

DOCKETED

Docket Number:	99-AFC-01C
Project Title:	Elk Hills Power Project - Compliance
TN #:	266443
Document Title:	Appendix D Site Management Plan Part C
Description:	Appendix D, Soil Management Plan for CalCapture, Part C
Filer:	Daniel I. Padilla
Organization:	California Resources Corporation
Submitter Role:	Applicant
Submission Date:	10/10/2025 12:13:58 PM
Docketed Date:	10/10/2025

FINAL SOIL MANAGEMENT PLAN

Former NPR-1 Closure Project

Elk Hills Oil Field

Elk Hills, California

Prepared for:

California Resources Elk Hills, LLC.
900 Old River Road
Bakersfield, CA 93311

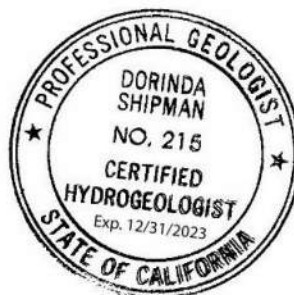
Prepared by:

Langan Engineering & Environmental Services, Inc.
18575 Jamboree Road, Suite 150
Irvine, California 92612



A handwritten signature of Elizabeth Kimbrel in black ink.

Elizabeth Kimbrel, PE
Senior Project Engineer



A handwritten signature of Dorinda Shipman in black ink.

Dorinda Shipman, PG, CHG, CEM
Principal/Vice President

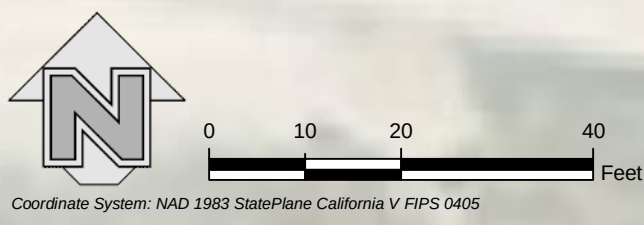
16 November 2022
Project No. 700040402

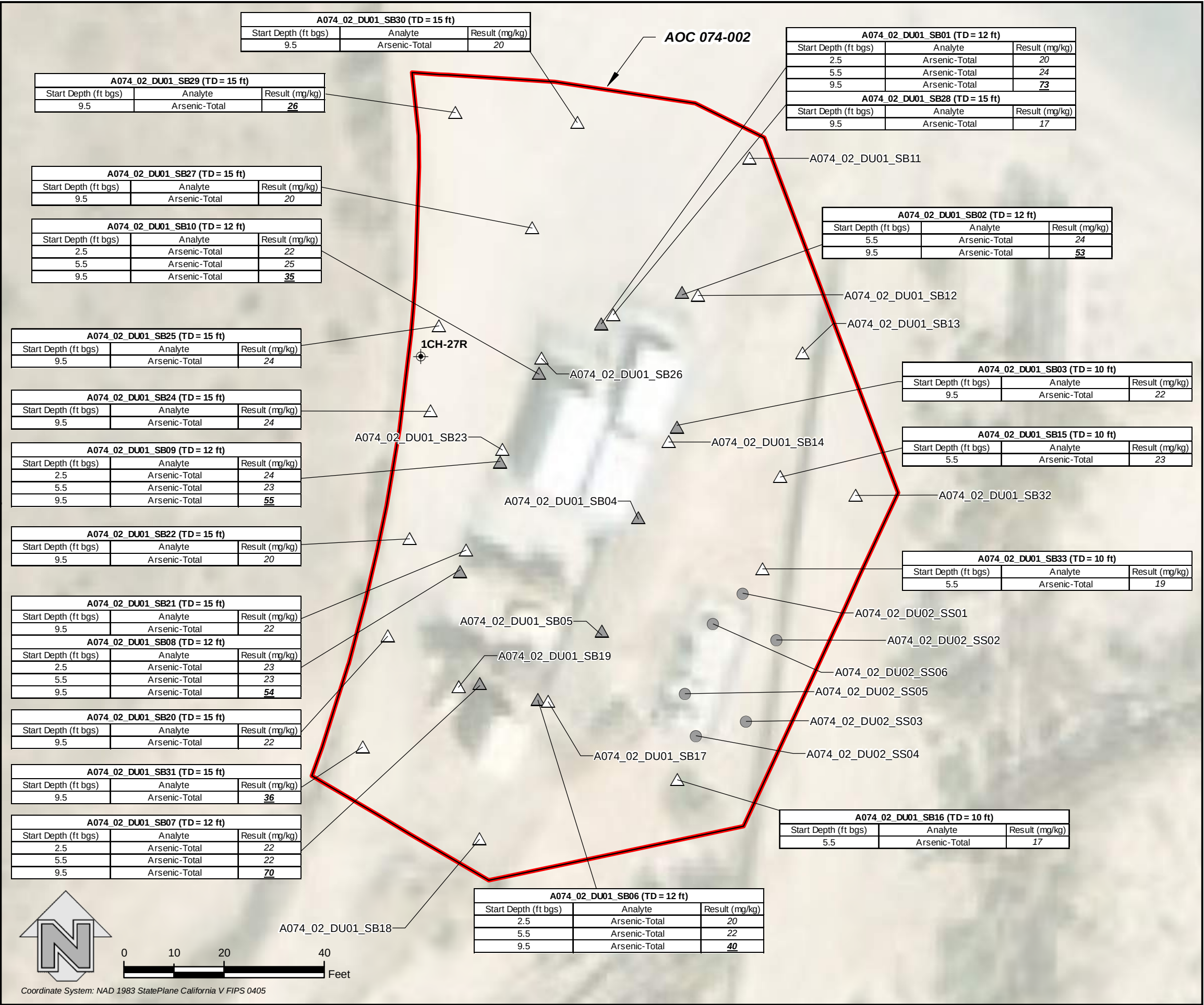
LANGAN

AOC 074-002 and -003

Reference

Ahtna, 2020. *Draft Interim Measures/ Removal Action Work Plan AOC 074-002 and AOC 074-003*.
6 November.





P. 916.403.5300 www.afsiak.com F. 916.329.1590

3100 Beacon Boulevard
West Sacramento, CA 95691

Legend

- Well
- Soil Boring (2018)
- Soil Boring (2015)
- Surface Sample (2015)
- Area of Concern Boundary

Screening Level

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	<u>26</u>

Notes

- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by DOE, 2011.
- Surface samples and soil borings located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 074-002 boundary is preliminary and subject to change.
- TD = Total depth of soil boring below ground surface.

074-002 AREA OF CONCERN BOUNDARY

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 074-002	27R	5.5-1



Ahtna

Facility Services, Inc.

P. 916.403.5300

www.afsiak.com

F. 916.325.1590

3100 Beacon Boulevard

West Sacramento, CA 95691

87WD-27R

AOC 074-003

AOC 074-001

AOC 074-002

Legend

Well

Soil Boring (2018)

Soil Boring (2015)

Surface Sample (2015)

Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	26

Notes

1. Aerial photography provided by Kern County, CA, 2011.

2. Survey data provided by DOE, 2011.

3. Surface samples and soil borings located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.

4. AOC 074-003 boundary is preliminary and subject to change.

5. TD = Total depth of soil boring below ground surface.

074-003 AREA OF CONCERN BOUNDARY

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location

AOC 074-003

Section Designator

27R

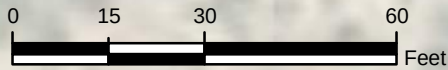
Figure No.

5.5-2

AOC 082-002

Reference

Ahtna, 2020. *Draft Interim Measures/ Removal Action Work Plan AOC 082-002*. 18 September.



Coordinate System: NAD 1983 StatePlane California V FIPS 0405

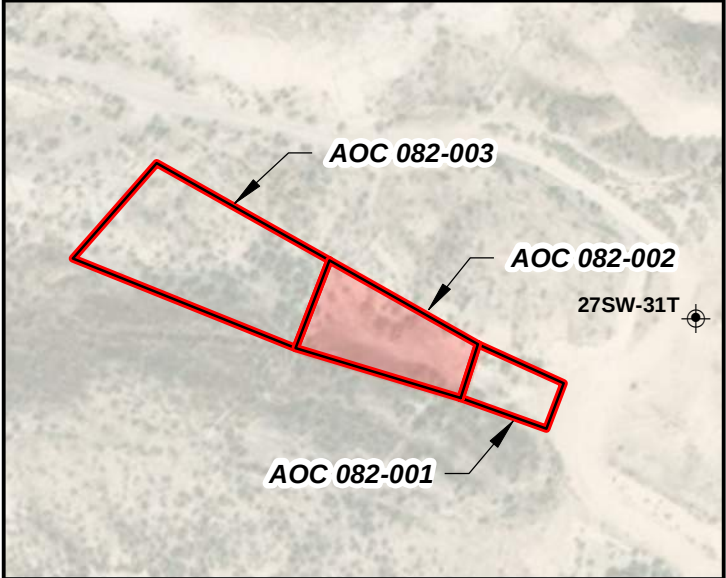
Ahtna
Facility Services, Inc.

P. 916.403.5300

www.afsiak.com

F. 916.329.1590

3100 Beacon Boulevard
West Sacramento, CA 95691



Legend

- 7' Depth of Impacted Soil
- △ Soil Boring
- ⊕ Well
- - - Impacted Area
- ▭ Preliminary Area of Concern Boundary

Notes

1. Aerial photography provided by Kern County, CA, 2011.
2. Survey data provided by DOE, 2011.
3. Soil borings located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
4. AOC 082-002 boundary is preliminary and subject to change.
5. Well location provided by DOGGR, 2018.

AREA EXCEEDING CLEANUP GOALS

FORMER NAVAL PETROLEUM RESERVE NO.1

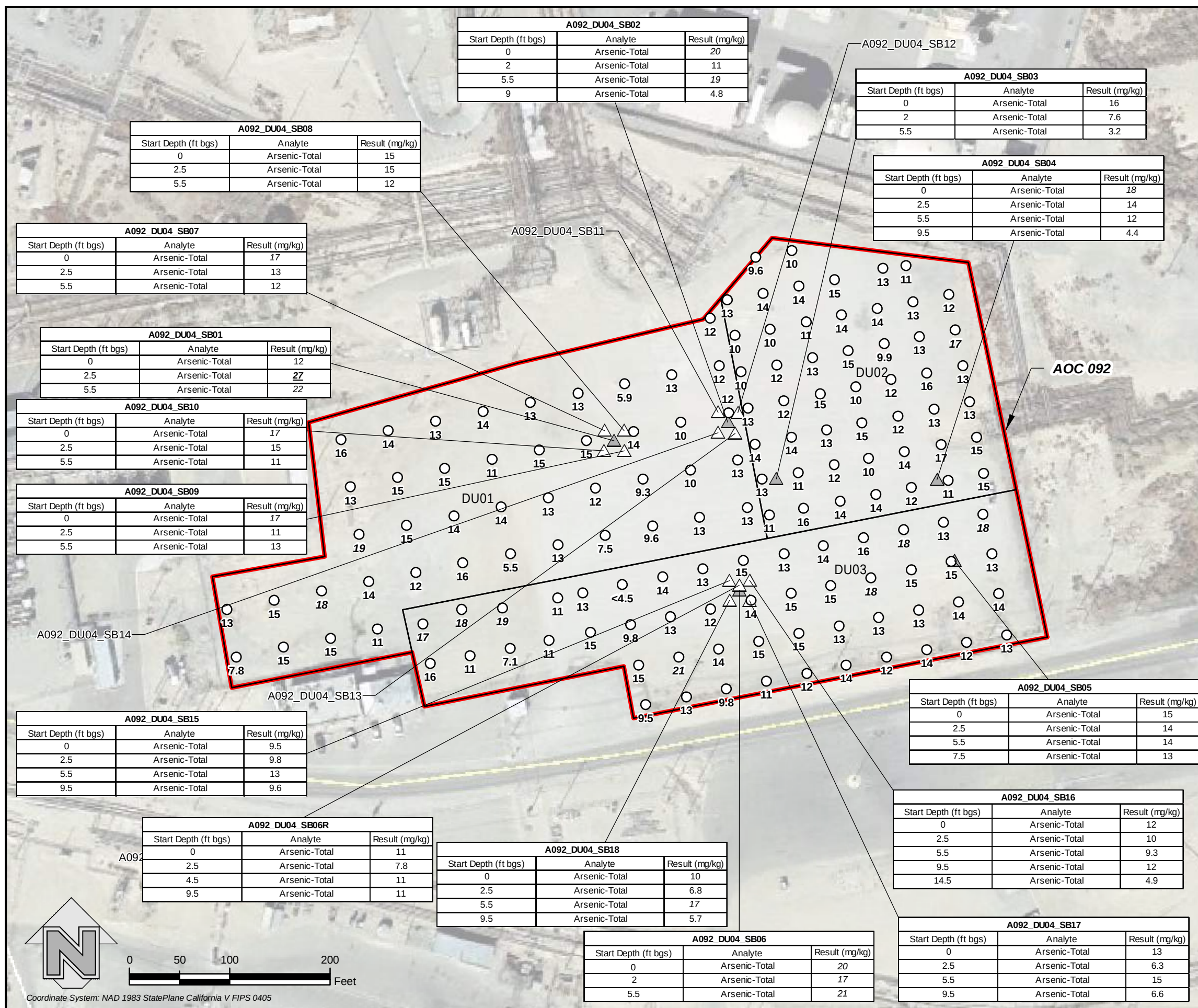
KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 082-002	31T	4.3-1

AOC 092

Reference

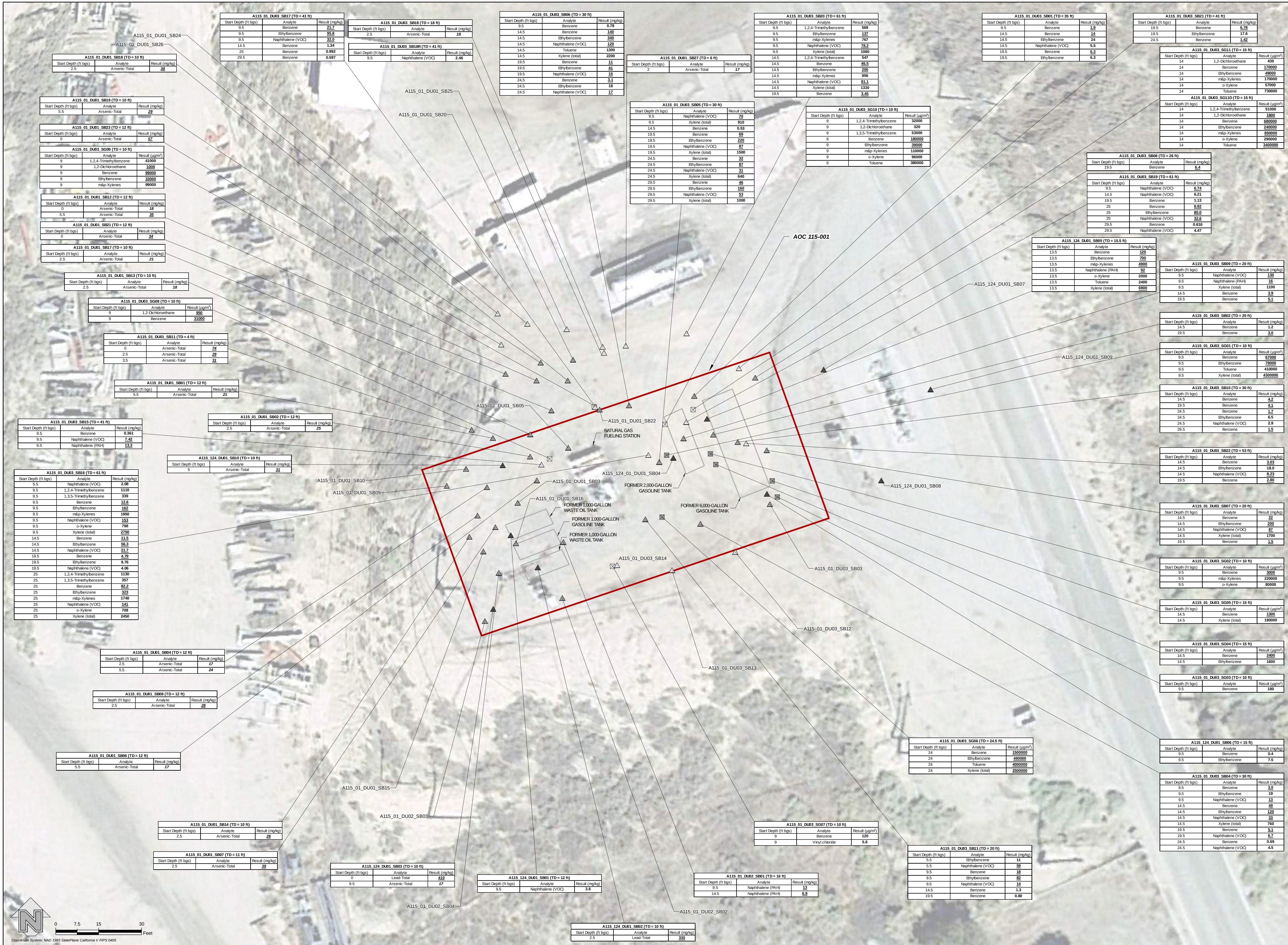
Ahtna, 2017. *Supplemental Sampling Investigation, RFI Implementation Report AOC 092*. 20 December.



AOC 115-001

Reference

Ahtna, 2021. *Draft Interim Measures/ Removal Action Work Plan AOC 115-001*. 12 February



Ahtna

Facility Services, Inc.

P. 916.403.5300

www.afsaiak.com

F. 916.325.1590

3100 Beacon Boulevard

West Sacramento, CA 95691

Legend

Soil Boring (2018)

Soil Boring (2017)

Soil Boring (2014)

Soil Gas Sample (2017)

Former Tank Location

Preliminary Area of Concern Boundary

Soil Gas Screening Levels

Analyte	Residential (µg/m³)	Commercial/Industrial (mg/kg)
1,2,4-Trimethylbenzene	31500	260000
1,2-Dichloroethane	55	470
1,3,5-Trimethylbenzene	31500	260000
Benzene	49	420
Ethylbenzene	550	4900
m,p-Xylenes	50000	440000
o-Xylene	50000	440000
Toluene	155000	1300000
Vinyl chloride	4.9	150
Xylene (total)	50000	440000

Soil Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	25

Analyte	Residential (mg/kg)	Commercial/Industrial (mg/kg)
1,2,4-Trimethylbenzene	300	1800
1,3,5-Trimethylbenzene	270	1500
Benzene	0.33	1.4
Ethylbenzene	5.8	25
Lead-Total	80	320
m,p-Xylenes	550	2400
Naphthalene	2.0	5.5
o-Xylene	650	2800
Toluene	1100	5300
Xylene (total)	580	2500

Notes

1. Aerial photography provided by Google Earth: August 20, 2018.

2. Survey data provided by DOE, 2011.

3. Soil Samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.

4. AOC 115-001 boundary is preliminary and subject to change.

5. TD = Total depth of soil boring below ground surface.

COC RESULTS

EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location

Section Designator

Figure No.

AOC 115-001

36S

3.0-1

AOC 115-002

Reference

Ahtna, 2019. *Draft Interim Measures/Removal Action Work Plan AOC 115-002*. 15 November.

AOC 115-002

63-36S

Legend

- × Approximate Location of Former 1,000 Gallon Waste Oil UST
- △ Soil Boring
- ⊠ Soil Gas Sample
- Well
- Preliminary Area of Concern

Soil Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	<u>26</u>
Analyte	Residential (mg/kg)	Commercial/Industrial (mg/kg)
Benzo(a)pyrene	0.11	<u>1.3</u>
Dibenz(a,h)anthracene	0.028	<u>0.31</u>

Soil Gas Screening Levels

Analyte	Residential (μg/m³)	Commercial/Industrial (μg/m³)
1,1-Dichloroethane	900	7700
Benzene	49	420
Chloroform	60	530
Tetrachloroethene	230	2000
Vinyl chloride	4.8	160

Notes

- Aerial photography provided by Kern County, CA, 2011.
- AOC 115-002 boundary surveyed by AFSI, 2016.
- Soil samples and preliminary boundary located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 115-002 boundary is preliminary and subject to change.
- Well location provided by DOGGR, 2018.
- TPH results are provided in Table 3.0-1.
- TD = total depth of soil boring below ground surface.

COC RESULTS EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 115-002	36S	3.0-1

AOC 115-002

A115_02_DU01_SB08

A115_02_DU01_SG03		
Start Depth (ft bgs)	Analyte	Result (μg/m³)
5	Benzene	92

A115_02_DU01_SB07

A115_02_DU01_SG04		
Start Depth (ft bgs)	Analyte	Result (μg/m³)
5	Benzene	94
5	Vinyl chloride	6.1

A115_02_DU01_SB04 (TD = 11 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
2.5	Arsenic-Total	20

A115_02_DU01_SB11

A115_02_DU01_SB14

A115_02_DU01_SB06 (TD = 11 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
2.5	Arsenic-Total	18

A115_02_DU01_SB05 (TD = 10.5 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
2.5	Arsenic-Total	21
9.5	Arsenic-Total	20

A115_02_DU01_SB10

A115_02_DU01_SB15

A115_02_DU01_SB16

A115_02_DU01_SG05		
Start Depth (ft bgs)	Analyte	Result (μg/m³)
5	Tetrachloroethene	720

A115_02_DU01_SB01 (TD = 10 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
2.5	Arsenic-Total	28

A115_02_DU01_SB02 (TD = 10 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
2.5	Arsenic-Total	39

A115_02_DU01_SB09

A115_02_DU01_SG06		
Start Depth (ft bgs)	Analyte	Result (μg/m³)
5	1,1-Dichloroethane	1200
5	Tetrachloroethene	910

A115_02_DU01_SB03 (TD = 14 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
9.5	Arsenic-Total	17
13.5	Benzo(a)pyrene	0.29
13.5	Dibenz(a,h)anthracene	0.030

A115_02_DU01_SG02		
Start Depth (ft bgs)	Analyte	Result (μg/m³)
5	Chloroform	85

A115_02_DU01_SB12 (TD = 20 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
2.5	Arsenic-Total	17

A115_02_DU01_SB17

A115_02_DU01_SB13 (TD = 20 ft)		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
14.5	Benzo(a)pyrene	0.57
14.5	Dibenz(a,h)anthracene	0.088

A115_02_DU01_SG01		
Start Depth (ft bgs)	Analyte	Result (μg/m³)
19	1,1-Dichloroethane	3800
19	Tetrachloroethene	680



Coordinate System: NAD 1983 StatePlane California V FIPS 0405

AOC 119-005 and -018

Reference

Ahtna, 2020. *Draft Interim Measures/Removal Action Work Plan AOC 119-005 and AOC 119-018*.
30 November.

Legend

- Sample Reference Point
- △ Soil Boring
- Well
- - - 2020 Investigation Sample Area
- Infrastructure
- Preliminary Area of Concern Boundary

Screening Levels

Analyte	Residential (mg/kg)	Commercial/Industrial (mg/kg)
Hexavalent Chromium-Total	0.30	6.2

Notes

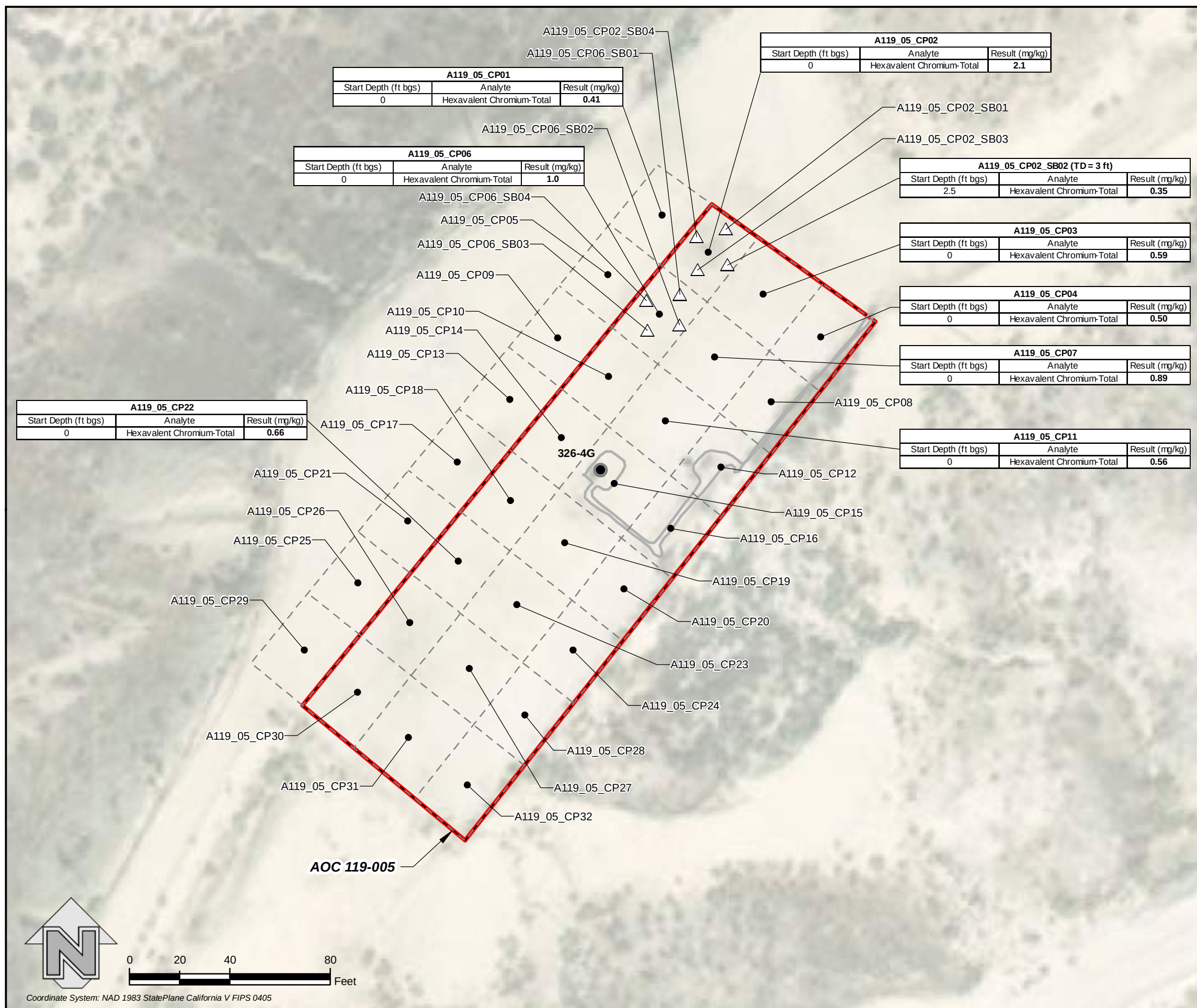
- Aerial photography provided by Esri Online World Imagery, accessed November 2020.
- Survey data provided by DOE, 2011.
- Soil samples and well located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 119-005 boundary is preliminary and subject to change.
- TD = Total depth below ground surface.

**AOC 119-005 COC RESULTS
EXCEEDING SCREENING LEVELS**

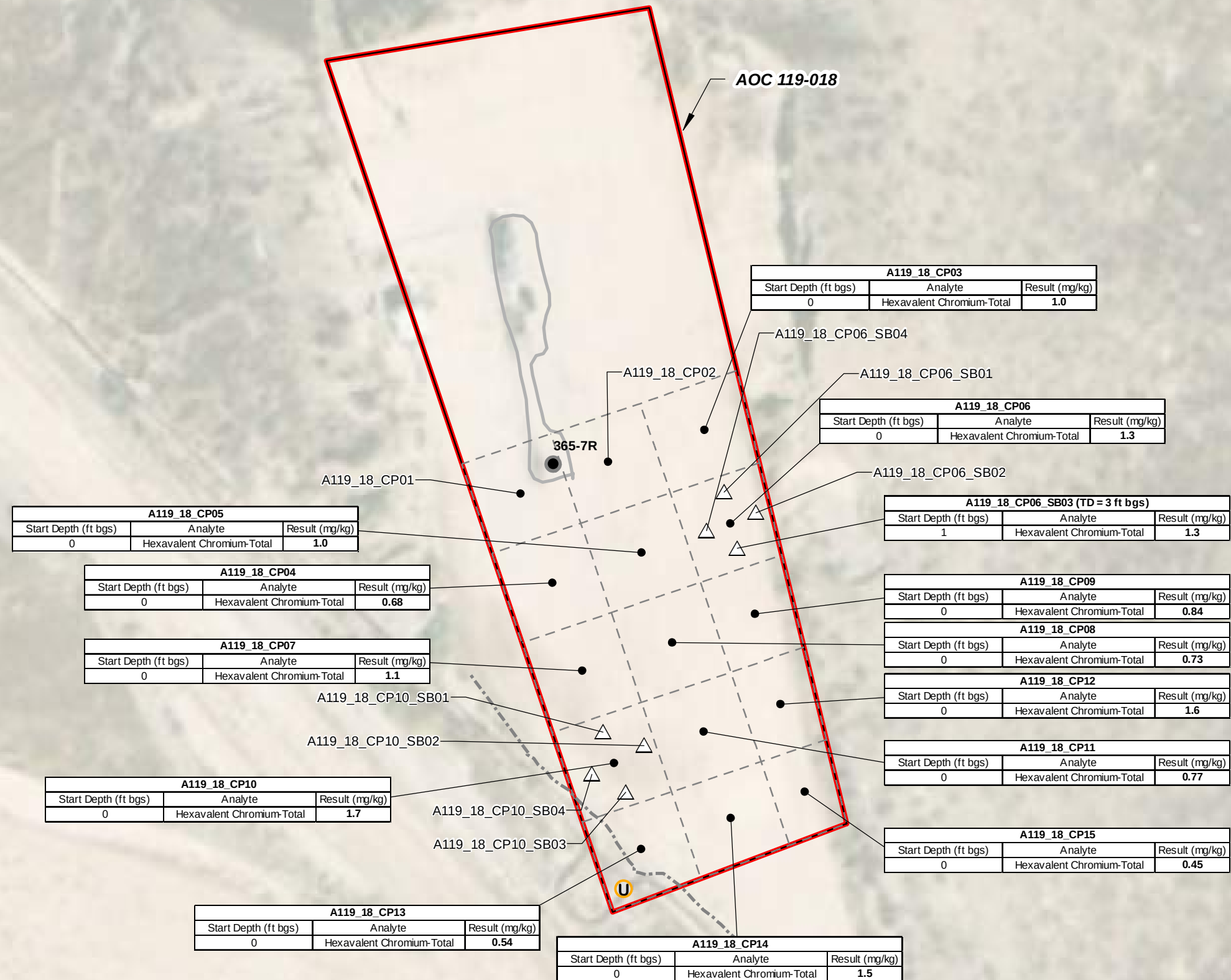
FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 119-005	4G	3.0-1



3100 Beacon Boulevard
West Sacramento, CA 95691



Legend



Power Pole



Sample Reference Point



Soil Boring



Well



- Pipe



2020 Investigation Sample Area



Infrastructure

 Preliminary Area of Concern Boundary

Screening Levels

Analyte	Residential (mg/kg)	Commercial/Industrial (mg/kg)
Hexavalent Chromium-Total	0.30	6.2

Notes

1. Aerial photography provided by Esri Online World Imagery, accessed November 2020.
2. Survey data provided by DOE, 2011.
3. Soil samples and well located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
4. AOC 119-018 boundary is preliminary and subject to change.
5. TD = Total depth below ground surface.

**AOC 119-018 COC RESULTS
EXCEEDING SCREENING LEVELS**

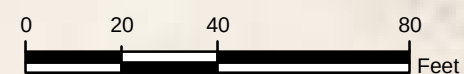
FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 119-018	7B	3.0-2



Coordinate System: NAD 1983 StatePlane California V FIPS 0405





Legend

- 2' Depth of Impacted Soil
- Sample Reference Point
- Well
- - - Impacted Area
- Infrastructure
- Preliminary Area of Concern Boundary

Notes

1. Aerial photography provided by Esri Online World Imagery, accessed November 2020.
2. Survey data provided by DOE, 2011.
3. Soil samples and well located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
4. AOC 119-005 boundary is preliminary and subject to change.

AOC 119-005 AREA EXCEEDING CLEANUP GOAL

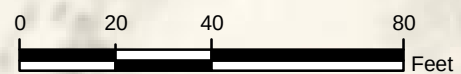
FORMER NAVAL PETROLEUM RESERVE NO.1

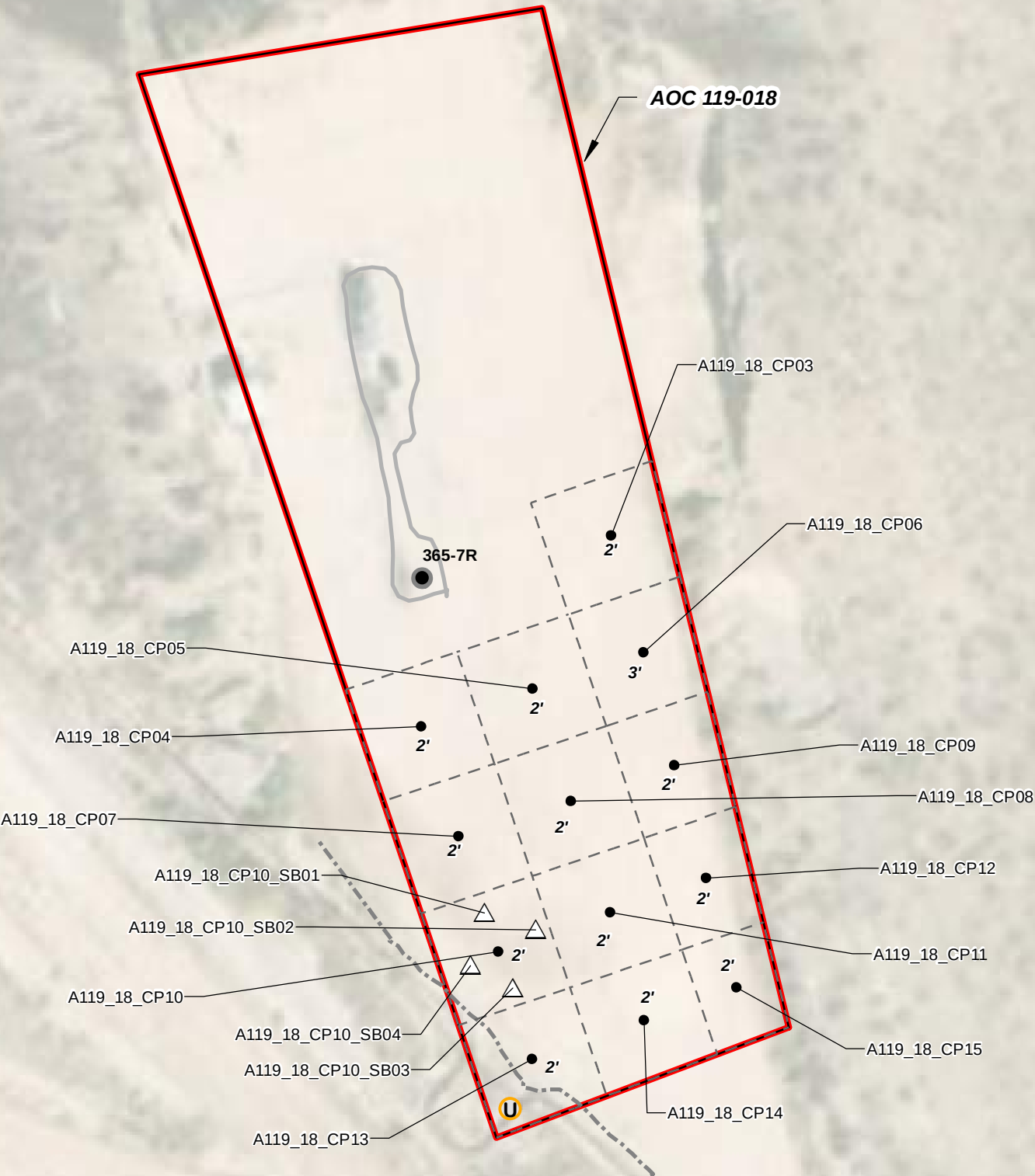
KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 119-005	4G	4.3-1



Coordinate System: NAD 1983 StatePlane California V FIPS 0405





Legend

- 2' Depth of Impacted Soil
- Sample Reference Point
- △ Soil Boring
- Well
- Pipe
- - - Impacted Area
- Infrastructure
- Preliminary Area of Concern Boundary

Notes

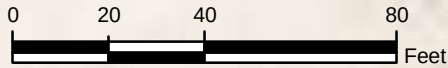
- Aerial photography provided by Esri Online World Imagery, accessed November 2020.
- Survey data provided by DOE, 2011.
- Soil samples and well located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 119-018 boundary is preliminary and subject to change.

AOC 119-018 AREA EXCEEDING CLEANUP GOAL

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 119-018	7R	4.3-2



Coordinate System: NAD 1983 StatePlane California V FIPS 0405

AOC 125-001

Reference

Ahtna, 2020. *Draft Interim Measures/ Removal Action Work Plan AOC 125-001*. 6 November.

Legend

- Abandoned Well
- Active Well
- Soil Boring (2018)
- Soil Boring (2017)
- Soil Boring (2013)
- Preliminary Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	26
Analyte	Residential (mg/kg)	Commercial/Industrial (mg/kg)
Hexavalent Chromium	0.30	6.2

Notes

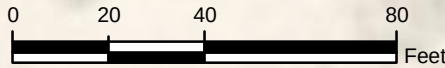
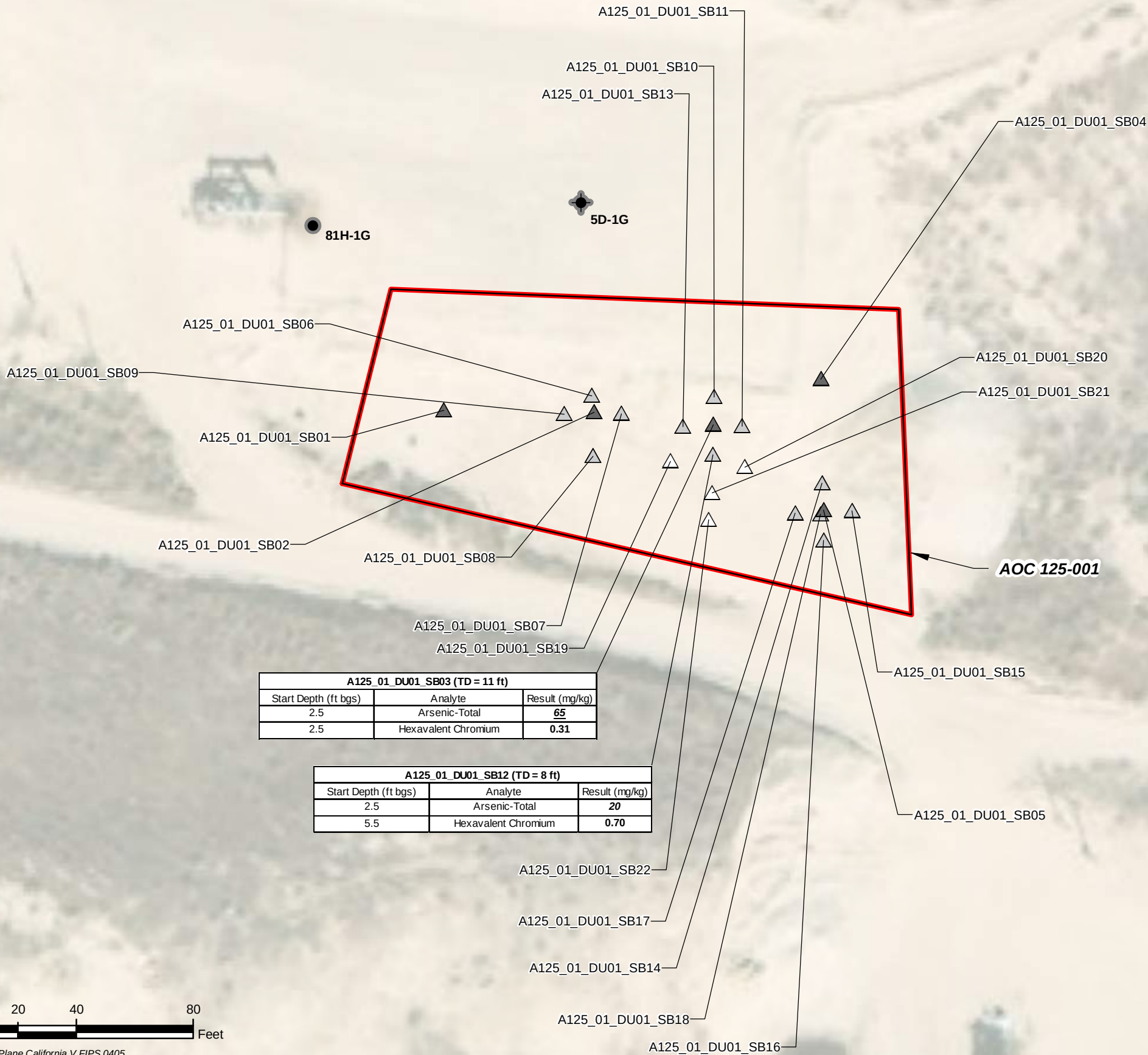
- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by DOE, 2011.
- Soil borings located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 125-001 boundary is preliminary and subject to change.
- TD = total depth of soil boring below ground surface.

COC RESULTS EXCEEDING SCREENING LEVELS

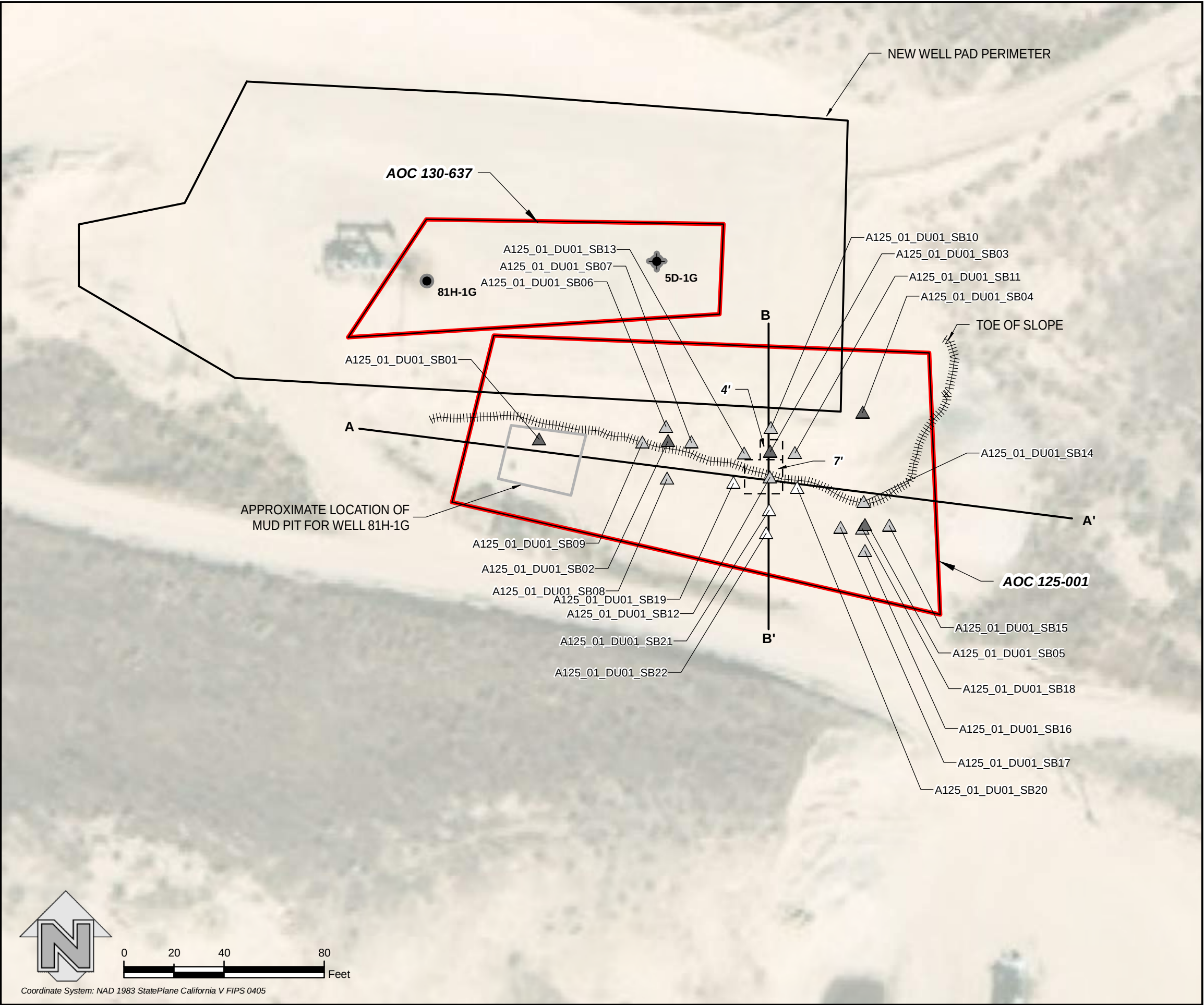
FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

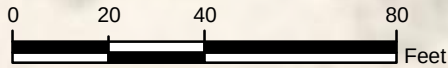
Location	Section Designator	Figure No.
AOC 125-001	1G	3.0-1



Coordinate System: NAD 1983 StatePlane California V FIPS 0405



Coordinate System: NAD 1983 StatePlane California V FIPS 0405



Ahtna

Facility Services, Inc.

P. 916.403.5300

www.afsiak.com

F. 916.329.1590

3100 Beacon Boulevard
West Sacramento, CA 95691

Legend

4'

Depth of Impacted Soil

Active Well

Abandoned Well

Soil Boring (2018)

Soil Boring (2017)

Soil Boring (2013)

A—A'

Cross Section

Impacted Area

Slope

Mud pit

New Well Pad Perimeter

Preliminary Area of Concern Boundary

Notes

1. Aerial photography provided by Kern County, CA, 2011.

2. Survey data provided by DOE, 2011.

3. Soil borings located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.

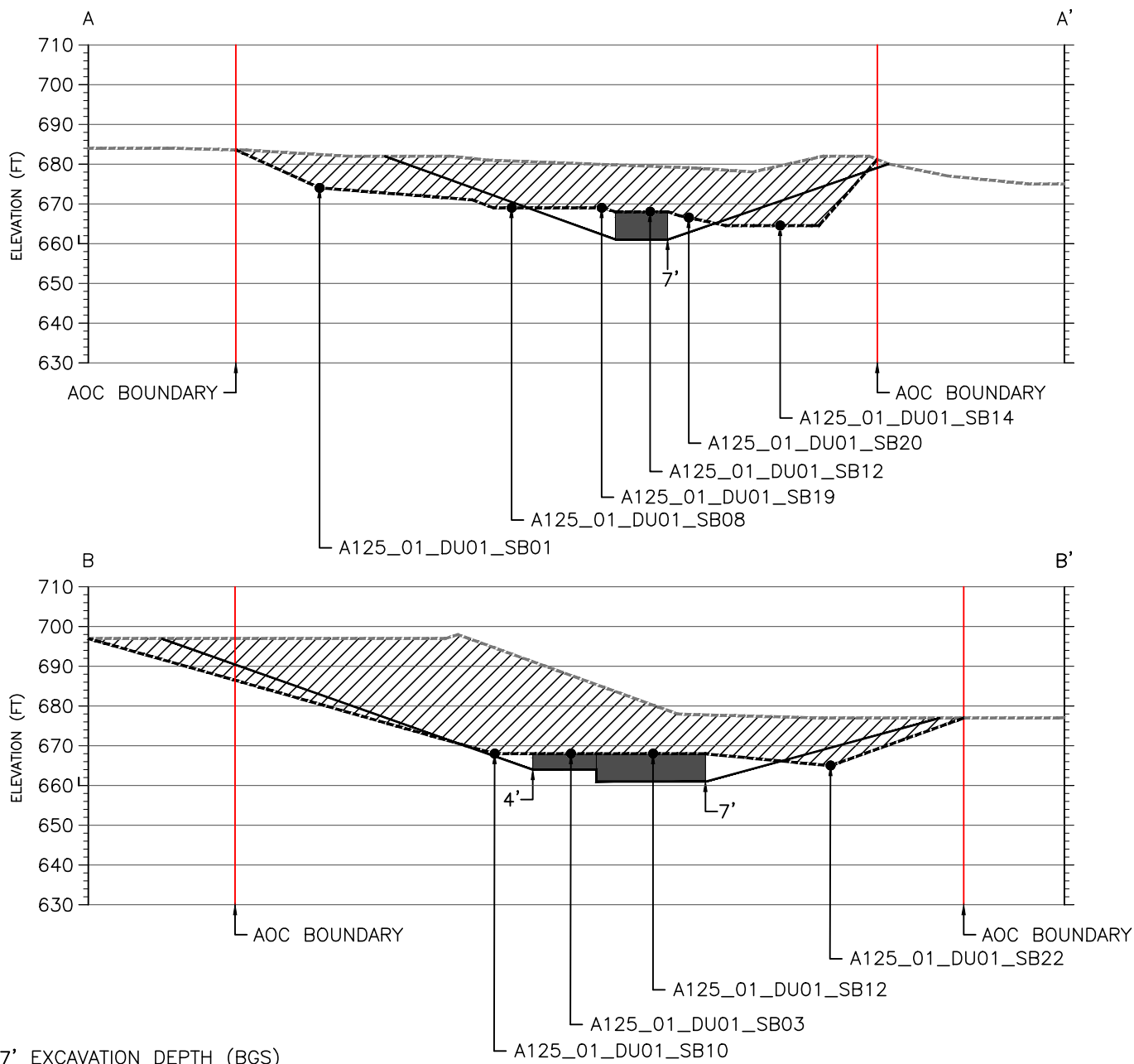
4. AOC 125-001 and AOC 130-637 boundaries are preliminary and subject to change.

AREA EXCEEDING CLEANUP GOALS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 125-001	1G	4.3-1



- 7' EXCAVATION DEPTH (BGS)
- TOP OF SOIL BORING
 - EXISTING GROUND SURFACE
 - PREVIOUS GROUND SURFACE
 - PROPOSED EXCAVATION SURFACE
 - /// WELL PAD OVERBURDEN
 - IMPACTED SOIL
- 2X VERTICAL EXAGGERATION

Ahtna
Facility Services, Inc.

P. 916.403.5300

www.afsiak.com

F. 916.329.1590

3100 Beacon Boulevard
West Sacramento, CA 95691

CROSS SECTIONS OF AREA EXCEEDING CLEANUP GOALS

FORMER NAVAL PETROLEUM RESERVE NO. 1

KERN COUNTY, CALIFORNIA

Location

AOC 125-001

Section Designator

1G

Figure No.

4.3-2



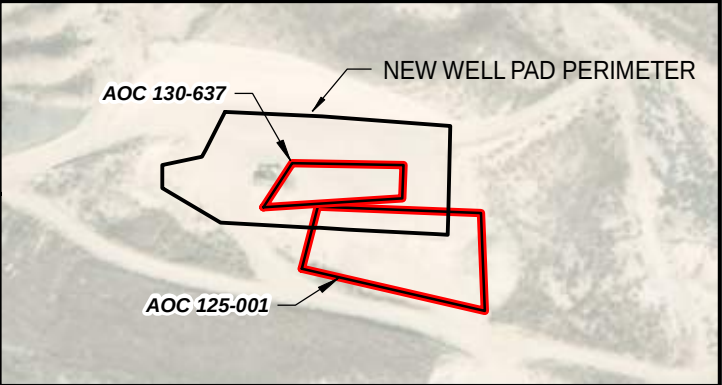
Ahtna
Facility Services, Inc.

P. 916.403.5300

www.afsiak.com

F. 916.329.1590

3100 Beacon Boulevard
West Sacramento, CA 95691



Legend

- 4'** Depth of Impacted Area
- Abandoned Well
- Active Well
- Impacted Area Vertex
- Slope
- Impacted Area
- Limit of Excavation
- Mud pit
- New Well Pad Perimeter
- Preliminary Area of Concern Boundary

Notes

- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by DOE, 2011.
- AOC 125-001 and AOC 130-637 boundaries are preliminary and subject to change.
- Refer to Table 6.0-1 for the impacted area vertex coordinates, provided in California State Plane Zone 5 US Feet.

IMPACTED AREA AND EXCAVATION BOUNDARY

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 125-001	1G	6.0-1

AOC 125-016

Reference

Ahtna, 2021. *Draft Interim Measures/ Removal Action Work Plan AOC 125-016*. 12 February.



Legend

- Surface Sample (2020)
- △ Soil Boring (2020)
- ▲ Soil Boring (2015)
- ⊕ Vacuum Pipe
- ⊗ Well
- Approximate Location of Inlet Pipe
- Preliminary Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	26
Analyte	Residential (mg/kg)	Commercial/Industrial (mg/kg)
Benzo(a)pyrene	0.11	1.3
Dibenz(a,h)anthracene	0.028	0.31
Hexavalent Chromium	0.30	6.2

Notes

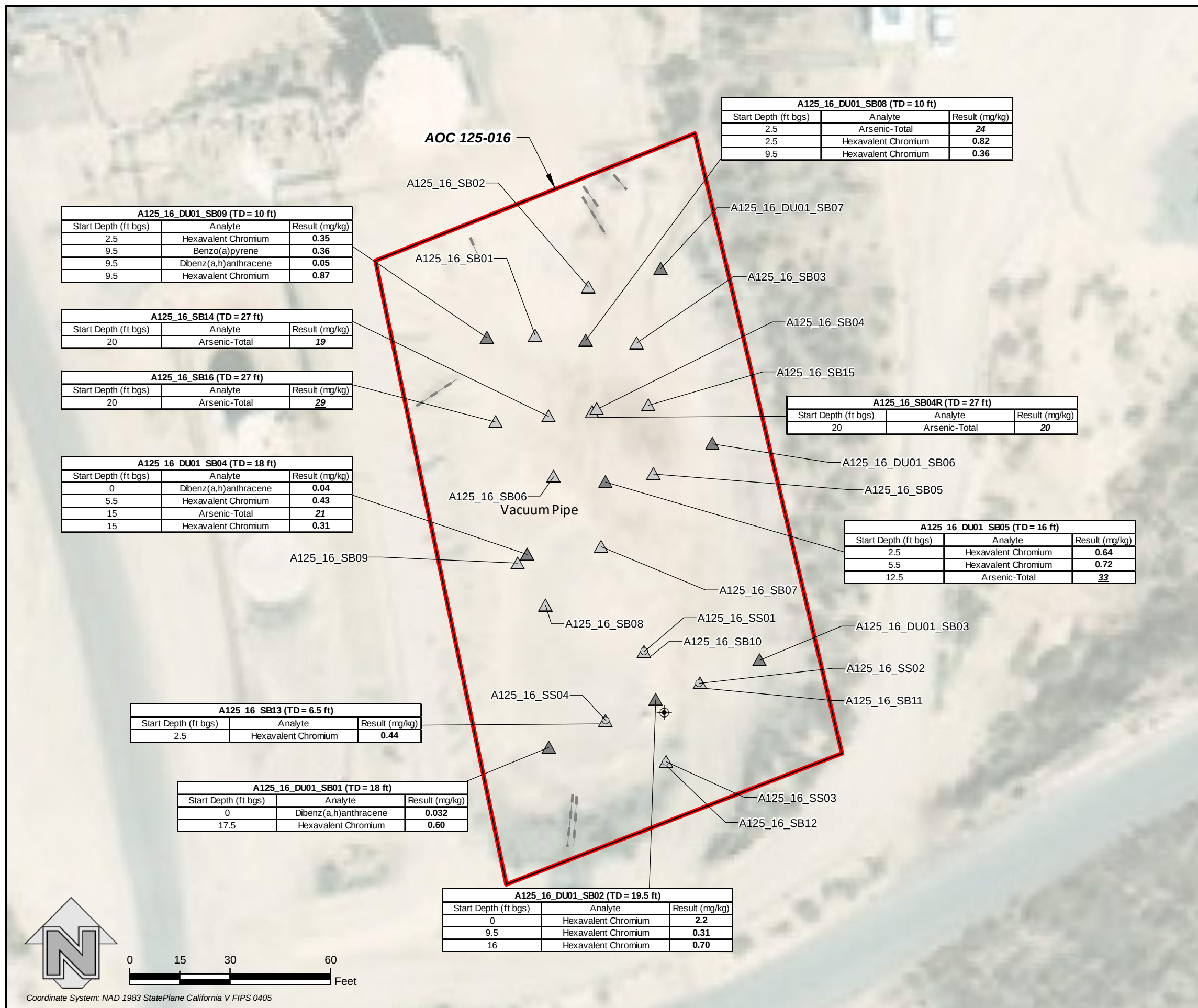
- Aerial photography provided by Esri Online World Imagery, accessed December 2020.
- Survey data provided by DOE, 2011.
- Surface samples and soil borings located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 125-016 boundary is preliminary and subject to change.
- TD = total depth of soil boring below ground surface.

COC RESULTS EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 125-016	10G	3.0-1

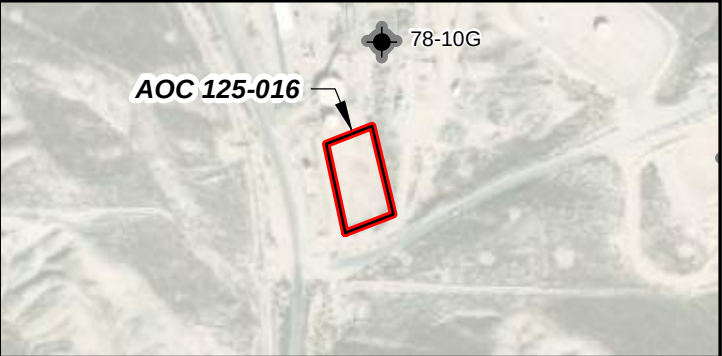




Ahtna
Facility Services, Inc.

P. 916.403.5300 www.afsiak.com F. 916.329.1590

3100 Beacon Boulevard
West Sacramento, CA 95691



Legend

- △ Soil Boring (2020)
- ▲ Soil Boring (2015)
- ⊕ Vacuum Pipe
- ⊕ Well
- Approximate Location of Inlet Pipe
- - - Impacted Area
- ▭ Preliminary Area of Concern Boundary

Notes

1. Aerial photography provided by Esri Online World Imagery, accessed December 2020.
2. Survey data provided by DOE, 2011.
3. Surface samples and soil borings located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
4. AOC 125-016 boundary is preliminary and subject to change.

AREA EXCEEDING CLEANUP GOALS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 125-016	10G	4.3-1