aroclor1260	36	100	ND	600	126	132	4.77	30 - 145	30	
TCMX (S)				0.10	125	124		48 - 125		
DCBP (S)				0.10	114	120		48 - 135		

Work Order:	2305105	**Prep Method:**	3050B	**Prep Date:**	05/16/23	**Prep Batch:**	1150990
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/17/2023	**Analytical Batch:**	474758
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	0.24	50	103	103	0.000	80 - 120	30	
Arsenic	0.15	1.30	0.15	50	101	101	0.000	80 - 120	30	
Barium	0.055	5.00	ND	50	106	105	0.948	80 - 120	30	
Beryllium	0.055	5.00	ND	50	105	105	0.000	80 - 120	30	
Cadmium	0.10	0.750	ND	50	104	102	1.94	80 - 120	30	
Chromium	0.075	5.00	0.11	50	106	105	0.948	80 - 120	30	
Cobalt	0.070	5.00	ND	50	106	103	2.87	80 - 120	30	
Copper	0.20	5.00	ND	50	108	108	0.000	80 - 120	30	
Lead	0.10	3.00	ND	50	104	102	1.94	80 - 120	30	
Molybdenum	0.050	5.00	0.18	50	105	104	0.957	80 - 120	30	
Nickel	0.50	5.00	ND	50	105	104	0.957	80 - 120	30	
Selenium	0.22	5.00	ND	50	93.6	93.3	0.214	80 - 120	30	
Silver	0.15	5.00	ND	50	103	103	0.000	80 - 120	30	
Thallium	0.20	5.00	ND	50	104	104	0.000	80 - 120	30	
Vanadium	0.10	5.00	ND	50	106	105	0.948	80 - 120	30	
Zinc	0.30	5.00	1.4	50	103	103	0.000	80 - 120	30	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305105	**Prep Method:**	7471BP	**Prep Date:**	05/16/23	**Prep Batch:**	1150991
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/17/2023	**Analytical Batch:**	474739
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	114	104	9.52	80 - 120	20	

Work Order:	2305105	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	0.065	50	99.7	100	0.200	80 - 120	30	
Arsenic	0.15	1.30	ND	50	98.4	98.7	0.406	80 - 120	30	
Barium	0.055	5.00	0.19	50	103	103	0.000	80 - 120	30	
Beryllium	0.055	5.00	ND	50	102	102	0.000	80 - 120	30	
Cadmium	0.10	0.750	ND	50	101	101	0.000	80 - 120	30	
Chromium	0.075	5.00	0.16	50	103	103	0.000	80 - 120	30	
Cobalt	0.070	5.00	ND	50	102	102	0.000	80 - 120	30	
Copper	0.20	5.00	ND	50	105	105	0.000	80 - 120	30	
Lead	0.10	3.00	ND	50	102	102	0.000	80 - 120	30	
Molybdenum	0.050	5.00	0.15	50	103	103	0.000	80 - 120	30	
Nickel	0.50	5.00	ND	50	102	102	0.000	80 - 120	30	
Selenium	0.22	5.00	ND	50	91.8	92.4	0.651	80 - 120	30	
Silver	0.15	5.00	ND	50	100	101	0.995	80 - 120	30	
Thallium	0.20	5.00	ND	50	99.7	101	1.20	80 - 120	30	
Vanadium	0.10	5.00	ND	50	103	103	0.000	80 - 120	30	
Zinc	0.30	5.00	ND	50	100	101	0.995	80 - 120	30	

Work Order:	2305105	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	117	117	0.000	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305105	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Phenol	43.8	288	ND	1200	92.5	94.2	1.79	40 - 100	30	
2-Chlorophenol	47.7	288	ND	1200	92.4	88.8	3.67	45 - 105	30	
Bis(2-chloroethyl)ether	14.6	144	ND	400	76.2	75.7	0.658	35 - 105	30	
N-nitroso-di-n-propylamine	13.2	144	ND	400	107	109	1.85	40 - 115	30	
1,2,4-Trichlorobenzene	11.8	144	ND	400	78.7	75.4	4.21	45 - 110	30	
1,4-Dichlorobenzene	33.8	288	ND	1200	103	95.8	7.53	45 - 110	30	
Acenaphthene	10.7	144	ND	400	93.0	86.2	7.53	45 - 110	30	
4-Nitrophenol	54.7	720	ND	1200	87.3	81.4	7.31	15 - 140	30	
2,4-Dinitrotoluene	12.1	144	ND	400	91.9	91.3	0.819	50 - 115	30	
N-Methyl-2-Pyrrolidone (NMP)	12.0	144	ND	1200	68.3	70.5	3.12	25 - 120	30	
Pyrene	12.0	144	ND	400	90.7	87.6	3.65	45 - 145	30	
2-Fluorophenol (S)				11100	86.8	84.7		25 - 121		
Phenol-d6 (S)				11100	95.7	98.5		24 - 113		
2,4,6-Tribromophenol (S)				11100	107	97.9		19 - 122		
2-Fluorobiphenyl (S)				5560	89.1	81.3		30 - 143		
Nitrobenzene-d5 (S)				5560	93.6	77.9		23 - 120		
p-Terphenyl-d14 (S)				5560	86.3	79.5		18 - 137		

Work Order:	2305105	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	ND	100	101	103	1.96	80 - 120	20	

Work Order:	2305105	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151158
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474858
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	ND	100	99.6	99.9	0.301	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305105	**Prep Method:**	3546_BNA	**Prep Date:**	05/20/23	**Prep Batch:**	1151171
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/21/2023	**Analytical Batch:**	474904
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Phenol	43.8	288	ND	1200	99.0	97.6	1.69	40 - 100	30	
2-Chlorophenol	47.7	288	ND	1200	100	98.6	1.68	45 - 105	30	
Bis(2-chloroethyl)ether	14.6	144	ND	400	91.7	90.5	1.37	35 - 105	30	
N-nitroso-di-n-propylamine	13.2	144	ND	400	93.9	98.1	4.17	40 - 115	30	
1,2,4-Trichlorobenzene	11.8	144	ND	400	103	102	0.244	45 - 110	30	
1,4-Dichlorobenzene	33.8	288	ND	1200	107	106	0.784	45 - 110	30	
Acenaphthene	10.7	144	ND	400	105	103	1.92	45 - 110	30	
4-Nitrophenol	54.7	720	ND	1200	114	111	2.96	15 - 140	30	
2,4-Dinitrotoluene	12.1	144	ND	400	89.5	106	16.6	50 - 115	30	
N-Methyl-2-Pyrrolidone (NMP)	12.0	144	ND	1200	117	114	2.90	25 - 120	30	
Pyrene	12.0	144	ND	400	112	111	0.224	45 - 145	30	
2-Fluorophenol (S)				11100	91.2	90.1		25 - 121		
Phenol-d6 (S)				11100	98.7	96.1		24 - 113		
2,4,6-Tribromophenol (S)				11100	111	121		19 - 122		
2-Fluorobiphenyl (S)				5560	105	102		30 - 143		
Nitrobenzene-d5 (S)				5560	102	101		23 - 120		
p-Terphenyl-d14 (S)				5560	112	109		18 - 137		

Work Order:	2305105	**Prep Method:**	5035	**Prep Date:**	05/20/23	**Prep Batch:**	1151199
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/20/2023	**Analytical Batch:**	474889
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	2.0	10	ND	50.0	101	97.1	4.44	53.7 - 139	30	
Benzene	2.2	10	ND	50.0	107	103	3.43	66.5 - 135	30	
Trichloroethene	1.8	10	ND	50.0	93.4	93.7	0.214	57.5 - 150	30	
Toluene	1.8	10	ND	50.0	101	96.7	4.05	56.8 - 134	30	
Chlorobenzene	1.8	10	ND	50.0	97.7	94.3	3.55	57.4 - 134	30	
(S) Dibromofluoromethane				50.0	106	103		59.8 - 148		
(S) Toluene-d8				50.0	103	99.5		55.2 - 133		
(S) 4-Bromofluorobenzene				50.0	111	108		55.8 - 141		

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305105	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	2.0	10	ND	50.0	113	113	0.000	53.7 - 139	30	
Benzene	2.2	10	ND	50.0	111	110	0.544	66.5 - 135	30	
Trichloroethene	1.8	10	ND	50.0	97.9	94.7	3.33	57.5 - 150	30	
Toluene	1.8	10	ND	50.0	102	98.9	2.99	56.8 - 134	30	
Chlorobenzene	1.8	10	ND	50.0	98.7	98.6	0.000	57.4 - 134	30	
(S) Dibromofluoromethane				50.0	113	110		59.8 - 148		
(S) Toluene-d8				50.0	104	103		55.2 - 133		
(S) 4-Bromofluorobenzene				50.0	108	109		55.8 - 141		

Torrent LABORATORY, INC.

MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305105	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	**Soil**	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Spiked Sample:	2305105-003A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	ND	50	96.0	99.2	3.28	30.7 - 130	30	
Arsenic	0.15	1.30	ND	50	98.1	101	2.96	71.0 - 121	30	
Barium	0.055	5.00	55.5	50	40.0	37.0	2.01	70.2 - 130	30	S
Beryllium	0.055	5.00	ND	50	102	104	1.94	73.3 - 115	30	
Cadmium	0.10	0.750	ND	50	99.6	102	2.38	80.0 - 110	30	
Chromium	0.075	5.00	5.30	50	104	100	3.54	76.0 - 116	30	
Cobalt	0.070	5.00	ND	50	99.8	102	1.87	57.4 - 122	30	
Copper	0.20	5.00	ND	50	107	108	0.866	74.8 - 119	30	
Lead	0.10	3.00	ND	50	100	101	0.966	57.9 - 118	30	
Molybdenum	0.050	5.00	ND	50	103	105	1.92	62.9 - 123	30	
Nickel	0.50	5.00	ND	50	99.7	101	0.948	61.5 - 122	30	
Selenium	0.22	5.00	ND	50	92.9	94.9	2.13	62.0 - 111	30	
Silver	0.15	5.00	ND	50	103	105	1.92	75 - 125	30	
Thallium	0.20	5.00	ND	50	99.9	102	1.98	39.2 - 125	30	
Vanadium	0.10	5.00	14.2	50	104	101	2.30	65.8 - 122	30	
Zinc	0.30	5.00	17.6	50	89.8	86.8	2.43	59.9 - 122	30	

Work Order:	2305105	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	**Soil**	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Spiked Sample:	2305105-003A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	79.6	73.1	8.60	80 - 120	20	S

Work Order:	2305105	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151158
Matrix:	**Soil**	**Analytical Method:**	SW7199	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474858
Spiked Sample:	2305105-008A						
Units:	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	249	100	96.3	93.7	0.581	75 - 125	20	

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit/Reporting Limit/Limit of Quantitation (PQL/RL/LOQ) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs/RLs/LODs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg/m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS

B - Indicates when the analyte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Langan

Project Name: VERNON

Work Order No.: 2305105

Date and Time Received: 5/12/2023 10:20:00AM

Received By: Katherene Evans

Physically Logged By: Katherene Evans

Checklist Completed By: Katherene Evans

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes			
Container/Temp Blank temperature in compliance?	Yes	Temperature:	2.0	°C
Water-VOA vials have zero headspace?	No VOA vials submitted			
Water-pH acceptable upon receipt?	N/A			

pH Checked by: na

pH Adjusted by: na

Comments:

Rec'd 2 liners not on CoC. Placed on hold

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/12/2023
Report Due Date:	5/23/2023		**Time Received:**	10:20 am

Comments:

Work Order # : ***2305105***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305105-001A	B-2-5	05/08/23 8:03	Soil	11/04/23			PCBs_S_8082A Cr6_S_7199Mod Pest_S_8081OCP Hg_S_7471B Met_S_6010B CAM17	
2305105-001B	B-2-5	05/08/23 8:03	Soil	11/04/23			Hold Samples 1633 DRAFT_S	
Sample Note:	PFAs due 5/26							
2305105-002A	B-2 (9-10)	05/08/23 8:14	Soil	11/04/23			Hold Samples SVO_S_8270CFull VOC_S_8260B	
Sample Note:	SVOC, VOCs results due 5/23							
2305105-003A	B-2 (14-15)	05/08/23 8:20	Soil	11/04/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
Sample Note:	Additional request for Cr VI & CAM17 due on 5/19							
2305105-004A	B-2 (19-20)	05/08/23 8:25	Soil	11/04/23			Hold Samples	
2305105-005A	B-2 (24-25)	05/08/23 8:30	Soil	11/04/23			Hold Samples	
2305105-006A	B-2 (29-30)	05/08/23 8:32	Soil	11/04/23			Hold Samples SVO_S_8270CFull VOC_S_8260B	
2305105-007A	B-11-5	05/08/23 9:47	Soil	11/04/23			PCBs_S_8082A Cr6_S_7199Mod Pest_S_8081OCP Hg_S_7471B Met_S_6010B CAM17	
2305105-008A	B-11 (9-10)	05/08/23 9:50	Soil	11/04/23			Hold Samples Cr6_S_7199Mod Met_S_6010B CAM17 Hg_S_7471B	

Torrent LABORATORY, INC.

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/12/2023
Report Due Date:	5/23/2023		**Time Received:**	10:20 am

Comments:

Work Order # : ***2305105***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305105-009A	B-12-5	05/08/23 10:55	Soil	11/04/23			PCBs_S_8082A Cr6_S_7199Mod Hg_S_7471B Met_S_6010B CAM17	
2305105-009B	B-12-5	05/08/23 10:55	Soil	11/04/23			Hold Samples 1633 DRAFT_S	
2305105-010A	B-12 (9-10)	05/08/23 10:59	Soil	11/04/23			Hold Samples SVO_S_8270CFull VOC_S_8260B	
2305105-011A	B-12 (14-15)	05/08/23 11:08	Soil	11/04/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305105-012A	B-12 (17.5-20)	05/08/23 11:12	Soil	11/04/23			Hold Samples	
2305105-013A	B-12 (24-25)	05/08/23 11:17	Soil	11/04/23			Hold Samples	
2305105-014A	B-13-5	05/08/23 12:10	Soil	11/04/23			PCBs_S_8082A Cr6_S_7199Mod Hg_S_7471B Met_S_6010B CAM17	
2305105-014B	B-13-5	05/08/23 12:10	Soil	11/04/23			Hold Samples 1633 DRAFT_S	
2305105-015A	B-13 (9-10)	05/08/23 12:15	Soil	11/04/23			Hold Samples SVO_S_8270CFull VOC_S_8260B	
2305105-016A	B-13 (14-15)	05/08/23 12:17	Soil	11/04/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305105-017A	B-13 (19-20)	05/08/23 12:20	Soil	11/04/23			Hold Samples	
2305105-018A	B-13 (24-25)	05/08/23 12:22	Soil	11/04/23			Hold Samples	

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/12/2023
Report Due Date:	5/23/2023		**Time Received:**	10:20 am

Comments:

Work Order # : ***2305105***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305105-019A	B-13 (29-30)	05/08/23 12:24	Soil	11/04/23			Hold Samples SVO_S_8270CFull VOC_S_8260B	
2305105-020A	PFAs-DUP	05/08/23	Soil	11/04/23			Hold Samples	
2305105-021A	B-12 (15-17.5)	05/08/23	Soil	11/04/23			Hold Samples	
2305105-022A	B-12 (29-30.5)	05/08/23 11:20	Soil	11/04/23			Hold Samples VOC_S_8260B SVO_S_8270CFull	

Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305105

Company Name: LANGAN ☐ Env. ☐ Non Env.
Address: 515 S. FLOWER ST, SUITE 1060
City: LA State: CA Zip Code: 90071
Telephone: 213 280 9703 Cell:
REPORT TO: N. CUTLER BILL TO:

Project #: 721046501 PO#:
Project Name: VERNON
Comments: HOLD ALL SAMPLES
SAMPLER: M. CHE
EMAIL: NCUTLER ; MCHE@LANGAN.COM

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☑ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	VOC 8260B	SVOC 8270 SIM	CAM 17 6010B						REMARKS
001		B-2-5	5/8/23 0803	Soil	2	Glass/ plastic	✓	✓	✓						HOLD
002		B-2 (9-10)	5/8/23 0814	Soil	1	Plastic liner	✓	✓	✓						
003		B-2 (14-15)	5/8/23 0820	Soil	1	Plastic liner	✓	✓	✓						
004		B-2 (19-20)	5/8/23 0825	Soil	1	Plastic liner	✓	✓	✓						
005		B-2 (24-25)	5/8/23 0830	Soil	1	Plastic liner	✓	✓	✓						
006		B-2 (29-30)	5/8/23 0832	Soil	1	Plastic liner	✓	✓	✓						
007		B-11-5	5/8/23 0947	Soil	1	Glass	✓	✓	✓						
008		B-11 (9-10)	5/8/23 0950	Soil	1	Plastic liner	✓	✓	✓						
009		B-12-5	5/8/23 1055	Soil	2	Plastic/ ~~Tinder~~ Glass	✓	✓	✓						
010		B-12 (9-10)	5/8/23 1059	Soil	1	Plastic liner	✓	✓	✓						

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/11/23	1600	Katrine	Evans	5-12-23	1012
2								

Cooler Temperature 2.4#3 °C Samples Received on ice? Yes ☒ No ☐ Method of Shipment Fed EX

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Page of

Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305105

Company Name: LANGAN ☐ Env. ☐ Non Env.
Address: 515 S. FLOWER ST, SUITE 1060
City: LA State: CA Zip Code: 90071
Telephone: 213 280 9903 Cell:
REPORT TO: BILL TO:

Project #: 721040501 PO#:
Project Name: VERNON
Comments: HOLD SAMPLES FOR ANALYSIS
SAMPLER: M. CHE
EMAIL: NCUTLER AND MCHE@LANGAN.COM

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☑ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED: VOC 8260B; SVOC 8270 SIM; CAM 17 6010B

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	REMARKS
011		B-12 (14-15)	5/8/23 1108	Soil	1	Plastic liner	HOLD
012		B-12 (17.5-20)	5/8/23 1112	Soil	1	plastic liner	
013		B-12 (24-25)	5/8/23 1117	Soil	1	plastic liner	
014		B-13 - 5	5/8/23 1210	Soil	2	Glass/ plastic	
015		B-13 (9-10)	5/8/23 1215	Soil	1	Plastic liner	
016		B-13 (14-15)	5/8/23 1217	Soil	1	Plastic liner	
017		B-13 (19-20)	5/8/23 1220	Soil	1	Plastic liner	
018		B-13 (24-25)	5/8/23 1222	Soil	1	Plastic liner	
019		B-13 (29-30)	5/8/23 1224	Soil	1	Plastic liner	
020		PFAS-DUP	—	Soil	1	Plastic vial	

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/11/23	1600	Kathie	Evans	5-12-23	10:20
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature _____ °C Samples Received on ice? Yes ☐ No ☐ Method of Shipment _____

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Page of

Gmail Torrent Laboratory, Inc. <pm@torrentlaboratory.com>

RE: [External] Re: Sample order for PO: 721040501

1 message

Nick Cutler <ncutler@langan.com> Wed, May 10, 2023 at 8:42 PM
To: "Torrent Laboratory, Inc." <pm@torrentlaboratory.com>, Katherine Thomas <kthomas@langan.com>
Cc: "melanie.moran@torrentlaboratory.com" <melanie.moran@torrentlaboratory.com>, Melody Che <mche@langan.com>

Hi Kathie –

Can you please run the analyses on a 3-day TAT per the table below?

Sample ID	Metals 6010B	Pesticides 8081A	PCBs 8082	ACM PLM
B-1-5	1	1		1
B-2-5	1	1	1	
B-3-5	1	1		
B-4-6	1			
B-5-5	1			
B-6-5	1			
B-7-6	1			
B-8-5	1	1		
B-9-5	1			
B-11-5	1	1	1	
B-12-5	1		1	
B-13-5	1		1	

Cordially,
Nick Cutler

483 Sinclair Frontage Rd., Milpitas, CA 95035 | tel: 408.263.5258 | fax: 408.263.8293 | www.torrentlab.com

Langan
135 Main Street, Suite 1500
San Francisco, California 94105
Tel: 415.955.5200

RE: VERNON

Work Order No.: 2305065 Rev: 2

Dear Nick Cutler:

Torrent Laboratory, Inc. received 20 sample(s) on May 09, 2023 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.



Kathie Evans
Project Manager

May 19, 2023
Date

Torrent LABORATORY, INC.

Date: 5/19/2023

Client: Langan

Project: VERNON

Work Order: 2305065

CASE NARRATIVE

Unless otherwise indicated in the following narrative, no issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Laboratory, Inc.

REVISIONS

Report revised to include additionally requested data

Rev. 1 (5/19/23)

Report revised to include additionally requested SVOC and VOC data.

Rev. 2 (5/23/23)

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/09/23
Date Reported: 05/19/23

B-4-6 2305065-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	1.83	mg/Kg
Barium	SW6010B	1	0.055	5.00	108	mg/Kg
Chromium	SW6010B	1	0.075	5.00	13.5	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	9.00	mg/Kg
Copper	SW6010B	1	0.20	5.00	12.1	mg/Kg
Nickel	SW6010B	1	0.50	5.00	8.50	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	36.2	mg/Kg
Zinc	SW6010B	1	0.30	5.00	45.6	mg/Kg

B-4-15 2305065-003

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	1.68	mg/Kg
Barium	SW6010B	1	0.055	5.00	84.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	14.1	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	7.75	mg/Kg
Copper	SW6010B	1	0.20	5.00	15.8	mg/Kg
Nickel	SW6010B	1	0.50	5.00	7.60	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	37.2	mg/Kg
Zinc	SW6010B	1	0.30	5.00	39.6	mg/Kg

B-5-5 2305065-007

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	2.23	mg/Kg
Barium	SW6010B	1	0.055	5.00	89.0	mg/Kg
Chromium	SW6010B	1	0.075	5.00	16.3	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	8.05	mg/Kg
Copper	SW6010B	1	0.20	5.00	21.4	mg/Kg
Lead	SW6010B	1	0.10	3.00	15.4	mg/Kg
Nickel	SW6010B	1	0.50	5.00	9.80	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	40.5	mg/Kg
Zinc	SW6010B	1	0.30	5.00	60.5	mg/Kg

B-5-15 2305065-009

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	51.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	7.15	mg/Kg
Copper	SW6010B	1	0.20	5.00	5.50	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	27.9	mg/Kg
Zinc	SW6010B	1	0.30	5.00	22.6	mg/Kg

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/09/23
Date Reported: 05/19/23

B-5-30 2305065-012

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-6-5 2305065-013

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	2.20	mg/Kg
Barium	SW6010B	1	0.055	5.00	103	mg/Kg
Chromium	SW6010B	1	0.075	5.00	15.9	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	9.05	mg/Kg
Copper	SW6010B	1	0.20	5.00	18.6	mg/Kg
Lead	SW6010B	1	0.10	3.00	6.95	mg/Kg
Nickel	SW6010B	1	0.50	5.00	9.15	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	42.2	mg/Kg
Zinc	SW6010B	1	0.30	5.00	53.5	mg/Kg
Hexavalent Chromium	SW7199	1	3.1	10	12.4	ug/Kg

B-6-15 2305065-015

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	58.0	mg/Kg
Chromium	SW6010B	1	0.075	5.00	5.50	mg/Kg
Copper	SW6010B	1	0.20	5.00	5.80	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	20.2	mg/Kg
Zinc	SW6010B	1	0.30	5.00	23.6	mg/Kg

B-7-6 2305065-019

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	2.31	mg/Kg
Barium	SW6010B	1	0.055	5.00	105	mg/Kg
Chromium	SW6010B	1	0.075	5.00	16.6	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	8.80	mg/Kg
Copper	SW6010B	1	0.20	5.00	22.5	mg/Kg
Lead	SW6010B	1	0.10	3.00	24.1	mg/Kg
Nickel	SW6010B	1	0.50	5.00	10.7	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	38.5	mg/Kg
Zinc	SW6010B	1	0.30	5.00	66.0	mg/Kg

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-4-6	**Lab Sample ID:**	2305065-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 9:54		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/18/23	23:49	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-4-6	**Lab Sample ID:**	2305065-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 9:54		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23	5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:31	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-4-6	**Lab Sample ID:**	2305065-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 9:54		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:43	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**1.83**		mg/Kg	05/15/23	20:43	AT	474699
Barium	SW6010B	1	0.055	5.00	**108**		mg/Kg	05/15/23	20:43	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	20:43	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	20:43	AT	474699
Chromium	SW6010B	1	0.075	5.00	**13.5**		mg/Kg	05/15/23	20:43	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**9.00**		mg/Kg	05/15/23	20:43	AT	474699
Copper	SW6010B	1	0.20	5.00	**12.1**		mg/Kg	05/15/23	20:43	AT	474699
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/15/23	20:43	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:43	AT	474699
Nickel	SW6010B	1	0.50	5.00	**8.50**		mg/Kg	05/15/23	20:43	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	20:43	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	20:43	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	20:43	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**36.2**		mg/Kg	05/15/23	20:43	AT	474699
Zinc	SW6010B	1	0.30	5.00	**45.6**		mg/Kg	05/15/23	20:43	AT	474699

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-4-15	**Lab Sample ID:**	2305065-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 10:00		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	0:10	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-4-15	**Lab Sample ID:**	2305065-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 10:00		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:54	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-4-15	**Lab Sample ID:**	2305065-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 10:00		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:34	AT	474846
Arsenic	SW6010B	1	0.15	1.30	**1.68**		mg/Kg	05/18/23	20:34	AT	474846
Barium	SW6010B	1	0.055	5.00	**84.5**		mg/Kg	05/18/23	20:34	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:34	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:34	AT	474846
Chromium	SW6010B	1	0.075	5.00	**14.1**		mg/Kg	05/18/23	20:34	AT	474846
Cobalt	SW6010B	1	0.070	5.00	**7.75**		mg/Kg	05/18/23	20:34	AT	474846
Copper	SW6010B	1	0.20	5.00	**15.8**		mg/Kg	05/18/23	20:34	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:34	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:34	AT	474846
Nickel	SW6010B	1	0.50	5.00	**7.60**		mg/Kg	05/18/23	20:34	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:34	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:34	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:34	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**37.2**		mg/Kg	05/18/23	20:34	AT	474846
Zinc	SW6010B	1	0.30	5.00	**39.6**		mg/Kg	05/18/23	20:34	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-5	**Lab Sample ID:**	2305065-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:10		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	1:14	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-5	**Lab Sample ID:**	2305065-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:10		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23 5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:41	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-5	**Lab Sample ID:**	2305065-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:10		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:51	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**2.23**		mg/Kg	05/15/23	20:51	AT	474699
Barium	SW6010B	1	0.055	5.00	**89.0**		mg/Kg	05/15/23	20:51	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	20:51	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	20:51	AT	474699
Chromium	SW6010B	1	0.075	5.00	**16.3**		mg/Kg	05/15/23	20:51	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**8.05**		mg/Kg	05/15/23	20:51	AT	474699
Copper	SW6010B	1	0.20	5.00	**21.4**		mg/Kg	05/15/23	20:51	AT	474699
Lead	SW6010B	1	0.10	3.00	**15.4**		mg/Kg	05/15/23	20:51	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:51	AT	474699
Nickel	SW6010B	1	0.50	5.00	**9.80**		mg/Kg	05/15/23	20:51	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	20:51	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	20:51	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	20:51	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**40.5**		mg/Kg	05/15/23	20:51	AT	474699
Zinc	SW6010B	1	0.30	5.00	**60.5**		mg/Kg	05/15/23	20:51	AT	474699

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-15	**Lab Sample ID:**	2305065-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:18		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	2:18	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-15	**Lab Sample ID:**	2305065-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:18		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:56	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-15	**Lab Sample ID:**	2305065-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:18		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:36	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:36	AT	474846
Barium	SW6010B	1	0.055	5.00	**51.5**		mg/Kg	05/18/23	20:36	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:36	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:36	AT	474846
Chromium	SW6010B	1	0.075	5.00	**7.15**		mg/Kg	05/18/23	20:36	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:36	AT	474846
Copper	SW6010B	1	0.20	5.00	**5.50**		mg/Kg	05/18/23	20:36	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:36	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:36	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:36	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:36	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:36	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:36	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**27.9**		mg/Kg	05/18/23	20:36	AT	474846
Zinc	SW6010B	1	0.30	5.00	**22.6**		mg/Kg	05/18/23	20:36	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-30	**Lab Sample ID:**	2305065-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:35		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/21/23	23:42	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/21/23	23:42	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/21/23	23:42	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/21/23	23:42	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/21/23	23:42	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/21/23	23:42	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/21/23	23:42	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/21/23	23:42	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/21/23	23:42	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/21/23	23:42	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/21/23	23:42	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/21/23	23:42	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/21/23	23:42	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/21/23	23:42	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/21/23	23:42	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	23:42	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/21/23	23:42	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/21/23	23:42	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/21/23	23:42	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/21/23	23:42	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/21/23	23:42	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	23:42	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-30	**Lab Sample ID:**	2305065-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:35		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/21/23	23:42	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/21/23	23:42	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/21/23	23:42	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/21/23	23:42	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/21/23	23:42	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/21/23	23:42	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/21/23	23:42	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	23:42	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/21/23	23:42	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/21/23	23:42	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/21/23	23:42	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/21/23	23:42	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/21/23	23:42	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	23:42	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/21/23	23:42	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/21/23	23:42	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/21/23	23:42	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/21/23	23:42	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**68.5**		%	05/21/23	23:42	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**70.4**		%	05/21/23	23:42	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**65.4**		%	05/21/23	23:42	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-30	**Lab Sample ID:**	2305065-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:35		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23	11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**70.3**		%	05/21/23	23:42	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**67.2**		%	05/21/23	23:42	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**93.1**		%	05/21/23	23:42	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-30	**Lab Sample ID:**	2305065-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:35		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/22/23 9:55:00AM
Prep Batch ID:	1151218	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/22/23	21:00	BP	474921
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:00	BP	474921
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:00	BP	474921
TBA	SW8260B	1	12	50	ND		ug/Kg	05/22/23	21:00	BP	474921
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:00	BP	474921
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	21:00	BP	474921
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	21:00	BP	474921
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:00	BP	474921
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-5-30	**Lab Sample ID:**	2305065-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/03/23 / 13:35		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/22/23 9:55:00AM
Prep Batch ID:	1151218	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:00	BP	474921
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/22/23	21:00	BP	474921
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:00	BP	474921
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:00	BP	474921
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/22/23	21:00	BP	474921
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:00	BP	474921
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	21:00	BP	474921
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:00	BP	474921
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/22/23	21:00	BP	474921
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**125**		%	05/22/23	21:00	BP	474921
(S) Toluene-d8	SW8260B		55.2 - 133		**104**		%	05/22/23	21:00	BP	474921
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**100**		%	05/22/23	21:00	BP	474921

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-6-5	**Lab Sample ID:**	2305065-013A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 13:32		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	**12.4**		ug/Kg	05/19/23	2:40	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-6-5	**Lab Sample ID:**	2305065-013A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 13:32		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23 5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:44	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-6-5	**Lab Sample ID:**	2305065-013A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 13:32		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:53	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**2.20**		mg/Kg	05/15/23	20:53	AT	474699
Barium	SW6010B	1	0.055	5.00	**103**		mg/Kg	05/15/23	20:53	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	20:53	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	20:53	AT	474699
Chromium	SW6010B	1	0.075	5.00	**15.9**		mg/Kg	05/15/23	20:53	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**9.05**		mg/Kg	05/15/23	20:53	AT	474699
Copper	SW6010B	1	0.20	5.00	**18.6**		mg/Kg	05/15/23	20:53	AT	474699
Lead	SW6010B	1	0.10	3.00	**6.95**		mg/Kg	05/15/23	20:53	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:53	AT	474699
Nickel	SW6010B	1	0.50	5.00	**9.15**		mg/Kg	05/15/23	20:53	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	20:53	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	20:53	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	20:53	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**42.2**		mg/Kg	05/15/23	20:53	AT	474699
Zinc	SW6010B	1	0.30	5.00	**53.5**		mg/Kg	05/15/23	20:53	AT	474699

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-6-15	**Lab Sample ID:**	2305065-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 13:43		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	3:01	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-6-15	**Lab Sample ID:**	2305065-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 13:43		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:59	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-6-15	**Lab Sample ID:**	2305065-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 13:43		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:37	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:37	AT	474846
Barium	SW6010B	1	0.055	5.00	**58.0**		mg/Kg	05/18/23	20:37	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:37	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:37	AT	474846
Chromium	SW6010B	1	0.075	5.00	**5.50**		mg/Kg	05/18/23	20:37	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:37	AT	474846
Copper	SW6010B	1	0.20	5.00	**5.80**		mg/Kg	05/18/23	20:37	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:37	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:37	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:37	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:37	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:37	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:37	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**20.2**		mg/Kg	05/18/23	20:37	AT	474846
Zinc	SW6010B	1	0.30	5.00	**23.6**		mg/Kg	05/18/23	20:37	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-6	**Lab Sample ID:**	2305065-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 8:09		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	3:22	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-6	**Lab Sample ID:**	2305065-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 8:09		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23 5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:46	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-6	**Lab Sample ID:**	2305065-019A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 8:09		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:54	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**2.31**		mg/Kg	05/15/23	20:54	AT	474699
Barium	SW6010B	1	0.055	5.00	**105**		mg/Kg	05/15/23	20:54	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	20:54	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	20:54	AT	474699
Chromium	SW6010B	1	0.075	5.00	**16.6**		mg/Kg	05/15/23	20:54	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**8.80**		mg/Kg	05/15/23	20:54	AT	474699
Copper	SW6010B	1	0.20	5.00	**22.5**		mg/Kg	05/15/23	20:54	AT	474699
Lead	SW6010B	1	0.10	3.00	**24.1**		mg/Kg	05/15/23	20:54	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:54	AT	474699
Nickel	SW6010B	1	0.50	5.00	**10.7**		mg/Kg	05/15/23	20:54	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	20:54	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	20:54	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	20:54	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**38.5**		mg/Kg	05/15/23	20:54	AT	474699
Zinc	SW6010B	1	0.30	5.00	**66.0**		mg/Kg	05/15/23	20:54	AT	474699

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305065	**Prep Method:**	3050B	**Prep Date:**	05/15/23	**Prep Batch:**	1150962
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/15/2023	**Analytical Batch:**	474699
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	ND	
Arsenic	0.15	1.30	ND	
Barium	0.055	5.00	0.14	J
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.13	J
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.050	
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	3.2	J

Work Order:	2305065	**Prep Method:**	7471BP	**Prep Date:**	05/15/23	**Prep Batch:**	1150976
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474697
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305065	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	0.065	
Arsenic	0.15	1.30	ND	
Barium	0.055	5.00	0.19	
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.16	
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.15	
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	ND	

Work Order:	2305065	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305065	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
N-Nitrosodimethylamine	46.9	720	ND		
Phenol	43.8	288	ND		
Bis(2-chloroethyl)ether	13.3	144	ND		
2-Chlorophenol	47.7	288	ND		
1,3-Dichlorobenzene	13.1	144	ND		
1,4-Dichlorobenzene	14.6	144	ND		
Benzyl Alcohol	20.5	288	ND		
1,2-Dichlorobenzene	13.5	144	ND		
2-Methylphenol (o-Cresol)	29.3	288	ND		
N-Methyl-2-Pyrrolidone (NMP)	68.0	720	ND		
	12.6	144	ND		
3-/4-Methylphenol (p-/m-Cresol)	31.3	288	ND		
N-nitroso-di-n-propylamine	13.2	144	ND		
Hexachloroethane	17.1	144	ND		
Nitrobenzene	12.8	144	ND		
Isophorone	12.2	144	ND		
2-Nitrophenol	25.4	288	ND		
2,4-Dimethylphenol	22.8	288	ND		
Benzoic Acid	41.7	288	ND		
Bis(2-Chloroethoxy)methane	9.79	144	ND		
Bis(2-chloroisopropyl)ether	12.6	144	ND		
2,4-Dichlorophenol	39.3	288	ND		
1,2,4-Trichlorobenzene	11.8	144	ND		
Naphthalene	10.6	144	ND		
2,6-Dichlorophenol	35.8	288	ND		
Hexachloro-1,3-butadiene	8.34	144	ND		
4-Chloro-3-methylphenol	33.8	288	ND		
2-Methylnaphthalene	10.4	144	ND		
1-Methylnaphthalene	12.2	144	ND		
Hexachlorocyclopentadiene	12.9	144	ND		
2,4,6-Trichlorophenol	35.9	288	ND		
2,4,5-Trichlorophenol	33.4	288	ND		
2-Chloronaphthalene	10.6	144	ND		
1,4-Dinitrobenzene	10.3	144	ND		
Dimethyl phthalate	14.2	720	ND		
1,3-Dinitrobenzene	10.4	144	ND		
Acenaphthylene	8.28	144	ND		
2,6-Dinitrotoluene	11.3	144	ND		
1,2-Dinitrobenzene	15.8	144	ND		
Acenaphthene	10.7	144	ND		
2,4-Dinitrophenol	77.6	720	ND		
4-Nitrophenol	54.7	720	ND		
Dibenzofuran	11.2	144	ND		
2,4-Dinitrotoluene	12.1	144	ND		
2,3,5,6-Tetrachlorophenol	27.6	288	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305065	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
2,3,4,6-Tetrachlorophenol	31.5	288	ND	
Diethylphthalate	13.6	720	79.2	
Fluorene	10.3	144	ND	
4-Chlorophenyl-phenylether	9.32	144	ND	
4,6-Dinitro-2-methylphenol	13.4	288	ND	
Diphenylamine	13.0	144	ND	
Azobenzene	114	144	ND	
4-Bromophenyl-phenylether	8.23	144	ND	
Hexachlorobenzene	8.66	144	ND	
Pentachlorophenol	25.0	288	ND	
Phenanthrene	9.32	144	ND	
Anthracene	8.91	144	ND	
Carbazole	10.7	144	ND	
Di-n-butylphthalate	13.5	144	ND	
Fluoranthene	10.0	147	ND	
Benzidine	147	144	ND	
Pyrene	12.0	144	ND	
Butylbenzylphthalate	21.0	720	ND	
Benzo(a)anthracene	9.80	144	ND	
3,3-Dichlorobenzidine	118	144	ND	
Chrysene	15.2	144	ND	
Bis(2-Ethylhexyl)phthalate	15.3	720	ND	
Di-n-Octylphthalate	12.3	144	ND	
Benzo(b)fluorathene	12.0	144	ND	
benzo(k)fluorathene	8.16	144	ND	
Benzo(a)pyrene	9.80	144	ND	
Indeno(1,2,3-c,d)pyrene	13.8	144	ND	
Dibenzo(a,h)anthracene	12.7	144	ND	
Benzo(g,h,i)perylene	12.7	144	ND	
Pyridine	43.8	720	ND	
2-Fluorophenol (S)			88.1	
Phenol-d6 (S)			105	
2,4,6-Tribromophenol (S)			96.0	
2-Fluorobiphenyl (S)			80.2	
Nitrobenzene-d5 (S)			88.9	
p-Terphenyl-d14 (S)			91.7	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305065	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Hexavalent Chromium	3.1	10	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305065	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	1.2	10	ND	
Chloromethane	1.8	10	ND	
Vinyl Chloride	2.0	10	ND	
Bromomethane	2.7	10	ND	
Chloroethane	3.0	10	ND	
Trichlorofluoromethane	2.1	10	ND	
1,1-Dichloroethene	2.0	10	ND	
Freon 113	1.9	10	ND	
Methylene Chloride	7.1	10	ND	
trans-1,2-Dichloroethene	2.1	10	ND	
MTBE	2.3	10	ND	
TBA	12	50	ND	
Diisopropyl ether	2.3	10	ND	
1,1-Dichloroethane	2.2	10	ND	
Ethyl tert-Butyl ether	2.3	10	ND	
cis-1,2-Dichloroethene	2.2	10	ND	
2,2-Dichloropropane	1.9	10	ND	
Bromochloromethane	2.3	10	ND	
Chloroform	2.4	10	ND	
Carbon Tetrachloride	2.1	10	ND	
1,1,1-Trichloroethane	2.1	10	ND	
1,1-Dichloropropene	2.0	10	ND	
Benzene	2.2	10	ND	
TAME	2.3	10	ND	
1,2-Dichloroethane	2.3	10	ND	
Trichloroethene	1.8	10	ND	
Dibromomethane	1.8	10	ND	
1,2-Dichloropropane	1.9	10	ND	
Bromodichloromethane	2.0	10	ND	
cis-1,3-Dichloropropene	1.6	10	ND	
Toluene	1.8	10	ND	
Tetrachloroethene	1.7	10	ND	
trans-1,3-Dichloropropene	1.6	10	ND	
1,1,2-Trichloroethane	1.8	10	ND	
Dibromochloromethane	1.9	10	ND	
1,3-Dichloropropane	1.8	10	ND	
1,2-Dibromoethane	1.8	10	ND	
Chlorobenzene	1.8	10	ND	
Ethylbenzene	1.7	10	ND	
1,1,1,2-Tetrachloroethane	1.9	10	ND	
m,p-Xylene	3.2	10	ND	
o-Xylene	1.7	10	ND	
Styrene	1.6	10	ND	
Bromoform	1.7	10	ND	
Isopropyl Benzene	1.6	10	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305065	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
n-Propylbenzene	1.6	10	ND	
Bromobenzene	1.8	10	ND	
1,1,2,2-Tetrachloroethane	1.9	10	ND	
2-Chlorotoluene	1.8	10	ND	
1,3,5-Trimethylbenzene	1.6	10	ND	
1,2,3-Trichloropropane	1.9	10	ND	
4-Chlorotoluene	1.6	10	ND	
tert-Butylbenzene	1.6	10	ND	
1,2,4-Trimethylbenzene	1.4	10	ND	
sec-Butyl Benzene	1.6	10	ND	
p-Isopropyltoluene	1.5	10	ND	
1,3-Dichlorobenzene	1.7	10	ND	
1,4-Dichlorobenzene	1.7	10	ND	
n-Butylbenzene	1.5	10	ND	
1,2-Dichlorobenzene	1.8	10	ND	
1,2-Dibromo-3-Chloropropane	1.8	10	ND	
Hexachlorobutadiene	1.4	10	ND	
1,2,4-Trichlorobenzene	1.5	10	ND	
Naphthalene	1.7	10	2.5	
1,2,3-Trichlorobenzene	1.7	10	ND	
2-Butanone	2.3	10	ND	
(S) Dibromofluoromethane			114	
(S) Toluene-d8			103	
(S) 4-Bromofluorobenzene			98.7	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305065	**Prep Method:**	3050B	**Prep Date:**	05/15/23	**Prep Batch:**	1150962
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/15/2023	**Analytical Batch:**	474699
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	ND	50	98.3	99.6	1.21	80 - 120	30	
Arsenic	0.15	1.30	ND	50	99.4	100	0.602	80 - 120	30	
Barium	0.055	5.00	0.14	50	101	102	0.985	80 - 120	30	
Beryllium	0.055	5.00	ND	50	102	103	0.976	80 - 120	30	
Cadmium	0.10	0.750	ND	50	101	102	0.985	80 - 120	30	
Chromium	0.075	5.00	0.13	50	102	103	0.976	80 - 120	30	
Cobalt	0.070	5.00	ND	50	102	103	0.976	80 - 120	30	
Copper	0.20	5.00	ND	50	102	103	0.976	80 - 120	30	
Lead	0.10	3.00	ND	50	101	102	0.985	80 - 120	30	
Molybdenum	0.050	5.00	0.050	50	101	102	0.985	80 - 120	30	
Nickel	0.50	5.00	ND	50	102	103	0.976	80 - 120	30	
Selenium	0.22	5.00	ND	50	92.9	93.5	0.643	80 - 120	30	
Silver	0.15	5.00	ND	50	99.3	100	0.602	80 - 120	30	
Thallium	0.20	5.00	ND	50	99.8	101	1.20	80 - 120	30	
Vanadium	0.10	5.00	ND	50	102	103	0.976	80 - 120	30	
Zinc	0.30	5.00	3.2	50	111	111	0.000	80 - 120	30	

Work Order:	2305065	**Prep Method:**	7471BP	**Prep Date:**	05/15/23	**Prep Batch:**	1150976
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474697
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	105	104	0.766	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305065	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	0.065	50	99.7	100	0.200	80 - 120	30	
Arsenic	0.15	1.30	ND	50	98.4	98.7	0.406	80 - 120	30	
Barium	0.055	5.00	0.19	50	103	103	0.000	80 - 120	30	
Beryllium	0.055	5.00	ND	50	102	102	0.000	80 - 120	30	
Cadmium	0.10	0.750	ND	50	101	101	0.000	80 - 120	30	
Chromium	0.075	5.00	0.16	50	103	103	0.000	80 - 120	30	
Cobalt	0.070	5.00	ND	50	102	102	0.000	80 - 120	30	
Copper	0.20	5.00	ND	50	105	105	0.000	80 - 120	30	
Lead	0.10	3.00	ND	50	102	102	0.000	80 - 120	30	
Molybdenum	0.050	5.00	0.15	50	103	103	0.000	80 - 120	30	
Nickel	0.50	5.00	ND	50	102	102	0.000	80 - 120	30	
Selenium	0.22	5.00	ND	50	91.8	92.4	0.651	80 - 120	30	
Silver	0.15	5.00	ND	50	100	101	0.995	80 - 120	30	
Thallium	0.20	5.00	ND	50	99.7	101	1.20	80 - 120	30	
Vanadium	0.10	5.00	ND	50	103	103	0.000	80 - 120	30	
Zinc	0.30	5.00	ND	50	100	101	0.995	80 - 120	30	

Work Order:	2305065	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	117	117	0.000	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305065	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Phenol	43.8	288	ND	1200	92.5	94.2	1.79	40 - 100	30	
2-Chlorophenol	47.7	288	ND	1200	92.4	88.8	3.67	45 - 105	30	
Bis(2-chloroethyl)ether	14.6	144	ND	400	76.2	75.7	0.658	35 - 105	30	
N-nitroso-di-n-propylamine	13.2	144	ND	400	107	109	1.85	40 - 115	30	
1,2,4-Trichlorobenzene	11.8	144	ND	400	78.7	75.4	4.21	45 - 110	30	
1,4-Dichlorobenzene	33.8	288	ND	1200	103	95.8	7.53	45 - 110	30	
Acenaphthene	10.7	144	ND	400	93.0	86.2	7.53	45 - 110	30	
4-Nitrophenol	54.7	720	ND	1200	87.3	81.4	7.31	15 - 140	30	
2,4-Dinitrotoluene	12.1	144	ND	400	91.9	91.3	0.819	50 - 115	30	
N-Methyl-2-Pyrrolidone (NMP)	12.0	144	ND	1200	68.3	70.5	3.12	25 - 120	30	
Pyrene	12.0	144	ND	400	90.7	87.6	3.65	45 - 145	30	
2-Fluorophenol (S)				11100	86.8	84.7		25 - 121		
Phenol-d6 (S)				11100	95.7	98.5		24 - 113		
2,4,6-Tribromophenol (S)				11100	107	97.9		19 - 122		
2-Fluorobiphenyl (S)				5560	89.1	81.3		30 - 143		
Nitrobenzene-d5 (S)				5560	93.6	77.9		23 - 120		
p-Terphenyl-d14 (S)				5560	86.3	79.5		18 - 137		

Work Order:	2305065	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	ND	100	101	103	1.96	80 - 120	20	

Work Order:	2305065	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	2.0	10	ND	50.0	113	113	0.000	53.7 - 139	30	
Benzene	2.2	10	ND	50.0	111	110	0.544	66.5 - 135	30	
Trichloroethene	1.8	10	ND	50.0	97.9	94.7	3.33	57.5 - 150	30	
Toluene	1.8	10	ND	50.0	102	98.9	2.99	56.8 - 134	30	
Chlorobenzene	1.8	10	ND	50.0	98.7	98.6	0.000	57.4 - 134	30	
(S) Dibromofluoromethane				50.0	113	110		59.8 - 148		
(S) Toluene-d8				50.0	104	103		55.2 - 133		
(S) 4-Bromofluorobenzene				50.0	108	109		55.8 - 141		

Torrent LABORATORY, INC.

MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305065	**Prep Method:**	3050B	**Prep Date:**	05/15/23	**Prep Batch:**	1150962
Matrix:	**Soil**	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/15/2023	**Analytical Batch:**	474699
Spiked Sample:	2305065-001A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	ND	50	93.7	91.2	2.81	30.7 - 130	30	
Arsenic	0.15	1.30	1.83	50	98.3	96.2	1.98	71.0 - 121	30	
Barium	0.055	5.00	108	50	76.0	75.0	0.000	70.2 - 130	30	
Beryllium	0.055	5.00	ND	50	99.6	97.4	2.22	73.3 - 115	30	
Cadmium	0.10	0.750	ND	50	96.0	93.5	2.73	80.0 - 110	30	
Chromium	0.075	5.00	13.5	50	100	97.0	2.39	76.0 - 116	30	
Cobalt	0.070	5.00	9.00	50	97.0	95.0	1.75	57.4 - 122	30	
Copper	0.20	5.00	12.1	50	109	104	3.83	74.8 - 119	30	
Lead	0.10	3.00	ND	50	97.1	93.7	3.42	57.9 - 118	30	
Molybdenum	0.050	5.00	ND	50	97.3	94.8	2.69	62.9 - 123	30	
Nickel	0.50	5.00	8.50	50	97.0	94.0	2.67	61.5 - 122	30	
Selenium	0.22	5.00	ND	50	89.1	86.6	2.96	62.0 - 111	30	
Silver	0.15	5.00	ND	50	103	99.8	3.16	75 - 125	30	
Thallium	0.20	5.00	ND	50	93.1	91.0	2.39	39.2 - 125	30	
Vanadium	0.10	5.00	36.2	50	102	99.6	1.16	65.8 - 122	30	
Zinc	0.30	5.00	45.6	50	98.8	92.8	3.21	59.9 - 122	30	

Work Order:	2305065	**Prep Method:**	7471BP	**Prep Date:**	05/15/23	**Prep Batch:**	1150976
Matrix:	**Soil**	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474697
Spiked Sample:	2305065-001A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	103	106	3.08	80 - 120	20	

Work Order:	2305065	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	**Soil**	**Analytical Method:**	SW7199	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474857
Spiked Sample:	2305065-003A						
Units:	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	ND	100	97.3	96.3	0.948	75 - 125	20	

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit/Reporting Limit/Limit of Quantitation (PQL/RL/LOQ) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs/RLs/LODs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg/m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS

B - Indicates when the analyte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Langan

Project Name: VERNON

Work Order No.: 2305065

Date and Time Received: 5/9/2023 10:06:00AM

Received By: Lorna Imbat

Physically Logged By: Lorna Imbat

Checklist Completed By: Lorna Imbat

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes			
Container/Temp Blank temperature in compliance?	Yes	Temperature:	2.0	°C
Water-VOA vials have zero headspace?	No VOA vials submitted			
Water-pH acceptable upon receipt?	N/A			

pH Checked by: N/A

pH Adjusted by: N/A

Comments:

Torrent LABORATORY, INC.

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/9/2023
Report Due Date:	5/23/2023		**Time Received:**	10:06 am

Comments:

Work Order # : ***2305065***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305065-001A	B-4-6	05/03/23 9:54	Soil	10/30/23			Hg_S_7471B Cr6_S_7199Mod Met_S_6010B CAM17	
Sample Note:								
2305065-002A	B-4-10	05/03/23 9:58	Soil	10/30/23			Hold Samples	
2305065-003A	B-4-15	05/03/23 10:00	Soil	10/30/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305065-004A	B-4-20	05/03/23 10:05	Soil	10/30/23			Hold Samples	
2305065-005A	B-4-25	05/03/23 10:14	Soil	10/30/23			Hold Samples	
2305065-006A	B-4-30	05/03/23 10:23	Soil	10/30/23			Hold Samples	
2305065-007A	B-5-5	05/03/23 13:10	Soil	10/30/23			Hg_S_7471B Cr6_S_7199Mod Met_S_6010B CAM17	
2305065-008A	B-5-10	05/03/23 13:14	Soil	10/30/23			Hold Samples	
2305065-009A	B-5-15	05/03/23 13:18	Soil	10/30/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305065-010A	B-5-20	05/03/23 13:23	Soil	10/30/23			Hold Samples	
2305065-011A	B-5-25	05/03/23 13:28	Soil	10/30/23			Hold Samples	
2305065-012A	B-5-30	05/03/23 13:35	Soil	10/30/23			Hold Samples VOC_S_8260B SVO_S_8270CFull	
2305065-013A	B-6-5	05/04/23 13:32	Soil	10/31/23			Hg_S_7471B Cr6_S_7199Mod Met_S_6010B CAM17	

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/9/2023
Report Due Date:	5/23/2023		**Time Received:**	10:06 am

Comments:

Work Order # : ***2305065***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305065-014A	B-6-10	05/04/23 13:41	Soil	10/31/23			Hold Samples	
2305065-015A	B-6-15	05/04/23 13:43	Soil	10/31/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305065-016A	B-6-20	05/04/23 13:51	Soil	10/31/23			Hold Samples	
2305065-017A	B-6-25	05/04/23 13:59	Soil	10/31/23			Hold Samples	
2305065-018A	B-6-30	05/04/23 14:05	Soil	10/31/23			Hold Samples	
2305065-019A	B-7-6	05/04/23 8:09	Soil	10/31/23			Hg_S_7471B Cr6_S_7199Mod Met_S_6010B CAM17	
2305065-020A	B-7-10	05/04/23 8:37	Soil	10/31/23			Hold Samples	

Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305065

Company Name: LANGAN ☐ Env. ☐ Non Env.
Address: 515 S FLOWER ST, SUITE 1060
City: LOS ANGELES State: CA Zip Code: 90071
Telephone: ~~765 775~~ 213 280 9903 Cell:
REPORT TO: NCUTLER@LANGAN.com BILL TO: SAME

Project #: 721040501 PO#:
Project Name: VERNON
Comments: HOLD ALL SAMPLES
SAMPLER: M. CHE
EMAIL: MCHE@LANGAN.com

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☒ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☑ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	VOC 8260B	SVOC 8270 SIM	CAM 17 6010B	8081A					REMARKS
001A	NA	B-4-6	5/3/2023 0954	Soil	1	Glass	✓	✓	✓						HOLD
002A		B-4-10	5/3/23 0958	Soil	1	Glass	✓	✓	✓						
003A		B-4-15	5/3/23 1000	Soil	1	Glass	✓	✓	✓						
004A		B-4-20	5/3/23 1005	Soil	1	Glass	✓	✓	✓						
005A		B-4-25	5/3/23 1014	Soil	1	Glass	✓	✓	✓						
006A		B-4-30	5/3/23 1023	Soil	1	Glass	✓	✓	✓						
007A		B-5-5	5/3/23 1310	Soil	1	Glass	✓	✓	✓						
008A		B-5-10	5/3/23 1314	Soil	1	Glass	✓	✓	✓						
009A		B-5-15	5/3/23 1318	Soil	1	Glass	✓	✓	✓						
010A		B-5-20	5/3/23 1323	Soil	1	Glass	✓	✓	✓						

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/5/23	1630		L.D. Imbat	5-9-23	1006
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature 1.9 #3 °C Samples Received on ice? Yes ☑ No ☐ Method of Shipment FedEx

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

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Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305065

Company Name: LANGAN ☐ Env. ☐ Non Env.
Address: 515 S FLOWER ST, SUITE 1060
City: LA State: CA Zip Code: 90071
Telephone: 213 280 9903 Cell:
REPORT TO: NICK CUTLER BILL TO:

Project #: 721040501 PO#:
Project Name: VERNON
Comments: HOLD ALL SAMPLES
SAMPLER: M. CH
EMAIL: NCUTLER@LANGAN.com, MCHE@langan.com

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☐ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	VOC 8260B	SVOC 8270SIM	CAM 17 6010B	REMARKS
-011A		B-5-25	5/3/23 1328	Soil	1	Glass	✓	✓	✓	HOLD
-012A		B-5-30	5/3/23 1335	Soil	1	Glass	✓	✓	✓	
-013A		B-6-5	5/4/23 1332	Soil	1	Glass	✓	✓	✓	
-014A		B-6-10	5/4/23 1341	Soil	1	Glass	✓	✓	✓	
-015A		B-6-15	5/4/23 1343	Soil	1	Glass	✓	✓	✓	
-016A		B-6-20	5/4/23 1351	Soil	1	Glass	✓	✓	✓	
-017A		B-6-25	5/4/23 1359	Soil	1	Glass	✓	✓	✓	
-018A		B-6-30	5/4/23 1405	Soil	1	Glass	✓	✓	✓	
-019A		B-7-6	5/4/23 0809	Soil	1	Glass	✓	✓	✓	
-020A		B-7-10	5/4/23 0837	Soil	1	Glass	✓	✓	✓	

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/4/23 5/5/23	Melody Che 1630		I.D. Initial	5-9-23	1006
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature 1.9 #3 Samples Received on ice? Yes ☒ No ☐ Method of Shipment FedEX

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Page 2 of 47

Gmail Torrent Laboratory, Inc. <pm@torrentlaboratory.com>

RE: [External] Re: Sample order for PO: 721040501

1 message

Nick Cutler <ncutler@langan.com> Wed, May 10, 2023 at 8:42 PM
To: "Torrent Laboratory, Inc." <pm@torrentlaboratory.com>, Katherine Thomas <kthomas@langan.com>
Cc: "melanie.moran@torrentlaboratory.com" <melanie.moran@torrentlaboratory.com>, Melody Che <mche@langan.com>

Hi Kathie –

Can you please run the analyses on a 3-day TAT per the table below?

Sample ID	Metals 6010B	Pesticides 8081A	PCBs 8082	ACM PLM
B-1-5	1	1		1
B-2-5	1	1	1	
B-3-5	1	1		
B-4-6	1			
B-5-5	1			
B-6-5	1			
B-7-6	1			
B-8-5	1	1		
B-9-5	1			
B-11-5	1	1	1	
B-12-5	1		1	
B-13-5	1		1	

Cordially,
Nick Cutler

483 Sinclair Frontage Rd., Milpitas, CA 95035 | tel: 408.263.5258 | fax: 408.263.8293 | www.torrentlab.com

Langan
135 Main Street, Suite 1500
San Francisco, California 94105
Tel: 415.955.5200

RE: VERNON

Work Order No.: 2305066 Rev: 3

Dear Nick Cutler:

Torrent Laboratory, Inc. received 18 sample(s) on May 09, 2023 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.



Kathie Evans
Project Manager

May 19, 2023
Date

Date: 5/19/2023

Client: Langan

Project: VERNON

Work Order: 2305066

CASE NARRATIVE

Unless otherwise indicated in the following narrative, no issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Laboratory, Inc.

Asbestos analysis was sub-contracted to EMSL analytical. Sub-contract data will appear under a separate cover.

REVISIONS

Report revised to include sub-contracted Asbestos data. Sub-contract data appears as an attachment to the Torrent generated report.

Rev. 1 (5/17/23)

Report revised to include additionally requested data

Rev. 2 (5/19/23)

Report revised to include additionally requested SVOC and VOC data.

Rev. 3 (5/23/23)

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/09/23
Date Reported: 05/19/23

B-7-15 2305066-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	57.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	10.4	mg/Kg
Copper	SW6010B	1	0.20	5.00	10.5	mg/Kg
Lead	SW6010B	1	0.10	3.00	5.70	mg/Kg
Nickel	SW6010B	1	0.50	5.00	6.95	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	23.3	mg/Kg
Zinc	SW6010B	1	0.30	5.00	28.2	mg/Kg

B-7-30 2305066-004

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-1-5 2305066-006

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	2.62	mg/Kg
Barium	SW6010B	1	0.055	5.00	171	mg/Kg
Chromium	SW6010B	1	0.075	5.00	24.5	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	13.8	mg/Kg
Copper	SW6010B	1	0.20	5.00	28.9	mg/Kg
Lead	SW6010B	1	0.10	3.00	10.2	mg/Kg
Nickel	SW6010B	1	0.50	5.00	15.6	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	53.5	mg/Kg
Zinc	SW6010B	1	0.30	5.00	91.5	mg/Kg

B-1-15 2305066-008

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	43.2	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	13.8	mg/Kg
Zinc	SW6010B	1	0.30	5.00	14.7	mg/Kg

B-10-5 2305066-012

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	1.50	mg/Kg
Barium	SW6010B	1	0.055	5.00	84.0	mg/Kg
Chromium	SW6010B	1	0.075	5.00	12.0	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	7.35	mg/Kg
Copper	SW6010B	1	0.20	5.00	10.6	mg/Kg
Nickel	SW6010B	1	0.50	5.00	7.15	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	33.7	mg/Kg
Zinc	SW6010B	1	0.30	5.00	34.3	mg/Kg

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/09/23
Date Reported: 05/19/23

B-10-15 2305066-014

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	1.61	mg/Kg
Barium	SW6010B	1	0.055	5.00	90.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	12.2	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	8.20	mg/Kg
Copper	SW6010B	1	0.20	5.00	11.2	mg/Kg
Nickel	SW6010B	1	0.50	5.00	7.65	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	35.5	mg/Kg
Zinc	SW6010B	1	0.30	5.00	39.5	mg/Kg

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-15	**Lab Sample ID:**	2305066-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 8:47		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	3:44	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-15	**Lab Sample ID:**	2305066-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 8:47		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:35	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-15	**Lab Sample ID:**	2305066-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 8:47		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:19	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:19	AT	474846
Barium	SW6010B	1	0.055	5.00	**57.5**		mg/Kg	05/18/23	20:19	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:19	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:19	AT	474846
Chromium	SW6010B	1	0.075	5.00	**10.4**		mg/Kg	05/18/23	20:19	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:19	AT	474846
Copper	SW6010B	1	0.20	5.00	**10.5**		mg/Kg	05/18/23	20:19	AT	474846
Lead	SW6010B	1	0.10	3.00	**5.70**		mg/Kg	05/18/23	20:19	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:19	AT	474846
Nickel	SW6010B	1	0.50	5.00	**6.95**		mg/Kg	05/18/23	20:19	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:19	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:19	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:19	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**23.3**		mg/Kg	05/18/23	20:19	AT	474846
Zinc	SW6010B	1	0.30	5.00	**28.2**		mg/Kg	05/18/23	20:19	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-30	**Lab Sample ID:**	2305066-004A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 9:05		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/22/23	0:12	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/22/23	0:12	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/22/23	0:12	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/22/23	0:12	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/22/23	0:12	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/22/23	0:12	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/22/23	0:12	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/22/23	0:12	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/22/23	0:12	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/22/23	0:12	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/22/23	0:12	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/22/23	0:12	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/22/23	0:12	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/22/23	0:12	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/22/23	0:12	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	0:12	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/22/23	0:12	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/22/23	0:12	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	0:12	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/22/23	0:12	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/22/23	0:12	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	0:12	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-30	**Lab Sample ID:**	2305066-004A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 9:05		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/22/23	0:12	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/22/23	0:12	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/22/23	0:12	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/22/23	0:12	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/22/23	0:12	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/22/23	0:12	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	0:12	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	0:12	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/22/23	0:12	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/22/23	0:12	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/22/23	0:12	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/22/23	0:12	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/22/23	0:12	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	0:12	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/22/23	0:12	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	0:12	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/22/23	0:12	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/22/23	0:12	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**58.8**		%	05/22/23	0:12	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**61.0**		%	05/22/23	0:12	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**59.1**		%	05/22/23	0:12	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-30	**Lab Sample ID:**	2305066-004A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 9:05		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**65.2**		%	05/22/23	0:12	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**61.7**		%	05/22/23	0:12	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**83.4**		%	05/22/23	0:12	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-30	**Lab Sample ID:**	2305066-004A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 9:05		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/22/23 9:55:00AM
Prep Batch ID:	1151218	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/22/23	21:36	BP	474921
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:36	BP	474921
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:36	BP	474921
TBA	SW8260B	1	12	50	ND		ug/Kg	05/22/23	21:36	BP	474921
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:36	BP	474921
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	21:36	BP	474921
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/22/23	21:36	BP	474921
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/22/23	21:36	BP	474921
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-7-30	**Lab Sample ID:**	2305066-004A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 9:05		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/22/23 9:55:00AM
Prep Batch ID:	1151218	**Prep Analyst:**	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:36	BP	474921
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/22/23	21:36	BP	474921
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:36	BP	474921
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/22/23	21:36	BP	474921
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/22/23	21:36	BP	474921
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/22/23	21:36	BP	474921
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/22/23	21:36	BP	474921
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/22/23	21:36	BP	474921
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/22/23	21:36	BP	474921
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**124**		%	05/22/23	21:36	BP	474921
(S) Toluene-d8	SW8260B		55.2 - 133		**101**		%	05/22/23	21:36	BP	474921
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**96.2**		%	05/22/23	21:36	BP	474921

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-1-5	**Lab Sample ID:**	2305066-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 10:55		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	8:42	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-1-5	**Lab Sample ID:**	2305066-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 10:55		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23 5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:48	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-1-5	**Lab Sample ID:**	2305066-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 10:55		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:56	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**2.62**		mg/Kg	05/15/23	20:56	AT	474699
Barium	SW6010B	1	0.055	5.00	**171**		mg/Kg	05/15/23	20:56	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	20:56	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	20:56	AT	474699
Chromium	SW6010B	1	0.075	5.00	**24.5**		mg/Kg	05/15/23	20:56	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**13.8**		mg/Kg	05/15/23	20:56	AT	474699
Copper	SW6010B	1	0.20	5.00	**28.9**		mg/Kg	05/15/23	20:56	AT	474699
Lead	SW6010B	1	0.10	3.00	**10.2**		mg/Kg	05/15/23	20:56	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:56	AT	474699
Nickel	SW6010B	1	0.50	5.00	**15.6**		mg/Kg	05/15/23	20:56	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	20:56	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	20:56	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	20:56	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**53.5**		mg/Kg	05/15/23	20:56	AT	474699
Zinc	SW6010B	1	0.30	5.00	**91.5**		mg/Kg	05/15/23	20:56	AT	474699

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-1-5	**Lab Sample ID:**	2305066-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 10:55		
SDG:			

Prep Method:	3546_OCP	**Prep Batch Date/Time:**	5/13/23 10:20:00AM
Prep Batch ID:	1150929	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
alpha-BHC	SW8081B	1	0.25	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
gamma-BHC (Lindane)	SW8081B	1	0.71	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
beta-BHC	SW8081B	1	0.44	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
delta-BHC	SW8081B	1	0.65	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Heptachlor	SW8081B	1	0.27	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Aldrin	SW8081B	1	0.29	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Heptachlor Epoxide	SW8081B	1	0.31	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
gamma-Chlordane	SW8081B	1	1.5	3.0	ND		ug/Kg	05/13/23	16:16	LA	474648
alpha-Chlordane	SW8081B	1	0.36	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
4,4'-DDE	SW8081B	1	0.61	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Endosulfan I	SW8081B	1	0.29	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Dieldrin	SW8081B	1	0.25	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Endrin	SW8081B	1	0.79	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
4,4'-DDD	SW8081B	1	0.64	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Endosulfan II	SW8081B	1	0.34	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
4,4'-DDT	SW8081B	1	0.74	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Endrin Aldehyde	SW8081B	1	0.51	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Methoxychlor	SW8081B	1	2.6	6.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Endosulfan Sulfate	SW8081B	1	0.51	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Endrin Ketone	SW8081B	1	0.43	2.0	ND		ug/Kg	05/13/23	16:16	LA	474648
Chlordane, Technical	SW8081B	1	2.7	20	ND		ug/Kg	05/13/23	16:16	LA	474648
Toxaphene	SW8081B	1	22	50	ND		ug/Kg	05/13/23	16:16	LA	474648
			Acceptance Limits								
Tetrachloro-M-Xylene (S)	SW8081B		48 - 125		**45.7**	S	%	05/13/23	16:16	LA	474648
Decachlorobiphenyl (S)	SW8081B		38 - 135		**47.6**		%	05/13/23	16:16	LA	474648

NOTE: S-TCMX surrogate outside of control limits due to possible matrix interference

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-1-15	**Lab Sample ID:**	2305066-008A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 11:06		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	4:05	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-1-15	**Lab Sample ID:**	2305066-008A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 11:06		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:37	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-1-15	**Lab Sample ID:**	2305066-008A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/04/23 / 11:06		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:24	AT	474846
Barium	SW6010B	1	0.055	5.00	**43.2**		mg/Kg	05/18/23	20:24	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:24	AT	474846
Chromium	SW6010B	1	0.075	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Copper	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:24	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:24	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:24	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**13.8**		mg/Kg	05/18/23	20:24	AT	474846
Zinc	SW6010B	1	0.30	5.00	**14.7**		mg/Kg	05/18/23	20:24	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-10-5	**Lab Sample ID:**	2305066-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 14:27		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	4:26	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-10-5	**Lab Sample ID:**	2305066-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 14:27		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:39	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-10-5	**Lab Sample ID:**	2305066-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 14:27		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:26	AT	474846
Arsenic	SW6010B	1	0.15	1.30	**1.50**		mg/Kg	05/18/23	20:26	AT	474846
Barium	SW6010B	1	0.055	5.00	**84.0**		mg/Kg	05/18/23	20:26	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:26	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:26	AT	474846
Chromium	SW6010B	1	0.075	5.00	**12.0**		mg/Kg	05/18/23	20:26	AT	474846
Cobalt	SW6010B	1	0.070	5.00	**7.35**		mg/Kg	05/18/23	20:26	AT	474846
Copper	SW6010B	1	0.20	5.00	**10.6**		mg/Kg	05/18/23	20:26	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:26	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:26	AT	474846
Nickel	SW6010B	1	0.50	5.00	**7.15**		mg/Kg	05/18/23	20:26	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:26	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:26	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:26	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**33.7**		mg/Kg	05/18/23	20:26	AT	474846
Zinc	SW6010B	1	0.30	5.00	**34.3**		mg/Kg	05/18/23	20:26	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-10-15	**Lab Sample ID:**	2305066-014A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 14:40		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	4:48	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-10-15	**Lab Sample ID:**	2305066-014A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 14:40		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:41	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-10-15	**Lab Sample ID:**	2305066-014A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 14:40		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:27	AT	474846
Arsenic	SW6010B	1	0.15	1.30	**1.61**		mg/Kg	05/18/23	20:27	AT	474846
Barium	SW6010B	1	0.055	5.00	**90.5**		mg/Kg	05/18/23	20:27	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:27	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:27	AT	474846
Chromium	SW6010B	1	0.075	5.00	**12.2**		mg/Kg	05/18/23	20:27	AT	474846
Cobalt	SW6010B	1	0.070	5.00	**8.20**		mg/Kg	05/18/23	20:27	AT	474846
Copper	SW6010B	1	0.20	5.00	**11.2**		mg/Kg	05/18/23	20:27	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:27	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:27	AT	474846
Nickel	SW6010B	1	0.50	5.00	**7.65**		mg/Kg	05/18/23	20:27	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:27	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:27	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:27	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**35.5**		mg/Kg	05/18/23	20:27	AT	474846
Zinc	SW6010B	1	0.30	5.00	**39.5**		mg/Kg	05/18/23	20:27	AT	474846

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	3546_OCP	**Prep Date:**	05/13/23	**Prep Batch:**	1150929
Matrix:	Soil	**Analytical Method:**	SW8081B	**Analyzed Date:**	5/13/2023	**Analytical Batch:**	474648
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
alpha-BHC	0.25	2.0	ND	
gamma-BHC (Lindane)	0.71	2.0	ND	
beta-BHC	0.44	2.0	ND	
delta-BHC	0.65	2.0	ND	
Heptachlor	0.27	2.0	ND	
Aldrin	0.29	2.0	ND	
Heptachlor Epoxide	0.31	2.0	ND	
gamma-Chlordane	1.5	3.0	ND	
alpha-Chlordane	0.36	2.0	ND	
4,4'-DDE	0.61	2.0	1.97	
Endosulfan I	0.29	2.0	ND	
Dieldrin	0.25	2.0	ND	
Endrin	0.79	2.0	ND	
4,4'-DDD	0.64	2.0	ND	
Endosulfan II	0.34	2.0	ND	
4,4'-DDT	0.74	2.0	ND	
Endrin Aldehyde	0.51	2.0	ND	
Methoxychlor	2.6	6.0	ND	
Endosulfan Sulfate	0.51	2.0	ND	
Endrin Ketone	0.43	2.0	ND	
Chlordane, Technical	2.7	20	ND	
Toxaphene	22	50	ND	
Tetrachloro-M-Xylene (S)			89.6	
Decachlorobiphenyl (S)			92.9	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	3050B	**Prep Date:**	05/15/23	**Prep Batch:**	1150962
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/15/2023	**Analytical Batch:**	474699
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	ND	
Arsenic	0.15	1.30	ND	
Barium	0.055	5.00	0.14	J
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.13	J
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.050	
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	3.2	J

Work Order:	2305066	**Prep Method:**	7471BP	**Prep Date:**	05/15/23	**Prep Batch:**	1150976
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474697
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	0.065	
Arsenic	0.15	1.30	ND	
Barium	0.055	5.00	0.19	
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.16	
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.15	
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	ND	

Work Order:	2305066	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
N-Nitrosodimethylamine	46.9	720	ND		
Phenol	43.8	288	ND		
Bis(2-chloroethyl)ether	13.3	144	ND		
2-Chlorophenol	47.7	288	ND		
1,3-Dichlorobenzene	13.1	144	ND		
1,4-Dichlorobenzene	14.6	144	ND		
Benzyl Alcohol	20.5	288	ND		
1,2-Dichlorobenzene	13.5	144	ND		
2-Methylphenol (o-Cresol)	29.3	288	ND		
N-Methyl-2-Pyrrolidone (NMP)	68.0	720	ND		
	12.6	144	ND		
3-/4-Methylphenol (p-/m-Cresol)	31.3	288	ND		
N-nitroso-di-n-propylamine	13.2	144	ND		
Hexachloroethane	17.1	144	ND		
Nitrobenzene	12.8	144	ND		
Isophorone	12.2	144	ND		
2-Nitrophenol	25.4	288	ND		
2,4-Dimethylphenol	22.8	288	ND		
Benzoic Acid	41.7	288	ND		
Bis(2-Chloroethoxy)methane	9.79	144	ND		
Bis(2-chloroisopropyl)ether	12.6	144	ND		
2,4-Dichlorophenol	39.3	288	ND		
1,2,4-Trichlorobenzene	11.8	144	ND		
Naphthalene	10.6	144	ND		
2,6-Dichlorophenol	35.8	288	ND		
Hexachloro-1,3-butadiene	8.34	144	ND		
4-Chloro-3-methylphenol	33.8	288	ND		
2-Methylnaphthalene	10.4	144	ND		
1-Methylnaphthalene	12.2	144	ND		
Hexachlorocyclopentadiene	12.9	144	ND		
2,4,6-Trichlorophenol	35.9	288	ND		
2,4,5-Trichlorophenol	33.4	288	ND		
2-Chloronaphthalene	10.6	144	ND		
1,4-Dinitrobenzene	10.3	144	ND		
Dimethyl phthalate	14.2	720	ND		
1,3-Dinitrobenzene	10.4	144	ND		
Acenaphthylene	8.28	144	ND		
2,6-Dinitrotoluene	11.3	144	ND		
1,2-Dinitrobenzene	15.8	144	ND		
Acenaphthene	10.7	144	ND		
2,4-Dinitrophenol	77.6	720	ND		
4-Nitrophenol	54.7	720	ND		
Dibenzofuran	11.2	144	ND		
2,4-Dinitrotoluene	12.1	144	ND		
2,3,5,6-Tetrachlorophenol	27.6	288	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
2,3,4,6-Tetrachlorophenol	31.5	288	ND	
Diethylphthalate	13.6	720	79.2	
Fluorene	10.3	144	ND	
4-Chlorophenyl-phenylether	9.32	144	ND	
4,6-Dinitro-2-methylphenol	13.4	288	ND	
Diphenylamine	13.0	144	ND	
Azobenzene	114	144	ND	
4-Bromophenyl-phenylether	8.23	144	ND	
Hexachlorobenzene	8.66	144	ND	
Pentachlorophenol	25.0	288	ND	
Phenanthrene	9.32	144	ND	
Anthracene	8.91	144	ND	
Carbazole	10.7	144	ND	
Di-n-butylphthalate	13.5	144	ND	
Fluoranthene	10.0	147	ND	
Benzidine	147	144	ND	
Pyrene	12.0	144	ND	
Butylbenzylphthalate	21.0	720	ND	
Benzo(a)anthracene	9.80	144	ND	
3,3-Dichlorobenzidine	118	144	ND	
Chrysene	15.2	144	ND	
Bis(2-Ethylhexyl)phthalate	15.3	720	ND	
Di-n-Octylphthalate	12.3	144	ND	
Benzo(b)fluorathene	12.0	144	ND	
benzo(k)fluorathene	8.16	144	ND	
Benzo(a)pyrene	9.80	144	ND	
Indeno(1,2,3-c,d)pyrene	13.8	144	ND	
Dibenzo(a,h)anthracene	12.7	144	ND	
Benzo(g,h,i)perylene	12.7	144	ND	
Pyridine	43.8	720	ND	
2-Fluorophenol (S)			88.1	
Phenol-d6 (S)			105	
2,4,6-Tribromophenol (S)			96.0	
2-Fluorobiphenyl (S)			80.2	
Nitrobenzene-d5 (S)			88.9	
p-Terphenyl-d14 (S)			91.7	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Hexavalent Chromium	3.1	10	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Dichlorodifluoromethane	1.2	10	ND		
Chloromethane	1.8	10	ND		
Vinyl Chloride	2.0	10	ND		
Bromomethane	2.7	10	ND		
Chloroethane	3.0	10	ND		
Trichlorofluoromethane	2.1	10	ND		
1,1-Dichloroethene	2.0	10	ND		
Freon 113	1.9	10	ND		
Methylene Chloride	7.1	10	ND		
trans-1,2-Dichloroethene	2.1	10	ND		
MTBE	2.3	10	ND		
TBA	12	50	ND		
Diisopropyl ether	2.3	10	ND		
1,1-Dichloroethane	2.2	10	ND		
Ethyl tert-Butyl ether	2.3	10	ND		
cis-1,2-Dichloroethene	2.2	10	ND		
2,2-Dichloropropane	1.9	10	ND		
Bromochloromethane	2.3	10	ND		
Chloroform	2.4	10	ND		
Carbon Tetrachloride	2.1	10	ND		
1,1,1-Trichloroethane	2.1	10	ND		
1,1-Dichloropropene	2.0	10	ND		
Benzene	2.2	10	ND		
TAME	2.3	10	ND		
1,2-Dichloroethane	2.3	10	ND		
Trichloroethene	1.8	10	ND		
Dibromomethane	1.8	10	ND		
1,2-Dichloropropane	1.9	10	ND		
Bromodichloromethane	2.0	10	ND		
cis-1,3-Dichloropropene	1.6	10	ND		
Toluene	1.8	10	ND		
Tetrachloroethene	1.7	10	ND		
trans-1,3-Dichloropropene	1.6	10	ND		
1,1,2-Trichloroethane	1.8	10	ND		
Dibromochloromethane	1.9	10	ND		
1,3-Dichloropropane	1.8	10	ND		
1,2-Dibromoethane	1.8	10	ND		
Chlorobenzene	1.8	10	ND		
Ethylbenzene	1.7	10	ND		
1,1,1,2-Tetrachloroethane	1.9	10	ND		
m,p-Xylene	3.2	10	ND		
o-Xylene	1.7	10	ND		
Styrene	1.6	10	ND		
Bromoform	1.7	10	ND		
Isopropyl Benzene	1.6	10	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305066	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
n-Propylbenzene	1.6	10	ND	
Bromobenzene	1.8	10	ND	
1,1,2,2-Tetrachloroethane	1.9	10	ND	
2-Chlorotoluene	1.8	10	ND	
1,3,5-Trimethylbenzene	1.6	10	ND	
1,2,3-Trichloropropane	1.9	10	ND	
4-Chlorotoluene	1.6	10	ND	
tert-Butylbenzene	1.6	10	ND	
1,2,4-Trimethylbenzene	1.4	10	ND	
sec-Butyl Benzene	1.6	10	ND	
p-Isopropyltoluene	1.5	10	ND	
1,3-Dichlorobenzene	1.7	10	ND	
1,4-Dichlorobenzene	1.7	10	ND	
n-Butylbenzene	1.5	10	ND	
1,2-Dichlorobenzene	1.8	10	ND	
1,2-Dibromo-3-Chloropropane	1.8	10	ND	
Hexachlorobutadiene	1.4	10	ND	
1,2,4-Trichlorobenzene	1.5	10	ND	
Naphthalene	1.7	10	2.5	
1,2,3-Trichlorobenzene	1.7	10	ND	
2-Butanone	2.3	10	ND	
(S) Dibromofluoromethane			114	
(S) Toluene-d8			103	
(S) 4-Bromofluorobenzene			98.7	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305066	**Prep Method:**	3546_OCP	**Prep Date:**	05/13/23	**Prep Batch:**	1150929
Matrix:	Soil	**Analytical Method:**	SW8081B	**Analyzed Date:**	5/13/2023	**Analytical Batch:**	474648
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
gamma-BHC (Lindane)	0.16	2.0	ND	40	81.7	85.6	4.78	25 - 135	30	
Heptachlor	0.11	2.0	ND	40	85.9	90.8	5.37	40 - 130	30	
Aldrin	0.20	2.0	ND	40	86.6	90.2	3.95	25 - 140	30	
delta-BHC	0.15	2.0	ND	40	86.3	91.6	5.91	60 - 130	30	
Heptachlor	0.19	2.0	ND	40	87.4	92.2	5.29	55 - 135	30	
4,4'-DDT	0.13	2.0	ND	40	88.1	94.2	6.86	45 - 140	30	
Tetrachloro-M-Xylene (S)				100	82.9	83.0		48 - 125		
Decachlorobiphenyl (S)				100	93.1	94.9		38 - 135		

Work Order:	2305066	**Prep Method:**	3050B	**Prep Date:**	05/15/23	**Prep Batch:**	1150962
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/15/2023	**Analytical Batch:**	474699
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	ND	50	98.3	99.6	1.21	80 - 120	30	
Arsenic	0.15	1.30	ND	50	99.4	100	0.602	80 - 120	30	
Barium	0.055	5.00	0.14	50	101	102	0.985	80 - 120	30	
Beryllium	0.055	5.00	ND	50	102	103	0.976	80 - 120	30	
Cadmium	0.10	0.750	ND	50	101	102	0.985	80 - 120	30	
Chromium	0.075	5.00	0.13	50	102	103	0.976	80 - 120	30	
Cobalt	0.070	5.00	ND	50	102	103	0.976	80 - 120	30	
Copper	0.20	5.00	ND	50	102	103	0.976	80 - 120	30	
Lead	0.10	3.00	ND	50	101	102	0.985	80 - 120	30	
Molybdenum	0.050	5.00	0.050	50	101	102	0.985	80 - 120	30	
Nickel	0.50	5.00	ND	50	102	103	0.976	80 - 120	30	
Selenium	0.22	5.00	ND	50	92.9	93.5	0.643	80 - 120	30	
Silver	0.15	5.00	ND	50	99.3	100	0.602	80 - 120	30	
Thallium	0.20	5.00	ND	50	99.8	101	1.20	80 - 120	30	
Vanadium	0.10	5.00	ND	50	102	103	0.976	80 - 120	30	
Zinc	0.30	5.00	3.2	50	111	111	0.000	80 - 120	30	

Work Order:	2305066	**Prep Method:**	7471BP	**Prep Date:**	05/15/23	**Prep Batch:**	1150976
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474697
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	105	104	0.766	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305066	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	0.065	50	99.7	100	0.200	80 - 120	30	
Arsenic	0.15	1.30	ND	50	98.4	98.7	0.406	80 - 120	30	
Barium	0.055	5.00	0.19	50	103	103	0.000	80 - 120	30	
Beryllium	0.055	5.00	ND	50	102	102	0.000	80 - 120	30	
Cadmium	0.10	0.750	ND	50	101	101	0.000	80 - 120	30	
Chromium	0.075	5.00	0.16	50	103	103	0.000	80 - 120	30	
Cobalt	0.070	5.00	ND	50	102	102	0.000	80 - 120	30	
Copper	0.20	5.00	ND	50	105	105	0.000	80 - 120	30	
Lead	0.10	3.00	ND	50	102	102	0.000	80 - 120	30	
Molybdenum	0.050	5.00	0.15	50	103	103	0.000	80 - 120	30	
Nickel	0.50	5.00	ND	50	102	102	0.000	80 - 120	30	
Selenium	0.22	5.00	ND	50	91.8	92.4	0.651	80 - 120	30	
Silver	0.15	5.00	ND	50	100	101	0.995	80 - 120	30	
Thallium	0.20	5.00	ND	50	99.7	101	1.20	80 - 120	30	
Vanadium	0.10	5.00	ND	50	103	103	0.000	80 - 120	30	
Zinc	0.30	5.00	ND	50	100	101	0.995	80 - 120	30	

Work Order:	2305066	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	117	117	0.000	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305066	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Phenol	43.8	288	ND	1200	92.5	94.2	1.79	40 - 100	30	
2-Chlorophenol	47.7	288	ND	1200	92.4	88.8	3.67	45 - 105	30	
Bis(2-chloroethyl)ether	14.6	144	ND	400	76.2	75.7	0.658	35 - 105	30	
N-nitroso-di-n-propylamine	13.2	144	ND	400	107	109	1.85	40 - 115	30	
1,2,4-Trichlorobenzene	11.8	144	ND	400	78.7	75.4	4.21	45 - 110	30	
1,4-Dichlorobenzene	33.8	288	ND	1200	103	95.8	7.53	45 - 110	30	
Acenaphthene	10.7	144	ND	400	93.0	86.2	7.53	45 - 110	30	
4-Nitrophenol	54.7	720	ND	1200	87.3	81.4	7.31	15 - 140	30	
2,4-Dinitrotoluene	12.1	144	ND	400	91.9	91.3	0.819	50 - 115	30	
N-Methyl-2-Pyrrolidone (NMP)	12.0	144	ND	1200	68.3	70.5	3.12	25 - 120	30	
Pyrene	12.0	144	ND	400	90.7	87.6	3.65	45 - 145	30	
2-Fluorophenol (S)				11100	86.8	84.7		25 - 121		
Phenol-d6 (S)				11100	95.7	98.5		24 - 113		
2,4,6-Tribromophenol (S)				11100	107	97.9		19 - 122		
2-Fluorobiphenyl (S)				5560	89.1	81.3		30 - 143		
Nitrobenzene-d5 (S)				5560	93.6	77.9		23 - 120		
p-Terphenyl-d14 (S)				5560	86.3	79.5		18 - 137		

Work Order:	2305066	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	ND	100	101	103	1.96	80 - 120	20	

Work Order:	2305066	**Prep Method:**	5035	**Prep Date:**	05/22/23	**Prep Batch:**	1151218
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/22/2023	**Analytical Batch:**	474921
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	2.0	10	ND	50.0	113	113	0.000	53.7 - 139	30	
Benzene	2.2	10	ND	50.0	111	110	0.544	66.5 - 135	30	
Trichloroethene	1.8	10	ND	50.0	97.9	94.7	3.33	57.5 - 150	30	
Toluene	1.8	10	ND	50.0	102	98.9	2.99	56.8 - 134	30	
Chlorobenzene	1.8	10	ND	50.0	98.7	98.6	0.000	57.4 - 134	30	
(S) Dibromofluoromethane				50.0	113	110		59.8 - 148		
(S) Toluene-d8				50.0	104	103		55.2 - 133		
(S) 4-Bromofluorobenzene				50.0	108	109		55.8 - 141		

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit/Reporting Limit/Limit of Quantitation (PQL/RL/LOQ) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs/RLs/LODs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg/m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS

B - Indicates when the analyte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Langan

Project Name: VERNON

Work Order No.: 2305066

Date and Time Received: 5/9/2023 10:06:00AM

Received By: Lorna Imbat

Physically Logged By: Lorna Imbat

Checklist Completed By: Lorna Imbat

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes			
Container/Temp Blank temperature in compliance?	Yes	Temperature:	2.0	°C
Water-VOA vials have zero headspace?	No VOA vials submitted			
Water-pH acceptable upon receipt?	N/A			

pH Checked by: N/A

pH Adjusted by: N/A

Comments:

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/9/2023
Report Due Date:	5/23/2023		**Time Received:**	10:06 am

Comments:

Work Order # : ***2305066***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305066-001A	B-7-15	05/04/23 8:47	Soil	10/31/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
Sample Note:								
2305066-002A	B-7-20	05/04/23 8:51	Soil	10/31/23			Hold Samples	
2305066-003A	B-7-25	05/04/23 8:57	Soil	10/31/23			Hold Samples	
2305066-004A	B-7-30	05/04/23 9:05	Soil	10/31/23			Hold Samples VOC_S_8260B SVO_S_8270CFull	
2305066-005A	B-7-35	05/04/23 9:15	Soil	10/31/23			Hold Samples	
2305066-006A	B-1-5	05/04/23 10:55	Soil	10/31/23			Sub_Asb CARB435 A Cr6_S_7199Mod Met_S_6010B CAM17 Pest_S_8081OCP Hg_S_7471B	Yes
2305066-006B	B-1-5	05/04/23 10:55	Soil	10/31/23			Hold Samples 1633 DRAFT_S	
Sample Note:	PFAs data due 5/26							
2305066-007A	B-1-10	05/04/23 11:00	Soil	10/31/23			Hold Samples	
2305066-008A	B-1-15	05/04/23 11:06	Soil	10/31/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305066-009A	B-1-20	05/04/23 12:04	Soil	10/31/23			Hold Samples	
2305066-010A	B-1-25	05/04/23 12:10	Soil	10/31/23			Hold Samples	
2305066-011A	B-1-30	05/04/23 12:18	Soil	10/31/23			Hold Samples	
2305066-012A	B-10-5	05/05/23 14:27	Soil	11/01/23			Hold Samples	

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/9/2023
Report Due Date:	5/23/2023		**Time Received:**	10:06 am

Comments:

Work Order # : ***2305066***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
							Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305066-013A	B-10-10	05/05/23 14:35	Soil	11/01/23			Hold Samples	
2305066-014A	B-10-15	05/05/23 14:40	Soil	11/01/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305066-015A	B-10-20	05/05/23 14:45	Soil	11/01/23			Hold Samples	
2305066-016A	B-10-25	05/05/23 14:52	Soil	11/01/23			Hold Samples	
2305066-017A	B-10-30	05/05/23 14:55	Soil	11/01/23			Hold Samples	
2305066-018A	B-10-35	05/05/23 15:05	Soil	11/01/23			Hold Samples	

Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
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FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305066

Company Name: LANGAN ☐ Env. ☐ Non Env. | Project #: 721040501 | PO#:
Address: 515 S. FLOWER ST, SUITE 1060 | Project Name: VERNON
City: LA | State: CA | Zip Code: 90071 | Comments: HOLD ALL SAMPLES
Telephone: 213 280 9903 | Cell: | SAMPLER: M. CHE
REPORT TO: NICK CUTLER | BILL TO: | EMAIL: NCUTLER; MCHE@LANGAN.COM

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☐ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	8260B VOC	SVOC 8270 SIM	CAM 17 6010B	PFAS 537.1/QSM 5.3/1633	REMARKS
-001A	NA	B-7-15	5/4/23 0847	Soil	1	Glass	✓	✓	✓		HOLD
-002A		B-7-20	5/4/23 0851	Soil	1	Glass	✓	✓	✓		
-003A		B-7-25	5/4/23 0857	Soil	1	Glass	✓	✓	✓		
-004A		B-7-30	5/4/23 0905	Soil	1	Glass	✓	✓	✓		
-005A		B-7-35	5/4/23 0915	Soil	1	Glass	✓	✓	✓		
-006A		B-1-5	5/4/23 1055	Soil	2	Glass, plastic	✓	✓	✓	✓	
-007A		B-1-10	5/4/23 1100	Soil	1	Glass	✓	✓	✓		
-008A		B-1-15	5/4/23 1106	Soil	1	Glass	✓	✓	✓		
-009A		B-1-20	5/4/23 1204	Soil	1	Glass	✓	✓	✓		
-010A		B-1-25	5/4/23 1210	Soil	1	Glass	✓	✓	✓		

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	~~5/4/23~~ 5/5/23	~~1630~~ 1630		L-D. Imlay	5-9-23	1006
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature 2.1 #3 °C | Samples Received on ice? Yes ☒ No ☐ | Method of Shipment FedEx

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

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Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305066

Company Name: LANGAN ☐ Env. ☐ Non Env.
Address: 515 S. FLOWER St, SUITE 1060
City: LOS ANGELES State: CA Zip Code: 90071
Telephone: 213 280 9903 Cell:
REPORT TO: NICK CUTLER BILL TO:

Project #: 721040501 PO#:
Project Name: VER NON
Comments: HOLD ALL SAMPLES
SAMPLER: M. CHE
EMAIL: NCUTLER, MCHE @ LANGAN.COM

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☐ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	8260B VOC	SVOC 8270 SIM	CAM 17 6010B	REMARKS
-011A	NA	B-1-30	5/4/23 1218	Soil	1	Glass	✓	✓	✓	HOLD

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/5/23	1600		L. D. Imbat	5-9-23	1006
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature 2.1 #3 °C Samples Received on ice? Yes ☒ No ☐ Method of Shipment Fed EX

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

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Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
483 Sinclair Frontage Road
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305066

Company Name: LANGAN ☑ Env. ☐ Non Env.
Address: 515 S. FLOWER ST, SUITE 1060
City: LA State: CA Zip Code: 90071
Telephone: 213 280 0903 Cell:
REPORT TO: N. CUTLER BILL TO:

Project #: 720405O1 PO#:
Project Name: VERNON
Comments: HOLD ALL SAMPLES FOR ANALYSIS
SAMPLER: M. CHE
EMAIL: NCUTLER AND MCHE@LANGAN.COM

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☐ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	VOC 8260B	SVOC 8270 SIM	CAM 17 6010B	REMARKS
-012A	NA	B-10-5	5/5/23 1427	Soil	1	Glass	✓	✓	✓	HOLD
-013A		B-10-10	5/5/23 1435	Soil	1	Glass	✓	✓	✓	
-014A		B-10-15	5/5/23 1440	Soil	1	Glass	✓	✓	✓	
-015A		B-10-20	5/5/23 1445	Soil	1	Glass	✓	✓	✓	
-016A		B-10-25	5/5/23 1452	Soil	1	Glass	✓	✓	✓	
-017A		B-10-30	5/5/23 1455	Soil	1	Glass	✓	✓	✓	
-018A		B-10-35	5/5/23 1505	Soil	1	Glass	✓	✓	✓	

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/8/23	1630	[signature]	L.D. Imbat	5-9-23	1006
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature 2.0/#3 °C Samples Received on ice? Yes ☒ No ☐ Method of Shipment FedEx

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

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Gmail Torrent Laboratory, Inc. <pm@torrentlaboratory.com>

RE: [External] Re: Sample order for PO: 721040501

1 message

Nick Cutler <ncutler@langan.com> Wed, May 10, 2023 at 8:42 PM
To: "Torrent Laboratory, Inc." <pm@torrentlaboratory.com>, Katherine Thomas <kthomas@langan.com>
Cc: "melanie.moran@torrentlaboratory.com" <melanie.moran@torrentlaboratory.com>, Melody Che <mche@langan.com>

Hi Kathie –

Can you please run the analyses on a 3-day TAT per the table below?

Sample ID	Metals 6010B	Pesticides 8081A	PCBs 8082	ACM PLM
B-1-5	1	1		1
B-2-5	1	1	1	
B-3-5	1	1		
B-4-6	1			
B-5-5	1			
B-6-5	1			
B-7-6	1			
B-8-5	1	1		
B-9-5	1			
B-11-5	1	1	1	
B-12-5	1		1	
B-13-5	1		1	

Cordially,
Nick Cutler

483 Sinclair Frontage Rd., Milpitas, CA 95035 | tel: 408.263.5258 | fax: 408.263.8293 | www.torrentlab.com

EMSL Analytical, Inc.

464 McCormick Street San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com / sanleandrolab@emsl.com

EMSL Order:	092310441
Customer ID:	TORR80
Customer PO:	2305066
Project ID:	

Attention:	Kathie Evans Torrent Laboratory, Inc. 483 Sinclair Frontage Rd. Milpitas, CA 95035	**Phone:**	(408) 263-5258
		Fax:	(408) 263-8293
		Received:	05/12/2023 11:15 AM
		Analysis Date:	05/16/2023
		Collected:	
Project:	2305066		

Test Report: Asbestos Analysis of Soils via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
2305066-006A *092310441-0001*	SOIL	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	**None Detected**

Analyst(s)

Adam C. Fink (1)

Cecilia Yu, Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. EMSL suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM.

Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from: 05/17/2023 01:09:25

Langan
135 Main Street, Suite 1500
San Francisco, California 94105
Tel: 415.955.5200

RE: VERNON

Work Order No.: 2305067 Rev: 2

Dear Nick Cutler:

Torrent Laboratory, Inc. received 19 sample(s) on May 09, 2023 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.



Kathie Evans
Project Manager

May 19, 2023
Date

Torrent LABORATORY, INC.

Date: 5/19/2023

Client: Langan

Project: VERNON

Work Order: 2305067

CASE NARRATIVE

Unless otherwise indicated in the following narrative, no issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Laboratory, Inc.

REVISIONS

Report revised to include additionally requested data

Rev. 1 (5/19/23)

Report revised to include additionally requested SVOC and VOC data.

Rev. 2 (5/23/23)

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/09/23
Date Reported: 05/19/23

B-3-5 2305067-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	2.65	mg/Kg
Barium	SW6010B	1	0.055	5.00	111	mg/Kg
Chromium	SW6010B	1	0.075	5.00	19.4	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	9.80	mg/Kg
Copper	SW6010B	1	0.20	5.00	30.7	mg/Kg
Lead	SW6010B	1	0.10	3.00	8.55	mg/Kg
Nickel	SW6010B	1	0.50	5.00	12.8	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	42.0	mg/Kg
Zinc	SW6010B	1	0.30	5.00	60.5	mg/Kg
Hexavalent Chromium	SW7199	1	3.1	10	90.3	ug/Kg

B-3-10 2305067-002

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-3-15 2305067-003

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	2.79	mg/Kg
Barium	SW6010B	1	0.055	5.00	106	mg/Kg
Chromium	SW6010B	1	0.075	5.00	17.0	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	10.1	mg/Kg
Copper	SW6010B	1	0.20	5.00	20.3	mg/Kg
Lead	SW6010B	1	0.10	3.00	3.93	mg/Kg
Nickel	SW6010B	1	0.50	5.00	11.0	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	46.6	mg/Kg
Zinc	SW6010B	1	0.30	5.00	48.1	mg/Kg

B-3-30 2305067-006

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-8-5 2305067-007

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	1.54	mg/Kg
Barium	SW6010B	1	0.055	5.00	82.0	mg/Kg
Chromium	SW6010B	1	0.075	5.00	12.2	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	7.60	mg/Kg
Copper	SW6010B	1	0.20	5.00	9.50	mg/Kg
Nickel	SW6010B	1	0.50	5.00	6.75	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	38.7	mg/Kg
Zinc	SW6010B	1	0.30	5.00	37.9	mg/Kg

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/09/23
Date Reported: 05/19/23

B-8-15 2305067-009

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	60.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	9.00	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	5.90	mg/Kg
Copper	SW6010B	1	0.20	5.00	7.00	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	34.0	mg/Kg
Zinc	SW6010B	1	0.30	5.00	26.7	mg/Kg

B-8-30 2305067-012

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

B-9-5 2305067-013

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.15	1.30	3.22	mg/Kg
Barium	SW6010B	1	0.055	5.00	127	mg/Kg
Chromium	SW6010B	1	0.075	5.00	39.8	mg/Kg
Cobalt	SW6010B	1	0.070	5.00	11.0	mg/Kg
Copper	SW6010B	1	0.20	5.00	43.7	mg/Kg
Lead	SW6010B	1	0.10	3.00	36.2	mg/Kg
Nickel	SW6010B	1	0.50	5.00	46.6	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	48.4	mg/Kg
Zinc	SW6010B	1	0.30	5.00	80.5	mg/Kg

B-9-15 2305067-015

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Barium	SW6010B	1	0.055	5.00	51.5	mg/Kg
Chromium	SW6010B	1	0.075	5.00	7.05	mg/Kg
Copper	SW6010B	1	0.20	5.00	6.05	mg/Kg
Vanadium	SW6010B	1	0.10	5.00	27.5	mg/Kg
Zinc	SW6010B	1	0.30	5.00	21.7	mg/Kg

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-5	**Lab Sample ID:**	2305067-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 7:57		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151158	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	**90.3**		ug/Kg	05/19/23	11:54	PH	474858

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-5	**Lab Sample ID:**	2305067-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 7:57		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23 5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:50	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-5	**Lab Sample ID:**	2305067-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 7:57		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:58	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**2.65**		mg/Kg	05/15/23	20:58	AT	474699
Barium	SW6010B	1	0.055	5.00	**111**		mg/Kg	05/15/23	20:58	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	20:58	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	20:58	AT	474699
Chromium	SW6010B	1	0.075	5.00	**19.4**		mg/Kg	05/15/23	20:58	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**9.80**		mg/Kg	05/15/23	20:58	AT	474699
Copper	SW6010B	1	0.20	5.00	**30.7**		mg/Kg	05/15/23	20:58	AT	474699
Lead	SW6010B	1	0.10	3.00	**8.55**		mg/Kg	05/15/23	20:58	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:58	AT	474699
Nickel	SW6010B	1	0.50	5.00	**12.8**		mg/Kg	05/15/23	20:58	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	20:58	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	20:58	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	20:58	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**42.0**		mg/Kg	05/15/23	20:58	AT	474699
Zinc	SW6010B	1	0.30	5.00	**60.5**		mg/Kg	05/15/23	20:58	AT	474699

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-5	**Lab Sample ID:**	2305067-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 7:57		
SDG:			

Prep Method:	3546_OCP	**Prep Batch Date/Time:**	5/13/23 10:20:00AM
Prep Batch ID:	1150929	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081B	10	2.5	20	ND		ug/Kg	05/13/23	16:29	LA	474648
gamma-BHC (Lindane)	SW8081B	10	7.1	20	ND		ug/Kg	05/13/23	16:29	LA	474648
beta-BHC	SW8081B	10	4.4	20	ND		ug/Kg	05/13/23	16:29	LA	474648
delta-BHC	SW8081B	10	6.5	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Heptachlor	SW8081B	10	2.7	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Aldrin	SW8081B	10	2.9	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Heptachlor Epoxide	SW8081B	10	3.1	20	ND		ug/Kg	05/13/23	16:29	LA	474648
gamma-Chlordane	SW8081B	10	15	30	ND		ug/Kg	05/13/23	16:29	LA	474648
alpha-Chlordane	SW8081B	10	3.6	20	ND		ug/Kg	05/13/23	16:29	LA	474648
4,4'-DDE	SW8081B	10	6.1	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Endosulfan I	SW8081B	10	2.9	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Dieldrin	SW8081B	10	2.5	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Endrin	SW8081B	10	7.9	20	ND		ug/Kg	05/13/23	16:29	LA	474648
4,4'-DDD	SW8081B	10	6.4	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Endosulfan II	SW8081B	10	3.4	20	ND		ug/Kg	05/13/23	16:29	LA	474648
4,4'-DDT	SW8081B	10	7.4	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Endrin Aldehyde	SW8081B	10	5.1	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Methoxychlor	SW8081B	10	26	60	ND		ug/Kg	05/13/23	16:29	LA	474648
Endosulfan Sulfate	SW8081B	10	5.1	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Endrin Ketone	SW8081B	10	4.3	20	ND		ug/Kg	05/13/23	16:29	LA	474648
Chlordane, Technical	SW8081B	10	27	200	ND		ug/Kg	05/13/23	16:29	LA	474648
Toxaphene	SW8081B	10	220	500	ND		ug/Kg	05/13/23	16:29	LA	474648
			Acceptance Limits								
Tetrachloro-M-Xylene (S)	SW8081B		48 - 125		**71.6**		%	05/13/23	16:29	LA	474648
Decachlorobiphenyl (S)	SW8081B		38 - 135		**81.9**		%	05/13/23	16:29	LA	474648

NOTE: Sample diluted due to the nature of the sample matrix (dark colored extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-10	**Lab Sample ID:**	2305067-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:06		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/22/23	0:42	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/22/23	0:42	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/22/23	0:42	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/22/23	0:42	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/22/23	0:42	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/22/23	0:42	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/22/23	0:42	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/22/23	0:42	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/22/23	0:42	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/22/23	0:42	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/22/23	0:42	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/22/23	0:42	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/22/23	0:42	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/22/23	0:42	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/22/23	0:42	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	0:42	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/22/23	0:42	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/22/23	0:42	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	0:42	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/22/23	0:42	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/22/23	0:42	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	0:42	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-10	**Lab Sample ID:**	2305067-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:06		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/22/23	0:42	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/22/23	0:42	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/22/23	0:42	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/22/23	0:42	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/22/23	0:42	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/22/23	0:42	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	0:42	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	0:42	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/22/23	0:42	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/22/23	0:42	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/22/23	0:42	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/22/23	0:42	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/22/23	0:42	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	0:42	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/22/23	0:42	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	0:42	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/22/23	0:42	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/22/23	0:42	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**61.4**		%	05/22/23	0:42	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**62.9**		%	05/22/23	0:42	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**65.8**		%	05/22/23	0:42	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-10	**Lab Sample ID:**	2305067-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:06		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23	11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**61.7**		%	05/22/23	0:42	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**59.3**		%	05/22/23	0:42	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**82.3**		%	05/22/23	0:42	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-10	**Lab Sample ID:**	2305067-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:06		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/19/23 10:46:00AM
Prep Batch ID:	1151221	**Prep Analyst:**	HVYAS

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/19/23	19:11	HV	474928
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:11	HV	474928
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:11	HV	474928
TBA	SW8260B	1	12	50	ND		ug/Kg	05/19/23	19:11	HV	474928
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:11	HV	474928
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	19:11	HV	474928
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	19:11	HV	474928
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:11	HV	474928
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-10	**Lab Sample ID:**	2305067-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:06		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/19/23 10:46:00AM
Prep Batch ID:	1151221	**Prep Analyst:**	HVYAS

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:11	HV	474928
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/19/23	19:11	HV	474928
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:11	HV	474928
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:11	HV	474928
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/19/23	19:11	HV	474928
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:11	HV	474928
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	19:11	HV	474928
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:11	HV	474928
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/19/23	19:11	HV	474928
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**69.6**		%	05/19/23	19:11	HV	474928
(S) Toluene-d8	SW8260B		55.2 - 133		**102**		%	05/19/23	19:11	HV	474928
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**103**		%	05/19/23	19:11	HV	474928

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-15	**Lab Sample ID:**	2305067-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:10		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	5:09	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-15	**Lab Sample ID:**	2305067-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:10		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:43	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-15	**Lab Sample ID:**	2305067-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:10		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:29	AT	474846
Arsenic	SW6010B	1	0.15	1.30	**2.79**		mg/Kg	05/18/23	20:29	AT	474846
Barium	SW6010B	1	0.055	5.00	**106**		mg/Kg	05/18/23	20:29	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:29	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:29	AT	474846
Chromium	SW6010B	1	0.075	5.00	**17.0**		mg/Kg	05/18/23	20:29	AT	474846
Cobalt	SW6010B	1	0.070	5.00	**10.1**		mg/Kg	05/18/23	20:29	AT	474846
Copper	SW6010B	1	0.20	5.00	**20.3**		mg/Kg	05/18/23	20:29	AT	474846
Lead	SW6010B	1	0.10	3.00	**3.93**		mg/Kg	05/18/23	20:29	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:29	AT	474846
Nickel	SW6010B	1	0.50	5.00	**11.0**		mg/Kg	05/18/23	20:29	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:29	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:29	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:29	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**46.6**		mg/Kg	05/18/23	20:29	AT	474846
Zinc	SW6010B	1	0.30	5.00	**48.1**		mg/Kg	05/18/23	20:29	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-30	**Lab Sample ID:**	2305067-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:27		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/22/23	1:11	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/22/23	1:11	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/22/23	1:11	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/22/23	1:11	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/22/23	1:11	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/22/23	1:11	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/22/23	1:11	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/22/23	1:11	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/22/23	1:11	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/22/23	1:11	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/22/23	1:11	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/22/23	1:11	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/22/23	1:11	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/22/23	1:11	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/22/23	1:11	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	1:11	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/22/23	1:11	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/22/23	1:11	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	1:11	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/22/23	1:11	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/22/23	1:11	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	1:11	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-30	**Lab Sample ID:**	2305067-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:27		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/22/23	1:11	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/22/23	1:11	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/22/23	1:11	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/22/23	1:11	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/22/23	1:11	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/22/23	1:11	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	1:11	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	1:11	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/22/23	1:11	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/22/23	1:11	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/22/23	1:11	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/22/23	1:11	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/22/23	1:11	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	1:11	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/22/23	1:11	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	1:11	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/22/23	1:11	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/22/23	1:11	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**57.3**		%	05/22/23	1:11	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**62.0**		%	05/22/23	1:11	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**51.3**		%	05/22/23	1:11	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-30	**Lab Sample ID:**	2305067-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:27		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23	11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**72.1**		%	05/22/23	1:11	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**67.5**		%	05/22/23	1:11	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**85.2**		%	05/22/23	1:11	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-30	**Lab Sample ID:**	2305067-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:27		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/19/23 10:46:00AM
Prep Batch ID:	1151221	**Prep Analyst:**	HVYAS

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/19/23	19:40	HV	474928
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:40	HV	474928
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:40	HV	474928
TBA	SW8260B	1	12	50	ND		ug/Kg	05/19/23	19:40	HV	474928
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:40	HV	474928
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	19:40	HV	474928
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	19:40	HV	474928
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	19:40	HV	474928
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-3-30	**Lab Sample ID:**	2305067-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 8:27		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/19/23 10:46:00AM
Prep Batch ID:	1151221	**Prep Analyst:**	HVYAS

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:40	HV	474928
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/19/23	19:40	HV	474928
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:40	HV	474928
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	19:40	HV	474928
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/19/23	19:40	HV	474928
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	19:40	HV	474928
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	19:40	HV	474928
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	19:40	HV	474928
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/19/23	19:40	HV	474928
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**70.0**		%	05/19/23	19:40	HV	474928
(S) Toluene-d8	SW8260B		55.2 - 133		**104**		%	05/19/23	19:40	HV	474928
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**103**		%	05/19/23	19:40	HV	474928

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-5	**Lab Sample ID:**	2305067-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 9:40		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151158	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	12:16	PH	474858

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-5	**Lab Sample ID:**	2305067-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 9:40		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23	5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:52	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-5	**Lab Sample ID:**	2305067-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 9:40		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:59	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**1.54**		mg/Kg	05/15/23	20:59	AT	474699
Barium	SW6010B	1	0.055	5.00	**82.0**		mg/Kg	05/15/23	20:59	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	20:59	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	20:59	AT	474699
Chromium	SW6010B	1	0.075	5.00	**12.2**		mg/Kg	05/15/23	20:59	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**7.60**		mg/Kg	05/15/23	20:59	AT	474699
Copper	SW6010B	1	0.20	5.00	**9.50**		mg/Kg	05/15/23	20:59	AT	474699
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/15/23	20:59	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	20:59	AT	474699
Nickel	SW6010B	1	0.50	5.00	**6.75**		mg/Kg	05/15/23	20:59	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	20:59	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	20:59	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	20:59	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**38.7**		mg/Kg	05/15/23	20:59	AT	474699
Zinc	SW6010B	1	0.30	5.00	**37.9**		mg/Kg	05/15/23	20:59	AT	474699

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-5	**Lab Sample ID:**	2305067-007A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 9:40		
SDG:			

Prep Method:	3546_OCP	**Prep Batch Date/Time:**	5/13/23 10:20:00AM
Prep Batch ID:	1150929	**Prep Analyst:**	NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
alpha-BHC	SW8081B	1	0.25	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
gamma-BHC (Lindane)	SW8081B	1	0.71	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
beta-BHC	SW8081B	1	0.44	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
delta-BHC	SW8081B	1	0.65	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Heptachlor	SW8081B	1	0.27	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Aldrin	SW8081B	1	0.29	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Heptachlor Epoxide	SW8081B	1	0.31	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
gamma-Chlordane	SW8081B	1	1.5	3.0	ND		ug/Kg	05/13/23	16:42	LA	474648
alpha-Chlordane	SW8081B	1	0.36	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
4,4'-DDE	SW8081B	1	0.61	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Endosulfan I	SW8081B	1	0.29	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Dieldrin	SW8081B	1	0.25	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Endrin	SW8081B	1	0.79	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
4,4'-DDD	SW8081B	1	0.64	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Endosulfan II	SW8081B	1	0.34	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
4,4'-DDT	SW8081B	1	0.74	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Endrin Aldehyde	SW8081B	1	0.51	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Methoxychlor	SW8081B	1	2.6	6.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Endosulfan Sulfate	SW8081B	1	0.51	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Endrin Ketone	SW8081B	1	0.43	2.0	ND		ug/Kg	05/13/23	16:42	LA	474648
Chlordane, Technical	SW8081B	1	2.7	20	ND		ug/Kg	05/13/23	16:42	LA	474648
Toxaphene	SW8081B	1	22	50	ND		ug/Kg	05/13/23	16:42	LA	474648
			Acceptance Limits								
Tetrachloro-M-Xylene (S)	SW8081B		48 - 125		**50.2**		%	05/13/23	16:42	LA	474648
Decachlorobiphenyl (S)	SW8081B		38 - 135		**52.0**		%	05/13/23	16:42	LA	474648

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-15	**Lab Sample ID:**	2305067-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 9:49		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	5:30	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-15	**Lab Sample ID:**	2305067-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 9:49		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:45	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-15	**Lab Sample ID:**	2305067-009A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 9:49		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:31	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:31	AT	474846
Barium	SW6010B	1	0.055	5.00	**60.5**		mg/Kg	05/18/23	20:31	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:31	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:31	AT	474846
Chromium	SW6010B	1	0.075	5.00	**9.00**		mg/Kg	05/18/23	20:31	AT	474846
Cobalt	SW6010B	1	0.070	5.00	**5.90**		mg/Kg	05/18/23	20:31	AT	474846
Copper	SW6010B	1	0.20	5.00	**7.00**		mg/Kg	05/18/23	20:31	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:31	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:31	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:31	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:31	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:31	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:31	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**34.0**		mg/Kg	05/18/23	20:31	AT	474846
Zinc	SW6010B	1	0.30	5.00	**26.7**		mg/Kg	05/18/23	20:31	AT	474846

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-30	**Lab Sample ID:**	2305067-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 10:12		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
N-Nitrosodimethylamine	SW8270C	1	46.9	720	ND		ug/Kg	05/22/23	1:41	MT	474888
Phenol	SW8270C	1	43.8	288	ND		ug/Kg	05/22/23	1:41	MT	474888
Bis(2-chloroethyl)ether	SW8270C	1	13.3	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2-Chlorophenol	SW8270C	1	47.7	288	ND		ug/Kg	05/22/23	1:41	MT	474888
1,3-Dichlorobenzene	SW8270C	1	13.1	144	ND		ug/Kg	05/22/23	1:41	MT	474888
1,4-Dichlorobenzene	SW8270C	1	14.6	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Benzyl Alcohol	SW8270C	1	20.5	288	ND		ug/Kg	05/22/23	1:41	MT	474888
1,2-Dichlorobenzene	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2-Methylphenol (o-Cresol)	SW8270C	1	29.3	288	ND		ug/Kg	05/22/23	1:41	MT	474888
N-Methyl-2-Pyrrolidone (NMP)	SW8270C	1	68.0	720	ND		ug/Kg	05/22/23	1:41	MT	474888
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	1	31.3	288	ND		ug/Kg	05/22/23	1:41	MT	474888
N-nitroso-di-n-propylamine	SW8270C	1	13.2	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Hexachloroethane	SW8270C	1	17.1	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Nitrobenzene	SW8270C	1	12.8	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Isophorone	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2-Nitrophenol	SW8270C	1	25.4	288	ND		ug/Kg	05/22/23	1:41	MT	474888
2,4-Dimethylphenol	SW8270C	1	22.8	288	ND		ug/Kg	05/22/23	1:41	MT	474888
Benzoic Acid	SW8270C	1	41.7	288	ND		ug/Kg	05/22/23	1:41	MT	474888
Bis(2-Chloroethoxy)methane	SW8270C	1	9.79	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Bis(2-chloroisopropyl)ether	SW8270C	1	12.6	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2,4-Dichlorophenol	SW8270C	1	39.3	288	ND		ug/Kg	05/22/23	1:41	MT	474888
1,2,4-Trichlorobenzene	SW8270C	1	11.8	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Naphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2,6-Dichlorophenol	SW8270C	1	35.8	288	ND		ug/Kg	05/22/23	1:41	MT	474888
Hexachloro-1,3-butadiene	SW8270C	1	8.34	144	ND		ug/Kg	05/22/23	1:41	MT	474888
4-Chloro-3-methylphenol	SW8270C	1	33.8	288	ND		ug/Kg	05/22/23	1:41	MT	474888
2-Methylnaphthalene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	1:41	MT	474888
1-Methylnaphthalene	SW8270C	1	12.2	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Hexachlorocyclopentadiene	SW8270C	1	12.9	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2,4,6-Trichlorophenol	SW8270C	1	35.9	288	ND		ug/Kg	05/22/23	1:41	MT	474888
2,4,5-Trichlorophenol	SW8270C	1	33.4	288	ND		ug/Kg	05/22/23	1:41	MT	474888
2-Chloronaphthalene	SW8270C	1	10.6	144	ND		ug/Kg	05/22/23	1:41	MT	474888
1,4-Dinitrobenzene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Dimethyl phthalate	SW8270C	1	14.2	720	ND		ug/Kg	05/22/23	1:41	MT	474888
1,3-Dinitrobenzene	SW8270C	1	10.4	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Acenaphthylene	SW8270C	1	8.28	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2,6-Dinitrotoluene	SW8270C	1	11.3	144	ND		ug/Kg	05/22/23	1:41	MT	474888
1,2-Dinitrobenzene	SW8270C	1	15.8	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Acenaphthene	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	1:41	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-30	**Lab Sample ID:**	2305067-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 10:12		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23 11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,4-Dinitrophenol	SW8270C	1	77.6	720	ND		ug/Kg	05/22/23	1:41	MT	474888
4-Nitrophenol	SW8270C	1	54.7	720	ND		ug/Kg	05/22/23	1:41	MT	474888
Dibenzofuran	SW8270C	1	11.2	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2,4-Dinitrotoluene	SW8270C	1	12.1	144	ND		ug/Kg	05/22/23	1:41	MT	474888
2,3,5,6-Tetrachlorophenol	SW8270C	1	27.6	288	ND		ug/Kg	05/22/23	1:41	MT	474888
2,3,4,6-Tetrachlorophenol	SW8270C	1	31.5	288	ND		ug/Kg	05/22/23	1:41	MT	474888
Diethylphthalate	SW8270C	1	13.6	720	ND		ug/Kg	05/22/23	1:41	MT	474888
Fluorene	SW8270C	1	10.3	144	ND		ug/Kg	05/22/23	1:41	MT	474888
4-Chlorophenyl-phenylether	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	1:41	MT	474888
4,6-Dinitro-2-methylphenol	SW8270C	1	13.4	288	ND		ug/Kg	05/22/23	1:41	MT	474888
Diphenylamine	SW8270C	1	13.0	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Azobenzene	SW8270C	1	114	144	ND		ug/Kg	05/22/23	1:41	MT	474888
4-Bromophenyl-phenylether	SW8270C	1	8.23	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Hexachlorobenzene	SW8270C	1	8.66	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Pentachlorophenol	SW8270C	1	25.0	288	ND		ug/Kg	05/22/23	1:41	MT	474888
Phenanthrene	SW8270C	1	9.32	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Anthracene	SW8270C	1	8.91	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Carbazole	SW8270C	1	10.7	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Di-n-butylphthalate	SW8270C	1	13.5	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Fluoranthene	SW8270C	1	10.0	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Benzidine	SW8270C	1	147	147	ND		ug/Kg	05/22/23	1:41	MT	474888
Pyrene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Butylbenzylphthalate	SW8270C	1	21.0	720	ND		ug/Kg	05/22/23	1:41	MT	474888
Benzo(a)anthracene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	1:41	MT	474888
3,3-Dichlorobenzidine	SW8270C	1	118	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Chrysene	SW8270C	1	15.2	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Bis(2-Ethylhexyl)phthalate	SW8270C	1	15.3	720	ND		ug/Kg	05/22/23	1:41	MT	474888
Di-n-Octylphthalate	SW8270C	1	12.3	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Benzo(b)fluorathene	SW8270C	1	12.0	144	ND		ug/Kg	05/22/23	1:41	MT	474888
benzo(k)fluorathene	SW8270C	1	8.16	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Benzo(a)pyrene	SW8270C	1	9.80	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Indeno(1,2,3-c,d)pyrene	SW8270C	1	13.8	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Dibenzo(a,h)anthracene	SW8270C	1	12.7	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Benzo(g,h,i)perylene	SW8270C	1	16.7	144	ND		ug/Kg	05/22/23	1:41	MT	474888
Pyridine	SW8270C	1	43.8	720	ND		ug/Kg	05/22/23	1:41	MT	474888
			Acceptance Limits								
2-Fluorophenol (S)	SW8270C		25 - 121		**41.7**		%	05/22/23	1:41	MT	474888
Phenol-d6 (S)	SW8270C		24 - 113		**63.6**		%	05/22/23	1:41	MT	474888
2,4,6-Tribromophenol (S)	SW8270C		19 - 122		**77.2**		%	05/22/23	1:41	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-30	**Lab Sample ID:**	2305067-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 10:12		
SDG:			

Prep Method:	3546_BNA	**Prep Batch Date/Time:**	5/19/23	11:52:00AM
Prep Batch ID:	1151137	**Prep Analyst:**	MSAT	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2-Fluorobiphenyl (S)	SW8270C		45 - 143		**88.3**		%	05/22/23	1:41	MT	474888
Nitrobenzene-d5 (S)	SW8270C		23 - 120		**68.9**		%	05/22/23	1:41	MT	474888
p-Terphenyl-d14 (S)	SW8270C		18 - 137		**90.6**		%	05/22/23	1:41	MT	474888

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-30	**Lab Sample ID:**	2305067-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 10:12		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/19/23 10:46:00AM
Prep Batch ID:	1151221	**Prep Analyst:**	HVYAS

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	1.2	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Chloromethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Vinyl Chloride	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Bromomethane	SW8260B	1	2.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Chloroethane	SW8260B	1	3.0	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Trichlorofluoromethane	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,1-Dichloroethene	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Freon 113	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Methylene Chloride	SW8260B	1	7.1	10	ND		ug/Kg	05/19/23	20:09	HV	474928
trans-1,2-Dichloroethene	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	20:09	HV	474928
MTBE	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	20:09	HV	474928
TBA	SW8260B	1	12	50	ND		ug/Kg	05/19/23	20:09	HV	474928
Diisopropyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,1-Dichloroethane	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Ethyl tert-Butyl ether	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	20:09	HV	474928
cis-1,2-Dichloroethene	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	20:09	HV	474928
2,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Bromochloromethane	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Chloroform	SW8260B	1	2.4	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Carbon Tetrachloride	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,1,1-Trichloroethane	SW8260B	1	2.1	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,1-Dichloropropene	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Benzene	SW8260B	1	2.2	10	ND		ug/Kg	05/19/23	20:09	HV	474928
TAME	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2-Dichloroethane	SW8260B	1	2.3	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Trichloroethene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Dibromomethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2-Dichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Bromodichloromethane	SW8260B	1	2.0	10	ND		ug/Kg	05/19/23	20:09	HV	474928
cis-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Toluene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Tetrachloroethene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
trans-1,3-Dichloropropene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,1,2-Trichloroethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Dibromochloromethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,3-Dichloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2-Dibromoethane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Chlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Ethylbenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-8-30	**Lab Sample ID:**	2305067-012A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 10:12		
SDG:			

Prep Method:	5035	**Prep Batch Date/Time:**	5/19/23 10:46:00AM
Prep Batch ID:	1151221	**Prep Analyst:**	HVYAS

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	20:09	HV	474928
m,p-Xylene	SW8260B	1	3.2	10	ND		ug/Kg	05/19/23	20:09	HV	474928
o-Xylene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Styrene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Bromoform	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Isopropyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
n-Propylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Bromobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,1,2,2-Tetrachloroethane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	20:09	HV	474928
2-Chlorotoluene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,3,5-Trimethylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2,3-Trichloropropane	SW8260B	1	1.9	10	ND		ug/Kg	05/19/23	20:09	HV	474928
4-Chlorotoluene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
tert-Butylbenzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2,4-Trimethylbenzene	SW8260B	1	1.4	10	ND		ug/Kg	05/19/23	20:09	HV	474928
sec-Butyl Benzene	SW8260B	1	1.6	10	ND		ug/Kg	05/19/23	20:09	HV	474928
p-Isopropyltoluene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,3-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,4-Dichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
n-Butylbenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2-Dichlorobenzene	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2-Dibromo-3-Chloropropane	SW8260B	1	1.8	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Hexachlorobutadiene	SW8260B	1	1.4	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2,4-Trichlorobenzene	SW8260B	1	1.5	10	ND		ug/Kg	05/19/23	20:09	HV	474928
Naphthalene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
1,2,3-Trichlorobenzene	SW8260B	1	1.7	10	ND		ug/Kg	05/19/23	20:09	HV	474928
2-Butanone	SW8260B	1	2.3	10.0	ND		ug/Kg	05/19/23	20:09	HV	474928
(S) Dibromofluoromethane	SW8260B		59.8 - 148		**69.3**		%	05/19/23	20:09	HV	474928
(S) Toluene-d8	SW8260B		55.2 - 133		**103**		%	05/19/23	20:09	HV	474928
(S) 4-Bromofluorobenzene	SW8260B		55.8 - 141		**102**		%	05/19/23	20:09	HV	474928

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-9-5	**Lab Sample ID:**	2305067-013A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 12:30		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	6:34	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-9-5	**Lab Sample ID:**	2305067-013A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 12:30		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/15/23	5:45:00PM
Prep Batch ID:	1150976	**Prep Analyst:**	AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/16/23	13:54	ERR	474697

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-9-5	**Lab Sample ID:**	2305067-013A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 12:30		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/15/23 5:15:00PM
Prep Batch ID:	1150962	**Prep Analyst:**	AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	21:01	AT	474699
Arsenic	SW6010B	1	0.15	1.30	**3.22**		mg/Kg	05/15/23	21:01	AT	474699
Barium	SW6010B	1	0.055	5.00	**127**		mg/Kg	05/15/23	21:01	AT	474699
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/15/23	21:01	AT	474699
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/15/23	21:01	AT	474699
Chromium	SW6010B	1	0.075	5.00	**39.8**		mg/Kg	05/15/23	21:01	AT	474699
Cobalt	SW6010B	1	0.070	5.00	**11.0**		mg/Kg	05/15/23	21:01	AT	474699
Copper	SW6010B	1	0.20	5.00	**43.7**		mg/Kg	05/15/23	21:01	AT	474699
Lead	SW6010B	1	0.10	3.00	**36.2**		mg/Kg	05/15/23	21:01	AT	474699
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/15/23	21:01	AT	474699
Nickel	SW6010B	1	0.50	5.00	**46.6**		mg/Kg	05/15/23	21:01	AT	474699
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/15/23	21:01	AT	474699
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/15/23	21:01	AT	474699
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/15/23	21:01	AT	474699
Vanadium	SW6010B	1	0.10	5.00	**48.4**		mg/Kg	05/15/23	21:01	AT	474699
Zinc	SW6010B	1	0.30	5.00	**80.5**		mg/Kg	05/15/23	21:01	AT	474699

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-9-15	**Lab Sample ID:**	2305067-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 12:40		
SDG:			

Prep Method:	7199MP	**Prep Batch Date/Time:**	5/18/23 2:00:00PM
Prep Batch ID:	1151157	**Prep Analyst:**	PHUFANO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Hexavalent Chromium	SW7199	1	3.1	10	ND		ug/Kg	05/19/23	6:56	PH	474857

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-9-15	**Lab Sample ID:**	2305067-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 12:40		
SDG:			

Prep Method:	7471BP	**Prep Batch Date/Time:**	5/17/23 7:15:00PM
Prep Batch ID:	1151067	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.083	0.50	ND		mg/Kg	05/18/23	13:52	BJAY	474773

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/09/23, 10:06 am
Date Reported: 05/19/23

Client Sample ID:	B-9-15	**Lab Sample ID:**	2305067-015A
Project Name/Location:	VERNON	**Sample Matrix:**	Soil
Project Number:	721040501		
Date/Time Sampled:	05/05/23 / 12:40		
SDG:			

Prep Method:	3050B	**Prep Batch Date/Time:**	5/17/23 7:00:00PM
Prep Batch ID:	1151065	**Prep Analyst:**	TNGO

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:32	AT	474846
Arsenic	SW6010B	1	0.15	1.30	ND		mg/Kg	05/18/23	20:32	AT	474846
Barium	SW6010B	1	0.055	5.00	**51.5**		mg/Kg	05/18/23	20:32	AT	474846
Beryllium	SW6010B	1	0.055	5.00	ND		mg/Kg	05/18/23	20:32	AT	474846
Cadmium	SW6010B	1	0.10	0.750	ND		mg/Kg	05/18/23	20:32	AT	474846
Chromium	SW6010B	1	0.075	5.00	**7.05**		mg/Kg	05/18/23	20:32	AT	474846
Cobalt	SW6010B	1	0.070	5.00	ND		mg/Kg	05/18/23	20:32	AT	474846
Copper	SW6010B	1	0.20	5.00	**6.05**		mg/Kg	05/18/23	20:32	AT	474846
Lead	SW6010B	1	0.10	3.00	ND		mg/Kg	05/18/23	20:32	AT	474846
Molybdenum	SW6010B	1	0.050	5.00	ND		mg/Kg	05/18/23	20:32	AT	474846
Nickel	SW6010B	1	0.50	5.00	ND		mg/Kg	05/18/23	20:32	AT	474846
Selenium	SW6010B	1	0.35	1.10	ND		mg/Kg	05/18/23	20:32	AT	474846
Silver	SW6010B	1	0.15	0.500	ND		mg/Kg	05/18/23	20:32	AT	474846
Thallium	SW6010B	1	0.20	5.00	ND		mg/Kg	05/18/23	20:32	AT	474846
Vanadium	SW6010B	1	0.10	5.00	**27.5**		mg/Kg	05/18/23	20:32	AT	474846
Zinc	SW6010B	1	0.30	5.00	**21.7**		mg/Kg	05/18/23	20:32	AT	474846

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	3546_OCP	**Prep Date:**	05/13/23	**Prep Batch:**	1150929
Matrix:	Soil	**Analytical Method:**	SW8081B	**Analyzed Date:**	5/13/2023	**Analytical Batch:**	474648
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
alpha-BHC	0.25	2.0	ND	
gamma-BHC (Lindane)	0.71	2.0	ND	
beta-BHC	0.44	2.0	ND	
delta-BHC	0.65	2.0	ND	
Heptachlor	0.27	2.0	ND	
Aldrin	0.29	2.0	ND	
Heptachlor Epoxide	0.31	2.0	ND	
gamma-Chlordane	1.5	3.0	ND	
alpha-Chlordane	0.36	2.0	ND	
4,4'-DDE	0.61	2.0	1.97	
Endosulfan I	0.29	2.0	ND	
Dieldrin	0.25	2.0	ND	
Endrin	0.79	2.0	ND	
4,4'-DDD	0.64	2.0	ND	
Endosulfan II	0.34	2.0	ND	
4,4'-DDT	0.74	2.0	ND	
Endrin Aldehyde	0.51	2.0	ND	
Methoxychlor	2.6	6.0	ND	
Endosulfan Sulfate	0.51	2.0	ND	
Endrin Ketone	0.43	2.0	ND	
Chlordane, Technical	2.7	20	ND	
Toxaphene	22	50	ND	
Tetrachloro-M-Xylene (S)			89.6	
Decachlorobiphenyl (S)			92.9	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	3050B	**Prep Date:**	05/15/23	**Prep Batch:**	1150962
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/15/2023	**Analytical Batch:**	474699
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	ND	
Arsenic	0.15	1.30	ND	
Barium	0.055	5.00	0.14	J
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.13	J
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.050	
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	3.2	J

Work Order:	2305067	**Prep Method:**	7471BP	**Prep Date:**	05/15/23	**Prep Batch:**	1150976
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474697
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.050	5.00	0.065	
Arsenic	0.15	1.30	ND	
Barium	0.055	5.00	0.19	
Beryllium	0.055	5.00	ND	
Cadmium	0.10	0.750	ND	
Chromium	0.075	5.00	0.16	
Cobalt	0.070	5.00	ND	
Copper	0.20	5.00	ND	
Lead	0.10	3.00	ND	
Molybdenum	0.050	5.00	0.15	
Nickel	0.50	5.00	ND	
Selenium	0.35	1.10	ND	
Silver	0.15	0.500	ND	
Thallium	0.55	5.00	ND	
Vanadium	0.10	5.00	ND	
Zinc	0.30	5.00	ND	

Work Order:	2305067	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.083	0.50	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
N-Nitrosodimethylamine	46.9	720	ND		
Phenol	43.8	288	ND		
Bis(2-chloroethyl)ether	13.3	144	ND		
2-Chlorophenol	47.7	288	ND		
1,3-Dichlorobenzene	13.1	144	ND		
1,4-Dichlorobenzene	14.6	144	ND		
Benzyl Alcohol	20.5	288	ND		
1,2-Dichlorobenzene	13.5	144	ND		
2-Methylphenol (o-Cresol)	29.3	288	ND		
N-Methyl-2-Pyrrolidone (NMP)	68.0	720	ND		
	12.6	144	ND		
3-/4-Methylphenol (p-/m-Cresol)	31.3	288	ND		
N-nitroso-di-n-propylamine	13.2	144	ND		
Hexachloroethane	17.1	144	ND		
Nitrobenzene	12.8	144	ND		
Isophorone	12.2	144	ND		
2-Nitrophenol	25.4	288	ND		
2,4-Dimethylphenol	22.8	288	ND		
Benzoic Acid	41.7	288	ND		
Bis(2-Chloroethoxy)methane	9.79	144	ND		
Bis(2-chloroisopropyl)ether	12.6	144	ND		
2,4-Dichlorophenol	39.3	288	ND		
1,2,4-Trichlorobenzene	11.8	144	ND		
Naphthalene	10.6	144	ND		
2,6-Dichlorophenol	35.8	288	ND		
Hexachloro-1,3-butadiene	8.34	144	ND		
4-Chloro-3-methylphenol	33.8	288	ND		
2-Methylnaphthalene	10.4	144	ND		
1-Methylnaphthalene	12.2	144	ND		
Hexachlorocyclopentadiene	12.9	144	ND		
2,4,6-Trichlorophenol	35.9	288	ND		
2,4,5-Trichlorophenol	33.4	288	ND		
2-Chloronaphthalene	10.6	144	ND		
1,4-Dinitrobenzene	10.3	144	ND		
Dimethyl phthalate	14.2	720	ND		
1,3-Dinitrobenzene	10.4	144	ND		
Acenaphthylene	8.28	144	ND		
2,6-Dinitrotoluene	11.3	144	ND		
1,2-Dinitrobenzene	15.8	144	ND		
Acenaphthene	10.7	144	ND		
2,4-Dinitrophenol	77.6	720	ND		
4-Nitrophenol	54.7	720	ND		
Dibenzofuran	11.2	144	ND		
2,4-Dinitrotoluene	12.1	144	ND		
2,3,5,6-Tetrachlorophenol	27.6	288	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
2,3,4,6-Tetrachlorophenol	31.5	288	ND	
Diethylphthalate	13.6	720	79.2	
Fluorene	10.3	144	ND	
4-Chlorophenyl-phenylether	9.32	144	ND	
4,6-Dinitro-2-methylphenol	13.4	288	ND	
Diphenylamine	13.0	144	ND	
Azobenzene	114	144	ND	
4-Bromophenyl-phenylether	8.23	144	ND	
Hexachlorobenzene	8.66	144	ND	
Pentachlorophenol	25.0	288	ND	
Phenanthrene	9.32	144	ND	
Anthracene	8.91	144	ND	
Carbazole	10.7	144	ND	
Di-n-butylphthalate	13.5	144	ND	
Fluoranthene	10.0	147	ND	
Benzidine	147	144	ND	
Pyrene	12.0	144	ND	
Butylbenzylphthalate	21.0	720	ND	
Benzo(a)anthracene	9.80	144	ND	
3,3-Dichlorobenzidine	118	144	ND	
Chrysene	15.2	144	ND	
Bis(2-Ethylhexyl)phthalate	15.3	720	ND	
Di-n-Octylphthalate	12.3	144	ND	
Benzo(b)fluorathene	12.0	144	ND	
benzo(k)fluorathene	8.16	144	ND	
Benzo(a)pyrene	9.80	144	ND	
Indeno(1,2,3-c,d)pyrene	13.8	144	ND	
Dibenzo(a,h)anthracene	12.7	144	ND	
Benzo(g,h,i)perylene	12.7	144	ND	
Pyridine	43.8	720	ND	
2-Fluorophenol (S)			88.1	
Phenol-d6 (S)			105	
2,4,6-Tribromophenol (S)			96.0	
2-Fluorobiphenyl (S)			80.2	
Nitrobenzene-d5 (S)			88.9	
p-Terphenyl-d14 (S)			91.7	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Hexavalent Chromium	3.1	10	ND		

Work Order:	2305067	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151158
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474858
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Hexavalent Chromium	3.1	10	ND		

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	5035	**Prep Date:**	05/19/23	**Prep Batch:**	1151221
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474928
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	1.2	10	ND	
Chloromethane	1.8	10	ND	
Vinyl Chloride	2.0	10	ND	
Bromomethane	2.7	10	ND	
Chloroethane	3.0	10	ND	
Trichlorofluoromethane	2.1	10	ND	
1,1-Dichloroethene	2.0	10	ND	
Freon 113	1.9	10	ND	
Methylene Chloride	7.1	10	ND	
trans-1,2-Dichloroethene	2.1	10	ND	
MTBE	2.3	10	ND	
TBA	12	50	ND	
Diisopropyl ether	2.3	10	ND	
1,1-Dichloroethane	2.2	10	ND	
Ethyl tert-Butyl ether	2.3	10	ND	
cis-1,2-Dichloroethene	2.2	10	ND	
2,2-Dichloropropane	1.9	10	ND	
Bromochloromethane	2.3	10	ND	
Chloroform	2.4	10	ND	
Carbon Tetrachloride	2.1	10	ND	
1,1,1-Trichloroethane	2.1	10	ND	
1,1-Dichloropropene	2.0	10	ND	
Benzene	2.2	10	ND	
TAME	2.3	10	ND	
1,2-Dichloroethane	2.3	10	ND	
Trichloroethene	1.8	10	ND	
Dibromomethane	1.8	10	ND	
1,2-Dichloropropane	1.9	10	ND	
Bromodichloromethane	2.0	10	ND	
cis-1,3-Dichloropropene	1.6	10	ND	
Toluene	1.8	10	ND	
Tetrachloroethene	1.7	10	ND	
trans-1,3-Dichloropropene	1.6	10	ND	
1,1,2-Trichloroethane	1.8	10	ND	
Dibromochloromethane	1.9	10	ND	
1,3-Dichloropropane	1.8	10	ND	
1,2-Dibromoethane	1.8	10	ND	
Chlorobenzene	1.8	10	ND	
Ethylbenzene	1.7	10	ND	
1,1,1,2-Tetrachloroethane	1.9	10	ND	
m,p-Xylene	3.2	10	ND	
o-Xylene	1.7	10	ND	
Styrene	1.6	10	ND	
Bromoform	1.7	10	ND	
Isopropyl Benzene	1.6	10	ND	

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305067	**Prep Method:**	5035	**Prep Date:**	05/19/23	**Prep Batch:**	1151221
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474928
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
n-Propylbenzene	1.6	10	ND	
Bromobenzene	1.8	10	ND	
1,1,2,2-Tetrachloroethane	1.9	10	ND	
2-Chlorotoluene	1.8	10	ND	
1,3,5-Trimethylbenzene	1.6	10	ND	
1,2,3-Trichloropropane	1.9	10	ND	
4-Chlorotoluene	1.6	10	ND	
tert-Butylbenzene	1.6	10	ND	
1,2,4-Trimethylbenzene	1.4	10	ND	
sec-Butyl Benzene	1.6	10	ND	
p-Isopropyltoluene	1.5	10	ND	
1,3-Dichlorobenzene	1.7	10	ND	
1,4-Dichlorobenzene	1.7	10	ND	
n-Butylbenzene	1.5	10	ND	
1,2-Dichlorobenzene	1.8	10	ND	
1,2-Dibromo-3-Chloropropane	1.8	10	ND	
Hexachlorobutadiene	1.4	10	ND	
1,2,4-Trichlorobenzene	1.5	10	ND	
Naphthalene	1.7	10	ND	
1,2,3-Trichlorobenzene	1.7	10	ND	
2-Butanone	2.3	10	ND	
MIBK	2.0	50	ND	
Hexachloroethane	5.0	10	ND	
1,4-Dioxane	100	200	ND	
2-Hexanone	5.0	20	ND	
Acetone	8.2	20	ND	
(S) Dibromofluoromethane			77.9	
(S) Toluene-d8			99.6	
(S) 4-Bromofluorobenzene			97.6	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305067	**Prep Method:**	3546_OCP	**Prep Date:**	05/13/23	**Prep Batch:**	1150929
Matrix:	Soil	**Analytical Method:**	SW8081B	**Analyzed Date:**	5/13/2023	**Analytical Batch:**	474648
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
gamma-BHC (Lindane)	0.16	2.0	ND	40	81.7	85.6	4.78	25 - 135	30	
Heptachlor	0.11	2.0	ND	40	85.9	90.8	5.37	40 - 130	30	
Aldrin	0.20	2.0	ND	40	86.6	90.2	3.95	25 - 140	30	
delta-BHC	0.15	2.0	ND	40	86.3	91.6	5.91	60 - 130	30	
Heptachlor	0.19	2.0	ND	40	87.4	92.2	5.29	55 - 135	30	
4,4'-DDT	0.13	2.0	ND	40	88.1	94.2	6.86	45 - 140	30	
Tetrachloro-M-Xylene (S)				100	82.9	83.0		48 - 125		
Decachlorobiphenyl (S)				100	93.1	94.9		38 - 135		

Work Order:	2305067	**Prep Method:**	3050B	**Prep Date:**	05/15/23	**Prep Batch:**	1150962
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/15/2023	**Analytical Batch:**	474699
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	ND	50	98.3	99.6	1.21	80 - 120	30	
Arsenic	0.15	1.30	ND	50	99.4	100	0.602	80 - 120	30	
Barium	0.055	5.00	0.14	50	101	102	0.985	80 - 120	30	
Beryllium	0.055	5.00	ND	50	102	103	0.976	80 - 120	30	
Cadmium	0.10	0.750	ND	50	101	102	0.985	80 - 120	30	
Chromium	0.075	5.00	0.13	50	102	103	0.976	80 - 120	30	
Cobalt	0.070	5.00	ND	50	102	103	0.976	80 - 120	30	
Copper	0.20	5.00	ND	50	102	103	0.976	80 - 120	30	
Lead	0.10	3.00	ND	50	101	102	0.985	80 - 120	30	
Molybdenum	0.050	5.00	0.050	50	101	102	0.985	80 - 120	30	
Nickel	0.50	5.00	ND	50	102	103	0.976	80 - 120	30	
Selenium	0.22	5.00	ND	50	92.9	93.5	0.643	80 - 120	30	
Silver	0.15	5.00	ND	50	99.3	100	0.602	80 - 120	30	
Thallium	0.20	5.00	ND	50	99.8	101	1.20	80 - 120	30	
Vanadium	0.10	5.00	ND	50	102	103	0.976	80 - 120	30	
Zinc	0.30	5.00	3.2	50	111	111	0.000	80 - 120	30	

Work Order:	2305067	**Prep Method:**	7471BP	**Prep Date:**	05/15/23	**Prep Batch:**	1150976
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/16/2023	**Analytical Batch:**	474697
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	105	104	0.766	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305067	**Prep Method:**	3050B	**Prep Date:**	05/17/23	**Prep Batch:**	1151065
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474846
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.050	5.00	0.065	50	99.7	100	0.200	80 - 120	30	
Arsenic	0.15	1.30	ND	50	98.4	98.7	0.406	80 - 120	30	
Barium	0.055	5.00	0.19	50	103	103	0.000	80 - 120	30	
Beryllium	0.055	5.00	ND	50	102	102	0.000	80 - 120	30	
Cadmium	0.10	0.750	ND	50	101	101	0.000	80 - 120	30	
Chromium	0.075	5.00	0.16	50	103	103	0.000	80 - 120	30	
Cobalt	0.070	5.00	ND	50	102	102	0.000	80 - 120	30	
Copper	0.20	5.00	ND	50	105	105	0.000	80 - 120	30	
Lead	0.10	3.00	ND	50	102	102	0.000	80 - 120	30	
Molybdenum	0.050	5.00	0.15	50	103	103	0.000	80 - 120	30	
Nickel	0.50	5.00	ND	50	102	102	0.000	80 - 120	30	
Selenium	0.22	5.00	ND	50	91.8	92.4	0.651	80 - 120	30	
Silver	0.15	5.00	ND	50	100	101	0.995	80 - 120	30	
Thallium	0.20	5.00	ND	50	99.7	101	1.20	80 - 120	30	
Vanadium	0.10	5.00	ND	50	103	103	0.000	80 - 120	30	
Zinc	0.30	5.00	ND	50	100	101	0.995	80 - 120	30	

Work Order:	2305067	**Prep Method:**	7471BP	**Prep Date:**	05/17/23	**Prep Batch:**	1151067
Matrix:	Soil	**Analytical Method:**	SW7471B	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474773
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.047	0.50	ND	1.25	117	117	0.000	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305067	**Prep Method:**	3546_BNA	**Prep Date:**	05/19/23	**Prep Batch:**	1151137
Matrix:	Soil	**Analytical Method:**	SW8270C	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474887
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Phenol	43.8	288	ND	1200	92.5	94.2	1.79	40 - 100	30	
2-Chlorophenol	47.7	288	ND	1200	92.4	88.8	3.67	45 - 105	30	
Bis(2-chloroethyl)ether	14.6	144	ND	400	76.2	75.7	0.658	35 - 105	30	
N-nitroso-di-n-propylamine	13.2	144	ND	400	107	109	1.85	40 - 115	30	
1,2,4-Trichlorobenzene	11.8	144	ND	400	78.7	75.4	4.21	45 - 110	30	
1,4-Dichlorobenzene	33.8	288	ND	1200	103	95.8	7.53	45 - 110	30	
Acenaphthene	10.7	144	ND	400	93.0	86.2	7.53	45 - 110	30	
4-Nitrophenol	54.7	720	ND	1200	87.3	81.4	7.31	15 - 140	30	
2,4-Dinitrotoluene	12.1	144	ND	400	91.9	91.3	0.819	50 - 115	30	
N-Methyl-2-Pyrrolidone (NMP)	12.0	144	ND	1200	68.3	70.5	3.12	25 - 120	30	
Pyrene	12.0	144	ND	400	90.7	87.6	3.65	45 - 145	30	
2-Fluorophenol (S)				11100	86.8	84.7		25 - 121		
Phenol-d6 (S)				11100	95.7	98.5		24 - 113		
2,4,6-Tribromophenol (S)				11100	107	97.9		19 - 122		
2-Fluorobiphenyl (S)				5560	89.1	81.3		30 - 143		
Nitrobenzene-d5 (S)				5560	93.6	77.9		23 - 120		
p-Terphenyl-d14 (S)				5560	86.3	79.5		18 - 137		

Work Order:	2305067	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151157
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/18/2023	**Analytical Batch:**	474857
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	ND	100	101	103	1.96	80 - 120	20	

Work Order:	2305067	**Prep Method:**	7199MP	**Prep Date:**	05/18/23	**Prep Batch:**	1151158
Matrix:	Soil	**Analytical Method:**	SW7199	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474858
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Hexavalent Chromium	3.1	10	ND	100	99.6	99.9	0.301	80 - 120	20	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305067	**Prep Method:**	5035	**Prep Date:**	05/19/23	**Prep Batch:**	1151221
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474928
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	2.0	10	ND	50.0	113	90.0	23.0	53.7 - 139	30	
Benzene	2.2	10	ND	50.0	113	90.0	22.3	66.5 - 135	30	
Trichloroethene	1.8	10	ND	50.0	115	91.8	22.4	57.5 - 150	30	
Toluene	1.8	10	ND	50.0	109	94.1	15.1	56.8 - 134	30	
Chlorobenzene	1.8	10	ND	50.0	109	91.6	17.0	57.4 - 134	30	
(S) Dibromofluoromethane				50.0	104	85.8		59.8 - 148		
(S) Toluene-d8				50.0	110	92.9		55.2 - 133		
(S) 4-Bromofluorobenzene				50.0	112	94.3		55.8 - 141		

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit/Reporting Limit/Limit of Quantitation (PQL/RL/LOQ) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs/RLs/LODs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg/m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS

B - Indicates when the analyte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Langan

Project Name: VERNON

Work Order No.: 2305067

Date and Time Received: 5/9/2023 10:06:00AM

Received By: Lorna Imbat

Physically Logged By: Lorna Imbat

Checklist Completed By: Lorna Imbat

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes			
Container/Temp Blank temperature in compliance?	Yes	Temperature:	2.0	°C
Water-VOA vials have zero headspace?	No VOA vials submitted			
Water-pH acceptable upon receipt?	N/A			

pH Checked by: N/A

pH Adjusted by: N/A

Comments:

Torrent LABORATORY, INC.

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/9/2023
Report Due Date:	5/23/2023		**Time Received:**	10:06 am

Comments:

Work Order # : ***2305067***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305067-001A	B-3-5	05/05/23 7:57	Soil	11/01/23			Hg_S_7471B Cr6_S_7199Mod Met_S_6010B CAM17 Pest_S_8081OCP	
Sample Note:								
2305067-002A	B-3-10	05/05/23 8:06	Soil	11/01/23			Hold Samples SVO_S_8270CFull VOC_S_8260B	
Sample Note:	VOCs, SVOCs due 5/23							
2305067-003A	B-3-15	05/05/23 8:10	Soil	11/01/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305067-004A	B-3-20	05/05/23 8:17	Soil	11/01/23			Hold Samples	
2305067-005A	B-3-25	05/05/23 8:22	Soil	11/01/23			Hold Samples	
2305067-006A	B-3-30	05/05/23 8:27	Soil	11/01/23			Hold Samples SVO_S_8270CFull VOC_S_8260B	
2305067-007A	B-8-5	05/05/23 9:40	Soil	11/01/23			Hg_S_7471B Cr6_S_7199Mod Met_S_6010B CAM17 Pest_S_8081OCP	
2305067-008A	B-8-10	05/05/23 9:45	Soil	11/01/23			Hold Samples	
2305067-009A	B-8-15	05/05/23 9:49	Soil	11/01/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305067-010A	B-8-20	05/05/23 9:59	Soil	11/01/23			Hold Samples	
2305067-011A	B-8-25	05/05/23 10:05	Soil	11/01/23			Hold Samples	
2305067-012A	B-8-30	05/05/23 10:12	Soil	11/01/23				

Login Summary Report

Client ID:	TL5493	Langan	**QC Level:**	II
Project Name:	VERNON		**TAT Requested:**	3 Day Std:3
Project # :	721040501		**Date Received:**	5/9/2023
Report Due Date:	5/23/2023		**Time Received:**	10:06 am

Comments:

Work Order # : ***2305067***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305067-013A	B-9-5	05/05/23 12:30	Soil	11/01/23			Hold Samples SVO_S_8270CFull VOC_S_8260B Hg_S_7471B Cr6_S_7199Mod Met_S_6010B CAM17	
2305067-014A	B-9-10	05/05/23 12:35	Soil	11/01/23			Hold Samples	
2305067-015A	B-9-15	05/05/23 12:40	Soil	11/01/23			Hold Samples Met_S_6010B CAM17 Cr6_S_7199Mod Hg_S_7471B	
2305067-016A	B-9-20	05/05/23 12:45	Soil	11/01/23			Hold Samples	
2305067-017A	B-9-25	05/05/23 12:48	Soil	11/01/23			Hold Samples	
2305067-018A	B-9-30	05/05/23 12:57	Soil	11/01/23			Hold Samples	
2305067-019A	B-9-35	05/05/23 13:04	Soil	11/01/23			Hold Samples	

Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305069

Company Name: LANGAN ☑ Env. ☐ Non Env.
Address: 515 S. FLOWER ST, SUITE 1060
City: CA State: CA Zip Code: 90071
Telephone: 213 280 9903 Cell:
REPORT TO: N. CUTLER BILL TO:

Project #: 721040501 PO#:
Project Name: VERNON
Comments: HOLD ALL SAMPLES FOR ANALYSIS
SAMPLER: M. CHE
EMAIL: NCUTLER AND MCHE @ LANGAN.COM

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☐ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	8260B VOC	8270 SVOC SIM	CAM 17 6010 B	REMARKS
-011A	NA	B-8-25	5/5/23 1005	Soil	1	Glass	✓	✓	✓	HOLD
-012A		B-8-30	5/5/23 1012	Soil	1	Glass	✓	✓	✓	
~~-013A~~	13	~~B-8-35~~	5/5/23 1022	Soil	1	Glass	✓	✓	✓	
-014A	14	B-9-5	5/5/23 1230	Soil	1	Glass	✓	✓	✓	
-015A	15	B-9-10	5/5/23 1235	Soil	1	Glass	✓	✓	✓	
-016A	16	B-9-15	5/5/23 1240	Soil	1	Glass	✓	✓	✓	
-017A	17	B-9-20	5/5/23 1245	Soil	1	Glass	✓	✓	✓	
-018A	18	B-9-25	5/5/23 1248	Soil	1	Glass	✓	✓	✓	
-019A	19	B-9-30	5/5/23 1257	Soil	1	Glass	✓	✓	✓	
-020A	20	B-9-35	5/5/23 1304	Soil	1	Glass	✓	✓	✓	

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/5/23	1630		L.D. Imbal	5-9-23	1006
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature 2.0 #3 °C Samples Received on ice? Yes ☒ No ☐ Method of Shipment Fed EX

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

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Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

Reset

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 2305067

Company Name: LANGAN ☑ Env. ☐ Non Env.
Address: 515 S. FLOWER St, SUITE 1060
City: LA State: CA Zip Code: 90071
Telephone: 213 280 9903 Cell: –
REPORT TO: N. CUTLER BILL TO:

Project #: 721040501 PO#:
Project Name: VERNON
Comments: HOLD ALL SAMPLES FOR ANALYSIS
SAMPLER: M. CHE
EMAIL: NCUTLER ; MCHE@LANGAN.COM

TURNAROUND TIME:
☐ 2 - 8 Hours ☐ 2 Work Days ☐ 5 Work Days
☐ Noon - Nxt Day ☐ 3 Work Days ☐ 7 Work Days
☐ 1 Work Day ☐ 4 Work Days ☐ 10 Work Days

SAMPLE TYPE:
☐ Drinking Water ☐ Storm Water ☐ Air ☐ Waste Water ☐ Wipe ☐ Ground Water ☐ Other ☐ Soil ☐ Product / Bulk

REPORT FORMAT:
☐ Level II - Std. ☐ DoD/DoE Level III ☐ DoD/DoE Level III ☐ Excel - EDD ☐ EDF ☐ Client Specific EDD

ANALYSIS REQUESTED

LAB ID	CANISTER I.D.	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	VOC 8260B	SVOC 8270 SIM	CAM 17 6010B	REMARKS
-001A	NA	B-3-5	5/5/23 0757	Soil	1	Glass	✓	✓	✓	HOLD
-002A		B-3-10	5/5/23 0806	Soil	1	Glass	✓	✓	✓	
-003A		B-3-15	5/5/23 0810	Soil	1	Glass	✓	✓	✓	
-004A		B-3-20	5/5/23 0817	Soil	1	Glass	✓	✓	✓	
-005A		B-3-25	5/5/23 0822	Soil	1	Glass	✓	✓	✓	
-006A		B-3-30	5/5/23 0827	Soil	1	Glass	✓	✓	✓	
-007A		B-8-5	5/5/23 0940	Soil	1	Glass	✓	✓	✓	
-008A		B-8-10	5/5/23 0945	Soil	1	Glass	✓	✓	✓	
-009A		B-8-15	5/5/23 0949	Soil	1	Glass	✓	✓	✓	
-010A		B-8-20	5/5/23 0959	Soil	1	Glass	✓	✓	✓	

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	Melody Che	MELODY CHE	5/5/23	1630		L-D. Imbat	5-9-23	1006
2	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:

Cooler Temperature 2.0 °C Samples Received on ice? Yes ☒ No ☐ Method of Shipment Fed EX

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made.

Page 5 of 7

Gmail Torrent Laboratory, Inc. <pm@torrentlaboratory.com>

RE: [External] Re: Sample order for PO: 721040501

1 message

Nick Cutler <ncutler@langan.com> Wed, May 10, 2023 at 8:42 PM
To: "Torrent Laboratory, Inc." <pm@torrentlaboratory.com>, Katherine Thomas <kthomas@langan.com>
Cc: "melanie.moran@torrentlaboratory.com" <melanie.moran@torrentlaboratory.com>, Melody Che <mche@langan.com>

Hi Kathie –

Can you please run the analyses on a 3-day TAT per the table below?

Sample ID	Metals 6010B	Pesticides 8081A	PCBs 8082	ACM PLM
B-1-5	1	1		1
B-2-5	1	1	1	
B-3-5	1	1		
B-4-6	1			
B-5-5	1			
B-6-5	1			
B-7-6	1			
B-8-5	1	1		
B-9-5	1			
B-11-5	1	1	1	
B-12-5	1		1	
B-13-5	1		1	

Cordially,
Nick Cutler

483 Sinclair Frontage Rd., Milpitas, CA 95035 | tel: 408.263.5258 | fax: 408.263.8293 | www.torrentlab.com

Langan
135 Main Street, Suite 1500
San Francisco, California 94105
Tel: 415.955.5200

RE: VERNON

Work Order No.: 2305124

Dear Nick Cutler:

Torrent Laboratory, Inc. received 6 sample(s) on May 13, 2023 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.



Kathie Evans
Project Manager

May 22, 2023
Date

Torrent LABORATORY, INC.

Date: 5/22/2023

Client: Langan

Project: VERNON

Work Order: 2305124

CASE NARRATIVE

Unless otherwise indicated in the following narrative, no issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Laboratory, Inc.

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Nick Cutler
Langan

Date Received: 05/13/23
Date Reported: 05/22/23

CS-01 2305124-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

CS-02 2305124-002

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

CS-03 2305124-003

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

CS-04 2305124-004

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

CS-05 2305124-005

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

CS-06 2305124-006

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/13/23, 1152 am
Date Reported: 05/22/23

Client Sample ID:	CS-01	**Lab Sample ID:**	2305124-001A
Project Name/Location:	VERNON	**Sample Matrix:**	Concrete
Project Number:	721040501		
Date/Time Sampled:	05/12/23 / 12:15		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/19/23 9:33:00AM
Prep Batch ID:	1151124	**Prep Analyst:**	SSUTRA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/19/23	11:50	LA	474923
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/19/23	11:50	LA	474923
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/19/23	11:50	LA	474923
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/19/23	11:50	LA	474923
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/19/23	11:50	LA	474923
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/19/23	11:50	LA	474923
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/19/23	11:50	LA	474923
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**57.0**		%	05/19/23	11:50	LA	474923
DCBP (S)	SW8082A		48 - 135		**55.0**		%	05/19/23	11:50	LA	474923

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/13/23, 1152 am
Date Reported: 05/22/23

Client Sample ID:	CS-02	**Lab Sample ID:**	2305124-002A
Project Name/Location:	VERNON	**Sample Matrix:**	Concrete
Project Number:	721040501		
Date/Time Sampled:	05/12/23 / 12:40		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/19/23 9:33:00AM
Prep Batch ID:	1151124	**Prep Analyst:**	SSUTRA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/19/23	12:06	LA	474923
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/19/23	12:06	LA	474923
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/19/23	12:06	LA	474923
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/19/23	12:06	LA	474923
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/19/23	12:06	LA	474923
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/19/23	12:06	LA	474923
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/19/23	12:06	LA	474923
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**66.0**		%	05/19/23	12:06	LA	474923
DCBP (S)	SW8082A		48 - 135		**55.0**		%	05/19/23	12:06	LA	474923

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/13/23, 1152 am
Date Reported: 05/22/23

Client Sample ID:	CS-03	**Lab Sample ID:**	2305124-003A
Project Name/Location:	VERNON	**Sample Matrix:**	Concrete
Project Number:	721040501		
Date/Time Sampled:	05/12/23 / 13:03		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/19/23 9:33:00AM
Prep Batch ID:	1151124	**Prep Analyst:**	SSUTRA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/19/23	12:23	La	474923
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/19/23	12:23	La	474923
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/19/23	12:23	La	474923
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/19/23	12:23	La	474923
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/19/23	12:23	La	474923
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/19/23	12:23	La	474923
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/19/23	12:23	La	474923
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**70.0**		%	05/19/23	12:23	La	474923
DCBP (S)	SW8082A		48 - 135		**64.0**		%	05/19/23	12:23	La	474923

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/13/23, 1152 am
Date Reported: 05/22/23

Client Sample ID:	CS-04	**Lab Sample ID:**	2305124-004A
Project Name/Location:	VERNON	**Sample Matrix:**	Concrete
Project Number:	721040501		
Date/Time Sampled:	05/12/23 / 11:24		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/19/23 9:33:00AM
Prep Batch ID:	1151124	**Prep Analyst:**	SSUTRA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/19/23	12:39	LA	474923
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/19/23	12:39	LA	474923
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/19/23	12:39	LA	474923
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/19/23	12:39	LA	474923
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/19/23	12:39	LA	474923
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/19/23	12:39	LA	474923
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/19/23	12:39	LA	474923
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**65.0**		%	05/19/23	12:39	LA	474923
DCBP (S)	SW8082A		48 - 135		**57.0**		%	05/19/23	12:39	LA	474923

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/13/23, 1152 am
Date Reported: 05/22/23

Client Sample ID:	CS-05	**Lab Sample ID:**	2305124-005A
Project Name/Location:	VERNON	**Sample Matrix:**	Concrete
Project Number:	721040501		
Date/Time Sampled:	05/12/23 / 10:56		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/19/23 9:33:00AM
Prep Batch ID:	1151124	**Prep Analyst:**	SSUTRA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/19/23	13:32	LA	474923
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/19/23	13:32	LA	474923
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/19/23	13:32	LA	474923
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/19/23	13:32	LA	474923
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/19/23	13:32	LA	474923
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/19/23	13:32	LA	474923
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/19/23	13:32	LA	474923
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**73.0**		%	05/19/23	13:32	LA	474923
DCBP (S)	SW8082A		48 - 135		**60.0**		%	05/19/23	13:32	LA	474923

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Nick Cutler
Langan

Date/Time Received: 05/13/23, 1152 am
Date Reported: 05/22/23

Client Sample ID:	CS-06	**Lab Sample ID:**	2305124-006A
Project Name/Location:	VERNON	**Sample Matrix:**	Concrete
Project Number:	721040501		
Date/Time Sampled:	05/12/23 / 13:30		
SDG:			

Prep Method:	3546_PCB	**Prep Batch Date/Time:**	5/19/23 9:33:00AM
Prep Batch ID:	1151124	**Prep Analyst:**	SSUTRA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	05/19/23	13:49	LA	474923
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	05/19/23	13:49	LA	474923
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	05/19/23	13:49	LA	474923
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	05/19/23	13:49	LA	474923
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	05/19/23	13:49	LA	474923
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	05/19/23	13:49	LA	474923
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	05/19/23	13:49	LA	474923
			Acceptance Limits								
TCMX (S)	SW8082A		48 - 125		**55.0**		%	05/19/23	13:49	LA	474923
DCBP (S)	SW8082A		48 - 135		**49.0**		%	05/19/23	13:49	LA	474923

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	2305124	**Prep Method:**	3546_PCB	**Prep Date:**	05/19/23	**Prep Batch:**	1151124
Matrix:	Soil	**Analytical Method:**	SW8082A	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474923
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Aroclor1016	35.0	100	ND	
Aroclor1221	5.00	100	ND	
Aroclor1232	17.0	100	ND	
Aroclor1242	3.00	100	ND	
Aroclor1248	2.00	100	ND	
Aroclor1254	14.0	100	ND	
Aroclor1260	24.0	100	ND	
TCMX (S)			102	
DCBP (S)			83.0	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305124	**Prep Method:**	3546_PCB	**Prep Date:**	05/19/23	**Prep Batch:**	1151124
Matrix:	Soil	**Analytical Method:**	SW8082A	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474923
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aroclor1016	53	100	ND	600	85.3	96.8	12.6	25 - 145	30	
Aroclor1260	36	100	ND	600	78.3	93.5	17.7	30 - 145	30	
TCMX (S)				0.10	82.0	102		48 - 125		
DCBP (S)				0.10	80.0	88.0		48 - 135		

Torrent LABORATORY, INC.

MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2305124	**Prep Method:**	3546_PCB	**Prep Date:**	05/19/23	**Prep Batch:**	1151124
Matrix:	**Soil**	**Analytical Method:**	SW8082A	**Analyzed Date:**	5/19/2023	**Analytical Batch:**	474923
Spiked Sample:	2305124-002A						
Units:	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aroclor1016	53.0	100	ND	600	75.8	61.3	21.1	25 - 145	30	
Aroclor1260	36.0	100	ND	600	64.3	54.2	17.2	30 - 145	30	
TCMX (S)				0.10	71.0	59.0		48 - 125		
DCBP (S)				0.10	65.0	55.0		48 - 135		

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit/Reporting Limit/Limit of Quantitation (PQL/RL/LOQ) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs/RLs/LODs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg/m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS:

B - Indicates when the analyte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Langan

Project Name: VERNON

Work Order No.: 2305124

Date and Time Received: 5/13/2023 11:52:00AM

Received By: Linda

Physically Logged By: Tammy

Checklist Completed By: Nutan Kabir

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes
Container/Temp Blank temperature in compliance?	Temperature: 1.0 °C
Water-VOA vials have zero headspace?	No VOA vials submitted
Water-pH acceptable upon receipt?	N/A

pH Checked by: na

pH Adjusted by: na

Comments:

Torrent LABORATORY, INC.

Login Summary Report

Client ID: TL5493 Langan
Project Name: VERNON
Project # : 721040501
Report Due Date: 5/22/2023

QC Level: II
TAT Requested: 5+ day:5
Date Received: 5/13/2023
Time Received: 11:52 am

Comments:

Work Order # : ***2305124***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
2305124-001A	CS-01	05/12/23 12:15	Soil	11/08/23			PCBs_S_8082A	
2305124-002A	CS-02	05/12/23 12:40	Soil	11/08/23			PCBs_S_8082A	
2305124-003A	CS-03	05/12/23 13:03	Soil	11/08/23			PCBs_S_8082A	
2305124-004A	CS-04	05/12/23 11:24	Soil	11/08/23			PCBs_S_8082A	
2305124-005A	CS-05	05/12/23 10:56	Soil	11/08/23			PCBs_S_8082A	
2305124-006A	CS-06	05/12/23 13:30	Soil	11/08/23			PCBs_S_8082A	

Torrent LABORATORY, INC.

Pace ANALYTICAL SERVICES

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Chain of Custody Form

2305124 Page 1 of 1

Report To:		Project #:	72104501
Client:	LANGAN	Project Name:	VERNON
Attn:	NICK CUTLER	BID#	
Street Address:	515 S. FLOWER ST	Sampler(s) Name Printed:	MELODY CHE
City, State, Zip:	LA, CA, 90071		MELISSIA CHAMBERS
Phone:	213 280 9905 Fax:		
Email:	NCUTLER AND MCHE @ LANGAN.com		
Work Order #:			

Analysis Requested

PCB 8082

Comments:

Sample Matrix: Soil, Sludge, Drinking Water, Ground Water, Waste Water, Other (Concrete)

Result Request **Surcharge: ☐ STD (10 Day) ☑ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
001A	CS-01	5/12/23	1215	✓					✓	
002A	CS-02	5/12/23	1240	✓					✓	
003A	CS-03	5/12/23	1303	✓					✓	
004A	CS-04	5/12/23	1124	✓					✓	
005A	CS-05	5/12/23	1056	✓					✓	
006A	CS-06	5/12/23	1330	✓					✓	

Temp @ -1.3

Billing ☑ Same as above

Client:
Address:
City: State Zip
Attn:
P.O. #:

System # (Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☐ No

Global ID

LINDA ATIENZA

	Relinquished By	Date	Time	Received By	Date	Time
1.	Melody Che	5/11/23	1400		5/13/23	11:52am
2.						
3.						

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

APPENDIX C

(Adopted May 7, 1976) (Amended November 6, 1992)
(Amended July 9, 1993) (Amended February 14, 1997)
(Amended December 11, 1998)(Amended April 2, 2004)
(Amended June 3, 2005)

RULE 403. FUGITIVE DUST

(a) Purpose

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this Rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

(1) ACTIVE OPERATIONS means any source capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, disturbed surface area, or heavy- and light-duty vehicular movement.

(2) AGGREGATE-RELATED PLANTS are defined as facilities that produce and / or mix sand and gravel and crushed stone.

(3) AGRICULTURAL HANDBOOK means the region-specific guidance document that has been approved by the Governing Board or hereafter approved by the Executive Officer and the U.S. EPA. For the South Coast Air Basin, the Board-approved region-specific guidance document is the Rule 403 Agricultural Handbook dated December 1998. For the Coachella Valley, the Board-approved region-specific guidance document is the Rule 403 Coachella Valley Agricultural Handbook dated April 2, 2004.

(4) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook.

(5) BEST AVAILABLE CONTROL MEASURES means fugitive dust control actions that are set forth in Table 1 of this Rule.

(6) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.

(7) CEMENT MANUFACTURING FACILITY is any facility that has a cement kiln at the facility.

(8) CHEMICAL STABILIZERS are any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation. The chemical stabilizers shall meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(9) COMMERCIAL POULTRY RANCH means any building, structure, enclosure, or premises where more than 100 fowl are kept or maintained for the primary purpose of producing eggs or meat for sale or other distribution.

(10) CONFINED ANIMAL FACILITY means a source or group of sources of air pollution at an agricultural source for the raising of 3,360 or more fowl or 50 or more animals, including but not limited to, any structure, building, installation, farm, corral, coop, feed storage area, milking parlor, or system for the collection, storage, or distribution of solid and liquid manure; if domesticated animals, including horses, sheep, goats, swine, beef cattle, rabbits, chickens, turkeys, or ducks are corralled, penned, or otherwise caused to remain in restricted areas for commercial agricultural purposes and feeding is by means other than grazing.

(11) CONSTRUCTION/DEMOLITION ACTIVITIES means any on-site mechanical activities conducted in preparation of, or related to, the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities: grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

(12) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.

(13) DAIRY FARM is an operation on a property, or set of properties that are contiguous or separated only by a public right-of-way, that raises cows or

produces milk from cows for the purpose of making a profit or for a livelihood. Heifer and calf farms are dairy farms.

(14) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:

(A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

(B) been paved or otherwise covered by a permanent structure; or

(C) sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.

(15) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(16) EARTH-MOVING ACTIVITIES means the use of any equipment for any activity where soil is being moved or uncovered, and shall include, but not be limited to the following: grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, weed abatement through disking, and soil mulching.

(17) DUST CONTROL SUPERVISOR means a person with the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements at an active operation.

(18) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person.

(19) HIGH WIND CONDITIONS means that instantaneous wind speeds exceed 25 miles per hour.

(20) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of 20 consecutive days.

(21) LARGE OPERATIONS means any active operations on property which contains 50 or more acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic

meters (5,000 cubic yards) or more three times during the most recent 365-day period.

(22) OPEN STORAGE PILE is any accumulation of bulk material, which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet.

(23) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.

(24) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.

(25) PM_{10} means particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.

(26) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.

(27) RULE 403 IMPLEMENTATION HANDBOOK means a guidance document that has been approved by the Governing Board on April 2, 2004 or hereafter approved by the Executive Officer and the U.S. EPA.

(28) SERVICE ROADS are paved or unpaved roads that are used by one or more public agencies for inspection or maintenance of infrastructure and which are not typically used for construction-related activity.

(29) SIMULTANEOUS SAMPLING means the operation of two PM_{10} samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.

(30) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange

County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

(31) STABILIZED SURFACE means any previously disturbed surface area or open storage pile which, through the application of dust suppressants, shows visual or other evidence of surface crusting and is resistant to wind-driven fugitive dust and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the Rule 403 Implementation Handbook.

(32) TRACK-OUT means any bulk material that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that have been released onto a paved road and can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(33) TYPICAL ROADWAY MATERIALS means concrete, asphaltic concrete, recycled asphalt, asphalt, or any other material of equivalent performance as determined by the Executive Officer, and the U.S. EPA.

(34) UNPAVED ROADS means any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by federal, state, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.

(35) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(36) WIND-DRIVEN FUGITIVE DUST means visible emissions from any disturbed surface area which is generated by wind action alone.

(37) WIND GUST is the maximum instantaneous wind speed as measured by an anemometer.

(d) Requirements

(1) No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that:

(A) the dust remains visible in the atmosphere beyond the property line of the emission source; or

(B) the dust emission exceeds 20 percent opacity (as determined by the appropriate test method included in the Rule 403 Implementation Handbook), if the dust emission is the result of movement of a motorized vehicle.

(2) No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of this Rule to minimize fugitive dust emissions from each fugitive dust source type within the active operation.

(3) No person shall cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. If sampling is conducted, samplers shall be:

(A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM_{10}.

(B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.

(4) No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.

(5) No person shall conduct an active operation with a disturbed surface area of five or more acres, or with a daily import or export of 100 cubic yards or more of bulk material without utilizing at least one of the measures listed in subparagraphs (d)(5)(A) through (d)(5)(E) at each vehicle egress from the site to a paved public road.

(A) Install a pad consisting of washed gravel (minimum-size: one inch) maintained in a clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long.

(B) Pave the surface extending at least 100 feet and at least 20 feet wide.

(C) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipe, or grates) at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

(D) Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.

(E) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the actions specified in subparagraphs (d)(5)(A) through (d)(5)(D).

(6) Beginning January 1, 2006, any person who operates or authorizes the operation of a confined animal facility subject to this Rule shall implement the applicable conservation management practices specified in Table 4 of this Rule.

(e) Additional Requirements for Large Operations

(1) Any person who conducts or authorizes the conducting of a large operation subject to this Rule shall implement the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards can not be met through use of Table 2 actions; and shall:

(A) submit a fully executed Large Operation Notification (Form 403 N) to the Executive Officer within 7 days of qualifying as a large operation;

(B) include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;

(C) maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;

(D) install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;

(E) identify a dust control supervisor that:

(i) is employed by or contracted with the property owner or developer;

(ii) is on the site or available on-site within 30 minutes during working hours;

(iii) has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements;

(iv) has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and

(F) notify the Executive Officer in writing within 30 days after the site no longer qualifies as a large operation as defined by paragraph (c)(18).

(2) Any Large Operation Notification submitted to the Executive Officer or AQMD-approved dust control plan shall be valid for a period of one year from the date of written acceptance by the Executive Officer. Any Large Operation Notification accepted pursuant to paragraph (e)(1), excluding those submitted by aggregate-related plants and cement manufacturing facilities must be resubmitted annually by the person who conducts or authorizes the conducting of a large operation, at least 30 days prior to the expiration date, or the submittal shall no longer be valid as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously accepted submittal or in an AQMD-approved dust control plan, the resubmittal may be a simple statement of no-change (Form 403NC).

(f) Compliance Schedule

The newly amended provisions of this Rule shall become effective upon adoption. Pursuant to subdivision (e), any existing site that qualifies as a large operation will have 60 days from the date of Rule adoption to comply with the notification and recordkeeping requirements for large operations. Any Large Operation

Notification or AQMD-approved dust control plan which has been accepted prior to the date of adoption of these amendments shall remain in effect and the Large Operation Notification or AQMD-approved dust control plan annual resubmittal date shall be one year from adoption of this Rule amendment.

(g) Exemptions

(1) The provisions of this Rule shall not apply to:

(A) Dairy farms.

(B) Confined animal facilities provided that the combined disturbed surface area within one continuous property line is one acre or less.

(C) Agricultural vegetative crop operations provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.

(D) Agricultural vegetative crop operations within the South Coast Air Basin, whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:

(i) voluntarily implements the conservation management practices contained in the Rule 403 Agricultural Handbook;

(ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Agricultural Handbook; and

(iii) makes the completed self-monitoring form available to the Executive Officer upon request.

(E) Agricultural vegetative crop operations outside the South Coast Air Basin whose combined disturbed surface area includes more than 10 acres provided that the person responsible for such operations:

(i) voluntarily implements the conservation management practices contained in the Rule 403 Coachella Valley Agricultural Handbook; and

(ii) completes and maintains the self-monitoring form documenting sufficient conservation management practices, as described in the Rule 403 Coachella Valley Agricultural Handbook; and

(iii) makes the completed self-monitoring form available to the Executive Officer upon request.

(F) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.

(G) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.

(H) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.

(I) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.

(J) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:

(i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; and

(ii) any discing or similar operation which cuts into and disturbs the soil, where watering is used prior to initiation of these activities, and a determination is made by the agency issuing the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (g)(1)(H)(i). The provisions this clause shall not exempt the owner of any property from stabilizing, in accordance with paragraph (d)(2), disturbed surface areas which have been created as a result of the weed abatement actions.

(K) sandblasting operations.

(2) The provisions of paragraphs (d)(1) and (d)(3) shall not apply:

(A) When wind gusts exceed 25 miles per hour, provided that:

(i) The required Table 3 contingency measures in this Rule are implemented for each applicable fugitive dust source type, and;

(ii) records are maintained in accordance with subparagraph (e)(1)(C).

(B) To unpaved roads, provided such roads:

(i) are used solely for the maintenance of wind-generating equipment; or

(ii) are unpaved public alleys as defined in Rule 1186; or

(iii) are service roads that meet all of the following criteria:

(a) are less than 50 feet in width at all points along the road;

(b) are within 25 feet of the property line; and

(c) have a traffic volume less than 20 vehicle-trips per day.

(C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act, as determined in writing by the State or federal agency responsible for making such determinations.

(3) The provisions of (d)(2) shall not apply to any aggregate-related plant or cement manufacturing facility that implements the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards of paragraphs (d)(1) and (d)(3) can not be met through use of Table 2 actions.

(4) The provisions of paragraphs (d)(1), (d)(2), and (d)(3) shall not apply to:

(A) Blasting operations which have been permitted by the California Division of Industrial Safety; and

(B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.

(5) The provisions of paragraph (d)(3) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for

each applicable fugitive dust source type. To qualify for this exemption, a person must maintain records in accordance with subparagraph (e)(1)(C).

(6) The provisions of paragraph (d)(4) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles provided that such roadway is closed to through traffic and visible roadway dust is removed within one day following the cessation of activities.

(7) The provisions of subdivision (e) shall not apply to:

(A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks.

(B) any large operation which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance.

(C) any large operation subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.

(8) The provisions of subparagraph (e)(1)(A) through (e)(1)(C) shall not apply to any large operation with an AQMD-approved fugitive dust control plan provided that there is no change to the sources and controls as identified in the AQMD-approved fugitive dust control plan.

(h) Fees

Any person conducting active operations for which the Executive Officer conducts upwind/downwind monitoring for PM_{10} pursuant to paragraph (d)(3) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(3) or meets the requirements of paragraph (d)(3).

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	✓ Mix backfill soil with water prior to moving ✓ Dedicate water truck or high capacity hose to backfilling equipment ✓ Empty loader bucket slowly so that no dust plumes are generated ✓ Minimize drop height from loader bucket
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	✓ Maintain live perennial vegetation where possible ✓ Apply water in sufficient quantity to prevent generation of dust plumes
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	✓ Use of high pressure air to clear forms may cause exceedance of Rule requirements
Crushing	04-1 Stabilize surface soils prior to operation of support equipment; and 04-2 Stabilize material after crushing.	✓ Follow permit conditions for crushing equipment ✓ Pre-water material prior to loading into crusher ✓ Monitor crusher emissions opacity ✓ Apply water to crushed material to prevent dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Cut and fill	05-1 Pre-water soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	✓ For large sites, pre-water with sprinklers or water trucks and allow time for penetration ✓ Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts
Demolition – mechanical/manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles will operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	✓ Apply water in sufficient quantities to prevent the generation of visible dust plumes
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures	✓ Limit vehicular traffic and disturbances on soils where possible ✓ If interior block walls are planned, install as early as possible ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes
Earth-moving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth-moving activities are complete.	✓ Grade each project phase separately, timed to coincide with construction phase ✓ Upwind fencing can prevent material movement on site ✓ Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Importing/exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	✓ Use tarps or other suitable enclosures on haul trucks ✓ Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage ✓ Comply with track-out prevention/mitigation requirements ✓ Provide water while loading and unloading to reduce visible dust plumes
Landscaping	10-1 Stabilize soils, materials, slopes	✓ Apply water to materials to stabilize ✓ Maintain materials in a crusted condition ✓ Maintain effective cover over materials ✓ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes ✓ Hydroseed prior to rain season
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	✓ Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs ✓ Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plume length standards; and 12-3 Stabilize material immediately after screening.	✓ Dedicate water truck or high capacity hose to screening operation ✓ Drop material through the screen slowly and minimize drop height ✓ Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	✓ Limit size of staging area ✓ Limit vehicle speeds to 15 miles per hour ✓ Limit number and size of staging area entrances/exists
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	✓ Add or remove material from the downwind portion of the storage pile ✓ Maintain storage piles to avoid steep sides or faces

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure	Guidance
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	✓ Apply gravel/paving to all haul routes as soon as possible to all future roadway areas ✓ Barriers can be used to ensure vehicles are only used on established parking areas/haul routes
Trenching	16-1 Stabilize surface soils where trencher or excavator and support equipment will operate; and 16-2 Stabilize soils at the completion of trenching activities.	✓ Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching ✓ Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment
Truck loading	17-1 Pre-water material prior to loading; and 17-2 Ensure that freeboard exceeds six inches (CVC 23114)	✓ Empty loader bucket such that no visible dust plumes are created ✓ Ensure that the loader bucket is close to the truck to minimize drop height while loading
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	✓ Haul waste material immediately off-site

TABLE 1
BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measure		Guidance
Unpaved roads/parking lots	19-1	Stabilize soils to meet the applicable performance standards; and	✓ Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
	19-2	Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	
Vacant land	20-1	In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

Table 2
DUST CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

TABLE 3
CONTINGENCY CONTROL MEASURES FOR LARGE OPERATIONS

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

Table 4
(Conservation Management Practices for Confined Animal Facilities)

SOURCE CATEGORY	CONSERVATION MANAGEMENT PRACTICES
Manure Handling **(Only applicable to Commercial Poultry Ranches)**	(1a) Cover manure prior to removing material off-site; AND (1b) Spread the manure before 11:00 AM and when wind conditions are less than 25 miles per hour; AND (1c) Utilize coning and drying manure management by removing manure at laying hen houses at least twice per year and maintain a base of no less than 6 inches of dry manure after clean out; or in lieu of complying with conservation management practice (1c), comply with conservation management practice (1d). (1d) Utilize frequent manure removal by removing the manure from laying hen houses at least every seven days and immediately thin bed dry the material.
Feedstock Handling	(2a) Utilize a sock or boot on the feed truck auger when filling feed storage bins.
Disturbed Surfaces	(3a) Maintain at least 70 percent vegetative cover on vacant portions of the facility; OR (3b) Utilize conservation tillage practices to manage the amount, orientation and distribution of crop and other plant residues on the soil surface year-round, while growing crops (if applicable) in narrow slots or tilled strips; OR (3c) Apply dust suppressants in sufficient concentrations and frequencies to maintain a stabilized surface.
Unpaved Roads	(4a) Restrict access to private unpaved roads either through signage or physical access restrictions and control vehicular speeds to no more than 15 miles per hour through worker notifications, signage, or any other necessary means; OR (4b) Cover frequently traveled unpaved roads with low silt content material (i.e., asphalt, concrete, recycled road base, or gravel to a minimum depth of four inches); OR (4c) Treat unpaved roads with water, mulch, chemical dust suppressants or other cover to maintain a stabilized surface.
Equipment Parking Areas	(5a) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR (5b) Apply material with low silt content (i.e., asphalt, concrete, recycled road base, or gravel to a depth of four inches).

(Adopted July 7, 2017)(Amended December 1, 2017)(Amended June 4, 2021)

RULE 1466. CONTROL OF PARTICULATE EMISSIONS FROM SOILS WITH TOXIC AIR CONTAMINANTS

(a) Purpose

The purpose of this rule is to minimize the amount of off-site fugitive dust emissions containing toxic air contaminants by reducing particulate emissions in the ambient air as a result of earth-moving activities, including, dredging, excavating, grading, earth-cutting and filling, loading, unloading, handling, mechanized land clearing, treating, stockpiling, transferring, and removing of soil that contains applicable toxic air contaminants, from sites that meet the applicability requirements of subdivision (b).

(b) Applicability

(1) This rule shall apply to any owner or operator conducting earth-moving activities of soil with applicable toxic air contaminant(s) as defined in paragraph (c)(16) that have been identified as contaminant(s) of concern at a site that has been designated and notified by:

(A) The U.S. Environmental Protection Agency (U.S. EPA) as a Superfund National Priorities List site;

(B) The California Department of Toxic Substances Control (DTSC) as a Brownfield or Cleanup Program site;

(C) The State Water Resources Control Board (State Water Board) or Regional Water Quality Control Board (Regional Water Board) as a Site Cleanup Program site;

(D) A county, local, or state regulatory agency as a Hazardous Material Release site, as defined in California Health and Safety Code Section 25260; or

(E) The Executive Officer pursuant to subdivision (i).

(2) This rule shall not apply to:

(A) Earth-moving activities of soil with applicable toxic air contaminant(s) of less than 50 cubic yards; or

(B) Removal of soil for sampling purposes.

(c) Definitions

(1) ADEQUATELY WET means the condition of being sufficiently mixed or penetrated with water to prevent the release of particulates or visible emissions. The process by which an adequately wet condition is achieved is by using a dispenser

or water hose with a nozzle that permits the use of a fine, low-pressure spray or mist.

(c) (2) ADJACENT ATHLETIC AREA means any outdoor athletic field or park where youth organized sports occur that is in physical contact or separated solely by a public roadway or other public right-of-way to a SCHOOL.

(3) ADJOINING means in physical contact with or separated solely by a public roadway or other public right-of-way.

(4) CHEMICAL STABILIZERS means any non-toxic chemicals that are used to bind soil together to control FUGITIVE DUST emissions.

(5) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for FUGITIVE DUST. This definition excludes those areas which have:

(A) Been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

(B) Been paved or otherwise covered by a permanent structure; or

(C) Sustained a vegetative ground cover of at least 70 percent of the native cover for a particular area for at least 30 days.

(6) DUST SUPPRESSANTS means water or hygroscopic materials, other than CHEMICAL STABILIZERS, that are used as a treatment material to reduce FUGITIVE DUST emissions.

(7) EARTH-MOVING ACTIVITIES means, for the purpose of this rule, any activity on a site that meets the applicability requirements of subdivision (b) where SOIL WITH APPLICABLE TOXIC AIR CONTAMINANT(S) is being moved or uncovered, including: dredging, excavating, grading, earth-cutting and filling operations, loading, unloading, handling, mechanized land clearing, treating, transferring, removing, and adding to or removing from STOCKPILES, and vehicular movement of equipment associated with these activities. EARTH-MOVING ACTIVITIES do not include vehicular movement from: delivery vehicles, passenger vehicles transporting personnel to and from the site, vehicles used for administrative purposes, vehicles transporting personnel for the purposes of soil sampling and conducting ambient PM_{10} monitoring requirements, watering trucks, and equipment used exclusively on a portion(s) of the site where there is no SOIL WITH APPLICABLE TOXIC AIR CONTAMINANT(S).

(c) (8) FUGITIVE DUST means, for the purpose of this rule, any solid particulate matter that is in contact with ambient air and has the potential to become airborne, other than solid particulate matter that is emitted from an exhaust stack.

(9) JOINT USE AGREEMENT PROPERTY means a shared public facility in which a formal agreement exists between a SCHOOL and another government entity setting forth the terms and conditions for shared use.

(10) OWNER OR OPERATOR means any firm, business establishment, association, partnership, corporation or individual, whether acting as principal, agent, employee, contractor, or other capacity.

(11) PAVED ROAD means a public or private improved street, highway, alley, public way, or easement that is covered by typical roadway materials, but excludes access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal, or any other governmental or quasi-governmental agencies. Private paved roads are any PAVED ROADS not defined as public.

(12) PROPERTY LINE means the boundary of an area where a person has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.

(13) SCHOOL means any public or private education center, including juvenile detention facilities with classrooms, used for the education of more than 12 children at the education center in kindergarten through grade 12. A SCHOOL also includes an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as preschools, Early Head Starts, Head Start, First Five, and Child Development Centers. A SCHOOL does not include any private education center in which education is primarily conducted in private homes. A SCHOOL includes any building or structure, playground, athletic field, or other area of school property.

(14) SLAG means, for the purpose of this rule, the by-product material that is separated from metals during smelting or refining of ore.

(15) SOIL means dirt, sand, gravel, clay, SLAG, and aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.

(16) SOIL WITH APPLICABLE TOXIC AIR CONTAMINANT(S) means, for the purpose of this rule, SOIL that has been identified by the U.S. EPA, the DTSC, the

State Water Board, the Regional Water Board, or a county, local, or state regulatory agency, to contain one or more of the applicable toxic air contaminants listed in Table I that exceed action levels as specified by the designating agency, or soil that has been identified by the Executive Officer to contain one or more of the toxic air contaminants listed in Rule 1401 – New Source Review of Toxic Air Contaminants (Table I) or Hazardous Air Pollutants Identified as Toxic Air Contaminants as listed in California Code of Regulations Section 93001, excluding volatile organic compounds regulated under Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil.

(c) (17) STABILIZED SURFACE means any previously DISTURBED SURFACE AREA or STOCKPILE, which through the application of CHEMICAL STABILIZERS or DUST SUPPRESSANTS, shows visual or other evidence of surface crusting and is resistant to WIND-DRIVEN FUGITIVE DUST, and is demonstrated to be stabilized. Stabilization can be demonstrated by one or more of the applicable test methods contained in the most current version of the South Coast AQMD *Rule 403 Fugitive Dust Implementation Handbook* or in Volumes I and II of South Coast AQMD's *Dust Control in the Coachella Valley*.

(18) STOCKPILE means any accumulation of SOIL, which is not fully enclosed and which attains a height of three feet or more and a total surface area of 150 square feet or more.

(19) TRACK-OUT means, for the purpose of this rule, any SOIL that adheres to and agglomerates on the exterior surface of motor vehicles, haul trucks, and equipment (including tires) that has been released onto a PAVED ROAD and that can be removed by a vacuum sweeper under normal operating conditions.

(20) WIND-DRIVEN FUGITIVE DUST means visible emissions from any DISTURBED SURFACE AREA, which is generated by wind action alone.

(d) Monitoring Requirements

(1) When on-site earth-moving activities occur, the owner or operator shall conduct continuous direct-reading near real-time ambient monitoring of PM_{10} concentrations pursuant to paragraph (d)(3).

(2) If the PM_{10} concentration exceeds 25 micrograms per cubic meter, as measured pursuant to paragraph (d)(3) and as determined pursuant to paragraph (d)(9), the owner or operator shall cease on-site earth-moving activities, apply dust suppressant to fugitive dust sources, or implement other dust control measures as

necessary until the PM_{10} concentration is equal to or less than 25 micrograms per cubic meter averaged over 30 minutes.

(d) (3) The owner or operator conducting on-site earth-moving activities shall install PM_{10} monitors and conduct ambient PM_{10} monitoring:

(A) In accordance with a U.S. EPA-approved equivalent method for PM_{10} monitoring or using a Rule 1466 Approved PM_{10} Monitor;

(B) Using a minimum of two monitors, placing each monitor as close to the property line as feasible, where:

(i) One or more monitors is in the seasonal prevailing wind direction upwind of the area(s) of on-site earth-moving activity, indicative of background PM_{10} levels, and not generally influenced by fugitive dust sources from the site; and

(ii) One or more monitors is in the seasonal prevailing wind direction downwind of the area(s) of on-site earth-moving activity;

(C) Using PM_{10} monitors that are identical in: make and model, settings, and configuration; and

(D) Using ambient PM_{10} monitors that are operated, maintained, and calibrated in accordance with appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent methods for PM_{10} and manufacturer's instructions.

(4) On and before December 31, 2021, the owner or operator shall collect ambient PM_{10} data with a data acquisition system (DAS) that is capable of logging direct-reading near real-time data providing the date, time, and PM_{10} concentration in micrograms per cubic meter every 10 minutes or less.

(5) On and after January 1, 2022, the owner or operator shall collect ambient PM_{10} data with a DAS that is capable of logging direct-reading near real-time data providing the date and time, calibrated to Pacific Standard Time (PST), and PM_{10} concentration in micrograms per cubic meter every 1 minute or less.

(6) On and after January 1, 2022, the owner or operator shall operate PM_{10} monitors with the heated sampler inlet on.

(7) On and after January 1, 2022, prior to conducting any on-site earth-moving activities, and weekly thereafter, the owner operator shall conduct intra-instrument precision tests with the PM_{10} monitors in accordance with *Appendix 2 – Procedures to Demonstrate Intra-Instrument Precision*, or make available documentation and supporting data certifying that such intra-instrument precision tests were run by an

equipment rental company or other third party, that demonstrate an intra-instrument precision of:

(d) (7) (A) No more than 25 percent as calculated pursuant to Step 7a in *Appendix 2* when ambient PM_{10} concentrations are equal to or greater than 15 micrograms per cubic meter; or

(B) No more than 5 micrograms per cubic meter as calculated pursuant to Step 7b in *Appendix 2* when ambient PM_{10} concentrations are less than 15 micrograms per cubic meter.

(8) On and after January 1, 2022, each day prior to conducting on-site earth-moving activities, the owner or operator shall conduct a passing zero check on each PM_{10} monitor in accordance with:

(A) Steps 4 and 5 of *Appendix 2* that demonstrates an average PM_{10} concentration of 0 ± 3 micrograms per cubic meter; or

(B) Manufacturer's instructions if a monitor is operated using an auto-zero check procedure that directs filtered particle-free air into the measurement chamber.

(9) The owner or operator shall calculate the PM_{10} concentration as a 120-minute rolling average, where:

(A) The initial average starts at the commencement of on-site earth-moving activities and ends 120 minutes after the commencement of on-site earth-moving activities;

(B) On and before December 31, 2021, the averages subsequent to the initial average specified in subparagraph (d)(9)(A) are to be calculated every 10 minutes and cover the previous 120-minute period;

(C) On and after January 1, 2022, the averages subsequent to the initial average specified in subparagraph (d)(9)(A) are to be calculated every 1 minute and cover the previous 120-minute period;

(D) The PM_{10} concentration is calculated by subtracting the results of the upwind monitor(s) from the downwind monitor(s) for the same averaging period;

(i) If the wind direction is in the seasonal prevailing wind direction, then the monitor(s) described pursuant to clause (d)(3)(B)(i) shall be designated as the upwind monitor(s) and the monitor(s) described pursuant to clause (d)(3)(B)(ii) shall be designated as the downwind monitor(s); and

(d) (9) (D) (ii) If there is greater than a ± 90 degree change in wind direction from the seasonal prevailing wind direction, then the monitor(s) described pursuant to clause (d)(3)(B)(i) shall be designated as the downwind monitor(s) and the monitor(s) described pursuant to clause (d)(3)(B)(ii) shall be designated as the upwind monitor(s);

(E) If there is more than one upwind monitor, the upwind result is the average concentration of all upwind monitors for the same rolling averaging period;

(F) If there is more than one downwind monitor, the downwind result is the maximum concentration of any of the downwind monitors for the same rolling averaging period;

(G) On and before December 31, 2021, when on-site earth-moving activities resume after ceasing pursuant to paragraph (d)(2), the average shall start when on-site earth-moving activities resume and shall end 120 minutes after on-site earth-moving activities resume, and the subsequent averages are to be calculated every 10 minutes and shall cover the previous 120-minute period; and

(H) On and after January 1, 2022, when on-site earth-moving activities resume after ceasing pursuant to paragraph (d)(2), the average shall start when on-site earth-moving activities resume and shall end 120 minutes after on-site earth-moving activities resume, and the subsequent averages are to be calculated every one minute and shall cover the previous 120-minute period.

(10) An owner or operator that elects to move the monitors accordingly when there is a change in wind direction in place of meeting the requirements specified in clauses (d)(3)(B)(i), (d)(3)(B)(ii), (d)(9)(D)(i), and (d)(9)(D)(ii), shall:

(A) Place a minimum of one upwind monitor in the upwind direction of the area(s) of on-site earth-moving activity, indicative of background PM_{10} levels, and not generally influenced by fugitive dust sources from the site;

(B) Place a minimum of one downwind monitor in the downwind direction of the area(s) of on-site earth-moving activity; and

(C) Move the monitor(s) in subparagraph (d)(10)(A) to the new upwind location and the monitor(s) in subparagraph (d)(10)(B) to the new downwind location when there is a change in wind direction.

(11) In the event that a DAS fails to log ambient PM_{10} data pursuant to paragraph (d)(5) or that the data management system integrated with the PM_{10} monitor(s) and

DAS(s) fails to calculate PM_{10} concentrations pursuant to subparagraph (d)(9)(C) due to a technical issue beyond the reasonable control of an owner or operator, including, but not limited to, internet connection disruptions and computer malfunctions, the owner or operator shall:

(d) (11) (A) Restore the DAS or data management system to working condition as soon as practicable and no later than the start of the next working day; and

(B) Manually record the PM_{10} concentration from the monitor(s) associated with the non-operational DAS once every 10 minutes or less and calculate the PM_{10} concentration pursuant to the averages specified in subparagraph (d)(9)(B) until the DAS is restored or calculate the PM_{10} concentration pursuant to the averages specified in subparagraph (d)(9)(B) until the data management system is restored.

(12) When conducting ambient PM_{10} monitoring as required in paragraph (d)(1), the owner or operator shall monitor wind direction and speed using a minimum of one stationary anemometer or wind sensor that:

(A) Is sited over open, level terrain within the project site with minimal obstructions to the wind flow at a minimum height of eight feet above grade;

(B) Meets the performance criteria of:

(i) Wind direction accuracy of ± 7 degrees and resolution of 1 degree; and

(ii) Wind speed accuracy of 2 miles per hour (mph) or ± 5 percent of the observed wind speed, whichever is greater, and resolution of 1 mph;

(C) Has a National Institute of Standards and Technology (NIST) Traceability certification;

(D) Is equipped with a data logger that records wind direction and speed data once every 1 minute or less and archives the recorded wind direction and speed data, including the date and time, calibrated to PST; and

(E) Is operated, calibrated, and maintained in accordance with manufacturer's specifications, but no less frequent than once every 6 months of cumulative operation.

(13) The Executive Officer may approve a PM_{10} monitor to be added as a Rule 1466 Approved PM_{10} Monitor if the PM_{10} monitor meets the specifications listed in *Appendix 1 – Rule 1466 Approved PM_{10} Monitors*. The request for a PM_{10} monitor to be added as a Rule 1466 Approved PM_{10} Monitor shall:

(A) Be submitted to Rule1466ApprovedMonitors@aqmd.gov;

(d) (13) (B) Include a description of the PM_{10} monitor, any accessories, and all monitor specifications; and

(C) Include documentation demonstrating compliance with each specification listed in *Appendix 1*.

(e) Requirements to Minimize Fugitive Dust Emissions

(1) On and before December 31, 2021, an owner or operator shall not conduct on-site earth-moving activities unless the area is surrounded with fencing that is a minimum of 6 feet tall and at least as tall as the height of the tallest stockpile, with a windscreen that has a porosity of 50 ± 5 percent. A section of the perimeter surrounding an on-site earth-moving activity area may be excluded from this requirement if that section:

(A) Has a solid physical barrier, such as a solid wall or other solid feature that minimizes air flow, that is a minimum of 6 feet tall but at least 6 inches taller than the height of the tallest stockpile; or

(B) Does not have on-site earth-moving activity occurring within 300 feet from the perimeter of that section.

(2) On and after January 1, 2022, an owner or operator shall not conduct on-site earth-moving activities unless the area is surrounded with fencing that is a minimum of 6 feet tall but at least 6 inches taller than the height of the tallest stockpile, with a windscreen that has a porosity of 50 ± 5 percent or a mesh windscreen that has a shade value or opacity of 85 ± 5 percent. A section of the perimeter surrounding an on-site earth-moving activity area may be excluded from this requirement if that section meets the conditions as specified in subparagraph (e)(1)(A) or (e)(1)(B).

(3) An owner or operator conducting on-site earth-moving activities shall:

(A) Adequately wet to the depth of earth-moving activity and allow time for penetration; and

(B) Adequately wet at frequencies to prevent the generation of visible dust plumes.

(4) An owner or operator that is moving vehicles on, within, or off a site shall:

(A) Post signs at all entrances of the site to designate the speed limit as 15 mph;

(B) Stabilize the surface of all vehicular traffic and parking areas by applying gravel, paving, chemical stabilizers pursuant to paragraph (e)(13), or dust suppressant;

(C) Not allow any track-out outside of the property line that is 25 feet or more in cumulative length. Remove any track-out at a minimum frequency of

once each day using a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles;

(e) (4) (D) Clean the soil from the exterior of trucks, trailers, and tires prior to the truck leaving the site, without the use of forced air; and

(E) Utilize at least one of the following measures at each vehicle egress from the site to a public road:

(i) Install a pad consisting of washed gravel (minimum-size: 1 inch), maintained in a clean condition, to a depth of at least 6 inches and extending at least 30 feet wide and at least 50 feet long;

(ii) Pave the surface extending at least 100 feet from the property line and at least 30 feet wide;

(iii) Utilize a wheel shaker/wheel spreading device consisting of raised dividers (rails, pipes, or grates) at least 24 feet long and 30 feet wide; or

(iv) Install and utilize a wheel washing system to remove soil from tires and vehicle undercarriages.

(5) An owner or operator conducting on-site earth-moving activities shall ensure that stockpiles with any soil with applicable toxic air contaminant(s) be:

(A) Segregated from non-contaminated stockpiles;

(B) Labelled with "South Coast AQMD Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminant(s) Applicable Soil";

(C) Maintained to avoid steep sides or faces that exceed the angle of repose;

(D) No more than 400 cubic yards of soil;

(E) Maintained to minimize fugitive dust emissions containing toxic air contaminants by applying chemical stabilizers pursuant to paragraph (e)(13), applying dust suppressant, or completely covering pursuant to paragraph (e)(14); and

(F) Either chemically stabilized pursuant to paragraph (e)(13) and/or completely covered pursuant to paragraph (e)(14) at all times when earth-moving activities and ambient PM_{10} monitoring are not occurring.

(6) An owner or operator conducting truck and trailer loading activities of soil containing applicable toxic air contaminant(s) shall:

(A) Apply dust suppressant to material prior to loading;

(B) Empty the loader bucket slowly so that no visible dust plumes are generated;

(e) (6) (C) Minimize the drop height from the loader bucket;

(D) Maintain at least 6 inches of space between the soil and the top of the truck bed and trailer while transporting within a site; and

(E) Completely cover the truck bed and trailer prior to leaving the site.

(7) An owner or operator conducting truck and trailer unloading activities of soil containing applicable toxic air contaminant(s) shall:

(A) Apply dust suppressant to material prior to unloading; and

(B) Empty the trailer slowly so that no visible dust plumes are generated.

(8) The owner or operator shall immediately remove any spilled soil.

(9) The owner or operator shall cease on-site earth-moving activities if the wind speed is greater than 15 mph averaged over a 15-minute period or the instantaneous wind speed exceeds 25 mph.

(10) During on-site earth-moving activities, the owner or operator shall have an on-site dust control supervisor that:

(A) Is employed by or contracted with the owner or operator;

(B) Is located on the site during working hours;

(C) Is in a position to expeditiously employ sufficient dust control measures to ensure compliance with all rule requirements;

(D) Has completed the South Coast AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and

(E) Has the following credentials, if asbestos is an applicable toxic air contaminant:

(i) Successfully completed the Asbestos Abatement Contractor/Supervisor course pursuant to the Asbestos Hazard Emergency Response Act (AHERA), and obtained and maintained accreditation as an AHERA Asbestos Abatement Contractor/Supervisor; and

(ii) Trained on the provisions of 40 CFR Part 61.145, 61.146, 61.147 and 61.152 (Asbestos NESHAP provisions) and Part 763, and has the means to comply with these provisions.

(11) An owner or operator shall apply a chemical stabilizer pursuant to paragraph (e)(13) and/or use a cover pursuant to paragraph (e)(14) on potential sources of fugitive dust when earth-moving activities are not occurring in the specific location(s) containing the potential source(s) of fugitive dust.

(e) (12) An owner or operator shall inspect daily, including days when no on-site earth-moving activities are occurring, labeled stockpiles pursuant to subparagraph (e)(5)(B) and stabilized or covered stockpiles pursuant to (e)(5)(F).

(A) For a stabilized stockpile, such inspections shall include a demonstration of stabilization by one or more of the applicable test methods contained in the most current version of the South Coast AQMD *Rule 403 Fugitive Dust Implementation Handbook* or Volumes I and II of South Coast AQMD's *Dust Control in the Coachella Valley*.

(B) For a covered stockpile, such inspections shall include a visual inspection of all seams and plastic cover surfaces to ensure that no portion of the soil is exposed to the atmosphere.

(13) When utilizing a chemical stabilizer, an owner or operator shall:

(A) Ensure the chemical stabilizer meets any specifications, criteria, or tests required by any federal, state, or local agency or any applicable law, rule, or regulation; and

(B) Unless otherwise indicated, use a sufficient concentration of the chemical stabilizer and an application frequency sufficient to maintain a stabilized surface and no less than what is specified by the manufacturer for the period of inactivity.

(14) When using a cover for stockpiles, an owner or operator shall ensure the cover:

(A) Is at least 10 mil thick plastic sheeting that overlaps a minimum of 24 inches; and

(B) Is anchored and secured so that no portion of the soil is exposed to the atmosphere.

(15) An owner or operator that is conducting earth-moving activities of soil with applicable toxic air contaminant(s) at a school, joint use agreement property, adjacent athletic area, or at a site that is adjoining a school, joint use agreement property, or adjacent athletic area shall:

(A) Only conduct earth-moving activities at a school or at a site that is adjoining a school outside of the hours between 7:30 a.m. and 4:30 p.m. on days when the school is in session;

(B) Not conduct earth-moving activities at a school, joint use agreement property, adjacent athletic area, or at a site that is adjoining a school, joint use agreement property, or adjacent athletic area if there is a school sponsored activity or youth organized sports taking place at that site;

(e) (15) (C) Handle excavated soils with applicable toxic air contaminant(s) by:

(i) Immediately placing soil in a leak-tight container whereby any contained solids or liquids are prevented from escaping or spilling out;

(ii) Directly loading soil in truck beds, trailers, and bins for transport, applying chemical stabilizer pursuant to paragraph (e)(13) or dust suppressant, and completely covering prior to transporting; or

(iii) Stockpiling pursuant to paragraph (e)(5), in a fenced area that is not accessible to the general public, and locked when not in use; and

(D) Within five days of its excavation, remove all soil with applicable toxic air contaminant(s) from the site.

(f) Notification Requirements

(1) The owner or operator shall electronically submit an initial notification to the Executive Officer, using a format approved by the Executive Officer, of the intent to conduct any on-site earth-moving activities.

(A) Initial notifications shall be submitted:

(i) At least 72 hours but no more than 30 days prior to conducting any earth-moving activities on any site meeting the applicability requirements of subdivision (b); or

(ii) As soon as the information becomes available but no later than 48 hours after the information becomes available that on-site earth-moving activities of soil with applicable toxic air contaminant(s) exceed 50 cubic yards.

(B) Initial notifications shall include the following requirements:

(i) Name, address, telephone number, and e-mail address of the owner or operator;

(ii) Name, telephone number, and e-mail address of the on-site dust control supervisor;

(iii) Project name and, if applicable, the project identification number from the designating agency;

(iv) Project location (address and/or coordinates);

(v) Identify whether the site is a school, joint use agreement property, adjacent athletic area, or is adjoining a school, joint use agreement property, or adjacent athletic area;

(f) (1) (B) (vi) A map indicating the specific location(s) of each on-site earth-moving activity and the concentrations of the applicable toxic air contaminant(s) and location of PM_{10} monitors;

(vii) A description of the on-site earth-moving activities, estimated volume of soil with applicable toxic air contaminant(s), and a schedule that includes the anticipated start and completion dates of on-site earth-moving activities;

(viii) Current and/or previous type of operation(s) and use(s) at the site;

(ix) Applicable exemption(s); and

(x) Whether the notice being provided is a revised notification.

(2) Notification Updates

Initial notifications pursuant to paragraph (f)(1) shall be updated when any of the following conditions arise:

(A) Earlier Start Date

A change in the start date of on-site earth-moving activities to an earlier date shall be reported to the South Coast AQMD no later than 72 hours before any on-site earth-moving activities begin.

(B) Later Start Date

A delay in the start date of on-site earth-moving activities shall be reported to the South Coast AQMD as soon as the information becomes available, but no later than the original start date.

(C) Change in Exemption Status

Any change(s) in exemption status pursuant to subdivision (k) shall be reported to the South Coast AQMD as soon as the information becomes available, but no later than 48 hours after the information becomes available.

(D) Completion Date

The completion date of on-site earth-moving activities shall be reported to the South Coast AQMD no later than 48 hours after on-site earth-moving activities are completed.

(3) Within 72 hours of an exceedance of the PM_{10} emission limit specified in paragraph (d)(2), the owner or operator shall electronically submit a notification to the Executive Officer, using a format approved by the Executive Officer, of the exceedance and shall include the following information:

(f) (3) (A) Name, address, telephone number, and e-mail address of the owner or operator;

(B) Name, telephone number, and e-mail address of the on-site dust control supervisor;

(C) Project name and, if applicable, the project identification number from the designating agency;

(D) Project location (address and/or coordinates);

(E) PM_{10} monitoring results and wind direction and speed results pursuant to subdivision (d), including location of monitors, result, date and time of exceedance(s), 12 hours before first exceedance, and 12 hours after last exceedance;

(F) On-site earth-moving activities occurring at the date and time of exceedance(s); and

(G) Dust control measure(s) taken to mitigate fugitive dust.

(g) Signage Requirements

When conducting on-site earth-moving activities, the owner or operator shall install and maintain project signage.

(1) Unless otherwise approved in writing by the Executive Officer, signage shall:

(A) Be installed at all entrances and at intervals of 1,000 feet or less along the property line or perimeter of the site, with a minimum of one sign along each side;

(B) Be located between 6 and 8 feet above grade from the bottom of the sign;

(C) Display lettering at least 4 inches tall with text contrasting with the sign background; and

(D) Display the following information:

(i) Local or toll-free phone number for the site contact or pre-recorded notification center that is accessible 24 hours a day; and

(ii) Warning statement:

"THIS SITE CONTAINS SOILS THAT CONTAIN THE FOLLOWING CHEMICALS: [LIST APPLICABLE TOXIC AIR CONTAMINANT(S)]
TO REPORT ANY DUST LEAVING THE SITE PLEASE CALL [FACILITY CONTACT AND PHONE NUMBER] OR THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AT 1-800-CUT-SMOG".

(g) (2) If signage pursuant to paragraph (g)(1) exceeds 48 inches by 96 inches, the owner or operator or designating agency shall include the warning statement referenced in clause (g)(1)(D)(ii), displaying lettering at least 4 inches tall with text contrasting with the sign background, but may use 2.5 inch tall lettering to list applicable toxic air contaminant(s). All other signage requirements set forth in paragraph (g)(1) shall remain the same. If signage continues to exceed 48 inches by 96 inches with these parameters, the owner or operator or designating agency may use alternative signage as set forth in paragraph (g)(3).

(3) The owner or operator or designating agency may use alternative signage approved by the Executive Officer pursuant to subdivision (j). Notwithstanding subdivision (j), the request shall include a visual representation of the alternative sign, including proposed lettering height, and locations and, at a minimum, the alternative signage shall:

(A) Display text contrasting with the sign background; and

(B) Display the following warning statement:

"THIS SITE CONTAINS SOILS THAT CONTAIN THE FOLLOWING CHEMICALS: [LIST APPLICABLE TOXIC AIR CONTAMINANT(S)] TO REPORT ANY DUST LEAVING THE SITE PLEASE CALL THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AT 1-800-CUT-SMOG".

(4) The owner or operator may be excluded from installing and maintaining project signage pursuant to subparagraph (g)(1)(A) at any entrance(s) or interval(s) along the property line or perimeter of the site that is not visible and not accessible to the public unless the site is a school, joint use agreement property, or adjacent athletic area or the site is adjoining a school, joint use agreement property, or adjacent athletic area.

(h) Recordkeeping Requirements

The owner or operator shall maintain records for a period of not less than 3 years and shall make such records available to the Executive Officer upon request. At a minimum, records shall be maintained daily and shall include:

(1) Inspections of all stabilized or covered stockpiles containing soils with applicable toxic air contaminant(s) and all re-stabilization, cover repair, and label maintenance activities, including dates and times the specific activities were conducted;

(2) Results of wind and PM_{10} monitoring, including: ambient PM_{10} data; rolling average PM_{10} concentrations and calculations; wind direction and speed

corresponding to the rolling average PM_{10} concentrations; movement of monitoring instruments corresponding to wind direction changes; instrument make and model; settings; proof of valid calibration in accordance with manufacturer's recommended schedule; configuration; calibration, correction, and correlation factors; maintenance; operator training; daily instrument performance check records and manual zero or auto-check results; weekly zero calibration records and intra-instrument precision test data and calculation results; and all instrument logs for all monitoring instruments;

(h) (3) All instrument maintenance activities, including: zero calibration, cleaning, filter replacement, and performance checks, including dates and times of the specific procedures;

(4) Documentation of all DAS and data management system failures, including date and time of the failure, date and time of the correction, the technical issue(s) causing the failure, and activities performed to restore the failed DAS or data management system to working condition;

(5) On-site earth-moving activities conducted and the corresponding volume of soil with applicable toxic air contaminant(s);

(6) Names and business addresses of the transporting and receiving facilities, and a copy of the shipping manifest;

(7) Complaints called in, including the name of complainant and contact information, date and time, on-site earth-moving activities occurring at the date and time, complaint, and action taken to mitigate the source of the complaint; and

(8) A copy of all submitted notifications for the project.

(i) Executive Officer Designated Sites

(1) The Executive Officer may designate a site if the Executive Officer has evidence that the site contains soil with applicable toxic air contaminant(s) as defined in paragraph (c)(16), after consultation with U.S. EPA, DTSC, the State Water Resources Control Board, the Regional Water Quality Control Board, and/or local, county, or state regulatory agencies, and consideration of the following:

(A) Site history, including current and/or previous type(s) of operation(s) and use(s) at the site and regulatory history;

(B) Concentration(s) of applicable toxic air contaminant(s) in the soil;

(C) Background concentration(s) of applicable toxic air contaminant(s);

(D) Volume of soil with applicable toxic air contaminant(s);

(i) (1) (E) Distance to a residence, park, school, joint use agreement property, adjacent athletic area, or a site adjoining a school, joint use agreement property, or adjacent athletic area;

(F) Meteorological data;

(G) Health risk information or other data provided by the owner or operator, if available; and

(H) Ambient monitoring data and other applicable data, if available.

(2) Prior to making a determination, the Executive Officer will notify the owner or operator in writing that the site may be subject to this rule.

(A) In the event the owner or operator exercises this opportunity to demonstrate that this rule does not apply, the owner or operator shall submit information to the Executive Officer within 14 days of the notification substantiating why the site should be excluded from this rule.

(B) Upon final determination, the Executive Officer will notify the owner or operator in writing if the site is subject to this rule.

(3) During the determination period, the owner or operator shall comply with the provisions of this rule or cease all on-site earth-moving activities until a determination is made.

(j) Alternative Provisions

(1) If requesting an alternative provision pursuant to paragraph (g)(3), the owner or operator or designating agency shall submit the request in writing at least 30 days prior to conducting any earth-moving activities and include all information to the Executive Officer to substantiate its position.

(2) The Executive Officer may request additional information from the owner or operator or designating agency.

(3) The owner or operator or designating agency shall submit all requested information within 14 days of the request for additional information.

(4) The Executive Officer will review the request for an alternative provision and will approve or reject the data and notify the owner or operator or designating agency in writing. Approved alternative provisions may not be used retroactively.

(5) Alternative provisions that were approved and notified in writing by the Executive Officer before June 4, 2021 shall be deemed compliant with the requirements of the applicable provisions of the rule, shall remain in effect only for the period of time and for the specific project for which they were granted, and shall not be renewed or extended.

(k) Exemptions

(1) The owner or operator may be exempt from one or more provisions of this rule provided there is written confirmation that the designating agency under subparagraphs (b)(1)(A) through (b)(1)(D) has consulted with the Executive Officer and has determined that the provision(s) are not needed based on information specified in subparagraphs (i)(1)(A) through (i)(1)(H).

(2) On-site earth-moving activities performed within an enclosed system vented to South Coast AQMD permitted air pollution control equipment shall be exempt from all requirements except: subparagraphs (e)(4)(C) through (e)(4)(E), subparagraphs (e)(6)(D) and (e)(6)(E), and subdivisions (f), (g), and (h).

(3) Linear trenching for natural gas, power, sewer, and water projects on roadways with soil with applicable toxic air contaminant(s), directly loaded into a truck bed, trailer, or bin for transport, shall be exempt from all requirements except: paragraphs (e)(3) through (e)(9), paragraphs (e)(13) and (e)(15), and subdivisions (f), (h), and (i).

(4) On-site earth-moving activities consisting only of excavation activities of soil with applicable toxic air contaminant(s) of less than 500 cubic yards, directly loaded into a truck bed, trailer, or bin for transport, shall be exempt from all requirements except: paragraphs (e)(3) through (e)(9), paragraphs (e)(13) and (e)(15), and subdivisions (f), (h), and (i).

(5) On-site earth-moving activities conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized agency officer shall be exempt from all requirements. The Executive Officer shall be notified electronically no later than 48 hours following such on-site earth-moving activities. Written notification shall include written emergency declaration from the authorized officer.

(6) On-site earth-moving activities conducted by essential service utilities to provide electricity, natural gas, telephone, water, or sewer during periods of service outages and emergency disruptions shall be exempt from all requirements. The Executive Officer shall be notified electronically no later than 48 hours following such on-site earth-moving activities.

Table I – Applicable Toxic Air Contaminants

CAS Number	Substance
7440-38-2	**arsenic and arsenic compounds (inorganic)**
	including, but not limited to:
	arsenic compounds (inorganic)
7784-42-1	arsine
1332-21-4	Asbestos
7440-43-9	cadmium and cadmium compounds
57-74-9	chlordane
	dibenzo-p-dioxins (chlorinated)
1746-01-6	tetrachlorodibenzo-p-dioxin, 2,3,7,8-
40321-76-4	pentachlorodibenzo-p-dioxin, 1,2,3,7,8-
39227-28-6	hexachlorodibenzo-p-dioxin, 1,2,3,4,7,8-
57653-85-7	hexachlorodibenzo-p-dioxin, 1,2,3,6,7,8-
19408-74-3	hexachlorodibenzo-p-dioxin, 1,2,3,7,8,9-
35822-46-9	heptachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8-
3268-87-9	octachlorodibenzo-p-dioxin, 1,2,3,4,6,7,8,9-
41903-57-5	total tetrachlorodibenzo-p-dioxin
36088-22-9	total pentachlorodibenzo-p-dioxin
34465-46-8	total hexachlorodibenzo-p-dioxin
37871-00-4	total heptachlorodibenzo-p-dioxin
72-54-8	dichlorodiphenyldichloroethane
72-55-9	dichlorodiphenyldichloroethylene
50-29-3	dichlorodiphenyltrichloroethane

Table I – Applicable Toxic Air Contaminants (cont.)

CAS Number	Substance
18540-29-9	**chromium (hexavalent) and chromium compounds**
	including, but not limited to:
10294-40-3	barium chromate
13765-19-0	calcium chromate
7758-97-6	lead chromate
10588-01-9	sodium dichromate
7789-06-2	strontium chromate
13530-65-9	zinc chromate
7439-92-1	**lead and lead compounds (inorganic, including elemental lead)**
	including, but not limited to:
	lead compounds (inorganic)
301-04-2	lead acetate
7758-97-6	lead chromate
7446-27-7	lead phosphate
1335-32-6	lead subacetate
7439-97-6	**mercury and mercury compounds (inorganic)**
	including, but not limited to:
7487-94-7	mercuric chloride
593-74-8	methyl mercury

Table I – Applicable Toxic Air Contaminants (cont.)

CAS Number	Substance
7440-02-0	**nickel and nickel compounds**
	including, but not limited to:
373-02-4	nickel acetate
3333-67-3	nickel carbonate
13463-39-3	nickel carbonyl
12054-48-7	nickel hydroxide
1313-99-1	nickel oxide
12035-72-2	nickel subsulfide
1271-28-9	nickelocene
	refinery dust from the pyrometallurgical process
1336-36-3	**polychlorinated biphenyls (PCBs)**
32598-13-3	3,3’,4,4’-tetrachlorobiphenyl (PCB 77)
70362-50-4	3,4,4’,5-tetrachlorobiphenyl (PCB 81)
32598-14-4	2,3,3’,4,4’-pentachlorobiphenyl (PCB 105)
74472-37-0	2,3,4,4’,5-pentachlorobiphenyl (PCB 114)
31508-00-6	2,3’,4,4’,5-pentachlorobiphenyl (PCB 118)
65510-44-3	2,3',4,4',5'-pentachlorobiphenyl (PCB 123)
57465-28-8	3,3’,4,4’,5-pentachlorobiphenyl (PCB 126)
38380-08-4	2,3,3’,4,4’,5-hexachlorobiphenyl (PCB 156)
69782-90-7	2,3,3’,4,4’,5’-hexachlorobiphenyl (PCB 157)
52663-72-6	2,3’,4,4’,5,5’-hexachlorobiphenyl (PCB 167)
32774-16-6	3,3’,4,4’,5,5’-hexachlorobiphenyl (PCB 169)
39635-31-9	2,3,3’4,4’,5,5’-heptachlorobiphenyl (PCB 189)

Table I – Applicable Toxic Air Contaminants (cont.)

CAS Number	Substance
	polycyclic aromatic hydrocarbons (PAHs)
56-55-3	benzo[a]anthracene
50-32-8	benzo[a]pyrene
205-99-2	benzo[b]fluoranthene
207-08-9	benzo[k]fluoranthene
218-01-9	chrysene
53-70-3	dibenz[a,h]anthracene
193-39-5	indeno[1,2,3-c,d]pyrene

Appendix 1 – Rule 1466 Approved PM_{10} Monitors

The Executive Officer may approve PM_{10} monitors that meet the following physical and performance requirements.

1. Physical Requirements
   - 1.1. PM_{10} monitors shall be continuous direct-reading near-real time monitors and shall monitor particulate matter less than 10 microns.
   - 1.2. PM_{10} monitors shall be equipped with:
     - 1.2.a. Omni-directional heated sampler inlet;
     - 1.2.b. Sample pump with active flow control mechanism;
     - 1.2.c. Enclosure;
     - 1.2.d. Data logger capable of logging each data point with average concentration, time, date, and data point number; and
     - 1.2.e. Conductive tubing that minimizes particle loss for any external tubing used to carry sampled air prior to measurement.

2. Performance Requirements
   - 2.1 PM_{10} monitors shall have the following minimum performance standards:
     - 2.1.a. Range: 0 - 10,000 $\mu g/m^3$;
     - 2.1.b. Accuracy, determined through factory testing against a U.S. EPA Federal Reference Method or Federal Equivalent Method, for a minimum of 30 measurements each averaged over 24 hours, to show:
       - 2.1.b.i. ± 5% of reading ± precision; or
       - 2.1.b.ii. Coefficient of determination (R^2) of ≥ 0.95 through simple linear regression;
     - 2.1.c. Resolution: 1.0 $\mu g/m^3$;
     - 2.1.d. Flow control accuracy of ± 5% of factory setpoint; and
     - 2.1.e. Measurement Cycle: User selectable (30 minute and 2 hour).
   - 2.2 Monitors that have a valid *Monitoring Certification Scheme* certification meeting the latest version of the *Monitoring Certification Scheme* (*MCERTS): Performance Standard for Indicative Ambient Particulate Monitors* may be exempt from meeting the performance requirements listed above, but shall meet all stated physical requirements.

3. Quality Assurance/Quality Control Requirements

In order to ensure the validity of the PM_{10} measurements performed, there shall be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the owner or operator to adequately supplement QA/QC Plans to include the following critical features: instrument calibration, instrument maintenance, operator training, and daily instrument performance checks.

Appendix 2 – Procedures to Demonstrate Intra-Instrument Precision

An owner or operator shall perform the following procedures to demonstrate the intra-instrument precision of all PM_{10} monitors as required in paragraph (d)(7).

1. Ensure monitors are identical in make and model, settings, and configuration.
2. Ensure monitor inlets are at the same height and located within 4 meters of each other but no less than 1 meter apart for the duration of the test.
3. Power on the monitors and turn on the heated sampler inlet. Allow the monitors to warm-up per manufacturer's recommendations or when readings have stabilized.
4. For each monitor, conduct a zero calibration in accordance with manufacturer's instructions, then conduct a manual zero check by removing any sampling inlet and installing a filter, rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles, on the inlet of the monitor for a minimum of 10 minutes. If the monitors are operated using an auto-zero check procedure that directs filtered particle-free air into the measurement chamber, conduct the zero check in accordance with manufacturer's instructions.
5. Log the PM_{10} concentration reading every minute, and calculate and record the average of the readings of the manual zero check. The average of the manual zero check readings shall be 0 ± 3 micrograms per cubic meter before proceeding to Step 6. If conducting an auto-zero check, the monitor shall pass the zero check in accordance with manufacturer's instructions before proceeding to Step 6. If any monitors fail either the manual zero check or the auto-zero check, the owner or operator shall conduct a zero calibration in accordance with manufacturer's instructions and/or correct any issue(s) causing the failure, followed by conducting a passing zero check on the PM_{10} monitor(s) in accordance with Steps 4 and 5.
6. Remove the filter and install the monitor inlet as required. After waiting 10 minutes, operate the monitors simultaneously and log the PM_{10} concentration reading every minute for a minimum of 60 minutes.

7. Calculate the intra-instrument precision using either of the following equations:
   a. Intra-instrument precision in relative standard deviation or correlation of variation (%) when ambient PM_{10} concentrations are greater than or equal to 15 micrograms per cubic meter:

$$P = \frac{S_t}{C_t} \, x \, 100\%$$

where,

P = Intra-instrument precision in percent (%);

S_t = Standard deviation of the averaged PM_{10} concentration readings from all tested monitors over the time t of testing duration, to be calculated as:

$$S_t = \sqrt{\frac{\sum(x_i - \bar{x})^2}{(n-1)}}$$

where,

x_i = Mean of the PM_{10} concentration readings for a tested monitor over time t of testing duration,

$\bar{x}$ = Mean of the averaged PM_{10} concentration readings from all tested monitors over the time t of testing duration, and

n = Number of tested monitors; and

C_t = Mean of the averaged PM_{10} concentration readings from all tested monitors over the time t of testing duration; or

   b. Intra-instrument precision in absolute value (micrograms per cubic meter) when ambient PM_{10} concentrations are less than 15 micrograms per cubic meter:

$$P = S_t$$

where,

P = Intra-instrument precision in micrograms per cubic meter, and

S_t = Standard deviation of the averaged PM_{10} concentration readings from all tested monitors over the time t of testing duration.

8. Record the results of the calculations.

(Adopted August 5, 1988)(Amended July 14, 1995)(Amended May 11, 2001)

RULE 1166. VOLATILE ORGANIC COMPOUND EMISSIONS FROM DECONTAMINATION OF SOIL

(a) Applicability

This rule sets requirements to control the emission of Volatile Organic Compounds (VOC) from excavating, grading, handling and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.

(b) Definitions

(1) EXCAVATION is the process of digging out and removing materials, including any material necessary to that process such as the digging out and removal of asphalt or concrete necessary to expose, dig out and remove known VOC contaminated soil.

(2) GRADING is the process of leveling off to produce a smooth surface including the removal of any material necessary to that process such as asphalt and concrete necessary to expose known VOC contaminated soil.

(3) SOIL DECONTAMINATION MEASURE is any process approved by the Executive Officer to remediate, destroy, remove, or encapsulate VOC and VOC-contaminated soil.

(4) UNDERGROUND STORAGE TANK means any one or combination of tanks, including pipes connected thereto, which is used for the storage of organic liquid which is more than 50% beneath the surface of the ground.

(5) VOC CONTAMINATED SOIL is a soil which registers a concentration of 50 ppm or greater of Volatile Organic Compounds as measured before suppression materials have been applied and at a distance of no more than three inches from the surface of the excavated soil with an organic vapor analyzer calibrated with hexane.

(6) VOC CONTAMINATED SOIL MITIGATION PLAN is a plan to minimize VOC emissions to the atmosphere during excavation and any subsequent handling of VOC-contaminated soil.

(7) VOLATILE ORGANIC COMPOUND (VOC) is any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds. Exempt compounds are defined in Rule 102—Definition Of Terms.

(8) VOLATILE ORGANIC MATERIALS include gasoline, diesel, crude oil, lubricant, waste oil, adhesive, paint, stain, solvent, resin, monomer, and/or any other material containing VOC.

(c) Requirements

(1) A person excavating an underground storage tank and/or transfer piping storing or previously storing VOC materials, or excavating or grading soil containing VOC materials shall:

(A) Apply for, obtain and operate pursuant to a mitigation plan approved by the Executive Officer prior to commencement of excavation or handling. The mitigation plan general requirement and application requirements are found in Attachment A to this rule. A copy of the approved plan must be on site during the entire excavation period.

(B) Notify the Executive Officer at least 24 hours prior to excavation using a form approved by the Executive Officer which is fully completed.

If the excavation does not commence on start date, renotification is required.

An alternative notification procedure may be authorized for multiple excavations within a single facility, with prior written approval from the Executive Officer.

(C) Monitor for VOC contamination pursuant to subdivision (e), at least once every 15 minutes commencing at the beginning of excavation or grading and record all VOC concentration readings in a format approved by the Executive Officer; and

(D) When VOC-contaminated soil is detected during excavation or grading:

(i) Implement the approved mitigation plan (Attachment A).

(ii) Notify the Executive Officer within 24 hours of detection of VOC-contaminated soil.

(iii) Monitor and record VOC concentration readings as prescribed in the plan. Monitoring records must be kept available on site.

(iv) Keep calibration records for all monitoring instruments available on site.

(2) A person handling VOC-contaminated soil at or from an excavation or grading site shall:

(A) Segregate VOC-contaminated stockpiles from non-VOC contaminated stockpiles such that mixing of the stockpiles does not take place.

(B) Spray VOC-contaminated soil stockpiles with water and/or approved vapor suppressant and cover them with plastic sheeting for all periods of inactivity lasting more than one hour.

(C) Conduct a daily visual inspection of all covered VOC contaminated soil stockpiles to ensure the integrity of the plastic covered surfaces. A daily inspection record must be maintained on site.

(D) Comply with the provisions in subparagraph (c) (1)(A) and clause (c)(1)(D)(i).

(E) Maintain a record of the identification and business addresses of the generator, transporter and storage/treatment facilities. Such record shall be signed by each party at the time custody is transferred.

(F) Treat or remove contaminated soil from an excavation or grading site within 30 days from the time of excavation.

(3) If the VOC concentration in the excavated soil is measured at greater than 1000 ppm, spray the soil with water or vapor suppressant and:

(A) As soon as possible, but not more than 15 minutes, place the soil in sealed containers, or

(B) As soon as possible, but not more than 15 minutes, load into trucks, moisten with additional water, cover and transport off site, or

(C) Implement other alternative storage methods approved in writing by the Executive Officer.

(4) A person treating VOC-contaminated soil shall:

(A) Obtain a permit to construct and operate treatment equipment, as applicable, from the Executive Officer, and

(B) Implement VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology applied during all segments, and which include, but are not limited to, at least one of the following:

(i) Installation and operation of an underground VOC collection system and a disposal system prior to excavation.

(ii) Collection and disposal of the VOC from the excavated soil on-site using equipment approved by the Executive Officer.

(iii) Any equivalent VOC-contaminated soil control measure previously approved in writing by the Executive Officer.

(5) A person shall not engage in or allow any on-site or off-site spreading, grading or screening of VOC-contaminated soil, which results in uncontrolled evaporation of VOC to the atmosphere.

(6) Loading trucks for contaminated soil must meet the following:

(A) The truck and trailer shall be adequately tarped prior to leaving the site; no excavated materials shall extend above the sides or rear of the truck or trailer to prevent soil spillage during transport, and

(B) The exterior of the truck, trailer and tires shall be cleaned off prior to the truck leaving the site.

(d) Exemptions

(1) The provisions of this rule shall not apply to the following:

(A) Excavation, handling, and treating of less than one (1) cubic yard of contaminated soil.

(B) Removal of soil for sampling purposes.

(C) Accidental spillage of five (5) gallons or less of VOC containing material.

(2) The provisions of paragraphs (c)(1) and (c)(2) shall not apply to soil excavation or handling as a result of an emergency as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized agency officer. Whenever possible, the Executive Officer shall be notified by telephone prior to commencing such excavation. The Executive Officer shall be notified in writing no later than 48 hours following such excavation. Written notification shall include written emergency declaration from the authorized officer.

(e) Test Methods

(1) A person shall measure excavated soils for volatile organic compounds to determine contamination by:

(A) Using an organic vapor analyzer calibrated with hexane, complying with 40 CFR Part 60 Appendix A, EPA Reference Method 21 Section 3 or any equivalent method with prior approval in writing by the Executive Officer. If other calibrating gases are used, then the measured readings shall be correlated to and expressed as hexane.

(B) Placing the probe inlet at a distance of no more than three inches from the surface of the excavated soil and while slowly moving the probe across the soil surface, observe the instrument readout. If an increased meter reading is observed, continue to sample the excavated soil until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately double the instrument response time. If the maximum observed meter reading is greater than the 50 ppm standard in the regulation, record and report the results.

(2) The presence of VOC in stored or spillage materials shall be determined by SCAQMD Method 313 [Determination of Presence of Volatile Organic Compounds (VOC) in Headspace] and/or Method 304 (Determination of Volatile Organic Compounds in Various Materials) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(f) Enforcement

(1) Violation of any provision of this rule or the violation of the approved mitigation plan shall be grounds for the Executive Officer to amend or revoke the mitigation plan, in addition to penalties provided by the Health & Safety Code.

(2) If the owner or operator is served with a Notice of Violation for creating a public nuisance, the owner or operator shall suspend operation until the public nuisance is mitigated to the satisfaction of the Executive Officer.

ATTACHMENT A
GENERAL MITIGATION PLANS REQUIREMENTS

VOC Contaminated Soil Mitigation Plans shall be written to minimize VOC emissions to the atmosphere during excavation, grading, handling and treatment of VOC contaminated soil. VOC Contaminated Soil Mitigation Plans shall consist of three types: Various Locations, Site Specific and Facility Treatment.

(1) General Requirements

(A) A plan is not transferable.

(B) A person responsible for the excavation, grading or handling of VOC contaminated soil must be completely familiar with the plan and must adhere to the plan requirement. The Executive Officer may require that the plan be signed by the owner and/or operator.

(C) A plan may be amended upon renewal.

(D) Permission to excavate, grade or handle VOC contaminated soil may be withdrawn by the District upon a finding by the Executive Officer that the excavation, grading or handling of the VOC contaminated soil is causing a public nuisance or violating other AQMD rules or regulations.

(2) Various Location Plans:

(A) Shall be limited to the excavation of 2000 cubic yards or less of VOC contaminated soil in any consecutive 12 month period at the same site.

(B) Shall not be used in conjunction with any other various location plan at the same site within a consecutive 12-month period.

(C) Shall expire after one year from issuance unless renewed.

(D) Shall not be issued for nor used for operations that involve grading, soil treatment or remediation, or landfills.

(3) Site Specific Plans:

(A) Shall be for excavation of greater than 2000 cubic yards of VOC contaminated soil.

(B) Shall be issued for specific excavation or grading locations for a period not to exceed two years.

(C) Shall not be renewable.

(4) Facility Treatment Plans:

(A) Shall be issued for a treatment facility at a permanent location.

(B) Shall expire after one year from issuance unless renewed.

(5) Applications for Site Specific Plans shall contain as a minimum:

(A) Reasons for excavation or grading.

(B) Cause of VOC soil contamination and history of the site.

(C) Description of tanks or piping associated with the soil contamination.

(D) An estimate of the amount of contaminated soil.

(E) The operating schedule for excavation and removal.

(F) Description of how the excavation or grading will be conducted.

(G) Description of mitigation measures for dust, odors and VOC.

(H) Details of disposal of VOC contaminated soil, including the ultimate receptor.

(I) Description of monitoring equipment and techniques.

(J) A map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential areas or other sensitive receptors such as hospitals or locations where children or elderly people live or work.

(K) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.

(6) Applications for Facility Treatment Plans shall at a minimum:

(A) Include a list of all AQMD permits to construct or operate which have been issued for that treatment and control equipment.

(B) Provide for the implementation of VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology during all operations.

(C) Provide a map showing the facility layout including the location of all proposed VOC and non-VOC contaminated soil stockpiles.

(D) Specify the total amount of VOC contaminated soil proposed to be stockpiled on site.

(E) Provide for VOC contaminated soil stockpiles to be kept moist with water or suppressant and be covered to prevent fugitive emissions.

(F) Provide for VOC contaminated soil stockpiles to be segregated from non-VOC contaminated soil stockpiles.

(G) Provide for maintenance of records for stockpiles according to the source name, address and dates of reception.

(H) Provide for records of the generator, transporter and storage/treatment facilities and indicate their identification and business addresses. Such records shall be signed by each party at the time custody is transferred.

(I) Provide a map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential area or other sensitive receptors such as hospitals, or locations where children or elderly people live or work.

(J) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.

(K) Specify the operating schedule and maximum amount of VOC-contaminated soil proposed to be remediated on a daily basis.

(7) In approving a plan, the Executive Officer require reasonable conditions deemed necessary to ensure the operations comply with the plan and AQMD rules. The conditions may include, but shall not be limited to, procedures for ensuring responsibility for the implementation of the plan, accessibility to the site for AQMD staff, notification of actions required by the plan, identification of emission receptors, monitoring and testing, suppression and covering of stockpiles, prevention of public nuisance from VOC or dust emissions, prevention of fugitive emissions of VOC contaminated soil, loading of truck trailers, and disposal and treatment.

(8) In approving a plan, the Executive Officer may require any records deemed necessary to be maintained by the operator to demonstrate compliance with the plan. Such records shall be retained for at least 2 years and be made available to the Executive officer upon request.

APPENDIX D

This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D6009 – 19

Standard Guide for Sampling Waste Piles[1]

This standard is issued under the fixed designation D6009; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide provides guidance for obtaining representative samples from waste piles. Guidance is provided for site evaluation, sampling design, selection of equipment, and data interpretation.

1.2 Waste piles include areas used primarily for waste storage or disposal, including above-grade dry land disposal units. This guide can be applied to sampling municipal waste piles.

1.3 This guide addresses how the choice of sampling design and sampling methods depends on specific features of the pile.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4.1 *Exception*—The inch-pound units in parentheses are included for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1452/D1452M Practice for Soil Exploration and Sampling by Auger Borings

D1586/D1586M Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils

D1587/D1587M Practice for Thin-Walled Tube Sampling of Fine-Grained Soils for Geotechnical Purposes

D4547 Guide for Sampling Waste and Soils for Volatile Organic Compounds

D4687 Guide for General Planning of Waste Sampling

D4700 Guide for Soil Sampling from the Vadose Zone

D4823 Guide for Core Sampling Submerged, Unconsolidated Sediments

D5088 Practice for Decontamination of Field Equipment Used at Waste Sites

D5451 Practice for Sampling Using a Trier Sampler

D5681 Terminology for Waste and Waste Management

D5730 Guide for Site Characterization for Environmental Purposes With Emphasis on Soil, Rock, the Vadose Zone and Groundwater (Withdrawn 2013)[3]

D7758 Practice for Passive Soil Gas Sampling in the Vadose Zone for Source Identification, Spatial Variability Assessment, Monitoring, and Vapor Intrusion Evaluations

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminology D5681.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *hot spots*—strata that contain high concentrations of the characteristic of interest and are relatively small in size when compared with the total size of the materials being sampled.

3.2.2 *waste pile*—unconfined storage of solid materials in an area of distinct boundaries, above grade and usually uncovered.

4. Significance and Use

4.1 This guide is intended to provide guidance for sampling waste piles. It can be used to obtain samples for waste characterization related to use, treatment, or disposal; to monitor an active pile; to prepare for closure of the waste pile; or to investigate the contents of an abandoned pile.

4.2 Techniques used to sample include both in-place evaluations of the pile and physically removing a sample. In-place

[1] This guide is under the jurisdiction of ASTM Committee D34 on Waste Management and is the direct responsibility of Subcommittee D34.01.01 on Planning for Sampling.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

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evaluations include techniques such as remote sensing, on-site gas analysis, and permeability.

4.3 Sampling strategy for waste piles is dependent on the following:

4.3.1 Project objectives, including acceptable levels of error when making decisions;

4.3.2 Physical characteristics of the pile, such as its size and configuration, access to all parts of it, and the stability of the pile;

4.3.3 Process that generated the waste and the waste characteristics, such as hazardous chemical or physical properties, whether the waste consists of sludges, dry powders, granules or larger grained materials, and the heterogeneity of the wastes;

4.3.4 History of the pile, including dates of generation, methods of handling and transport, and current management methods;

4.3.5 Regulatory considerations, such as regulatory classification and characterization data; and

4.3.6 Limits and bias of sampling methods, including bias that may be introduced by waste heterogeneity, sampling design, and sampling equipment.

4.4 It is recommended that this guide be used in conjunction with Guide D4687, which addresses sampling design, quality assurance, general sampling considerations, preservation and containerization, cleaning equipment, packaging, and chain of custody.

4.5 A case history of the investigation of a waste pile is included in Appendix X1.

5. Site Evaluation

5.1 Site evaluations are performed to assist in designing the most appropriate sampling strategy. An evaluation may consist of on-site surveys and inspections, as well as a review of historical data. Nonintrusive geophysical and remote sensing methods are particularly useful at this stage of the investigation. Table 1 summarizes the effects that various factors associated with the waste pile, such as the history of how the pile was generated, have upon the strategy and design of the sampling plan. The strategic and design considerations are discussed as well.

TABLE 1 Strategy Factors

Waste Pile Factors	Strategic Considerations	Design Considerations
Generation history	Date of generation	Analysis required
	Types of processes	Location of samples
	Characteristics by process	
	Delivery method	
	Current management	
	Regulatory considerations	
Physical characteristics of pile:	Physical variability of pile	Number of samples
–size	Access	Location of samples
–shape	Safety	Equipment selection
–stability		
Waste characteristics	Constituents present	Number of samples
	Constituent distribution	Analysis required
	Heterogeneity	Location of samples
	–physical variability	Representative samples
	–chemical variability	Equipment selection

5.2 *Generation History*—The waste pile may have been created over an extended time period. A remote sensing method that is very useful in establishing historical management practices for waste piles is aerial imagery. Aerial photographs and satellite imagery are widely available and may be used to determine the history of a waste pile, sources of waste, and the presence and distribution of different strata.

5.2.1 The date of generation could be important with respect to the types of processes that generated the waste, the characteristics of the waste, the distribution of the constituents, and regulatory concerns.

5.2.2 The type of process that generated the waste will determine the types of constituents that may be present in the waste pile. Chemical variability will influence the number of samples that are required to characterize the waste pile unless a directed (biased) sampling approach is acceptable.

5.2.3 The delivery method of the material to the waste pile could influence the concentrations of the constituents, affect the overall shape of the pile, or create physical dissimilarity within the waste pile through sorting by particle size or density.

5.2.4 If the pile is under current management and use, the variability in constituent types and concentrations may be affected. Current management activities also may influence the regulatory status of the waste pile, and therefore, the potential sampling protocols.

5.2.5 Regulatory considerations will typically focus on waste identification questions; in other words, “Is the material a solid waste that should be regulated and managed as a hazardous waste?” (**1**).[4] This may involve a limited, directed sampling approach, particularly if a regulatory agency is conducting the investigation. A more comprehensive sampling design may be required to determine if the waste classifies as hazardous. Remediation efforts and questions regarding permits may focus on characterizing the entire pile, possibly as the removal of material is occurring. It should be noted that concentrations of contaminants near regulatory levels may increase the number of samples required to meet the objectives of the investigation. These regulatory levels could be those established to determine if a waste is hazardous, or “cleanup” levels set for a removal or remediation.

5.3 *Physical Characteristics of Pile*—Several physical characteristics of the waste pile must be considered during the site evaluation. Variability in size, shape, and stability of the pile affects access to it to obtain samples, as well as safety considerations. Physical variability will influence the number of samples that are required to characterize the waste pile unless a directed (biased) sampling approach is considered to be acceptable. Techniques that might be used include resistivity and seismic refraction (for determining the depth of very large piles).

5.3.1 The size of the waste pile will influence the sampling strategy in that increasing size is often accompanied by increased variability in the physical characteristics of the waste pile. The number of samples, however, that are needed to

[4] The boldface numbers in parentheses refer to the list of references at the end of this standard.

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characterize a waste pile adequately will typically be a function of the study objectives as well as the inherent variability of the pile.

5.3.2 The shape of the waste pile can influence the sampling strategy by limiting access to certain locations within the pile, and if it is topologically complex it is difficult to lay out a sampling grid. Also, a waste pile may extend vertically both above and below grade, making decisions regarding the depth of sample collection difficult.

5.3.3 The stability of the waste pile also can limit access to both the face and the interior of the pile. The use of certain types of heavier sampling equipment also could be limited by the ability of the pile to bear the weight of the equipment.

5.4 *Waste Characteristics:*

5.4.1 The constituents could include inorganics, volatile organic compounds (VOCs), and semivolatile organic compounds (including pesticides and polychlorinated biphenyls (PCBs)) (see Guide D4547). Specialty analyses may be warranted, such as leaching tests or analyses for dioxin/furans or explosive compounds. Soil gas sampling is a minimally intrusive technique that may detect the presence and distribution of volatile organic compounds in soils and in porous, unconsolidated materials. Appropriate applications for soil gas monitoring are identified in Practice D7758.

5.4.2 The distribution of constituents in the waste pile could be influenced by changes in the manufacturing process which resulted in changes in the composition of the waste; the length of time the material has remained in the pile (particularly for VOCs); the mode of delivery of the waste materials to the pile; and management practices, such as mixing together wastes from more than one process.

5.4.3 Physical and chemical variabilities would include variability in the chemical characteristics of the material within the pile, as well as variability in particle size, density, hardness, whether brittle or flexible, moisture content, consolidated, or unconsolidated. The variability may be random or found as strata of materials having different properties or containing different types or concentrations of constituents.

5.4.3.1 Geophysical survey methods may be used on piles to estimate physical homogeneity, which may or may not be related to chemical homogeneity, and to detect buried objects, both of which may need to be considered during the development of the sampling design and the safety plan for the investigation. The most suitable technique for detecting nonmetallic objects is electromagnetics. Ground-penetrating radar, a more sophisticated and complex technique, also may be considered. Electromagnetic techniques are suited particularly to large piles that contain leachate plumes (for example, mine tailings) or for the detection of large discontinuities in a pile (for example, different types of wastes or the transition from a disposal area to background soils). For metallic objects, metal detectors and magnetometers are useful and relatively easy to use in the field.

5.5 *Potential Investigation Errors:*

5.5.1 Equipment selection can bias sampling results even if the equipment is used properly. Bias can result from the incompatibility of the materials that the sampling equipment is made of with the materials being sampled. For example, the equipment could alter the characteristics of the sample. Some equipment will bias against the collection of certain particle sizes, and some equipment cannot penetrate the waste pile adequately.

5.5.2 Equipment, use, and operation can introduce error (bias) into the characterization of a waste pile. Sampling errors typically are caused when certain particle sizes are excluded, when a segment of the waste pile is not sampled, or when a location outside the pile is inadvertently sampled.

5.5.3 When stratification, layering, or solid phasing occurs it may be necessary to obtain and analyze samples of each of the distinct phases separately to minimize sampling bias. Care should be taken when sampling stratified layers to minimize cross contamination. Proper decontamination procedures should be used for all sampling equipment (see Practice D5088).

5.5.4 Statistical bias includes situations where the data are not normally distributed or when the sampling strategy does not allow the potential for every portion of the pile to be sampled.

6. Sampling Strategy

6.1 Developing a strategy for sampling a waste pile requires a thorough examination of the site evaluation factors listed in Section 5. The location and frequency of sampling (number of samples) should be outlined clearly in the sampling plan, as well as provisions for the use of special sampling equipment, access of heavy equipment to all areas of the pile, if necessary, and so forth.

6.1.1 *Representative Sampling*—The collection of a representative set of samples from a waste pile typically will be complicated by the presence of a number of the site evaluation factors (**2, 3**).

6.1.2 *Heterogeneous Wastes*—Waste piles may be homogeneous, for applied purposes, or may be quite heterogeneous in particle size and contaminant distribution. If the particle sizes of the material in the waste pile and the distribution of contaminants are known, or can be estimated, then less sampling may be necessary to define the properties of interest in the waste pile. An estimate of the variability in contaminant distribution may be based on process knowledge or determined by preliminary sampling (**4**). The more heterogeneous the waste pile is, the greater the planning and sampling requirements.

6.1.3 *Strata and Hot Spots*—A waste pile also could contain strata that have less internal variation in physical properties or concentrations of chemical constituents than the remainder of the waste pile (**2, 5**). For example, strata may be present in a waste pile due to changes in the process that generated the waste, or if different processes at a facility contribute waste to different parts of the waste pile. A stratified sampling strategy would consider this situation by conducting independent sampling of each stratum, which could reduce the number of samples required. These strata could be in specific areas of the waste pile (**4**). Also, hot spots may be present in the waste pile that are unique in composition (**2, 5**).

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6.2 *Specific Sampling Strategies:*

6.2.1 Although the most appropriate method for evaluating material in waste piles is to sample at or immediately following the point of generation (for example, conveyor belt), most sampling problems involve existing or in-place waste piles. Therefore, the following discussion will focus on in-place waste piles. Sampling strategies available for waste piles include directed or judgmental sampling, simple random sampling, stratified random sampling, systematic grid sampling, and systematic sampling over time (**2**, **6**). General concerns about the collection of a representative sample, the existence of potential heterogeneity in the waste pile, the presence of strata within the waste pile, and the existence of distinct hot spots within the waste pile may also influence the selection of an appropriate sampling strategy and development of the sampling plan (**5**). The following paragraphs provide an introduction to determining the appropriate number of samples to collect and the sampling strategies available for determining sample locations.

6.2.2 *Determining the Frequency or Number of Samples*—The frequency of sampling or the number of samples to collect typically will be based on several factors, including the study objectives, properties of wastes in the pile, degree of confidence required, access to sampling points, and budgetary constraints. Practical guidance for determining the number of samples is included in Guide D4687 and Refs (**2**, **3**).

6.2.3 *Directed Sampling*—Directed sampling (Fig. 1) is based on the judgment of the investigator and will not necessarily result in a sample that reflects the characteristics of the entire waste pile. Directed sampling also is called judgmental sampling, authoritative sampling, or nonprobability sampling. The experience of the investigator is often the basis for sample collection and, depending on the study objectives, bias should be recognized as a potential problem. For preliminary screening investigations of a waste pile and for certain regulatory investigations, however, directed sampling may be appropriate. A directed sampling strategy could call for the collection of a composite sample from the surface area or the collection of discrete grabs at the surface of the pile (see Fig. 1). Directed sampling would typically focus on worst-case conditions in a waste pile, for example, the most visually contaminated area or most recently generated waste.

6.2.4 *Simple Random Sampling*—Simple random sampling (Fig. 2) ensures that each element in the waste pile has an equal chance of being included in the sample (**2**). This may be the method of choice when, for purposes of the investigation, the waste pile is randomly heterogeneous (**5**). If the waste pile contains trends or patterns of contamination, a stratified random sampling or systematic grid sampling strategy would be more appropriate (**2**) (see 6.2.5 and 6.2.6).

6.2.4.1 A simple random approach could use a grid with random grids selected for sample collection (see Fig. 2). Note that the grid size could be selected based on the number of samples that are required (some guidance suggests having at least ten times the number of grids as samples required). Once the grid is overlaid and the sampling locations are selected, the decision must be made to collect either a discrete grab sample (surface), a composite of surface samples taken from predesignated locations within the grid cell (based on compass points), a vertical composite to a specified depth, or discrete grab samples at specified depths. If discrete grab samples are desired at specified depths, they typically would be collected at the same location as the bore hole is advanced into the pile. Fig. 2 illustrates the collection of vertical composites at each of the randomly selected locations.

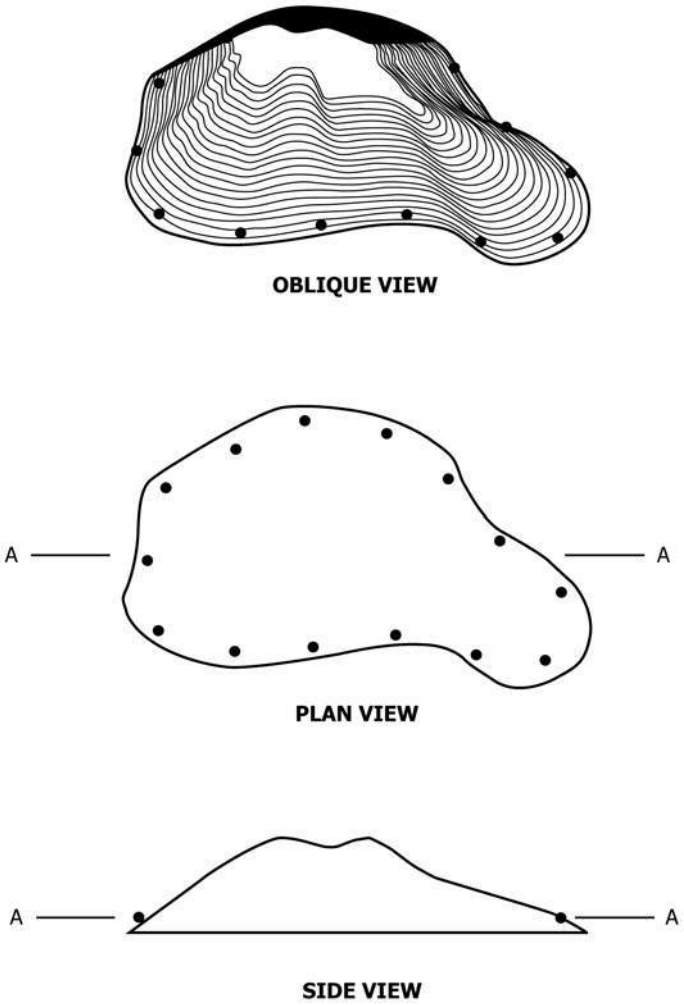


FIG. 1 Waste Pile Sampling Strategy – Directed Sampling

6.2.5 *Stratified Random Sampling*—Stratified random sampling (see Fig. 3) may be useful when distinct strata or homogeneous subgroups are identified within the waste pile (**2**). The strata may be located in different areas of the pile or may be comprised of different layers (see Fig. 3). This approach is useful when the individual strata may be considered internally homogeneous or at least have less internal variation in what would otherwise be considered a heterogeneous waste pile (**2**). Information on the waste pile usually is required to establish the location of individual strata unless process knowledge or changes in the composition of the material is obvious, such as with discoloration or with the type of waste. The grid may be utilized for sampling several horizontal layers if the strata are oriented horizontally (**4**). A simple random sampling approach is then used within each stratum. The use of a stratified random sampling strategy may

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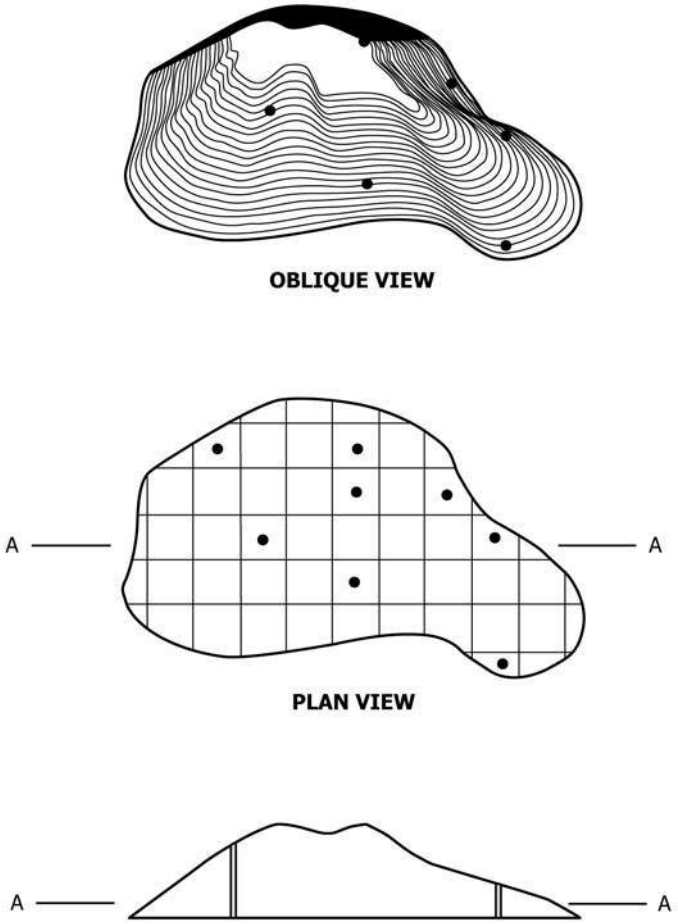


FIG. 2 Waste Pile Sampling Strategy – Simple Random Sampling

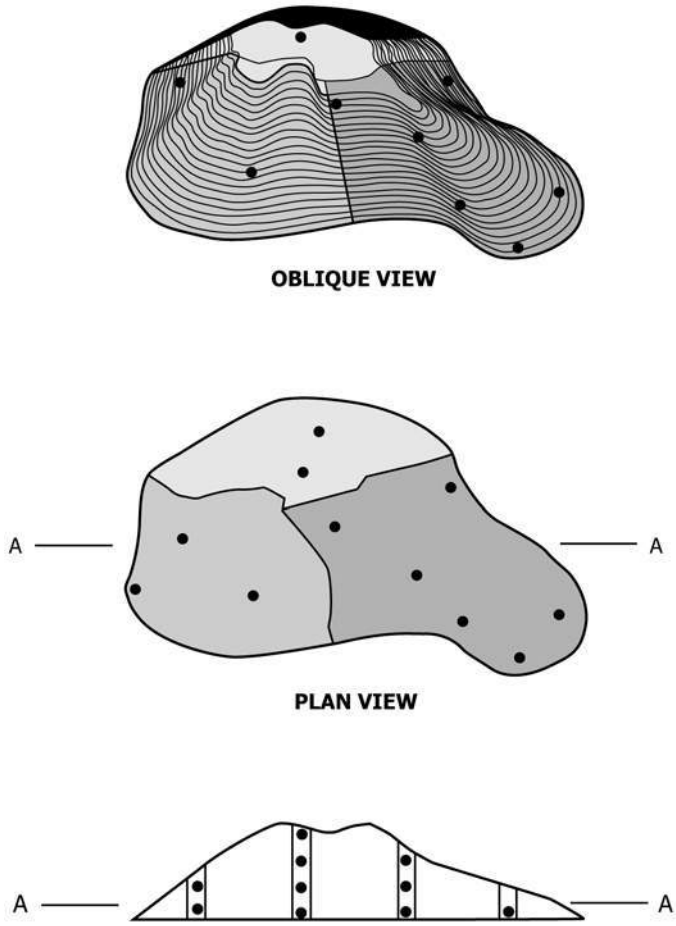


FIG. 3 Waste Pile Sampling Strategy – Stratified Random Sampling

result in the collection of fewer samples. Fig. 3 illustrates a scenario where the number of samples collected in each stratum varies (plan view), and discrete grabs are collected in each boring at predesignated depths (side view).

6.2.6 *Systemic Grid Sampling*—Systematic grid sampling (see Fig. 4) involves the collection of samples at fixed intervals and is useful when the contamination is assumed to be distributed randomly (**2**). This method is also commonly used with waste piles when estimating trends or patterns of contamination or when the objective is to locate hot spots. This approach may not be acceptable if the entire waste pile is not accessible or if the sampling grid locations become phased with variations in the distribution of contaminants within the waste pile (**6**). It also may be useful for identifying the presence of strata within the pile. The grid and starting points should be laid out randomly over the waste pile, yet the method allows for rather easy location of exact sample locations by means of the grid (see Fig. 4). The same considerations discussed in 6.2.4 concerning the depth of each sample (surface, vertical composite, discrete grabs at depth) also should be considered. Fig. 4 illustrates the collection of vertical composites at each grid, which could be difficult and costly. Also note that the grid size typically would be adjusted according to the number of samples that are required.

6.2.7 *Systematic Sampling Over Time*—Systematic sampling over time at the point of generation is useful if the material is being sampled from a conveyor belt or being delivered by means of truck or pipeline to the waste pile. The sampling interval can be determined on a time basis, for example, every hour from a conveyor belt or pipeline discharge, or from every third truck load. The time between intervals is influenced by the factors addressed in 6.2.2.

NOTE 1—This approach is the preferred sampling method to determine waste characteristics of process wastes since it provides for an unaffected and accurate representation of the wastes. This approach often is not possible, though, and practitioners then are required to sample the accumulated waste pile.

6.2.8 *Alternative Approach*—In many cases, an objective of waste pile characterization is to determine the impact of the pile on the environment. At times this may be accomplished more easily by sampling the routes by which contaminants are dispersed from the pile than through direct sampling of the pile, especially for piles that are difficult to characterize. For example, ground water up-and-down gradient from the pile could be sampled to check for ground water contamination. The vadose zone below the pile also might be sampled to detect leachate (and potential ground water contamination) through

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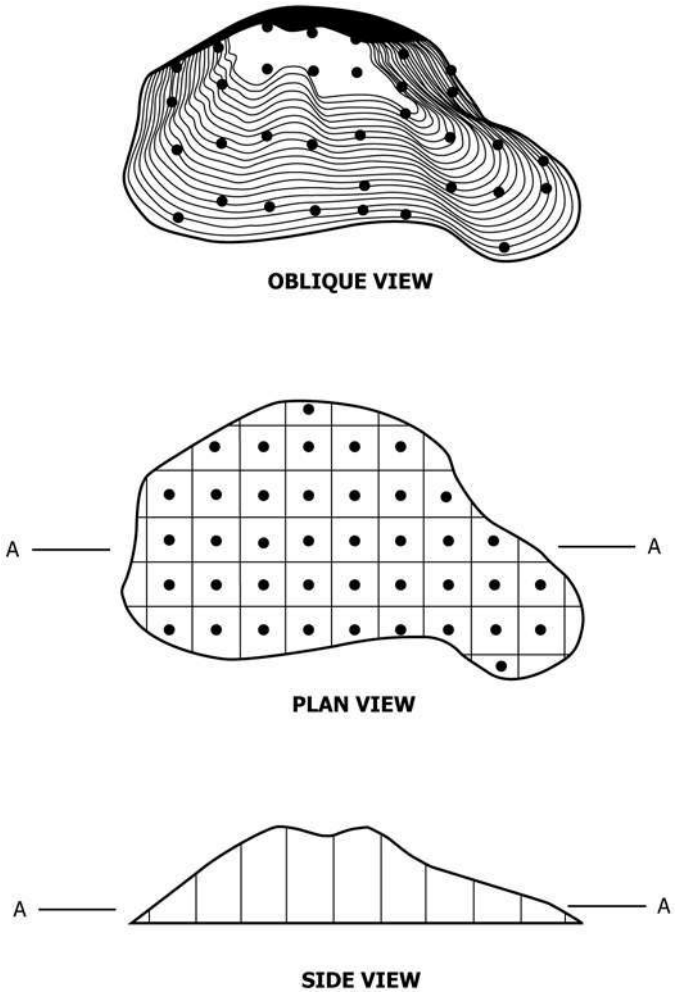


FIG. 4 Waste Pile Sampling Strategy – Systematic Grid Sampling

soil sampling, vacuum lysimeters, or soil gas. Surface water and sediment in drainage channels down gradient from the pile also might be sampled. Surface soils, air samples, and contaminants deposited on vegetation can be used as indicators of atmospheric transport of contaminants from the pile, including both particulate and volatile materials. Such approaches will seldom replace pile sampling completely, but they may reduce the number of pile samples needed to make remedial action decisions (see Guide D5730, also Refs (**7-9**)).

7. Selection of Sampling Equipment

7.1 Wastes in piles are often complex, multiphase mixtures of solids and semisolids. The wastes can range from powders to granules to large, heterogeneous solid fragments and can cover many acres in area. No single type of sampler can be used to collect representative samples of all types of waste from piles. Large, thick piles may require drill rigs to obtain samples from depth. The sampling of gases from within the pile requires other types of equipment. Table 2 lists typical waste types and the corresponding recommended samplers to use.

7.2 Sampling at depth from inside the pile may require heavy equipment designed for excavation or removal of soil or rock. Table 3 lists such equipment and its applications for sampling waste piles (**10**).

7.3 Sampling equipment should be constructed of materials that are compatible with the waste to be sampled. Compatibility refers to the physical durability, lack of chemical reactivity with the waste, and lack of potential for contamination of the waste with analytes of concern. Typical materials of construction include stainless steel, plastic, and glass.

8. Data Use

8.1 The decisions that will be made based upon the data must be identified early in the planning process since these affect the approach to the problem and how the data will be

TABLE 2 Sampling Devices Suitable for Waste Piles[A]

Location and Waste Type	Sampling Devices	ASTM Standard	Limitations
Subsurface			
Powdered, granular, or soil-like solids; sludges	Split-barrel push coring device	D1586/D1586M D1587/D1587M D4700 D4823	Limited application for sampling moist and sticky solids, or particles with diameter 0.6 cm (0.25 in.) or more. Depth limitation of about 1 m.
	Trier	D5451	May not retain core sample of very dry granular materials. Not applicable to sampling solid wastes with particle diameter >½ the diameter of the sampling tube.
	Auger	D1452/D1452M D4700	Does not collect undisturbed sample.
	Thin-walled tube sampler	D4823 D4700	Collects relatively undisturbed core. Difficult to use on gravelly or rocky soils.
	Drill rigs		Used for geoenvironmental exploration. To minimize sample contamination, avoid those using a water-based drilling fluid.
	Soil gas samplers	D7758	Used for volatile organic compounds.
Surface			
Powdered, granular, or soil-like solids; sludges	Trowel or scoop	D4700	Difficult to obtain reproducible mass of sample. May exclude certain particle sizes, especially large aggregates.
Slag	Hammer/chisel Impact device		Changes particle size.

[A] This table is not all inclusive; other equipment may be used.

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TABLE 3 Excavation and Removal Equipment for Waste Piles

Excavation and Removal Equipment	General Excavation	Ability to Excavate Hard and Compacted Material	Soil Hauling	Mixing of Solids, Soil	Spreading Cover	Site Maneuverability
Wheel or crawler Mounted backhoe	A[A]	A	B[B] /O[C]	A	A	A/B
Wheel or crawler Mounted front-end loader	A	A	A/B	A	A	A/B
Skid steer loader	A	B	B	A	B	A
Bulldozer	A	A	O	O	A	B

[A] A = Good choice. Equipment is fully capable of performing function listed.
[B] B = Secondary choice. Equipment is marginally capable of performing function listed.
[C] O = Not applicable or poor choice.

evaluated. Decisions affecting waste classification, closure, and post-closure issues are examples of the uses of the data. Methods to determine the volume of contaminated material in a pile or pile strata may be needed. Standard mathematical formulas for calculating the volume of a cone, cylinder, various prisms, and so forth, may be used.

8.2 *Statistical Considerations:*

8.2.1 Data quality assessment (DQA) methods are used to evaluate the data for any anomalies and to evaluate the assumptions for statistical evaluation. The statistician makes use of both subjective judgment (graphical analysis for identification of trends and anomalies) and statistical models and inference (for example, outlier detection, autocorrelation estimation) in the investigation of data for validity of the assumptions needed to make a statistical test. Classical statistical models assume that the samples collected from the population of interest are independent and have an identical probability distribution (that is, normal distribution with constant mean and variance). Random sampling is a method to ensure independence. The probability distributional assumptions are part of DQA that will determine if the classical statistical model is appropriate for the collected data. For directed sampling, the sampling is subjective and the sample results are typically judged on a qualitative basis.

8.2.2 Simple random sampling will provide an unbiased estimate of the average waste concentration, that is, an estimate of the mean. This unbiased estimate is independent of the geometry of the pile and of the distribution of the concentration of the contaminants, but it may not have the smallest variance. Other sampling designs, such as systematic grid sampling or stratified random sampling, may provide an average that has a smaller variance. If the waste pile has uneven topography, the calculation of the mean concentration of the pile should be a volume-weighted average, using core volume as the weighting factor to reduce the variance of the estimated mean.

8.2.2.1 For simple random sampling and systematic grid sampling designs, histogram and normal probability plots of the sample data can be used to judge if the data conform to normal distribution. If not, there are several alternatives. First, the classical statistical model may still be considered robust for the decision-making process. Second, a transformation of the data may approximate a normal distribution of the data. For example, logarithmic transformation will normalize data that are lognormal originally. If the data are lognormal, the question of whether to use the arithmetic mean or the geometric mean for decision-making purposes must be decided. Third, an alternative statistical model based on nonparametric methods, but which uses weaker assumptions, may be proposed to analyze the decision-making process. It may be advisable to consult a statistician.

8.2.2.2 For the stratified random sampling design, the test of normality is not straightforward. Generally, it requires a mathematical model to take out the strata effects first, then test for normality using the residuals. A statistician should be consulted.

8.2.2.3 In any of these cases, alternative consequences of the level of uncertainty can be calculated prior to collecting the data. These alternatives can be used by decision makers to select the best strategy to minimize the environmental risks.

9. Keywords

9.1 piles; sampling; waste

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APPENDIX

(Nonmandatory Information)

X1. WASTE PILE – A CASE HISTORY

X1.1 *Background*—The waste pile was generated by a facility that produces brass alloys from scrap metal. The byproduct from this operation was slag, which was generated in the recovery furnace. The slag was ground subsequently in a ball mill prior to being reintroduced into the recovery furnace. A large amount of the ground slag was disposed of in a waste pile which covered about one acre. No active management was occurring with the waste pile. No buried containers or extremely heterogeneous material (unground slag) was suspected of being present in the waste pile based on facility records and interviews of personnel.

X1.1.1 Lead and cadmium were the constituents of concern based on process knowledge, and the possibility for the waste being hazardous was the regulatory consideration. The potential for off-site migration of contaminants was also an immediate concern, and this was considered in the development of the Phase 1 study design. Fig. X1.1 shows a site map of the facility and the slag pile. Fig. X1.2 shows a computer enhancement of the slag pile, and Fig. X1.3 shows a topographic view of the pile.

X1.2 Phase 1

X1.2.1 *Objective*—The primary objective of the initial investigation was to determine if the slag in the waste pile classified as hazardous based on the concentration of lead and cadmium in a leach test. A secondary objective was to provide preliminary information on the potential migration and transport of contaminants from the waste pile off-site. The sampling plan for this initial investigation utilized a directed sampling strategy to provide a preliminary estimate of the lead concentration in the waste, the variability of contaminant concentrations in the pile, and the potential for leaching using the applicable leaching procedure mandated in regulations. Four composite samples were collected from the surface (0 to 15 cm or 0 to 6 in.) of the waste pile at locations within the four quadrants. The following environmental samples were also collected:

X1.2.1.1 Several soil samples in the vicinity of the waste pile,

X1.2.1.2 Sediment upstream and downstream in a stream which borders the facility,

X1.2.1.3 Sediment in a ditch which contained runoff from the pile, and

X1.2.1.4 Two background soil samples.

X1.2.2 Fig. X1.4 shows the Phase 1 sampling locations within the slag pile, and Fig. X1.5 shows the same sampling locations on the topographic map of the pile.

X1.2.3 *Results*—Zinc, copper, cadmium, and lead were all elevated (compared to background) in the samples collected from the waste pile, and the concentrations did not appear to vary significantly between the samples. Since lead and cadmium are regulated constituents, a leach test was completed, and the lead results exceeded the regulatory level of 5 mg/L. Cadmium was just under the regulatory level of 1.0 mg/L. Lead and cadmium concentrations in the soil were two to three times above background, and the drainage ditch and downstream sediment sample also had elevated lead and cadmium levels.

X1.2.4 *Conclusion*—The waste pile contained slag that is hazardous for lead. The waste pile required further characterization to determine the variability in the pile. The presence of lead and cadmium in soils and the stream sediment downstream of the facility was confirmed and should be investigated further to determine the extent of contaminant transport.

X1.3 Phase 2

X1.3.1 *Objective*—The objective is to characterize the waste pile further using a systematic grid sampling design. This design will delineate horizontal and vertical variability in lead and cadmium concentrations. The Phase 1 investigation also provided a good estimate of the anticipated variability in the waste pile. The number of samples required to characterize the waste pile adequately was calculated based on the average concentration, the anticipated variability, the regulatory level of concern, and the specified confidence interval. The grid size then was adjusted to accommodate the projection on the required number of samples. Composite samples were collected within each grid cell based on one center point and eight points on the compass (45° intervals) equidistant from the center point. Ten percent of the grids were designated for vertical as well as surface (0 to 15 cm or 0 to 6 in.) sample collection. Additionally, 10 % of the grids were designated randomly for duplicate sampling (using a different aliquot pattern) to check the preliminary estimate on the variability. Additional environmental sampling was conducted but will not be covered in this discussion.

X1.3.2 *Results*—The results supported the initial Phase 1 investigation with lead consistently exceeding the regulatory level. Cadmium consistently was below the regulatory level.

X1.3.3 *Conclusion*—The waste pile was characteristic for lead and classified as hazardous according to the applicable regulations. There was no significant variability with depth, although several gradients were noticed across the grid based on lead concentration (scan) results.

X1.4 Phase 3

X1.4.1 *Objective*—The objective is to determine the volume of the waste pile in order to estimate both the disposal cost and the total amount of the civil penalty to be charged to the owner of the pile. The waste pile was surveyed using standard surveying techniques.

X1.4.2 *Results*—The results were used to calculate the volume using geometric principles. Also, a computer program

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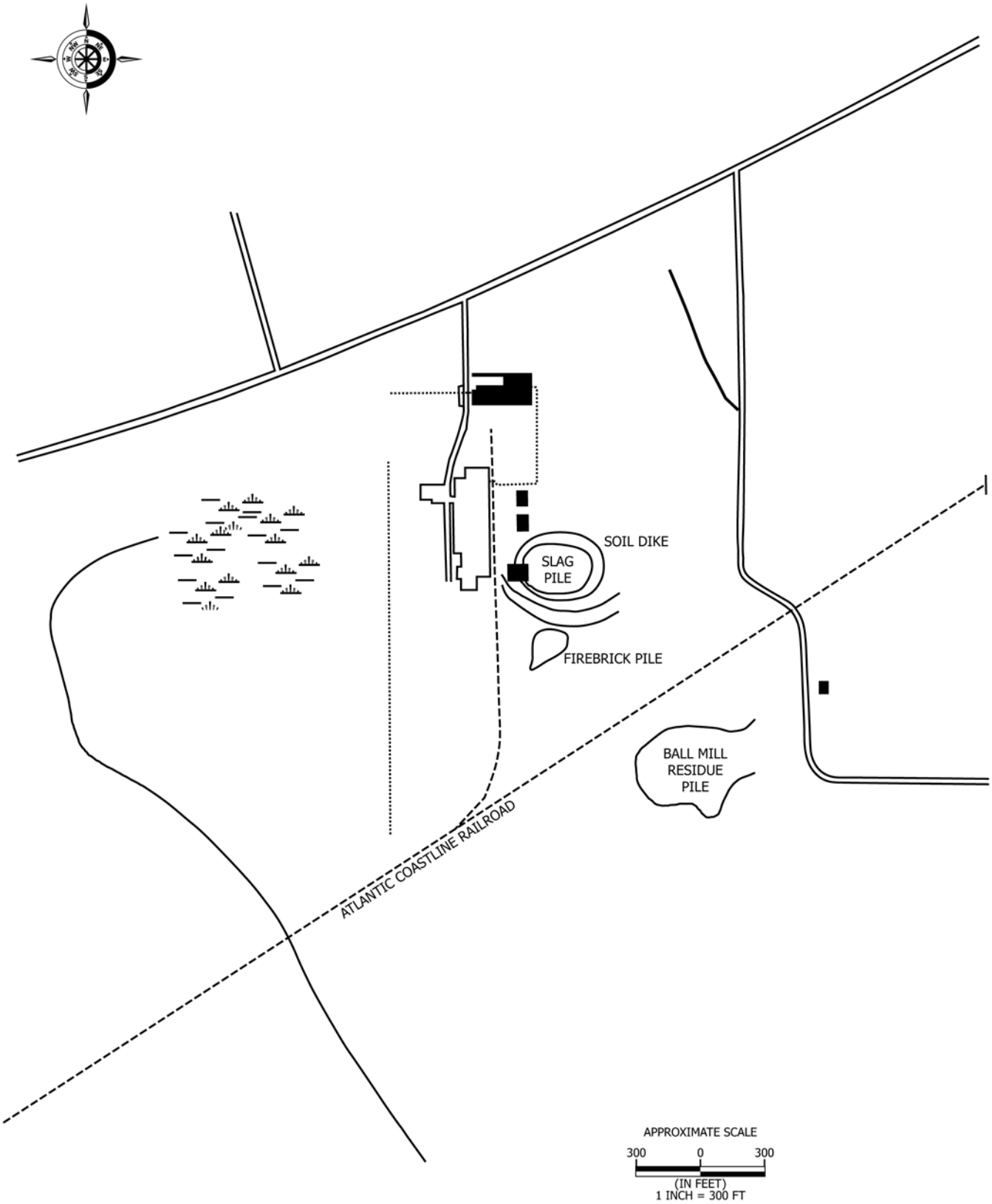


FIG. X1.1 Site Map

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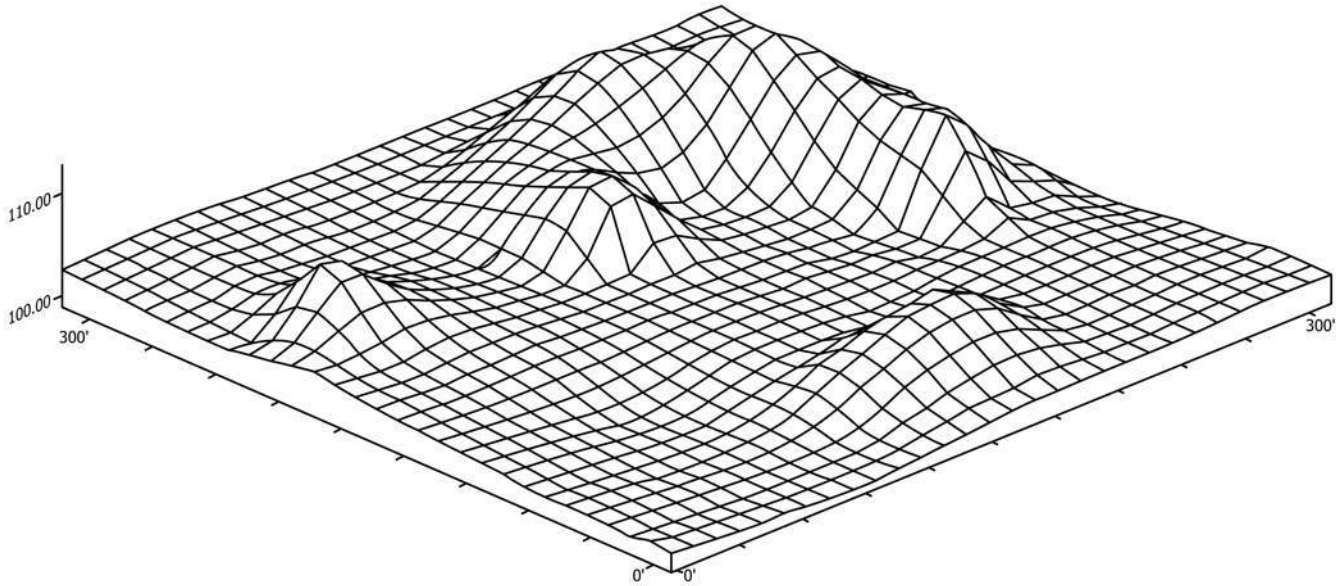


FIG. X1.2 Computer Enhancement of the Slag Pile (Front View) Scale 1:1:2

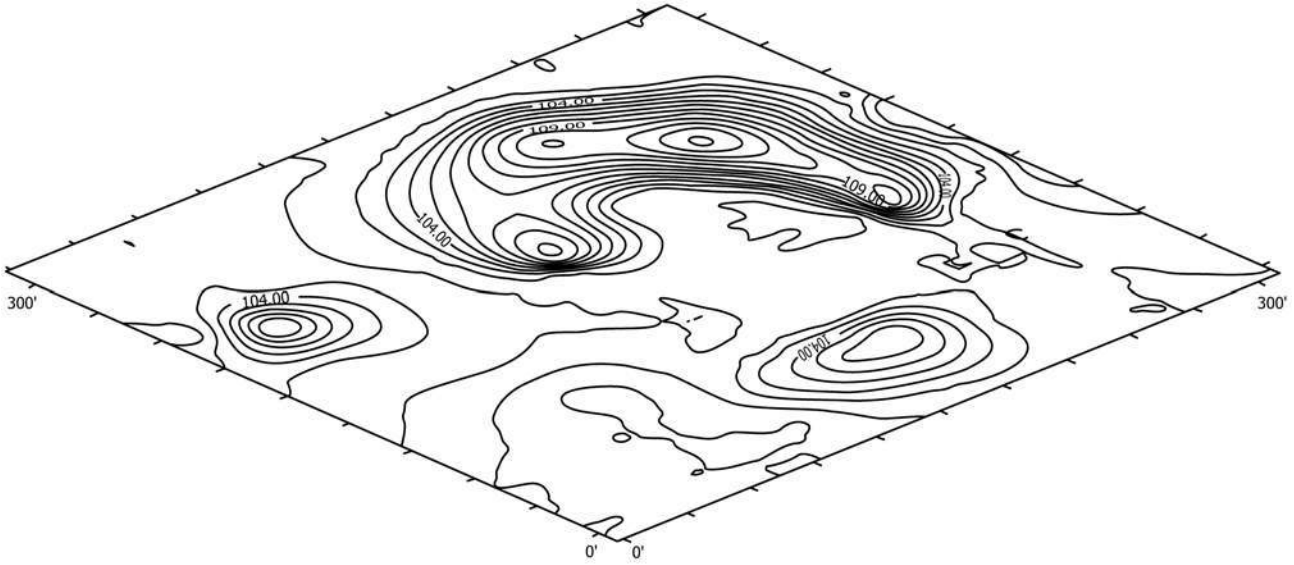


FIG. X1.3 Topographic View of the Slag Pile

was utilized which constructs contours based on the surveying information. The computer program was used as a check of the manual method, which produced a result that was 10 % higher in volume than the computer program.

X1.4.3 *Conclusion*—For penalty calculation purposes, the smaller estimate was utilized; however, the actual treatment and disposal costs could reflect the larger estimate.

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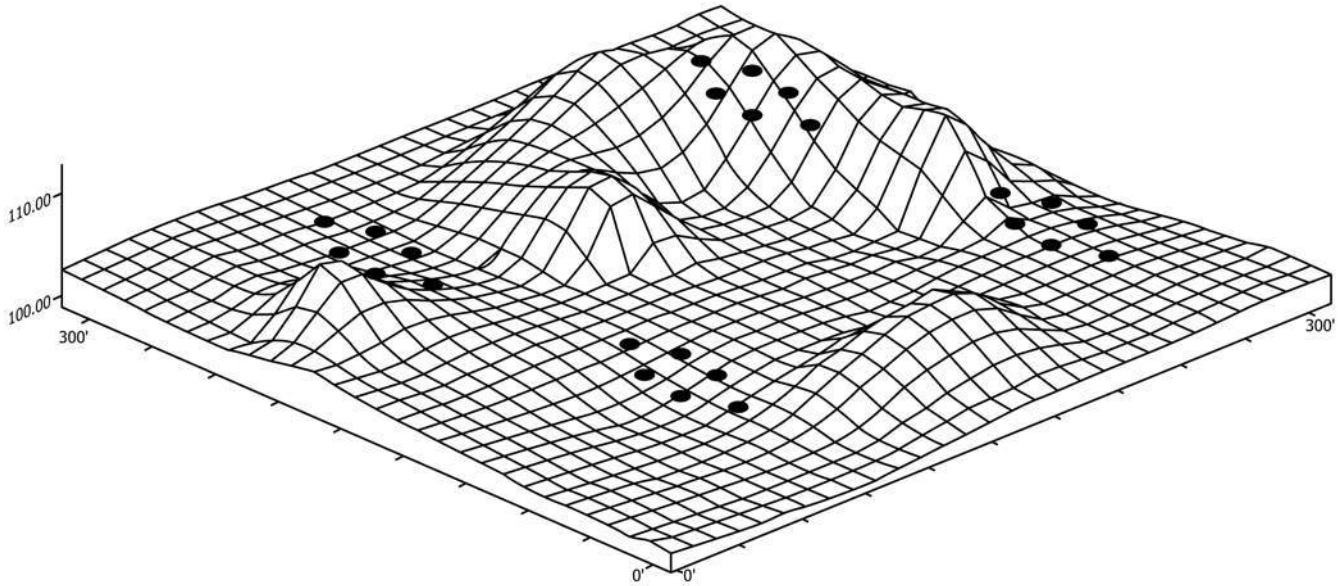


FIG. X1.4 Front View of the Slag Pile Showing Sampling Locations Scale 1:1:2

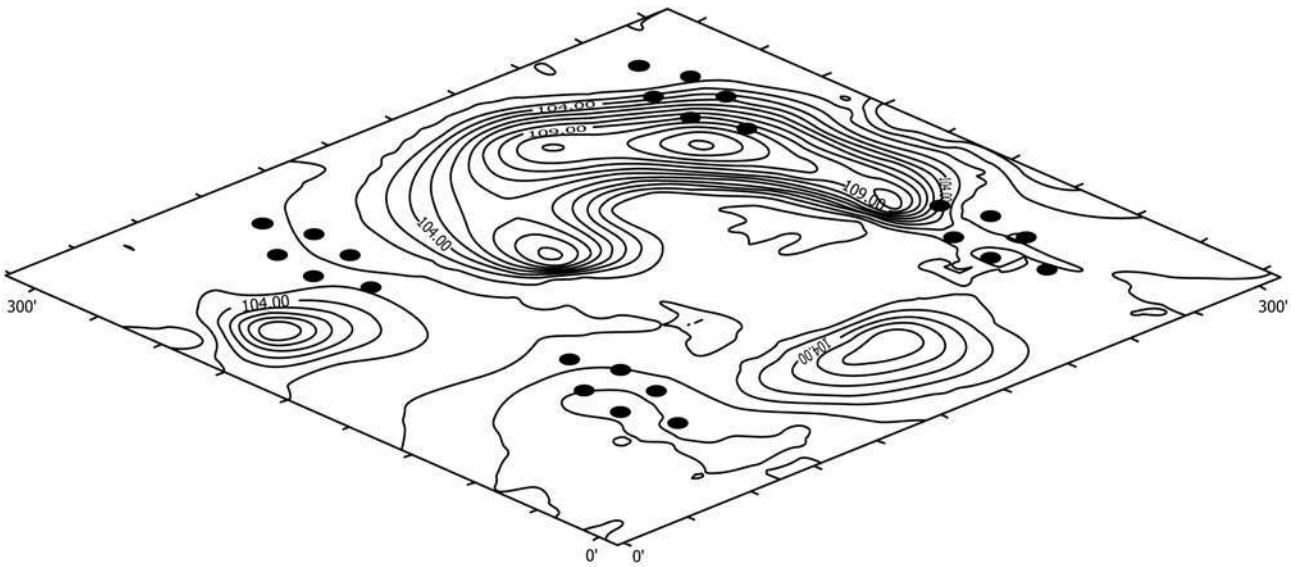


FIG. X1.5 Topographic View of the Slag Pile Showing Sampling Locations

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APPENDIX E

Information Advisory
Clean Imported Fill Material

October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California

California Environmental Protection Agency

Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed. It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contamination and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

Fill Source:	Target Compounds
Land near to an existing freeway	Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310)
Land near a mining area or rock quarry	Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH
Agricultural land	Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A)
Residential/acceptable commercial land	VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191)

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area	Sampling Requirements
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every 1/2 acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 subsamples per location
Volume of Borrow Area Stockpile	**Samples per Volume**
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1000 cubic yards +1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

terials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all compounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

For further information, call Shahir Haddad, P.E. at (714) 484-5368.

APPENDIX B

10 May 2024

Mr. Matthew Davidson, P.E.
Development Manager
GIC Vernon LLC
3333 Michelson Drive, Suite 1050
Irvine, CA 92612

Subject: Red Fill Soils Observation & Testing Letter Report
3049 E Vernon Avenue Vernon, CA 90058
Langan Project No.: 721040502

Dear Mr. Davidson,

In accordance with your request, Langan CA, Inc. (Langan) has prepared this letter report for GIC Vernon LLC (Client) to summarize the red fill soil discovered at 3049 E Vernon Avenue in Vernon, California (subject property) during the site demolition activities. The subject property location is shown in Figure 1, the discovered soil locations are shown in Figure 2, and the soil exceedance locations are shown in Figure 3.

BACKGROUND

The subject property was used as a meat processing and distribution facility from the 1920s to 2023. In May 2023, Langan conducted a concurrent Geotechnical and Phase II Environmental Site Assessment (ESA) in preparation for proposed redevelopment at the subject property (shown on Figure 1).

Geotechnical Investigation

As a part of initial geotechnical due diligence performed on the property in May of 2023, ten geotechnical borings (B-1 through B-10) were advanced using a hollow-stem auger to a maximum of 37 feet below the existing ground surface (bgs). Six additional borings were installed for the purpose of field percolation testing (FP-1 through FP-6) to approximately 50 to 65 feet bgs. The geotechnical borings are shown on Figure 2. The boring logs are included in Attachment 1.

Red fill soils were not identified in the geotechnical borings. As outlined in the report, limited fill soils were encountered at the subject property. Further details regarding the geotechnical investigation are described in the *Geotechnical Report for Proposed Industrial Building Development 3163 East Vernon Avenue* prepared by Langan and dated July 14, 2023.

Phase II ESA

As a part of environmental due diligence performed on the property in May of 2023, environmental samples were collected from the geotechnical Borings B-1 through B-10.

Additionally, borings B-11 through B-14 were advanced via direct push technology. The soil borings were advanced to depths between 12 and 35 feet bgs. Four hand auger borings (ISB-01 through ISB-04) were advanced inside the buildings between depths of 5 and 10 feet below the slab. The locations of previous environmental borings are shown on Figure 2. Red fill soils were not identified in the environmental borings.

Soil samples collected from the borings were analyzed for volatile organic compounds (VOCs) (USEPA 8260B), semi-volatile organic compounds (SVOCs) (USEPA 8270 SIM), CAM 17 Metals (USEPA 6010B), pesticides (USEPA 8081A), polychlorinated biphenyls (PCBs) (USEPA 8082), polyfluoroalkyl substances (PFAS) (537.1/QSM 5.3/1633) and asbestos (PLM). The sample results were compared to San Francisco Bay Regional Water Quality Control Board (SFB RWQCB) Commercial/Industrial and Construction Worker: Shallow Soil Exposure Environmental Screening Levels (ESLs), 2019 Rev. 2.

Arsenic was detected at a concentration above the Southern California average background concentration (12 mg/kg[1]) in B-11-10 at 34.4 mg/kg; lead was detected above the commercial/industrial ESL (320 mg/kg) and construction worker ESL (160 mg/kg) in B-11-10 at 1,100 mg/kg; and nickel was detected above the construction worker ESL (86 mg/kg) in B-11-10 at 136 mg/kg.

Additional information can be found in the *Phase II ESA for Smithfield Packaged Meats Corporation 3049, 3094, 3095, 3163, and 3200 East Vernon Avenue Vernon, California* prepared by Langan and dated May 30, 2023.

Soil Management Plan and Implementation Oversight

Based on the analytical results from the Phase II ESA, Langan prepared a Soil Management Plan (SMP), dated 13 October 2023, for the subject property. The subject property is currently undergoing demolition by American Wrecking, Inc. (the contractor). Langan conducts field observation oversight and testing services on a weekly basis in support of the on-going demolition at the subject property. Per the SMP, Langan began visiting the subject property on 27 December 2023 to collect samples of red fill soil encountered by the contractor while excavating and removing the former footings below the former bacon processing facility.

DEMOLITION AND TRENCHING

Three trenches (Trench 1 through 3) were advanced in the northern portion of the subject property, where the red fill soil was identified during demolition and removal of building foundations by the contractor, on 27 December 2023. Trench 1 was approximately 19 feet by 32 feet by 6.5 feet, Trench 2 was approximately 14 feet by 28 feet by 7 feet, and Trench 3 was

[1] California Department of Toxic Substances Control (DTSC), Human and Ecological Risk Office (HERO). Human Health Risk Assessment (HHRA) Note Number 11, Southern California Ambient Arsenic Screening Level. 28 December 2020.

approximately 15 feet by 30 feet by 9 feet. On 9 January 2024, a fourth trench was advanced. Trench 4 was approximately 16 feet by 35 feet by 12 feet. The trenches were backfilled following sampling and observation.

A Langan geologist, under the direction of a State of California Licensed Professional Geologist/Engineer, observed and described soil characteristics using visual procedures in accordance with the Unified Soil Classification System. Color, moisture content, grain size, and other soil characteristics were recorded on trench logs. Soil was screened for staining, odors, and organic vapors using a photoionization detector (PID) and recorded on the trench logs. The trench logs are provided in Attachment 2.

SOIL SAMPLING

During the demolition of the buildings and associated trenching, Langan observed red fill soil from approximately 3 to 6.5 feet bgs in Trench 1, from approximately 5 to 7 feet bgs in Trench 2, and from approximately 6 to 9 feet bgs in Trench 3. The red fill soil was observed to be between approximately 2 and 3.5 feet thick in the trenches. Glass, bone, metal, and apparent asphalt pieces were also present in the trenches. The soil did not have an odor and had a maximum PID reading of 0.2 parts per million (ppm). One in-situ characterization sample (RS-1) was collected from Trench 1 at approximately 6 feet bgs.

During additional demolition and trenching on 09 January 2024, Langan observed the red fill soil from approximately 2 to 8 feet bgs in Trench 4. Four additional samples (RS-2-2, RS-2-4, RS-2-6, and RS-2-8) were collected from Trench 4 for further characterization of the red fill soil. RS-2-6 was analyzed, and the remaining samples were placed on hold until further notice. Langan collected an additional sample of the red fill soil (RS-3-2) at 2 feet bgs from an approximately 6-inch layer of the material exposed near the western boundary of the former meat processing area (shown on Figure 2). PID readings were 0.0 ppm.

On 27 February 2024, sample S1-02272024 was collected at approximately 2 feet bgs from a 6-inch layer of red fill soil exposed in a footing trench in the northeastern meat processing area. Three additional samples S2-0227204, S3-02272024, and S4-02272024 were collected at approximately 4 feet bgs from a red fill soil layer exposed in a footing trench at the northwestern meat processing area. Sample S3-02272024 was analyzed, and the remaining samples were placed on hold pending further notice. Footing and soil sample locations are shown in Figure 2.

The samples were collected using a stainless-steel trowel from the excavator bucket. The samples were collected into laboratory-supplied bottle-ware and transferred to an ice-filled cooler. The samples were then transported under a chain of custody to Eurofins Calscience in Tustin, California, or Advanced Technology Laboratory (ATL) in Signal Hill, California.

Sample RS-1 was analyzed for the following compounds.

Analysis Type	USEPA Method
California Code of Regulations, Title 22 Metals	6010B/7471A
Total Petroleum Hydrocarbons (TPH)	8015B
Volatile Organic Compounds (VOCs)	8260B/5035

The additional red fill soil samples were only analyzed for metals. A photographic log of the trenches and the soil sampling is provided in Attachment 3.

ANALYTICAL RESULTS

The analytical results for metals, VOCs, and TPH were compared to the SFB RWQCB Commercial/Industrial and Construction Worker Soil Environmental Screening Levels (ESLs) (2019, Revision 2).

No TPH or VOCs were detected at levels exceeding any of the applicable screening levels. The following nine metals exceeded one or more applicable screening levels:

- Antimony was detected above the RWQCB Commercial/Industrial ESL and the RWQCB Construction Worker ESL of 160 milligrams per kilogram (mg/kg) and 50 mg/kg respectively at 284 mg/kg in RS-1, 1,100 mg/kg in RS-2-6, and 660 mg/kg in RS-3-2.
- Arsenic was detected above the Southern California background concentration of 12 mg/kg at 21.9 mg/kg in RS-1, 84 mg/kg in RS-2-6, and 23 mg/kg in RS-3-2.
- Barium was detected above the Construction Worker ESL of 3,000 mg/kg at 3,800 mg/kg in RS-2-6.
- Lead was detected above the RWQCB Commercial/Industrial ESL and the RWQCB Construction Worker ESL 320 mg/kg and 160 mg/kg respectively at 29,700 mg/kg in RS-1, 26,000 mg/kg in RS-2-6, 54,000 mg/kg in RS-3-2, 3,500 mg/kg in S1_02272024, and 2,400 mg/kg in S3_02272024.
- Nickel was detected above the RWQCB Construction Worker ESL of 86 mg/kg at 190 mg/kg in RS-2-6 and RS-3-2.
- Mercury was detected above the RWQCB Construction Worker ESL 44 mg/kg at 65.3 mg/kg in RS-1.

A summary of the analytical results is provided in Table 1 and Figure 3. The laboratory analytical report is provided as Attachment 4.

CONCLUSION

Based on the sporadic and apparently limited extent of red fill soils observed during the demolition and removal of building foundations in the northern portion of the subject property, it is likely that the red fill soils were placed to attain finish surface elevation of the historic buildings in these limited locations during the construction of the foundations and building slabs in these limited locations at the subject property. It is anticipated that crushed concrete located onsite will

be placed over areas of red fill soils intermittently until final development. It is proposed that red fill soils that are undisturbed during site redevelopment remain in place and that the red fill soils encountered during redevelopment be managed in accordance with the SMP.

We appreciate the opportunity to assist you with this project. If you have questions, or need information clarified, please call.

Sincerely yours,

Langan Engineering and Environmental Services, Inc.



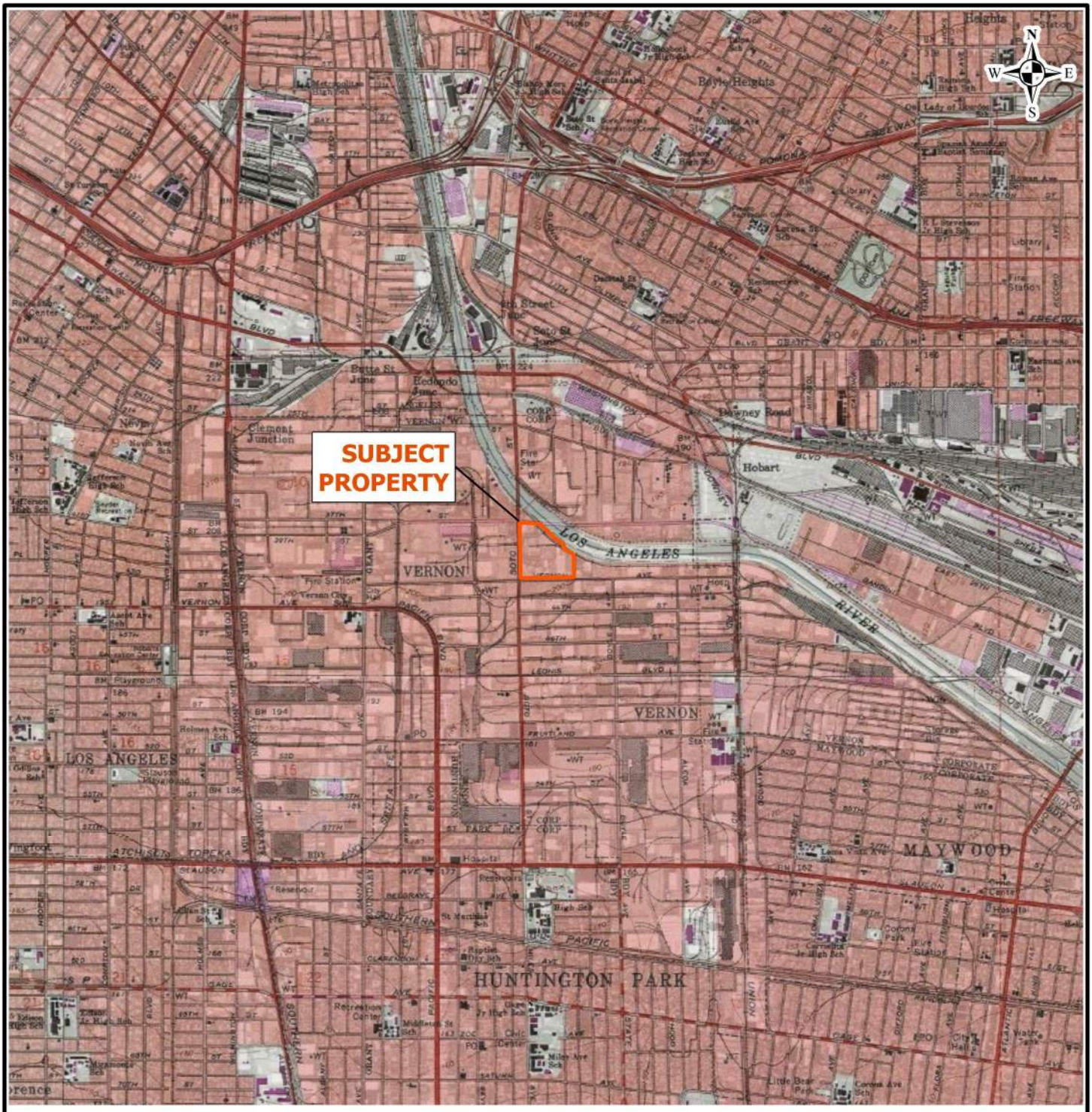
Megan Ritsema
Senior Staff Engineer



Robert S. (Rory) Johnston, PE, RCE 42332
Managing Principal

Enclosure: Figure 1 – Subject Property Location Map
Figure 2 – Red Fill Soil Location Map
Figure 3 – Soil Exceedance Location Map
Table 1 – Soil Analytical Results
Attachment 1 – Boring Logs
Attachment 2 – Trench Logs
Attachment 3 – Photographic Log
Attachment 4 – Laboratory Analytical Reports

Figures



Legend

Subject Property

Notes:
1. Site located in the Los Angeles USGS Quadrangle.
2. Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
3. All features shown are approximate.

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SCALE IN FEET

LANGAN
Langan Engineering and Environmental Services, Inc.
515 South Flower Street, Suite 2860
Los Angeles, CA 90071
T: 213.314.8100 F: 213.314.8101
www.langan.com

Project	3049 EAST VERNON AVE VERNON LOS ANGELES COUNTY CALIFORNIA
Figure Title	SUBJECT PROPERTY LOCATION MAP
Project No.	721040501
Date	1/9/2024
Scale	1"=3,000 feet
Drawn By	KA
Figure	1

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Legend

- Boring Location
- Field Percolation Test Location
- Hand Auger Boring Location
- Red Soil Present
- **(2-2.5ft)** Depth Range of Red Soil Present
- Red Soil Present
- Subject Property
- Building Outline

Notes:
1. Aerial imagery provided by Nearmap. Flown on 01/12/2024.
2. All locations shown are approximate.

250 0 250
SCALE IN FEET

LANGAN

Langan Engineering and Environmental Services, Inc.

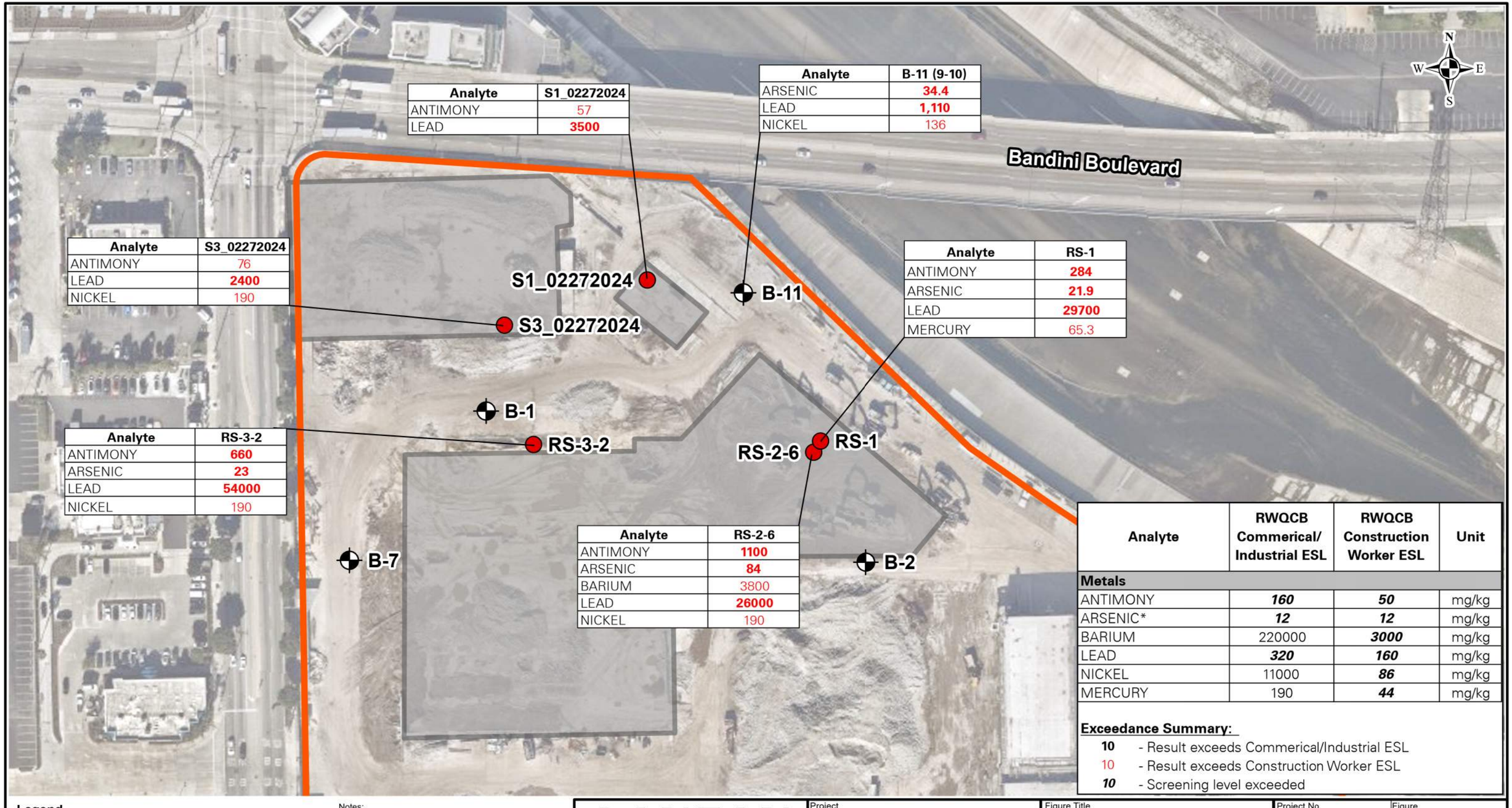
515 South Flower Street, Suite 1060
Los Angeles, CA 90071

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Project	3163 EAST VERNON AVE VERNON LOS ANGELES COUNTY CALIFORNIA
Figure Title	RED FILL SOIL LOCATION MAP
Project No.	721040501
Date	5/2/2024
Scale	1" = 250 feet
Drawn By	AC
Figure	2

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Analyte	S1_02272024
ANTIMONY	57
LEAD	**3500**

Analyte	B-11 (9-10)
ARSENIC	**34.4**
LEAD	**1,110**
NICKEL	136

Analyte	S3_02272024
ANTIMONY	76
LEAD	**2400**
NICKEL	190

Analyte	RS-1
ANTIMONY	**284**
ARSENIC	**21.9**
LEAD	**29700**
MERCURY	65.3

Analyte	RS-3-2
ANTIMONY	**660**
ARSENIC	**23**
LEAD	**54000**
NICKEL	190

Analyte	RS-2-6
ANTIMONY	**1100**
ARSENIC	**84**
BARIUM	3800
LEAD	**26000**
NICKEL	190

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Unit
Metals			
ANTIMONY	***160***	***50***	mg/kg
ARSENIC*	***12***	***12***	mg/kg
BARIUM	220000	***3000***	mg/kg
LEAD	***320***	***160***	mg/kg
NICKEL	11000	***86***	mg/kg
MERCURY	190	***44***	mg/kg

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL

10 - Result exceeds Construction Worker ESL

10 - Screening level exceeded

Legend

- Boring Location
- Red Soil Present
- Subject Property
- Building Outline

Notes:
1. Aerial imagery provided by Nearmap. Flown on 01/26/2023.
2. All locations of are approximate.
3. * Below accepted background arsenic level of 12 mg/kg.
4. Hazardous trigger is the minimum of the TTLC, 10xSTLC, and 20xTCLP.

100 0 100
SCALE IN FEET

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Project
3163 EAST VERNON AVE
VERNON
LOS ANGELES COUNTY CALIFORNIA

Figure Title
SOIL EXCEEDANCE LOCATION MAP

Project No.	Figure
721040501	3
Date: 5/2/2024	
Scale: 1" = 100'	
Drawn By: TO	

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Path: \\langan.com\data\LAX\data5\721040501\Project Data\ArcGIS\APRX_APRX 721040501\721040501.aprx

Tables

Table 1: Soil Analytical Results - TPH and Metals

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	RS-1					RS-2-6					RS-3-2					S1_02272024					S3_02272024				
			Feature	Red fill soil					Red fill soil					Red fill soil					Red fill soil					Red fill soil				
			Sample Type	In-situ					In-situ					In-situ					In-situ					In-situ				
			Sample Date	12/27/2023					1/9/2024					1/9/2024					2/27/2024					2/27/2024				
			Unit	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF	Result	Q	MDL	RL	DF
Total Petroleum Hydrocarbons																												
TPH GRO	2000	1800	mg/kg	ND	U	0.055	0.099	1	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
TPH DRO	1200	1100	mg/kg	440	F1	11	24	1	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
TPH MRO	180000	54000	mg/kg	270	-	3.7	4.9	1	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-	NA	-	-	-	-
Metals																												
ANTIMONY	***160***	***50***	mg/kg	**284**	-	14.5	50.8	25	**1100**	-	7.7	20	10	**660**	-	0.77	2	1	57	-	3.9	10	5	76	-	3.9	10	5
ARSENIC*	***12***	***12***	mg/kg	**21.9**	-	7.06	15.2	25	**84**	-	7.1	20	10	**23**	-	0.71	2	1	ND	-	3.5	10	5	ND	-	3.5	10	5
BARIUM	220000	***3000***	mg/kg	2040	B	0.721	15.2	25	3800	-	0.58	10	10	920	-	0.06	1	1	630	-	0.29	5	5	360	-	0.29	5	5
BERYLLIUM	230	27	mg/kg	ND	U	0.35	2.54	25	ND	-	0.31	10	10	ND	-	0.03	1	1	ND	-	0.16	5	5	ND	-	0.16	5	5
CADMIUM	1100	51	mg/kg	18.5	-	0.832	2.54	25	43	-	0.57	10	10	18	-	0.06	1	1	14	-	0.28	5	5	10	-	0.28	5	5
CHROMIUM, TOTAL	NS	NS	mg/kg	64	-	0.944	5.08	25	160	-	0.99	10	10	110	-	0.1	1	1	58	-	0.5	5	5	37	-	0.5	5	5
COBALT	350	28	mg/kg	12.7	-	1.05	5.08	25	26	-	0.76	10	10	18	-	0.08	1	1	15	-	0.38	5	5	12	-	0.38	5	5
COPPER	47000	14000	mg/kg	7600	-	4.86	10.2	25	5000	-	11	50	50	9400	-	2.2	10	10	840	-	1.1	5	5	820	-	1.1	5	5
LEAD	***320***	***160***	mg/kg	**29700**	-	4.15	20.3	50	**26000**	-	9	50	50	**54000**	-	18	100	100	**3500**	-	0.9	5	5	**2400**	-	0.9	5	5
MOLYBDENUM	5800	1800	mg/kg	ND	U	2.61	10.2	25	18	-	0.97	10	10	17	-	0.1	1	1	ND	-	0.48	5	5	ND	-	0.48	5	5
NICKEL	11000	***86***	mg/kg	71.3	-	1.84	10.2	25	190	-	0.43	10	10	190	-	0.04	1	1	57	-	0.22	5	5	77	-	0.22	5	5
SELENIUM	5800	1700	mg/kg	ND	U	6.2	15.2	25	ND	-	8.2	20	10	ND	-	0.82	2	1	ND	-	4.1	10	5	ND	-	4.1	10	5
SILVER	5800	1800	mg/kg	14.6	-	0.731	7.61	25	59	-	2.7	10	10	14	-	0.27	1	1	ND	-	1.4	5	5	ND	-	1.4	5	5
THALLIUM	12	3.5	mg/kg	ND	U	10.7	50.8	25	ND	-	3.5	20	10	ND	-	0.35	2	1	ND	-	1.8	10	5	ND	-	1.8	10	5
VANADIUM	5800	470	mg/kg	15.7	-	0.853	5.08	25	63	-	2	10	10	23	-	0.2	1	1	45	-	1	5	5	34	-	1	5	5
ZINC	350000	110000	mg/kg	5140	-	5.87	25.4	25	15000	-	3	20	10	8300	-	3	20	10	1900	-	1.5	10	5	3500	-	1.5	10	5
MERCURY	190	***44***	mg/kg	65.3	F2	3.33	8.68	100	ND	-	0.01	0.1	1	0.43	-	0.01	0.1	1	0.51	-	0.01	0.1	1	0.74	-	0.01	0.1	1

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2

* Arsenic is compared to the Southern California background level of 12 mg/kg.

mg/kg - milligrams per kilogram

NS - No Standard

ND - Not Detected

Q - Qualifier

MDL - Method Detection Limit

RL - Reporting Limit

DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.

U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.

B – Compound found in blank sample.

F1 – MS and/or MSD recovery exceeds control limits

F2 – MS/MSD RPD exceeds control limits

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL

10 - Result exceeds Construction Worker ESL

10 - Screening level exceeded

Table 1: Soil Analytical Results - VOCs

Analyte	RWQCB Commerical/ Industrial ESL	RWQCB Construction Worker ESL	Sample Name	RS-1				
			Feature	Red fill soil				
			Sample Type	In-situ				
			Sample Date	12/27/2023				
			Unit	Result	Q	MDL	RL	DF
Volatile Organic Compounds								
1,1,1,2-TETRACHLOROETHANE	8.9	190	mg/kg	ND	U	0.00026	0.00089	1
1,1,1-TRICHLOROETHANE	7300	7200	mg/kg	ND	U	0.00021	0.00089	1
1,1,2,2-TETRACHLOROETHANE	2.7	49	mg/kg	ND	U	0.00048	0.0018	1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NS	NS	mg/kg	ND	U	0.00041	0.0089	1
1,1,2-TRICHLOROETHANE	5.1	6.3	mg/kg	ND	U	0.00041	0.00089	1
1,1-DICHLOROETHANE	16	370	mg/kg	ND	U	0.00025	0.00089	1
1,1-DICHLOROETHENE	350	350	mg/kg	ND	U	0.00024	0.00089	1
1,1-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.00034	0.0018	1
1,2,3-TRICHLOROBENZENE	NS	NS	mg/kg	ND	U	0.00033	0.0018	1
1,2,3-TRICHLOROPROPANE	0.11	0.83	mg/kg	ND	U	0.00037	0.0018	1
1,2,4-TRICHLOROBENZENE	110	240	mg/kg	ND	U	0.00036	0.0018	1
1,2,4-TRIMETHYLBENZENE	NS	NS	mg/kg	ND	U	0.00053	0.0018	1
1,2-DIBROMO-3-CHLOROPROPANE	0.059	1.1	mg/kg	ND	U	0.003	0.0089	1
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.16	3.3	mg/kg	ND	U	0.00018	0.00089	1
1,2-DICHLOROBENZENE	9400	7800	mg/kg	ND	U	0.00022	0.00089	1
1,2-DICHLOROETHANE	2.1	45	mg/kg	ND	U	0.00025	0.00089	1
1,2-DICHLOROPROPANE	4.4	66	mg/kg	ND	U	0.00024	0.00089	1
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	NS	NS	mg/kg	ND	U	0.00024	0.0018	1
1,3-DICHLOROBENZENE	NS	NS	mg/kg	ND	U	0.00022	0.00089	1
1,3-DICHLOROPROPANE	NS	NS	mg/kg	ND	U	0.00026	0.00089	1
1,4-DICHLOROBENZENE	12	280	mg/kg	ND	U	0.00027	0.00089	1
2,2-DICHLOROPROPANE	NS	NS	mg/kg	ND	U	0.00024	0.0044	1
2-CHLOROTOLUENE	NS	NS	mg/kg	ND	U	0.00022	0.00089	1
2-HEXANONE	NS	NS	mg/kg	ND	U	0.0027	0.018	1
4-CHLOROTOLUENE	NS	NS	mg/kg	ND	U	0.00021	0.00089	1
ACETONE	670000	270000	mg/kg	0.047	-	0.0087	0.018	1
BENZENE	1.4	33	mg/kg	0.029	-	0.00023	0.00089	1
BROMOBENZENE	NS	NS	mg/kg	ND	U	0.00019	0.00089	1
BROMOCHLOROMETHANE	NS	NS	mg/kg	ND	U	0.00039	0.0018	1
BROMODICHLOROMETHANE	1.3	28	mg/kg	ND	U	0.00029	0.00089	1
BROMOFORM	80	1200	mg/kg	ND	U	0.0012	0.0044	1
BROMOMETHANE	30	29	mg/kg	ND	U	0.0058	0.018	1
BUTANE, 2-METHOXY-2-METHYL	NS	NS	mg/kg	ND	U	0.00017	0.00089	1
CARBON DISULFIDE	NS	NS	mg/kg	ND	U	0.00036	0.0089	1
CARBON TETRACHLORIDE	2.7	53	mg/kg	ND	U	0.00027	0.00089	1
CHLOROBENZENE	1300	1200	mg/kg	ND	U	0.00024	0.00089	1
CHLORODIBROMOMETHANE	39	290	mg/kg	ND	U	0.00024	0.0018	1
CHLOROETHANE	59000	59000	mg/kg	ND	U	0.00066	0.0018	1
CHLOROFORM	1.4	34	mg/kg	0.00063	J	0.00052	0.00089	1
CHLOROFORM	1.4	34	mg/kg	0.00063	J	0.00052	0.00089	1
CHLOROMETHANE	470	470	mg/kg	ND	U	0.0014	0.018	1
CIS-1,2-DICHLOROETHYLENE	85	78	mg/kg	ND	U	0.0003	0.00089	1
CIS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.00031	0.00089	1
CYMENE	NS	NS	mg/kg	ND	U	0.00025	0.00089	1
DIBROMOMETHANE	NS	NS	mg/kg	ND	U	0.00027	0.00089	1
DICHLORODIFLUOROMETHANE	NS	NS	mg/kg	ND	U	0.0004	0.0018	1
ETHANOL	NS	NS	mg/kg	ND	U	0.082	0.22	1
ETHYL ACETATE	NS	NS	mg/kg	NA	-	-	-	-
ETHYL ETHER	NS	NS	mg/kg	NA	-	-	-	-
ETHYL TERT-BUTYL ETHER	NS	NS	mg/kg	ND	U	0.00021	0.00089	1
ETHYLBENZENE	26	540	mg/kg	0.0025	-	0.00018	0.00089	1
HEXACHLOROBUTADIENE	5.3	100	mg/kg	NA	-	-	-	-
ISOPROPYL ETHER	NS	NS	mg/kg	ND	U	0.00044	0.00089	1
ISOPROPYLBENZENE (CUMENE)	NS	NS	mg/kg	ND	U	0.00025	0.00089	1
M,P-XYLENE	NS	NS	mg/kg	0.0017	J	0.00042	0.0018	1
METHYL ETHYL KETONE (2-BUTANONE)	200000	120000	mg/kg	ND	U	0.004	0.018	1
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	140000	140000	mg/kg	ND	U *+	0.0026	0.018	1
METHYLENE CHLORIDE	25	490	mg/kg	ND	U	0.0028	0.0089	1
NAPHTHALENE	17	400	mg/kg	ND	U *+	0.0035	0.0089	1
N-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.00019	0.00089	1
N-PROPYLBENZENE	NS	NS	mg/kg	0.00029	J	0.00023	0.0018	1
O-XYLENE (1,2-DIMETHYLBENZENE)	NS	NS	mg/kg	0.00069	J	0.00023	0.00089	1
SEC-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.00024	0.00089	1
STYRENE	33000	25000	mg/kg	ND	U	0.00028	0.00089	1
T-BUTYLBENZENE	NS	NS	mg/kg	ND	U	0.00023	0.00089	1
TERT-BUTYL ALCOHOL	NS	NS	mg/kg	ND	U	0.0062	0.018	1
TERT-BUTYL METHYL ETHER	210	4100	mg/kg	ND	U	0.00017	0.0018	1
TETRACHLOROETHYLENE(PCE)	2.7	33	mg/kg	ND	U	0.0002	0.00089	1
TOLUENE	5300	4700	mg/kg	0.012	-	0.00024	0.00089	1
TRANS-1,2-DICHLOROETHENE	600	570	mg/kg	ND	U	0.00027	0.00089	1
TRANS-1,3-DICHLOROPROPENE	NS	NS	mg/kg	ND	U	0.00025	0.0018	1
TRICHLOROETHYLENE (TCE)	6.1	18	mg/kg	ND	U	0.00034	0.0018	1
TRICHLOROFLUOROMETHANE	NS	NS	mg/kg	0.00069	J	0.00024	0.0089	1
VINYL ACETATE	NS	NS	mg/kg	ND	U	0.0035	0.0089	1
VINYL CHLORIDE	0.15	3.4	mg/kg	ND	U	0.00034	0.00089	1

Notes:

ESLs - Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board (RWQCB), 2019 Rev. 2
mg/kg - milligrams per kilogram
NA - Not Analyzed
NS - No Standard
ND - Not Detected
Q - Qualifier
MDL - Method Detection Limit
RL - Reporting Limit
DF - Dilution Factor

Qualifiers:

J – Result is less than the RL but greater than or equal to the MDL and the concentration is an approximte value.
U – The analyte was analyzed for, but was not detected at a level greater than or equal to the RL.
*+ – LCS and/or LCSD is outside acceptable limits, high bias.

Exceedance Summary:

10 - Result exceeds Commerical/Industrial ESL
10 - Result exceeds Construction Worker ESL
10 - Screening level exceeded

Attachment 1

Boring Logs

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Log of Boring **B-1** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 206
Drilling Company: ABC Liovin	Date Started: 05/04/2023 — Date Finished: 05/04/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+206.0		0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet.
	+205.7	AC = 4-inch thick; No base.							
		Artificial Fill (af) Silty SAND (SM), brown, moist, fine sand, trace concrete and glass fragments. [FILL]	1						
	+203.5		2						
		Quaternary Young Alluvium (Qya) Silty SAND (SM) to Sandy SILT (ML), brown, loose to medium stiff, moist, fine sand.	3						
			4						
			5	S-1	SPT	18	2 2 3	0	
			6						
			7						
	+198.0		8						
		SAND (SW), light brown, medium dense, moist, fine to coarse sand, trace fine gravel.	9						
			10	S-2	CR	14	5 10 17	0	WC = 2.6% DD = 109.7 pcf
			11						
			12						
	+193.0		13						
		SAND (SP), light brown, medium dense, moist, fine to medium sand.	14						
			15	S-3	SPT	18	5 11 13	1.2	
			16						
			17						
	+188.0		18						
		SAND with Silt (SP-SM), light brown, medium dense, moist, fine sand, trace fine gravel.	19						
			20						

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Log of Boring **B-1** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 206

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+186.0		20	S-4	CR	18	7 13 24	0.2	WC = 8.7% DD = 110.5 pcf
		Fine to medium sand, no gravel.	21						
		Interbeds, brown, silty fine sand (SM) , 1 to 2 inches thick.	22						
			23						
			24						
			25	S-5	SPT	18	9 11 12	0	
			26						
			27						
	+178.0		28						
		CLAY with Sand (CL), brown, very stiff, moist, fine sand.	29						
			30	S-6	CR	18	5 6 23	0	LL = 25, PL = 15, PI = 10
	+174.5		31						
		Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 27 feet.	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-2** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 206
Drilling Company: ABC Liovin	Date Started: 05/03/2023 / Date Finished: 05/03/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 3 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed - / Undisturbed - / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in		Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+206.0		0						
	+205.5	AC = 4-inch thick; No base.							
		Artificial Fill (af) Silty SAND (SM) and Sandy SILT (ML), dark brown, moist, scattered gravel and pieces of broken clay pipe. [FILL]	1						
			2						
	+203.0		3						
		Total Depth = 3 feet Groundwater not encountered. Backfilled with soil cuttings. **Boring abandoned due to potentially buried utility.**	4						
			5						
			6						
			7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-3** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	204.0		0						
	203.6	PCC = 5-inch thick, No base.							
		Artificial Fill (af) SAND (SP), light brown, moist, fine to medium sand, trace fine to coarse gravel, trace silt. [FILL]	1						Bulk sample collected from 0-5 feet. Corrosion and chemical test. Expansion Index.
			2						
			3						
	200.0		4						
		Silty SAND (SM), brown, loose, moist, fine sand, some fine gravel, trace clay. [FILL]	5	S-1	CR	18	2 3 7	0	WC = 10.7% DD = 106.0 pcf
	197.5		6						
		Quaternary Young Alluvium (Qya) SAND (SP), light brown, medium dense, moist, fine to coarse sand, trace fine gravel.	7						
			8						
			9						
			10	S-2	SPT	18	3 7 9	0	
			11						
			12						
	191.0		13						
		SAND with Silt (SP-SM), light brown, medium dense, moist, fine to medium sand.	14						
			15	S-3	CR	18	8 9 13	0	WC = 8.6% DD = 112.2 pcf
			16						
			17						
	186.0		18						
		SAND (SP), light brown, medium dense, moist, fine to medium sand.	19						
			20						

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Log of Boring **B-3** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0		20					0.1	
			21	S-4	SPT	15	7 11 16		
			22						
	+181.0	SAND (SW), light brown, dense, moist, fine to coarse sand and gravel.	23						
			24						
			25					0	WC = 2.6% DD = 103.7 pcf
			26	S-5	CR	18	13 21 28		
			27						
			28						
			29						
		Fine to medium sand, no gravel.	30					0.3	
	+173.5	Sandy CLAY (CL), brown, very stiff, moist, very fine to fine sand.	31	S-6A/6B	SPT	18	10 7 10		
	+172.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-4** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 201
Drilling Company: ABC Liovin	Date Started: 05/03/2023 / Date Finished: 05/03/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+201.0	PCC = 7-inch thick, Base = 12-inch thick.	0						Hand auger from 0-6 feet.
	+199.4	**Artificial Fill (af)** Silty SAND (SM), light brown, slightly moist. [FILL]	1						
	+198.5	**Quaternary Young Alluvium (Qya)** Silty SAND (SM), light brown, slightly moist.	2						
			3						
			4						
		Grayish brown, loose, fine sand, micaceous.	5	S-1	SPT	18	2 3 4	0.3	
			6						
			7						
	+193.0	SAND with Silt (SW-SM), light brown, dense, slightly moist, fine to coarse sand.	8						
			9						
			10	S-2	CR	18	7 18 27	0.1	WC = 5.1% DD = 110.5 pcf
			11						
			12						
	+188.0	SAND with Some Silt (SP-SM), light brown, medium dense, slightly moist, medium to coarse sand.	13						
			14						
			15	S-3	SPT	18	7 12 13	0.1	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-4** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 201

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+181.0	Dense, medium sand.	20	S-4	CR	18	6 18 31	0	WC = 4.6% DD = 110.1 pcf
	+178.0	SAND with Silt (SP-SM), light brown, dense, slightly moist, medium sand, some fine and coarse sand.	25	S-5	SPT	18	10 20 24	0.4	
		Very moist, fine to coarse sand.	30	S-6	CR	18	21 38 22	0	WC = 4.5% DD = 124.4 pcf
	+169.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	45						

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Log of Boring **B-5** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/03/2023 / Date Finished: 05/03/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 3 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+204.0		0						Hand auger from 0-5 feet.
	+203.6	AC = 3-inch thick, Base = 2-inch thick.	1						
		Artificial Fill (af) Silty SAND (SM), brownish gray, very loose, slightly moist, fine sand. [FILL]	2						
	+202.0	**Quaternary Young Alluvium (Qya)** Silty SAND (SM), brownish gray, very loose, slightly moist, fine sand.	3						
			4						
			5	S-1	SPT	18	2 2 1	0	
			6						
			7						
	+196.0	SAND (SW), light brown, medium dense, slightly moist to moist, fine to coarse sand, occasional pebbles, some silt.	8						
			9						
			10	S-2	CR	18	4 8 15	0	% Passing #200 = 4
			11						
			12						
	+191.0	SAND with Silt (SW-SM), light brown, medium dense, very moist, fine to coarse sand, some iron oxide/limonite staining, poor subhorizontal bedding, no pebbles.	13						
			14						
			15	S-3	SPT	18	5 9 13	0	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-5** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0	Slightly moist, medium sand, no iron oxide/limonite staining.	20	S-4	CR	18	8 14 21	0	WC = 22.5% DD = 86.7 pcf
		Occasional fine pebbles.	25	S-5	SPT	18	8 14 15	0	
	+176.0	Gravelly SAND with Silt (SP-SM), light brown, very dense, moist, subrounded to subangular fine to medium gravel, iron oxide/limonite staining.	30	S-6	CR	17	11 31 50/5"	0	
	+172.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	45						

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Log of Boring **B-6** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 202
Drilling Company: ABC Liovin	Date Started: 05/04/2023 — Date Finished: 05/04/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 31.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	202.0	AC = 5-inch thick, Base = 12-inch thick.	0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet. Compaction Test.
	200.5	**Artificial Fill (af)** Silty SAND (SM), brown, moist, fine sand, trace fine gravel. [FILL]	1						
	199.5	**Quaternary Young Alluvium (Qya)** SAND with Silt (SP-SM), brown, loose, moist, fine sand, trace fine gravel.	2						
	197.0	Silty SAND (SM), brown, loose, moist, fine sand, trace fine gravel.	5	S-1	CR	18	4 5 5	0	
	192.0	SAND with Silt (SP-SM), brown, medium dense, moist, fine sand, trace fine gravel.	10	S-2	SPT	18	3 8 10	0.1	
		Light brown, fine to coarse sand.	15	S-3	CR	18	2 8 11	0.1	WC = 25.2% DD = 83.5 pcf
	184.0	SAND (SP), light brown, medium dense, moist, fine to medium sand, trace fine gravel.	18						
			20						

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Log of Boring **B-6** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+182.0		20					0	
			21	S-4	SPT	18	7 12 15		
			22						
	+179.0	SAND (SW), light brown, dense, moist, fine to coarse sand, trace fine gravel.	23						
			24						
			25					0	WC = 25.0% DD = 95.4 pcf
			26	S-5	CR	18	8 13 20		
			27						
	+174.0	SAND (SP), light brown, medium dense, moist, fine to medium sand, trace fine gravel.	28						
			29						
			30					0	
			31	S-6	SPT	18	8 14 19		
	+170.5	Total Depth = 31.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-7** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 206
Drilling Company: ABC Liovin	Date Started: 05/04/2023 / Date Finished: 05/04/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft / Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 / Undisturbed 4 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+206.0		0						Hand auger from 0-6 feet.
	+205.5	AC = 6-inch thick, No base.							
		Artificial Fill (af) Silty SAND (SM), light brown, moist, fine sand. [FILL]	1						
	+203.5		2						
		Quaternary Young Alluvium (Qya) Silty SAND (SM), light brown, loose, moist, fine sand.	3						
			4						
			5						WC = 15.1% DD = 101.3 pcf
			6	S-1	CR	18	2 3 8	0	
			7						
	+197.5		8						
		SAND (SP), light brown, medium dense, moist, fine sand.	9						
			10	S-2	SPT	18	3 6 11	0	
			11						
	+193.0		12						
		SAND (SW), light brown, dense, moist, fine to coarse sand, trace fine gravel.	13						
			14						
			15	S-3	CR	16	12 25 36	0	Poor sample recovery; Bag sample taken.
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-7** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 206

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+186.0		20	S-4	SPT	16	9 19 25	0.5	
			21						
			22						
			23						
			24						
			25	S-5	CR	18	21 33 40	0.3	WC = 7.9% DD = 99.0 pcf
			26						
			27						
	+178.0	Clayey SAND (SC), brown, dense, moist, fine sand.	28						
			29						
			30	S-6	SPT	18	8 20 20	0	High fines content.
			31						
			32						
	+173.0	Silty SAND (SM) to Sandy SILT (ML), brown, dense to very stiff, moist, very fine to fine sand, trace iron oxide staining.	33						
			34						
			35	S-7	CR	18	13 19 26	0	WC = 22.8% DD = 92.7 pcf
			36						
	+169.5	Total Depth = 36.5 feet Groundwater not encountered. Vapor probes installed at 10 and 28.5 feet.	37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-8** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks
	+204.0		0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet. R-Value Test.
	+203.4	AC = 4-inch thick, PCC = 3-inch thick.							
		Artificial Fill (af) SAND with Silt (SP-SM), brown, moist, fine to medium sand, trace fine gravel. [FILL]	1						
			2						
	+201.0		3						
		Quaternary Young Alluvium (Qya) SAND (SP), light brown, medium dense, moist, fine sand, trace silt.	4						
			5	S-1	SPT	18	5 5 8	0.7	
			6						
			7						
			8						
			9						
		Fine to medium sand, no silt.	10	S-2	CR	18	4 8 9	0	
			11						
			12						
			13						
			14						
		Trace fine gravel.	15	S-3	SPT	18	7 12 12	1.9	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-8** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0	Dense.	20	S-4	CR	18	10 19 33	0	WC = 3.4% DD = 105.8 pcf
			21						
			22						
			23						
			24						
		Medium dense, fine to coarse sand, no gravel.	25	S-5	SPT	18	9 12 17	2.4	
			26						
			27						
			28						
			29						
		Fine to medium sand.	30	S-6	CR	15	4 11 11	0.1	S-6A : WC = 3.4% DD = 103.3 pcf S-6B: WC = 13.6% DD = 122.1 pcf
	+172.8		31						
		Sandy CLAY (CL), brown, very stiff, moist, very fine to fine sand.	32						
			33						
			34						
		Very fine to medium sand, trace fine gravel.	35	S-7	SPT	18	3 5 10	1.1	
	+167.5		36						
		Total Depth = 36.5 feet Groundwater not encountered. Vapor probes installed at 10 and 30 feet.	37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-9** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 3 — Undisturbed 4 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First ▽ - — Completion ▼ - — 24 HR. ▼ -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+204.0		0						Hand auger from 0-5 feet. Bulk sample collected from 0-5 feet.
	+203.7	AC = 2-inch thick, Base = 2-inch thick.							
		Artificial Fill (af) SAND (SP), brown, moist, fine sand, trace silt. [FILL]	1						
	+202.0		2						
		Quaternary Young Alluvium (Qya) SAND with Silt (SP-SM), brown, moist, fine sand.	3						
			4						
		Loose.	5	S-1	CR	14	2 2 4	0	
			6						
			7						
			8						
			9						
		Medium dense.	10	S-2	SPT	15	4 5 7	0.7	% Passing #200 = 8
			11						
	+191.5		12						
		SAND (SW), light brown, medium dense, moist, fine to coarse sand, trace fine gravel.	13						
			14						
			15	S-3	CR	16	11 18 23	0.5	
			16						
			17						
			18						
			19						
			20						

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Log of Boring **B-9** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+184.0	Dense, fine to medium sand.	20	S-4	SPT	18	6 13 17	0.4	
			21						
			22						
			23						
			24						
		Fine to coarse sand.	25	S-5	CR	16	11 17 30	0	
			26						
			27						
			28						
			29						
		Fine to medium sand.	30	S-6	SPT	18	8 17 17	1.1	
			31						
			32						
			33						
			34						
		Increased moisture.	35	S-7	CR	18	13 17 23	0.1	
	+168.0		36						
	+167.5	Silty SAND (SM), brown, dense, moist, fine sand.							
		Total Depth = 36.5 feet Groundwater not encountered. Boring backfilled with bentonite cement grout and topped with soil cutting and asphalt patched.	37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **B-10** Sheet 1 of 2

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 203
Drilling Company: ABC Liovin	Date Started: 05/05/2023 — Date Finished: 05/05/2023
Drilling Equipment: CME-85 Truck Mounted Drill Rig	Completion Depth: 36.5 ft — Rock Depth: -
Size and Type of Bit: 6-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed 4 — Undisturbed 3 — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Juan
Sampler: 2-inch O.D. Split-Barrel SPT, 2.5-inch I.D. Cal Mod	Field Engineer: B. Watkins
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+203.0		0						Hand auger from 0-5 feet.
	+202.6	AC = 3-inch thick, Base = 2-inch thick.							
		Artificial Fill (af) SAND (SP), brown, moist, fine sand, trace silt. [FILL]	1						
	+201.0		2						
		Quaternary Young Alluvium (Qya) Silty SAND (SM), brown, loose, moist, fine sand.	3						
			4						
			5	S-1	SPT	18	1 1 3	1.1	% Passing #200 = 21
			6						
			7						
			8						
			9						
	+193.0		10						
		SAND with Silt (SP-SM), light brown, medium dense, fine to medium sand, trace fine gravel.	11	S-2	CR	18	9 15 17	1.4	
			12						
			13						
			14						
	+188.0		15						
		Silty SAND (SM), light brown, medium dense, fine to medium sand, no gravel.	16	S-3	SPT	18	4 8 11	2.5	
			17						
	+185.0		18						
		SAND with Silt (SP-SM), light brown, dense, moist, fine to coarse sand, trace fine gravel.	19						
			20						

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Log of Boring **B-10** Sheet 2 of 2

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 203

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+183.0		20					0	
			21	S-4	CR	18	9 23 40		
			22						
	+180.0	Silty SAND (SM), brown, medium dense, moist, fine sand.	23						
			24						
			25	S-5A/5B	SPT	18	5 10 17	2.4	
	+177.0	SAND (SP), light brown, medium dense, moist, fine to medium sand.	26						
			27						
			28						
	+174.5	Silty SAND(SM), brown, medium dense, moist, fine sand.	29						
			30	S-6	CR	16	5 17 24	0	LL = 23, PL = NP
			31						
			32						
	+170.0	Sandy CLAY (CL), brown, stiff, moist, very fine to fine sand.	33						
			34						
			35	S-7	SPT	18	4 6 7	0.7	
	+166.5	Total Depth = 36.5 feet Groundwater not encountered. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched.	36						
			37						
			38						
			39						
			40						
			41						
			42						
			43						
			44						
			45						

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Log of Boring **FP-1** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 202
Drilling Company: 2R Drilling	Date Started: 05/05/2023 / Date Finished: 05/05/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 65.8 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed: 13 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: S. Wilkins
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+202.0		0						
	+201.8	AC = 0.25-inch thick.							
		Artificial Fill (af) Silty SAND (SM), grayish brown, slightly moist, fine to medium sand. [FILL] Brown, moist, some fine to coarse gravel, few mortar fragments.	1						
			2						
			3						
	+198.0		4						
		Quaternary Young Alluvium (Qya) SAND with Silt (SP-SM), grayish brown, medium dense, moist, fine to medium sand.	5						Perforated PVC
	+196.5	SAND (SP), light yellowish to grayish brown, medium dense, slightly moist, fine to medium sand, some fine gravel.	6	S-1	CR	18	6 8 10		
			7						
			8						
			9						
	+192.0		10						
		SAND with Silt (SP-SM), light yellowish to grayish brown, medium dense, slightly moist, fine sand, some fine gravel, increased fines content.	11	S-2	CR	18	5 14 9		
			12						
			13						
			14						
	+187.0		15						
		SAND (SP), light yellowish to grayish brown, medium dense, slightly moist, fine to medium sand, fine gravel.	16	S-3	CR	18	7 21 23		
			17						
			18						
			19						
			20						

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Log of Boring **FP-1** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+182.0		20						
	+181.0	SAND with Silt (SP-SM), light gray, dense, fine sand.	21	S-4	CR	18	9 25 26		
			22						
			23						
			24						
	+177.0	SAND (SP), light yellowish to grayish brown, dense, slightly moist, fine to coarse sand, some fine to coarse gravel.	25	S-5	CR	18	18 25 40		
			26						
	+174.0	CLAY (CL), dark yellowish brown and black mottled, very stiff, moist to very moist, few fine sand, some silt.	27						
			28						
			29						
			30	S-6	CR	18	7 13 22		
			31						
			32						
			33						
	+168.0	Sandy CLAY (CL), yellowish brown, stiff, moist, fine sand.	34						
			35	S-7	CR	18	7 19 18		
			36						
			37						Solid PVC
			38						
			39						
		Increased sand content.	40	S-8	CR	18	9 25 43		
	+161.0		41						
	+160.5	Clayey SAND (SC), olive gray, dense, moist, fine to medium sand.	42						
		SAND with Silt (SP-SM), yellow, dense, moist, fine sand.	43						
			44						
			45						

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Log of Boring **FP-1** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+157.0	Very dense, fine to medium sand.	45	S-9	CR	12	22 50		
			46						
			47						
			48						
			49						
	+152.0	Gravelly SAND (SP-GP), light yellow, very dense, slightly moist, fine to coarse sand and gravel.	50	S-10	CR	12	25 50/5"		
			51						
			52						
			53						
			54						
		Fine to medium sand, decreased gravel content.	55	S-11	CR	10	40 50/4"		
			56						
			57						
			58						
			59						
			60	S-12	CR	10	20 50/4"		
	+140.0		61						
		SAND with Silt (SP-SM), off-white, very dense, slightly moist, fine to medium sand, few coarse sand, fine gravel.	62						
			63						
			64						
			65	S-13	CR	10	27 50/4"		
	+136.2		66						
		Total Depth = 65.8 feet Groundwater not encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	67						
			68						
			69						
			70						

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Log of Boring **FP-2** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 204
Drilling Company: 2R Drilling	Date Started: 05/05/2023 / Date Finished: 05/05/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 51.5 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed: 10 / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman:
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: S. Wilkins
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+204.0		0						
	+203.5	AC = 2.5-inch thick, Base = 4-inch thick.							
		Artificial Fill (af) Sandy CLAY (CL), dark gray, moist, fine to coarse sand, few asphalt fragments. [FILL]	1						
	+202.5	**Quaternary Young Alluvium (Qya)** Silty SAND (SM), dark olive gray, loose, moist, very fine to fine sand, slightly micaceous.	2						
			3						
			4						
			5	S-1	CR	18	5 5 5		Perforated PVC
			6						
			7						
			8						
	+195.0		9						
		SAND with Silt (SP-SM), off-white to gray, medium dense, moist, fine to medium sand, some fine to coarse gravel.	10	S-2	CR	18	5 9 12		
			11						
			12						
			13						
			14						
		Off-white to light yellow, no gravel.	15	S-3	CR	18	9 14 16		
			16						
			17						
			18						
			19						
			20						

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Log of Boring **FP-2** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+184.0	Dense, few fine to coarse gravel.	20	S-4	CR	18	5 19 35		
	+179.0	Silty SAND (SM), gray to olive brown, medium dense, moist, fine to coarse sand, few fine gravel, increasing clay with depth.	25	S-5	CR	18	5 9 11		
	+176.0	SAND with Silt (SP-SM), gray, dense, slightly moist, fine sand.	28	S-6	CR	18	11 28 37		Solid PVC
	+168.5	Wet.	35	S-7	CR	18	8 12 17		
	+168.0	Silty SAND (SM), gray, medium dense, wet, very fine to fine sand.							
		Sandy SILT (ML), olive brown, very stiff, wet, very fine sand, micaceous.	37						
	+165.0	CLAY (CL), reddish brown, stiff, very moist, fine sand, some silt.	39	S-8	CR	18	3 7 10		
	+161.0	Sandy CLAY (CL), reddish brown, stiff, very moist, fine sand.	43						
			45						

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Log of Boring **FP-2** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 204

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+159.0		45						
	+158.0	Clayey SAND (SC), reddish brown, very dense, very moist, fine sand.	46	S-9	CR	17	21 36 50/5"		
	+156.0	SAND with Silt (SP-SM), yellow to off-white and black mottled, very dense, moist, fine to medium sand.	47 48 49 50						
	+152.5	Total Depth = 51.5 feet Groundwater not encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	S-10	CR	17	7 37 50/5"		

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Log of Boring **FP-3** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 203
Drilling Company: 2R Drilling	Date Started: 05/25/2023 / Date Finished: 05/25/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 50 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+203.0	**Artificial Fill (af)** Sandy SILT (ML), brow, moist.	0						
	+201.0	**Native Young Alluvial Fan Deposits (Qyf)** Silty SAND (SM), brown, slightly moist.	1						
	+198.0	Silty SAND (SM) and Sandy SILT (ML), brown, loose to medium stiff, very moist to moist, clay in sampler shoe.	2						
	+195.5	Silty Sand (SM), light brown, medium dense, dry to slighlyt moist.	3						
	+193.0	Silty SAND with Gravel (SM-SW), light brown with some orangish brown, medium dense, dry to slightly moist, fine to coarse sand, fine to medium gravel, well-graded.	4						
			5	S-1	SPT	18	1 2 3		
			6						
			7						Solid PVC
			8	S-2	CR	18	6 16 20		
			9						
			10						
			11	S-3	SPT	18	3 9 9		
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
	+183.0		20						

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Log of Boring **FP-3** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 203

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+183.0	Silty SAND (SM) and Sandy SILT (ML), brown, medium dense to very stiff, moist, fine to coarse sand, occasional gravel.	20	S-4	CR	18	9 12 12		
	+173.0	CLAY with Sand (CL), reddish brown with light reddish brown and gray brown mottle, very stiff, moist, fine to medium sand, maganese-oxide staining.	30	S-5	SPT	18	4 10 16		
	+163.0	SAND (SW), light brown, very dense, slighlty moist, fine to coarse sand, occasional fine gravel.	40	S-6	CR	18	22 40 47		
			45						

Annular Material

Solid PVC

Perforated PVC

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Log of Boring **FP-3** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 203

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+158.0		45						
			46						
			47						Perforated PVC
			48						
	+154.5	SAND with Silt (SM), light brown, very dense, slightly moist.	49	S-7	SPT	18	20 25 25		
	+153.0	Total Depth = 50 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	50						
			51						
			52						
			53						
			54						
			55						
			56						
			57						
			58						
			59						
			60						
			61						
			62						
			63						
			64						
			65						
			66						
			67						
			68						
			69						
			70						

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Log of Boring **FP-4** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 202
Drilling Company: 2R Drilling	Date Started: 05/25/2023 / Date Finished: 05/25/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 50 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First ▽ - / Completion ▼ - / 24 HR. ▼ -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+202.0	**Artificial Fill (af)** Silty SAND (SM), brown, slightly moist.	0						
	+197.0	Silty SAND with Gravel (SM), brown, medium dense, moist, fine to coarse sand, medium to coarse gravel, concrete in sampler shoe.	5	S-1	CR	18	8 18 22		
	+194.5	**Native Young Alluvial Fan Deposits (Qyf)** Silty SAND (SM), brown, loose, slightly moist, medium sand.	8	S-2	SPT	18	2 3 4		Solid PVC
	+192.0	Sandy CLAY (CL) and Clayey SAND (SC), brown, medium dense to very stiff, moist.	10	S-3	CR	18	7 11 11		
	+182.0		20						

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Log of Boring **FP-4** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+182.0	Silty SAND (SM), to SAND with Silt (SP-SM), brown, medium dense, slighlty moist, occasional fine gravel.	20	S-4	SPT	18	5 7 8		
			21						
			22						
			23						
			24						
			25						Annular Material
			26						
			27						Solid PVC
			28						
			29						
	+172.0	CLAY with Sand (CL), dark reddish brown, very stiff, moist to very moist.	30	S-5	CR	18	6 9 18		
			31						
			32						
			33						
			34						
			35						
			36						
			37						
			38						
			39						
	+162.0	Sandy CLAY (CL), brown with orange brown mottle, stiff, moist to very moist, medium to fine sand.	40	S-6	SPT	18	2 4 6		
			41						
			42						Perforated PVC
			43						
			44						
			45						

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Log of Boring **FP-4** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 202

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+157.0		45						
			46						
			47						Perforated PVC
			48						
	+153.5	SAND with Silt (SP-SM) to Silty SAND (SM), light brown, very desne, dry to slighlty moist, fine to very coarse sand, occasional gravel.	49	S-7	CR	18	38 50 55		
	+152.0	Total Depth = 50 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	50						
			51						
			52						
			53						
			54						
			55						
			56						
			57						
			58						
			59						
			60						
			61						
			62						
			63						
			64						
			65						
			66						
			67						
			68						
			69						
			70						

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Log of Boring **FP-5** Sheet 1 of 3

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 196
Drilling Company: 2R Drilling	Date Started: 05/25/2023 / Date Finished: 05/25/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 50 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+196.0		0						
	+195.7	AC = 4-inches thick.							
		Silty SAND (SM), brown, slightly moist to moist.	1						
	+194.0		2						
		Silty SAND (SM), brown.	3						
			4						
	+191.0		5						
		SAND with Silt (SP-SM), light grayish brown, medium dense, dry, fine to medium sand, occasional coarse sand.	6	S-1	CR	18	3 6 11		
	+188.5		7						
		Silty SAND (SM), light brown, medium dense, slightly moist.	8	S-2	SPT	18	3 5 6		Solid PVC
			9						
		Brown, occasional fine to coarse gravel, well-graded.	10	S-3	CR	18	5 9 18		
			11						
			12						
			13						
			14						
			15						
			16						
			17						
			18						
			19						
			20						

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Log of Boring **FP-5** Sheet 2 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 196

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+176.0	Light brown.	20	S-4	SPT	18	7 9 13		
	+166.0	SILT with Sand (ML), reddish brown with light reddish brown mottle, stiff, moist to very moist, medium sand.	30	S-5	CR	18	6 9 12		
		Reddish brown, occasional gravel.	40						
	+156.0	Silty SAND (SM), reddish brown, medium dense, dry to slighlty moist, fine to coarse sand, occasiona fine gravel.	40	S-6	SPT	18	7 13 15		
			45						

Annular Material

Solid PVC

Perforated PVC

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Log of Boring **FP-5** Sheet 3 of 3

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 196

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+151.0		45						
			46						
			47						Perforated PVC
			48						
	+147.5	Silty SAND (SM) to Sandy SILT (ML), brown and reddish brown, hard to very dense, moist, maganese-oxide staining.	49	S-7	CR	18	15 32 42		
	+146.0	Total Depth = 50 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	50						
			51						
			52						
			53						
			54						
			55						
			56						
			57						
			58						
			59						
			60						
			61						
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			68						
			69						
			70						

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Log of Boring **FP-6** Sheet 1 of 4

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx. 198
Drilling Company: 2R Drilling	Date Started: 05/26/2023 / Date Finished: 05/26/2023
Drilling Equipment: CME-75 Truck Mounted Drill Rig	Completion Depth: 75 ft / Rock Depth: -
Size and Type of Bit: 8-inch O.D. Hollow Stem Auger	Number of Samples: Disturbed / Undisturbed / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Ish
Sampler: 2.5-inch I.D. Cal Mod	Field Engineer: A. Nieblas
Sampler Hammer: Automatic / Weight (lbs): 140 / Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)
	+198.0	**Artificial Fill**	0					
	+196.5	**Native Young Alluvial Fan Deposits (Qyf)** Silty SAND (SM), brown, slightly moist.	1					
			2					
			3					
			4					
		Brown with orangish brown mottle, oose, fine to very fine sand.	5	S-1	CR	18	3 4 6	
			6					
			7					
		Brown and brownish gray, stratifies, approximately 4-inch thick interbed of medium to coarse sand, subhorizontal contact, some clay in sampler shoe.	8	S-2	SPT	18	2 2 2	
			9					
	+188.0		10					
		SAND with Silt (SP-SM) and Silty SAND (SM), light brown, medium dense, slightly moist to dry, partially stratified.	11	S-3	CR	18	6 10 13	
			12					
			13					
			14					
			15					
			16					
			17					
			18					
			19					
	+178.0		20					

Well Diagram: Solid PVC

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Log of Boring **FP-6** Sheet 2 of 4

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 198

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+178.0	SAND with SILT (SP-SM), light brown, medium dense, dry, medium sand.	20	S-4	SPT	18	5 8 12		
	+168.0	SAND with Silt and Gravel (SW), light brown, very dense, dry, well-graded fine to coarse sand, fine to medium gravel.	30	S-5	CR	17	25 56 50/5"		
	+158.0	CLAY with Sand (CL), orangish brown and grayish brown mottled, very stiff, moist, maganese-oxide mottline, some globular medium gravel, concretionary.	40	S-6	SPT	18	4 7 9		
			45						

Solid PVC

Annular Material

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Log of Boring **FP-6** Sheet 3 of 4

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 198

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+153.0	Clay sand in cuttings.	45–70						
	+148.0	SAND with Silt (SP-SM), light brown, very dense, dry to slighlyt moist, fine to medium sand, some coarse sand.		S-7	CR	18	15 35 48		Solid PVC
	+138.0	Silty SAND (SM), light brown, dense, dry to slighlyt moist, fine to medium sand.		S-8	SPT	18	12 22 23		Perforated PVC
	+128.0								

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Log of Boring **FP-6** Sheet 4 of 4

Project	Project No.
3163 East Vernon Avenue	721040501
Location	**Elevation and Datum**
3163 East Vernon Avenue	Approx. 198

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Well Diagram
	+128.0	SAND with Silt and Clay (SW), brown with light brown mottle, very dense, slightly moist, well-graded.	70	S-9	CR	5	50/5"		
	+124.5	SAND with Silt and Gravel (SP-SW), light brown, dense, dry, well-graded, medium to coarse sand, fine to medium gravel.	74	S-10	SPT	18	12 21 23		Perforated PVC
	+123.0	Total Depth = 75 feet. No Groundwater encountered. Boring converted to a percolation test well. Boring backfilled with bentonite cement grout and topped with soil cuttings and asphalt patched after percolation test.	75						

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Log of Boring **ISB-01** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/09/2023 — Date Finished: 05/09/2023
Drilling Equipment: Hand Auger	Completion Depth: 10 ft — Rock Depth: -
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 3 — Undisturbed - — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - — Weight (lbs): - — Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0						Started drilling at 5/9/2023 07:49
		Brown SILT with fine sand and trace clay, dry-moist	1	ISB-01-S$		12			Hanby = 10-50 ppm gas in soil
			2						
			3						
			4						
			5	ISB-01-5.0		12			Hanby = not detected
			6						
			7						
		Poorly graded fine SAND (SP), dry	8						
			9	ISB-01-10.0		12			
		Total Depth = 10 feet Groundwater not encountered	10						Hanby = not detected
			11						
			12						
			13						
			14						
			15						

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Log of Boring **ISB-02** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/09/2023 / Date Finished: 05/09/2023
Drilling Equipment: Hand Auger	Completion Depth: 4 ft / Rock Depth: 4 ft
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 2 / Undisturbed - / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - / Weight (lbs): - / Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0						Started drilling at 5/9/2023 10:28
		Grey, well graded SAND (SW) with gravel and trace clay, moist	1	ISB-02-S$		12			Hanby = not detected
			2						
		Brownish-grey, well graded SAND to GRAVEL (SWG) with clay and trace silt, dry to moist	3	ISB-02-4.0		12			
		Dark to light brown, well graded SAND to GRAVEL (SWG), with silt and trace clay, dry to moist	4						Hanby = 100-200 ppm diesel
		Refusal encountered Total depth = 4 feet Groundwater not encountered	5						
			6						
			7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						

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Log of Boring **ISB-03** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/08/2023 / Date Finished: 05/08/2023
Drilling Equipment: Hand Auger	Completion Depth: 1 ft / Rock Depth: 1 ft
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 1 / Undisturbed - / Core
Casing Diameter (in): - / Casing Depth (ft): -	Water Level (ft.): First - / Completion - / 24 HR. -
Casing Hammer: - / Weight (lbs): - / Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - / Weight (lbs): - / Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0	ISB-03-SS					Started drilling at 5/8/2023 10:06
		Foam				6		0.7	Hanby = 400 ppm PAH or 1,000 ppm #2 fuel oil
		Brown, silty SAND (SM), moist	1						
		Refusal encountered Total depth = 1 feet Groundwater not encountered	2						
			3						
			4						
			5						
			6						
			7						
			8						
			9						
			10						
			11						
			12						
			13						
			14						
			15						

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Log of Boring **ISB-04** Sheet 1 of 1

Project: 3163 East Vernon Avenue	Project No.: 721040501
Location: 3163 East Vernon Avenue	Elevation and Datum: Approx.
Drilling Company: ABC Liovin	Date Started: 05/08/2023 — Date Finished: 05/08/2023
Drilling Equipment: Hand Auger	Completion Depth: 10 ft — Rock Depth: -
Size and Type of Bit: 4-inch	Number of Samples: Disturbed 3 — Undisturbed - — Core
Casing Diameter (in): - — Casing Depth (ft): -	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: - — Weight (lbs): - — Drop (in): -	Drilling Foreman: Angel Pedilla
Sampler: Hand Auger	Field Engineer: N. Mason
Sampler Hammer: - — Weight (lbs): - — Drop (in): -	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab	0						Started drilling at 5/8/2023 12:15
		Poorly graded, tan clean SAND (SP), moist	1	ISB-04-S$		12			Hanby = not detected
			2						
			3						
			4						
		Poorly graded, tan clean SAND (SP) with trace gravel, moist	5	ISB-04-5.0		12		0	Hanby = not detected
			6						
			7						
			8						
			9	ISB-04-10.0		12			
		Total depth = 10 feet Groundwater not encountered	10					0	Hanby = not detected
			11						
			12						
			13						
			14						
			15						

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Attachment 2

Trench Logs

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 1**
		PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 12/27/23	Date finished: 12/27/23	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
0						GM	Light grayish brown silty fine sand, some fine to coarse gravel, moist
3						SWG	Dark reddish brown medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of metal and brick debris, moist
6	RS-1				0.2		
6.5							Ended trench at 6.5' bgs

LANGAN

Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/17/24

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 2**	PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 12/27/23	Date finished: 12/27/23	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
1–4						GM	Grayish brown silty fine sand, some fine to coarse gravel, trace metal debris, moist
4–5						SM	Light gray, silty fine sand, trace fine to coarse gravel, moist
5–6						SWG	Dark reddish brown, medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of glass, metal, and brick debris, moist
7							Ended trench at 7' bgs
8–10							

LANGAN

Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/17/24

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 3**
		PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 12/27/23	Date finished: 12/27/23	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
0							Grayish brown silty fine sand, some fine to coarse gravel, trace metal debris, moist
3						GM	
6						SWG	Dark reddish brown, medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of glass, asphalt, metal, and brick debris, moist
9							Ended trench at 9' bgs

LANGAN

Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/17/24

PROJECT:	3049 East Vernon Ave. Vernon, California	**Trench 4**
		PAGE 1 OF 1

Boring location: See Figure 2		Logged by: RO Drilled By: American Wrecking, Inc.
Date started: 01/09/24	Date finished: 01/09/24	
Drilling method: EC750El Excavator		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: NA		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							Surface Conditions:
1						GM	Light grayish brown silty fine sand, some fine to coarse gravel, moist
2	RS-2-2'						
3						SWG	Red to dark reddish brown medium to coarse sand, some fine sand, trace fine to coarse gravel, trace fragements of glass, bone, asphalt, metal, and brick, moist
4	RS-2-4'						
5							
6	RS-2-6'						
7							
8	RS-2-8'						
9						SM	Light brown silty fine to medium sand, moist
10							
11							
12							Ended trench at 12' bgs
13							
14							

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Project No.:	Figure:
721040501	2

TEST ENVIRONMENT 721040501_VERNON.GPJ T&R.GDT 01/11/24

Attachment 3
Photographic Log

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
1	12/27/23

Direction Photo Taken:

Southwest

Description:

Trench 1



Photo No.	Date:
2	12/27/23

Direction Photo Taken:

West

Description:

RS-1 sample from excavator bucket



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
3	12/27/23

Direction Photo Taken:

South

Description:

Trench 2



Photo No.	Date:
4	12/27/23

Direction Photo Taken:

Southeast

Description:

Trench 3



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
5	01/09/24

Direction Photo Taken:

Southeast

Description:

Trench 4



Photo No.	Date:
6	01/09/24

Direction Photo Taken:

North

Description:

RS-3 collected near the western side of subject property



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040501

Photo No.	Date:
7	2/27/24

Direction Photo Taken:

Northeast

Description:

S3_02272024 from footing trench



Photo No.	Date:
8	2/27/24

Direction Photo Taken:

West

Description:

S1_02272024 from footing trench



Attachment 4
Laboratory Analytical Reports

January 11, 2024

Megan Ritsema
Langan Engineering & Environmental Services
18575 Jamboree Road, suite 150
Irvine, CA 92612
Tel: (949) 561-9200
Fax:(949) 255-8641

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 2400037
Client Reference : GIC Vernon / 721040501

Enclosed are the results for sample(s) received on January 09, 2024 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or Project.Management@atlglobal.com.

Sincerely,



Lena Davidkov, Client Services
lena.davidkov@atlglobal.com
Authorized to Release on 01/11/24 13:49 on Behalf of



Amy Leung
Laboratory Director

The test results in this report relate exclusively to the samples as received by the laboratory, and meet the requirements of the methodology under which they were reported; any exceptions are noted within the report and/ or case narrative.

The cover letter/ signature page and the case narrative are integral parts of this analytical report; the absence of any portion of the report renders the report invalid. This report shall not be reproduced except in full, and shall have the express written approval of the laboratory, and the original client firm to do so

.

The electronic signature on this report is signed by an authorized signatory of Advanced Technology Laboratories, and is intended to be legally binding as the equivalent of a handwritten signature.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	01/11/2024

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RS-3-2	2400037-01	Soil	1/09/24 12:00	1/09/24 14:57
RS-2-2	2400037-02	Soil	1/09/24 12:30	1/09/24 14:57
RS-2-4	2400037-03	Soil	1/09/24 12:42	1/09/24 14:57
RS-2-6	2400037-04	Soil	1/09/24 12:50	1/09/24 14:57
RS-2-8	2400037-05	Soil	1/09/24 13:10	1/09/24 14:57

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Notes and Definitions

M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
E	Result value is above quantitation range and therefore, estimated.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury **Analyst: AA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2400037-01	RS-3-2	**0.43**	mg/kg	0.10	1	B4A0599	01/09/2024	01/10/24 11:44	
2400037-04	RS-2-6	**ND**	mg/kg	0.10	1	B4A0599	01/09/2024	01/10/24 11:51	

Client Sample ID: RS-3-2

Lab ID: 2400037-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: ICP

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**660**	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Arsenic	**23**	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Barium	**920**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Beryllium	ND	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Cadmium	**18**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Chromium	**110**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Cobalt	**18**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Copper	**9400**	10	10	B4A0598	01/09/2024	01/10/24 17:45	
Lead	**54000**	100	100	B4A0598	01/09/2024	01/11/24 11:59	
Molybdenum	**17**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Nickel	**190**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Selenium	ND	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Silver	**14**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Thallium	ND	2.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Vanadium	**23**	1.0	1	B4A0598	01/09/2024	01/10/24 12:53	
Zinc	**8300**	20	10	B4A0598	01/09/2024	01/10/24 17:45	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Client Sample ID: RS-2-6

Lab ID: 2400037-04

Title 22 Metals by ICP-AES EPA 6010B **Analyst: ICP**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**1100**	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Arsenic	**84**	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Barium	**3800**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Beryllium	ND	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Cadmium	**43**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Chromium	**160**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Cobalt	**26**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Copper	**5000**	50	50	B4A0598	01/09/2024	01/11/24 12:01	
Lead	**26000**	50	50	B4A0598	01/09/2024	01/11/24 12:01	
Molybdenum	**18**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Nickel	**190**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Selenium	ND	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Silver	**59**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Thallium	ND	20	10	B4A0598	01/09/2024	01/10/24 17:42	
Vanadium	**63**	10	10	B4A0598	01/09/2024	01/10/24 17:42	
Zinc	**15000**	20	10	B4A0598	01/09/2024	01/10/24 17:42	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0598 - EPA 3050B_S										
Blank (B4A0598-BLK1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	ND	2.0	0.77							
Arsenic	ND	2.0	0.71							
Barium	ND	1.0	0.06							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.06							
Chromium	ND	1.0	0.10							
Cobalt	ND	1.0	0.08							
Copper	ND	1.0	0.22							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.10							
Nickel	ND	1.0	0.04							
Selenium	ND	2.0	0.82							
Silver	ND	1.0	0.27							
Thallium	ND	2.0	0.35							
Vanadium	ND	1.0	0.20							
Zinc	ND	2.0	0.30							
LCS (B4A0598-BS1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	27.8413	2.0	0.77	25.0000		111	83.4 - 116			
Arsenic	23.4272	2.0	0.71	25.0000		93.7	71.9 - 127			
Barium	25.2646	1.0	0.06	25.0000		101	67.3 - 127			
Beryllium	23.4252	1.0	0.03	25.0000		93.7	83.9 - 117			
Cadmium	24.0630	1.0	0.06	25.0000		96.3	84.7 - 115			
Chromium	24.8346	1.0	0.10	25.0000		99.3	85.8 - 112			
Cobalt	24.9956	1.0	0.08	25.0000		100	81.1 - 120			
Copper	25.3242	1.0	0.22	25.0000		101	85.3 - 119			
Lead	27.5308	1.0	0.18	25.0000		110	82.8 - 120			
Molybdenum	26.7512	1.0	0.10	25.0000		107	89.9 - 123			
Nickel	24.7989	1.0	0.04	25.0000		99.2	85.1 - 117			
Selenium	21.4289	2.0	0.82	25.0000		85.7	83.3 - 119			
Silver	12.5197	1.0	0.27	12.5000		100	65 - 130			
Thallium	25.7895	2.0	0.35	25.0000		103	87.3 - 118			
Vanadium	23.9162	1.0	0.20	25.0000		95.7	81.3 - 110			
Zinc	23.8446	2.0	0.30	25.0000		95.4	84.3 - 123			
Matrix Spike (B4A0598-MS1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	855.359	2.0	0.77	25.0000	657.534	791	-5.11 - 158			M2
Arsenic	46.7897	2.0	0.71	25.0000	22.6741	96.5	16.6 - 159			
Barium	1146.05	1.0	0.06	25.0000	915.771	921	-15.4 - 203			M2
Beryllium	22.1416	1.0	0.03	25.0000	ND	88.6	17.7 - 163			
Cadmium	37.6864	1.0	0.06	25.0000	17.5454	80.6	22.1 - 162			
Chromium	855.336	1.0	0.10	25.0000	105.934	3000	4.21 - 195			M2

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0598 - EPA 3050B_S (continued)										
Matrix Spike (B4A0598-MS1) - Continued			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Cobalt	40.9408	1.0	0.08	25.0000	17.5513	93.6	7.96 - 169			
Copper	11329.6	1.0	0.22	25.0000	7487.96	15400	10.1 - 194			M2, E
Lead	34178.4	1.0	0.18	25.0000	35956.4	-7110	-9.73 - 182			M2, E
Molybdenum	36.4611	1.0	0.10	25.0000	17.3378	76.5	7.42 - 164			
Nickel	172.322	1.0	0.04	25.0000	188.614	-65.2	16.2 - 177			M2
Selenium	ND	2.0	0.82	25.0000	ND	NR	17.3 - 155			M2
Silver	25.4751	1.0	0.27	12.5000	13.7150	94.1	4.72 - 158			
Thallium	15.4801	2.0	0.35	25.0000	ND	61.9	-11.6 - 133			
Vanadium	44.3684	1.0	0.20	25.0000	23.0737	85.2	-0.621 - 177			
Zinc	5293.08	2.0	0.30	25.0000	5533.92	-963	-17.4 - 208			M2, E
Matrix Spike Dup (B4A0598-MSD1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	841.529	2.0	0.77	25.0000	657.534	736	-5.11 - 158	1.63	20	M2
Arsenic	45.9929	2.0	0.71	25.0000	22.6741	93.3	16.6 - 159	1.72	20	
Barium	1155.11	1.0	0.06	25.0000	915.771	957	-15.4 - 203	0.788	20	M2
Beryllium	22.2985	1.0	0.03	25.0000	ND	89.2	17.7 - 163	0.706	20	
Cadmium	37.4913	1.0	0.06	25.0000	17.5454	79.8	22.1 - 162	0.519	20	
Chromium	855.504	1.0	0.10	25.0000	105.934	3000	4.21 - 195	0.0196	20	M2
Cobalt	40.9401	1.0	0.08	25.0000	17.5513	93.6	7.96 - 169	0.00173	20	
Copper	11360.4	1.0	0.22	25.0000	7487.96	15500	10.1 - 194	0.272	20	M2, E
Lead	38107.8	1.0	0.18	25.0000	35956.4	8610	-9.73 - 182	10.9	20	M2, E
Molybdenum	36.0083	1.0	0.10	25.0000	17.3378	74.7	7.42 - 164	1.25	20	
Nickel	171.604	1.0	0.04	25.0000	188.614	-68.0	16.2 - 177	0.418	20	M2
Selenium	ND	2.0	0.82	25.0000	ND	NR	17.3 - 155	NR	20	M2
Silver	25.3964	1.0	0.27	12.5000	13.7150	93.5	4.72 - 158	0.310	20	
Thallium	15.0476	2.0	0.35	25.0000	ND	60.2	-11.6 - 133	2.83	20	
Vanadium	44.4738	1.0	0.20	25.0000	23.0737	85.6	-0.621 - 177	0.237	20	
Zinc	5287.48	2.0	0.30	25.0000	5533.92	-986	-17.4 - 208	0.106	20	M2, E

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0599 - EPA 7471_S										
Blank (B4A0599-BLK1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	ND	0.10	0.01							
LCS (B4A0599-BS1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.404150	0.10	0.01	0.416667		97.0	75.1 - 123			
Matrix Spike (B4A0599-MS1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.576141	0.10	0.01	0.416667	0.425465	36.2	15.2 - 179			
Matrix Spike Dup (B4A0599-MSD1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.636684	0.10	0.01	0.416667	0.425465	50.7	15.2 - 179	9.98	20	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/11/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0599 - EPA 7471_S									
Post Spike (B4A0599-PS1)		**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.009132		5.00000E-3	0.005106	80.5	85 - 115			M2

ADVANCED TECHNOLOGY LABORATORIES

3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

CHAIN OF CUSTODY RECORD

Page 1 of 1

2400037

FOR LABORATORY USE ONLY		ATLCOC Ver:20210101
Method of Transport: ☑ Client ☐ ATL ☐ FedEx ☐ OnTrac ☐ GSO ☐ Other:	Sample Conditions Upon Receipt	
	1. CHILLED ☐ ☐	5. # OF SAMPLES MATCH COC ☑ ☐
	2. HEADSPACE (VOA) < 6mm ☐ ☐	6. PRESERVED ☐ ☐
	3. CONTAINER INTACT ☑ ☐	7. Cooler Temp (°C) 2.9
	4. SEALED ☐ ☑	8. THERMOMETER ID:

Company: Langan Engineering
Address: 18575 Jamboree Rd Tel: (714)699-0899
City: Irvine State: CA Zip: 92612 Fax: Langan

SEND REPORT TO:
Attn: Megan Ritsema Email: mritsema@langan.com
Company: Langan
Address: 18575 Jamboree Rd Suite 150
City: Irvine State: CA Zip: 92612

SEND INVOICE TO: ☐ same as SEND REPORT TO
Attn: megan Ritsema Email:
Company: Email:
Address:
City: State: Zip:

EDD: ☒ Excel ☐ EDF ☐ Equis ☒ PDF
QA/QC: ☒ Routine ☐ Caltrans Legal ☐ RWQCB Level IV

Project Name: GIC Vernon
Project No.: 721040501
Sampler:
Quote #:
PO #:

ITEM	Lab ID (For Lab Use Only)	Sample Description: Sample ID	Location	Date	Time	Title 22 Metals	Hold	Sample Matrix: Solid	Water	Wastewater	Non-aqueous	Other:	Turnaround Time (TAT)	Container: Quantity	Type: 1=Tube; 2=VOA; 3=Liter; 4=Pint; 5=Jar; 6=Total; 7 = Canister	Material: 1=Glass; 2=Plastic; 3=Metal	Preservative: 1=HCl; 2=NaHSO4; 3=H2SO4; 4=HNO3; 5=NaOH; 6=ZnAc; 7=MeOH; 8=NH4Cl2O3	Remarks
1	1	RS-3-2	Red Soil - East	01/09/24	1200	X		X					1	1	5	1	0	
2	2	RS-2-2	Red Soil trench	01/09/24	1230		X	X					H	1	5	1	0	H
3	3	RS-2-4	"	"	1242		X	X					H	1	5	1	0	H
4	4	RS-2-6	"	"	1250	X		X					1	1	5	1	0	
5	5	RS-2-8	"	"	1310		X	X					H	1	5	1	0	H
6																		
7																		
8																		
9																		
10																		

(Special Instructions, Comments, Notes, etc.)

H = hold until further notice

By relinquishing samples to ATL, I hereby agree that I have read and accept ATL's Terms and Conditions, as stated in www.atlglobal.com/terms-and-conditions.

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Rachel Owen	01/09/24	1457	Dannyle	01/09/24	14:57
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

March 01, 2024

Megan Ritsema
Langan Engineering & Environmental Services
18575 Jamboree Road, suite 150
Irvine, CA 92612
Tel: (949) 561-9200
Fax:(949) 255-8641

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 2400269
Client Reference : GIC Vernon / 721040501

Enclosed are the results for sample(s) received on February 28, 2024 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or Project.Management@atlglobal.com.

Sincerely,



Lena Davidkov, Client Services
lena.davidkov@atlglobal.com
Authorized to Release on 03/01/24 07:16 on Behalf of



Amy Leung
Laboratory Director

The test results in this report relate exclusively to the samples as received by the laboratory, and meet the requirements of the methodology under which they were reported; any exceptions are noted within the report and/ or case narrative.

The cover letter/ signature page and the case narrative are integral parts of this analytical report; the absence of any portion of the report renders the report invalid. This report shall not be reproduced except in full, and shall have the express written approval of the laboratory, and the original client firm to do so

.

The electronic signature on this report is signed by an authorized signatory of Advanced Technology Laboratories, and is intended to be legally binding as the equivalent of a handwritten signature.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	03/01/2024

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S1_02272024	2400269-01	Soil	2/27/24 9:10	2/28/24 9:00
S3_02272024	2400269-03	Soil	2/27/24 9:20	2/28/24 9:00

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	03/01/2024

Notes and Definitions

M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
E	Result value is above quantitation range and therefore, estimated.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury **Analyst: AA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2400269-01	S1_02272024	**0.51**	mg/kg	0.10	1	B4B0777	02/28/2024	02/29/24 12:55	
2400269-03	S3_02272024	**0.74**	mg/kg	0.10	1	B4B0777	02/28/2024	02/29/24 12:57	

Client Sample ID: S1_02272024

Lab ID: 2400269-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: ICP

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**57**	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Arsenic	ND	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Barium	**630**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Beryllium	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Cadmium	**14**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Chromium	**58**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Cobalt	**15**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Copper	**840**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Lead	**3500**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Molybdenum	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Nickel	**57**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Selenium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Silver	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Thallium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:16	
Vanadium	**45**	5.0	5	B4B0766	02/28/2024	02/28/24 14:16	
Zinc	**1900**	10	5	B4B0766	02/28/2024	02/28/24 14:16	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Client Sample ID: S3_02272024

Lab ID: 2400269-03

Title 22 Metals by ICP-AES EPA 6010B **Analyst: ICP**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**76**	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Arsenic	ND	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Barium	**360**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Beryllium	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Cadmium	**10**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Chromium	**37**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Cobalt	**12**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Copper	**820**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Lead	**2400**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Molybdenum	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Nickel	**77**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Selenium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Silver	ND	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Thallium	ND	10	5	B4B0766	02/28/2024	02/28/24 14:18	
Vanadium	**34**	5.0	5	B4B0766	02/28/2024	02/28/24 14:18	
Zinc	**3500**	10	5	B4B0766	02/28/2024	02/28/24 14:18	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0766 - EPA 3050B_S										
Blank (B4B0766-BLK1)						Prepared: 2/28/2024 Analyzed: 2/28/2024				
Antimony	ND	2.0	0.77							
Arsenic	ND	2.0	0.71							
Barium	ND	1.0	0.06							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.06							
Chromium	ND	1.0	0.10							
Cobalt	ND	1.0	0.08							
Copper	ND	1.0	0.22							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.10							
Nickel	ND	1.0	0.04							
Selenium	ND	2.0	0.82							
Silver	ND	1.0	0.27							
Thallium	ND	2.0	0.35							
Vanadium	ND	1.0	0.20							
Zinc	ND	2.0	0.30							
LCS (B4B0766-BS1)						Prepared: 2/28/2024 Analyzed: 2/28/2024				
Antimony	25.4625	2.0	0.77	25.0000		102	83.4 - 116			
Arsenic	23.9288	2.0	0.71	25.0000		95.7	71.9 - 127			
Barium	24.4408	1.0	0.06	25.0000		97.8	67.3 - 127			
Beryllium	23.4890	1.0	0.03	25.0000		94.0	83.9 - 117			
Cadmium	25.6542	1.0	0.06	25.0000		103	84.7 - 115			
Chromium	24.4875	1.0	0.10	25.0000		98.0	85.8 - 112			
Cobalt	25.3706	1.0	0.08	25.0000		101	81.1 - 120			
Copper	24.8272	1.0	0.22	25.0000		99.3	85.3 - 119			
Lead	24.9475	1.0	0.18	25.0000		99.8	82.8 - 120			
Molybdenum	27.4134	1.0	0.10	25.0000		110	89.9 - 123			
Nickel	25.3685	1.0	0.04	25.0000		101	85.1 - 117			
Selenium	22.6713	2.0	0.82	25.0000		90.7	83.3 - 119			
Silver	12.1750	1.0	0.27	12.5000		97.4	65 - 130			
Thallium	25.3561	2.0	0.35	25.0000		101	87.3 - 118			
Vanadium	23.2457	1.0	0.20	25.0000		93.0	81.3 - 110			
Zinc	25.6969	2.0	0.30	25.0000		103	84.3 - 123			
Matrix Spike (B4B0766-MS1)			**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/28/2024				
Antimony	96.3250	2.0	0.77	25.0000	57.0878	157	-5.11 - 158			
Arsenic	28.3948	2.0	0.71	25.0000	5.42947	91.9	16.6 - 159			
Barium	635.324	1.0	0.06	25.0000	633.026	9.19	-15.4 - 203			
Beryllium	24.2221	1.0	0.03	25.0000	3.26700	83.8	17.7 - 163			
Cadmium	39.9244	1.0	0.06	25.0000	14.2863	103	22.1 - 162			
Chromium	78.6502	1.0	0.10	25.0000	58.1689	81.9	4.21 - 195			

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18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0766 - EPA 3050B_S (continued)										
Matrix Spike (B4B0766-MS1) - Continued			**Source: 2400269-01**				Prepared: 2/28/2024 Analyzed: 2/28/2024			
Cobalt	39.1748	1.0	0.08	25.0000	15.4208	95.0	7.96 - 169			
Copper	1148.46	1.0	0.22	25.0000	835.873	1250	10.1 - 194			M2
Lead	2823.12	1.0	0.18	25.0000	3504.34	-2720	-9.73 - 182			M2, E
Molybdenum	44.1195	1.0	0.10	25.0000	0.671302	174	7.42 - 164			M2
Nickel	78.3984	1.0	0.04	25.0000	57.2101	84.8	16.2 - 177			
Selenium	6.87162	2.0	0.82	25.0000	ND	27.5	17.3 - 155			
Silver	16.9451	1.0	0.27	12.5000	3.69034	106	4.72 - 158			
Thallium	15.3543	2.0	0.35	25.0000	ND	61.4	-11.6 - 133			
Vanadium	65.2731	1.0	0.20	25.0000	45.2821	80.0	-0.621 - 177			
Zinc	1878.82	2.0	0.30	25.0000	1948.76	-280	-17.4 - 208			M2
Matrix Spike Dup (B4B0766-MSD1)			**Source: 2400269-01**				Prepared: 2/28/2024 Analyzed: 2/28/2024			
Antimony	95.9714	2.0	0.77	25.0000	57.0878	156	-5.11 - 158	0.368	20	
Arsenic	28.3330	2.0	0.71	25.0000	5.42947	91.6	16.6 - 159	0.218	20	
Barium	629.730	1.0	0.06	25.0000	633.026	-13.2	-15.4 - 203	0.884	20	
Beryllium	24.2689	1.0	0.03	25.0000	3.26700	84.0	17.7 - 163	0.193	20	
Cadmium	39.4860	1.0	0.06	25.0000	14.2863	101	22.1 - 162	1.10	20	
Chromium	78.3436	1.0	0.10	25.0000	58.1689	80.7	4.21 - 195	0.390	20	
Cobalt	38.8023	1.0	0.08	25.0000	15.4208	93.5	7.96 - 169	0.955	20	
Copper	1136.90	1.0	0.22	25.0000	835.873	1200	10.1 - 194	1.01	20	M2
Lead	2804.29	1.0	0.18	25.0000	3504.34	-2800	-9.73 - 182	0.669	20	M2, E
Molybdenum	43.6707	1.0	0.10	25.0000	0.671302	172	7.42 - 164	1.02	20	M2
Nickel	77.1460	1.0	0.04	25.0000	57.2101	79.7	16.2 - 177	1.61	20	
Selenium	7.20149	2.0	0.82	25.0000	ND	28.8	17.3 - 155	4.69	20	
Silver	17.2479	1.0	0.27	12.5000	3.69034	108	4.72 - 158	1.77	20	
Thallium	15.2907	2.0	0.35	25.0000	ND	61.2	-11.6 - 133	0.415	20	
Vanadium	65.6958	1.0	0.20	25.0000	45.2821	81.7	-0.621 - 177	0.646	20	
Zinc	1859.93	2.0	0.30	25.0000	1948.76	-355	-17.4 - 208	1.01	20	M2

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0777 - EPA 7471_S										
Blank (B4B0777-BLK1)						Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	ND	0.10	0.01							
LCS (B4B0777-BS1)						Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.389083	0.10	0.01	0.416667		93.4	75.1 - 123			
Matrix Spike (B4B0777-MS1)			**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.704018	0.10	0.01	0.416667	0.505173	47.7	15.2 - 179			
Matrix Spike Dup (B4B0777-MSD1)			**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.748860	0.10	0.01	0.416667	0.505173	58.5	15.2 - 179	6.17	20	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 03/01/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4B0777 - EPA 7471_S									
Post Spike (B4B0777-PS1)		**Source: 2400269-01**			Prepared: 2/28/2024 Analyzed: 2/29/2024				
Mercury	0.009081		5.00000E-3	0.006062	60.4	85 - 115			M2

ADVANCED TECHNOLOGY LABORATORIES
3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

CHAIN OF CUSTODY RECORD

Page 1 of 1

Instruction: Complete all shaded areas.

24 00269

For Laboratory Use Only ATLCOC Ver:20210101

Method of Transport	Sample Conditions Upon Receipt					
	Condition	Y	N	Condition	Y	N
☐ Client ☐ ATL	1. CHILLED	☑	☐	5. # OF SAMPLES MATCH COC	☑	☐
☑ FedEx ☐ OnTrac	2. HEADSPACE (V0A) < 6mm	☐	☐	6. PRESERVED	☐	☑
☐ GSO	3. CONTAINER INTACT	☑	☐	7. COOLER TEMP, deg C:	3.1	
☐ Other:	4. SEALED	☐	☑	8. THERMOMETER ID:		

Company:	Langan CA, Inc.	Address:	515 S Flower St, Ste 1060	Tel:	626-244-4533
		City:	Los Angeles	State: CA Zip:	Fax:

SEND REPORT TO:		SEND INVOICE TO: ☑ same as SEND REPORT TO	
Attn:	Megan Ritsema	Attn:	Megan Ritsema
Email:	mritsema@langan.com	Email:	
Company:	Langan CA, Inc.	Company:	
Address:	18575 Jamboree Rd, Ste 150	Address:	
City:	Irvine	City:	
State:	CA	State:	
Zip:	92612	Zip:	

EDD: ☑ Excel ☐ EDF ☐ Equis ☑ PDF

QA/QC: ☑ Routine ☐ Caltrans ☐ Legal ☐ RWQCB ☐ Level IV ☐ ____

Project Name: GIC Vernon
Project No.: 721040501
Quote #:
PO #:
Sampler: Katherine Thomas KThomas@Langan.com

ITEM	Lab ID (For Lab Use Only)	Sample Description: Sample ID	Location	Date	Time	Requested Analysis: 6010 / 7000 (Title 22 Metals)	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Select Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Enter Custom Analysis	Sample Matrix: Select Soil Matrix	Solid	Select Water Matrix	Select Wastewater Matrix	Select Non-aqueous Matrix	Enter Custom Matrix	Turnaround Time (TAT)	Container: Quantity	Type: 1=Tube; 2=VOA; 3=Liter; 4=Pint; 5=Jar; 6=Tedlar; 7=Canister	Material: 1=Glass; 2=Plastic; 3=Metal	Preservative: 1=HCl; 2=HNO3; 3=H2SO4; 4=4C; 5=ZnAc2; 6=NaOH; 7=NA2S2O3	Remarks
1	1	S1_02272024	Eastern excavation	02/27/24	0910	X																	X					48hrs	1	5	1		
2	2	S2_02272024	Western excavation-southern	02/27/24	0915	X																	X					Hold	1	5	1		Hold
3	3	S3_02272024	Western excavation-middle	02/27/24	0920	X																	X					48hrs	1	5	1		
4	4	S4_02272024	Western excavation-northern	02/27/24	0925	X																	X					Hold	1	5	1		Hold
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	

(Special Instructions, Comments, Notes, etc.)

Hold item 2 and item 4 until further instruction.

By relinquishing samples to ATL, I hereby agree that I have read and accept ATL's Terms and Conditions, as stated in www.atlglobal.com/terms-and-conditions.

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Katherine Thomas	02 27 2024	1320			
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
FedEx				2/28/24	9:00
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

ORIGIN ID:RBFA (626) 244-4533
KATHERINE ELISE THOMAS

1620 S CABANA AVE

WEST COVINA, CA 91790
UNITED STATES US

SHIP DATE: 27FEB24
ACTWGT: 36.10 LB
CAD: 6754076/SSF02500
DIMS: 25x14x14 IN

BILL CREDIT CARD

Part # 156297-435 AHLS EXP 11/24

TO **ADVANCED TECHNOLOGY LAB**

3275 WALNUT AVE

SIGNAL HILL CA 90755

(562) 989-4045 REF:

INV:

PO: DEPT:

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TRK# 0201 2714 9305 6514

WED - 28 FEB 8:00A
FIRST OVERNIGHT

91 LGBA

AHS
90755
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ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Ritsema
Langan Engineering & Environmental Srvcs
18575 Jamboree Road
Suite 150
Irvine, California 92612

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JOB DESCRIPTION

721040501

JOB NUMBER

570-166113-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

my EOL

Job Notes

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Authorization



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Authorized for release by
Vikas Patel, Project Manager I
Vikas.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).

GC Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
570-166113-1

Receipt
The samples were received on 12/27/2023 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS VOA
Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-396551. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8260B: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 570-396551 recovered outside control limits for the following analytes: 4-Methyl-2-pentanone (MIBK). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8260B: The following analyte(s) recovered outside control limits for the LCSD associated with analytical batch 570-396551: Naphthalene. This is not indicative of a systematic control problem because this was random marginal exceedances. Qualified results have been reported.

Method 8260B: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: BS-1 (570-166113-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method 8015B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-396277 and analytical batch 570-396768 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015B: An incorrect volume of surrogate spiking solution was inadvertently added the following samples: RS-1 (570-166113-1), BS-1 (570-166113-2), (LCS 570-396277/27-A), (LCSD 570-396277/28-A), (570-166113-D-1-B MS) and (570-166113-D-1-C MSD). Percent recoveries are based on the amount spiked.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6010B: The serial dilution performed for the following sample associated with batch 570-396975 was outside control limits for Barium: (570-165106-A-19-B SD ^25)

Method 6010B: The method blank for preparation batch 570-396615 and analytical batch 570-396975 contained Barium above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-396615 and analytical batch 570-396975 were outside control limits for Lead and Antimony. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 6010B: The following sample was diluted due to the nature of the sample matrix: RS-1 (570-166113-1). Elevated reporting limits (RLs) are provided.

Method 7471A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 570-397227 and analytical batch 570-397417 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 570-166113-2 Eurofins Calscience

Job Narrative
570-166113-2

Receipt
The samples were received on 12/27/2023 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.047		0.018	0.0087	mg/Kg	1		8260B	Total/NA
Benzene	0.029		0.00089	0.00023	mg/Kg	1		8260B	Total/NA
Chloroform	0.00063	J	0.00089	0.00052	mg/Kg	1		8260B	Total/NA
Ethylbenzene	0.0025		0.00089	0.00018	mg/Kg	1		8260B	Total/NA
N-Propylbenzene	0.00029	J	0.0018	0.00023	mg/Kg	1		8260B	Total/NA
o-Xylene	0.00069	J	0.00089	0.00023	mg/Kg	1		8260B	Total/NA
m,p-Xylene	0.0017	J	0.0018	0.00042	mg/Kg	1		8260B	Total/NA
Toluene	0.012		0.00089	0.00024	mg/Kg	1		8260B	Total/NA
Trichlorofluoromethane	0.00069	J	0.0089	0.00024	mg/Kg	1		8260B	Total/NA
Diesel Range Organics [C10-C28]	270		4.9	3.7	mg/Kg	1		8015B	Total/NA
TPH as Motor Oil (C17-C44)	440	F1	24	11	mg/Kg	1		8015B	Total/NA
Oil Range Organics (C18-C40)	430		4.9	3.7	mg/Kg	1		8015B	Total/NA
Silver	14.6		7.61	0.731	mg/Kg	25		6010B	Total/NA
Arsenic	21.9		15.2	7.06	mg/Kg	25		6010B	Total/NA
Barium	2040	B	15.2	0.721	mg/Kg	25		6010B	Total/NA
Cadmium	18.5		2.54	0.832	mg/Kg	25		6010B	Total/NA
Cobalt	12.7		5.08	1.05	mg/Kg	25		6010B	Total/NA
Chromium	64.0		5.08	0.944	mg/Kg	25		6010B	Total/NA
Copper	7600		10.2	4.86	mg/Kg	25		6010B	Total/NA
Nickel	71.3		10.2	1.84	mg/Kg	25		6010B	Total/NA
Antimony	284		50.8	14.5	mg/Kg	25		6010B	Total/NA
Vanadium	15.7		5.08	0.853	mg/Kg	25		6010B	Total/NA
Zinc	5140		25.4	5.87	mg/Kg	25		6010B	Total/NA
Lead	29700		20.3	4.15	mg/Kg	50		6010B	Total/NA
Mercury	65.3	F2	8.68	3.33	mg/Kg	100		7471A	Total/NA

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.19	J	0.43	0.090	mg/Kg	500		8260B	Total/NA
o-Xylene	0.18	J	0.43	0.11	mg/Kg	500		8260B	Total/NA
m,p-Xylene	0.55	J	0.87	0.21	mg/Kg	500		8260B	Total/NA
Styrene	1.1		0.43	0.14	mg/Kg	500		8260B	Total/NA
Trichlorofluoromethane	8.5		4.3	0.12	mg/Kg	500		8260B	Total/NA
Diesel Range Organics [C10-C28]	660		24	19	mg/Kg	5		8015B	Total/NA
TPH as Motor Oil (C17-C44)	940		120	55	mg/Kg	5		8015B	Total/NA
Oil Range Organics (C18-C40)	920		24	19	mg/Kg	5		8015B	Total/NA
Arsenic	6.02		2.97	1.38	mg/Kg	5		6010B	Total/NA
Barium	161	B	2.97	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.934		0.495	0.0683	mg/Kg	5		6010B	Total/NA
Cadmium	0.801		0.495	0.162	mg/Kg	5		6010B	Total/NA
Cobalt	4.23		0.990	0.204	mg/Kg	5		6010B	Total/NA
Chromium	42.2		0.990	0.184	mg/Kg	5		6010B	Total/NA
Copper	224		1.98	0.949	mg/Kg	5		6010B	Total/NA
Molybdenum	1.13	J	1.98	0.510	mg/Kg	5		6010B	Total/NA
Nickel	23.2		1.98	0.358	mg/Kg	5		6010B	Total/NA
Antimony	8.37	J	9.90	2.83	mg/Kg	5		6010B	Total/NA
Vanadium	20.1		0.990	0.166	mg/Kg	5		6010B	Total/NA
Zinc	377		4.95	1.14	mg/Kg	5		6010B	Total/NA
Lead	562		1.98	0.405	mg/Kg	5		6010B	Total/NA
Mercury	0.779		0.0801	0.0308	mg/Kg	1		7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.00089	0.00026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,1-Trichloroethane	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2,2-Tetrachloroethane	ND		0.0018	0.00048	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0089	0.00041	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2-Trichloroethane	ND		0.00089	0.00041	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloroethane	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloroethene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloropropene	ND		0.0018	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,3-Trichlorobenzene	ND		0.0018	0.00033	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,3-Trichloropropane	ND		0.0018	0.00037	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,4-Trichlorobenzene	ND		0.0018	0.00036	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,4-Trimethylbenzene	ND		0.0018	0.00053	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dibromo-3-Chloropropane	ND		0.0089	0.0030	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dibromoethane	ND		0.00089	0.00018	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichlorobenzene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichloroethane	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichloropropane	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3,5-Trimethylbenzene	ND		0.0018	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3-Dichlorobenzene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3-Dichloropropane	ND		0.00089	0.00026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,4-Dichlorobenzene	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2,2-Dichloropropane	ND		0.0044	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Butanone (MEK)	ND		0.018	0.0040	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Chlorotoluene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Hexanone	ND		0.018	0.0027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
4-Chlorotoluene	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
4-Methyl-2-pentanone (MIBK)	ND	*+	0.018	0.0026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Acetone	**0.047**		0.018	0.0087	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Benzene	**0.029**		0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromobenzene	ND		0.00089	0.00019	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromochloromethane	ND		0.0018	0.00039	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromodichloromethane	ND		0.00089	0.00029	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromoform	ND		0.0044	0.0012	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromomethane	ND		0.018	0.0058	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
cis-1,2-Dichloroethene	ND		0.00089	0.00030	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
cis-1,3-Dichloropropene	ND		0.00089	0.00031	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Carbon disulfide	ND		0.0089	0.00036	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Carbon tetrachloride	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chlorobenzene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloroethane	ND		0.0018	0.00066	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloroform	**0.00063**	**J**	0.00089	0.00052	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloromethane	ND		0.018	0.0014	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dibromochloromethane	ND		0.0018	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dibromomethane	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dichlorodifluoromethane	ND		0.0018	0.00040	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Di-isopropyl ether (DIPE)	ND		0.00089	0.00044	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethanol	ND		0.22	0.082	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethylbenzene	**0.0025**		0.00089	0.00018	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethyl-t-butyl ether (ETBE)	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RS-1
Date Collected: 12/27/23 07:20
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Methylene Chloride	ND		0.0089	0.0028	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0018	0.00017	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Naphthalene	ND	*+	0.0089	0.0035	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
n-Butylbenzene	ND		0.00089	0.00019	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
N-Propylbenzene	**0.00029**	**J**	0.0018	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
o-Xylene	**0.00069**	**J**	0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
m,p-Xylene	**0.0017**	**J**	0.0018	0.00042	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
p-Isopropyltoluene	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
sec-Butylbenzene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Styrene	ND		0.00089	0.00028	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
trans-1,2-Dichloroethene	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
trans-1,3-Dichloropropene	ND		0.0018	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Tert-amyl-methyl ether (TAME)	ND		0.00089	0.00017	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
tert-Butyl alcohol (TBA)	ND		0.018	0.0062	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
tert-Butylbenzene	ND		0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Tetrachloroethene	ND		0.00089	0.00020	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Toluene	**0.012**		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Trichloroethene	ND		0.0018	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Trichlorofluoromethane	**0.00069**	**J**	0.0089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Vinyl acetate	ND		0.0089	0.0035	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Vinyl chloride	ND		0.00089	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*32 - 179*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
Dibromofluoromethane (Surr)	*96*		*58 - 147*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*12/27/23 17:12*	*12/27/23 23:51*	*1*

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,1-Trichloroethane	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2,2-Tetrachloroethane	ND		0.87	0.24	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.3	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2-Trichloroethane	ND		0.43	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloroethane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloroethene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloropropene	ND		0.87	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,3-Trichlorobenzene	ND		0.87	0.16	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,3-Trichloropropane	ND		0.87	0.18	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,4-Trichlorobenzene	ND		0.87	0.18	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,4-Trimethylbenzene	ND		0.87	0.26	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dibromo-3-Chloropropane	ND		4.3	1.4	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dibromoethane	ND		0.43	0.089	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichlorobenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichloroethane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichloropropane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00

Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,3-Dichlorobenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,3-Dichloropropane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,4-Dichlorobenzene	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2,2-Dichloropropane	ND		2.2	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Butanone (MEK)	ND		8.7	2.0	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Chlorotoluene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Hexanone	ND		8.7	1.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
4-Chlorotoluene	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
4-Methyl-2-pentanone (MIBK)	ND		8.7	1.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Acetone	ND		8.7	4.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Benzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromobenzene	ND		0.43	0.090	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromochloromethane	ND		0.87	0.19	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromodichloromethane	ND		0.43	0.14	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromoform	ND		2.2	0.57	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromomethane	ND		8.7	2.9	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
cis-1,2-Dichloroethene	ND		0.43	0.15	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
cis-1,3-Dichloropropene	ND		0.43	0.15	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Carbon disulfide	ND		4.3	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Carbon tetrachloride	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chlorobenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloroethane	ND		0.87	0.32	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloroform	ND		0.43	0.26	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloromethane	ND		8.7	0.67	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dibromochloromethane	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dibromomethane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dichlorodifluoromethane	ND		0.87	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Di-isopropyl ether (DIPE)	ND		0.43	0.22	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethanol	ND		110	40	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethylbenzene	**0.19**	**J**	0.43	0.090	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethyl-t-butyl ether (ETBE)	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Isopropylbenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Methylene Chloride	ND		4.3	1.4	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Methyl-t-Butyl Ether (MTBE)	ND		0.87	0.081	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Naphthalene	ND		4.3	1.7	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
n-Butylbenzene	ND		0.43	0.091	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
N-Propylbenzene	ND		0.87	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
o-Xylene	**0.18**	**J**	0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
m,p-Xylene	**0.55**	**J**	0.87	0.21	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
p-Isopropyltoluene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
sec-Butylbenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Styrene	**1.1**		0.43	0.14	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
trans-1,2-Dichloroethene	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
trans-1,3-Dichloropropene	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Tert-amyl-methyl ether (TAME)	ND		0.43	0.084	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
tert-Butyl alcohol (TBA)	ND		8.7	3.0	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
tert-Butylbenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Tetrachloroethene	ND		0.43	0.097	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00

Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Trichloroethene	ND		0.87	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Trichlorofluoromethane	**8.5**		4.3	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Vinyl acetate	ND		4.3	1.7	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Vinyl chloride	ND		0.43	0.16	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*32 - 179*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
Dibromofluoromethane (Surr)	*112*		*58 - 147*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
Toluene-d8 (Surr)	*100*		*80 - 120*	*12/27/23 17:12*	*12/28/23 12:59*	*500*

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 8015B - Gasoline Range Organics - (GC)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.099	0.055	mg/Kg		01/03/24 16:36	01/03/24 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*42 - 126*	*01/03/24 16:36*	*01/03/24 21:48*	*1*

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.097	0.054	mg/Kg		01/03/24 16:36	01/03/24 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*42 - 126*	*01/03/24 16:36*	*01/03/24 22:07*	*1*

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	270		4.9	3.7	mg/Kg		12/27/23 15:56	12/29/23 01:21	1
TPH as Motor Oil (C17-C44)	440	F1	24	11	mg/Kg		12/27/23 15:56	12/29/23 01:21	1
Oil Range Organics (C18-C40)	430		4.9	3.7	mg/Kg		12/27/23 15:56	12/29/23 01:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*89*		*60 - 138*	*12/27/23 15:56*	*12/29/23 01:21*	*1*

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	660		24	19	mg/Kg		12/27/23 15:56	12/29/23 01:43	5
TPH as Motor Oil (C17-C44)	940		120	55	mg/Kg		12/27/23 15:56	12/29/23 01:43	5
Oil Range Organics (C18-C40)	920		24	19	mg/Kg		12/27/23 15:56	12/29/23 01:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*95*		*60 - 138*	*12/27/23 15:56*	*12/29/23 01:43*	*5*

Method: SW846 6010B - Metals (ICP)

Client Sample ID: RS-1
Date Collected: 12/27/23 07:20
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	**14.6**		7.61	0.731	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Arsenic	**21.9**		15.2	7.06	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Barium	**2040**	**B**	15.2	0.721	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Beryllium	ND		2.54	0.350	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Cadmium	**18.5**		2.54	0.832	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Cobalt	**12.7**		5.08	1.05	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Chromium	**64.0**		5.08	0.944	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Copper	**7600**		10.2	4.86	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Molybdenum	ND		10.2	2.61	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Nickel	**71.3**		10.2	1.84	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Antimony	**284**		50.8	14.5	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Selenium	ND		15.2	6.20	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Thallium	ND		50.8	10.7	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Vanadium	**15.7**		5.08	0.853	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Zinc	**5140**		25.4	5.87	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Lead	**29700**		20.3	4.15	mg/Kg		12/28/23 10:40	12/28/23 20:32	50

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.49	0.143	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Arsenic	**6.02**		2.97	1.38	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Barium	**161**	**B**	2.97	0.141	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Beryllium	**0.934**		0.495	0.0683	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Cadmium	**0.801**		0.495	0.162	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Cobalt	**4.23**		0.990	0.204	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Chromium	**42.2**		0.990	0.184	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Copper	**224**		1.98	0.949	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Molybdenum	**1.13**	**J**	1.98	0.510	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Nickel	**23.2**		1.98	0.358	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Antimony	**8.37**	**J**	9.90	2.83	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Selenium	ND		2.97	1.21	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Thallium	ND		9.90	2.09	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Vanadium	**20.1**		0.990	0.166	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Zinc	**377**		4.95	1.14	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Lead	**562**		1.98	0.405	mg/Kg		12/28/23 10:40	12/28/23 18:17	5

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	65.3	F2	8.68	3.33	mg/Kg		12/29/23 13:05	12/30/23 11:43	100

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.779		0.0801	0.0308	mg/Kg		12/29/23 13:05	12/30/23 08:50	1

Surrogate Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(32-179)	(80-120)	(58-147)	(80-120)
570-166113-1	RS-1	103	93	96	101
570-166113-2	BS-1	115	106	112	100
LCS 570-396551/3	Lab Control Sample	95	92	97	102
LCS 570-396650/4	Lab Control Sample	103	101	105	100
LCSD 570-396551/4	Lab Control Sample Dup	88	93	93	101
LCSD 570-396650/5	Lab Control Sample Dup	105	98	101	102
MB 570-396551/6	Method Blank	90	95	96	100
MB 570-396650/10	Method Blank	109	102	107	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		BFB1
Lab Sample ID	Client Sample ID	(42-126)
570-166113-1	RS-1	103
570-166113-2	BS-1	81
LCS 570-398155/1-A	Lab Control Sample	107
LCSD 570-398155/2-A	Lab Control Sample Dup	110
MB 570-398155/3-A	Method Blank	109

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		OTCSN1
Lab Sample ID	Client Sample ID	(60-138)
570-166113-1	RS-1	89
570-166113-1 MS	RS-1	90
570-166113-1 MSD	RS-1	91
570-166113-2	BS-1	95
LCS 570-396277/27-A	Lab Control Sample	97
LCS 570-396277/2-A	Lab Control Sample	106
LCSD 570-396277/28-A	Lab Control Sample Dup	99
LCSD 570-396277/3-A	Lab Control Sample Dup	103
MB 570-396277/1-A	Method Blank	124

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-396551/6
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.0010	0.00029	mg/Kg			12/27/23 23:06	1
1,1,1-Trichloroethane	ND		0.0010	0.00023	mg/Kg			12/27/23 23:06	1
1,1,2,2-Tetrachloroethane	ND		0.0020	0.00054	mg/Kg			12/27/23 23:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.010	0.00046	mg/Kg			12/27/23 23:06	1
1,1,2-Trichloroethane	ND		0.0010	0.00046	mg/Kg			12/27/23 23:06	1
1,1-Dichloroethane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,1-Dichloroethene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
1,1-Dichloropropene	ND		0.0020	0.00039	mg/Kg			12/27/23 23:06	1
1,2,3-Trichlorobenzene	ND		0.0020	0.00038	mg/Kg			12/27/23 23:06	1
1,2,3-Trichloropropane	ND		0.0020	0.00042	mg/Kg			12/27/23 23:06	1
1,2,4-Trichlorobenzene	ND		0.0020	0.00041	mg/Kg			12/27/23 23:06	1
1,2,4-Trimethylbenzene	ND		0.0020	0.00060	mg/Kg			12/27/23 23:06	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0033	mg/Kg			12/27/23 23:06	1
1,2-Dibromoethane	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
1,2-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
1,2-Dichloroethane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,2-Dichloropropane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,3,5-Trimethylbenzene	ND		0.0020	0.00027	mg/Kg			12/27/23 23:06	1
1,3-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
1,3-Dichloropropane	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
1,4-Dichlorobenzene	ND		0.0010	0.00031	mg/Kg			12/27/23 23:06	1
2,2-Dichloropropane	ND		0.0050	0.00027	mg/Kg			12/27/23 23:06	1
2-Butanone (MEK)	ND		0.020	0.0045	mg/Kg			12/27/23 23:06	1
2-Chlorotoluene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
2-Hexanone	ND		0.020	0.0031	mg/Kg			12/27/23 23:06	1
4-Chlorotoluene	ND		0.0010	0.00024	mg/Kg			12/27/23 23:06	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0029	mg/Kg			12/27/23 23:06	1
Acetone	ND		0.020	0.0098	mg/Kg			12/27/23 23:06	1
Benzene	ND		0.0010	0.00026	mg/Kg			12/27/23 23:06	1
Bromobenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
Bromochloromethane	ND		0.0020	0.00044	mg/Kg			12/27/23 23:06	1
Bromodichloromethane	ND		0.0010	0.00033	mg/Kg			12/27/23 23:06	1
Bromoform	ND		0.0050	0.0013	mg/Kg			12/27/23 23:06	1
Bromomethane	ND		0.020	0.0066	mg/Kg			12/27/23 23:06	1
cis-1,2-Dichloroethene	ND		0.0010	0.00034	mg/Kg			12/27/23 23:06	1
cis-1,3-Dichloropropene	ND		0.0010	0.00035	mg/Kg			12/27/23 23:06	1
Carbon disulfide	ND		0.010	0.00040	mg/Kg			12/27/23 23:06	1
Carbon tetrachloride	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
Chlorobenzene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Chloroethane	ND		0.0020	0.00074	mg/Kg			12/27/23 23:06	1
Chloroform	ND		0.0010	0.00059	mg/Kg			12/27/23 23:06	1
Chloromethane	ND		0.020	0.0015	mg/Kg			12/27/23 23:06	1
Dibromochloromethane	ND		0.0020	0.00027	mg/Kg			12/27/23 23:06	1
Dibromomethane	ND		0.0010	0.00031	mg/Kg			12/27/23 23:06	1
Dichlorodifluoromethane	ND		0.0020	0.00045	mg/Kg			12/27/23 23:06	1
Di-isopropyl ether (DIPE)	ND		0.0010	0.00050	mg/Kg			12/27/23 23:06	1
Ethanol	ND		0.25	0.092	mg/Kg			12/27/23 23:06	1
Ethylbenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-396551/6
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl-t-butyl ether (ETBE)	ND		0.0010	0.00024	mg/Kg			12/27/23 23:06	1
Isopropylbenzene	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
Methylene Chloride	ND		0.010	0.0031	mg/Kg			12/27/23 23:06	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	0.00019	mg/Kg			12/27/23 23:06	1
Naphthalene	ND		0.010	0.0039	mg/Kg			12/27/23 23:06	1
n-Butylbenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
N-Propylbenzene	ND		0.0020	0.00026	mg/Kg			12/27/23 23:06	1
o-Xylene	ND		0.0010	0.00026	mg/Kg			12/27/23 23:06	1
m,p-Xylene	ND		0.0020	0.00047	mg/Kg			12/27/23 23:06	1
p-Isopropyltoluene	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
sec-Butylbenzene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Styrene	ND		0.0010	0.00032	mg/Kg			12/27/23 23:06	1
trans-1,2-Dichloroethene	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
trans-1,3-Dichloropropene	ND		0.0020	0.00028	mg/Kg			12/27/23 23:06	1
Tert-amyl-methyl ether (TAME)	ND		0.0010	0.00019	mg/Kg			12/27/23 23:06	1
tert-Butyl alcohol (TBA)	ND		0.020	0.0070	mg/Kg			12/27/23 23:06	1
tert-Butylbenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
Tetrachloroethene	ND		0.0010	0.00022	mg/Kg			12/27/23 23:06	1
Toluene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Trichloroethene	ND		0.0020	0.00039	mg/Kg			12/27/23 23:06	1
Trichlorofluoromethane	ND		0.010	0.00027	mg/Kg			12/27/23 23:06	1
Vinyl acetate	ND		0.010	0.0039	mg/Kg			12/27/23 23:06	1
Vinyl chloride	ND		0.0010	0.00038	mg/Kg			12/27/23 23:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*32 - 179*		*12/27/23 23:06*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*12/27/23 23:06*	*1*
Dibromofluoromethane (Surr)	*96*		*58 - 147*		*12/27/23 23:06*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*12/27/23 23:06*	*1*

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.0500	0.05375		mg/Kg		107	80 - 125
1,1,1-Trichloroethane	0.0500	0.04974		mg/Kg		99	78 - 130
1,1,2,2-Tetrachloroethane	0.0500	0.05495		mg/Kg		110	80 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05592		mg/Kg		112	73 - 130
1,1,2-Trichloroethane	0.0500	0.04837		mg/Kg		97	80 - 123
1,1-Dichloroethane	0.0500	0.05767		mg/Kg		115	79 - 124
1,1-Dichloroethene	0.0500	0.05847		mg/Kg		117	74 - 132
1,1-Dichloropropene	0.0500	0.04863		mg/Kg		97	78 - 130
1,2,3-Trichlorobenzene	0.0500	0.05835		mg/Kg		117	80 - 123
1,2,3-Trichloropropane	0.0500	0.04905		mg/Kg		98	79 - 120
1,2,4-Trichlorobenzene	0.0500	0.05992		mg/Kg		120	80 - 125
1,2,4-Trimethylbenzene	0.0500	0.05205		mg/Kg		104	80 - 124
1,2-Dibromo-3-Chloropropane	0.0500	0.04712		mg/Kg		94	67 - 120

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dibromoethane	0.0500	0.05302		mg/Kg		106	80 - 120
1,2-Dichlorobenzene	0.0500	0.05664		mg/Kg		113	80 - 120
1,2-Dichloroethane	0.0500	0.04898		mg/Kg		98	77 - 120
1,2-Dichloropropane	0.0500	0.05734		mg/Kg		115	80 - 126
1,3,5-Trimethylbenzene	0.0500	0.05273		mg/Kg		105	80 - 121
1,3-Dichlorobenzene	0.0500	0.05909		mg/Kg		118	80 - 120
1,3-Dichloropropane	0.0500	0.05010		mg/Kg		100	80 - 120
1,4-Dichlorobenzene	0.0500	0.05436		mg/Kg		109	80 - 120
2,2-Dichloropropane	0.0500	0.05103		mg/Kg		102	73 - 135
2-Butanone (MEK)	0.0500	0.05271		mg/Kg		105	67 - 136
2-Chlorotoluene	0.0500	0.05006		mg/Kg		100	80 - 120
2-Hexanone	0.0500	0.05899		mg/Kg		118	70 - 137
4-Chlorotoluene	0.0500	0.05242		mg/Kg		105	80 - 121
4-Methyl-2-pentanone (MIBK)	0.0500	0.06319	*+ me	mg/Kg		126	74 - 124
Acetone	0.0500	0.05494		mg/Kg		110	61 - 142
Benzene	0.0500	0.05218		mg/Kg		104	80 - 120
Bromobenzene	0.0500	0.05469		mg/Kg		109	80 - 120
Bromochloromethane	0.0500	0.05451		mg/Kg		109	80 - 120
Bromodichloromethane	0.0500	0.05274		mg/Kg		105	80 - 125
Bromoform	0.0500	0.05698		mg/Kg		114	74 - 138
Bromomethane	0.0500	0.04258		mg/Kg		85	58 - 136
cis-1,2-Dichloroethene	0.0500	0.05208		mg/Kg		104	80 - 124
cis-1,3-Dichloropropene	0.0500	0.05171		mg/Kg		103	80 - 123
Carbon disulfide	0.0500	0.05247		mg/Kg		105	68 - 128
Carbon tetrachloride	0.0500	0.05120		mg/Kg		102	75 - 140
Chlorobenzene	0.0500	0.05170		mg/Kg		103	80 - 120
Chloroethane	0.0500	0.05084		mg/Kg		102	76 - 137
Chloroform	0.0500	0.04449		mg/Kg		89	80 - 121
Chloromethane	0.0500	0.05242		mg/Kg		105	74 - 133
Dibromochloromethane	0.0500	0.05362		mg/Kg		107	80 - 132
Dibromomethane	0.0500	0.05539		mg/Kg		111	80 - 120
Dichlorodifluoromethane	0.0500	0.04163		mg/Kg		83	63 - 146
Di-isopropyl ether (DIPE)	0.0500	0.06299		mg/Kg		126	73 - 132
Ethanol	0.500	0.5602		mg/Kg		112	46 - 159
Ethylbenzene	0.0500	0.05194		mg/Kg		104	80 - 120
Ethyl-t-butyl ether (ETBE)	0.0500	0.05844		mg/Kg		117	77 - 129
Isopropylbenzene	0.0500	0.05513		mg/Kg		110	80 - 122
Methylene Chloride	0.0500	0.04911		mg/Kg		98	74 - 120
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05206		mg/Kg		104	79 - 123
Naphthalene	0.0500	0.06075		mg/Kg		121	79 - 121
n-Butylbenzene	0.0500	0.05503		mg/Kg		110	79 - 131
N-Propylbenzene	0.0500	0.05451		mg/Kg		109	80 - 122
o-Xylene	0.0500	0.05031		mg/Kg		101	80 - 120
m,p-Xylene	0.100	0.1003		mg/Kg		100	80 - 120
p-Isopropyltoluene	0.0500	0.05657		mg/Kg		113	80 - 126
sec-Butylbenzene	0.0500	0.05568		mg/Kg		111	80 - 125
Styrene	0.0500	0.05322		mg/Kg		106	80 - 120
trans-1,2-Dichloroethene	0.0500	0.05265		mg/Kg		105	75 - 123
trans-1,3-Dichloropropene	0.0500	0.05292		mg/Kg		106	80 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tert-amyl-methyl ether (TAME)	0.0500	0.05587		mg/Kg		112	80 - 120
tert-Butyl alcohol (TBA)	0.250	0.2634		mg/Kg		105	74 - 123
tert-Butylbenzene	0.0500	0.05947		mg/Kg		119	80 - 124
Tetrachloroethene	0.0500	0.05484		mg/Kg		110	80 - 122
Toluene	0.0500	0.05485		mg/Kg		110	80 - 120
Trichloroethene	0.0500	0.05505		mg/Kg		110	80 - 127
Trichlorofluoromethane	0.0500	0.04668		mg/Kg		93	70 - 144
Vinyl acetate	0.0500	0.05212		mg/Kg		104	71 - 125
Vinyl chloride	0.0500	0.05675		mg/Kg		114	79 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*32 - 179*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*58 - 147*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.0500	0.05248		mg/Kg		105	80 - 125	2	20
1,1,1-Trichloroethane	0.0500	0.04620		mg/Kg		92	78 - 130	7	20
1,1,2,2-Tetrachloroethane	0.0500	0.05615		mg/Kg		112	80 - 124	2	20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05217		mg/Kg		104	73 - 130	7	20
1,1,2-Trichloroethane	0.0500	0.04781		mg/Kg		96	80 - 123	1	20
1,1-Dichloroethane	0.0500	0.05403		mg/Kg		108	79 - 124	7	20
1,1-Dichloroethene	0.0500	0.05314		mg/Kg		106	74 - 132	10	20
1,1-Dichloropropene	0.0500	0.04631		mg/Kg		93	78 - 130	5	20
1,2,3-Trichlorobenzene	0.0500	0.05789		mg/Kg		116	80 - 123	1	20
1,2,3-Trichloropropane	0.0500	0.05100		mg/Kg		102	79 - 120	4	20
1,2,4-Trichlorobenzene	0.0500	0.05910		mg/Kg		118	80 - 125	1	20
1,2,4-Trimethylbenzene	0.0500	0.05048		mg/Kg		101	80 - 124	3	20
1,2-Dibromo-3-Chloropropane	0.0500	0.04767		mg/Kg		95	67 - 120	1	20
1,2-Dibromoethane	0.0500	0.05092		mg/Kg		102	80 - 120	4	20
1,2-Dichlorobenzene	0.0500	0.05742		mg/Kg		115	80 - 120	1	20
1,2-Dichloroethane	0.0500	0.04788		mg/Kg		96	77 - 120	2	20
1,2-Dichloropropane	0.0500	0.05473		mg/Kg		109	80 - 126	5	20
1,3,5-Trimethylbenzene	0.0500	0.05146		mg/Kg		103	80 - 121	2	20
1,3-Dichlorobenzene	0.0500	0.05826		mg/Kg		117	80 - 120	1	20
1,3-Dichloropropane	0.0500	0.04928		mg/Kg		99	80 - 120	2	20
1,4-Dichlorobenzene	0.0500	0.05494		mg/Kg		110	80 - 120	1	20
2,2-Dichloropropane	0.0500	0.04808		mg/Kg		96	73 - 135	6	20
2-Butanone (MEK)	0.0500	0.05705		mg/Kg		114	67 - 136	8	20
2-Chlorotoluene	0.0500	0.04902		mg/Kg		98	80 - 120	2	20
2-Hexanone	0.0500	0.06225		mg/Kg		124	70 - 137	5	20
4-Chlorotoluene	0.0500	0.05250		mg/Kg		105	80 - 121	0	20
4-Methyl-2-pentanone (MIBK)	0.0500	0.06586	*+ me	mg/Kg		132	74 - 124	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetone			0.0500	0.05546		mg/Kg		111	61 - 142	1	23
Benzene			0.0500	0.05025		mg/Kg		100	80 - 120	4	20
Bromobenzene			0.0500	0.05394		mg/Kg		108	80 - 120	1	20
Bromochloromethane			0.0500	0.05232		mg/Kg		105	80 - 120	4	20
Bromodichloromethane			0.0500	0.05154		mg/Kg		103	80 - 125	2	20
Bromoform			0.0500	0.05769		mg/Kg		115	74 - 138	1	20
Bromomethane			0.0500	0.04159		mg/Kg		83	58 - 136	2	20
cis-1,2-Dichloroethene			0.0500	0.04909		mg/Kg		98	80 - 124	6	20
cis-1,3-Dichloropropene			0.0500	0.05117		mg/Kg		102	80 - 123	1	20
Carbon disulfide			0.0500	0.04914		mg/Kg		98	68 - 128	7	20
Carbon tetrachloride			0.0500	0.04823		mg/Kg		96	75 - 140	6	20
Chlorobenzene			0.0500	0.05018		mg/Kg		100	80 - 120	3	20
Chloroethane			0.0500	0.05164		mg/Kg		103	76 - 137	2	20
Chloroform			0.0500	0.04300		mg/Kg		86	80 - 121	3	20
Chloromethane			0.0500	0.05289		mg/Kg		106	74 - 133	1	20
Dibromochloromethane			0.0500	0.05222		mg/Kg		104	80 - 132	3	20
Dibromomethane			0.0500	0.05391		mg/Kg		108	80 - 120	3	20
Dichlorodifluoromethane			0.0500	0.04094		mg/Kg		82	63 - 146	2	20
Di-isopropyl ether (DIPE)			0.0500	0.06038		mg/Kg		121	73 - 132	4	20
Ethanol			0.500	0.5624		mg/Kg		112	46 - 159	0	30
Ethylbenzene			0.0500	0.05082		mg/Kg		102	80 - 120	2	20
Ethyl-t-butyl ether (ETBE)			0.0500	0.05660		mg/Kg		113	77 - 129	3	20
Isopropylbenzene			0.0500	0.05371		mg/Kg		107	80 - 122	3	20
Methylene Chloride			0.0500	0.04753		mg/Kg		95	74 - 120	3	20
Methyl-t-Butyl Ether (MTBE)			0.0500	0.04988		mg/Kg		100	79 - 123	4	20
Naphthalene			0.0500	0.06276	*+ me	mg/Kg		126	79 - 121	3	20
n-Butylbenzene			0.0500	0.05415		mg/Kg		108	79 - 131	2	20
N-Propylbenzene			0.0500	0.05259		mg/Kg		105	80 - 122	4	20
o-Xylene			0.0500	0.04847		mg/Kg		97	80 - 120	4	20
m,p-Xylene			0.100	0.09691		mg/Kg		97	80 - 120	3	20
p-Isopropyltoluene			0.0500	0.05640		mg/Kg		113	80 - 126	0	20
sec-Butylbenzene			0.0500	0.05421		mg/Kg		108	80 - 125	3	20
Styrene			0.0500	0.05195		mg/Kg		104	80 - 120	2	20
trans-1,2-Dichloroethene			0.0500	0.04944		mg/Kg		99	75 - 123	6	20
trans-1,3-Dichloropropene			0.0500	0.05223		mg/Kg		104	80 - 124	1	20
Tert-amyl-methyl ether (TAME)			0.0500	0.05527		mg/Kg		111	80 - 120	1	20
tert-Butyl alcohol (TBA)			0.250	0.2690		mg/Kg		108	74 - 123	2	20
tert-Butylbenzene			0.0500	0.05663		mg/Kg		113	80 - 124	5	20
Tetrachloroethene			0.0500	0.05156		mg/Kg		103	80 - 122	6	20
Toluene			0.0500	0.05284		mg/Kg		106	80 - 120	4	20
Trichloroethene			0.0500	0.05313		mg/Kg		106	80 - 127	4	20
Trichlorofluoromethane			0.0500	0.04611		mg/Kg		92	70 - 144	1	20
Vinyl acetate			0.0500	0.05027		mg/Kg		101	71 - 125	4	20
Vinyl chloride			0.0500	0.05650		mg/Kg		113	79 - 133	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*32 - 179*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Dibromofluoromethane (Surr)	93		58 - 147
Toluene-d8 (Surr)	101		80 - 120

Lab Sample ID: MB 570-396650/10
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
1,1,1-Trichloroethane	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
1,1,2,2-Tetrachloroethane	ND		0.10	0.027	mg/Kg			12/28/23 10:56	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.023	mg/Kg			12/28/23 10:56	50
1,1,2-Trichloroethane	ND		0.050	0.023	mg/Kg			12/28/23 10:56	50
1,1-Dichloroethane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,1-Dichloroethene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,1-Dichloropropene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
1,2,3-Trichlorobenzene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
1,2,3-Trichloropropane	ND		0.10	0.021	mg/Kg			12/28/23 10:56	50
1,2,4-Trichlorobenzene	ND		0.10	0.021	mg/Kg			12/28/23 10:56	50
1,2,4-Trimethylbenzene	ND		0.10	0.030	mg/Kg			12/28/23 10:56	50
1,2-Dibromo-3-Chloropropane	ND		0.50	0.17	mg/Kg			12/28/23 10:56	50
1,2-Dibromoethane	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
1,2-Dichlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,2-Dichloroethane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,2-Dichloropropane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,3,5-Trimethylbenzene	ND		0.10	0.013	mg/Kg			12/28/23 10:56	50
1,3-Dichlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,3-Dichloropropane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
1,4-Dichlorobenzene	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
2,2-Dichloropropane	ND		0.25	0.014	mg/Kg			12/28/23 10:56	50
2-Butanone (MEK)	ND		1.0	0.23	mg/Kg			12/28/23 10:56	50
2-Chlorotoluene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
2-Hexanone	ND		1.0	0.15	mg/Kg			12/28/23 10:56	50
4-Chlorotoluene	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.15	mg/Kg			12/28/23 10:56	50
Acetone	ND		1.0	0.49	mg/Kg			12/28/23 10:56	50
Benzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Bromobenzene	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
Bromochloromethane	ND		0.10	0.022	mg/Kg			12/28/23 10:56	50
Bromodichloromethane	ND		0.050	0.016	mg/Kg			12/28/23 10:56	50
Bromoform	ND		0.25	0.066	mg/Kg			12/28/23 10:56	50
Bromomethane	ND		1.0	0.33	mg/Kg			12/28/23 10:56	50
cis-1,2-Dichloroethene	ND		0.050	0.017	mg/Kg			12/28/23 10:56	50
cis-1,3-Dichloropropene	ND		0.050	0.017	mg/Kg			12/28/23 10:56	50
Carbon disulfide	ND		0.50	0.020	mg/Kg			12/28/23 10:56	50
Carbon tetrachloride	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
Chlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Chloroethane	ND		0.10	0.037	mg/Kg			12/28/23 10:56	50

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-396650/10
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.050	0.029	mg/Kg			12/28/23 10:56	50
Chloromethane	ND		1.0	0.077	mg/Kg			12/28/23 10:56	50
Dibromochloromethane	ND		0.10	0.014	mg/Kg			12/28/23 10:56	50
Dibromomethane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
Dichlorodifluoromethane	ND		0.10	0.023	mg/Kg			12/28/23 10:56	50
Di-isopropyl ether (DIPE)	ND		0.050	0.025	mg/Kg			12/28/23 10:56	50
Ethanol	ND		13	4.6	mg/Kg			12/28/23 10:56	50
Ethylbenzene	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
Ethyl-t-butyl ether (ETBE)	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
Isopropylbenzene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
Methylene Chloride	ND		0.50	0.16	mg/Kg			12/28/23 10:56	50
Methyl-t-Butyl Ether (MTBE)	ND		0.10	0.0094	mg/Kg			12/28/23 10:56	50
Naphthalene	ND		0.50	0.20	mg/Kg			12/28/23 10:56	50
n-Butylbenzene	ND		0.050	0.011	mg/Kg			12/28/23 10:56	50
N-Propylbenzene	ND		0.10	0.013	mg/Kg			12/28/23 10:56	50
o-Xylene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
m,p-Xylene	ND		0.10	0.024	mg/Kg			12/28/23 10:56	50
p-Isopropyltoluene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
sec-Butylbenzene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
Styrene	ND		0.050	0.016	mg/Kg			12/28/23 10:56	50
trans-1,2-Dichloroethene	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
trans-1,3-Dichloropropene	ND		0.10	0.014	mg/Kg			12/28/23 10:56	50
Tert-amyl-methyl ether (TAME)	ND		0.050	0.0097	mg/Kg			12/28/23 10:56	50
tert-Butyl alcohol (TBA)	ND		1.0	0.35	mg/Kg			12/28/23 10:56	50
tert-Butylbenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Tetrachloroethene	ND		0.050	0.011	mg/Kg			12/28/23 10:56	50
Toluene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Trichloroethene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
Trichlorofluoromethane	ND		0.50	0.014	mg/Kg			12/28/23 10:56	50
Vinyl acetate	ND		0.50	0.20	mg/Kg			12/28/23 10:56	50
Vinyl chloride	ND		0.050	0.019	mg/Kg			12/28/23 10:56	50

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*32 - 179*		*12/28/23 10:56*	*50*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*12/28/23 10:56*	*50*
Dibromofluoromethane (Surr)	*107*		*58 - 147*		*12/28/23 10:56*	*50*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/28/23 10:56*	*50*

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.0500	0.05191		mg/Kg		104	80 - 125
1,1,1-Trichloroethane	0.0500	0.05399		mg/Kg		108	78 - 130
1,1,2,2-Tetrachloroethane	0.0500	0.04914		mg/Kg		98	80 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05543		mg/Kg		111	73 - 130
1,1,2-Trichloroethane	0.0500	0.04938		mg/Kg		99	80 - 123

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethane	0.0500	0.05302		mg/Kg		106	79 - 124
1,1-Dichloroethene	0.0500	0.05460		mg/Kg		109	74 - 132
1,1-Dichloropropene	0.0500	0.05299		mg/Kg		106	78 - 130
1,2,3-Trichlorobenzene	0.0500	0.05079		mg/Kg		102	80 - 123
1,2,3-Trichloropropane	0.0500	0.05176		mg/Kg		104	79 - 120
1,2,4-Trichlorobenzene	0.0500	0.05103		mg/Kg		102	80 - 125
1,2,4-Trimethylbenzene	0.0500	0.04995		mg/Kg		100	80 - 124
1,2-Dibromo-3-Chloropropane	0.0500	0.04757		mg/Kg		95	67 - 120
1,2-Dibromoethane	0.0500	0.04784		mg/Kg		96	80 - 120
1,2-Dichlorobenzene	0.0500	0.04970		mg/Kg		99	80 - 120
1,2-Dichloroethane	0.0500	0.04815		mg/Kg		96	77 - 120
1,2-Dichloropropane	0.0500	0.05504		mg/Kg		110	80 - 126
1,3,5-Trimethylbenzene	0.0500	0.05058		mg/Kg		101	80 - 121
1,3-Dichlorobenzene	0.0500	0.05007		mg/Kg		100	80 - 120
1,3-Dichloropropane	0.0500	0.05305		mg/Kg		106	80 - 120
1,4-Dichlorobenzene	0.0500	0.04994		mg/Kg		100	80 - 120
2,2-Dichloropropane	0.0500	0.05619		mg/Kg		112	73 - 135
2-Butanone (MEK)	0.0500	0.05076		mg/Kg		102	67 - 136
2-Chlorotoluene	0.0500	0.05075		mg/Kg		102	80 - 120
2-Hexanone	0.0500	0.05051		mg/Kg		101	70 - 137
4-Chlorotoluene	0.0500	0.05206		mg/Kg		104	80 - 121
4-Methyl-2-pentanone (MIBK)	0.0500	0.04993		mg/Kg		100	74 - 124
Acetone	0.0500	0.05716		mg/Kg		114	61 - 142
Benzene	0.0500	0.05030		mg/Kg		101	80 - 120
Bromobenzene	0.0500	0.05128		mg/Kg		103	80 - 120
Bromochloromethane	0.0500	0.05368		mg/Kg		107	80 - 120
Bromodichloromethane	0.0500	0.05367		mg/Kg		107	80 - 125
Bromoform	0.0500	0.04760		mg/Kg		95	74 - 138
Bromomethane	0.0500	0.04326		mg/Kg		87	58 - 136
cis-1,2-Dichloroethene	0.0500	0.05246		mg/Kg		105	80 - 124
cis-1,3-Dichloropropene	0.0500	0.05089		mg/Kg		102	80 - 123
Carbon disulfide	0.0500	0.05336		mg/Kg		107	68 - 128
Carbon tetrachloride	0.0500	0.05543		mg/Kg		111	75 - 140
Chlorobenzene	0.0500	0.05165		mg/Kg		103	80 - 120
Chloroethane	0.0500	0.04873		mg/Kg		97	76 - 137
Chloroform	0.0500	0.04755		mg/Kg		95	80 - 121
Chloromethane	0.0500	0.04450		mg/Kg		89	74 - 133
Dibromochloromethane	0.0500	0.05277		mg/Kg		106	80 - 132
Dibromomethane	0.0500	0.05507		mg/Kg		110	80 - 120
Dichlorodifluoromethane	0.0500	0.04863		mg/Kg		97	63 - 146
Di-isopropyl ether (DIPE)	0.0500	0.05440		mg/Kg		109	73 - 132
Ethanol	0.500	0.4519		mg/Kg		90	46 - 159
Ethylbenzene	0.0500	0.05079		mg/Kg		102	80 - 120
Ethyl-t-butyl ether (ETBE)	0.0500	0.05320		mg/Kg		106	77 - 129
Isopropylbenzene	0.0500	0.05417		mg/Kg		108	80 - 122
Methylene Chloride	0.0500	0.04900		mg/Kg		98	74 - 120
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05416		mg/Kg		108	79 - 123
Naphthalene	0.0500	0.04859		mg/Kg		97	79 - 121
n-Butylbenzene	0.0500	0.05227		mg/Kg		105	79 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
N-Propylbenzene			0.0500	0.05247		mg/Kg		105	80 - 122		
o-Xylene			0.0500	0.05075		mg/Kg		101	80 - 120		
m,p-Xylene			0.100	0.09853		mg/Kg		99	80 - 120		
p-Isopropyltoluene			0.0500	0.05066		mg/Kg		101	80 - 126		
sec-Butylbenzene			0.0500	0.05150		mg/Kg		103	80 - 125		
Styrene			0.0500	0.05228		mg/Kg		105	80 - 120		
trans-1,2-Dichloroethene			0.0500	0.05053		mg/Kg		101	75 - 123		
trans-1,3-Dichloropropene			0.0500	0.05088		mg/Kg		102	80 - 124		
Tert-amyl-methyl ether (TAME)			0.0500	0.05064		mg/Kg		101	80 - 120		
tert-Butyl alcohol (TBA)			0.250	0.2574		mg/Kg		103	74 - 123		
tert-Butylbenzene			0.0500	0.05048		mg/Kg		101	80 - 124		
Tetrachloroethene			0.0500	0.05134		mg/Kg		103	80 - 122		
Toluene			0.0500	0.05166		mg/Kg		103	80 - 120		
Trichloroethene			0.0500	0.05165		mg/Kg		103	80 - 127		
Trichlorofluoromethane			0.0500	0.05618		mg/Kg		112	70 - 144		
Vinyl acetate			0.0500	0.04885		mg/Kg		98	71 - 125		
Vinyl chloride			0.0500	0.04569		mg/Kg		91	79 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*32 - 179*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*58 - 147*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			0.0500	0.05064		mg/Kg		101	80 - 125	2	20
1,1,1-Trichloroethane			0.0500	0.05261		mg/Kg		105	78 - 130	3	20
1,1,2,2-Tetrachloroethane			0.0500	0.05117		mg/Kg		102	80 - 124	4	20
1,1,2-Trichloro-1,2,2-trifluoroethane			0.0500	0.05440		mg/Kg		109	73 - 130	2	20
1,1,2-Trichloroethane			0.0500	0.05009		mg/Kg		100	80 - 123	1	20
1,1-Dichloroethane			0.0500	0.05312		mg/Kg		106	79 - 124	0	20
1,1-Dichloroethene			0.0500	0.05338		mg/Kg		107	74 - 132	2	20
1,1-Dichloropropene			0.0500	0.05061		mg/Kg		101	78 - 130	5	20
1,2,3-Trichlorobenzene			0.0500	0.05136		mg/Kg		103	80 - 123	1	20
1,2,3-Trichloropropane			0.0500	0.05014		mg/Kg		100	79 - 120	3	20
1,2,4-Trichlorobenzene			0.0500	0.05171		mg/Kg		103	80 - 125	1	20
1,2,4-Trimethylbenzene			0.0500	0.04959		mg/Kg		99	80 - 124	1	20
1,2-Dibromo-3-Chloropropane			0.0500	0.05096		mg/Kg		102	67 - 120	7	20
1,2-Dibromoethane			0.0500	0.04948		mg/Kg		99	80 - 120	3	20
1,2-Dichlorobenzene			0.0500	0.05149		mg/Kg		103	80 - 120	4	20
1,2-Dichloroethane			0.0500	0.04980		mg/Kg		100	77 - 120	3	20
1,2-Dichloropropane			0.0500	0.05451		mg/Kg		109	80 - 126	1	20
1,3,5-Trimethylbenzene			0.0500	0.04944		mg/Kg		99	80 - 121	2	20
1,3-Dichlorobenzene			0.0500	0.05044		mg/Kg		101	80 - 120	1	20

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3-Dichloropropane	0.0500	0.05266		mg/Kg		105	80 - 120	1	20
1,4-Dichlorobenzene	0.0500	0.04951		mg/Kg		99	80 - 120	1	20
2,2-Dichloropropane	0.0500	0.05445		mg/Kg		109	73 - 135	3	20
2-Butanone (MEK)	0.0500	0.04896		mg/Kg		98	67 - 136	4	20
2-Chlorotoluene	0.0500	0.04918		mg/Kg		98	80 - 120	3	20
2-Hexanone	0.0500	0.04814		mg/Kg		96	70 - 137	5	20
4-Chlorotoluene	0.0500	0.05056		mg/Kg		101	80 - 121	3	20
4-Methyl-2-pentanone (MIBK)	0.0500	0.05139		mg/Kg		103	74 - 124	3	20
Acetone	0.0500	0.04626		mg/Kg		93	61 - 142	21	23
Benzene	0.0500	0.05061		mg/Kg		101	80 - 120	1	20
Bromobenzene	0.0500	0.05144		mg/Kg		103	80 - 120	0	20
Bromochloromethane	0.0500	0.05155		mg/Kg		103	80 - 120	4	20
Bromodichloromethane	0.0500	0.05337		mg/Kg		107	80 - 125	1	20
Bromoform	0.0500	0.04881		mg/Kg		98	74 - 138	3	20
Bromomethane	0.0500	0.04321		mg/Kg		86	58 - 136	0	20
cis-1,2-Dichloroethene	0.0500	0.04984		mg/Kg		100	80 - 124	5	20
cis-1,3-Dichloropropene	0.0500	0.04993		mg/Kg		100	80 - 123	2	20
Carbon disulfide	0.0500	0.05183		mg/Kg		104	68 - 128	3	20
Carbon tetrachloride	0.0500	0.05429		mg/Kg		109	75 - 140	2	20
Chlorobenzene	0.0500	0.05057		mg/Kg		101	80 - 120	2	20
Chloroethane	0.0500	0.04849		mg/Kg		97	76 - 137	0	20
Chloroform	0.0500	0.04584		mg/Kg		92	80 - 121	4	20
Chloromethane	0.0500	0.04336		mg/Kg		87	74 - 133	3	20
Dibromochloromethane	0.0500	0.05214		mg/Kg		104	80 - 132	1	20
Dibromomethane	0.0500	0.05541		mg/Kg		111	80 - 120	1	20
Dichlorodifluoromethane	0.0500	0.04654		mg/Kg		93	63 - 146	4	20
Di-isopropyl ether (DIPE)	0.0500	0.05284		mg/Kg		106	73 - 132	3	20
Ethanol	0.500	0.4594		mg/Kg		92	46 - 159	2	30
Ethylbenzene	0.0500	0.04928		mg/Kg		99	80 - 120	3	20
Ethyl-t-butyl ether (ETBE)	0.0500	0.05352		mg/Kg		107	77 - 129	1	20
Isopropylbenzene	0.0500	0.05272		mg/Kg		105	80 - 122	3	20
Methylene Chloride	0.0500	0.04780		mg/Kg		96	74 - 120	2	20
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05248		mg/Kg		105	79 - 123	3	20
Naphthalene	0.0500	0.04978		mg/Kg		100	79 - 121	2	20
n-Butylbenzene	0.0500	0.05221		mg/Kg		104	79 - 131	0	20
N-Propylbenzene	0.0500	0.05088		mg/Kg		102	80 - 122	3	20
o-Xylene	0.0500	0.04968		mg/Kg		99	80 - 120	2	20
m,p-Xylene	0.100	0.09467		mg/Kg		95	80 - 120	4	20
p-Isopropyltoluene	0.0500	0.05095		mg/Kg		102	80 - 126	1	20
sec-Butylbenzene	0.0500	0.05084		mg/Kg		102	80 - 125	1	20
Styrene	0.0500	0.05084		mg/Kg		102	80 - 120	3	20
trans-1,2-Dichloroethene	0.0500	0.05080		mg/Kg		102	75 - 123	1	20
trans-1,3-Dichloropropene	0.0500	0.05270		mg/Kg		105	80 - 124	4	20
Tert-amyl-methyl ether (TAME)	0.0500	0.05125		mg/Kg		103	80 - 120	1	20
tert-Butyl alcohol (TBA)	0.250	0.2538		mg/Kg		102	74 - 123	1	20
tert-Butylbenzene	0.0500	0.05090		mg/Kg		102	80 - 124	1	20
Tetrachloroethene	0.0500	0.05132		mg/Kg		103	80 - 122	0	20
Toluene	0.0500	0.05111		mg/Kg		102	80 - 120	1	20
Trichloroethene	0.0500	0.05129		mg/Kg		103	80 - 127	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Trichlorofluoromethane			0.0500	0.05488		mg/Kg		110	70 - 144	2	20
Vinyl acetate			0.0500	0.04729		mg/Kg		95	71 - 125	3	20
Vinyl chloride			0.0500	0.04559		mg/Kg		91	79 - 133	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*32 - 179*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*58 - 147*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 570-398155/3-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398155

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.098	0.055	mg/Kg		01/03/24 16:36	01/03/24 21:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*42 - 126*	*01/03/24 16:36*	*01/03/24 21:09*	*1*

Lab Sample ID: LCS 570-398155/1-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398155

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)			1.97	1.651		mg/Kg		84	70 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*42 - 126*

Lab Sample ID: LCSD 570-398155/2-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398155

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)			1.96	1.810		mg/Kg		92	70 - 124	9	18

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*42 - 126*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-396277/1-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 396277

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		5.0	3.8	mg/Kg		12/27/23 10:21	12/28/23 22:25	1
TPH as Motor Oil (C17-C44)	ND		25	11	mg/Kg		12/27/23 10:21	12/28/23 22:25	1
Oil Range Organics (C18-C40)	ND		5.0	3.8	mg/Kg		12/27/23 10:21	12/28/23 22:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*124*		*60 - 138*	*12/27/23 10:21*	*12/28/23 22:25*	*1*

Lab Sample ID: LCS 570-396277/27-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TPH as Motor Oil (C17-C44)			400	414.6		mg/Kg		104	77 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*97*		*60 - 138*

Lab Sample ID: LCS 570-396277/2-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	385.6		mg/Kg		96	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*106*		*60 - 138*

Lab Sample ID: LCSD 570-396277/28-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)			400	405.8		mg/Kg		101	77 - 125	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*99*		*60 - 138*

Lab Sample ID: LCSD 570-396277/3-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	376.9		mg/Kg		94	80 - 130	2	20

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 570-396277/3-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Octacosane (Surr)	*103*		*60 - 138*

Lab Sample ID: 570-166113-1 MS
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 396277

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
TPH as Motor Oil (C17-C44)	440	F1	396	900.8	E	mg/Kg		117	44 - 161

Surrogate	MS %Recovery	MS Qualifier	Limits
n-Octacosane (Surr)	*90*		*60 - 138*

Lab Sample ID: 570-166113-1 MSD
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 396277

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)	440	F1	389	1130	E F1	mg/Kg		178	44 - 161	23	37

Surrogate	MSD %Recovery	MSD Qualifier	Limits
n-Octacosane (Surr)	*91*		*60 - 138*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-396615/1-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 396615

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.51	0.145	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Arsenic	ND		3.02	1.40	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Barium	0.1587	J	3.02	0.143	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Beryllium	ND		0.503	0.0693	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Cadmium	ND		0.503	0.165	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Cobalt	ND		1.01	0.207	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Chromium	ND		1.01	0.187	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Copper	ND		2.01	0.963	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Molybdenum	ND		2.01	0.518	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Nickel	ND		2.01	0.364	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Antimony	ND		10.1	2.87	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Selenium	ND		3.02	1.23	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Thallium	ND		10.1	2.12	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Vanadium	ND		1.01	0.169	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Zinc	ND		5.03	1.16	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Lead	ND		2.01	0.411	mg/Kg		12/28/23 07:24	12/28/23 17:19	5

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 570-396615/2-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396615

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	24.5	23.94		mg/Kg		98	80 - 120
Arsenic	49.0	46.07		mg/Kg		94	80 - 120
Barium	49.0	47.46		mg/Kg		97	80 - 120
Beryllium	49.0	45.38		mg/Kg		93	80 - 120
Cadmium	49.0	45.91		mg/Kg		94	80 - 120
Cobalt	49.0	46.78		mg/Kg		95	80 - 120
Chromium	49.0	46.75		mg/Kg		95	80 - 120
Copper	49.0	46.05		mg/Kg		94	80 - 120
Molybdenum	49.0	46.84		mg/Kg		96	80 - 120
Nickel	49.0	47.05		mg/Kg		96	80 - 120
Antimony	49.0	48.71		mg/Kg		99	80 - 120
Selenium	49.0	45.28		mg/Kg		92	80 - 120
Thallium	49.0	47.13		mg/Kg		96	80 - 120
Vanadium	49.0	46.46		mg/Kg		95	80 - 120
Zinc	49.0	45.32		mg/Kg		92	80 - 120
Lead	49.0	46.71		mg/Kg		95	80 - 120

Lab Sample ID: LCSD 570-396615/3-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396615

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	25.3	22.90		mg/Kg		91	80 - 120	4	20
Arsenic	50.5	43.84		mg/Kg		87	80 - 120	5	20
Barium	50.5	45.92		mg/Kg		91	80 - 120	3	20
Beryllium	50.5	43.56		mg/Kg		86	80 - 120	4	20
Cadmium	50.5	43.80		mg/Kg		87	80 - 120	5	20
Cobalt	50.5	45.16		mg/Kg		89	80 - 120	4	20
Chromium	50.5	44.94		mg/Kg		89	80 - 120	4	20
Copper	50.5	43.99		mg/Kg		87	80 - 120	5	20
Molybdenum	50.5	44.77		mg/Kg		89	80 - 120	5	20
Nickel	50.5	44.85		mg/Kg		89	80 - 120	5	20
Antimony	50.5	46.99		mg/Kg		93	80 - 120	4	20
Selenium	50.5	43.16		mg/Kg		85	80 - 120	5	20
Thallium	50.5	45.13		mg/Kg		89	80 - 120	4	20
Vanadium	50.5	44.52		mg/Kg		88	80 - 120	4	20
Zinc	50.5	43.36		mg/Kg		86	80 - 120	4	20
Lead	50.5	44.66		mg/Kg		88	80 - 120	4	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-397227/1-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 397227

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786	0.0302	mg/Kg		12/29/23 13:05	12/30/23 08:38	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-397227/2-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 397227

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.377	0.4009		mg/Kg		106	80 - 120		

Lab Sample ID: LCSD 570-397227/3-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 397227

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.385	0.4055		mg/Kg		105	80 - 120	1	10

Lab Sample ID: 570-166113-1 MS
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 397227

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	65.3	F2	0.392	61.72	4	mg/Kg		-913	80 - 120		

Lab Sample ID: 570-166113-1 MSD
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 397227

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	65.3	F2	0.408	88.14	4 F2	mg/Kg		5596	80 - 120	35	20

Marginal Exceedance (ME) Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,1,1,2-Tetrachloroethane	0.0500	0.05375		mg/Kg	107	80 - 125	73 - 133	
1,1,1-Trichloroethane	0.0500	0.04974		mg/Kg	99	78 - 130	69 - 139	
1,1,2,2-Tetrachloroethane	0.0500	0.05495		mg/Kg	110	80 - 124	73 - 131	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05592		mg/Kg	112	73 - 130	64 - 140	
1,1,2-Trichloroethane	0.0500	0.04837		mg/Kg	97	80 - 123	73 - 130	
1,1-Dichloroethane	0.0500	0.05767		mg/Kg	115	79 - 124	72 - 132	
1,1-Dichloroethene	0.0500	0.05847		mg/Kg	117	74 - 132	64 - 142	
1,1-Dichloropropene	0.0500	0.04863		mg/Kg	97	78 - 130	69 - 139	
1,2,3-Trichlorobenzene	0.0500	0.05835		mg/Kg	117	80 - 123	73 - 130	
1,2,3-Trichloropropane	0.0500	0.04905		mg/Kg	98	79 - 120	72 - 127	
1,2,4-Trichlorobenzene	0.0500	0.05992		mg/Kg	120	80 - 125	73 - 133	
1,2,4-Trimethylbenzene	0.0500	0.05205		mg/Kg	104	80 - 124	73 - 131	
1,2-Dibromo-3-Chloropropane	0.0500	0.04712		mg/Kg	94	67 - 120	58 - 129	
1,2-Dibromoethane	0.0500	0.05302		mg/Kg	106	80 - 120	73 - 127	
1,2-Dichlorobenzene	0.0500	0.05664		mg/Kg	113	80 - 120	73 - 127	
1,2-Dichloroethane	0.0500	0.04898		mg/Kg	98	77 - 120	70 - 127	
1,2-Dichloropropane	0.0500	0.05734		mg/Kg	115	80 - 126	72 - 134	
1,3,5-Trimethylbenzene	0.0500	0.05273		mg/Kg	105	80 - 121	73 - 128	
1,3-Dichlorobenzene	0.0500	0.05909		mg/Kg	118	80 - 120	73 - 127	
1,3-Dichloropropane	0.0500	0.05010		mg/Kg	100	80 - 120	73 - 127	
1,4-Dichlorobenzene	0.0500	0.05436		mg/Kg	109	80 - 120	73 - 127	
2,2-Dichloropropane	0.0500	0.05103		mg/Kg	102	73 - 135	63 - 145	
2-Butanone (MEK)	0.0500	0.05271		mg/Kg	105	67 - 136	56 - 148	
2-Chlorotoluene	0.0500	0.05006		mg/Kg	100	80 - 120	73 - 127	
2-Hexanone	0.0500	0.05899		mg/Kg	118	70 - 137	59 - 148	
4-Chlorotoluene	0.0500	0.05242		mg/Kg	105	80 - 121	73 - 128	
4-Methyl-2-pentanone (MIBK)	0.0500	0.06319	*+ me	mg/Kg	126	74 - 124	66 - 132	ME
Acetone	0.0500	0.05494		mg/Kg	110	61 - 142	48 - 156	
Benzene	0.0500	0.05218		mg/Kg	104	80 - 120	73 - 127	
Bromobenzene	0.0500	0.05469		mg/Kg	109	80 - 120	73 - 127	
Bromochloromethane	0.0500	0.05451		mg/Kg	109	80 - 120	73 - 127	
Bromodichloromethane	0.0500	0.05274		mg/Kg	105	80 - 125	73 - 133	
Bromoform	0.0500	0.05698		mg/Kg	114	74 - 138	63 - 149	
Bromomethane	0.0500	0.04258		mg/Kg	85	58 - 136	45 - 149	
cis-1,2-Dichloroethene	0.0500	0.05208		mg/Kg	104	80 - 124	73 - 131	
cis-1,3-Dichloropropene	0.0500	0.05171		mg/Kg	103	80 - 123	73 - 130	
Carbon disulfide	0.0500	0.05247		mg/Kg	105	68 - 128	58 - 138	
Carbon tetrachloride	0.0500	0.05120		mg/Kg	102	75 - 140	64 - 151	
Chlorobenzene	0.0500	0.05170		mg/Kg	103	80 - 120	73 - 127	
Chloroethane	0.0500	0.05084		mg/Kg	102	76 - 137	66 - 147	
Chloroform	0.0500	0.04449		mg/Kg	89	80 - 121	73 - 128	
Chloromethane	0.0500	0.05242		mg/Kg	105	74 - 133	64 - 143	
Dibromochloromethane	0.0500	0.05362		mg/Kg	107	80 - 132	71 - 141	
Dibromomethane	0.0500	0.05539		mg/Kg	111	80 - 120	73 - 127	
Dichlorodifluoromethane	0.0500	0.04163		mg/Kg	83	63 - 146	49 - 160	
Di-isopropyl ether (DIPE)	0.0500	0.06299		mg/Kg	126	73 - 132	63 - 142	
Ethanol	0.500	0.5602		mg/Kg	112	46 - 159	27 - 178	
Ethylbenzene	0.0500	0.05194		mg/Kg	104	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	0.0500	0.05844		mg/Kg	117	77 - 129	68 - 138	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Isopropylbenzene	0.0500	0.05513		mg/Kg	110	80 - 122	73 - 129	
Methylene Chloride	0.0500	0.04911		mg/Kg	98	74 - 120	66 - 128	
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05206		mg/Kg	104	79 - 123	72 - 130	
Naphthalene	0.0500	0.06075		mg/Kg	121	79 - 121	72 - 128	
n-Butylbenzene	0.0500	0.05503		mg/Kg	110	79 - 131	70 - 140	
N-Propylbenzene	0.0500	0.05451		mg/Kg	109	80 - 122	73 - 129	
o-Xylene	0.0500	0.05031		mg/Kg	101	80 - 120	73 - 127	
m,p-Xylene	0.100	0.1003		mg/Kg	100	80 - 120	73 - 127	
p-Isopropyltoluene	0.0500	0.05657		mg/Kg	113	80 - 126	72 - 134	
sec-Butylbenzene	0.0500	0.05568		mg/Kg	111	80 - 125	73 - 133	
Styrene	0.0500	0.05322		mg/Kg	106	80 - 120	73 - 127	
trans-1,2-Dichloroethene	0.0500	0.05265		mg/Kg	105	75 - 123	67 - 131	
trans-1,3-Dichloropropene	0.0500	0.05292		mg/Kg	106	80 - 124	73 - 131	
Tert-amyl-methyl ether (TAME)	0.0500	0.05587		mg/Kg	112	80 - 120	73 - 127	
tert-Butyl alcohol (TBA)	0.250	0.2634		mg/Kg	105	74 - 123	66 - 131	
tert-Butylbenzene	0.0500	0.05947		mg/Kg	119	80 - 124	73 - 131	
Tetrachloroethene	0.0500	0.05484		mg/Kg	110	80 - 122	73 - 129	
Toluene	0.0500	0.05485		mg/Kg	110	80 - 120	73 - 127	
Trichloroethene	0.0500	0.05505		mg/Kg	110	80 - 127	72 - 135	
Trichlorofluoromethane	0.0500	0.04668		mg/Kg	93	70 - 144	58 - 156	
Vinyl acetate	0.0500	0.05212		mg/Kg	104	71 - 125	62 - 134	
Vinyl chloride	0.0500	0.05675		mg/Kg	114	79 - 133	70 - 142	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
71	4	1

ME = Marginal Exceedance

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,1,1,2-Tetrachloroethane	0.0500	0.05248		mg/Kg	105	80 - 125	73 - 133	
1,1,1-Trichloroethane	0.0500	0.04620		mg/Kg	92	78 - 130	69 - 139	
1,1,2,2-Tetrachloroethane	0.0500	0.05615		mg/Kg	112	80 - 124	73 - 131	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05217		mg/Kg	104	73 - 130	64 - 140	
1,1,2-Trichloroethane	0.0500	0.04781		mg/Kg	96	80 - 123	73 - 130	
1,1-Dichloroethane	0.0500	0.05403		mg/Kg	108	79 - 124	72 - 132	
1,1-Dichloroethene	0.0500	0.05314		mg/Kg	106	74 - 132	64 - 142	
1,1-Dichloropropene	0.0500	0.04631		mg/Kg	93	78 - 130	69 - 139	
1,2,3-Trichlorobenzene	0.0500	0.05789		mg/Kg	116	80 - 123	73 - 130	
1,2,3-Trichloropropane	0.0500	0.05100		mg/Kg	102	79 - 120	72 - 127	
1,2,4-Trichlorobenzene	0.0500	0.05910		mg/Kg	118	80 - 125	73 - 133	
1,2,4-Trimethylbenzene	0.0500	0.05048		mg/Kg	101	80 - 124	73 - 131	
1,2-Dibromo-3-Chloropropane	0.0500	0.04767		mg/Kg	95	67 - 120	58 - 129	
1,2-Dibromoethane	0.0500	0.05092		mg/Kg	102	80 - 120	73 - 127	
1,2-Dichlorobenzene	0.0500	0.05742		mg/Kg	115	80 - 120	73 - 127	
1,2-Dichloroethane	0.0500	0.04788		mg/Kg	96	77 - 120	70 - 127	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,2-Dichloropropane	0.0500	0.05473		mg/Kg	109	80 - 126	72 - 134	
1,3,5-Trimethylbenzene	0.0500	0.05146		mg/Kg	103	80 - 121	73 - 128	
1,3-Dichlorobenzene	0.0500	0.05826		mg/Kg	117	80 - 120	73 - 127	
1,3-Dichloropropane	0.0500	0.04928		mg/Kg	99	80 - 120	73 - 127	
1,4-Dichlorobenzene	0.0500	0.05494		mg/Kg	110	80 - 120	73 - 127	
2,2-Dichloropropane	0.0500	0.04808		mg/Kg	96	73 - 135	63 - 145	
2-Butanone (MEK)	0.0500	0.05705		mg/Kg	114	67 - 136	56 - 148	
2-Chlorotoluene	0.0500	0.04902		mg/Kg	98	80 - 120	73 - 127	
2-Hexanone	0.0500	0.06225		mg/Kg	124	70 - 137	59 - 148	
4-Chlorotoluene	0.0500	0.05250		mg/Kg	105	80 - 121	73 - 128	
4-Methyl-2-pentanone (MIBK)	0.0500	0.06586	*+ me	mg/Kg	132	74 - 124	66 - 132	ME
Acetone	0.0500	0.05546		mg/Kg	111	61 - 142	48 - 156	
Benzene	0.0500	0.05025		mg/Kg	100	80 - 120	73 - 127	
Bromobenzene	0.0500	0.05394		mg/Kg	108	80 - 120	73 - 127	
Bromochloromethane	0.0500	0.05232		mg/Kg	105	80 - 120	73 - 127	
Bromodichloromethane	0.0500	0.05154		mg/Kg	103	80 - 125	73 - 133	
Bromoform	0.0500	0.05769		mg/Kg	115	74 - 138	63 - 149	
Bromomethane	0.0500	0.04159		mg/Kg	83	58 - 136	45 - 149	
cis-1,2-Dichloroethene	0.0500	0.04909		mg/Kg	98	80 - 124	73 - 131	
cis-1,3-Dichloropropene	0.0500	0.05117		mg/Kg	102	80 - 123	73 - 130	
Carbon disulfide	0.0500	0.04914		mg/Kg	98	68 - 128	58 - 138	
Carbon tetrachloride	0.0500	0.04823		mg/Kg	96	75 - 140	64 - 151	
Chlorobenzene	0.0500	0.05018		mg/Kg	100	80 - 120	73 - 127	
Chloroethane	0.0500	0.05164		mg/Kg	103	76 - 137	66 - 147	
Chloroform	0.0500	0.04300		mg/Kg	86	80 - 121	73 - 128	
Chloromethane	0.0500	0.05289		mg/Kg	106	74 - 133	64 - 143	
Dibromochloromethane	0.0500	0.05222		mg/Kg	104	80 - 132	71 - 141	
Dibromomethane	0.0500	0.05391		mg/Kg	108	80 - 120	73 - 127	
Dichlorodifluoromethane	0.0500	0.04094		mg/Kg	82	63 - 146	49 - 160	
Di-isopropyl ether (DIPE)	0.0500	0.06038		mg/Kg	121	73 - 132	63 - 142	
Ethanol	0.500	0.5624		mg/Kg	112	46 - 159	27 - 178	
Ethylbenzene	0.0500	0.05082		mg/Kg	102	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	0.0500	0.05660		mg/Kg	113	77 - 129	68 - 138	
Isopropylbenzene	0.0500	0.05371		mg/Kg	107	80 - 122	73 - 129	
Methylene Chloride	0.0500	0.04753		mg/Kg	95	74 - 120	66 - 128	
Methyl-t-Butyl Ether (MTBE)	0.0500	0.04988		mg/Kg	100	79 - 123	72 - 130	
Naphthalene	0.0500	0.06276	*+ me	mg/Kg	126	79 - 121	72 - 128	ME
n-Butylbenzene	0.0500	0.05415		mg/Kg	108	79 - 131	70 - 140	
N-Propylbenzene	0.0500	0.05259		mg/Kg	105	80 - 122	73 - 129	
o-Xylene	0.0500	0.04847		mg/Kg	97	80 - 120	73 - 127	
m,p-Xylene	0.100	0.09691		mg/Kg	97	80 - 120	73 - 127	
p-Isopropyltoluene	0.0500	0.05640		mg/Kg	113	80 - 126	72 - 134	
sec-Butylbenzene	0.0500	0.05421		mg/Kg	108	80 - 125	73 - 133	
Styrene	0.0500	0.05195		mg/Kg	104	80 - 120	73 - 127	
trans-1,2-Dichloroethene	0.0500	0.04944		mg/Kg	99	75 - 123	67 - 131	
trans-1,3-Dichloropropene	0.0500	0.05223		mg/Kg	104	80 - 124	73 - 131	
Tert-amyl-methyl ether (TAME)	0.0500	0.05527		mg/Kg	111	80 - 120	73 - 127	
tert-Butyl alcohol (TBA)	0.250	0.2690		mg/Kg	108	74 - 123	66 - 131	
tert-Butylbenzene	0.0500	0.05663		mg/Kg	113	80 - 124	73 - 131	
Tetrachloroethene	0.0500	0.05156		mg/Kg	103	80 - 122	73 - 129	

Marginal Exceedance (ME) Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Toluene	0.0500	0.05284		mg/Kg	106	80 - 120	73 - 127	
Trichloroethene	0.0500	0.05313		mg/Kg	106	80 - 127	72 - 135	
Trichlorofluoromethane	0.0500	0.04611		mg/Kg	92	70 - 144	58 - 156	
Vinyl acetate	0.0500	0.05027		mg/Kg	101	71 - 125	62 - 134	
Vinyl chloride	0.0500	0.05650		mg/Kg	113	79 - 133	70 - 142	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
71	4	2

ME = Marginal Exceedance

GC/MS VOA

Prep Batch: 396494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	5035	
570-166113-2	BS-1	Total/NA	Solid	5035	

Analysis Batch: 396551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8260B	396494
MB 570-396551/6	Method Blank	Total/NA	Solid	8260B	
LCS 570-396551/3	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 570-396551/4	Lab Control Sample Dup	Total/NA	Solid	8260B	

Analysis Batch: 396650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-2	BS-1	Total/NA	Solid	8260B	396494
MB 570-396650/10	Method Blank	Total/NA	Solid	8260B	
LCS 570-396650/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 570-396650/5	Lab Control Sample Dup	Total/NA	Solid	8260B	

GC VOA

Prep Batch: 398155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	5030C	
570-166113-2	BS-1	Total/NA	Solid	5030C	
MB 570-398155/3-A	Method Blank	Total/NA	Solid	5030C	
LCS 570-398155/1-A	Lab Control Sample	Total/NA	Solid	5030C	
LCSD 570-398155/2-A	Lab Control Sample Dup	Total/NA	Solid	5030C	

Analysis Batch: 398200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8015B	398155
570-166113-2	BS-1	Total/NA	Solid	8015B	398155
MB 570-398155/3-A	Method Blank	Total/NA	Solid	8015B	398155
LCS 570-398155/1-A	Lab Control Sample	Total/NA	Solid	8015B	398155
LCSD 570-398155/2-A	Lab Control Sample Dup	Total/NA	Solid	8015B	398155

GC Semi VOA

Prep Batch: 396277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	3550C	
570-166113-2	BS-1	Total/NA	Solid	3550C	
MB 570-396277/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-396277/27-A	Lab Control Sample	Total/NA	Solid	3550C	
LCS 570-396277/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-396277/28-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
LCSD 570-396277/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-166113-1 MS	RS-1	Total/NA	Solid	3550C	
570-166113-1 MSD	RS-1	Total/NA	Solid	3550C	

Analysis Batch: 396308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-396277/2-A	Lab Control Sample	Total/NA	Solid	8015B	396277

GC Semi VOA (Continued)

Analysis Batch: 396308 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-396277/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	396277

Analysis Batch: 396768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8015B	396277
570-166113-2	BS-1	Total/NA	Solid	8015B	396277
MB 570-396277/1-A	Method Blank	Total/NA	Solid	8015B	396277
LCS 570-396277/27-A	Lab Control Sample	Total/NA	Solid	8015B	396277
LCSD 570-396277/28-A	Lab Control Sample Dup	Total/NA	Solid	8015B	396277
570-166113-1 MS	RS-1	Total/NA	Solid	8015B	396277
570-166113-1 MSD	RS-1	Total/NA	Solid	8015B	396277

Metals

Prep Batch: 396615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	3050B	
570-166113-2	BS-1	Total/NA	Solid	3050B	
MB 570-396615/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 570-396615/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-396615/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	

Analysis Batch: 396975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	6010B	396615
570-166113-2	BS-1	Total/NA	Solid	6010B	396615
MB 570-396615/1-A ^5	Method Blank	Total/NA	Solid	6010B	396615
LCS 570-396615/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	396615
LCSD 570-396615/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	396615

Analysis Batch: 397006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	6010B	396615

Prep Batch: 397227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	7471A	
570-166113-2	BS-1	Total/NA	Solid	7471A	
MB 570-397227/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-397227/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-397227/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-166113-1 MS	RS-1	Total/NA	Solid	7471A	
570-166113-1 MSD	RS-1	Total/NA	Solid	7471A	

Analysis Batch: 397417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	7471A	397227
570-166113-2	BS-1	Total/NA	Solid	7471A	397227
MB 570-397227/1-A	Method Blank	Total/NA	Solid	7471A	397227
LCS 570-397227/2-A	Lab Control Sample	Total/NA	Solid	7471A	397227
LCSD 570-397227/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	397227

Metals (Continued)

Analysis Batch: 397417 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1 MS	RS-1	Total/NA	Solid	7471A	397227
570-166113-1 MSD	RS-1	Total/NA	Solid	7471A	397227

Lab Chronicle

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.63 g	5 mL	396494	12/27/23 17:12	X7LQ	EET CAL 4
Total/NA	Analysis	8260B		1	5 g	5 mL	396551	12/27/23 23:51	AJ4K	EET CAL 4
	Instrument ID: GCMSQ									
Total/NA	Prep	5030C			5.04 g	5 mL	398155	01/03/24 16:36	NR	EET CAL 4
Total/NA	Analysis	8015B		1	5 g	5 mL	398200	01/03/24 21:48	A9VE	EET CAL 4
	Instrument ID: GC73									
Total/NA	Prep	3550C			10.29 g	10 mL	396277	12/27/23 15:56	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	396768	12/29/23 01:21	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			1.97 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		50			397006	12/28/23 20:32	P1R	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	3050B			1.97 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		25			396975	12/28/23 18:25	P1R	EET CAL 4
	Instrument ID: ICP9									
Total/NA	Prep	7471A			0.48 g	50 mL	397227	12/29/23 13:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		100			397417	12/30/23 11:43	ECX6	EET CAL 4
	Instrument ID: HG7									

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.763 g	5 mL	396494	12/27/23 17:12	X7LQ	EET CAL 4
Total/NA	Analysis	8260B		500	5 g	5 mL	396650	12/28/23 12:59	AH8S	EET CAL 4
	Instrument ID: GCMSCC									
Total/NA	Prep	5030C			5.13 g	5 mL	398155	01/03/24 16:36	NR	EET CAL 4
Total/NA	Analysis	8015B		1	5 g	5 mL	398200	01/03/24 22:07	A9VE	EET CAL 4
	Instrument ID: GC73									
Total/NA	Prep	3550C			10.35 g	10 mL	396277	12/27/23 15:56	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		5	10 mL	10 mL	396768	12/29/23 01:43	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.02 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			396975	12/28/23 18:17	P1R	EET CAL 4
	Instrument ID: ICP9									
Total/NA	Prep	7471A			0.52 g	50 mL	397227	12/29/23 13:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			397417	12/30/23 08:50	ECX6	EET CAL 4
	Instrument ID: HG7									

Laboratory References:
EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4175	02-02-24

Method Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	EET CAL 4
8015B	Gasoline Range Organics - (GC)	SW846	EET CAL 4
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7471A	Mercury (CVAA)	SW846	EET CAL 4
3050B	Preparation, Metals	SW846	EET CAL 4
3550C	Ultrasonic Extraction	SW846	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4
5035	Closed System Purge and Trap	SW846	EET CAL 4
7471A	Preparation, Mercury	SW846	EET CAL 4

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-166113-1	RS-1	Solid	12/27/23 07:20	12/27/23 11:00
570-166113-2	BS-1	Solid	12/27/23 08:10	12/27/23 11:00

Erick Ovalle

From: Megan Ritsema <mritsema@langan.com>
Sent: Wednesday, January 3, 2024 3:32 PM
To: Erick Ovalle
Cc: Vikas Patel
Subject: RE: 570-166113 - GRO rush request

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Erick,

Yes, please add.

Thank you,

Megan Ritsema
Senior Staff Engineer

LANGAN

Direct: 949.561.9244
Mobile: 714.699.0899
File Sharing Link
www.langan.com

CALIFORNIA NEW JERSEY NEW YORK CONNECTICUT MASSACHUSETTS PENNSYLVANIA VIRGINIA WASHINGTON, DC
OHIO ILLINOIS NORTH CAROLINA TENNESSEE FLORIDA TEXAS ARIZONA COLORADO UTAH WASHINGTON
ATHENS CALGARY DUBAI LONDON PANAMA



From: Erick Ovalle <Erick.Ovalle@et.eurofinsus.com>
Sent: Wednesday, January 3, 2024 3:30 PM
To: Megan Ritsema <mritsema@langan.com>
Cc: Vikas Patel <Vikas.Patel@et.eurofinsus.com>
Subject: [External] 570-166113 - GRO rush request

Hi Megan,

Per our conversation, we can add GRO on job 570-166113 on rush for results tomorrow. Please confirm if you would like us to proceed with the added changes.

Best Regards,

Erick Ovalle
Project Manager

Learn more about eCOC – our NEW electronic COC application



Eurofins Environment Testing Southwest, LLC
2841 Dow Ave, Suite 100
Tustin, CA 92780

P: +1 714 895 5494
D: +1 657 210-6331
M: +1 657 250-2681

Email: Erick.Ovalle@et.eurofinsus.com
Website: www.eurofinsUS.com/Calscience

Please note: In order to continue to provide critical testing services, **Eurofins Environment Testing laboratories in the US are maintaining our courier services and continue to sample, analyze and report all test data as usual.** The situation around COVID-19 continues to be fluid and we are continuing to follow local and government mandates as applicable. For up-to-date business information, visit our website and follow us on Facebook and LinkedIn.

Links to use:

Website: https://www.eurofinsus.com/environment-testing/
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166113

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For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-166113 Chain of Custody

CHAIN-OF-CUSTODY RECORD

DATE: 12/27/23

PAGE: 1 OF 1

LABORATORY CLIENT: Langan

ADDRESS: 18575 Jamboree Rd. Suite 150

CITY: Irvine STATE: CA ZIP: 92612

TEL: (714)699-0899 E-MAIL: mritsema@langan.com

CLIENT PROJECT NAME / NO.: 721040501

PROJECT CONTACT: Megan Ritsema

P.O. NO.:

LAB CONTACT OR QUOTE NO.:

GLOBAL ID:

LOG CODE:

SAMPLER(S): (PRINT) Rachel Owen

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☒ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ STANDARD

EDD:

☐ COELT EDF ☐ OTHER

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH(g) GRO	TPH(d) DRO	TPH C6-C36 C6-C44	TPH DRO, MRO, o2o m 8015	BTEX / MTBE 8260	VOCs (8260)	Oxygenates (8260)	Prep (5035) En Core Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs 8270 8270 SIM	T22 Metals 6010/747X 6020/747X	Cr(VI) 7196 7199 218.6					
	RS-1	12/27/23	0720	S	4		X					X		X							X						
	BS-1	12/27/23	0810	S	4		X					X		X							X						

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:
Rachel Owen	12/27/23	1100	[signature]	12/27/23	11:00
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:

Attachment "Chain_of_Custody_General_Color_221004rev.xls" to "US Eurofins Calscience - CoC Templates"
Printed by Jenny Magana, d. Tue 04 Oct 2022 16:31 PDT

3.6/3-5 SGL

Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Srvcs

Job Number: 570-166113-2

Login Number: 166113
List Number: 1
Creator: Vitente, Precy

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX C

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040502

Photo No.	Date:
1	12/27/23

Direction Photo Taken:

Northwest

Description:

Black soil near retaining wall (BS-1)



Photo No.	Date:
2	01/09/24

Direction Photo Taken:

Northwest

Description:

Liquid smoke stockpile (SP1-1)



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040502

Photo No.	Date:
3	01/09/24

Direction Photo Taken:

South

Description:

Stained soil near possible elevator shaft (east) (ES-1)



Photo No.	Date:
4	01/16/24

Direction Photo Taken:

North

Description:

Stained soil and orange-brown soil near possible elevator shaft (west) (ES2-6' and OBS-1-2')



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040502

Photo No.	Date:
5	04/09/24

Direction Photo Taken:

West

Description:

Yellow soil near basement (YS-01 through YS-04)

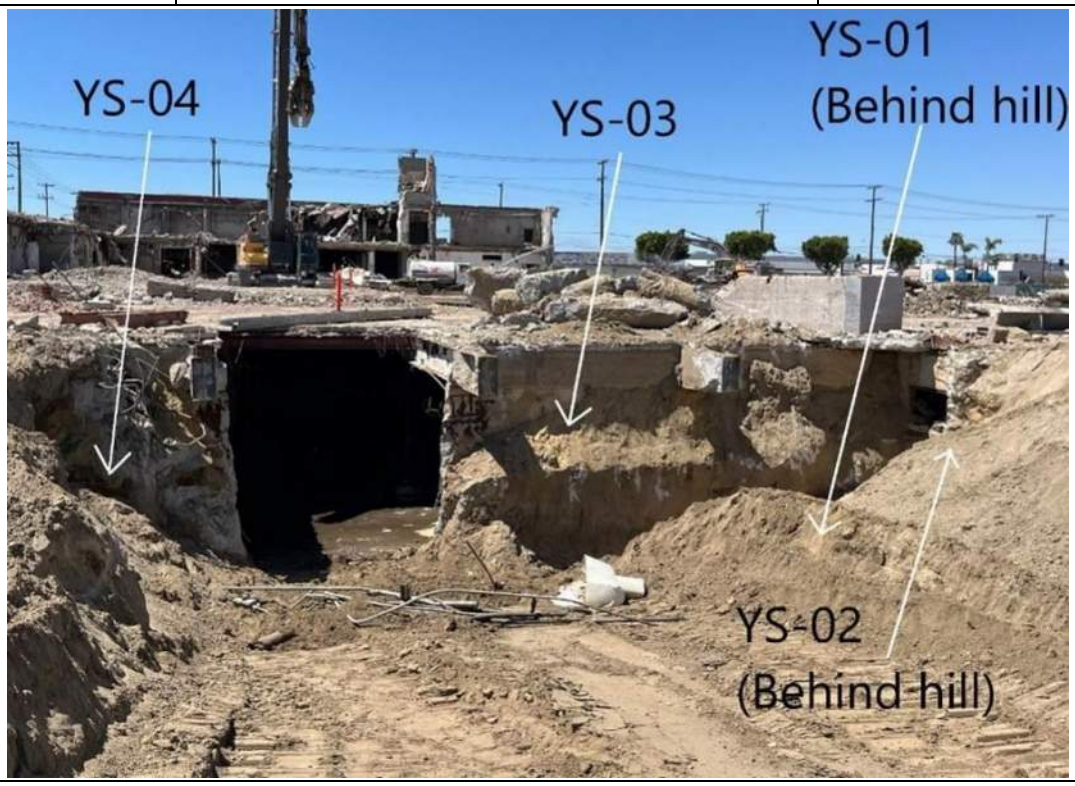


Photo No.	Date:
6	04/17/24

Direction Photo Taken:

Southeast

Description:

Soil mixed with brick and debris near basement (RBr-1-041724)



PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
GIC Vernon LLC	3049 E Vernon Ave, Vernon, California	721040502

Photo No.	Date:
7	5/06/24

Direction Photo Taken:

South

Description:

Dark soil near basement (DS-02)



APPENDIX D

ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Ritsema
Langan Engineering & Environmental Srvcs
18575 Jamboree Road
Suite 150
Irvine, California 92612

Generated 1/4/2024 1:05:22 PM

JOB DESCRIPTION

721040501

JOB NUMBER

570-166113-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

my EOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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Authorized for release by
Vikas Patel, Project Manager I
Vikas.Patel@et.eurofinsus.com
(714)895-5494

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Definitions/Glossary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).

GC Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job Narrative
570-166113-1

Receipt
The samples were received on 12/27/2023 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS VOA
Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-396551. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8260B: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 570-396551 recovered outside control limits for the following analytes: 4-Methyl-2-pentanone (MIBK). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8260B: The following analyte(s) recovered outside control limits for the LCSD associated with analytical batch 570-396551: Naphthalene. This is not indicative of a systematic control problem because this was random marginal exceedances. Qualified results have been reported.

Method 8260B: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: BS-1 (570-166113-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method 8015B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-396277 and analytical batch 570-396768 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8015B: An incorrect volume of surrogate spiking solution was inadvertently added the following samples: RS-1 (570-166113-1), BS-1 (570-166113-2), (LCS 570-396277/27-A), (LCSD 570-396277/28-A), (570-166113-D-1-B MS) and (570-166113-D-1-C MSD). Percent recoveries are based on the amount spiked.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method 6010B: The serial dilution performed for the following sample associated with batch 570-396975 was outside control limits for Barium: (570-165106-A-19-B SD ^25)

Method 6010B: The method blank for preparation batch 570-396615 and analytical batch 570-396975 contained Barium above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-396615 and analytical batch 570-396975 were outside control limits for Lead and Antimony. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 6010B: The following sample was diluted due to the nature of the sample matrix: RS-1 (570-166113-1). Elevated reporting limits (RLs) are provided.

Method 7471A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 570-397227 and analytical batch 570-397417 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 570-166113-2 Eurofins Calscience

Job Narrative
570-166113-2

Receipt
The samples were received on 12/27/2023 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.047		0.018	0.0087	mg/Kg	1		8260B	Total/NA
Benzene	0.029		0.00089	0.00023	mg/Kg	1		8260B	Total/NA
Chloroform	0.00063	J	0.00089	0.00052	mg/Kg	1		8260B	Total/NA
Ethylbenzene	0.0025		0.00089	0.00018	mg/Kg	1		8260B	Total/NA
N-Propylbenzene	0.00029	J	0.0018	0.00023	mg/Kg	1		8260B	Total/NA
o-Xylene	0.00069	J	0.00089	0.00023	mg/Kg	1		8260B	Total/NA
m,p-Xylene	0.0017	J	0.0018	0.00042	mg/Kg	1		8260B	Total/NA
Toluene	0.012		0.00089	0.00024	mg/Kg	1		8260B	Total/NA
Trichlorofluoromethane	0.00069	J	0.0089	0.00024	mg/Kg	1		8260B	Total/NA
Diesel Range Organics [C10-C28]	270		4.9	3.7	mg/Kg	1		8015B	Total/NA
TPH as Motor Oil (C17-C44)	440	F1	24	11	mg/Kg	1		8015B	Total/NA
Oil Range Organics (C18-C40)	430		4.9	3.7	mg/Kg	1		8015B	Total/NA
Silver	14.6		7.61	0.731	mg/Kg	25		6010B	Total/NA
Arsenic	21.9		15.2	7.06	mg/Kg	25		6010B	Total/NA
Barium	2040	B	15.2	0.721	mg/Kg	25		6010B	Total/NA
Cadmium	18.5		2.54	0.832	mg/Kg	25		6010B	Total/NA
Cobalt	12.7		5.08	1.05	mg/Kg	25		6010B	Total/NA
Chromium	64.0		5.08	0.944	mg/Kg	25		6010B	Total/NA
Copper	7600		10.2	4.86	mg/Kg	25		6010B	Total/NA
Nickel	71.3		10.2	1.84	mg/Kg	25		6010B	Total/NA
Antimony	284		50.8	14.5	mg/Kg	25		6010B	Total/NA
Vanadium	15.7		5.08	0.853	mg/Kg	25		6010B	Total/NA
Zinc	5140		25.4	5.87	mg/Kg	25		6010B	Total/NA
Lead	29700		20.3	4.15	mg/Kg	50		6010B	Total/NA
Mercury	65.3	F2	8.68	3.33	mg/Kg	100		7471A	Total/NA

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.19	J	0.43	0.090	mg/Kg	500		8260B	Total/NA
o-Xylene	0.18	J	0.43	0.11	mg/Kg	500		8260B	Total/NA
m,p-Xylene	0.55	J	0.87	0.21	mg/Kg	500		8260B	Total/NA
Styrene	1.1		0.43	0.14	mg/Kg	500		8260B	Total/NA
Trichlorofluoromethane	8.5		4.3	0.12	mg/Kg	500		8260B	Total/NA
Diesel Range Organics [C10-C28]	660		24	19	mg/Kg	5		8015B	Total/NA
TPH as Motor Oil (C17-C44)	940		120	55	mg/Kg	5		8015B	Total/NA
Oil Range Organics (C18-C40)	920		24	19	mg/Kg	5		8015B	Total/NA
Arsenic	6.02		2.97	1.38	mg/Kg	5		6010B	Total/NA
Barium	161	B	2.97	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.934		0.495	0.0683	mg/Kg	5		6010B	Total/NA
Cadmium	0.801		0.495	0.162	mg/Kg	5		6010B	Total/NA
Cobalt	4.23		0.990	0.204	mg/Kg	5		6010B	Total/NA
Chromium	42.2		0.990	0.184	mg/Kg	5		6010B	Total/NA
Copper	224		1.98	0.949	mg/Kg	5		6010B	Total/NA
Molybdenum	1.13	J	1.98	0.510	mg/Kg	5		6010B	Total/NA
Nickel	23.2		1.98	0.358	mg/Kg	5		6010B	Total/NA
Antimony	8.37	J	9.90	2.83	mg/Kg	5		6010B	Total/NA
Vanadium	20.1		0.990	0.166	mg/Kg	5		6010B	Total/NA
Zinc	377		4.95	1.14	mg/Kg	5		6010B	Total/NA
Lead	562		1.98	0.405	mg/Kg	5		6010B	Total/NA
Mercury	0.779		0.0801	0.0308	mg/Kg	1		7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.00089	0.00026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,1-Trichloroethane	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2,2-Tetrachloroethane	ND		0.0018	0.00048	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0089	0.00041	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1,2-Trichloroethane	ND		0.00089	0.00041	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloroethane	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloroethene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,1-Dichloropropene	ND		0.0018	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,3-Trichlorobenzene	ND		0.0018	0.00033	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,3-Trichloropropane	ND		0.0018	0.00037	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,4-Trichlorobenzene	ND		0.0018	0.00036	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2,4-Trimethylbenzene	ND		0.0018	0.00053	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dibromo-3-Chloropropane	ND		0.0089	0.0030	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dibromoethane	ND		0.00089	0.00018	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichlorobenzene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichloroethane	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,2-Dichloropropane	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3,5-Trimethylbenzene	ND		0.0018	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3-Dichlorobenzene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,3-Dichloropropane	ND		0.00089	0.00026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
1,4-Dichlorobenzene	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2,2-Dichloropropane	ND		0.0044	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Butanone (MEK)	ND		0.018	0.0040	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Chlorotoluene	ND		0.00089	0.00022	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
2-Hexanone	ND		0.018	0.0027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
4-Chlorotoluene	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
4-Methyl-2-pentanone (MIBK)	ND	*+	0.018	0.0026	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Acetone	**0.047**		0.018	0.0087	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Benzene	**0.029**		0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromobenzene	ND		0.00089	0.00019	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromochloromethane	ND		0.0018	0.00039	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromodichloromethane	ND		0.00089	0.00029	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromoform	ND		0.0044	0.0012	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Bromomethane	ND		0.018	0.0058	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
cis-1,2-Dichloroethene	ND		0.00089	0.00030	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
cis-1,3-Dichloropropene	ND		0.00089	0.00031	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Carbon disulfide	ND		0.0089	0.00036	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Carbon tetrachloride	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chlorobenzene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloroethane	ND		0.0018	0.00066	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloroform	**0.00063**	**J**	0.00089	0.00052	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Chloromethane	ND		0.018	0.0014	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dibromochloromethane	ND		0.0018	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dibromomethane	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Dichlorodifluoromethane	ND		0.0018	0.00040	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Di-isopropyl ether (DIPE)	ND		0.00089	0.00044	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethanol	ND		0.22	0.082	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethylbenzene	**0.0025**		0.00089	0.00018	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Ethyl-t-butyl ether (ETBE)	ND		0.00089	0.00021	mg/Kg		12/27/23 17:12	12/27/23 23:51	1

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: RS-1
Date Collected: 12/27/23 07:20
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Methylene Chloride	ND		0.0089	0.0028	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0018	0.00017	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Naphthalene	ND	*+	0.0089	0.0035	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
n-Butylbenzene	ND		0.00089	0.00019	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
N-Propylbenzene	**0.00029**	**J**	0.0018	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
o-Xylene	**0.00069**	**J**	0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
m,p-Xylene	**0.0017**	**J**	0.0018	0.00042	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
p-Isopropyltoluene	ND		0.00089	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
sec-Butylbenzene	ND		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Styrene	ND		0.00089	0.00028	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
trans-1,2-Dichloroethene	ND		0.00089	0.00027	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
trans-1,3-Dichloropropene	ND		0.0018	0.00025	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Tert-amyl-methyl ether (TAME)	ND		0.00089	0.00017	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
tert-Butyl alcohol (TBA)	ND		0.018	0.0062	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
tert-Butylbenzene	ND		0.00089	0.00023	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Tetrachloroethene	ND		0.00089	0.00020	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Toluene	**0.012**		0.00089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Trichloroethene	ND		0.0018	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Trichlorofluoromethane	**0.00069**	**J**	0.0089	0.00024	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Vinyl acetate	ND		0.0089	0.0035	mg/Kg		12/27/23 17:12	12/27/23 23:51	1
Vinyl chloride	ND		0.00089	0.00034	mg/Kg		12/27/23 17:12	12/27/23 23:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*32 - 179*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
Dibromofluoromethane (Surr)	*96*		*58 - 147*	*12/27/23 17:12*	*12/27/23 23:51*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*12/27/23 17:12*	*12/27/23 23:51*	*1*

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,1-Trichloroethane	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2,2-Tetrachloroethane	ND		0.87	0.24	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		4.3	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1,2-Trichloroethane	ND		0.43	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloroethane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloroethene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,1-Dichloropropene	ND		0.87	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,3-Trichlorobenzene	ND		0.87	0.16	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,3-Trichloropropane	ND		0.87	0.18	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,4-Trichlorobenzene	ND		0.87	0.18	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2,4-Trimethylbenzene	ND		0.87	0.26	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dibromo-3-Chloropropane	ND		4.3	1.4	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dibromoethane	ND		0.43	0.089	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichlorobenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichloroethane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,2-Dichloropropane	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00

Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trimethylbenzene	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,3-Dichlorobenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,3-Dichloropropane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
1,4-Dichlorobenzene	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2,2-Dichloropropane	ND		2.2	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Butanone (MEK)	ND		8.7	2.0	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Chlorotoluene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
2-Hexanone	ND		8.7	1.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
4-Chlorotoluene	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
4-Methyl-2-pentanone (MIBK)	ND		8.7	1.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Acetone	ND		8.7	4.3	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Benzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromobenzene	ND		0.43	0.090	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromochloromethane	ND		0.87	0.19	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromodichloromethane	ND		0.43	0.14	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromoform	ND		2.2	0.57	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Bromomethane	ND		8.7	2.9	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
cis-1,2-Dichloroethene	ND		0.43	0.15	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
cis-1,3-Dichloropropene	ND		0.43	0.15	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Carbon disulfide	ND		4.3	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Carbon tetrachloride	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chlorobenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloroethane	ND		0.87	0.32	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloroform	ND		0.43	0.26	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Chloromethane	ND		8.7	0.67	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dibromochloromethane	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dibromomethane	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Dichlorodifluoromethane	ND		0.87	0.20	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Di-isopropyl ether (DIPE)	ND		0.43	0.22	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethanol	ND		110	40	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethylbenzene	**0.19**	**J**	0.43	0.090	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Ethyl-t-butyl ether (ETBE)	ND		0.43	0.10	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Isopropylbenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Methylene Chloride	ND		4.3	1.4	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Methyl-t-Butyl Ether (MTBE)	ND		0.87	0.081	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Naphthalene	ND		4.3	1.7	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
n-Butylbenzene	ND		0.43	0.091	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
N-Propylbenzene	ND		0.87	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
o-Xylene	**0.18**	**J**	0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
m,p-Xylene	**0.55**	**J**	0.87	0.21	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
p-Isopropyltoluene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
sec-Butylbenzene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Styrene	**1.1**		0.43	0.14	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
trans-1,2-Dichloroethene	ND		0.43	0.13	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
trans-1,3-Dichloropropene	ND		0.87	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Tert-amyl-methyl ether (TAME)	ND		0.43	0.084	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
tert-Butyl alcohol (TBA)	ND		8.7	3.0	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
tert-Butylbenzene	ND		0.43	0.11	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Tetrachloroethene	ND		0.43	0.097	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00

Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		0.43	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Trichloroethene	ND		0.87	0.17	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Trichlorofluoromethane	**8.5**		4.3	0.12	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Vinyl acetate	ND		4.3	1.7	mg/Kg		12/27/23 17:12	12/28/23 12:59	500
Vinyl chloride	ND		0.43	0.16	mg/Kg		12/27/23 17:12	12/28/23 12:59	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*32 - 179*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
Dibromofluoromethane (Surr)	*112*		*58 - 147*	*12/27/23 17:12*	*12/28/23 12:59*	*500*
Toluene-d8 (Surr)	*100*		*80 - 120*	*12/27/23 17:12*	*12/28/23 12:59*	*500*

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 8015B - Gasoline Range Organics - (GC)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.099	0.055	mg/Kg		01/03/24 16:36	01/03/24 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*42 - 126*	*01/03/24 16:36*	*01/03/24 21:48*	*1*

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.097	0.054	mg/Kg		01/03/24 16:36	01/03/24 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*42 - 126*	*01/03/24 16:36*	*01/03/24 22:07*	*1*

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	270		4.9	3.7	mg/Kg		12/27/23 15:56	12/29/23 01:21	1
TPH as Motor Oil (C17-C44)	440	F1	24	11	mg/Kg		12/27/23 15:56	12/29/23 01:21	1
Oil Range Organics (C18-C40)	430		4.9	3.7	mg/Kg		12/27/23 15:56	12/29/23 01:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*89*		*60 - 138*	*12/27/23 15:56*	*12/29/23 01:21*	*1*

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	660		24	19	mg/Kg		12/27/23 15:56	12/29/23 01:43	5
TPH as Motor Oil (C17-C44)	940		120	55	mg/Kg		12/27/23 15:56	12/29/23 01:43	5
Oil Range Organics (C18-C40)	920		24	19	mg/Kg		12/27/23 15:56	12/29/23 01:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*95*		*60 - 138*	*12/27/23 15:56*	*12/29/23 01:43*	*5*

Method: SW846 6010B - Metals (ICP)

Client Sample ID: RS-1
Date Collected: 12/27/23 07:20
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	**14.6**		7.61	0.731	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Arsenic	**21.9**		15.2	7.06	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Barium	**2040**	**B**	15.2	0.721	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Beryllium	ND		2.54	0.350	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Cadmium	**18.5**		2.54	0.832	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Cobalt	**12.7**		5.08	1.05	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Chromium	**64.0**		5.08	0.944	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Copper	**7600**		10.2	4.86	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Molybdenum	ND		10.2	2.61	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Nickel	**71.3**		10.2	1.84	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Antimony	**284**		50.8	14.5	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Selenium	ND		15.2	6.20	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Thallium	ND		50.8	10.7	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Vanadium	**15.7**		5.08	0.853	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Zinc	**5140**		25.4	5.87	mg/Kg		12/28/23 10:40	12/28/23 18:25	25
Lead	**29700**		20.3	4.15	mg/Kg		12/28/23 10:40	12/28/23 20:32	50

Client Sample ID: BS-1
Date Collected: 12/27/23 08:10
Date Received: 12/27/23 11:00
Lab Sample ID: 570-166113-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.49	0.143	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Arsenic	**6.02**		2.97	1.38	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Barium	**161**	**B**	2.97	0.141	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Beryllium	**0.934**		0.495	0.0683	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Cadmium	**0.801**		0.495	0.162	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Cobalt	**4.23**		0.990	0.204	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Chromium	**42.2**		0.990	0.184	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Copper	**224**		1.98	0.949	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Molybdenum	**1.13**	**J**	1.98	0.510	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Nickel	**23.2**		1.98	0.358	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Antimony	**8.37**	**J**	9.90	2.83	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Selenium	ND		2.97	1.21	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Thallium	ND		9.90	2.09	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Vanadium	**20.1**		0.990	0.166	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Zinc	**377**		4.95	1.14	mg/Kg		12/28/23 10:40	12/28/23 18:17	5
Lead	**562**		1.98	0.405	mg/Kg		12/28/23 10:40	12/28/23 18:17	5

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	65.3	F2	8.68	3.33	mg/Kg		12/29/23 13:05	12/30/23 11:43	100

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.779		0.0801	0.0308	mg/Kg		12/29/23 13:05	12/30/23 08:50	1

Surrogate Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(32-179)	(80-120)	(58-147)	(80-120)
570-166113-1	RS-1	103	93	96	101
570-166113-2	BS-1	115	106	112	100
LCS 570-396551/3	Lab Control Sample	95	92	97	102
LCS 570-396650/4	Lab Control Sample	103	101	105	100
LCSD 570-396551/4	Lab Control Sample Dup	88	93	93	101
LCSD 570-396650/5	Lab Control Sample Dup	105	98	101	102
MB 570-396551/6	Method Blank	90	95	96	100
MB 570-396650/10	Method Blank	109	102	107	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		BFB1
Lab Sample ID	Client Sample ID	(42-126)
570-166113-1	RS-1	103
570-166113-2	BS-1	81
LCS 570-398155/1-A	Lab Control Sample	107
LCSD 570-398155/2-A	Lab Control Sample Dup	110
MB 570-398155/3-A	Method Blank	109

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		OTCSN1
Lab Sample ID	Client Sample ID	(60-138)
570-166113-1	RS-1	89
570-166113-1 MS	RS-1	90
570-166113-1 MSD	RS-1	91
570-166113-2	BS-1	95
LCS 570-396277/27-A	Lab Control Sample	97
LCS 570-396277/2-A	Lab Control Sample	106
LCSD 570-396277/28-A	Lab Control Sample Dup	99
LCSD 570-396277/3-A	Lab Control Sample Dup	103
MB 570-396277/1-A	Method Blank	124

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-396551/6
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.0010	0.00029	mg/Kg			12/27/23 23:06	1
1,1,1-Trichloroethane	ND		0.0010	0.00023	mg/Kg			12/27/23 23:06	1
1,1,2,2-Tetrachloroethane	ND		0.0020	0.00054	mg/Kg			12/27/23 23:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.010	0.00046	mg/Kg			12/27/23 23:06	1
1,1,2-Trichloroethane	ND		0.0010	0.00046	mg/Kg			12/27/23 23:06	1
1,1-Dichloroethane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,1-Dichloroethene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
1,1-Dichloropropene	ND		0.0020	0.00039	mg/Kg			12/27/23 23:06	1
1,2,3-Trichlorobenzene	ND		0.0020	0.00038	mg/Kg			12/27/23 23:06	1
1,2,3-Trichloropropane	ND		0.0020	0.00042	mg/Kg			12/27/23 23:06	1
1,2,4-Trichlorobenzene	ND		0.0020	0.00041	mg/Kg			12/27/23 23:06	1
1,2,4-Trimethylbenzene	ND		0.0020	0.00060	mg/Kg			12/27/23 23:06	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0033	mg/Kg			12/27/23 23:06	1
1,2-Dibromoethane	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
1,2-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
1,2-Dichloroethane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,2-Dichloropropane	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
1,3,5-Trimethylbenzene	ND		0.0020	0.00027	mg/Kg			12/27/23 23:06	1
1,3-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
1,3-Dichloropropane	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
1,4-Dichlorobenzene	ND		0.0010	0.00031	mg/Kg			12/27/23 23:06	1
2,2-Dichloropropane	ND		0.0050	0.00027	mg/Kg			12/27/23 23:06	1
2-Butanone (MEK)	ND		0.020	0.0045	mg/Kg			12/27/23 23:06	1
2-Chlorotoluene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
2-Hexanone	ND		0.020	0.0031	mg/Kg			12/27/23 23:06	1
4-Chlorotoluene	ND		0.0010	0.00024	mg/Kg			12/27/23 23:06	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0029	mg/Kg			12/27/23 23:06	1
Acetone	ND		0.020	0.0098	mg/Kg			12/27/23 23:06	1
Benzene	ND		0.0010	0.00026	mg/Kg			12/27/23 23:06	1
Bromobenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
Bromochloromethane	ND		0.0020	0.00044	mg/Kg			12/27/23 23:06	1
Bromodichloromethane	ND		0.0010	0.00033	mg/Kg			12/27/23 23:06	1
Bromoform	ND		0.0050	0.0013	mg/Kg			12/27/23 23:06	1
Bromomethane	ND		0.020	0.0066	mg/Kg			12/27/23 23:06	1
cis-1,2-Dichloroethene	ND		0.0010	0.00034	mg/Kg			12/27/23 23:06	1
cis-1,3-Dichloropropene	ND		0.0010	0.00035	mg/Kg			12/27/23 23:06	1
Carbon disulfide	ND		0.010	0.00040	mg/Kg			12/27/23 23:06	1
Carbon tetrachloride	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
Chlorobenzene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Chloroethane	ND		0.0020	0.00074	mg/Kg			12/27/23 23:06	1
Chloroform	ND		0.0010	0.00059	mg/Kg			12/27/23 23:06	1
Chloromethane	ND		0.020	0.0015	mg/Kg			12/27/23 23:06	1
Dibromochloromethane	ND		0.0020	0.00027	mg/Kg			12/27/23 23:06	1
Dibromomethane	ND		0.0010	0.00031	mg/Kg			12/27/23 23:06	1
Dichlorodifluoromethane	ND		0.0020	0.00045	mg/Kg			12/27/23 23:06	1
Di-isopropyl ether (DIPE)	ND		0.0010	0.00050	mg/Kg			12/27/23 23:06	1
Ethanol	ND		0.25	0.092	mg/Kg			12/27/23 23:06	1
Ethylbenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-396551/6
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl-t-butyl ether (ETBE)	ND		0.0010	0.00024	mg/Kg			12/27/23 23:06	1
Isopropylbenzene	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
Methylene Chloride	ND		0.010	0.0031	mg/Kg			12/27/23 23:06	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	0.00019	mg/Kg			12/27/23 23:06	1
Naphthalene	ND		0.010	0.0039	mg/Kg			12/27/23 23:06	1
n-Butylbenzene	ND		0.0010	0.00021	mg/Kg			12/27/23 23:06	1
N-Propylbenzene	ND		0.0020	0.00026	mg/Kg			12/27/23 23:06	1
o-Xylene	ND		0.0010	0.00026	mg/Kg			12/27/23 23:06	1
m,p-Xylene	ND		0.0020	0.00047	mg/Kg			12/27/23 23:06	1
p-Isopropyltoluene	ND		0.0010	0.00028	mg/Kg			12/27/23 23:06	1
sec-Butylbenzene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Styrene	ND		0.0010	0.00032	mg/Kg			12/27/23 23:06	1
trans-1,2-Dichloroethene	ND		0.0010	0.00030	mg/Kg			12/27/23 23:06	1
trans-1,3-Dichloropropene	ND		0.0020	0.00028	mg/Kg			12/27/23 23:06	1
Tert-amyl-methyl ether (TAME)	ND		0.0010	0.00019	mg/Kg			12/27/23 23:06	1
tert-Butyl alcohol (TBA)	ND		0.020	0.0070	mg/Kg			12/27/23 23:06	1
tert-Butylbenzene	ND		0.0010	0.00025	mg/Kg			12/27/23 23:06	1
Tetrachloroethene	ND		0.0010	0.00022	mg/Kg			12/27/23 23:06	1
Toluene	ND		0.0010	0.00027	mg/Kg			12/27/23 23:06	1
Trichloroethene	ND		0.0020	0.00039	mg/Kg			12/27/23 23:06	1
Trichlorofluoromethane	ND		0.010	0.00027	mg/Kg			12/27/23 23:06	1
Vinyl acetate	ND		0.010	0.0039	mg/Kg			12/27/23 23:06	1
Vinyl chloride	ND		0.0010	0.00038	mg/Kg			12/27/23 23:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*32 - 179*		*12/27/23 23:06*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*12/27/23 23:06*	*1*
Dibromofluoromethane (Surr)	*96*		*58 - 147*		*12/27/23 23:06*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*12/27/23 23:06*	*1*

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.0500	0.05375		mg/Kg		107	80 - 125
1,1,1-Trichloroethane	0.0500	0.04974		mg/Kg		99	78 - 130
1,1,2,2-Tetrachloroethane	0.0500	0.05495		mg/Kg		110	80 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05592		mg/Kg		112	73 - 130
1,1,2-Trichloroethane	0.0500	0.04837		mg/Kg		97	80 - 123
1,1-Dichloroethane	0.0500	0.05767		mg/Kg		115	79 - 124
1,1-Dichloroethene	0.0500	0.05847		mg/Kg		117	74 - 132
1,1-Dichloropropene	0.0500	0.04863		mg/Kg		97	78 - 130
1,2,3-Trichlorobenzene	0.0500	0.05835		mg/Kg		117	80 - 123
1,2,3-Trichloropropane	0.0500	0.04905		mg/Kg		98	79 - 120
1,2,4-Trichlorobenzene	0.0500	0.05992		mg/Kg		120	80 - 125
1,2,4-Trimethylbenzene	0.0500	0.05205		mg/Kg		104	80 - 124
1,2-Dibromo-3-Chloropropane	0.0500	0.04712		mg/Kg		94	67 - 120

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dibromoethane	0.0500	0.05302		mg/Kg		106	80 - 120
1,2-Dichlorobenzene	0.0500	0.05664		mg/Kg		113	80 - 120
1,2-Dichloroethane	0.0500	0.04898		mg/Kg		98	77 - 120
1,2-Dichloropropane	0.0500	0.05734		mg/Kg		115	80 - 126
1,3,5-Trimethylbenzene	0.0500	0.05273		mg/Kg		105	80 - 121
1,3-Dichlorobenzene	0.0500	0.05909		mg/Kg		118	80 - 120
1,3-Dichloropropane	0.0500	0.05010		mg/Kg		100	80 - 120
1,4-Dichlorobenzene	0.0500	0.05436		mg/Kg		109	80 - 120
2,2-Dichloropropane	0.0500	0.05103		mg/Kg		102	73 - 135
2-Butanone (MEK)	0.0500	0.05271		mg/Kg		105	67 - 136
2-Chlorotoluene	0.0500	0.05006		mg/Kg		100	80 - 120
2-Hexanone	0.0500	0.05899		mg/Kg		118	70 - 137
4-Chlorotoluene	0.0500	0.05242		mg/Kg		105	80 - 121
4-Methyl-2-pentanone (MIBK)	0.0500	0.06319	*+ me	mg/Kg		126	74 - 124
Acetone	0.0500	0.05494		mg/Kg		110	61 - 142
Benzene	0.0500	0.05218		mg/Kg		104	80 - 120
Bromobenzene	0.0500	0.05469		mg/Kg		109	80 - 120
Bromochloromethane	0.0500	0.05451		mg/Kg		109	80 - 120
Bromodichloromethane	0.0500	0.05274		mg/Kg		105	80 - 125
Bromoform	0.0500	0.05698		mg/Kg		114	74 - 138
Bromomethane	0.0500	0.04258		mg/Kg		85	58 - 136
cis-1,2-Dichloroethene	0.0500	0.05208		mg/Kg		104	80 - 124
cis-1,3-Dichloropropene	0.0500	0.05171		mg/Kg		103	80 - 123
Carbon disulfide	0.0500	0.05247		mg/Kg		105	68 - 128
Carbon tetrachloride	0.0500	0.05120		mg/Kg		102	75 - 140
Chlorobenzene	0.0500	0.05170		mg/Kg		103	80 - 120
Chloroethane	0.0500	0.05084		mg/Kg		102	76 - 137
Chloroform	0.0500	0.04449		mg/Kg		89	80 - 121
Chloromethane	0.0500	0.05242		mg/Kg		105	74 - 133
Dibromochloromethane	0.0500	0.05362		mg/Kg		107	80 - 132
Dibromomethane	0.0500	0.05539		mg/Kg		111	80 - 120
Dichlorodifluoromethane	0.0500	0.04163		mg/Kg		83	63 - 146
Di-isopropyl ether (DIPE)	0.0500	0.06299		mg/Kg		126	73 - 132
Ethanol	0.500	0.5602		mg/Kg		112	46 - 159
Ethylbenzene	0.0500	0.05194		mg/Kg		104	80 - 120
Ethyl-t-butyl ether (ETBE)	0.0500	0.05844		mg/Kg		117	77 - 129
Isopropylbenzene	0.0500	0.05513		mg/Kg		110	80 - 122
Methylene Chloride	0.0500	0.04911		mg/Kg		98	74 - 120
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05206		mg/Kg		104	79 - 123
Naphthalene	0.0500	0.06075		mg/Kg		121	79 - 121
n-Butylbenzene	0.0500	0.05503		mg/Kg		110	79 - 131
N-Propylbenzene	0.0500	0.05451		mg/Kg		109	80 - 122
o-Xylene	0.0500	0.05031		mg/Kg		101	80 - 120
m,p-Xylene	0.100	0.1003		mg/Kg		100	80 - 120
p-Isopropyltoluene	0.0500	0.05657		mg/Kg		113	80 - 126
sec-Butylbenzene	0.0500	0.05568		mg/Kg		111	80 - 125
Styrene	0.0500	0.05322		mg/Kg		106	80 - 120
trans-1,2-Dichloroethene	0.0500	0.05265		mg/Kg		105	75 - 123
trans-1,3-Dichloropropene	0.0500	0.05292		mg/Kg		106	80 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tert-amyl-methyl ether (TAME)	0.0500	0.05587		mg/Kg		112	80 - 120
tert-Butyl alcohol (TBA)	0.250	0.2634		mg/Kg		105	74 - 123
tert-Butylbenzene	0.0500	0.05947		mg/Kg		119	80 - 124
Tetrachloroethene	0.0500	0.05484		mg/Kg		110	80 - 122
Toluene	0.0500	0.05485		mg/Kg		110	80 - 120
Trichloroethene	0.0500	0.05505		mg/Kg		110	80 - 127
Trichlorofluoromethane	0.0500	0.04668		mg/Kg		93	70 - 144
Vinyl acetate	0.0500	0.05212		mg/Kg		104	71 - 125
Vinyl chloride	0.0500	0.05675		mg/Kg		114	79 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*32 - 179*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*58 - 147*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.0500	0.05248		mg/Kg		105	80 - 125	2	20
1,1,1-Trichloroethane	0.0500	0.04620		mg/Kg		92	78 - 130	7	20
1,1,2,2-Tetrachloroethane	0.0500	0.05615		mg/Kg		112	80 - 124	2	20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05217		mg/Kg		104	73 - 130	7	20
1,1,2-Trichloroethane	0.0500	0.04781		mg/Kg		96	80 - 123	1	20
1,1-Dichloroethane	0.0500	0.05403		mg/Kg		108	79 - 124	7	20
1,1-Dichloroethene	0.0500	0.05314		mg/Kg		106	74 - 132	10	20
1,1-Dichloropropene	0.0500	0.04631		mg/Kg		93	78 - 130	5	20
1,2,3-Trichlorobenzene	0.0500	0.05789		mg/Kg		116	80 - 123	1	20
1,2,3-Trichloropropane	0.0500	0.05100		mg/Kg		102	79 - 120	4	20
1,2,4-Trichlorobenzene	0.0500	0.05910		mg/Kg		118	80 - 125	1	20
1,2,4-Trimethylbenzene	0.0500	0.05048		mg/Kg		101	80 - 124	3	20
1,2-Dibromo-3-Chloropropane	0.0500	0.04767		mg/Kg		95	67 - 120	1	20
1,2-Dibromoethane	0.0500	0.05092		mg/Kg		102	80 - 120	4	20
1,2-Dichlorobenzene	0.0500	0.05742		mg/Kg		115	80 - 120	1	20
1,2-Dichloroethane	0.0500	0.04788		mg/Kg		96	77 - 120	2	20
1,2-Dichloropropane	0.0500	0.05473		mg/Kg		109	80 - 126	5	20
1,3,5-Trimethylbenzene	0.0500	0.05146		mg/Kg		103	80 - 121	2	20
1,3-Dichlorobenzene	0.0500	0.05826		mg/Kg		117	80 - 120	1	20
1,3-Dichloropropane	0.0500	0.04928		mg/Kg		99	80 - 120	2	20
1,4-Dichlorobenzene	0.0500	0.05494		mg/Kg		110	80 - 120	1	20
2,2-Dichloropropane	0.0500	0.04808		mg/Kg		96	73 - 135	6	20
2-Butanone (MEK)	0.0500	0.05705		mg/Kg		114	67 - 136	8	20
2-Chlorotoluene	0.0500	0.04902		mg/Kg		98	80 - 120	2	20
2-Hexanone	0.0500	0.06225		mg/Kg		124	70 - 137	5	20
4-Chlorotoluene	0.0500	0.05250		mg/Kg		105	80 - 121	0	20
4-Methyl-2-pentanone (MIBK)	0.0500	0.06586	*+ me	mg/Kg		132	74 - 124	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetone			0.0500	0.05546		mg/Kg		111	61 - 142	1	23
Benzene			0.0500	0.05025		mg/Kg		100	80 - 120	4	20
Bromobenzene			0.0500	0.05394		mg/Kg		108	80 - 120	1	20
Bromochloromethane			0.0500	0.05232		mg/Kg		105	80 - 120	4	20
Bromodichloromethane			0.0500	0.05154		mg/Kg		103	80 - 125	2	20
Bromoform			0.0500	0.05769		mg/Kg		115	74 - 138	1	20
Bromomethane			0.0500	0.04159		mg/Kg		83	58 - 136	2	20
cis-1,2-Dichloroethene			0.0500	0.04909		mg/Kg		98	80 - 124	6	20
cis-1,3-Dichloropropene			0.0500	0.05117		mg/Kg		102	80 - 123	1	20
Carbon disulfide			0.0500	0.04914		mg/Kg		98	68 - 128	7	20
Carbon tetrachloride			0.0500	0.04823		mg/Kg		96	75 - 140	6	20
Chlorobenzene			0.0500	0.05018		mg/Kg		100	80 - 120	3	20
Chloroethane			0.0500	0.05164		mg/Kg		103	76 - 137	2	20
Chloroform			0.0500	0.04300		mg/Kg		86	80 - 121	3	20
Chloromethane			0.0500	0.05289		mg/Kg		106	74 - 133	1	20
Dibromochloromethane			0.0500	0.05222		mg/Kg		104	80 - 132	3	20
Dibromomethane			0.0500	0.05391		mg/Kg		108	80 - 120	3	20
Dichlorodifluoromethane			0.0500	0.04094		mg/Kg		82	63 - 146	2	20
Di-isopropyl ether (DIPE)			0.0500	0.06038		mg/Kg		121	73 - 132	4	20
Ethanol			0.500	0.5624		mg/Kg		112	46 - 159	0	30
Ethylbenzene			0.0500	0.05082		mg/Kg		102	80 - 120	2	20
Ethyl-t-butyl ether (ETBE)			0.0500	0.05660		mg/Kg		113	77 - 129	3	20
Isopropylbenzene			0.0500	0.05371		mg/Kg		107	80 - 122	3	20
Methylene Chloride			0.0500	0.04753		mg/Kg		95	74 - 120	3	20
Methyl-t-Butyl Ether (MTBE)			0.0500	0.04988		mg/Kg		100	79 - 123	4	20
Naphthalene			0.0500	0.06276	*+ me	mg/Kg		126	79 - 121	3	20
n-Butylbenzene			0.0500	0.05415		mg/Kg		108	79 - 131	2	20
N-Propylbenzene			0.0500	0.05259		mg/Kg		105	80 - 122	4	20
o-Xylene			0.0500	0.04847		mg/Kg		97	80 - 120	4	20
m,p-Xylene			0.100	0.09691		mg/Kg		97	80 - 120	3	20
p-Isopropyltoluene			0.0500	0.05640		mg/Kg		113	80 - 126	0	20
sec-Butylbenzene			0.0500	0.05421		mg/Kg		108	80 - 125	3	20
Styrene			0.0500	0.05195		mg/Kg		104	80 - 120	2	20
trans-1,2-Dichloroethene			0.0500	0.04944		mg/Kg		99	75 - 123	6	20
trans-1,3-Dichloropropene			0.0500	0.05223		mg/Kg		104	80 - 124	1	20
Tert-amyl-methyl ether (TAME)			0.0500	0.05527		mg/Kg		111	80 - 120	1	20
tert-Butyl alcohol (TBA)			0.250	0.2690		mg/Kg		108	74 - 123	2	20
tert-Butylbenzene			0.0500	0.05663		mg/Kg		113	80 - 124	5	20
Tetrachloroethene			0.0500	0.05156		mg/Kg		103	80 - 122	6	20
Toluene			0.0500	0.05284		mg/Kg		106	80 - 120	4	20
Trichloroethene			0.0500	0.05313		mg/Kg		106	80 - 127	4	20
Trichlorofluoromethane			0.0500	0.04611		mg/Kg		92	70 - 144	1	20
Vinyl acetate			0.0500	0.05027		mg/Kg		101	71 - 125	4	20
Vinyl chloride			0.0500	0.05650		mg/Kg		113	79 - 133	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*88*		*32 - 179*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid
Analysis Batch: 396551

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Dibromofluoromethane (Surr)	93		58 - 147
Toluene-d8 (Surr)	101		80 - 120

Lab Sample ID: MB 570-396650/10
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
1,1,1-Trichloroethane	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
1,1,2,2-Tetrachloroethane	ND		0.10	0.027	mg/Kg			12/28/23 10:56	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.50	0.023	mg/Kg			12/28/23 10:56	50
1,1,2-Trichloroethane	ND		0.050	0.023	mg/Kg			12/28/23 10:56	50
1,1-Dichloroethane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,1-Dichloroethene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,1-Dichloropropene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
1,2,3-Trichlorobenzene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
1,2,3-Trichloropropane	ND		0.10	0.021	mg/Kg			12/28/23 10:56	50
1,2,4-Trichlorobenzene	ND		0.10	0.021	mg/Kg			12/28/23 10:56	50
1,2,4-Trimethylbenzene	ND		0.10	0.030	mg/Kg			12/28/23 10:56	50
1,2-Dibromo-3-Chloropropane	ND		0.50	0.17	mg/Kg			12/28/23 10:56	50
1,2-Dibromoethane	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
1,2-Dichlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,2-Dichloroethane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,2-Dichloropropane	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
1,3,5-Trimethylbenzene	ND		0.10	0.013	mg/Kg			12/28/23 10:56	50
1,3-Dichlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
1,3-Dichloropropane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
1,4-Dichlorobenzene	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
2,2-Dichloropropane	ND		0.25	0.014	mg/Kg			12/28/23 10:56	50
2-Butanone (MEK)	ND		1.0	0.23	mg/Kg			12/28/23 10:56	50
2-Chlorotoluene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
2-Hexanone	ND		1.0	0.15	mg/Kg			12/28/23 10:56	50
4-Chlorotoluene	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.15	mg/Kg			12/28/23 10:56	50
Acetone	ND		1.0	0.49	mg/Kg			12/28/23 10:56	50
Benzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Bromobenzene	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
Bromochloromethane	ND		0.10	0.022	mg/Kg			12/28/23 10:56	50
Bromodichloromethane	ND		0.050	0.016	mg/Kg			12/28/23 10:56	50
Bromoform	ND		0.25	0.066	mg/Kg			12/28/23 10:56	50
Bromomethane	ND		1.0	0.33	mg/Kg			12/28/23 10:56	50
cis-1,2-Dichloroethene	ND		0.050	0.017	mg/Kg			12/28/23 10:56	50
cis-1,3-Dichloropropene	ND		0.050	0.017	mg/Kg			12/28/23 10:56	50
Carbon disulfide	ND		0.50	0.020	mg/Kg			12/28/23 10:56	50
Carbon tetrachloride	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
Chlorobenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Chloroethane	ND		0.10	0.037	mg/Kg			12/28/23 10:56	50

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-396650/10
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.050	0.029	mg/Kg			12/28/23 10:56	50
Chloromethane	ND		1.0	0.077	mg/Kg			12/28/23 10:56	50
Dibromochloromethane	ND		0.10	0.014	mg/Kg			12/28/23 10:56	50
Dibromomethane	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
Dichlorodifluoromethane	ND		0.10	0.023	mg/Kg			12/28/23 10:56	50
Di-isopropyl ether (DIPE)	ND		0.050	0.025	mg/Kg			12/28/23 10:56	50
Ethanol	ND		13	4.6	mg/Kg			12/28/23 10:56	50
Ethylbenzene	ND		0.050	0.010	mg/Kg			12/28/23 10:56	50
Ethyl-t-butyl ether (ETBE)	ND		0.050	0.012	mg/Kg			12/28/23 10:56	50
Isopropylbenzene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
Methylene Chloride	ND		0.50	0.16	mg/Kg			12/28/23 10:56	50
Methyl-t-Butyl Ether (MTBE)	ND		0.10	0.0094	mg/Kg			12/28/23 10:56	50
Naphthalene	ND		0.50	0.20	mg/Kg			12/28/23 10:56	50
n-Butylbenzene	ND		0.050	0.011	mg/Kg			12/28/23 10:56	50
N-Propylbenzene	ND		0.10	0.013	mg/Kg			12/28/23 10:56	50
o-Xylene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
m,p-Xylene	ND		0.10	0.024	mg/Kg			12/28/23 10:56	50
p-Isopropyltoluene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
sec-Butylbenzene	ND		0.050	0.014	mg/Kg			12/28/23 10:56	50
Styrene	ND		0.050	0.016	mg/Kg			12/28/23 10:56	50
trans-1,2-Dichloroethene	ND		0.050	0.015	mg/Kg			12/28/23 10:56	50
trans-1,3-Dichloropropene	ND		0.10	0.014	mg/Kg			12/28/23 10:56	50
Tert-amyl-methyl ether (TAME)	ND		0.050	0.0097	mg/Kg			12/28/23 10:56	50
tert-Butyl alcohol (TBA)	ND		1.0	0.35	mg/Kg			12/28/23 10:56	50
tert-Butylbenzene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Tetrachloroethene	ND		0.050	0.011	mg/Kg			12/28/23 10:56	50
Toluene	ND		0.050	0.013	mg/Kg			12/28/23 10:56	50
Trichloroethene	ND		0.10	0.019	mg/Kg			12/28/23 10:56	50
Trichlorofluoromethane	ND		0.50	0.014	mg/Kg			12/28/23 10:56	50
Vinyl acetate	ND		0.50	0.20	mg/Kg			12/28/23 10:56	50
Vinyl chloride	ND		0.050	0.019	mg/Kg			12/28/23 10:56	50

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*32 - 179*		*12/28/23 10:56*	*50*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*12/28/23 10:56*	*50*
Dibromofluoromethane (Surr)	*107*		*58 - 147*		*12/28/23 10:56*	*50*
Toluene-d8 (Surr)	*101*		*80 - 120*		*12/28/23 10:56*	*50*

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.0500	0.05191		mg/Kg		104	80 - 125
1,1,1-Trichloroethane	0.0500	0.05399		mg/Kg		108	78 - 130
1,1,2,2-Tetrachloroethane	0.0500	0.04914		mg/Kg		98	80 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05543		mg/Kg		111	73 - 130
1,1,2-Trichloroethane	0.0500	0.04938		mg/Kg		99	80 - 123

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethane	0.0500	0.05302		mg/Kg		106	79 - 124
1,1-Dichloroethene	0.0500	0.05460		mg/Kg		109	74 - 132
1,1-Dichloropropene	0.0500	0.05299		mg/Kg		106	78 - 130
1,2,3-Trichlorobenzene	0.0500	0.05079		mg/Kg		102	80 - 123
1,2,3-Trichloropropane	0.0500	0.05176		mg/Kg		104	79 - 120
1,2,4-Trichlorobenzene	0.0500	0.05103		mg/Kg		102	80 - 125
1,2,4-Trimethylbenzene	0.0500	0.04995		mg/Kg		100	80 - 124
1,2-Dibromo-3-Chloropropane	0.0500	0.04757		mg/Kg		95	67 - 120
1,2-Dibromoethane	0.0500	0.04784		mg/Kg		96	80 - 120
1,2-Dichlorobenzene	0.0500	0.04970		mg/Kg		99	80 - 120
1,2-Dichloroethane	0.0500	0.04815		mg/Kg		96	77 - 120
1,2-Dichloropropane	0.0500	0.05504		mg/Kg		110	80 - 126
1,3,5-Trimethylbenzene	0.0500	0.05058		mg/Kg		101	80 - 121
1,3-Dichlorobenzene	0.0500	0.05007		mg/Kg		100	80 - 120
1,3-Dichloropropane	0.0500	0.05305		mg/Kg		106	80 - 120
1,4-Dichlorobenzene	0.0500	0.04994		mg/Kg		100	80 - 120
2,2-Dichloropropane	0.0500	0.05619		mg/Kg		112	73 - 135
2-Butanone (MEK)	0.0500	0.05076		mg/Kg		102	67 - 136
2-Chlorotoluene	0.0500	0.05075		mg/Kg		102	80 - 120
2-Hexanone	0.0500	0.05051		mg/Kg		101	70 - 137
4-Chlorotoluene	0.0500	0.05206		mg/Kg		104	80 - 121
4-Methyl-2-pentanone (MIBK)	0.0500	0.04993		mg/Kg		100	74 - 124
Acetone	0.0500	0.05716		mg/Kg		114	61 - 142
Benzene	0.0500	0.05030		mg/Kg		101	80 - 120
Bromobenzene	0.0500	0.05128		mg/Kg		103	80 - 120
Bromochloromethane	0.0500	0.05368		mg/Kg		107	80 - 120
Bromodichloromethane	0.0500	0.05367		mg/Kg		107	80 - 125
Bromoform	0.0500	0.04760		mg/Kg		95	74 - 138
Bromomethane	0.0500	0.04326		mg/Kg		87	58 - 136
cis-1,2-Dichloroethene	0.0500	0.05246		mg/Kg		105	80 - 124
cis-1,3-Dichloropropene	0.0500	0.05089		mg/Kg		102	80 - 123
Carbon disulfide	0.0500	0.05336		mg/Kg		107	68 - 128
Carbon tetrachloride	0.0500	0.05543		mg/Kg		111	75 - 140
Chlorobenzene	0.0500	0.05165		mg/Kg		103	80 - 120
Chloroethane	0.0500	0.04873		mg/Kg		97	76 - 137
Chloroform	0.0500	0.04755		mg/Kg		95	80 - 121
Chloromethane	0.0500	0.04450		mg/Kg		89	74 - 133
Dibromochloromethane	0.0500	0.05277		mg/Kg		106	80 - 132
Dibromomethane	0.0500	0.05507		mg/Kg		110	80 - 120
Dichlorodifluoromethane	0.0500	0.04863		mg/Kg		97	63 - 146
Di-isopropyl ether (DIPE)	0.0500	0.05440		mg/Kg		109	73 - 132
Ethanol	0.500	0.4519		mg/Kg		90	46 - 159
Ethylbenzene	0.0500	0.05079		mg/Kg		102	80 - 120
Ethyl-t-butyl ether (ETBE)	0.0500	0.05320		mg/Kg		106	77 - 129
Isopropylbenzene	0.0500	0.05417		mg/Kg		108	80 - 122
Methylene Chloride	0.0500	0.04900		mg/Kg		98	74 - 120
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05416		mg/Kg		108	79 - 123
Naphthalene	0.0500	0.04859		mg/Kg		97	79 - 121
n-Butylbenzene	0.0500	0.05227		mg/Kg		105	79 - 131

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396650/4
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
N-Propylbenzene			0.0500	0.05247		mg/Kg		105	80 - 122		
o-Xylene			0.0500	0.05075		mg/Kg		101	80 - 120		
m,p-Xylene			0.100	0.09853		mg/Kg		99	80 - 120		
p-Isopropyltoluene			0.0500	0.05066		mg/Kg		101	80 - 126		
sec-Butylbenzene			0.0500	0.05150		mg/Kg		103	80 - 125		
Styrene			0.0500	0.05228		mg/Kg		105	80 - 120		
trans-1,2-Dichloroethene			0.0500	0.05053		mg/Kg		101	75 - 123		
trans-1,3-Dichloropropene			0.0500	0.05088		mg/Kg		102	80 - 124		
Tert-amyl-methyl ether (TAME)			0.0500	0.05064		mg/Kg		101	80 - 120		
tert-Butyl alcohol (TBA)			0.250	0.2574		mg/Kg		103	74 - 123		
tert-Butylbenzene			0.0500	0.05048		mg/Kg		101	80 - 124		
Tetrachloroethene			0.0500	0.05134		mg/Kg		103	80 - 122		
Toluene			0.0500	0.05166		mg/Kg		103	80 - 120		
Trichloroethene			0.0500	0.05165		mg/Kg		103	80 - 127		
Trichlorofluoromethane			0.0500	0.05618		mg/Kg		112	70 - 144		
Vinyl acetate			0.0500	0.04885		mg/Kg		98	71 - 125		
Vinyl chloride			0.0500	0.04569		mg/Kg		91	79 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*32 - 179*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*58 - 147*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane			0.0500	0.05064		mg/Kg		101	80 - 125	2	20
1,1,1-Trichloroethane			0.0500	0.05261		mg/Kg		105	78 - 130	3	20
1,1,2,2-Tetrachloroethane			0.0500	0.05117		mg/Kg		102	80 - 124	4	20
1,1,2-Trichloro-1,2,2-trifluoroethane			0.0500	0.05440		mg/Kg		109	73 - 130	2	20
1,1,2-Trichloroethane			0.0500	0.05009		mg/Kg		100	80 - 123	1	20
1,1-Dichloroethane			0.0500	0.05312		mg/Kg		106	79 - 124	0	20
1,1-Dichloroethene			0.0500	0.05338		mg/Kg		107	74 - 132	2	20
1,1-Dichloropropene			0.0500	0.05061		mg/Kg		101	78 - 130	5	20
1,2,3-Trichlorobenzene			0.0500	0.05136		mg/Kg		103	80 - 123	1	20
1,2,3-Trichloropropane			0.0500	0.05014		mg/Kg		100	79 - 120	3	20
1,2,4-Trichlorobenzene			0.0500	0.05171		mg/Kg		103	80 - 125	1	20
1,2,4-Trimethylbenzene			0.0500	0.04959		mg/Kg		99	80 - 124	1	20
1,2-Dibromo-3-Chloropropane			0.0500	0.05096		mg/Kg		102	67 - 120	7	20
1,2-Dibromoethane			0.0500	0.04948		mg/Kg		99	80 - 120	3	20
1,2-Dichlorobenzene			0.0500	0.05149		mg/Kg		103	80 - 120	4	20
1,2-Dichloroethane			0.0500	0.04980		mg/Kg		100	77 - 120	3	20
1,2-Dichloropropane			0.0500	0.05451		mg/Kg		109	80 - 126	1	20
1,3,5-Trimethylbenzene			0.0500	0.04944		mg/Kg		99	80 - 121	2	20
1,3-Dichlorobenzene			0.0500	0.05044		mg/Kg		101	80 - 120	1	20

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3-Dichloropropane	0.0500	0.05266		mg/Kg		105	80 - 120	1	20
1,4-Dichlorobenzene	0.0500	0.04951		mg/Kg		99	80 - 120	1	20
2,2-Dichloropropane	0.0500	0.05445		mg/Kg		109	73 - 135	3	20
2-Butanone (MEK)	0.0500	0.04896		mg/Kg		98	67 - 136	4	20
2-Chlorotoluene	0.0500	0.04918		mg/Kg		98	80 - 120	3	20
2-Hexanone	0.0500	0.04814		mg/Kg		96	70 - 137	5	20
4-Chlorotoluene	0.0500	0.05056		mg/Kg		101	80 - 121	3	20
4-Methyl-2-pentanone (MIBK)	0.0500	0.05139		mg/Kg		103	74 - 124	3	20
Acetone	0.0500	0.04626		mg/Kg		93	61 - 142	21	23
Benzene	0.0500	0.05061		mg/Kg		101	80 - 120	1	20
Bromobenzene	0.0500	0.05144		mg/Kg		103	80 - 120	0	20
Bromochloromethane	0.0500	0.05155		mg/Kg		103	80 - 120	4	20
Bromodichloromethane	0.0500	0.05337		mg/Kg		107	80 - 125	1	20
Bromoform	0.0500	0.04881		mg/Kg		98	74 - 138	3	20
Bromomethane	0.0500	0.04321		mg/Kg		86	58 - 136	0	20
cis-1,2-Dichloroethene	0.0500	0.04984		mg/Kg		100	80 - 124	5	20
cis-1,3-Dichloropropene	0.0500	0.04993		mg/Kg		100	80 - 123	2	20
Carbon disulfide	0.0500	0.05183		mg/Kg		104	68 - 128	3	20
Carbon tetrachloride	0.0500	0.05429		mg/Kg		109	75 - 140	2	20
Chlorobenzene	0.0500	0.05057		mg/Kg		101	80 - 120	2	20
Chloroethane	0.0500	0.04849		mg/Kg		97	76 - 137	0	20
Chloroform	0.0500	0.04584		mg/Kg		92	80 - 121	4	20
Chloromethane	0.0500	0.04336		mg/Kg		87	74 - 133	3	20
Dibromochloromethane	0.0500	0.05214		mg/Kg		104	80 - 132	1	20
Dibromomethane	0.0500	0.05541		mg/Kg		111	80 - 120	1	20
Dichlorodifluoromethane	0.0500	0.04654		mg/Kg		93	63 - 146	4	20
Di-isopropyl ether (DIPE)	0.0500	0.05284		mg/Kg		106	73 - 132	3	20
Ethanol	0.500	0.4594		mg/Kg		92	46 - 159	2	30
Ethylbenzene	0.0500	0.04928		mg/Kg		99	80 - 120	3	20
Ethyl-t-butyl ether (ETBE)	0.0500	0.05352		mg/Kg		107	77 - 129	1	20
Isopropylbenzene	0.0500	0.05272		mg/Kg		105	80 - 122	3	20
Methylene Chloride	0.0500	0.04780		mg/Kg		96	74 - 120	2	20
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05248		mg/Kg		105	79 - 123	3	20
Naphthalene	0.0500	0.04978		mg/Kg		100	79 - 121	2	20
n-Butylbenzene	0.0500	0.05221		mg/Kg		104	79 - 131	0	20
N-Propylbenzene	0.0500	0.05088		mg/Kg		102	80 - 122	3	20
o-Xylene	0.0500	0.04968		mg/Kg		99	80 - 120	2	20
m,p-Xylene	0.100	0.09467		mg/Kg		95	80 - 120	4	20
p-Isopropyltoluene	0.0500	0.05095		mg/Kg		102	80 - 126	1	20
sec-Butylbenzene	0.0500	0.05084		mg/Kg		102	80 - 125	1	20
Styrene	0.0500	0.05084		mg/Kg		102	80 - 120	3	20
trans-1,2-Dichloroethene	0.0500	0.05080		mg/Kg		102	75 - 123	1	20
trans-1,3-Dichloropropene	0.0500	0.05270		mg/Kg		105	80 - 124	4	20
Tert-amyl-methyl ether (TAME)	0.0500	0.05125		mg/Kg		103	80 - 120	1	20
tert-Butyl alcohol (TBA)	0.250	0.2538		mg/Kg		102	74 - 123	1	20
tert-Butylbenzene	0.0500	0.05090		mg/Kg		102	80 - 124	1	20
Tetrachloroethene	0.0500	0.05132		mg/Kg		103	80 - 122	0	20
Toluene	0.0500	0.05111		mg/Kg		102	80 - 120	1	20
Trichloroethene	0.0500	0.05129		mg/Kg		103	80 - 127	1	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396650/5
Matrix: Solid
Analysis Batch: 396650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Trichlorofluoromethane			0.0500	0.05488		mg/Kg		110	70 - 144	2	20
Vinyl acetate			0.0500	0.04729		mg/Kg		95	71 - 125	3	20
Vinyl chloride			0.0500	0.04559		mg/Kg		91	79 - 133	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*32 - 179*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*58 - 147*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 570-398155/3-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398155

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.098	0.055	mg/Kg		01/03/24 16:36	01/03/24 21:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*42 - 126*	*01/03/24 16:36*	*01/03/24 21:09*	*1*

Lab Sample ID: LCS 570-398155/1-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398155

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)			1.97	1.651		mg/Kg		84	70 - 124

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*42 - 126*

Lab Sample ID: LCSD 570-398155/2-A
Matrix: Solid
Analysis Batch: 398200

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398155

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)			1.96	1.810		mg/Kg		92	70 - 124	9	18

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*42 - 126*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-396277/1-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 396277

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		5.0	3.8	mg/Kg		12/27/23 10:21	12/28/23 22:25	1
TPH as Motor Oil (C17-C44)	ND		25	11	mg/Kg		12/27/23 10:21	12/28/23 22:25	1
Oil Range Organics (C18-C40)	ND		5.0	3.8	mg/Kg		12/27/23 10:21	12/28/23 22:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*124*		*60 - 138*	*12/27/23 10:21*	*12/28/23 22:25*	*1*

Lab Sample ID: LCS 570-396277/27-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TPH as Motor Oil (C17-C44)			400	414.6		mg/Kg		104	77 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*97*		*60 - 138*

Lab Sample ID: LCS 570-396277/2-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	385.6		mg/Kg		96	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*106*		*60 - 138*

Lab Sample ID: LCSD 570-396277/28-A
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)			400	405.8		mg/Kg		101	77 - 125	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*99*		*60 - 138*

Lab Sample ID: LCSD 570-396277/3-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	376.9		mg/Kg		94	80 - 130	2	20

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 570-396277/3-A
Matrix: Solid
Analysis Batch: 396308

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396277

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Octacosane (Surr)	*103*		*60 - 138*

Lab Sample ID: 570-166113-1 MS
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 396277

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
TPH as Motor Oil (C17-C44)	440	F1	396	900.8	E	mg/Kg		117	44 - 161

Surrogate	MS %Recovery	MS Qualifier	Limits
n-Octacosane (Surr)	*90*		*60 - 138*

Lab Sample ID: 570-166113-1 MSD
Matrix: Solid
Analysis Batch: 396768

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 396277

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)	440	F1	389	1130	E F1	mg/Kg		178	44 - 161	23	37

Surrogate	MSD %Recovery	MSD Qualifier	Limits
n-Octacosane (Surr)	*91*		*60 - 138*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-396615/1-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 396615

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.51	0.145	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Arsenic	ND		3.02	1.40	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Barium	0.1587	J	3.02	0.143	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Beryllium	ND		0.503	0.0693	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Cadmium	ND		0.503	0.165	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Cobalt	ND		1.01	0.207	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Chromium	ND		1.01	0.187	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Copper	ND		2.01	0.963	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Molybdenum	ND		2.01	0.518	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Nickel	ND		2.01	0.364	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Antimony	ND		10.1	2.87	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Selenium	ND		3.02	1.23	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Thallium	ND		10.1	2.12	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Vanadium	ND		1.01	0.169	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Zinc	ND		5.03	1.16	mg/Kg		12/28/23 07:24	12/28/23 17:19	5
Lead	ND		2.01	0.411	mg/Kg		12/28/23 07:24	12/28/23 17:19	5

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 570-396615/2-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 396615

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	24.5	23.94		mg/Kg		98	80 - 120
Arsenic	49.0	46.07		mg/Kg		94	80 - 120
Barium	49.0	47.46		mg/Kg		97	80 - 120
Beryllium	49.0	45.38		mg/Kg		93	80 - 120
Cadmium	49.0	45.91		mg/Kg		94	80 - 120
Cobalt	49.0	46.78		mg/Kg		95	80 - 120
Chromium	49.0	46.75		mg/Kg		95	80 - 120
Copper	49.0	46.05		mg/Kg		94	80 - 120
Molybdenum	49.0	46.84		mg/Kg		96	80 - 120
Nickel	49.0	47.05		mg/Kg		96	80 - 120
Antimony	49.0	48.71		mg/Kg		99	80 - 120
Selenium	49.0	45.28		mg/Kg		92	80 - 120
Thallium	49.0	47.13		mg/Kg		96	80 - 120
Vanadium	49.0	46.46		mg/Kg		95	80 - 120
Zinc	49.0	45.32		mg/Kg		92	80 - 120
Lead	49.0	46.71		mg/Kg		95	80 - 120

Lab Sample ID: LCSD 570-396615/3-A ^5
Matrix: Solid
Analysis Batch: 396975

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 396615

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	25.3	22.90		mg/Kg		91	80 - 120	4	20
Arsenic	50.5	43.84		mg/Kg		87	80 - 120	5	20
Barium	50.5	45.92		mg/Kg		91	80 - 120	3	20
Beryllium	50.5	43.56		mg/Kg		86	80 - 120	4	20
Cadmium	50.5	43.80		mg/Kg		87	80 - 120	5	20
Cobalt	50.5	45.16		mg/Kg		89	80 - 120	4	20
Chromium	50.5	44.94		mg/Kg		89	80 - 120	4	20
Copper	50.5	43.99		mg/Kg		87	80 - 120	5	20
Molybdenum	50.5	44.77		mg/Kg		89	80 - 120	5	20
Nickel	50.5	44.85		mg/Kg		89	80 - 120	5	20
Antimony	50.5	46.99		mg/Kg		93	80 - 120	4	20
Selenium	50.5	43.16		mg/Kg		85	80 - 120	5	20
Thallium	50.5	45.13		mg/Kg		89	80 - 120	4	20
Vanadium	50.5	44.52		mg/Kg		88	80 - 120	4	20
Zinc	50.5	43.36		mg/Kg		86	80 - 120	4	20
Lead	50.5	44.66		mg/Kg		88	80 - 120	4	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-397227/1-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 397227

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786	0.0302	mg/Kg		12/29/23 13:05	12/30/23 08:38	1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-397227/2-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 397227

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.377	0.4009		mg/Kg		106	80 - 120		

Lab Sample ID: LCSD 570-397227/3-A
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 397227

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.385	0.4055		mg/Kg		105	80 - 120	1	10

Lab Sample ID: 570-166113-1 MS
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 397227

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	65.3	F2	0.392	61.72	4	mg/Kg		-913	80 - 120		

Lab Sample ID: 570-166113-1 MSD
Matrix: Solid
Analysis Batch: 397417

Client Sample ID: RS-1
Prep Type: Total/NA
Prep Batch: 397227

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	65.3	F2	0.408	88.14	4 F2	mg/Kg		5596	80 - 120	35	20

Marginal Exceedance (ME) Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,1,1,2-Tetrachloroethane	0.0500	0.05375		mg/Kg	107	80 - 125	73 - 133	
1,1,1-Trichloroethane	0.0500	0.04974		mg/Kg	99	78 - 130	69 - 139	
1,1,2,2-Tetrachloroethane	0.0500	0.05495		mg/Kg	110	80 - 124	73 - 131	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05592		mg/Kg	112	73 - 130	64 - 140	
1,1,2-Trichloroethane	0.0500	0.04837		mg/Kg	97	80 - 123	73 - 130	
1,1-Dichloroethane	0.0500	0.05767		mg/Kg	115	79 - 124	72 - 132	
1,1-Dichloroethene	0.0500	0.05847		mg/Kg	117	74 - 132	64 - 142	
1,1-Dichloropropene	0.0500	0.04863		mg/Kg	97	78 - 130	69 - 139	
1,2,3-Trichlorobenzene	0.0500	0.05835		mg/Kg	117	80 - 123	73 - 130	
1,2,3-Trichloropropane	0.0500	0.04905		mg/Kg	98	79 - 120	72 - 127	
1,2,4-Trichlorobenzene	0.0500	0.05992		mg/Kg	120	80 - 125	73 - 133	
1,2,4-Trimethylbenzene	0.0500	0.05205		mg/Kg	104	80 - 124	73 - 131	
1,2-Dibromo-3-Chloropropane	0.0500	0.04712		mg/Kg	94	67 - 120	58 - 129	
1,2-Dibromoethane	0.0500	0.05302		mg/Kg	106	80 - 120	73 - 127	
1,2-Dichlorobenzene	0.0500	0.05664		mg/Kg	113	80 - 120	73 - 127	
1,2-Dichloroethane	0.0500	0.04898		mg/Kg	98	77 - 120	70 - 127	
1,2-Dichloropropane	0.0500	0.05734		mg/Kg	115	80 - 126	72 - 134	
1,3,5-Trimethylbenzene	0.0500	0.05273		mg/Kg	105	80 - 121	73 - 128	
1,3-Dichlorobenzene	0.0500	0.05909		mg/Kg	118	80 - 120	73 - 127	
1,3-Dichloropropane	0.0500	0.05010		mg/Kg	100	80 - 120	73 - 127	
1,4-Dichlorobenzene	0.0500	0.05436		mg/Kg	109	80 - 120	73 - 127	
2,2-Dichloropropane	0.0500	0.05103		mg/Kg	102	73 - 135	63 - 145	
2-Butanone (MEK)	0.0500	0.05271		mg/Kg	105	67 - 136	56 - 148	
2-Chlorotoluene	0.0500	0.05006		mg/Kg	100	80 - 120	73 - 127	
2-Hexanone	0.0500	0.05899		mg/Kg	118	70 - 137	59 - 148	
4-Chlorotoluene	0.0500	0.05242		mg/Kg	105	80 - 121	73 - 128	
4-Methyl-2-pentanone (MIBK)	0.0500	0.06319	*+ me	mg/Kg	126	74 - 124	66 - 132	ME
Acetone	0.0500	0.05494		mg/Kg	110	61 - 142	48 - 156	
Benzene	0.0500	0.05218		mg/Kg	104	80 - 120	73 - 127	
Bromobenzene	0.0500	0.05469		mg/Kg	109	80 - 120	73 - 127	
Bromochloromethane	0.0500	0.05451		mg/Kg	109	80 - 120	73 - 127	
Bromodichloromethane	0.0500	0.05274		mg/Kg	105	80 - 125	73 - 133	
Bromoform	0.0500	0.05698		mg/Kg	114	74 - 138	63 - 149	
Bromomethane	0.0500	0.04258		mg/Kg	85	58 - 136	45 - 149	
cis-1,2-Dichloroethene	0.0500	0.05208		mg/Kg	104	80 - 124	73 - 131	
cis-1,3-Dichloropropene	0.0500	0.05171		mg/Kg	103	80 - 123	73 - 130	
Carbon disulfide	0.0500	0.05247		mg/Kg	105	68 - 128	58 - 138	
Carbon tetrachloride	0.0500	0.05120		mg/Kg	102	75 - 140	64 - 151	
Chlorobenzene	0.0500	0.05170		mg/Kg	103	80 - 120	73 - 127	
Chloroethane	0.0500	0.05084		mg/Kg	102	76 - 137	66 - 147	
Chloroform	0.0500	0.04449		mg/Kg	89	80 - 121	73 - 128	
Chloromethane	0.0500	0.05242		mg/Kg	105	74 - 133	64 - 143	
Dibromochloromethane	0.0500	0.05362		mg/Kg	107	80 - 132	71 - 141	
Dibromomethane	0.0500	0.05539		mg/Kg	111	80 - 120	73 - 127	
Dichlorodifluoromethane	0.0500	0.04163		mg/Kg	83	63 - 146	49 - 160	
Di-isopropyl ether (DIPE)	0.0500	0.06299		mg/Kg	126	73 - 132	63 - 142	
Ethanol	0.500	0.5602		mg/Kg	112	46 - 159	27 - 178	
Ethylbenzene	0.0500	0.05194		mg/Kg	104	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	0.0500	0.05844		mg/Kg	117	77 - 129	68 - 138	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-396551/3
Matrix: Solid

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Isopropylbenzene	0.0500	0.05513		mg/Kg	110	80 - 122	73 - 129	
Methylene Chloride	0.0500	0.04911		mg/Kg	98	74 - 120	66 - 128	
Methyl-t-Butyl Ether (MTBE)	0.0500	0.05206		mg/Kg	104	79 - 123	72 - 130	
Naphthalene	0.0500	0.06075		mg/Kg	121	79 - 121	72 - 128	
n-Butylbenzene	0.0500	0.05503		mg/Kg	110	79 - 131	70 - 140	
N-Propylbenzene	0.0500	0.05451		mg/Kg	109	80 - 122	73 - 129	
o-Xylene	0.0500	0.05031		mg/Kg	101	80 - 120	73 - 127	
m,p-Xylene	0.100	0.1003		mg/Kg	100	80 - 120	73 - 127	
p-Isopropyltoluene	0.0500	0.05657		mg/Kg	113	80 - 126	72 - 134	
sec-Butylbenzene	0.0500	0.05568		mg/Kg	111	80 - 125	73 - 133	
Styrene	0.0500	0.05322		mg/Kg	106	80 - 120	73 - 127	
trans-1,2-Dichloroethene	0.0500	0.05265		mg/Kg	105	75 - 123	67 - 131	
trans-1,3-Dichloropropene	0.0500	0.05292		mg/Kg	106	80 - 124	73 - 131	
Tert-amyl-methyl ether (TAME)	0.0500	0.05587		mg/Kg	112	80 - 120	73 - 127	
tert-Butyl alcohol (TBA)	0.250	0.2634		mg/Kg	105	74 - 123	66 - 131	
tert-Butylbenzene	0.0500	0.05947		mg/Kg	119	80 - 124	73 - 131	
Tetrachloroethene	0.0500	0.05484		mg/Kg	110	80 - 122	73 - 129	
Toluene	0.0500	0.05485		mg/Kg	110	80 - 120	73 - 127	
Trichloroethene	0.0500	0.05505		mg/Kg	110	80 - 127	72 - 135	
Trichlorofluoromethane	0.0500	0.04668		mg/Kg	93	70 - 144	58 - 156	
Vinyl acetate	0.0500	0.05212		mg/Kg	104	71 - 125	62 - 134	
Vinyl chloride	0.0500	0.05675		mg/Kg	114	79 - 133	70 - 142	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
71	4	1

ME = Marginal Exceedance

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,1,1,2-Tetrachloroethane	0.0500	0.05248		mg/Kg	105	80 - 125	73 - 133	
1,1,1-Trichloroethane	0.0500	0.04620		mg/Kg	92	78 - 130	69 - 139	
1,1,2,2-Tetrachloroethane	0.0500	0.05615		mg/Kg	112	80 - 124	73 - 131	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05217		mg/Kg	104	73 - 130	64 - 140	
1,1,2-Trichloroethane	0.0500	0.04781		mg/Kg	96	80 - 123	73 - 130	
1,1-Dichloroethane	0.0500	0.05403		mg/Kg	108	79 - 124	72 - 132	
1,1-Dichloroethene	0.0500	0.05314		mg/Kg	106	74 - 132	64 - 142	
1,1-Dichloropropene	0.0500	0.04631		mg/Kg	93	78 - 130	69 - 139	
1,2,3-Trichlorobenzene	0.0500	0.05789		mg/Kg	116	80 - 123	73 - 130	
1,2,3-Trichloropropane	0.0500	0.05100		mg/Kg	102	79 - 120	72 - 127	
1,2,4-Trichlorobenzene	0.0500	0.05910		mg/Kg	118	80 - 125	73 - 133	
1,2,4-Trimethylbenzene	0.0500	0.05048		mg/Kg	101	80 - 124	73 - 131	
1,2-Dibromo-3-Chloropropane	0.0500	0.04767		mg/Kg	95	67 - 120	58 - 129	
1,2-Dibromoethane	0.0500	0.05092		mg/Kg	102	80 - 120	73 - 127	
1,2-Dichlorobenzene	0.0500	0.05742		mg/Kg	115	80 - 120	73 - 127	
1,2-Dichloroethane	0.0500	0.04788		mg/Kg	96	77 - 120	70 - 127	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,2-Dichloropropane	0.0500	0.05473		mg/Kg	109	80 - 126	72 - 134	
1,3,5-Trimethylbenzene	0.0500	0.05146		mg/Kg	103	80 - 121	73 - 128	
1,3-Dichlorobenzene	0.0500	0.05826		mg/Kg	117	80 - 120	73 - 127	
1,3-Dichloropropane	0.0500	0.04928		mg/Kg	99	80 - 120	73 - 127	
1,4-Dichlorobenzene	0.0500	0.05494		mg/Kg	110	80 - 120	73 - 127	
2,2-Dichloropropane	0.0500	0.04808		mg/Kg	96	73 - 135	63 - 145	
2-Butanone (MEK)	0.0500	0.05705		mg/Kg	114	67 - 136	56 - 148	
2-Chlorotoluene	0.0500	0.04902		mg/Kg	98	80 - 120	73 - 127	
2-Hexanone	0.0500	0.06225		mg/Kg	124	70 - 137	59 - 148	
4-Chlorotoluene	0.0500	0.05250		mg/Kg	105	80 - 121	73 - 128	
4-Methyl-2-pentanone (MIBK)	0.0500	0.06586	*+ me	mg/Kg	132	74 - 124	66 - 132	ME
Acetone	0.0500	0.05546		mg/Kg	111	61 - 142	48 - 156	
Benzene	0.0500	0.05025		mg/Kg	100	80 - 120	73 - 127	
Bromobenzene	0.0500	0.05394		mg/Kg	108	80 - 120	73 - 127	
Bromochloromethane	0.0500	0.05232		mg/Kg	105	80 - 120	73 - 127	
Bromodichloromethane	0.0500	0.05154		mg/Kg	103	80 - 125	73 - 133	
Bromoform	0.0500	0.05769		mg/Kg	115	74 - 138	63 - 149	
Bromomethane	0.0500	0.04159		mg/Kg	83	58 - 136	45 - 149	
cis-1,2-Dichloroethene	0.0500	0.04909		mg/Kg	98	80 - 124	73 - 131	
cis-1,3-Dichloropropene	0.0500	0.05117		mg/Kg	102	80 - 123	73 - 130	
Carbon disulfide	0.0500	0.04914		mg/Kg	98	68 - 128	58 - 138	
Carbon tetrachloride	0.0500	0.04823		mg/Kg	96	75 - 140	64 - 151	
Chlorobenzene	0.0500	0.05018		mg/Kg	100	80 - 120	73 - 127	
Chloroethane	0.0500	0.05164		mg/Kg	103	76 - 137	66 - 147	
Chloroform	0.0500	0.04300		mg/Kg	86	80 - 121	73 - 128	
Chloromethane	0.0500	0.05289		mg/Kg	106	74 - 133	64 - 143	
Dibromochloromethane	0.0500	0.05222		mg/Kg	104	80 - 132	71 - 141	
Dibromomethane	0.0500	0.05391		mg/Kg	108	80 - 120	73 - 127	
Dichlorodifluoromethane	0.0500	0.04094		mg/Kg	82	63 - 146	49 - 160	
Di-isopropyl ether (DIPE)	0.0500	0.06038		mg/Kg	121	73 - 132	63 - 142	
Ethanol	0.500	0.5624		mg/Kg	112	46 - 159	27 - 178	
Ethylbenzene	0.0500	0.05082		mg/Kg	102	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	0.0500	0.05660		mg/Kg	113	77 - 129	68 - 138	
Isopropylbenzene	0.0500	0.05371		mg/Kg	107	80 - 122	73 - 129	
Methylene Chloride	0.0500	0.04753		mg/Kg	95	74 - 120	66 - 128	
Methyl-t-Butyl Ether (MTBE)	0.0500	0.04988		mg/Kg	100	79 - 123	72 - 130	
Naphthalene	0.0500	0.06276	*+ me	mg/Kg	126	79 - 121	72 - 128	ME
n-Butylbenzene	0.0500	0.05415		mg/Kg	108	79 - 131	70 - 140	
N-Propylbenzene	0.0500	0.05259		mg/Kg	105	80 - 122	73 - 129	
o-Xylene	0.0500	0.04847		mg/Kg	97	80 - 120	73 - 127	
m,p-Xylene	0.100	0.09691		mg/Kg	97	80 - 120	73 - 127	
p-Isopropyltoluene	0.0500	0.05640		mg/Kg	113	80 - 126	72 - 134	
sec-Butylbenzene	0.0500	0.05421		mg/Kg	108	80 - 125	73 - 133	
Styrene	0.0500	0.05195		mg/Kg	104	80 - 120	73 - 127	
trans-1,2-Dichloroethene	0.0500	0.04944		mg/Kg	99	75 - 123	67 - 131	
trans-1,3-Dichloropropene	0.0500	0.05223		mg/Kg	104	80 - 124	73 - 131	
Tert-amyl-methyl ether (TAME)	0.0500	0.05527		mg/Kg	111	80 - 120	73 - 127	
tert-Butyl alcohol (TBA)	0.250	0.2690		mg/Kg	108	74 - 123	66 - 131	
tert-Butylbenzene	0.0500	0.05663		mg/Kg	113	80 - 124	73 - 131	
Tetrachloroethene	0.0500	0.05156		mg/Kg	103	80 - 122	73 - 129	

Marginal Exceedance (ME) Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-396551/4
Matrix: Solid

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Toluene	0.0500	0.05284		mg/Kg	106	80 - 120	73 - 127	
Trichloroethene	0.0500	0.05313		mg/Kg	106	80 - 127	72 - 135	
Trichlorofluoromethane	0.0500	0.04611		mg/Kg	92	70 - 144	58 - 156	
Vinyl acetate	0.0500	0.05027		mg/Kg	101	71 - 125	62 - 134	
Vinyl chloride	0.0500	0.05650		mg/Kg	113	79 - 133	70 - 142	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
71	4	2

ME = Marginal Exceedance

GC/MS VOA

Prep Batch: 396494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	5035	
570-166113-2	BS-1	Total/NA	Solid	5035	

Analysis Batch: 396551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8260B	396494
MB 570-396551/6	Method Blank	Total/NA	Solid	8260B	
LCS 570-396551/3	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 570-396551/4	Lab Control Sample Dup	Total/NA	Solid	8260B	

Analysis Batch: 396650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-2	BS-1	Total/NA	Solid	8260B	396494
MB 570-396650/10	Method Blank	Total/NA	Solid	8260B	
LCS 570-396650/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 570-396650/5	Lab Control Sample Dup	Total/NA	Solid	8260B	

GC VOA

Prep Batch: 398155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	5030C	
570-166113-2	BS-1	Total/NA	Solid	5030C	
MB 570-398155/3-A	Method Blank	Total/NA	Solid	5030C	
LCS 570-398155/1-A	Lab Control Sample	Total/NA	Solid	5030C	
LCSD 570-398155/2-A	Lab Control Sample Dup	Total/NA	Solid	5030C	

Analysis Batch: 398200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8015B	398155
570-166113-2	BS-1	Total/NA	Solid	8015B	398155
MB 570-398155/3-A	Method Blank	Total/NA	Solid	8015B	398155
LCS 570-398155/1-A	Lab Control Sample	Total/NA	Solid	8015B	398155
LCSD 570-398155/2-A	Lab Control Sample Dup	Total/NA	Solid	8015B	398155

GC Semi VOA

Prep Batch: 396277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	3550C	
570-166113-2	BS-1	Total/NA	Solid	3550C	
MB 570-396277/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-396277/27-A	Lab Control Sample	Total/NA	Solid	3550C	
LCS 570-396277/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-396277/28-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
LCSD 570-396277/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-166113-1 MS	RS-1	Total/NA	Solid	3550C	
570-166113-1 MSD	RS-1	Total/NA	Solid	3550C	

Analysis Batch: 396308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-396277/2-A	Lab Control Sample	Total/NA	Solid	8015B	396277

GC Semi VOA (Continued)

Analysis Batch: 396308 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-396277/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	396277

Analysis Batch: 396768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	8015B	396277
570-166113-2	BS-1	Total/NA	Solid	8015B	396277
MB 570-396277/1-A	Method Blank	Total/NA	Solid	8015B	396277
LCS 570-396277/27-A	Lab Control Sample	Total/NA	Solid	8015B	396277
LCSD 570-396277/28-A	Lab Control Sample Dup	Total/NA	Solid	8015B	396277
570-166113-1 MS	RS-1	Total/NA	Solid	8015B	396277
570-166113-1 MSD	RS-1	Total/NA	Solid	8015B	396277

Metals

Prep Batch: 396615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	3050B	
570-166113-2	BS-1	Total/NA	Solid	3050B	
MB 570-396615/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 570-396615/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-396615/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	

Analysis Batch: 396975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	6010B	396615
570-166113-2	BS-1	Total/NA	Solid	6010B	396615
MB 570-396615/1-A ^5	Method Blank	Total/NA	Solid	6010B	396615
LCS 570-396615/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	396615
LCSD 570-396615/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	396615

Analysis Batch: 397006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	6010B	396615

Prep Batch: 397227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	7471A	
570-166113-2	BS-1	Total/NA	Solid	7471A	
MB 570-397227/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-397227/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-397227/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-166113-1 MS	RS-1	Total/NA	Solid	7471A	
570-166113-1 MSD	RS-1	Total/NA	Solid	7471A	

Analysis Batch: 397417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1	RS-1	Total/NA	Solid	7471A	397227
570-166113-2	BS-1	Total/NA	Solid	7471A	397227
MB 570-397227/1-A	Method Blank	Total/NA	Solid	7471A	397227
LCS 570-397227/2-A	Lab Control Sample	Total/NA	Solid	7471A	397227
LCSD 570-397227/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	397227

Metals (Continued)

Analysis Batch: 397417 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166113-1 MS	RS-1	Total/NA	Solid	7471A	397227
570-166113-1 MSD	RS-1	Total/NA	Solid	7471A	397227

Lab Chronicle

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Client Sample ID: RS-1
Lab Sample ID: 570-166113-1
Date Collected: 12/27/23 07:20
Matrix: Solid
Date Received: 12/27/23 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.63 g	5 mL	396494	12/27/23 17:12	X7LQ	EET CAL 4
Total/NA	Analysis	8260B		1	5 g	5 mL	396551	12/27/23 23:51	AJ4K	EET CAL 4
	Instrument ID: GCMSQ									
Total/NA	Prep	5030C			5.04 g	5 mL	398155	01/03/24 16:36	NR	EET CAL 4
Total/NA	Analysis	8015B		1	5 g	5 mL	398200	01/03/24 21:48	A9VE	EET CAL 4
	Instrument ID: GC73									
Total/NA	Prep	3550C			10.29 g	10 mL	396277	12/27/23 15:56	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	396768	12/29/23 01:21	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			1.97 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		50			397006	12/28/23 20:32	P1R	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	3050B			1.97 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		25			396975	12/28/23 18:25	P1R	EET CAL 4
	Instrument ID: ICP9									
Total/NA	Prep	7471A			0.48 g	50 mL	397227	12/29/23 13:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		100			397417	12/30/23 11:43	ECX6	EET CAL 4
	Instrument ID: HG7									

Client Sample ID: BS-1
Lab Sample ID: 570-166113-2
Date Collected: 12/27/23 08:10
Matrix: Solid
Date Received: 12/27/23 11:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.763 g	5 mL	396494	12/27/23 17:12	X7LQ	EET CAL 4
Total/NA	Analysis	8260B		500	5 g	5 mL	396650	12/28/23 12:59	AH8S	EET CAL 4
	Instrument ID: GCMSCC									
Total/NA	Prep	5030C			5.13 g	5 mL	398155	01/03/24 16:36	NR	EET CAL 4
Total/NA	Analysis	8015B		1	5 g	5 mL	398200	01/03/24 22:07	A9VE	EET CAL 4
	Instrument ID: GC73									
Total/NA	Prep	3550C			10.35 g	10 mL	396277	12/27/23 15:56	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		5	10 mL	10 mL	396768	12/29/23 01:43	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.02 g	50 mL	396615	12/28/23 10:40	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			396975	12/28/23 18:17	P1R	EET CAL 4
	Instrument ID: ICP9									
Total/NA	Prep	7471A			0.52 g	50 mL	397227	12/29/23 13:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			397417	12/30/23 08:50	ECX6	EET CAL 4
	Instrument ID: HG7									

Laboratory References:
EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166113-1
Project/Site: 721040501

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4175	02-02-24

Method Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	EET CAL 4
8015B	Gasoline Range Organics - (GC)	SW846	EET CAL 4
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7471A	Mercury (CVAA)	SW846	EET CAL 4
3050B	Preparation, Metals	SW846	EET CAL 4
3550C	Ultrasonic Extraction	SW846	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4
5035	Closed System Purge and Trap	SW846	EET CAL 4
7471A	Preparation, Mercury	SW846	EET CAL 4

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166113-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-166113-1	RS-1	Solid	12/27/23 07:20	12/27/23 11:00
570-166113-2	BS-1	Solid	12/27/23 08:10	12/27/23 11:00

Erick Ovalle

From: Megan Ritsema <mritsema@langan.com>
Sent: Wednesday, January 3, 2024 3:32 PM
To: Erick Ovalle
Cc: Vikas Patel
Subject: RE: 570-166113 - GRO rush request

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Erick,

Yes, please add.

Thank you,

Megan Ritsema
Senior Staff Engineer

LANGAN

Direct: 949.561.9244
Mobile: 714.699.0899
File Sharing Link
www.langan.com

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ATHENS CALGARY DUBAI LONDON PANAMA



From: Erick Ovalle <Erick.Ovalle@et.eurofinsus.com>
Sent: Wednesday, January 3, 2024 3:30 PM
To: Megan Ritsema <mritsema@langan.com>
Cc: Vikas Patel <Vikas.Patel@et.eurofinsus.com>
Subject: [External] 570-166113 - GRO rush request

Hi Megan,

Per our conversation, we can add GRO on job 570-166113 on rush for results tomorrow. Please confirm if you would like us to proceed with the added changes.

Best Regards,

Erick Ovalle
Project Manager

Learn more about eCOC – our NEW electronic COC application



Eurofins Environment Testing Southwest, LLC
2841 Dow Ave, Suite 100
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M: +1 657 250-2681

Email: Erick.Ovalle@et.eurofinsus.com
Website: www.eurofinsUS.com/Calscience

Please note: In order to continue to provide critical testing services, **Eurofins Environment Testing laboratories in the US are maintaining our courier services and continue to sample, analyze and report all test data as usual.** The situation around COVID-19 continues to be fluid and we are continuing to follow local and government mandates as applicable. For up-to-date business information, visit our website and follow us on Facebook and LinkedIn.

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166113

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For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-166113 Chain of Custody

CHAIN-OF-CUSTODY RECORD

DATE: 12/27/23

PAGE: 1 OF 1

LABORATORY CLIENT: Langan

ADDRESS: 18575 Jamboree Rd. Suite 150

CITY: Irvine STATE: CA ZIP: 92612

TEL: (714)699-0899 E-MAIL: mritsema@langan.com

CLIENT PROJECT NAME / NO.: 721040501

PROJECT CONTACT: Megan Ritsema

P.O. NO.:

LAB CONTACT OR QUOTE NO.:

GLOBAL ID:

LOG CODE:

SAMPLER(S): (PRINT) Rachel Owen

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☒ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ STANDARD

EDD:

☐ COELT EDF ☐ OTHER

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH(g) GRO	TPH(d) DRO	TPH C6-C36 C6-C44	TPH DRO, MRO, o2o m 8015	BTEX / MTBE 8260	VOCs (8260)	Oxygenates (8260)	Prep (5035) En Core Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs 8270 8270 SIM	T22 Metals 6010/747X 6020/747X	Cr(VI) 7196 7199 218.6					
	RS-1	12/27/23	0720	S	4		X					X		X							X						
	BS-1	12/27/23	0810	S	4		X					X		X							X						

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:
Rachel Owen	12/27/23	1100	[signature]	12/27/23	11:00
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:

Attachment "Chain_of_Custody_General_Color_221004rev.xls" to "US Eurofins Calscience - CoC Templates"
Printed by Jenny Magana, d. Tue 04 Oct 2022 16:31 PDT

3.6/3-5 SGL

Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Srvcs

Job Number: 570-166113-2

Login Number: 166113
List Number: 1
Creator: Vitente, Precy

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Megan Ritsema
Langan Engineering & Environmental Srvcs
18575 Jamboree Road
Suite 150
Irvine, California 92612

Generated 1/8/2024 9:36:28 AM

JOB DESCRIPTION

721040501

JOB NUMBER

570-166635-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

myEOL

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization



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1/8/2024 9:36:28 AM

Authorized for release by
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Definitions/Glossary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 570-166635-1 Eurofins Calscience

Job Narrative
570-166635-1

Receipt
The sample was received on 1/3/2024 11:00 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.9º C.

GC/MS VOA
Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-397918. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 6010B: The serial dilution performed for the following sample associated with batch 570-398612 was outside control limits of Barium, Chromium and Vanadium: (570-166709-G-1-B SD ^25)

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-398269 and analytical batch 570-398612 were outside control limits for Antimony. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166635-1

Client Sample ID: SP1-1

Lab Sample ID: 570-166635-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.019		0.017	0.0038	mg/Kg	1	☼	8260B	Total/NA
Acetone	0.11		0.017	0.0082	mg/Kg	1	☼	8260B	Total/NA
Carbon disulfide	0.0029	J	0.0083	0.00033	mg/Kg	1	☼	8260B	Total/NA
Ethanol	0.44		0.21	0.077	mg/Kg	1	☼	8260B	Total/NA
m,p-Xylene	0.00046	J	0.0017	0.00039	mg/Kg	1	☼	8260B	Total/NA
Styrene	0.00099		0.00083	0.00026	mg/Kg	1	☼	8260B	Total/NA
tert-Butyl alcohol (TBA)	0.0094	J	0.017	0.0058	mg/Kg	1	☼	8260B	Total/NA
Trichlorofluoromethane	0.0085		0.0083	0.00023	mg/Kg	1	☼	8260B	Total/NA
Diesel Range Organics [C10-C28]	350		6.0	4.6	mg/Kg	1	☼	8015B	Total/NA
TPH as Motor Oil (C17-C44)	350		30	14	mg/Kg	1	☼	8015B	Total/NA
Arsenic	7.01		3.68	1.71	mg/Kg	5	☼	6010B	Total/NA
Barium	145		3.68	0.174	mg/Kg	5	☼	6010B	Total/NA
Beryllium	1.67		0.613	0.0846	mg/Kg	5	☼	6010B	Total/NA
Cadmium	0.905		0.613	0.201	mg/Kg	5	☼	6010B	Total/NA
Cobalt	3.96		1.23	0.253	mg/Kg	5	☼	6010B	Total/NA
Chromium	46.4		1.23	0.228	mg/Kg	5	☼	6010B	Total/NA
Copper	46.6		2.45	1.18	mg/Kg	5	☼	6010B	Total/NA
Molybdenum	3.28		2.45	0.632	mg/Kg	5	☼	6010B	Total/NA
Nickel	25.7		2.45	0.444	mg/Kg	5	☼	6010B	Total/NA
Vanadium	21.0		1.23	0.206	mg/Kg	5	☼	6010B	Total/NA
Zinc	421		6.13	1.42	mg/Kg	5	☼	6010B	Total/NA
Lead	21.8		2.45	0.502	mg/Kg	5	☼	6010B	Total/NA
Mercury	0.0566	J	0.102	0.0391	mg/Kg	1	☼	7471A	Total/NA

This Detection Summary does not include radiochemical test results.

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: SP1-1
Date Collected: 01/03/24 09:40
Date Received: 01/03/24 11:00

Lab Sample ID: 570-166635-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.00083	0.00024	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,1,1-Trichloroethane	ND		0.00083	0.00019	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,1,2,2-Tetrachloroethane	ND		0.0017	0.00045	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0083	0.00038	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,1,2-Trichloroethane	ND		0.00083	0.00039	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,1-Dichloroethane	ND		0.00083	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,1-Dichloroethene	ND		0.00083	0.00022	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,1-Dichloropropene	ND		0.0017	0.00032	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2,3-Trichlorobenzene	ND		0.0017	0.00031	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2,3-Trichloropropane	ND		0.0017	0.00035	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2,4-Trichlorobenzene	ND		0.0017	0.00034	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2,4-Trimethylbenzene	ND		0.0017	0.00050	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2-Dibromo-3-Chloropropane	ND		0.0083	0.0028	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2-Dibromoethane	ND		0.00083	0.00017	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2-Dichlorobenzene	ND		0.00083	0.00021	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2-Dichloroethane	ND		0.00083	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,2-Dichloropropane	ND		0.00083	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,3,5-Trimethylbenzene	ND		0.0017	0.00022	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,3-Dichlorobenzene	ND		0.00083	0.00021	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,3-Dichloropropane	ND		0.00083	0.00025	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
1,4-Dichlorobenzene	ND		0.00083	0.00026	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
2,2-Dichloropropane	ND		0.0042	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
2-Butanone (MEK)	**0.019**		0.017	0.0038	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
2-Chlorotoluene	ND		0.00083	0.00021	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
2-Hexanone	ND		0.017	0.0026	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
4-Chlorotoluene	ND		0.00083	0.00020	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
4-Methyl-2-pentanone (MIBK)	ND		0.017	0.0024	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Acetone	**0.11**		0.017	0.0082	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Benzene	ND		0.00083	0.00021	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Bromobenzene	ND		0.00083	0.00017	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Bromochloromethane	ND		0.0017	0.00037	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Bromodichloromethane	ND		0.00083	0.00027	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Bromoform	ND		0.0042	0.0011	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Bromomethane	ND		0.017	0.0055	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
cis-1,2-Dichloroethene	ND		0.00083	0.00028	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
cis-1,3-Dichloropropene	ND		0.00083	0.00029	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Carbon disulfide	**0.0029**	**J**	0.0083	0.00033	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Carbon tetrachloride	ND		0.00083	0.00025	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Chlorobenzene	ND		0.00083	0.00022	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Chloroethane	ND		0.0017	0.00062	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Chloroform	ND		0.00083	0.00049	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Chloromethane	ND		0.017	0.0013	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Dibromochloromethane	ND		0.0017	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Dibromomethane	ND		0.00083	0.00025	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Dichlorodifluoromethane	ND		0.0017	0.00038	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Di-isopropyl ether (DIPE)	ND		0.00083	0.00042	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Ethanol	**0.44**		0.21	0.077	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Ethylbenzene	ND		0.00083	0.00017	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Ethyl-t-butyl ether (ETBE)	ND		0.00083	0.00020	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: SP1-1
Date Collected: 01/03/24 09:40
Date Received: 01/03/24 11:00

Lab Sample ID: 570-166635-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		0.00083	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Methylene Chloride	ND		0.0083	0.0026	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0017	0.00016	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Naphthalene	ND		0.0083	0.0033	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
n-Butylbenzene	ND		0.00083	0.00018	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
N-Propylbenzene	ND		0.0017	0.00022	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
o-Xylene	ND		0.00083	0.00021	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
m,p-Xylene	**0.00046**	**J**	0.0017	0.00039	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
p-Isopropyltoluene	ND		0.00083	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
sec-Butylbenzene	ND		0.00083	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Styrene	**0.00099**		0.00083	0.00026	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
trans-1,2-Dichloroethene	ND		0.00083	0.00025	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
trans-1,3-Dichloropropene	ND		0.0017	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Tert-amyl-methyl ether (TAME)	ND		0.00083	0.00016	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
tert-Butyl alcohol (TBA)	**0.0094**	**J**	0.017	0.0058	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
tert-Butylbenzene	ND		0.00083	0.00021	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Tetrachloroethene	ND		0.00083	0.00019	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Toluene	ND		0.00083	0.00022	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Trichloroethene	ND		0.0017	0.00032	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Trichlorofluoromethane	**0.0085**		0.0083	0.00023	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Vinyl acetate	ND		0.0083	0.0033	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1
Vinyl chloride	ND		0.00083	0.00032	mg/Kg	☼	01/03/24 12:24	01/03/24 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*129*		*32 - 179*	*01/03/24 12:24*	*01/03/24 15:06*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*	*01/03/24 12:24*	*01/03/24 15:06*	*1*
Dibromofluoromethane (Surr)	*111*		*58 - 147*	*01/03/24 12:24*	*01/03/24 15:06*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*01/03/24 12:24*	*01/03/24 15:06*	*1*

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Method: SW846 8015B - Gasoline Range Organics - (GC)

Client Sample ID: SP1-1
Date Collected: 01/03/24 09:40
Date Received: 01/03/24 11:00

Lab Sample ID: 570-166635-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.12	0.069	mg/Kg	☼	01/04/24 11:51	01/04/24 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*73*		*42 - 126*	*01/04/24 11:51*	*01/04/24 18:54*	*1*

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: SP1-1
Lab Sample ID: 570-166635-1
Date Collected: 01/03/24 09:40
Matrix: Solid
Date Received: 01/03/24 11:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	350		6.0	4.6	mg/Kg	☼	01/03/24 12:49	01/03/24 20:37	1
TPH as Motor Oil (C17-C44)	350		30	14	mg/Kg	☼	01/03/24 12:49	01/03/24 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*97*		*60 - 138*	*01/03/24 12:49*	*01/03/24 20:37*	*1*

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166635-1

Method: SW846 6010B - Metals (ICP)

Client Sample ID: SP1-1
Date Collected: 01/03/24 09:40
Date Received: 01/03/24 11:00

Lab Sample ID: 570-166635-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.84	0.177	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Arsenic	**7.01**		3.68	1.71	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Barium	**145**		3.68	0.174	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Beryllium	**1.67**		0.613	0.0846	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Cadmium	**0.905**		0.613	0.201	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Cobalt	**3.96**		1.23	0.253	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Chromium	**46.4**		1.23	0.228	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Copper	**46.6**		2.45	1.18	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Molybdenum	**3.28**		2.45	0.632	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Nickel	**25.7**		2.45	0.444	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Antimony	ND		12.3	3.50	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Selenium	ND		3.68	1.50	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Thallium	ND		12.3	2.58	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Vanadium	**21.0**		1.23	0.206	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Zinc	**421**		6.13	1.42	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5
Lead	**21.8**		2.45	0.502	mg/Kg	☼	01/04/24 06:50	01/04/24 18:02	5

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: SP1-1
Date Collected: 01/03/24 09:40
Date Received: 01/03/24 11:00

Lab Sample ID: 570-166635-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0566	J	0.102	0.0391	mg/Kg	☼	01/03/24 16:14	01/05/24 17:48	1

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

General Chemistry

Client Sample ID: SP1-1
Date Collected: 01/03/24 09:40
Date Received: 01/03/24 11:00

Lab Sample ID: 570-166635-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (SM Moisture - 2540)	19.7		0.100	0.100	%			01/04/24 12:47	1

Surrogate Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166635-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCA (32-179)	BFB (80-120)	DBFM (58-147)	TOL (80-120)
570-166635-1	SP1-1	129	101	111	96
LCS 570-397918/5	Lab Control Sample	103	97	104	101
LCSD 570-397918/6	Lab Control Sample Dup	105	98	107	102
MB 570-397918/10	Method Blank	108	100	101	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	BFB1 (42-126)
570-166635-1	SP1-1	73
LCS 570-398416/1-A	Lab Control Sample	121
LCSD 570-398416/2-A	Lab Control Sample Dup	111
MB 570-398416/3-A	Method Blank	90

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-166635-1	SP1-1	97
570-166635-1 MS	SP1-1	98
570-166635-1 MS	SP1-1	101
570-166635-1 MSD	SP1-1	102
570-166635-1 MSD	SP1-1	99
LCS 570-398059/2-A	Lab Control Sample	98
LCS 570-398059/6-A	Lab Control Sample	94
LCSD 570-398059/3-A	Lab Control Sample Dup	96
LCSD 570-398059/7-A	Lab Control Sample Dup	96
MB 570-398059/1-A	Method Blank	96

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-397918/10
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.0010	0.00029	mg/Kg			01/03/24 11:51	1
1,1,1-Trichloroethane	ND		0.0010	0.00023	mg/Kg			01/03/24 11:51	1
1,1,2,2-Tetrachloroethane	ND		0.0020	0.00054	mg/Kg			01/03/24 11:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.010	0.00046	mg/Kg			01/03/24 11:51	1
1,1,2-Trichloroethane	ND		0.0010	0.00046	mg/Kg			01/03/24 11:51	1
1,1-Dichloroethane	ND		0.0010	0.00028	mg/Kg			01/03/24 11:51	1
1,1-Dichloroethene	ND		0.0010	0.00027	mg/Kg			01/03/24 11:51	1
1,1-Dichloropropene	ND		0.0020	0.00039	mg/Kg			01/03/24 11:51	1
1,2,3-Trichlorobenzene	ND		0.0020	0.00038	mg/Kg			01/03/24 11:51	1
1,2,3-Trichloropropane	ND		0.0020	0.00042	mg/Kg			01/03/24 11:51	1
1,2,4-Trichlorobenzene	ND		0.0020	0.00041	mg/Kg			01/03/24 11:51	1
1,2,4-Trimethylbenzene	ND		0.0020	0.00060	mg/Kg			01/03/24 11:51	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0033	mg/Kg			01/03/24 11:51	1
1,2-Dibromoethane	ND		0.0010	0.00021	mg/Kg			01/03/24 11:51	1
1,2-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			01/03/24 11:51	1
1,2-Dichloroethane	ND		0.0010	0.00028	mg/Kg			01/03/24 11:51	1
1,2-Dichloropropane	ND		0.0010	0.00028	mg/Kg			01/03/24 11:51	1
1,3,5-Trimethylbenzene	ND		0.0020	0.00027	mg/Kg			01/03/24 11:51	1
1,3-Dichlorobenzene	ND		0.0010	0.00025	mg/Kg			01/03/24 11:51	1
1,3-Dichloropropane	ND		0.0010	0.00030	mg/Kg			01/03/24 11:51	1
1,4-Dichlorobenzene	ND		0.0010	0.00031	mg/Kg			01/03/24 11:51	1
2,2-Dichloropropane	ND		0.0050	0.00027	mg/Kg			01/03/24 11:51	1
2-Butanone (MEK)	ND		0.020	0.0045	mg/Kg			01/03/24 11:51	1
2-Chlorotoluene	ND		0.0010	0.00025	mg/Kg			01/03/24 11:51	1
2-Hexanone	ND		0.020	0.0031	mg/Kg			01/03/24 11:51	1
4-Chlorotoluene	ND		0.0010	0.00024	mg/Kg			01/03/24 11:51	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0029	mg/Kg			01/03/24 11:51	1
Acetone	ND		0.020	0.0098	mg/Kg			01/03/24 11:51	1
Benzene	ND		0.0010	0.00026	mg/Kg			01/03/24 11:51	1
Bromobenzene	ND		0.0010	0.00021	mg/Kg			01/03/24 11:51	1
Bromochloromethane	ND		0.0020	0.00044	mg/Kg			01/03/24 11:51	1
Bromodichloromethane	ND		0.0010	0.00033	mg/Kg			01/03/24 11:51	1
Bromoform	ND		0.0050	0.0013	mg/Kg			01/03/24 11:51	1
Bromomethane	ND		0.020	0.0066	mg/Kg			01/03/24 11:51	1
cis-1,2-Dichloroethene	ND		0.0010	0.00034	mg/Kg			01/03/24 11:51	1
cis-1,3-Dichloropropene	ND		0.0010	0.00035	mg/Kg			01/03/24 11:51	1
Carbon disulfide	ND		0.010	0.00040	mg/Kg			01/03/24 11:51	1
Carbon tetrachloride	ND		0.0010	0.00030	mg/Kg			01/03/24 11:51	1
Chlorobenzene	ND		0.0010	0.00027	mg/Kg			01/03/24 11:51	1
Chloroethane	ND		0.0020	0.00074	mg/Kg			01/03/24 11:51	1
Chloroform	ND		0.0010	0.00059	mg/Kg			01/03/24 11:51	1
Chloromethane	ND		0.020	0.0015	mg/Kg			01/03/24 11:51	1
Dibromochloromethane	ND		0.0020	0.00027	mg/Kg			01/03/24 11:51	1
Dibromomethane	ND		0.0010	0.00031	mg/Kg			01/03/24 11:51	1
Dichlorodifluoromethane	ND		0.0020	0.00045	mg/Kg			01/03/24 11:51	1
Di-isopropyl ether (DIPE)	ND		0.0010	0.00050	mg/Kg			01/03/24 11:51	1
Ethanol	ND		0.25	0.092	mg/Kg			01/03/24 11:51	1
Ethylbenzene	ND		0.0010	0.00021	mg/Kg			01/03/24 11:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-397918/10
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl-t-butyl ether (ETBE)	ND		0.0010	0.00024	mg/Kg			01/03/24 11:51	1
Isopropylbenzene	ND		0.0010	0.00028	mg/Kg			01/03/24 11:51	1
Methylene Chloride	ND		0.010	0.0031	mg/Kg			01/03/24 11:51	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	0.00019	mg/Kg			01/03/24 11:51	1
Naphthalene	ND		0.010	0.0039	mg/Kg			01/03/24 11:51	1
n-Butylbenzene	ND		0.0010	0.00021	mg/Kg			01/03/24 11:51	1
N-Propylbenzene	ND		0.0020	0.00026	mg/Kg			01/03/24 11:51	1
o-Xylene	ND		0.0010	0.00026	mg/Kg			01/03/24 11:51	1
m,p-Xylene	ND		0.0020	0.00047	mg/Kg			01/03/24 11:51	1
p-Isopropyltoluene	ND		0.0010	0.00028	mg/Kg			01/03/24 11:51	1
sec-Butylbenzene	ND		0.0010	0.00027	mg/Kg			01/03/24 11:51	1
Styrene	ND		0.0010	0.00032	mg/Kg			01/03/24 11:51	1
trans-1,2-Dichloroethene	ND		0.0010	0.00030	mg/Kg			01/03/24 11:51	1
trans-1,3-Dichloropropene	ND		0.0020	0.00028	mg/Kg			01/03/24 11:51	1
Tert-amyl-methyl ether (TAME)	ND		0.0010	0.00019	mg/Kg			01/03/24 11:51	1
tert-Butyl alcohol (TBA)	ND		0.020	0.0070	mg/Kg			01/03/24 11:51	1
tert-Butylbenzene	ND		0.0010	0.00025	mg/Kg			01/03/24 11:51	1
Tetrachloroethene	ND		0.0010	0.00022	mg/Kg			01/03/24 11:51	1
Toluene	ND		0.0010	0.00027	mg/Kg			01/03/24 11:51	1
Trichloroethene	ND		0.0020	0.00039	mg/Kg			01/03/24 11:51	1
Trichlorofluoromethane	ND		0.010	0.00027	mg/Kg			01/03/24 11:51	1
Vinyl acetate	ND		0.010	0.0039	mg/Kg			01/03/24 11:51	1
Vinyl chloride	ND		0.0010	0.00038	mg/Kg			01/03/24 11:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*32 - 179*		*01/03/24 11:51*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*01/03/24 11:51*	*1*
Dibromofluoromethane (Surr)	*101*		*58 - 147*		*01/03/24 11:51*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*01/03/24 11:51*	*1*

Lab Sample ID: LCS 570-397918/5
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.0500	0.04845		mg/Kg		97	80 - 125
1,1,1-Trichloroethane	0.0500	0.05040		mg/Kg		101	78 - 130
1,1,2,2-Tetrachloroethane	0.0500	0.04824		mg/Kg		96	80 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05523		mg/Kg		110	73 - 130
1,1,2-Trichloroethane	0.0500	0.04795		mg/Kg		96	80 - 123
1,1-Dichloroethane	0.0500	0.05082		mg/Kg		102	79 - 124
1,1-Dichloroethene	0.0500	0.05307		mg/Kg		106	74 - 132
1,1-Dichloropropene	0.0500	0.05204		mg/Kg		104	78 - 130
1,2,3-Trichlorobenzene	0.0500	0.05253		mg/Kg		105	80 - 123
1,2,3-Trichloropropane	0.0500	0.04280		mg/Kg		86	79 - 120
1,2,4-Trichlorobenzene	0.0500	0.05535		mg/Kg		111	80 - 125
1,2,4-Trimethylbenzene	0.0500	0.05089		mg/Kg		102	80 - 124
1,2-Dibromo-3-Chloropropane	0.0500	0.04463		mg/Kg		89	67 - 120

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166635-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-397918/5
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dibromoethane	0.0500	0.04788		mg/Kg		96	80 - 120
1,2-Dichlorobenzene	0.0500	0.05004		mg/Kg		100	80 - 120
1,2-Dichloroethane	0.0500	0.04958		mg/Kg		99	77 - 120
1,2-Dichloropropane	0.0500	0.04927		mg/Kg		99	80 - 126
1,3,5-Trimethylbenzene	0.0500	0.05039		mg/Kg		101	80 - 121
1,3-Dichlorobenzene	0.0500	0.05149		mg/Kg		103	80 - 120
1,3-Dichloropropane	0.0500	0.04858		mg/Kg		97	80 - 120
1,4-Dichlorobenzene	0.0500	0.04978		mg/Kg		100	80 - 120
2,2-Dichloropropane	0.0500	0.04282		mg/Kg		86	73 - 135
2-Butanone (MEK)	0.0500	0.05623		mg/Kg		112	67 - 136
2-Chlorotoluene	0.0500	0.04937		mg/Kg		99	80 - 120
2-Hexanone	0.0500	0.04703		mg/Kg		94	70 - 137
4-Chlorotoluene	0.0500	0.05143		mg/Kg		103	80 - 121
4-Methyl-2-pentanone (MIBK)	0.0500	0.04412		mg/Kg		88	74 - 124
Acetone	0.0500	0.04328		mg/Kg		87	61 - 142
Benzene	0.0500	0.04964		mg/Kg		99	80 - 120
Bromobenzene	0.0500	0.04883		mg/Kg		98	80 - 120
Bromochloromethane	0.0500	0.05204		mg/Kg		104	80 - 120
Bromodichloromethane	0.0500	0.05356		mg/Kg		107	80 - 125
Bromoform	0.0500	0.05105		mg/Kg		102	74 - 138
Bromomethane	0.0500	0.05007		mg/Kg		100	58 - 136
cis-1,2-Dichloroethene	0.0500	0.05090		mg/Kg		102	80 - 124
cis-1,3-Dichloropropene	0.0500	0.05052		mg/Kg		101	80 - 123
Carbon disulfide	0.0500	0.05204		mg/Kg		104	68 - 128
Carbon tetrachloride	0.0500	0.05381		mg/Kg		108	75 - 140
Chlorobenzene	0.0500	0.04891		mg/Kg		98	80 - 120
Chloroethane	0.0500	0.05598		mg/Kg		112	76 - 137
Chloroform	0.0500	0.04953		mg/Kg		99	80 - 121
Chloromethane	0.0500	0.05334		mg/Kg		107	74 - 133
Dibromochloromethane	0.0500	0.04959		mg/Kg		99	80 - 132
Dibromomethane	0.0500	0.05140		mg/Kg		103	80 - 120
Dichlorodifluoromethane	0.0500	0.06010		mg/Kg		120	63 - 146
Di-isopropyl ether (DIPE)	0.0500	0.04795		mg/Kg		96	73 - 132
Ethanol	0.500	0.6081		mg/Kg		122	46 - 159
Ethylbenzene	0.0500	0.04951		mg/Kg		99	80 - 120
Ethyl-t-butyl ether (ETBE)	0.0500	0.04447		mg/Kg		89	77 - 129
Isopropylbenzene	0.0500	0.05104		mg/Kg		102	80 - 122
Methylene Chloride	0.0500	0.04695		mg/Kg		94	74 - 120
Methyl-t-Butyl Ether (MTBE)	0.0500	0.04593		mg/Kg		92	79 - 123
Naphthalene	0.0500	0.04757		mg/Kg		95	79 - 121
n-Butylbenzene	0.0500	0.05501		mg/Kg		110	79 - 131
N-Propylbenzene	0.0500	0.05150		mg/Kg		103	80 - 122
o-Xylene	0.0500	0.04929		mg/Kg		99	80 - 120
m,p-Xylene	0.100	0.09852		mg/Kg		99	80 - 120
p-Isopropyltoluene	0.0500	0.05289		mg/Kg		106	80 - 126
sec-Butylbenzene	0.0500	0.05258		mg/Kg		105	80 - 125
Styrene	0.0500	0.04911		mg/Kg		98	80 - 120
trans-1,2-Dichloroethene	0.0500	0.05205		mg/Kg		104	75 - 123
trans-1,3-Dichloropropene	0.0500	0.04252		mg/Kg		85	80 - 124

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-397918/5
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tert-amyl-methyl ether (TAME)	0.0500	0.04205		mg/Kg		84	80 - 120
tert-Butyl alcohol (TBA)	0.250	0.2078		mg/Kg		83	74 - 123
tert-Butylbenzene	0.0500	0.05253		mg/Kg		105	80 - 124
Tetrachloroethene	0.0500	0.05185		mg/Kg		104	80 - 122
Toluene	0.0500	0.05054		mg/Kg		101	80 - 120
Trichloroethene	0.0500	0.05232		mg/Kg		105	80 - 127
Trichlorofluoromethane	0.0500	0.05693		mg/Kg		114	70 - 144
Vinyl acetate	0.0500	0.04441		mg/Kg		89	71 - 125
Vinyl chloride	0.0500	0.05688		mg/Kg		114	79 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*32 - 179*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*58 - 147*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 570-397918/6
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.0500	0.04829		mg/Kg		97	80 - 125	0	20
1,1,1-Trichloroethane	0.0500	0.05017		mg/Kg		100	78 - 130	0	20
1,1,2,2-Tetrachloroethane	0.0500	0.04902		mg/Kg		98	80 - 124	2	20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0500	0.05301		mg/Kg		106	73 - 130	4	20
1,1,2-Trichloroethane	0.0500	0.04806		mg/Kg		96	80 - 123	0	20
1,1-Dichloroethane	0.0500	0.05006		mg/Kg		100	79 - 124	2	20
1,1-Dichloroethene	0.0500	0.05138		mg/Kg		103	74 - 132	3	20
1,1-Dichloropropene	0.0500	0.05168		mg/Kg		103	78 - 130	1	20
1,2,3-Trichlorobenzene	0.0500	0.05259		mg/Kg		105	80 - 123	0	20
1,2,3-Trichloropropane	0.0500	0.04420		mg/Kg		88	79 - 120	3	20
1,2,4-Trichlorobenzene	0.0500	0.05520		mg/Kg		110	80 - 125	0	20
1,2,4-Trimethylbenzene	0.0500	0.05073		mg/Kg		101	80 - 124	0	20
1,2-Dibromo-3-Chloropropane	0.0500	0.04810		mg/Kg		96	67 - 120	7	20
1,2-Dibromoethane	0.0500	0.04880		mg/Kg		98	80 - 120	2	20
1,2-Dichlorobenzene	0.0500	0.05018		mg/Kg		100	80 - 120	0	20
1,2-Dichloroethane	0.0500	0.05014		mg/Kg		100	77 - 120	1	20
1,2-Dichloropropane	0.0500	0.04856		mg/Kg		97	80 - 126	1	20
1,3,5-Trimethylbenzene	0.0500	0.04968		mg/Kg		99	80 - 121	1	20
1,3-Dichlorobenzene	0.0500	0.05087		mg/Kg		102	80 - 120	1	20
1,3-Dichloropropane	0.0500	0.04881		mg/Kg		98	80 - 120	0	20
1,4-Dichlorobenzene	0.0500	0.04936		mg/Kg		99	80 - 120	1	20
2,2-Dichloropropane	0.0500	0.04178		mg/Kg		84	73 - 135	2	20
2-Butanone (MEK)	0.0500	0.05749		mg/Kg		115	67 - 136	2	20
2-Chlorotoluene	0.0500	0.04868		mg/Kg		97	80 - 120	1	20
2-Hexanone	0.0500	0.05069		mg/Kg		101	70 - 137	8	20
4-Chlorotoluene	0.0500	0.05051		mg/Kg		101	80 - 121	2	20
4-Methyl-2-pentanone (MIBK)	0.0500	0.04618		mg/Kg		92	74 - 124	5	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-397918/6
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acetone			0.0500	0.04814		mg/Kg		96	61 - 142	11	23
Benzene			0.0500	0.04877		mg/Kg		98	80 - 120	2	20
Bromobenzene			0.0500	0.04875		mg/Kg		98	80 - 120	0	20
Bromochloromethane			0.0500	0.05178		mg/Kg		104	80 - 120	1	20
Bromodichloromethane			0.0500	0.05311		mg/Kg		106	80 - 125	1	20
Bromoform			0.0500	0.05146		mg/Kg		103	74 - 138	1	20
Bromomethane			0.0500	0.05053		mg/Kg		101	58 - 136	1	20
cis-1,2-Dichloroethene			0.0500	0.05037		mg/Kg		101	80 - 124	1	20
cis-1,3-Dichloropropene			0.0500	0.05078		mg/Kg		102	80 - 123	1	20
Carbon disulfide			0.0500	0.05033		mg/Kg		101	68 - 128	3	20
Carbon tetrachloride			0.0500	0.05315		mg/Kg		106	75 - 140	1	20
Chlorobenzene			0.0500	0.04843		mg/Kg		97	80 - 120	1	20
Chloroethane			0.0500	0.05894		mg/Kg		118	76 - 137	5	20
Chloroform			0.0500	0.04922		mg/Kg		98	80 - 121	1	20
Chloromethane			0.0500	0.05300		mg/Kg		106	74 - 133	1	20
Dibromochloromethane			0.0500	0.04988		mg/Kg		100	80 - 132	1	20
Dibromomethane			0.0500	0.05217		mg/Kg		104	80 - 120	1	20
Dichlorodifluoromethane			0.0500	0.06119		mg/Kg		122	63 - 146	2	20
Di-isopropyl ether (DIPE)			0.0500	0.04770		mg/Kg		95	73 - 132	1	20
Ethanol			0.500	0.6190		mg/Kg		124	46 - 159	2	30
Ethylbenzene			0.0500	0.04885		mg/Kg		98	80 - 120	1	20
Ethyl-t-butyl ether (ETBE)			0.0500	0.04435		mg/Kg		89	77 - 129	0	20
Isopropylbenzene			0.0500	0.05024		mg/Kg		100	80 - 122	2	20
Methylene Chloride			0.0500	0.04658		mg/Kg		93	74 - 120	1	20
Methyl-t-Butyl Ether (MTBE)			0.0500	0.04632		mg/Kg		93	79 - 123	1	20
Naphthalene			0.0500	0.04936		mg/Kg		99	79 - 121	4	20
n-Butylbenzene			0.0500	0.05386		mg/Kg		108	79 - 131	2	20
N-Propylbenzene			0.0500	0.05061		mg/Kg		101	80 - 122	2	20
o-Xylene			0.0500	0.04855		mg/Kg		97	80 - 120	2	20
m,p-Xylene			0.100	0.09800		mg/Kg		98	80 - 120	1	20
p-Isopropyltoluene			0.0500	0.05196		mg/Kg		104	80 - 126	2	20
sec-Butylbenzene			0.0500	0.05145		mg/Kg		103	80 - 125	2	20
Styrene			0.0500	0.04901		mg/Kg		98	80 - 120	0	20
trans-1,2-Dichloroethene			0.0500	0.05041		mg/Kg		101	75 - 123	3	20
trans-1,3-Dichloropropene			0.0500	0.04223		mg/Kg		84	80 - 124	1	20
Tert-amyl-methyl ether (TAME)			0.0500	0.04270		mg/Kg		85	80 - 120	2	20
tert-Butyl alcohol (TBA)			0.250	0.2133		mg/Kg		85	74 - 123	3	20
tert-Butylbenzene			0.0500	0.05092		mg/Kg		102	80 - 124	3	20
Tetrachloroethene			0.0500	0.05116		mg/Kg		102	80 - 122	1	20
Toluene			0.0500	0.05012		mg/Kg		100	80 - 120	1	20
Trichloroethene			0.0500	0.05124		mg/Kg		102	80 - 127	2	20
Trichlorofluoromethane			0.0500	0.05977		mg/Kg		120	70 - 144	5	20
Vinyl acetate			0.0500	0.04416		mg/Kg		88	71 - 125	1	20
Vinyl chloride			0.0500	0.05956		mg/Kg		119	79 - 133	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*32 - 179*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-397918/6
Matrix: Solid
Analysis Batch: 397918

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*107*		*58 - 147*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 570-398416/3-A
Matrix: Solid
Analysis Batch: 398350

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398416

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	ND		0.097	0.054	mg/Kg		01/04/24 11:51	01/04/24 13:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*42 - 126*	*01/04/24 11:51*	*01/04/24 13:08*	*1*

Lab Sample ID: LCS 570-398416/1-A
Matrix: Solid
Analysis Batch: 398350

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398416

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (C4-C13)			2.00	1.806		mg/Kg		90	70 - 124		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*121*		*42 - 126*

Lab Sample ID: LCSD 570-398416/2-A
Matrix: Solid
Analysis Batch: 398350

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398416

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)			1.98	1.804		mg/Kg		91	70 - 124	0	18

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*42 - 126*

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-398059/1-A
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398059

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		5.0	3.8	mg/Kg		01/03/24 12:46	01/03/24 17:18	1
TPH as Motor Oil (C17-C44)	ND		25	11	mg/Kg		01/03/24 12:46	01/03/24 17:18	1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 570-398059/1-A
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398059

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	96		60 - 138	01/03/24 12:46	01/03/24 17:18	1

Lab Sample ID: LCS 570-398059/2-A
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398059

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	402.0		mg/Kg		100	80 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
n-Octacosane (Surr)	98		60 - 138

Lab Sample ID: LCS 570-398059/6-A
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398059

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
TPH as Motor Oil (C17-C44)			400	348.9		mg/Kg		87	77 - 125		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
n-Octacosane (Surr)	94		60 - 138

Lab Sample ID: LCSD 570-398059/3-A
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398059

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	396.8		mg/Kg		99	80 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Octacosane (Surr)	96		60 - 138

Lab Sample ID: LCSD 570-398059/7-A
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398059

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)			400	351.2		mg/Kg		88	77 - 125	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Octacosane (Surr)	96		60 - 138

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 570-166635-1 MS
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: SP1-1
Prep Type: Total/NA
Prep Batch: 398059

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	350		517	728.2		mg/Kg	☼	74	43 - 165

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*98*		*60 - 138*

Lab Sample ID: 570-166635-1 MS
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: SP1-1
Prep Type: Total/NA
Prep Batch: 398059

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
TPH as Motor Oil (C17-C44)	350		512	795.0		mg/Kg	☼	87	44 - 161

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*101*		*60 - 138*

Lab Sample ID: 570-166635-1 MSD
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: SP1-1
Prep Type: Total/NA
Prep Batch: 398059

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	350		494	864.7		mg/Kg	☼	105	43 - 165	17	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*102*		*60 - 138*

Lab Sample ID: 570-166635-1 MSD
Matrix: Solid
Analysis Batch: 398013

Client Sample ID: SP1-1
Prep Type: Total/NA
Prep Batch: 398059

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
TPH as Motor Oil (C17-C44)	350		486	872.8		mg/Kg	☼	108	44 - 161	9	37

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*99*		*60 - 138*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-398269/1-A ^5
Matrix: Solid
Analysis Batch: 398612

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398269

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		1.50	0.144	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Arsenic	ND		3.00	1.39	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Barium	ND		3.00	0.142	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Beryllium	ND		0.500	0.0690	mg/Kg		01/04/24 06:50	01/04/24 17:42	5

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 570-398269/1-A ^5
Matrix: Solid
Analysis Batch: 398612

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398269

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.500	0.164	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Cobalt	ND		1.00	0.206	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Chromium	ND		1.00	0.186	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Copper	ND		2.00	0.958	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Molybdenum	ND		2.00	0.515	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Nickel	ND		2.00	0.362	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Antimony	ND		10.0	2.86	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Selenium	ND		3.00	1.22	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Thallium	ND		10.0	2.11	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Vanadium	ND		1.00	0.168	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Zinc	ND		5.00	1.16	mg/Kg		01/04/24 06:50	01/04/24 17:42	5
Lead	ND		2.00	0.409	mg/Kg		01/04/24 06:50	01/04/24 17:42	5

Lab Sample ID: LCS 570-398269/2-A ^5
Matrix: Solid
Analysis Batch: 398612

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398269

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	24.9	22.61		mg/Kg		91	80 - 120
Arsenic	49.8	45.42		mg/Kg		91	80 - 120
Barium	49.8	46.04		mg/Kg		93	80 - 120
Beryllium	49.8	46.53		mg/Kg		94	80 - 120
Cadmium	49.8	47.13		mg/Kg		95	80 - 120
Cobalt	49.8	46.92		mg/Kg		94	80 - 120
Chromium	49.8	47.03		mg/Kg		95	80 - 120
Copper	49.8	46.12		mg/Kg		93	80 - 120
Molybdenum	49.8	46.21		mg/Kg		93	80 - 120
Nickel	49.8	47.51		mg/Kg		95	80 - 120
Antimony	49.8	48.02		mg/Kg		97	80 - 120
Selenium	49.8	43.72		mg/Kg		88	80 - 120
Thallium	49.8	46.57		mg/Kg		94	80 - 120
Vanadium	49.8	46.14		mg/Kg		93	80 - 120
Zinc	49.8	46.90		mg/Kg		94	80 - 120
Lead	49.8	47.16		mg/Kg		95	80 - 120

Lab Sample ID: LCSD 570-398269/3-A ^5
Matrix: Solid
Analysis Batch: 398612

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398269

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	24.8	22.91		mg/Kg		93	80 - 120	1	20
Arsenic	49.5	47.25		mg/Kg		95	80 - 120	4	20
Barium	49.5	46.65		mg/Kg		94	80 - 120	1	20
Beryllium	49.5	47.15		mg/Kg		95	80 - 120	1	20
Cadmium	49.5	47.65		mg/Kg		96	80 - 120	1	20
Cobalt	49.5	47.20		mg/Kg		95	80 - 120	1	20
Chromium	49.5	47.50		mg/Kg		96	80 - 120	1	20
Copper	49.5	46.77		mg/Kg		94	80 - 120	1	20
Molybdenum	49.5	46.92		mg/Kg		95	80 - 120	2	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 570-398269/3-A ^5
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 398612
Prep Batch: 398269

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nickel			49.5	48.03		mg/Kg		97	80 - 120	1	20
Antimony			49.5	48.32		mg/Kg		98	80 - 120	1	20
Selenium			49.5	45.20		mg/Kg		91	80 - 120	3	20
Thallium			49.5	46.81		mg/Kg		95	80 - 120	1	20
Vanadium			49.5	46.71		mg/Kg		94	80 - 120	1	20
Zinc			49.5	47.70		mg/Kg		96	80 - 120	2	20
Lead			49.5	47.75		mg/Kg		96	80 - 120	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-398144/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 398887
Prep Batch: 398144

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801	0.0308	mg/Kg		01/03/24 16:14	01/05/24 16:55	1

Lab Sample ID: LCS 570-398144/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 398887
Prep Batch: 398144

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury			0.392	0.3820		mg/Kg		97	80 - 120

Lab Sample ID: LCSD 570-398144/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 398887
Prep Batch: 398144

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.408	0.3802		mg/Kg		93	80 - 120	0	10

Method: Moisture - 2540 - Percent Moisture

Lab Sample ID: 570-166635-1 DU
Client Sample ID: SP1-1
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 398431

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	19.7			17.9		%				9	10

QC Association Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

GC/MS VOA

Analysis Batch: 397918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	8260B	398055
MB 570-397918/10	Method Blank	Total/NA	Solid	8260B	
LCS 570-397918/5	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 570-397918/6	Lab Control Sample Dup	Total/NA	Solid	8260B	

Prep Batch: 398055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	5035	

GC VOA

Analysis Batch: 398350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	8015B	398416
MB 570-398416/3-A	Method Blank	Total/NA	Solid	8015B	398416
LCS 570-398416/1-A	Lab Control Sample	Total/NA	Solid	8015B	398416
LCSD 570-398416/2-A	Lab Control Sample Dup	Total/NA	Solid	8015B	398416

Prep Batch: 398416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	5030C	
MB 570-398416/3-A	Method Blank	Total/NA	Solid	5030C	
LCS 570-398416/1-A	Lab Control Sample	Total/NA	Solid	5030C	
LCSD 570-398416/2-A	Lab Control Sample Dup	Total/NA	Solid	5030C	

GC Semi VOA

Analysis Batch: 398013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	8015B	398059
MB 570-398059/1-A	Method Blank	Total/NA	Solid	8015B	398059
LCS 570-398059/2-A	Lab Control Sample	Total/NA	Solid	8015B	398059
LCS 570-398059/6-A	Lab Control Sample	Total/NA	Solid	8015B	398059
LCSD 570-398059/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	398059
LCSD 570-398059/7-A	Lab Control Sample Dup	Total/NA	Solid	8015B	398059
570-166635-1 MS	SP1-1	Total/NA	Solid	8015B	398059
570-166635-1 MS	SP1-1	Total/NA	Solid	8015B	398059
570-166635-1 MSD	SP1-1	Total/NA	Solid	8015B	398059
570-166635-1 MSD	SP1-1	Total/NA	Solid	8015B	398059

Prep Batch: 398059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	3550C	
MB 570-398059/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-398059/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCS 570-398059/6-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-398059/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
LCSD 570-398059/7-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-166635-1 MS	SP1-1	Total/NA	Solid	3550C	
570-166635-1 MS	SP1-1	Total/NA	Solid	3550C	
570-166635-1 MSD	SP1-1	Total/NA	Solid	3550C	
570-166635-1 MSD	SP1-1	Total/NA	Solid	3550C	

QC Association Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Metals

Prep Batch: 398144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	7471A	
MB 570-398144/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-398144/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-398144/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	

Prep Batch: 398269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	3050B	
MB 570-398269/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 570-398269/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-398269/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	

Analysis Batch: 398612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	6010B	398269
MB 570-398269/1-A ^5	Method Blank	Total/NA	Solid	6010B	398269
LCS 570-398269/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	398269
LCSD 570-398269/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	398269

Analysis Batch: 398887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	7471A	398144
MB 570-398144/1-A	Method Blank	Total/NA	Solid	7471A	398144
LCS 570-398144/2-A	Lab Control Sample	Total/NA	Solid	7471A	398144
LCSD 570-398144/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	398144

General Chemistry

Analysis Batch: 398431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-166635-1	SP1-1	Total/NA	Solid	Moisture - 2540	
570-166635-1 DU	SP1-1	Total/NA	Solid	Moisture - 2540	

Lab Chronicle

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166635-1

Client Sample ID: SP1-1

Date Collected: 01/03/24 09:40
Date Received: 01/03/24 11:00

Lab Sample ID: 570-166635-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7.479 g	5 mL	398055	01/03/24 12:24	X7LQ	EET CAL 4
Total/NA	Analysis	8260B		1	5 g	5 mL	397918	01/03/24 15:06	AH8S	EET CAL 4
	Instrument ID: GCMSGGG									
Total/NA	Prep	5030C			5.04 g	5 mL	398416	01/04/24 11:51	A9VE	EET CAL 4
Total/NA	Analysis	8015B		1	5 g	5 mL	398350	01/04/24 18:54	A9VE	EET CAL 4
	Instrument ID: GC75									
Total/NA	Prep	3550C			10.45 g	10 mL	398059	01/03/24 12:49	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	398013	01/03/24 20:37	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.03 g	50 mL	398269	01/04/24 06:50	RL6Q	EET CAL 4
Total/NA	Analysis	6010B		5			398612	01/04/24 18:02	P1R	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.51 g	50 mL	398144	01/03/24 16:14	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			398887	01/05/24 17:48	ECX6	EET CAL 4
	Instrument ID: HG7									
Total/NA	Analysis	Moisture - 2540		1			398431	01/04/24 12:47	B4QL	EET CAL 4
	Instrument ID: BAL62									

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4175	02-02-24

Method Summary

Client: Langan Engineering & Environmental Srvcs
Job ID: 570-166635-1
Project/Site: 721040501

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	EET CAL 4
8015B	Gasoline Range Organics - (GC)	SW846	EET CAL 4
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7471A	Mercury (CVAA)	SW846	EET CAL 4
Moisture - 2540	Percent Moisture	SM	EET CAL 4
3050B	Preparation, Metals	SW846	EET CAL 4
3550C	Ultrasonic Extraction	SW846	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4
5035	Closed System Purge and Trap	SW846	EET CAL 4
7471A	Preparation, Mercury	SW846	EET CAL 4

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: Langan Engineering & Environmental Srvcs
Project/Site: 721040501

Job ID: 570-166635-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-166635-1	SP1-1	Solid	01/03/24 09:40	01/03/24 11:00

Erick Ovalle

From: Megan Ritsema <mritsema@langan.com>
Sent: Wednesday, January 3, 2024 4:33 PM
To: Erick Ovalle
Cc: Rachel Owen
Subject: RE: [External] 570-166635-1 625 E Anaheim St, Wilmington / 721040201 report files from Eurofins Southwest

You don't often get email from mritsema@langan.com. Learn why this is important

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Erick,

Please revise ORO to be GRO. This will be fixed going forward.

Thank you,

Megan Ritsema
Senior Staff Engineer

LANGAN

Direct: 949.561.9244
Mobile: 714.699.0899
File Sharing Link
www.langan.com
CALIFORNIA NEW JERSEY NEW YORK CONNECTICUT MASSACHUSETTS PENNSYLVANIA VIRGINIA WASHINGTON, DC
OHIO ILLINOIS NORTH CAROLINA TENNESSEE FLORIDA TEXAS ARIZONA COLORADO UTAH WASHINGTON
ATHENS CALGARY DUBAI LONDON PANAMA



From: Erick Ovalle <Erick.Ovalle@et.eurofinsus.com>
Sent: Wednesday, January 3, 2024 4:30 PM
To: Data Management <datamanagement@Langan.com>; Megan Ritsema <mritsema@langan.com>; Nick Cutler <ncutler@langan.com>
Subject: [External] 570-166635-1 625 E Anaheim St, Wilmington / 721040201 report files from Eurofins Southwest

Hi Megan,

We received the attached COC this morning and noticed that ORO was requested but not GRO. Could you please confirm if the COC is correct?

Erick Ovalle
Project Manager

Eurofins Calscience
Phone: 657-210-6331
Mobile: 657-250-2681

E-mail: Erick.Ovalle@et.eurofinsus.com
www.eurofinsus.com/env



Reference: [570-571721]
Attachments: 1

> > Bank information has changed, please refer to remittance information on invoice. < <

This message may contain confidential, proprietary, or privileged information. Confidentiality or privilege is not intended to be waived or lost by erroneous transmission of this message. If you receive this message in error, please notify the sender immediately by return email and delete this message from your system. Disclosure, use, distribution, or copying of a message or any of its attachments by anyone other than the intended recipient is strictly prohibited.

166635

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2841 Dow Avenue, Suite 100, Tustin, CA 92780 • (714) 895-5494

For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-166635 Chain of Custody

CHAIN-OF-CUSTODY RECORD

DATE: 11/03/23

PAGE: 1 OF 1

ZX59

LABORATORY CLIENT: Langan Engineering	CLIENT PROJECT NAME / NO.: 721040501
ADDRESS: 18575 Jamboree Rd. Suite 150	P.O. NO.:
CITY: Irvine STATE: CA ZIP: 92612	PROJECT CONTACT: Megan Ritsema
TEL: (714)6990899 E-MAIL: mritsema@langan.com	LAB CONTACT OR QUOTE NO.:
	GLOBAL ID: LOG CODE: SAMPLER(S): (PRINT) Rachel Owen

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☒ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ STANDARD

EDD:

☐ COELT EDF ☐ OTHER

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

Lab No.	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	☐ TPH(g) ☐ GRO	☐ TPH(d) ☐ DRO	TPH ☐ C6-C36 ☐ C6-C44	TPH do, ro, mo 8015	BTEX / MTBE ☐ 8260 ☐ ____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ☒ 6010/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 7199 ☐ 218.6				
	SP1-1	01/03/24	0940	S	4		X					X		X							X				

Relinquished by: (Signature) Rachel Owen	Date: 01/03/24	Time: 1100	Received by: (Signature/Affiliation)	Date: 1/3/24	Time: 11:00
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date: 1/3/24	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature/Affiliation)	Date:	Time:

Attachment "Chain_of_Custody_General_Color_221004rev.xls" to "US Eurofins Calscience - CoC Templates"
Printed by Jenny Magana, d. Tue 04 Oct 2022 16:31 PDT

3-9/3-9 S42

Login Sample Receipt Checklist

Client: Langan Engineering & Environmental Srvcs

Job Number: 570-166635-1

Login Number: 166635
List Number: 1
Creator: Hernandez, Richie

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

January 12, 2024

Megan Ritsema
Langan Engineering & Environmental Services
18575 Jamboree Road, suite 150
Irvine, CA 92612
Tel: (949) 561-9200
Fax:(949) 255-8641

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 2400036
Client Reference : GIC Vernon / 721040501

Enclosed are the results for sample(s) received on January 09, 2024 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or Project.Management@atlglobal.com.

Sincerely,



Lena Davidkov, Client Services
lena.davidkov@atlglobal.com
Authorized to Release on 01/12/24 15:28 on Behalf of



Amy Leung
Laboratory Director

The test results in this report relate exclusively to the samples as received by the laboratory, and meet the requirements of the methodology under which they were reported; any exceptions are noted within the report and/ or case narrative.

The cover letter/ signature page and the case narrative are integral parts of this analytical report; the absence of any portion of the report renders the report invalid. This report shall not be reproduced except in full, and shall have the express written approval of the laboratory, and the original client firm to do so

.

The electronic signature on this report is signed by an authorized signatory of Advanced Technology Laboratories, and is intended to be legally binding as the equivalent of a handwritten signature.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	01/12/2024

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ES-1	2400036-01	Soil	1/09/24 11:00	1/09/24 14:57

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/12/2024

Notes and Definitions

S10	Surrogate recovery was outside of laboratory acceptance limit due to possible matrix interference.
M6	Matrix spike analyte was diluted out.
M2	Matrix spike recovery outside of acceptance limit due to possible matrix interference. The analytical batch was validated by the laboratory control sample.
E	Result value is above quantitation range and therefore, estimated.
D10	Sample required dilution due to dark extract
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	01/12/2024

Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury **Analyst: AA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2400036-01	ES-1	**0.17**	mg/kg	0.10	1	B4A0599	01/09/2024	01/10/24 11:29	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/12/2024

Client Sample ID: ES-1
Lab ID: 2400036-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: ICP

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	**4.1**	2.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Arsenic	**2.2**	2.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Barium	**68**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Beryllium	ND	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Cadmium	**2.5**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Chromium	**53**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Cobalt	**8.8**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Copper	**82**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Lead	**200**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Molybdenum	**9.3**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Nickel	**34**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Selenium	ND	2.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Silver	ND	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Thallium	ND	2.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Vanadium	**21**	1.0	1	B4A0598	01/09/2024	01/10/24 12:51	
Zinc	**220**	2.0	1	B4A0598	01/09/2024	01/10/24 12:51	

Diesel and Oil Range Organics by EPA 8015B

Analyst: EB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	ND	200	20	B4A0600	01/09/2024	01/09/24 19:29	D10
ORO	ND	200	20	B4A0600	01/09/2024	01/09/24 19:29	D10
Surrogate: p-Terphenyl	*57.2 %*	*-6.76 - 189*		B4A0600	01/09/2024	*01/09/24 19:29*	

Polychlorinated Biphenyls by EPA 8082

Analyst: EB

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Aroclor 1016	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1221	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1232	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1242	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1248	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1254	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1260	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1262	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	
Aroclor 1268	ND	16	1	B4A0603	01/09/2024	01/12/24 12:55	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/12/2024

Client Sample ID: ES-1
Lab ID: 2400036-01

Polychlorinated Biphenyls by EPA 8082 **Analyst: EB**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Decachlorobiphenyl	*38.1 %*	*-9.13 - 155*		B4A0603	01/09/2024	*01/12/24 12:55*	
Surrogate: Tetrachloro-m-xylene	*41100 %*	*8.19 - 138*		B4A0603	01/09/2024	*01/12/24 12:55*	S10

Volatile Organic Compounds by EPA 5035 / EPA 8260B **Analyst: EB**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,1,1-Trichloroethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,1,2,2-Tetrachloroethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,1,2-Trichloroethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,1-Dichloroethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,1-Dichloroethene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,1-Dichloropropene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2,3-Trichloropropane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2,3-Trichlorobenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2,4-Trichlorobenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2,4-Trimethylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2-Dibromo-3-chloropropane	ND	6.2	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2-Dibromoethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2-Dichlorobenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2-Dichloroethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,2-Dichloropropane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,3,5-Trimethylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,3-Dichlorobenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,3-Dichloropropane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
1,4-Dichlorobenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
2,2-Dichloropropane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
2-Chlorotoluene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
4-Chlorotoluene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
4-Isopropyltoluene	**5.2**	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Benzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Bromobenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Bromochloromethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Bromodichloromethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Bromoform	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Bromomethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Carbon disulfide	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Carbon tetrachloride	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/12/2024

Client Sample ID: ES-1
Lab ID: 2400036-01

Volatile Organic Compounds by EPA 5035 / EPA 8260B **Analyst: EB**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chlorobenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Chloroethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Chloroform	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Chloromethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
cis-1,2-Dichloroethene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
cis-1,3-Dichloropropene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Di-isopropyl ether	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Dibromochloromethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Dibromomethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Dichlorodifluoromethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Ethyl Acetate	ND	31	1	B4A0602	01/09/2024	01/09/24 18:10	
Ethyl Ether	ND	31	1	B4A0602	01/09/2024	01/09/24 18:10	
Ethyl tert-butyl ether	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Ethylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Freon-113	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Hexachlorobutadiene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Isopropylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
m,p-Xylene	ND	6.2	1	B4A0602	01/09/2024	01/09/24 18:10	
Methylene chloride	ND	6.2	1	B4A0602	01/09/2024	01/09/24 18:10	
MTBE	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
n-Butylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
n-Propylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Naphthalene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
o-Xylene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
sec-Butylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Styrene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
tert-Amyl methyl ether	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
tert-Butanol	ND	62	1	B4A0602	01/09/2024	01/09/24 18:10	
tert-Butylbenzene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Tetrachloroethene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Toluene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
trans-1,2-Dichloroethene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
trans-1,3-Dichloropropene	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Trichloroethene	**3.2**	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Trichlorofluoromethane	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Vinyl acetate	ND	31	1	B4A0602	01/09/2024	01/09/24 18:10	
Vinyl chloride	ND	3.1	1	B4A0602	01/09/2024	01/09/24 18:10	
Surrogate: 1,2-Dichloroethane-d4	*121 %*	*50.7 - 181*		B4A0602	01/09/2024	*01/09/24 18:10*	
Surrogate: 4-Bromofluorobenzene	*92.1 %*	*69.2 - 119*		B4A0602	01/09/2024	*01/09/24 18:10*	
Surrogate: Dibromofluoromethane	*124 %*	*76.2 - 140*		B4A0602	01/09/2024	*01/09/24 18:10*	

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
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Irvine , CA 92612	Reported : 01/12/2024

Client Sample ID: ES-1

Lab ID: 2400036-01

Volatile Organic Compounds by EPA 5035 / EPA 8260B **Analyst: EB**

Analyte		Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Surrogate: Toluene-d8	*90.1 %*		*85.6 - 120*		B4A0602	01/09/2024	*01/09/24 18:10*	

Gasoline Range Organics by EPA 5030 / EPA 8015B (Modified) **Analyst: EB**

Analyte		Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics		**2.9**	1.0	1	B4A0616	01/10/2024	01/10/24 14:45	
Surrogate: 4-Bromofluorobenzene	*87.4 %*		*31 - 137*		B4A0616	01/10/2024	*01/10/24 14:45*	

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
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QUALITY CONTROL SECTION

Gasoline Range Organics by EPA 5030 / EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0616 - GCVOA_S										
Blank (B4A0616-BLK1)						Prepared: 1/10/2024 Analyzed: 1/10/2024				
Gasoline Range Organics	ND	1.0	0.02							
Surrogate: 4-Bromofluorobenzene	*0.8888*			*0.800000*		*111*	*31 - 137*			
LCS (B4A0616-BS1)						Prepared: 1/10/2024 Analyzed: 1/10/2024				
Gasoline Range Organics	5.20800	1.0	0.02	5.00000		104	79.8 - 112			
Surrogate: 4-Bromofluorobenzene	*0.9752*			*0.800000*		*122*	*31 - 137*			
LCS Dup (B4A0616-BSD1)						Prepared: 1/10/2024 Analyzed: 1/10/2024				
Gasoline Range Organics	5.02900	1.0	0.02	5.00000		101	79.8 - 112	3.50	20	
Surrogate: 4-Bromofluorobenzene	*0.9578*			*0.800000*		*120*	*31 - 137*			
Matrix Spike (B4A0616-MS1)			**Source: 2400035-05**			Prepared: 1/10/2024 Analyzed: 1/10/2024				
Gasoline Range Organics	4.86800	1.0	0.02	5.00000	0.241000	92.5	3.3 - 122			
Surrogate: 4-Bromofluorobenzene	*0.9944*			*0.800000*		*124*	*31 - 137*			
Matrix Spike Dup (B4A0616-MSD1)			**Source: 2400035-05**			Prepared: 1/10/2024 Analyzed: 1/10/2024				
Gasoline Range Organics	4.42700	1.0	0.02	5.00000	0.241000	83.7	3.3 - 122	9.49	20	
Surrogate: 4-Bromofluorobenzene	*0.9926*			*0.800000*		*124*	*31 - 137*			

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
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Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0598 - EPA 3050B_S										
Blank (B4A0598-BLK1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	ND	2.0	0.77							
Arsenic	ND	2.0	0.71							
Barium	ND	1.0	0.06							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.06							
Chromium	ND	1.0	0.10							
Cobalt	ND	1.0	0.08							
Copper	ND	1.0	0.22							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.10							
Nickel	ND	1.0	0.04							
Selenium	ND	2.0	0.82							
Silver	ND	1.0	0.27							
Thallium	ND	2.0	0.35							
Vanadium	ND	1.0	0.20							
Zinc	ND	2.0	0.30							
LCS (B4A0598-BS1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	27.8413	2.0	0.77	25.0000		111	83.4 - 116			
Arsenic	23.4272	2.0	0.71	25.0000		93.7	71.9 - 127			
Barium	25.2646	1.0	0.06	25.0000		101	67.3 - 127			
Beryllium	23.4252	1.0	0.03	25.0000		93.7	83.9 - 117			
Cadmium	24.0630	1.0	0.06	25.0000		96.3	84.7 - 115			
Chromium	24.8346	1.0	0.10	25.0000		99.3	85.8 - 112			
Cobalt	24.9956	1.0	0.08	25.0000		100	81.1 - 120			
Copper	25.3242	1.0	0.22	25.0000		101	85.3 - 119			
Lead	27.5308	1.0	0.18	25.0000		110	82.8 - 120			
Molybdenum	26.7512	1.0	0.10	25.0000		107	89.9 - 123			
Nickel	24.7989	1.0	0.04	25.0000		99.2	85.1 - 117			
Selenium	21.4289	2.0	0.82	25.0000		85.7	83.3 - 119			
Silver	12.5197	1.0	0.27	12.5000		100	65 - 130			
Thallium	25.7895	2.0	0.35	25.0000		103	87.3 - 118			
Vanadium	23.9162	1.0	0.20	25.0000		95.7	81.3 - 110			
Zinc	23.8446	2.0	0.30	25.0000		95.4	84.3 - 123			
Matrix Spike (B4A0598-MS1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	855.359	2.0	0.77	25.0000	657.534	791	-5.11 - 158			M2
Arsenic	46.7897	2.0	0.71	25.0000	22.6741	96.5	16.6 - 159			
Barium	1146.05	1.0	0.06	25.0000	915.771	921	-15.4 - 203			M2
Beryllium	22.1416	1.0	0.03	25.0000	ND	88.6	17.7 - 163			
Cadmium	37.6864	1.0	0.06	25.0000	17.5454	80.6	22.1 - 162			
Chromium	855.336	1.0	0.10	25.0000	105.934	3000	4.21 - 195			M2
Cobalt	40.9408	1.0	0.08	25.0000	17.5513	93.6	7.96 - 169			
Copper	11329.6	1.0	0.22	25.0000	7487.96	15400	10.1 - 194			M2, E
Lead	34178.4	1.0	0.18	25.0000	35956.4	-7110	-9.73 - 182			M2, E

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Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0598 - EPA 3050B_S (continued)										
Matrix Spike (B4A0598-MS1) - Continued			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Molybdenum	36.4611	1.0	0.10	25.0000	17.3378	76.5	7.42 - 164			
Nickel	172.322	1.0	0.04	25.0000	188.614	-65.2	16.2 - 177			M2
Selenium	ND	2.0	0.82	25.0000	ND	NR	17.3 - 155			M2
Silver	25.4751	1.0	0.27	12.5000	13.7150	94.1	4.72 - 158			
Thallium	15.4801	2.0	0.35	25.0000	ND	61.9	-11.6 - 133			
Vanadium	44.3684	1.0	0.20	25.0000	23.0737	85.2	-0.621 - 177			
Zinc	5293.08	2.0	0.30	25.0000	5533.92	-963	-17.4 - 208			M2, E
Matrix Spike Dup (B4A0598-MSD1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Antimony	841.529	2.0	0.77	25.0000	657.534	736	-5.11 - 158	1.63	20	M2
Arsenic	45.9929	2.0	0.71	25.0000	22.6741	93.3	16.6 - 159	1.72	20	
Barium	1155.11	1.0	0.06	25.0000	915.771	957	-15.4 - 203	0.788	20	M2
Beryllium	22.2985	1.0	0.03	25.0000	ND	89.2	17.7 - 163	0.706	20	
Cadmium	37.4913	1.0	0.06	25.0000	17.5454	79.8	22.1 - 162	0.519	20	
Chromium	855.504	1.0	0.10	25.0000	105.934	3000	4.21 - 195	0.0196	20	M2
Cobalt	40.9401	1.0	0.08	25.0000	17.5513	93.6	7.96 - 169	0.00173	20	
Copper	11360.4	1.0	0.22	25.0000	7487.96	15500	10.1 - 194	0.272	20	M2, E
Lead	38107.8	1.0	0.18	25.0000	35956.4	8610	-9.73 - 182	10.9	20	M2, E
Molybdenum	36.0083	1.0	0.10	25.0000	17.3378	74.7	7.42 - 164	1.25	20	
Nickel	171.604	1.0	0.04	25.0000	188.614	-68.0	16.2 - 177	0.418	20	M2
Selenium	ND	2.0	0.82	25.0000	ND	NR	17.3 - 155	NR	20	M2
Silver	25.3964	1.0	0.27	12.5000	13.7150	93.5	4.72 - 158	0.310	20	
Thallium	15.0476	2.0	0.35	25.0000	ND	60.2	-11.6 - 133	2.83	20	
Vanadium	44.4738	1.0	0.20	25.0000	23.0737	85.6	-0.621 - 177	0.237	20	
Zinc	5287.48	2.0	0.30	25.0000	5533.92	-986	-17.4 - 208	0.106	20	M2, E

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0599 - EPA 7471_S										
Blank (B4A0599-BLK1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	ND	0.10	0.01							
LCS (B4A0599-BS1)						Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.404150	0.10	0.01	0.416667		97.0	75.1 - 123			
Matrix Spike (B4A0599-MS1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.576141	0.10	0.01	0.416667	0.425465	36.2	15.2 - 179			
Matrix Spike Dup (B4A0599-MSD1)			**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.636684	0.10	0.01	0.416667	0.425465	50.7	15.2 - 179	9.98	20	

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Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0599 - EPA 7471_S									
Post Spike (B4A0599-PS1)		**Source: 2400037-01**			Prepared: 1/9/2024 Analyzed: 1/10/2024				
Mercury	0.009132		5.00000E-3	0.005106	80.5	85 - 115			M2

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Diesel and Oil Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0600 - GCSEMI_DRO_S										
Blank (B4A0600-BLK1)						Prepared: 1/9/2024 Analyzed: 1/9/2024				
DRO	ND	5.0	0.02							
ORO	ND	5.0	0.02							
Surrogate: p-Terphenyl	*76.41*			*80.0000*		*95.5*	*-6.76 - 189*			
LCS (B4A0600-BS1)						Prepared: 1/9/2024 Analyzed: 1/9/2024				
DRO	1023.33	5.0	0.02	1000.00		102	77.1 - 122			
Surrogate: p-Terphenyl	*93.30*			*80.0000*		*117*	*-6.76 - 189*			
Matrix Spike (B4A0600-MS1)			**Source: 2400036-01**			Prepared: 1/9/2024 Analyzed: 1/9/2024				
DRO	ND	200	0.87	2000.00	ND	NR	37 - 159			M6
Surrogate: p-Terphenyl	*98.36*			*160.000*		*61.5*	*-6.76 - 189*			
Matrix Spike Dup (B4A0600-MSD1)			**Source: 2400036-01**			Prepared: 1/9/2024 Analyzed: 1/9/2024				
DRO	ND	200	0.87	2000.00	ND	NR	37 - 159	NR	20	M6
Surrogate: p-Terphenyl	*87.12*			*160.000*		*54.4*	*-6.76 - 189*			

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Irvine , CA 92612	Reported : 01/12/2024

Polychlorinated Biphenyls by EPA 8082 - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0603 - GCSEMI_PCB/PEST_S										
Blank (B4A0603-BLK1)						Prepared: 1/9/2024 Analyzed: 1/12/2024				
Aroclor 1016	ND	16	6.1							
Aroclor 1221	ND	16	6.1							
Aroclor 1232	ND	16	6.1							
Aroclor 1242	ND	16	6.1							
Aroclor 1248	ND	16	6.1							
Aroclor 1254	ND	16	6.1							
Aroclor 1260	ND	16	6.1							
Aroclor 1262	ND	16	6.1							
Aroclor 1268	ND	16	6.1							
Surrogate: Decachlorobiphenyl	*16.04*			*16.6667*		*96.2*	*-9.13 - 155*			
Surrogate: Tetrachloro-m-xylene	*15.50*			*16.6667*		*93.0*	*8.19 - 138*			
LCS (B4A0603-BS1)						Prepared: 1/9/2024 Analyzed: 1/12/2024				
Aroclor 1016	127.527	16	6.1	166.667		76.5	31.7 - 127			
Aroclor 1260	128.076	16	6.1	166.667		76.8	30 - 128			
Surrogate: Decachlorobiphenyl	*14.87*			*16.6667*		*89.2*	*-9.13 - 155*			
Surrogate: Tetrachloro-m-xylene	*14.18*			*16.6667*		*85.1*	*8.19 - 138*			
Matrix Spike (B4A0603-MS1)			**Source: 2400036-01**			Prepared: 1/9/2024 Analyzed: 1/12/2024				
Aroclor 1016	ND	16	6.1	166.667	ND	NR	16.8 - 143			M2
Aroclor 1260	ND	16	6.1	166.667	ND	NR	12.7 - 132			M2
Surrogate: Decachlorobiphenyl	*14.65*			*16.6667*		*87.9*	*-9.13 - 155*			
Surrogate: Tetrachloro-m-xylene	*10050*			*16.6667*		*60300*	*8.19 - 138*			S10
Matrix Spike Dup (B4A0603-MSD1)			**Source: 2400036-01**			Prepared: 1/9/2024 Analyzed: 1/12/2024				
Aroclor 1016	ND	16	6.1	166.667	ND	NR	16.8 - 143	NR	20	M2
Aroclor 1260	ND	16	6.1	166.667	ND	NR	12.7 - 132	NR	20	M2
Surrogate: Decachlorobiphenyl	*0.000*			*16.6667*		*NR*	*-9.13 - 155*			
Surrogate: Tetrachloro-m-xylene	*5343*			*16.6667*		*32100*	*8.19 - 138*			S10

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/12/2024

Volatile Organic Compounds by EPA 5035 / EPA 8260B - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0602 - MSVOA_S										
Blank (B4A0602-BLK1)							Prepared: 1/9/2024 Analyzed: 1/9/2024			
1,1,1,2-Tetrachloroethane	ND	5.0	2.0							
1,1,1-Trichloroethane	ND	5.0	2.5							
1,1,2,2-Tetrachloroethane	ND	5.0	1.6							
1,1,2-Trichloroethane	ND	5.0	2.3							
1,1-Dichloroethane	ND	5.0	1.9							
1,1-Dichloroethene	ND	5.0	2.4							
1,1-Dichloropropene	ND	5.0	3.9							
1,2,3-Trichloropropane	ND	5.0	1.7							
1,2,3-Trichlorobenzene	ND	5.0	1.9							
1,2,4-Trichlorobenzene	ND	5.0	1.7							
1,2,4-Trimethylbenzene	ND	5.0	2.4							
1,2-Dibromo-3-chloropropane	ND	10	3.4							
1,2-Dibromoethane	ND	5.0	1.9							
1,2-Dichlorobenzene	ND	5.0	1.8							
1,2-Dichloroethane	ND	5.0	1.8							
1,2-Dichloropropane	ND	5.0	3.4							
1,3,5-Trimethylbenzene	ND	5.0	2.0							
1,3-Dichlorobenzene	ND	5.0	1.9							
1,3-Dichloropropane	ND	5.0	1.7							
1,4-Dichlorobenzene	ND	5.0	1.6							
2,2-Dichloropropane	ND	5.0	4.0							
2-Chlorotoluene	ND	5.0	2.3							
4-Chlorotoluene	ND	5.0	1.6							
4-Isopropyltoluene	ND	5.0	2.3							
Benzene	ND	5.0	2.0							
Bromobenzene	ND	5.0	1.5							
Bromochloromethane	ND	5.0	1.6							
Bromodichloromethane	ND	5.0	3.2							
Bromoform	ND	5.0	1.5							
Bromomethane	ND	5.0	2.8							
Carbon disulfide	ND	5.0	2.8							
Carbon tetrachloride	ND	5.0	2.2							
Chlorobenzene	ND	5.0	1.3							
Chloroethane	ND	5.0	3.4							
Chloroform	ND	5.0	2.0							
Chloromethane	ND	5.0	2.5							
cis-1,2-Dichloroethene	ND	5.0	3.5							
cis-1,3-Dichloropropene	ND	5.0	3.5							
Di-isopropyl ether	ND	5.0	2.0							
Dibromochloromethane	ND	5.0	1.6							
Dibromomethane	ND	5.0	4.6							
Dichlorodifluoromethane	ND	5.0	3.1							
Ethyl Acetate	ND	50	19							
Ethyl Ether	ND	50	13							
Ethyl tert-butyl ether	ND	5.0	1.8							

Certificate of Analysis

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Volatile Organic Compounds by EPA 5035 / EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0602 - MSVOA_S (continued)										
Blank (B4A0602-BLK1) - Continued						Prepared: 1/9/2024 Analyzed: 1/9/2024				
Ethylbenzene	ND	5.0	2.0							
Freon-113	ND	5.0	3.9							
Hexachlorobutadiene	ND	5.0	1.8							
Isopropylbenzene	ND	5.0	2.4							
m,p-Xylene	ND	10	3.1							
Methylene chloride	ND	10	2.1							
MTBE	ND	5.0	1.9							
n-Butylbenzene	ND	5.0	2.2							
n-Propylbenzene	ND	5.0	2.0							
Naphthalene	ND	5.0	1.4							
o-Xylene	ND	5.0	1.8							
sec-Butylbenzene	ND	5.0	2.3							
Styrene	ND	5.0	1.5							
tert-Amyl methyl ether	ND	5.0	3.5							
tert-Butanol	ND	100	13							
tert-Butylbenzene	ND	5.0	2.1							
Tetrachloroethene	ND	5.0	3.4							
Toluene	ND	5.0	1.7							
trans-1,2-Dichloroethene	ND	5.0	2.0							
trans-1,3-Dichloropropene	ND	5.0	2.8							
Trichloroethene	ND	5.0	2.1							
Trichlorofluoromethane	ND	5.0	3.4							
Vinyl acetate	ND	50	46							
Vinyl chloride	ND	5.0	2.1							
Surrogate: 1,2-Dichloroethane-d4	*49.69*			*50.0000*		*99.4*	*50.7 - 181*			
Surrogate: 4-Bromofluorobenzene	*50.32*			*50.0000*		*101*	*69.2 - 119*			
Surrogate: Dibromofluoromethane	*55.26*			*50.0000*		*111*	*76.2 - 140*			
Surrogate: Toluene-d8	*49.46*			*50.0000*		*98.9*	*85.6 - 120*			
LCS (B4A0602-BS1)						Prepared: 1/9/2024 Analyzed: 1/9/2024				
1,1,1,2-Tetrachloroethane	49.7300	5.0	2.0	50.0000		99.5	68.1 - 128			
1,1,1-Trichloroethane	52.4800	5.0	2.5	50.0000		105	66.7 - 140			
1,1,2,2-Tetrachloroethane	49.7200	5.0	1.6	50.0000		99.4	70.2 - 127			
1,1,2-Trichloroethane	51.0700	5.0	2.3	50.0000		102	79.6 - 122			
1,1-Dichloroethane	52.9700	5.0	1.9	50.0000		106	69.6 - 138			
1,1-Dichloroethene	49.7200	5.0	2.4	50.0000		99.4	72.5 - 139			
1,1-Dichloropropene	51.4000	5.0	3.9	50.0000		103	79.5 - 132			
1,2,3-Trichloropropane	49.7200	5.0	1.7	50.0000		99.4	70.6 - 122			
1,2,3-Trichlorobenzene	50.5500	5.0	1.9	50.0000		101	72.2 - 126			
1,2,4-Trichlorobenzene	50.6600	5.0	1.7	50.0000		101	72.8 - 125			
1,2,4-Trimethylbenzene	52.3900	5.0	2.4	50.0000		105	76.4 - 124			
1,2-Dibromo-3-chloropropane	48.3200	10	3.4	50.0000		96.6	56.8 - 124			
1,2-Dibromoethane	51.4700	5.0	1.9	50.0000		103	82.3 - 122			
1,2-Dichlorobenzene	51.1600	5.0	1.8	50.0000		102	78.7 - 122			
1,2-Dichloroethane	50.9000	5.0	1.8	50.0000		102	55.8 - 143			

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Volatile Organic Compounds by EPA 5035 / EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0602 - MSVOA_S (continued)										
LCS (B4A0602-BS1) - Continued						Prepared: 1/9/2024 Analyzed: 1/9/2024				
1,2-Dichloropropane	52.5700	5.0	3.4	50.0000		105	76.6 - 125			
1,3,5-Trimethylbenzene	52.8300	5.0	2.0	50.0000		106	76.3 - 127			
1,3-Dichlorobenzene	53.1100	5.0	1.9	50.0000		106	78 - 127			
1,3-Dichloropropane	51.1800	5.0	1.7	50.0000		102	78.2 - 118			
1,4-Dichlorobenzene	50.9000	5.0	1.6	50.0000		102	78.2 - 123			
2,2-Dichloropropane	52.1500	5.0	4.0	50.0000		104	67 - 134			
2-Chlorotoluene	51.7400	5.0	2.3	50.0000		103	75.5 - 125			
4-Chlorotoluene	51.8300	5.0	1.6	50.0000		104	75.2 - 124			
4-Isopropyltoluene	53.0300	5.0	2.3	50.0000		106	77.3 - 127			
Benzene	51.7500	5.0	2.0	50.0000		104	83.3 - 122			
Bromobenzene	50.0300	5.0	1.5	50.0000		100	78.4 - 124			
Bromochloromethane	50.2200	5.0	1.6	50.0000		100	78.2 - 136			
Bromodichloromethane	52.3900	5.0	3.2	50.0000		105	72.3 - 129			
Bromoform	49.4000	5.0	1.5	50.0000		98.8	62 - 128			
Bromomethane	51.3000	5.0	2.8	50.0000		103	35 - 190			
Carbon disulfide	52.8600	5.0	2.8	50.0000		106	50.4 - 143			
Carbon tetrachloride	52.5600	5.0	2.2	50.0000		105	60.3 - 147			
Chlorobenzene	49.4300	5.0	1.3	50.0000		98.9	79.5 - 121			
Chloroethane	55.0300	5.0	3.4	50.0000		110	56.1 - 168			
Chloroform	53.3600	5.0	2.0	50.0000		107	73.1 - 136			
Chloromethane	26.5400	5.0	2.5	50.0000		53.1	23.9 - 158			
cis-1,2-Dichloroethene	52.6800	5.0	3.5	50.0000		105	73.8 - 137			
cis-1,3-Dichloropropene	52.6200	5.0	3.5	50.0000		105	76.1 - 120			
Di-isopropyl ether	53.2300	5.0	2.0	50.0000		106	45.3 - 157			
Dibromochloromethane	51.0300	5.0	1.6	50.0000		102	66.9 - 126			
Dibromomethane	50.4100	5.0	4.6	50.0000		101	78.2 - 121			
Dichlorodifluoromethane	34.9800	5.0	3.1	50.0000		70.0	-56.8 - 214			
Ethyl Acetate	502.740	50	19	500.000		101	34.1 - 177			
Ethyl Ether	535.960	50	13	500.000		107	44.6 - 178			
Ethyl tert-butyl ether	53.4300	5.0	1.8	50.0000		107	70.9 - 137			
Ethylbenzene	52.7800	5.0	2.0	50.0000		106	78.3 - 122			
Freon-113	55.9600	5.0	3.9	50.0000		112	33.9 - 192			
Hexachlorobutadiene	55.0400	5.0	1.8	50.0000		110	68.4 - 132			
Isopropylbenzene	53.1900	5.0	2.4	50.0000		106	77.8 - 126			
m,p-Xylene	105.630	10	3.1	100.000		106	79.7 - 125			
Methylene chloride	51.3300	10	2.1	50.0000		103	58.7 - 146			
MTBE	51.9000	5.0	1.9	50.0000		104	63.6 - 150			
n-Butylbenzene	54.4000	5.0	2.2	50.0000		109	74.9 - 128			
n-Propylbenzene	53.8300	5.0	2.0	50.0000		108	77.4 - 127			
Naphthalene	49.2300	5.0	1.4	50.0000		98.5	68.3 - 124			
o-Xylene	52.5600	5.0	1.8	50.0000		105	74.1 - 123			
sec-Butylbenzene	53.6500	5.0	2.3	50.0000		107	79.1 - 126			
Styrene	51.9800	5.0	1.5	50.0000		104	76.8 - 123			
tert-Amyl methyl ether	53.3300	5.0	3.5	50.0000		107	69.8 - 143			
tert-Butanol	243.740	100	13	250.000		97.5	55.9 - 133			

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Volatile Organic Compounds by EPA 5035 / EPA 8260B - Quality Control (cont'd)

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0602 - MSVOA_S (continued)										
LCS (B4A0602-BS1) - Continued						Prepared: 1/9/2024 Analyzed: 1/9/2024				
tert-Butylbenzene	53.6300	5.0	2.1	50.0000		107	75.6 - 128			
Tetrachloroethene	52.6600	5.0	3.4	50.0000		105	69.2 - 129			
Toluene	52.5700	5.0	1.7	50.0000		105	85.3 - 123			
trans-1,2-Dichloroethene	52.5700	5.0	2.0	50.0000		105	75 - 139			
trans-1,3-Dichloropropene	50.1900	5.0	2.8	50.0000		100	71.2 - 123			
Trichloroethene	52.9700	5.0	2.1	50.0000		106	86.4 - 123			
Trichlorofluoromethane	52.5000	5.0	3.4	50.0000		105	63.8 - 151			
Vinyl acetate	507.460	50	46	500.000		101	28.4 - 168			
Vinyl chloride	49.3600	5.0	2.1	50.0000		98.7	46.5 - 153			
Surrogate: 1,2-Dichloroethane-d4	*50.62*			*50.0000*		*101*	*50.7 - 181*			
Surrogate: 4-Bromofluorobenzene	*52.31*			*50.0000*		*105*	*69.2 - 119*			
Surrogate: Dibromofluoromethane	*53.32*			*50.0000*		*107*	*76.2 - 140*			
Surrogate: Toluene-d8	*50.58*			*50.0000*		*101*	*85.6 - 120*			
LCS Dup (B4A0602-BSD1)						Prepared: 1/9/2024 Analyzed: 1/9/2024				
1,1,1,2-Tetrachloroethane	49.2700	5.0	2.0	50.0000		98.5	68.1 - 128	0.929	20	
1,1,1-Trichloroethane	51.1000	5.0	2.5	50.0000		102	66.7 - 140	2.66	20	
1,1,2,2-Tetrachloroethane	49.4100	5.0	1.6	50.0000		98.8	70.2 - 127	0.625	20	
1,1,2-Trichloroethane	48.9500	5.0	2.3	50.0000		97.9	79.6 - 122	4.24	20	
1,1-Dichloroethane	50.7900	5.0	1.9	50.0000		102	69.6 - 138	4.20	20	
1,1-Dichloroethene	50.2600	5.0	2.4	50.0000		101	72.5 - 139	1.08	20	
1,1-Dichloropropene	50.6900	5.0	3.9	50.0000		101	79.5 - 132	1.39	20	
1,2,3-Trichloropropane	49.7800	5.0	1.7	50.0000		99.6	70.6 - 122	0.121	20	
1,2,3-Trichlorobenzene	49.4500	5.0	1.9	50.0000		98.9	72.2 - 126	2.20	20	
1,2,4-Trichlorobenzene	49.9000	5.0	1.7	50.0000		99.8	72.8 - 125	1.51	20	
1,2,4-Trimethylbenzene	51.7100	5.0	2.4	50.0000		103	76.4 - 124	1.31	20	
1,2-Dibromo-3-chloropropane	47.3600	10	3.4	50.0000		94.7	56.8 - 124	2.01	20	
1,2-Dibromoethane	49.3500	5.0	1.9	50.0000		98.7	82.3 - 122	4.21	20	
1,2-Dichlorobenzene	49.0600	5.0	1.8	50.0000		98.1	78.7 - 122	4.19	20	
1,2-Dichloroethane	50.9800	5.0	1.8	50.0000		102	55.8 - 143	0.157	20	
1,2-Dichloropropane	49.8600	5.0	3.4	50.0000		99.7	76.6 - 125	5.29	20	
1,3,5-Trimethylbenzene	51.6300	5.0	2.0	50.0000		103	76.3 - 127	2.30	20	
1,3-Dichlorobenzene	52.4300	5.0	1.9	50.0000		105	78 - 127	1.29	20	
1,3-Dichloropropane	50.3700	5.0	1.7	50.0000		101	78.2 - 118	1.60	20	
1,4-Dichlorobenzene	48.3700	5.0	1.6	50.0000		96.7	78.2 - 123	5.10	20	
2,2-Dichloropropane	52.0100	5.0	4.0	50.0000		104	67 - 134	0.269	20	
2-Chlorotoluene	51.1100	5.0	2.3	50.0000		102	75.5 - 125	1.23	20	
4-Chlorotoluene	51.6700	5.0	1.6	50.0000		103	75.2 - 124	0.309	20	
4-Isopropyltoluene	51.8500	5.0	2.3	50.0000		104	77.3 - 127	2.25	20	
Benzene	51.1600	5.0	2.0	50.0000		102	83.3 - 122	1.15	20	
Bromobenzene	48.0700	5.0	1.5	50.0000		96.1	78.4 - 124	4.00	20	
Bromochloromethane	50.6700	5.0	1.6	50.0000		101	78.2 - 136	0.892	20	
Bromodichloromethane	51.5600	5.0	3.2	50.0000		103	72.3 - 129	1.60	20	
Bromoform	46.4200	5.0	1.5	50.0000		92.8	62 - 128	6.22	20	
Bromomethane	49.7400	5.0	2.8	50.0000		99.5	35 - 190	3.09	20	

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Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0602 - MSVOA_S (continued)										
LCS Dup (B4A0602-BSD1) - Continued						Prepared: 1/9/2024 Analyzed: 1/9/2024				
Carbon disulfide	48.8800	5.0	2.8	50.0000		97.8	50.4 - 143	7.82	20	
Carbon tetrachloride	51.3300	5.0	2.2	50.0000		103	60.3 - 147	2.37	20	
Chlorobenzene	48.6000	5.0	1.3	50.0000		97.2	79.5 - 121	1.69	20	
Chloroethane	54.6300	5.0	3.4	50.0000		109	56.1 - 168	0.730	20	
Chloroform	51.7500	5.0	2.0	50.0000		104	73.1 - 136	3.06	20	
Chloromethane	25.6000	5.0	2.5	50.0000		51.2	23.9 - 158	3.61	20	
cis-1,2-Dichloroethene	51.1400	5.0	3.5	50.0000		102	73.8 - 137	2.97	20	
cis-1,3-Dichloropropene	50.4200	5.0	3.5	50.0000		101	76.1 - 120	4.27	20	
Di-isopropyl ether	51.3800	5.0	2.0	50.0000		103	45.3 - 157	3.54	20	
Dibromochloromethane	49.0700	5.0	1.6	50.0000		98.1	66.9 - 126	3.92	20	
Dibromomethane	50.7100	5.0	4.6	50.0000		101	78.2 - 121	0.593	20	
Dichlorodifluoromethane	35.4800	5.0	3.1	50.0000		71.0	-56.8 - 214	1.42	20	
Ethyl Acetate	495.670	50	19	500.000		99.1	34.1 - 177	1.42	20	
Ethyl Ether	519.650	50	13	500.000		104	44.6 - 178	3.09	20	
Ethyl tert-butyl ether	51.4900	5.0	1.8	50.0000		103	70.9 - 137	3.70	20	
Ethylbenzene	50.6600	5.0	2.0	50.0000		101	78.3 - 122	4.10	20	
Freon-113	51.4000	5.0	3.9	50.0000		103	33.9 - 192	8.49	20	
Hexachlorobutadiene	55.1500	5.0	1.8	50.0000		110	68.4 - 132	0.200	20	
Isopropylbenzene	52.1400	5.0	2.4	50.0000		104	77.8 - 126	1.99	20	
m,p-Xylene	101.520	10	3.1	100.000		102	79.7 - 125	3.97	20	
Methylene chloride	49.4400	10	2.1	50.0000		98.9	58.7 - 146	3.75	20	
MTBE	50.6300	5.0	1.9	50.0000		101	63.6 - 150	2.48	20	
n-Butylbenzene	54.0700	5.0	2.2	50.0000		108	74.9 - 128	0.608	20	
n-Propylbenzene	51.7600	5.0	2.0	50.0000		104	77.4 - 127	3.92	20	
Naphthalene	47.7400	5.0	1.4	50.0000		95.5	68.3 - 124	3.07	20	
o-Xylene	50.0700	5.0	1.8	50.0000		100	74.1 - 123	4.85	20	
sec-Butylbenzene	53.6500	5.0	2.3	50.0000		107	79.1 - 126	0.00	20	
Styrene	49.5800	5.0	1.5	50.0000		99.2	76.8 - 123	4.73	20	
tert-Amyl methyl ether	51.1300	5.0	3.5	50.0000		102	69.8 - 143	4.21	20	
tert-Butanol	240.750	100	13	250.000		96.3	55.9 - 133	1.23	20	
tert-Butylbenzene	52.0100	5.0	2.1	50.0000		104	75.6 - 128	3.07	20	
Tetrachloroethene	50.4700	5.0	3.4	50.0000		101	69.2 - 129	4.25	20	
Toluene	50.9800	5.0	1.7	50.0000		102	85.3 - 123	3.07	20	
trans-1,2-Dichloroethene	51.7700	5.0	2.0	50.0000		104	75 - 139	1.53	20	
trans-1,3-Dichloropropene	49.3000	5.0	2.8	50.0000		98.6	71.2 - 123	1.79	20	
Trichloroethene	50.5400	5.0	2.1	50.0000		101	86.4 - 123	4.70	20	
Trichlorofluoromethane	51.1700	5.0	3.4	50.0000		102	63.8 - 151	2.57	20	
Vinyl acetate	488.070	50	46	500.000		97.6	28.4 - 168	3.90	20	
Vinyl chloride	46.6500	5.0	2.1	50.0000		93.3	46.5 - 153	5.65	20	
Surrogate: 1,2-Dichloroethane-d4	*50.48*			*50.0000*		*101*	*50.7 - 181*			
Surrogate: 4-Bromofluorobenzene	*50.52*			*50.0000*		*101*	*69.2 - 119*			
Surrogate: Dibromofluoromethane	*51.95*			*50.0000*		*104*	*76.2 - 140*			
Surrogate: Toluene-d8	*50.48*			*50.0000*		*101*	*85.6 - 120*			

ADVANCED TECHNOLOGY LABORATORIES

3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

CHAIN OF CUSTODY RECORD

Page 1 of 1

24 00036

FOR LABORATORY USE ONLY				ATLCOC Ver:20210101
Method of Transport		Sample Conditions Upon Receipt		
☑ Client ☐ ATL		Condition	Y	N
☐ FedEx ☐ OnTrac		1. CHILLED	☑	☐
☐ GSO		2. HEADSPACE (VOA) < 6mm	☐	☐
☐ Other:		3. CONTAINER INTACT	☑	☐
		4. SEALED	☐	☑
		5. # OF SAMPLES MATCH COC	☑	☐
		6. PRESERVED	☑	☐
		7. Cooler Temp (°C)		
		8. THERMOMETER ID:	29	

Company:	Langan Engineering	Address:	18575 Jamboree Rd	Tel:	714 699-0899
SEND REPORT TO:		City:	Irvine	State: CA Zip: 92612	Fax: langan
Attn:	Megan Ritsema	Email:	mritsema@langan.com	SEND INVOICE TO: ☐ same as SEND REPORT TO	
Company:	Langan	Attn:	Megan Ritsema	Email:	
Address:	18575 Jamboree rd Suite 150	Company:		Email:	
City:	Irvine	State: CA Zip:		Address:	
Project Name:	GIC Vernon	Quote #:		City:	State: Zip:
Project No.:	7210501	PO #:			
Sampler:					

EDD: ☒ Excel ☐ EDF ☐ Equis ☒ PDF

QA/QC: ☒ Routine ☐ Caltrans Legal ☐ RWQCB Level IV

ITEM	Lab ID (For Lab Use Only)	Sample Description: Sample ID	Location	Date	Time	Requested Analysis: HOLD	TPH DRO, MRO	VOCs 8260	Title 22 Metals	PCBs 8082	Sample Matrix: Solid	Water	Wastewater	Non-aqueous	Other:	Container: Turnaround Time (TAT)	Quantity	Type: 1=Tube; 2=VOA; 3=Liter; 4=Pint; 5=Jar; 6=Cellar; 7=Canister	Material: 1=Glass; 2=Plastic; 3=Metal	Preservative: 1=HCl; 2=HNO3; 3=H2SO4; 4=NaOH; 5=ZnAc/NaOH; 6=HNO3; 7=MeOH	Remarks
1	1	ES-1	black material from "Elevator Shaft" collected at 10' bgs	9/09/24	1100		X	X	X	X	X					1	4	2	1	7	
2	2	ES-2			1105	X										H					H
3	3	ES-3			1110	X										H					H
4	4	ES-4			1115	X										H					H
5																					
6																					
7																					
8																					
9																					
10																					

(Special Instructions, Comments, Notes, etc.)

H = hold until further instruction

By relinquishing samples to ATL, I hereby agree that I have read and accept ATL's Terms and Conditions, as stated in www.atlglobal.com/terms-and-conditions.

	Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
1	Rachel Quan	01/09/24	1457	Dannyle	01/09/24	14:57
2						
3						

January 22, 2024

Megan Ritsema
Langan Engineering & Environmental Services
18575 Jamboree Road, suite 150
Irvine, CA 92612
Tel: (949) 561-9200
Fax:(949) 255-8641

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003

Re: ATL Work Order Number : 2400049
Client Reference : GIC Vernon / 721040501

Enclosed are the results for sample(s) received on January 16, 2024 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or Project.Management@atlglobal.com.

Sincerely,



Lena Davidkov, Client Services
lena.davidkov@atlglobal.com
Authorized to Release on 01/22/24 15:26 on Behalf of



Amy Leung
Laboratory Director

The test results in this report relate exclusively to the samples as received by the laboratory, and meet the requirements of the methodology under which they were reported; any exceptions are noted within the report and/ or case narrative.

The cover letter/ signature page and the case narrative are integral parts of this analytical report; the absence of any portion of the report renders the report invalid. This report shall not be reproduced except in full, and shall have the express written approval of the laboratory, and the original client firm to do so

.

The electronic signature on this report is signed by an authorized signatory of Advanced Technology Laboratories, and is intended to be legally binding as the equivalent of a handwritten signature.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	01/22/2024

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
OBS-1-2'	2400049-01	Soil	1/16/24 8:15	1/16/24 11:42
OBS-1-3'	2400049-02	Soil	1/16/24 8:16	1/16/24 11:42

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	01/22/2024

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values. The analytical batch was validated by the Laboratory Control Sample (LCS).
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

Certificate of Analysis

Langan Engineering & Environmental Services		Project Number :	GIC Vernon / 721040501
18575 Jamboree Road, suite 150		Report To :	Megan Ritsema
Irvine , CA 92612		Reported :	01/22/2024

Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury **Analyst: AA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
2400049-01	OBS-1-2'	**ND**	mg/kg	0.10	1	B4A0657	01/16/2024	01/17/24 11:36	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Client Sample ID: OBS-1-2'
Lab ID: 2400049-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: ICP

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Arsenic	**2.7**	2.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Barium	**57**	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Beryllium	ND	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Cadmium	ND	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Chromium	**12**	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Cobalt	**5.3**	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Copper	**17**	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Lead	**15**	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Molybdenum	ND	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Nickel	**7.3**	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Selenium	ND	2.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Silver	ND	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Thallium	ND	2.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Vanadium	**27**	1.0	1	B4A0658	01/16/2024	01/17/24 14:34	
Zinc	**44**	2.0	1	B4A0658	01/16/2024	01/17/24 14:34	

Gasoline Range Organics by EPA 5035 / EPA 8015B (Modified)

Analyst: EB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	0.67	1	B4A0652	01/16/2024	01/16/24 15:09	
Surrogate: 4-Bromofluorobenzene	*107 %*	*31 - 137*		B4A0652	01/16/2024	*01/16/24 15:09*	

Diesel and Oil Range Organics by EPA 8015B

Analyst: EB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**1000**	5.0	1	B4A0654	01/16/2024	01/16/24 16:01	
ORO	**2000**	5.0	1	B4A0654	01/16/2024	01/16/24 16:01	
Surrogate: p-Terphenyl	*91.3 %*	*-6.76 - 189*		B4A0654	01/16/2024	*01/16/24 16:01*	

Volatile Organic Compounds by EPA 5035 / EPA 8260B

Analyst: EB

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,1,2-Tetrachloroethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,1,1-Trichloroethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Client Sample ID: OBS-1-2'

Lab ID: 2400049-01

Volatile Organic Compounds by EPA 5035 / EPA 8260B **Analyst: EB**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1,1,2,2-Tetrachloroethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,1,2-Trichloroethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,1-Dichloroethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,1-Dichloroethene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,1-Dichloropropene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2,3-Trichloropropane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2,3-Trichlorobenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2,4-Trichlorobenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2,4-Trimethylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2-Dibromo-3-chloropropane	ND	6.6	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2-Dibromoethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2-Dichlorobenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2-Dichloroethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,2-Dichloropropane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,3,5-Trimethylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,3-Dichlorobenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,3-Dichloropropane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
1,4-Dichlorobenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
2,2-Dichloropropane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
2-Chlorotoluene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
4-Chlorotoluene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
4-Isopropyltoluene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Benzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Bromobenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Bromochloromethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Bromodichloromethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Bromoform	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Bromomethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Carbon disulfide	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Carbon tetrachloride	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Chlorobenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Chloroethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Chloroform	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Chloromethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
cis-1,2-Dichloroethene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
cis-1,3-Dichloropropene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Di-isopropyl ether	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Dibromochloromethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Dibromomethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Dichlorodifluoromethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Client Sample ID: OBS-1-2'

Lab ID: 2400049-01

Volatile Organic Compounds by EPA 5035 / EPA 8260B **Analyst: EB**

Analyte	Result (ug/kg)	PQL (ug/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Ethyl Acetate	ND	33	1	B4A0650	01/16/2024	01/16/24 15:18	
Ethyl Ether	ND	33	1	B4A0650	01/16/2024	01/16/24 15:18	
Ethyl tert-butyl ether	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Ethylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Freon-113	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Hexachlorobutadiene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Isopropylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
m,p-Xylene	ND	6.6	1	B4A0650	01/16/2024	01/16/24 15:18	
Methylene chloride	ND	6.6	1	B4A0650	01/16/2024	01/16/24 15:18	
MTBE	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
n-Butylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
n-Propylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Naphthalene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
o-Xylene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
sec-Butylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Styrene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
tert-Amyl methyl ether	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
tert-Butanol	ND	66	1	B4A0650	01/16/2024	01/16/24 15:18	
tert-Butylbenzene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Tetrachloroethene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Toluene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
trans-1,2-Dichloroethene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
trans-1,3-Dichloropropene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Trichloroethene	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Trichlorofluoromethane	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Vinyl acetate	ND	33	1	B4A0650	01/16/2024	01/16/24 15:18	
Vinyl chloride	ND	3.3	1	B4A0650	01/16/2024	01/16/24 15:18	
Surrogate: 1,2-Dichloroethane-d4	*117 %*	*50.7 - 181*		B4A0650	01/16/2024	*01/16/24 15:18*	
Surrogate: 4-Bromofluorobenzene	*96.6 %*	*69.2 - 119*		B4A0650	01/16/2024	*01/16/24 15:18*	
Surrogate: Dibromofluoromethane	*111 %*	*76.2 - 140*		B4A0650	01/16/2024	*01/16/24 15:18*	
Surrogate: Toluene-d8	*98.7 %*	*85.6 - 120*		B4A0650	01/16/2024	*01/16/24 15:18*	

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0658 - EPA 3050B_S										
Blank (B4A0658-BLK1)						Prepared: 1/16/2024 Analyzed: 1/17/2024				
Antimony	ND	2.0	0.77							
Arsenic	ND	2.0	0.71							
Barium	ND	1.0	0.06							
Beryllium	ND	1.0	0.03							
Cadmium	ND	1.0	0.06							
Chromium	ND	1.0	0.10							
Cobalt	ND	1.0	0.08							
Copper	ND	1.0	0.22							
Lead	ND	1.0	0.18							
Molybdenum	ND	1.0	0.10							
Nickel	ND	1.0	0.04							
Selenium	ND	2.0	0.82							
Silver	ND	1.0	0.27							
Thallium	ND	2.0	0.35							
Vanadium	ND	1.0	0.20							
Zinc	ND	2.0	0.30							
LCS (B4A0658-BS1)						Prepared: 1/16/2024 Analyzed: 1/17/2024				
Antimony	25.6944	2.0	0.77	25.0000		103	83.4 - 116			
Arsenic	24.4938	2.0	0.71	25.0000		98.0	71.9 - 127			
Barium	25.3445	1.0	0.06	25.0000		101	67.3 - 127			
Beryllium	25.6575	1.0	0.03	25.0000		103	83.9 - 117			
Cadmium	25.6187	1.0	0.06	25.0000		102	84.7 - 115			
Chromium	24.5295	1.0	0.10	25.0000		98.1	85.8 - 112			
Cobalt	25.1311	1.0	0.08	25.0000		101	81.1 - 120			
Copper	23.8927	1.0	0.22	25.0000		95.6	85.3 - 119			
Lead	25.6413	1.0	0.18	25.0000		103	82.8 - 120			
Molybdenum	25.3866	1.0	0.10	25.0000		102	89.9 - 123			
Nickel	25.1420	1.0	0.04	25.0000		101	85.1 - 117			
Selenium	25.6560	2.0	0.82	25.0000		103	83.3 - 119			
Silver	11.8575	1.0	0.27	12.5000		94.9	65 - 130			
Thallium	26.4374	2.0	0.35	25.0000		106	87.3 - 118			
Vanadium	22.9782	1.0	0.20	25.0000		91.9	81.3 - 110			
Zinc	25.4883	2.0	0.30	25.0000		102	84.3 - 123			
Matrix Spike (B4A0658-MS1)			**Source: 2400049-01**			Prepared: 1/16/2024 Analyzed: 1/17/2024				
Antimony	21.0364	2.0	0.77	25.0000	ND	84.1	-5.11 - 158			
Arsenic	26.9261	2.0	0.71	25.0000	2.68605	97.0	16.6 - 159			
Barium	78.8940	1.0	0.06	25.0000	57.0291	87.5	-15.4 - 203			
Beryllium	25.6398	1.0	0.03	25.0000	ND	103	17.7 - 163			
Cadmium	26.3385	1.0	0.06	25.0000	0.065462	105	22.1 - 162			
Chromium	37.5652	1.0	0.10	25.0000	11.5576	104	4.21 - 195			

Certificate of Analysis

Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0658 - EPA 3050B_S (continued)										
Matrix Spike (B4A0658-MS1) - Continued			**Source: 2400049-01**			Prepared: 1/16/2024 Analyzed: 1/17/2024				
Cobalt	31.5468	1.0	0.08	25.0000	5.28158	105	7.96 - 169			
Copper	38.7822	1.0	0.22	25.0000	17.0832	86.8	10.1 - 194			
Lead	34.7937	1.0	0.18	25.0000	15.2168	78.3	-9.73 - 182			
Molybdenum	20.8183	1.0	0.10	25.0000	ND	83.3	7.42 - 164			
Nickel	33.9733	1.0	0.04	25.0000	7.32786	107	16.2 - 177			
Selenium	19.1507	2.0	0.82	25.0000	ND	76.6	17.3 - 155			
Silver	12.8164	1.0	0.27	12.5000	ND	103	4.72 - 158			
Thallium	26.2864	2.0	0.35	25.0000	0.468920	103	-11.6 - 133			
Vanadium	46.2446	1.0	0.20	25.0000	26.9061	77.4	-0.621 - 177			
Zinc	68.9588	2.0	0.30	25.0000	43.6394	101	-17.4 - 208			
Matrix Spike Dup (B4A0658-MSD1)			**Source: 2400049-01**			Prepared: 1/16/2024 Analyzed: 1/17/2024				
Antimony	22.9124	2.0	0.77	25.0000	ND	91.6	-5.11 - 158	8.54	20	
Arsenic	26.1837	2.0	0.71	25.0000	2.68605	94.0	16.6 - 159	2.80	20	
Barium	77.9420	1.0	0.06	25.0000	57.0291	83.7	-15.4 - 203	1.21	20	
Beryllium	25.2980	1.0	0.03	25.0000	ND	101	17.7 - 163	1.34	20	
Cadmium	27.5248	1.0	0.06	25.0000	0.065462	110	22.1 - 162	4.40	20	
Chromium	36.6423	1.0	0.10	25.0000	11.5576	100	4.21 - 195	2.49	20	
Cobalt	30.7282	1.0	0.08	25.0000	5.28158	102	7.96 - 169	2.63	20	
Copper	39.6331	1.0	0.22	25.0000	17.0832	90.2	10.1 - 194	2.17	20	
Lead	33.8050	1.0	0.18	25.0000	15.2168	74.4	-9.73 - 182	2.88	20	
Molybdenum	21.6028	1.0	0.10	25.0000	ND	86.4	7.42 - 164	3.70	20	
Nickel	33.9860	1.0	0.04	25.0000	7.32786	107	16.2 - 177	0.0374	20	
Selenium	18.7969	2.0	0.82	25.0000	ND	75.2	17.3 - 155	1.86	20	
Silver	12.6404	1.0	0.27	12.5000	ND	101	4.72 - 158	1.38	20	
Thallium	25.8021	2.0	0.35	25.0000	0.468920	101	-11.6 - 133	1.86	20	
Vanadium	45.6886	1.0	0.20	25.0000	26.9061	75.1	-0.621 - 177	1.21	20	
Zinc	86.5166	2.0	0.30	25.0000	43.6394	172	-17.4 - 208	22.6	20	R

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0657 - EPA 7471_S										
Blank (B4A0657-BLK1)						Prepared: 1/16/2024 Analyzed: 1/17/2024				
Mercury	ND	0.10	0.01							
LCS (B4A0657-BS1)						Prepared: 1/16/2024 Analyzed: 1/17/2024				
Mercury	0.409727	0.10	0.01	0.416667		98.3	75.1 - 123			
Matrix Spike (B4A0657-MS1)			**Source: 2400049-01**			Prepared: 1/16/2024 Analyzed: 1/17/2024				
Mercury	0.446794	0.10	0.01	0.416667	0.046339	96.1	15.2 - 179			
Matrix Spike Dup (B4A0657-MSD1)			**Source: 2400049-01**			Prepared: 1/16/2024 Analyzed: 1/17/2024				
Mercury	0.449533	0.10	0.01	0.416667	0.046339	96.8	15.2 - 179	0.611	20	

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Mercury by AA (Cold Vapor) EPA 7471A - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0657 - EPA 7471_S									
Post Spike (B4A0657-PS1)			**Source: 2400049-01**		Prepared: 1/16/2024 Analyzed: 1/17/2024				
Mercury	0.005342		5.00000E-3	0.000556	95.7	85 - 115			

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
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Irvine , CA 92612	Reported : 01/22/2024

Gasoline Range Organics by EPA 5035 / EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0652 - GCVOA_S										
Blank (B4A0652-BLK1)						Prepared: 1/16/2024 Analyzed: 1/16/2024				
Gasoline Range Organics	ND	1.0	0.02							
Surrogate: 4-Bromofluorobenzene	*0.8759*			*0.800000*		*109*	*31 - 137*			
LCS (B4A0652-BS1)						Prepared: 1/16/2024 Analyzed: 1/16/2024				
Gasoline Range Organics	5.49900	1.0	0.02	5.00000		110	79.8 - 112			
Surrogate: 4-Bromofluorobenzene	*0.9914*			*0.800000*		*124*	*31 - 137*			
LCS Dup (B4A0652-BSD1)						Prepared: 1/16/2024 Analyzed: 1/16/2024				
Gasoline Range Organics	5.08500	1.0	0.02	5.00000		102	79.8 - 112	7.82	20	
Surrogate: 4-Bromofluorobenzene	*0.8669*			*0.800000*		*108*	*31 - 137*			

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Diesel and Oil Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0654 - GCSEMI_DRO_S										
Blank (B4A0654-BLK1)						Prepared: 1/16/2024 Analyzed: 1/16/2024				
DRO	ND	5.0	0.02							
ORO	ND	5.0	0.02							
Surrogate: p-Terphenyl	*85.76*			*80.0000*		*107*	*-6.76 - 189*			
LCS (B4A0654-BS1)						Prepared: 1/16/2024 Analyzed: 1/16/2024				
DRO	844.916	5.0	0.02	1000.00		84.5	77.1 - 122			
Surrogate: p-Terphenyl	*78.10*			*80.0000*		*97.6*	*-6.76 - 189*			
Matrix Spike (B4A0654-MS1)			**Source: 2400012-02**			Prepared: 1/16/2024 Analyzed: 1/16/2024				
DRO	818.005	5.0	0.02	1000.00	ND	81.8	37 - 159			
Surrogate: p-Terphenyl	*78.20*			*80.0000*		*97.7*	*-6.76 - 189*			
Matrix Spike Dup (B4A0654-MSD1)			**Source: 2400012-02**			Prepared: 1/16/2024 Analyzed: 1/16/2024				
DRO	850.899	5.0	0.02	1000.00	ND	85.1	37 - 159	3.94	20	
Surrogate: p-Terphenyl	*77.44*			*80.0000*		*96.8*	*-6.76 - 189*			

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Langan Engineering & Environmental Services	Project Number : GIC Vernon / 721040501
18575 Jamboree Road, suite 150	Report To : Megan Ritsema
Irvine , CA 92612	Reported : 01/22/2024

Volatile Organic Compounds by EPA 5035 / EPA 8260B - Quality Control

Analyte	Result (ug/kg)	PQL (ug/kg)	MDL (ug/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4A0650 - MSVOA_S										
Blank (B4A0650-BLK1)						Prepared: 1/16/2024 Analyzed: 1/16/2024				
1,1,1,2-Tetrachloroethane	ND	5.0	2.0							
1,1,1-Trichloroethane	ND	5.0	2.5							
1,1,2,2-Tetrachloroethane	ND	5.0	1.6							
1,1,2-Trichloroethane	ND	5.0	2.3							
1,1-Dichloroethane	ND	5.0	1.9							
1,1-Dichloroethene	ND	5.0	2.4							
1,1-Dichloropropene	ND	5.0	3.9							
1,2,3-Trichloropropane	ND	5.0	1.7							
1,2,3-Trichlorobenzene	ND	5.0	1.9							
1,2,4-Trichlorobenzene	ND	5.0	1.7							
1,2,4-Trimethylbenzene	ND	5.0	2.4							
1,2-Dibromo-3-chloropropane	ND	10	3.4							
1,2-Dibromoethane	ND	5.0	1.9							
1,2-Dichlorobenzene	ND	5.0	1.8							
1,2-Dichloroethane	ND	5.0	1.8							
1,2-Dichloropropane	ND	5.0	3.4							
1,3,5-Trimethylbenzene	ND	5.0	2.0							
1,3-Dichlorobenzene	ND	5.0	1.9							
1,3-Dichloropropane	ND	5.0	1.7							
1,4-Dichlorobenzene	ND	5.0	1.6							
2,2-Dichloropropane	ND	5.0	4.0							
2-Chlorotoluene	ND	5.0	2.3							
4-Chlorotoluene	ND	5.0	1.6							
4-Isopropyltoluene	ND	5.0	2.3							
Benzene	ND	5.0	2.0							
Bromobenzene	ND	5.0	1.5							
Bromochloromethane	ND	5.0	1.6							
Bromodichloromethane	ND	5.0	3.2							
Bromoform	ND	5.0	1.5							
Bromomethane	ND	5.0	2.8							
Carbon disulfide	ND	5.0	2.8							
Carbon tetrachloride	ND	5.0	2.2							
Chlorobenzene	ND	5.0	1.3							
Chloroethane	ND	5.0	3.4							
Chloroform	ND	5.0	2.0							
Chloromethane	ND	5.0	2.5							
cis-1,2-Dichloroethene	ND	5.0	3.5							
cis-1,3-Dichloropropene	ND	5.0	3.5							
Di-isopropyl ether	ND	5.0	2.0							
Dibromochloromethane	ND	5.0	1.6							
Dibromomethane	ND	5.0	4.6							
Dichlorodifluoromethane	ND	5.0	3.1							
Ethyl Acetate	ND	50	19							
Ethyl Ether	ND	50	13							
Ethyl tert-butyl ether	ND	5.0	1.8							