DOCKETED

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STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

IN THE MATTER OF: GWF TRACY COMBINED CYCLE POWER PLANT	)))))	DOCKET NO. 08-AFC-07C PETITION FOR APPROVAL OF ALTERNATIVE WATER SUPPLIES

On March 24, 2010, the California Energy Commission (Commission) issued a license to GWF Energy LLC (GWF) for the GWF Tracy Combined Cycle Power Plant (GWF Tracy). GWF Tracy occupies a fenced site within the existing GWF-owned, 40-acre parcel in an unincorporated portion of San Joaquin County, southwest of the City of Tracy.

GWF Tracy is a 330 MW combined cycle plant that employs an air-cooled condenser, which substantially reduces water requirements to approximately 5% of the water required by a conventional water-cooled plant of similar size. Water is used for evaporative cooling of inlet air (when ambient conditions dictate) and for make-up water for the steam cycle. At steady state conditions, GWF Tracy utilizes approximately 37 gallons per minute (gpm) of surface water from the Byron-Bethany Irrigation District (District) via the Delta-Mendota Canal (Canal) adjacent to the project site. Average annual use at 37 gpm for 8,000 hours of operation is equal to 54.4 acre-feet per year. Actual recent usage has averaged 25-30 acre-feet per year.

The District recently informed GWF that the District's water supply will be severely restricted due to implementation of the recently revised Shasta Temperature Management Plan (Plan). The Plan was developed by the United States (U.S.) Bureau of Reclamation in coordination with NOAA's National Marine Fisheries Service, the U.S. Fish & Wildlife Service, the California Department of Water Resources, the California Department of Fish and Wildlife, and the State Water Resources Control Board. The Plan was developed in response to California's drought and will restrict flows from Shasta Reservoir in order to maintain temperatures in the Sacramento River at levels conducive to the survival of winter-run Chinook salmon. As a result of implementation of the Plan, the District will temporarily suspend water deliveries to GWF Tracy as of July 1, 2015.

With the District's pending suspension of water deliveries, GWF Tracy must rapidly obtain alternative water supplies to avoid being forced to reduce or suspend operations. This is an urgent and critical matter, as the California Independent System Operator (CAISO) has informed GWF that under certain contingencies, load shedding may be required if GWF Tracy is not available. GWF has identified four alternative water supplies that it believes can be available in the near term. GWF hereby seeks approval of the four alternative water supplies as well as temporary on-site infrastructure necessary to store and transfer the water from these alternative sources within the GWF Tracy facility.

This petition falls within the ambit of the Commission's May 13, 2015 Order to "delegate[e] to the Executive Director the authority to approve amendment petitions filed for the purpose of securing alternate water supplies necessary for continued power plant operation," as authorized by the Governor's Executive Order B-29-15.[1] Executive Order B-29-15 states that Title 20, California Code of Regulations, Section 1769 and the California Environmental Quality Act (CEQA) are suspended for purposes of carrying out this directive. Although Section 1769 and CEQA are inapplicable to this petition, GWF is providing the information called for in Section 1769(a), including information related to potential environmental impacts, in order for the Executive Director to make an informed decision on this petition.

Description of Alternative Water Supplies

Alternative 1: "GE Water"

General Electric Power and Water (GE) currently provides water treatment services at GWF Tracy. In addition, GE operates an existing, fully permitted facility in the City of San Jose from which it provides water to various industrial and commercial users. The source of the water provided by GE is groundwater pumped from municipal wells. GE has indicated to GWF that it has sufficient capacity at its San Jose facility to meet GWF Tracy's needs of approximately 50,000 gallons per day of raw water. The raw water would be trucked from the GE facility in San Jose to GWF Tracy, a distance of approximately 57 miles. It is anticipated that approximately 10-15 round trips of 4,000-6,000 gallon tanker trucks would be required to meet the needs of GWF Tracy. The trucks would be standard tanker trucks with all necessary licenses and approvals for such service, and trips would be scheduled to occur during off-peak travel hours. Exhibit A to this petition shows the route that will be followed from the GE facility at 5900 Silver Creek Valley Road, San Jose to GWF Tracy at 14950 W. Schulte Road, Tracy. GWF has executed a contract with GE for acquisition of the GE Water, and believes that it could start trucking water to GWF Tracy as soon as July 1, 2015.

[1] *See* California Energy Commission, May 13, 2015 Business Meeting, Item 3 (ALTERNATIVE WATER SUPPLY FOR POWER PLANT OPERATION), approved with a 5-0 vote. http://www.energy.ca.gov/business_meetings/2015_minutes/2015-05-13_minutes.pdf.

Alternative 2: "Henrietta Water"

In addition to GWF Tracy, GWF also owns and operates the GWF Henrietta Peaker Project, which is a nominal 91.4-megawatt simple cycle power plant located in unincorporated Kings County (GWF Henrietta). GWF Henrietta currently has surplus water that can be made available to GWF Tracy. The source of the Henrietta Water is surface water, including 5 acre-feet of municipal and industrial water from Westlands Water District, and state water project entitlements of 200 acre-feet. The 2015 allocation is 40 acre-feet. The water would be trucked from GWF Henrietta to GWF Tracy, a distance of approximately 165 miles. It is anticipated that approximately 10-15 round trips of 4,000-6,000 gallon tanker trucks would be required to meet the needs of GWF Tracy. The trucks would be standard tanker trucks with all necessary licenses and approvals for such service, and trips would be scheduled to occur during off-peak travel hours. Exhibit B to this petition shows the route that will be followed from GWF Henrietta at 16027 25^{th} Avenue, Lemoore to GWF Tracy at 14950 W. Schulte Road, Tracy. GWF believes that it could begin trucking water from GWF Henrietta as soon as July 1, 2015.

Alternative 3: "Bogetti Water"

GWF has identified an agricultural well owned and operated by the Bogetti family in close proximity to GWF Tracy. The well has been in existence since 1992 and is currently used for agricultural irrigation. The well is drilled to a depth of 580 feet. The well has a flow rate of approximately 2,400 gallons per minute; whereas GWF Tracy's levelized requirement under peak summer dispatch is approximately 37 gallons per minute (i.e., 1.5% of the well's flow rate). Currently, the Bogetti well can produce approximately 1,800 acre-feet per year of water; whereas GWF Tracy's expected consumption is 25-30 acre-feet per year (average 2013-2014). Thus, the incremental demands placed on the well as a result of serving GWF Tracy are de minimis. The well would preferably be accessed using an existing pipeline that runs from the well to approximately 30 feet from a flanged connection that leads into the GWF Tracy water inlet, pending testing of the pipeline. The flanged connection would be connected using temporary piping or non-collapsible hosing. If testing indicates the pipe should not be used, above ground temporary piping would be run all the way from the Bogetti well to the flanged connection leading into the GWF Tracy water inlet as a less preferred option. GWF anticipates executing an agreement with the Bogetti family to meet the plant's daily needs, and believes that this water could be available no later than mid-July 2015. Exhibit C to this petition includes a photograph of the Bogetti well, as well as the two options for connecting the well to GWF Tracy that are currently under consideration. Exhibit D to this petition is the Well Completion Report and well test data for the Bogetti well.

Prior to being notified by the District of the imminent interruption in water supply, GWF began a comprehensive analysis of alternative water supplies as a means of enhancing the reliability of GWF Tracy. As part of this analysis, GWF commissioned an Alternative Water Availability Assessment from GEI Consultants which was completed in April 2015 (Assessment), and previously made available to CEC staff. A copy of the Assessment is included as Exhibit E to this petition. The Assessment concluded that the two most viable alternative sources of water are groundwater and recycled water provided by the City of Tracy wastewater treatment facility. The Assessment analyzed the impacts, including draw down on the water basin, associated with installing a new groundwater well on the GWF Tracy site and concluded that operating such a well at the level needed to serve the needs of GWF Tracy would have no significant effects on the environment or water resources. Given the proximity of the Bogetti well to the GWF Tracy site, one can conclude based on the results of the Assessment that the minimal incremental demand placed on the Bogetti well by GWF Tracy would have no significant effects.

Alternative 4: "City of Tracy Recycled Water"

The Assessment completed by GEI Consultants (Exhibit E) analyzed availability of recycled water from the City of Tracy. This water supply was also analyzed in the CEC's initial approval of GWF Tracy and concluded to be infeasible due to a lack of necessary distribution infrastructure. While that continues to be the case today, GWF remains committed to connecting to the City of Tracy recycled water system once the City's distribution network is sufficiently close to the GWF Tracy site to make construction of a pipeline from GWF Tracy to the distribution network feasible. That is not expected to occur before 2019. Exhibit F to this petition is a letter provided to the City of Tracy by GWF in support of the build out of its recycled water system. In the interim, it may be possible to truck water from the Tracy wastewater treatment facility. GWF understands that the City must obtain an amendment to its National Pollution Discharge Elimination System (NPDES) permit from the State Water Resources Control Board (SWRCB) to allow sale of recycled water to GWF Tracy. GWF further understands that the City has submitted a request for such an amendment. At this time, it is uncertain when the SWRCB will act on the City's request, but Tracy is seeking approval of the ability to utilize recycled water from the City when such water is available for sale. Initially, the recycled water would be trucked to the site, and ultimately GWF Tracy will connect directly to the City's recycled water distribution system. Exhibit G to this petition shows the route that will be followed from the City of Tracy Wastewater Treatment Plant at 3900 Holly Drive, Tracy to GWF Tracy at 14950 W. Schulte Road, Tracy.

Temporary On-Site Infrastructure

GWF is in the process of installing temporary water storage and conveyance systems at GWF Tracy in order to store additional water from the Canal while it continues to be available. The temporary equipment will include approximately 110 portable storage tanks, collapsible piping to connect the storage tanks to the facility's water treatment system, and a portable California Air Resources Board certified diesel pump to convey the water through the system. GWF Tracy contemplates using the tanks and piping to store and convey water from one or more of the proposed alternative supplies as well, and hereby seeks approval for such use. Exhibit H to this petition illustrates the Temporary Storage Layout Plan, although the precise location of the temporary equipment may be modified as necessary to optimize space utilization. Exhibits I, J and K to this petition are photographs of some of the storage tanks and the temporary piping, although there is some variation in the specific design of certain of the tanks. All of the temporary equipment currently contemplated will be located within the fence line of GWF Tracy on previously disturbed areas.

20 CCR Section 1769 Information Requests

The following subsections contain the information required for a formal petition filed pursuant to Title 20, California Code of Regulations, Section 1769.

A. Description of Proposed Project Changes

Section 1769(a)(1)(A) requires "a complete description of the proposed modification, including new language for any conditions that will be affected."

The proposed project changes include utilization of the four alternative water supplies, and continued operation of temporary on-site water storage and conveyance systems, as described above, to the extent necessary to implement the proposed supply alternative(s). No other material equipment changes at GWF Tracy are required for these alternative water supplies.

B. Necessity of Proposed Change

Section 1769(a)(1)(B) requires "a discussion of the necessity for the proposed modifications."

The proposed modifications are necessary for GWF Tracy to continue operations after the cessation of water deliveries from the District, which will result from implementation of the recently revised Shasta Temperature Management Plan, as described above.

C. Modification Is Based on Information Not Available During the Certification Proceeding

Section 1769(a)(1)(C) requires "if the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time."

The cessation of water deliveries from the District is an unexpected and new development. This information was not known by GWF during the certification proceeding.

D. Modification Is Not Based on New Information That Undermines the Final Decision

Section 1769(a)(1)(D) requires "if the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted."

The alternative water supplies and storage and conveyance systems covered by this petition are necessary for plant operations when adequate Canal water is not available. The final decision for GWF Tracy was based on the assumption that the facility would not utilize groundwater for plant operations, and Condition of Certification Soil & Water – 4 specifically prohibits use of groundwater. Alternative 1 and Alternative 3 involve the use of groundwater.

With respect to Alternative 1, the source of the GE Water is groundwater produced from municipal wells. However, the GE facility is an existing and ongoing operation that currently provides water for commercial and industrial uses. The water to be provided to GWF Tracy is within the quantities that the GE facility is currently permitted to provide, and will not result in any increase in production capacity at the GE facility. The water that would be provided to GWF Tracy could otherwise be provided to another commercial or industrial user. Thus, the water provided to GWF Tracy would not represent a new demand on groundwater relative to that already permitted to be produced by the GE facility. Furthermore, given the shorter distance from the GE facility to GWF Tracy, relative to the distance from GWF Henrietta to GWF Tracy, Alternative 1 is superior in certain respects to Alternative 2. Finally, given the importance of GWF Tracy to grid reliability, all alternative sources of water must be considered. Under these circumstances, even though the source of the GE Water is groundwater, the alternative should be approved.

With respect to Alternative 3, the groundwater would come from an existing well that has been in use since 1992. The additional incremental demands placed on the well by GWF Tracy are de minimis relative to the capacity and historic and current production from the well. A recently completed expert analysis by GEI Consultants (Exhibit E) concluded that a new well located on the GWF Tracy site and pumping at the same rate and capacity as the additional incremental demand placed on the Bogetti well, would have no significant effect on the environment or local water supplies. Given the proximity of the Bogetti well to GWF Tracy, and the relative ease of interconnection, Alternative 3 is superior in certain respects to the other alternatives, all of which require trucking of water to GWF Tracy. Finally, given the importance of GWF Tracy to grid reliability, all alternative sources of water must be considered. Under these circumstances, even though Alternative 3 involves the use of groundwater, the alternative should be approved.

E. Environmental Impact of Modification

Section 1769(a)(1)(E) requires "an analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts."

Alternatives 1, 2 and 4 all involve trucking of water to GWF Tracy. As detailed above, each alternative would involve 10-15 round trips per day, using standard 4,000-6,000 gallon tanker trucks. The distances for each alternative vary and are provided above. The anticipated 10-15 truck trips per day represent a negligible change from baseline conditions. The proposed number of trips is also far less than the construction trips analyzed by the Commission when GWF Tracy was certified. During the 22-month construction period, peak daily truck deliveries were 224 and peak daily construction workers were 398.[2] The Commission found the impacts associated with these trips, which are more than an order of magnitude greater than the trips

[2] CEC Final Staff Assessment, page 4.10-10.

associated with the alternative water supplies, to be less than significant.[3] Thus, the truck trips associated with these alternatives would not result in a significant impact on the transportation system or air quality.

With respect to Alternative 3, given that the increased incremental demand that would be placed on the Bogetti well is negligible relative to capacity and historic and current operation of the well, it would not be expected to have a significant impact on the environment. Furthermore, as discussed above, GEI Consultants recently concluded that pumping water at the proposed capacity and rate from a new well located on the GWF Tracy site would not have a significant effect on the environment. Given the proximity of the Bogetti well to GWF Tracy, the results of this analysis are directly analogous to the proposed increased use of the Bogetti well.

With the exception of temporary piping to interconnect the Bogetti well, all temporary water storage and conveyance equipment will be located within the GWF Tracy fence line on previously disturbed land, and therefore would not result in any significant environmental impacts. The temporary diesel pump, which will be less than 50 horsepower, will be CARB certified and will have a CARB issued multiple locations permit. The pump would run for no more than 2-3 hours per day with approximately 5 startups per day.

No other adverse environmental impacts would result from GWF Tracy's reliance on the alternative water supplies. As such, approval of this petition will not result in significant adverse environmental impacts.

F. <u>Modification's Impact on LORS Compliance</u>

Section 1769(a)(1)(F) requires "a discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards."

Approval of this petition will not impact GWF Tracy's ability to comply with applicable laws, ordinances, regulations, and standards.

Implementation of those alternatives that involve use of groundwater would be contrary to Condition of Certification Soil and Water – 4. GWF hereby requests that the Executive Director amend the final decision to remove the prohibition on the use of groundwater.

The Commission previously found that GWF Tracy's use of fresh surface water for evaporative cooling and make-up water for the steam cycle complies with State Water Resource Control Board Resolution 75-58 (Resolution 75-58) and the 2003 Integrated Energy Policy Report (2003 IEPR), both of which set forth policy with regard to use of fresh inland water for power plant cooling.[4] Since the relevant policies apply equally to surface water and groundwater, the prior determination should not change provided the bases for the determination have not changed. The determination was based primarily on the dry cooling technology deployed by GWF Tracy and the resulting low level of water consumption, as well as the lack of availability of alternative sources of water (specifically, recycled water). The circumstances

[3] CEC Final Decision, page 297.

[4] CEC Final Decision, pages 237-238, 240.

supporting the prior determination have not changed – GWF Tracy will continue to consume a small quantity of water relative to other similarly sized facilities with alternative cooling systems, and at least for now, recycled water continues to be unavailable (although GWF is hereby seeking approval to utilize recycled water if and when it does become available).

G. Modification's Impact on the Public and Nearby Property Owners

Sections 1769(a)(1)(G), (H), and (I) require a discussion of how the modification affects the public, a list of potentially affected property owners, and the effects on nearby property owners, the public, and the parties in the application proceeding.

As discussed above, the only off-site consequences associated with the alternative water supplies are the truck trips associated with Alternatives 1, 2 and 4, which will not result in a significant impact. With the exception of the interconnection to the Bogetti well, all temporary infrastructure will be located on-site and will not adversely affect the public or near-by property owners. As also discussed above, the minimal increase in utilization of the Bogetti well will not adversely affect the well or local water supplies, and the Bogetti family has agreed to utilization of their well and installation of any necessary temporary infrastructure. Thus, approval of this petition will not adversely affect nearby properties or the public.

Conclusion

For all of the reasons set forth herein, and based on the authority provided in the Commission's May 13, 2015 Order, GWF respectfully requests that the Executive Director approve utilization of the above-described alternative water supplies and associated water storage and delivery systems.

GWF Tracy will utilize alternative water supplies only when the District does not supply adequate water to ensure reliable operation of the plant. In other words, GWF Tracy will first rely on Canal water to satisfy the plant's water needs whenever Canal water is available, and GWF Tracy will only employ alternative water supplies when such Canal water is not available. Thus, the following alternative water supplies represent a reliability backstop during emergency situations when Canal water is not available.

DATED: June 26, 2015

Respectfully submitted,

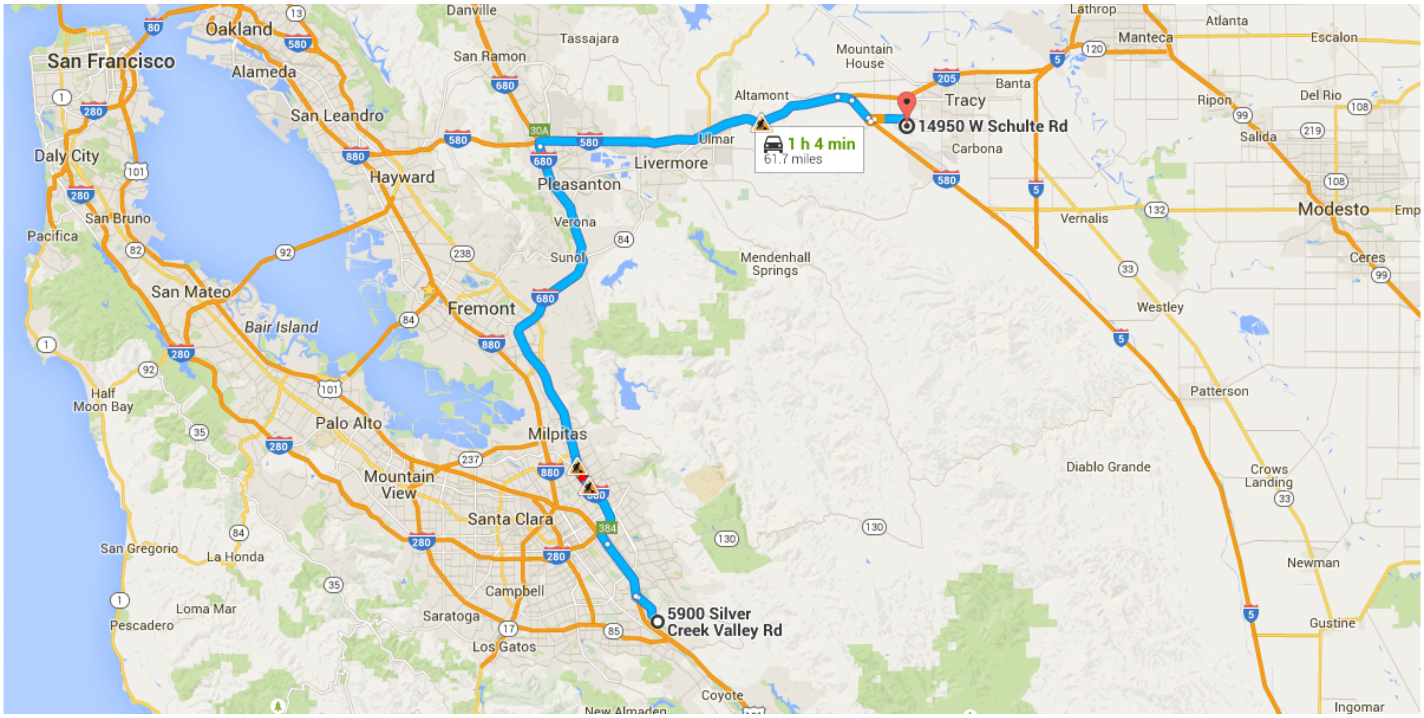
/S/ MICHAEL J. CARROLL

Michael J. Carroll
LATHAM & WATKINS LLP
Counsel to Applicant

EXHIBIT A

Drive 61.7 miles, 1 h 4 min

Directions from **5900 Silver Creek Valley Rd** to **14950 W Schulte Rd**



5900 Silver Creek Valley Rd

San Jose, CA 95138

Get on **US-101 N**

2.3 mi / 4 min

1. Head **northeast** on **Silver Creek Valley Rd**

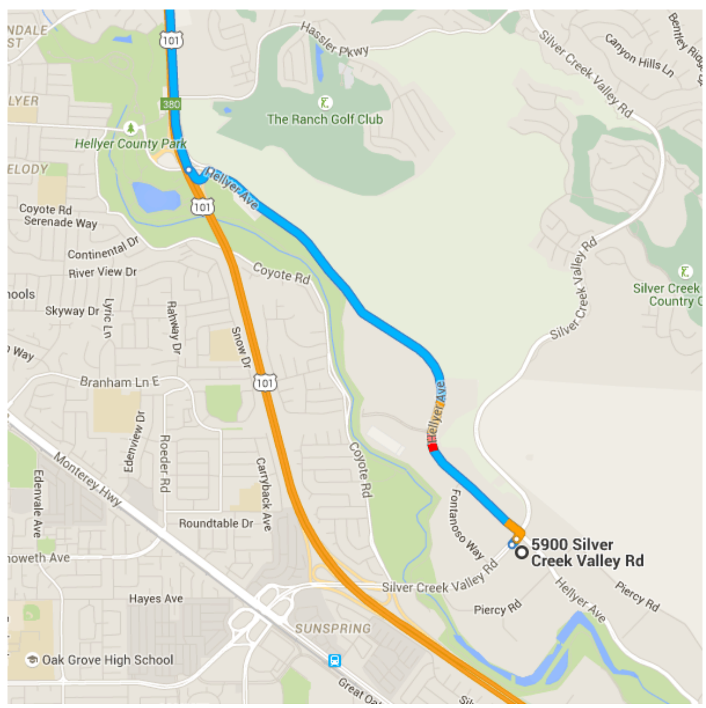
   148 ft

2. Use the left 2 lanes to turn **left** onto **Hellyer Ave**

   2.1 mi

3. Turn **left** onto the ramp to **San Francisco**

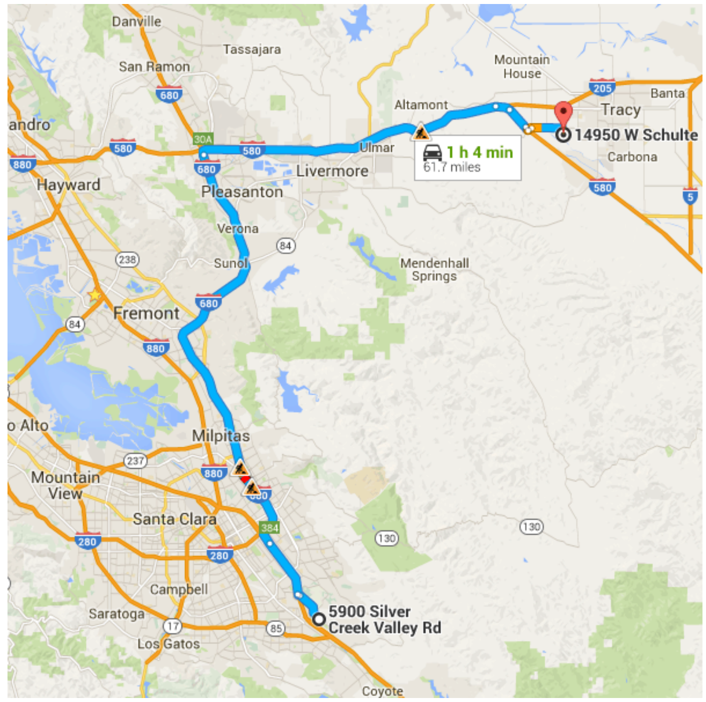
   0.1 mi



Take **I-680 N** and **I-580 E** to **Patterson Pass Rd** in San Joaquin County. Take exit **67**

from **I-580 E**

56.7 mi / 53 min



4. Merge onto **US-101 N**

3.9 mi

5. Use the right 3 lanes to take exit **384** to merge onto **I-680 N** toward **Sacramento**

29.9 mi

6. Use the right 2 lanes to take exit **30A** to merge onto **I-580 E** toward **Stockton**

20.1 mi

7. Use the right 2 lanes to take the **Interstate 580** exit toward **Interstate 5 S/Fresno/Los Angeles**

1.0 mi

8. Continue onto **I-580 E**

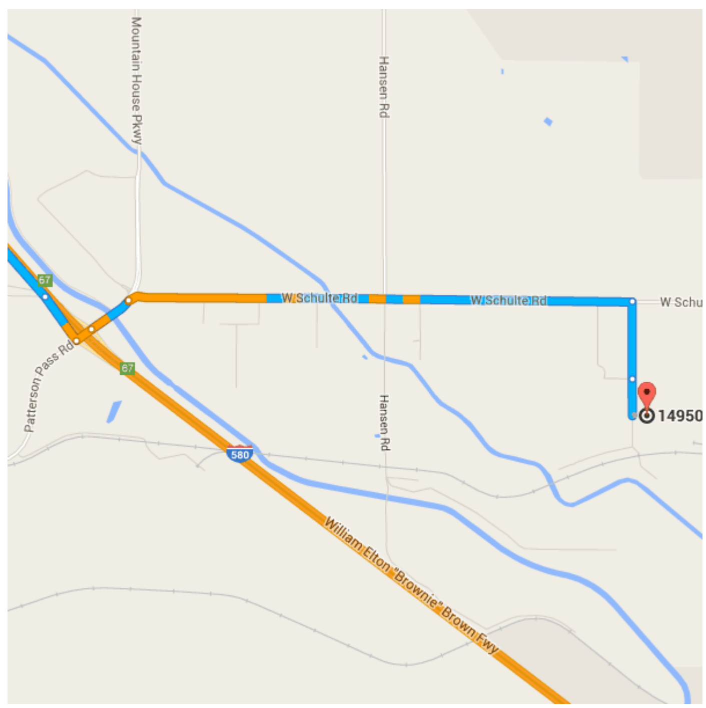
1.5 mi

9. Take exit **67** for **Mountain House Pkwy/Patterson Pass Rd**

0.2 mi

Take **W Schulte Rd** to your destination

2.8 mi / 6 min



10. Turn **left** onto **Patterson Pass Rd**

407 ft

11. Continue onto **Mountain House Pkwy**

0.2 mi

12. Turn **right** onto **W Schulte Rd**

2.0 mi

13. Turn **right**

0.3 mi

14. Continue straight

ⓘ Destination will be on the left

0.2 mi

14950 W Schulte Rd

Tracy, CA 95377

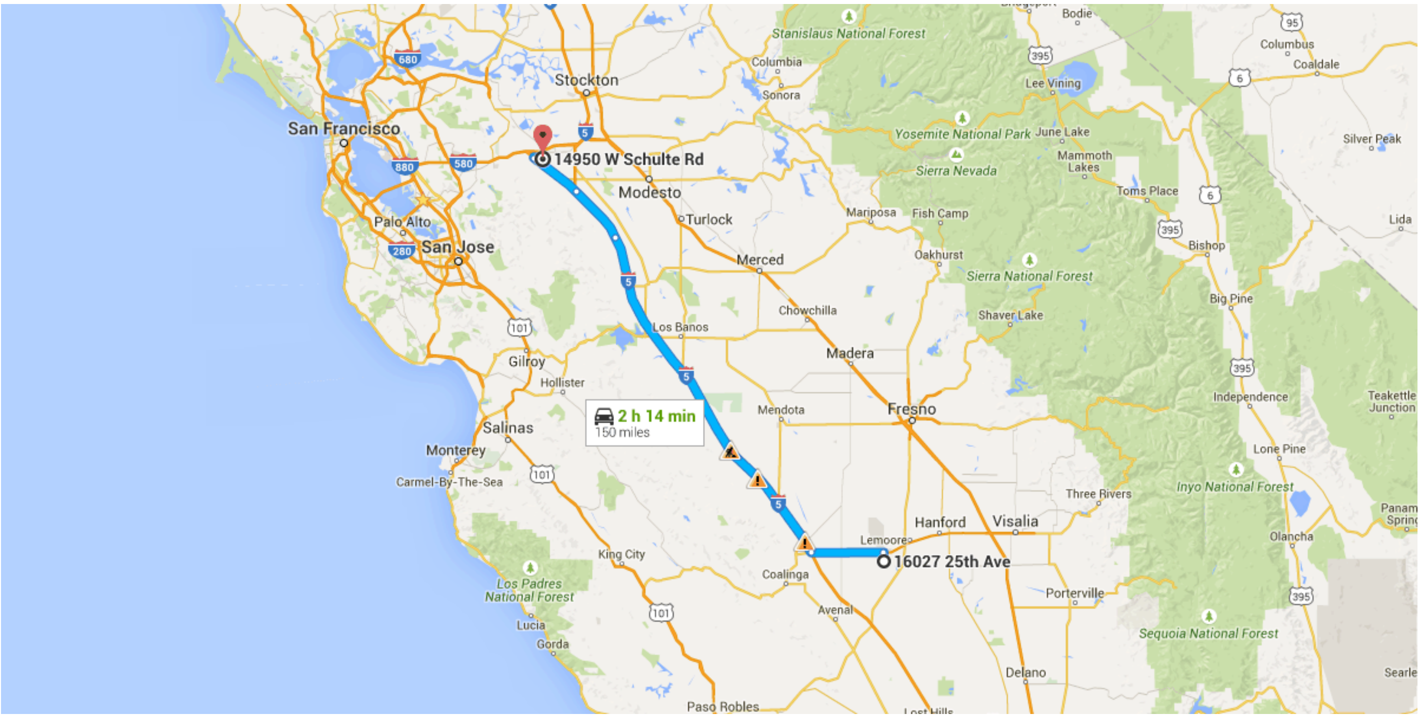
These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

EXHIBIT B

Google

Drive 150 miles, 2 h 14 min

Directions from **16027 25th Ave** to **14950 W Schulte Rd**



o 16027 25th Ave

Lemoore, CA 93245

Get on **I-5 N** in Fresno County

21.3 mi / 24 min

1. Head **north** on **25th Ave/Enterprise Ave** toward **CA-198 E**

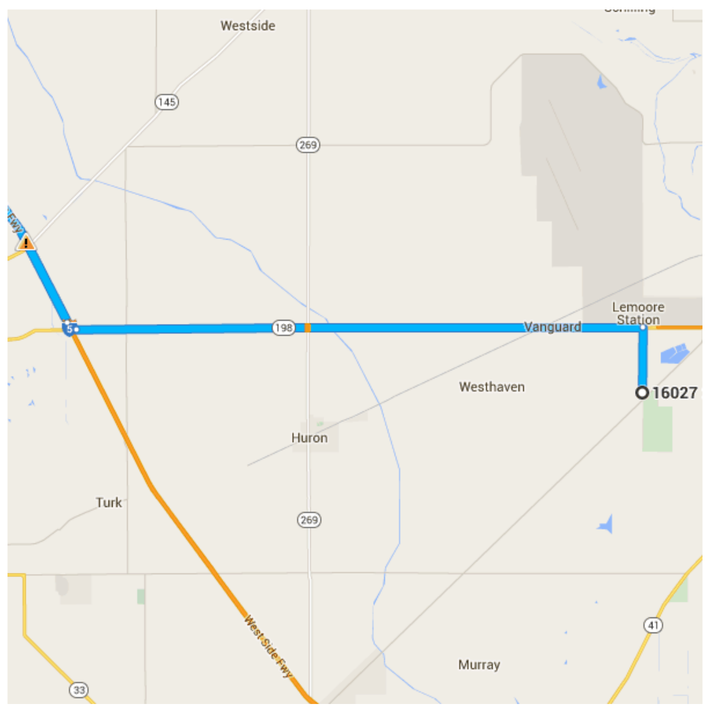
   2.2 mi

2. Turn **left** onto **CA-198 W**

   18.7 mi

3. Take the ramp onto **I-5 N**

   0.4 mi



Continue on **I-5 N** to San Joaquin County.

Take exit **67** from **I-580 W**

126 mi / 1 h 45 min

4. Merge onto **I-5 N**

96.3 mi

5. Keep **left** to stay on **I-5 N**

15.5 mi

6. Keep **left** to continue on **I-580 W**, follow signs for **Tracy/San Francisco**

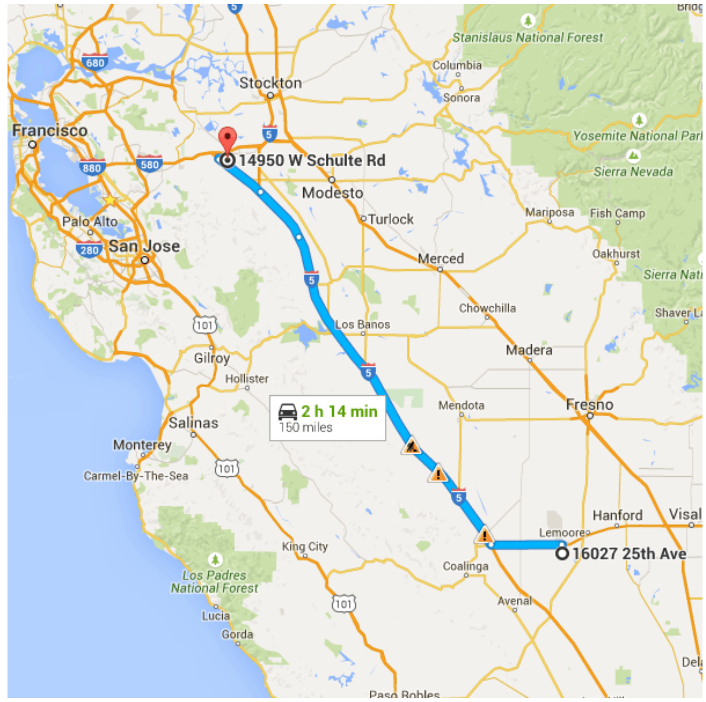
13.8 mi

7. Take exit **67** for **Mountain House Parkway** toward **Patterson Pass Road**

0.2 mi

8. Keep **right** at the fork, follow signs for **Mountain House Pkwy/Stockton** and merge onto **Mountain House Pkwy**

223 ft



Take **W Schulte Rd** to your destination

2.7 mi / 5 min

9. Merge onto **Mountain House Pkwy**

0.2 mi

10. Turn **right** onto **W Schulte Rd**

2.0 mi

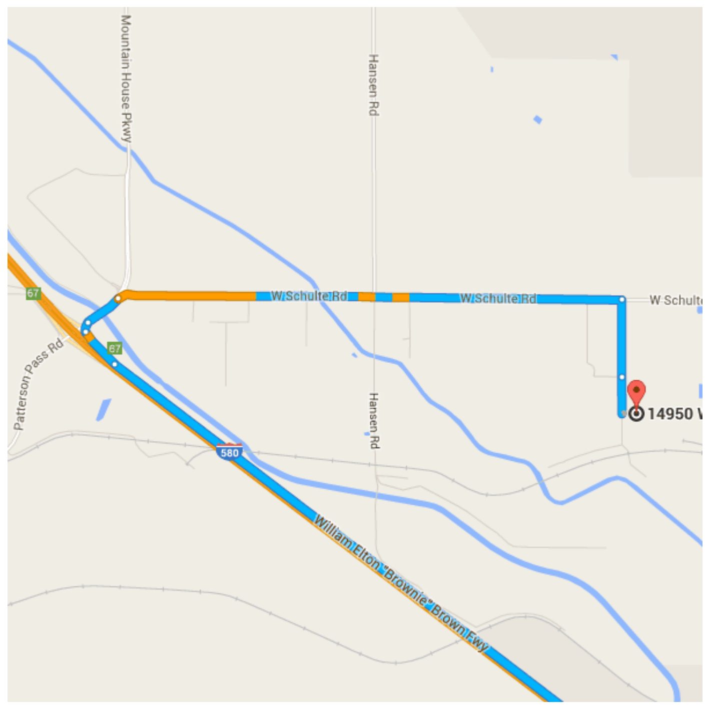
11. Turn **right**

0.3 mi

12. Continue straight

Destination will be on the left

0.2 mi



14950 W Schulte Rd

Tracy, CA 95377

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

EXHIBIT C

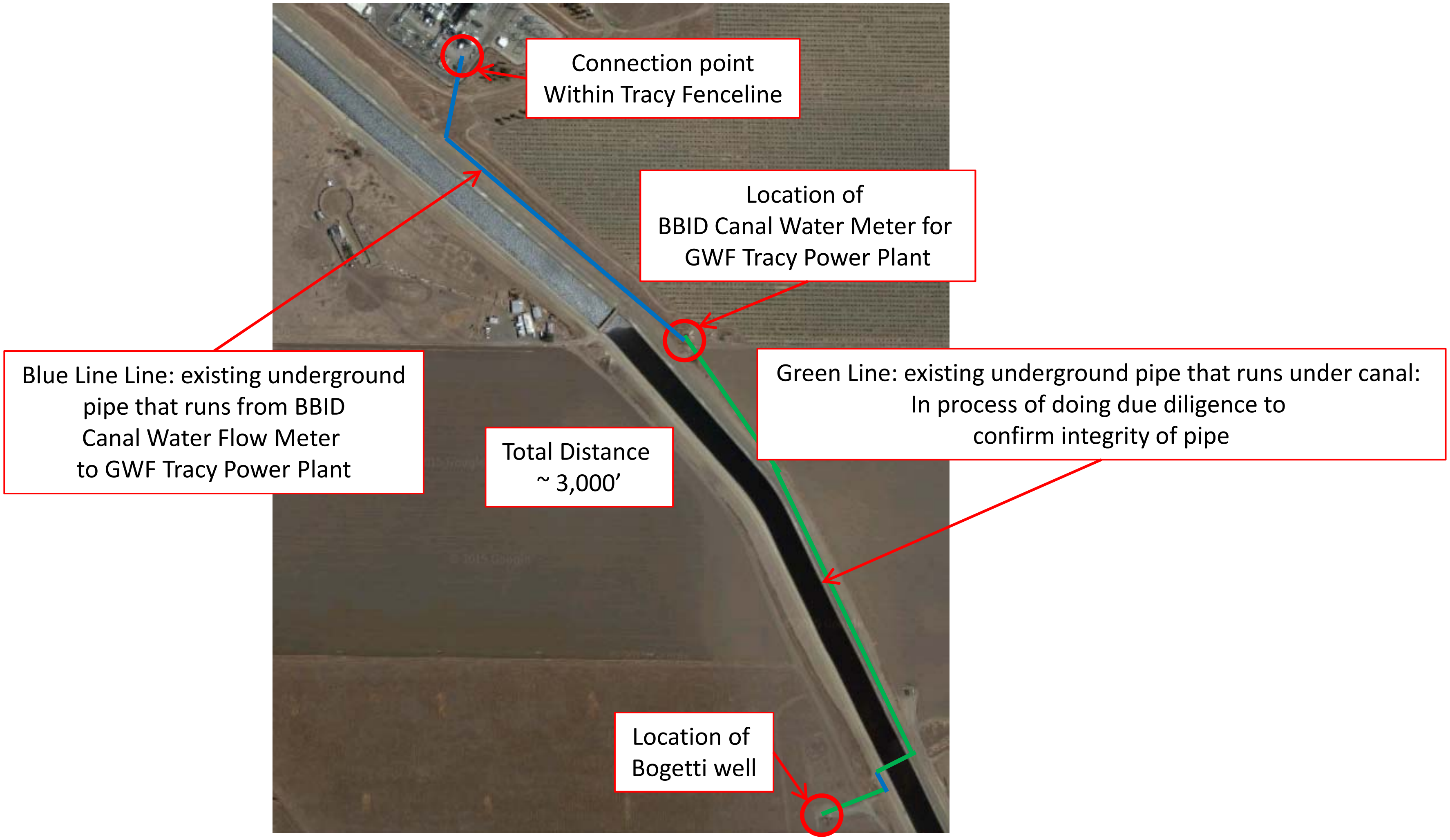
Bogetti Well Connection

Date: 06/25/2015

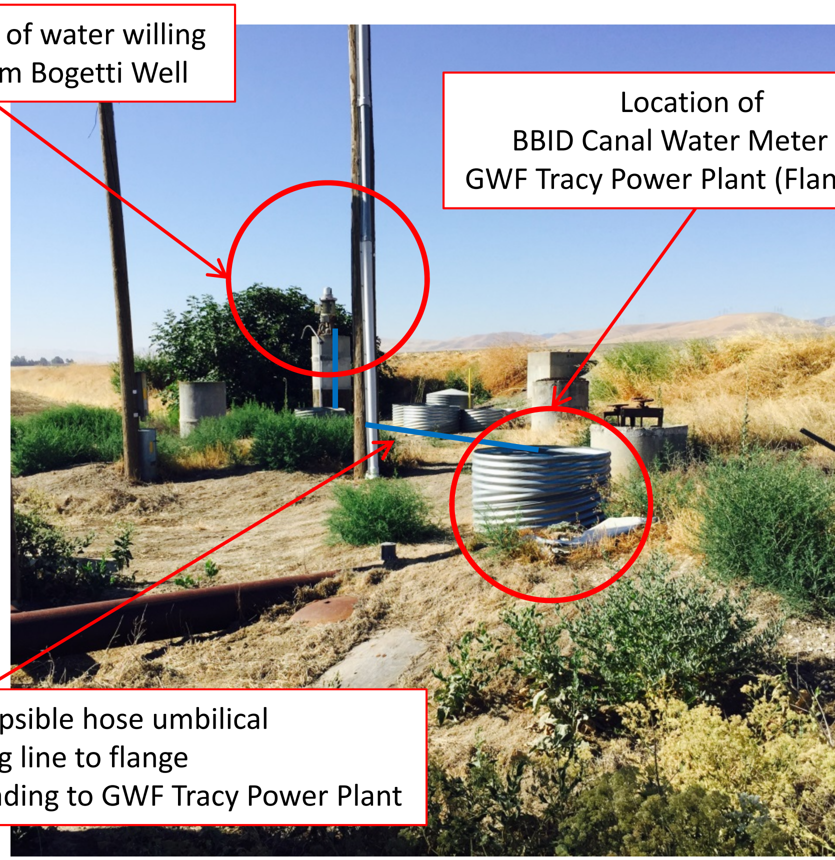
Bogetti Well

- Currently in use for Almond Orchard
- 2,400 gpm
- ~580' Deep
- Additional incremental use by Tracy Power Plant small portion of current agricultural service

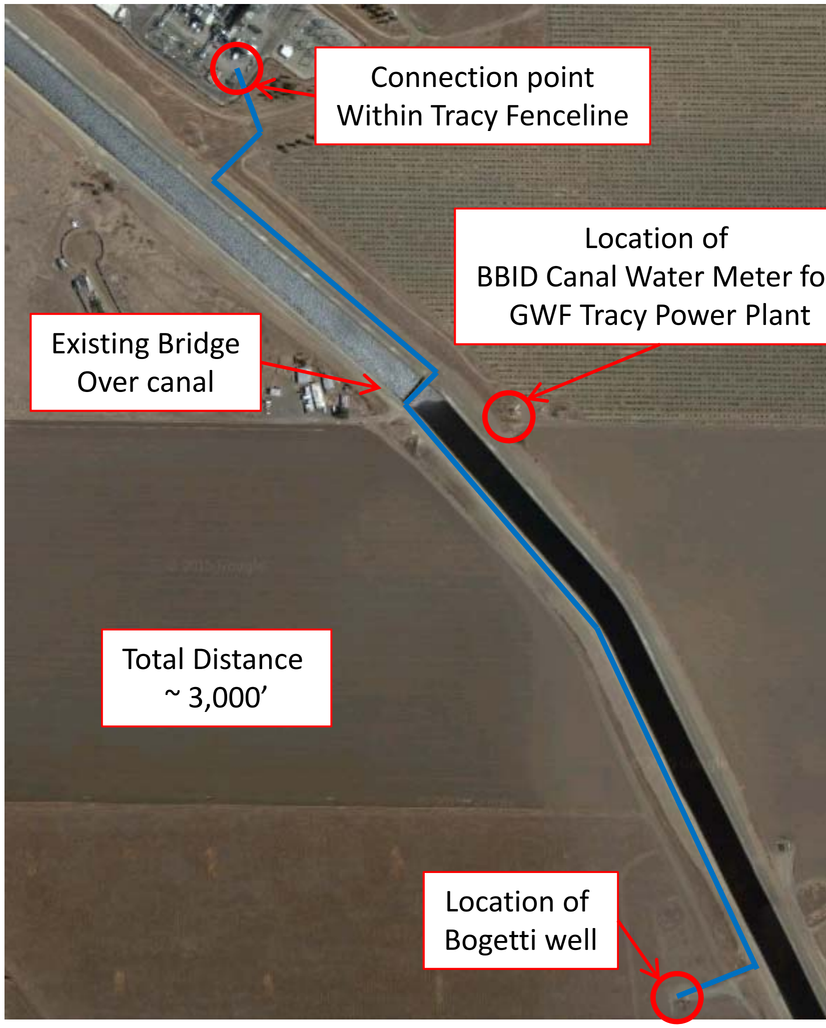
Option A: Tie into existing pipe to connect Bogetti Well to Tracy Power Plant



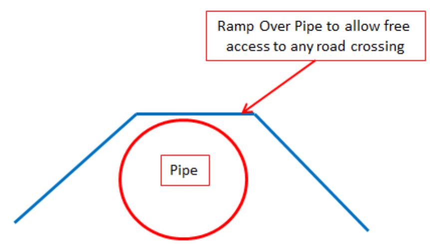
Option A: Tie into existing pipe to connect Bogetti Well to Tracy Power Plant



Option B: Temporary Pipe Run from Bogetti Well to Tracy Power Plant



Line to run along BBID Easement, no roads nor access blocked



Road Access Ramp

EXHIBIT D

attn: mike

DUPLICATE
Driller's Copy
Page 1 of 1

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No.

OWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. 498261
Date Work Began 3/20/1992, Ended 6/1/1992
Local Permit Agency SAN JOAQUIN CTY. PUBLIC HEALTH
Permit No. 920349 Permit Date 2/27/1992

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ROTARY FLUID WATER

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	12	CLAY
12	30	CLAY W/ SAND & GRAVEL
30	150	CLAY W/ GRAVEL
150	160	GRAVEL W/ CLAY
160	175	CLAY
175	178	SAND
178	198	CLAY
198	203	SAND
203	206	CLAY
206	242	GRAVEL
242	246	CLAY
246	256	GRAVEL
256	312	CLAY W/ GRAVEL
312	339	GRAVEL W/ CLAY
339	362	CLAY W/ GRAVEL
362	366	GRAVEL
366	375	CLAY
375	377	GRAVEL
377	382	CLAY W/ GRAVEL
382	386	GRAVEL
386	411	CLAY
411	421	GRAVEL
421	490	CLAY W/ GRAVEL
490	554	GRAVEL
554	568	CLAY
568	571	GRAVEL W/ CLAY
571	622	CLAY

TOTAL DEPTH OF BORING 622 (Feet)
TOTAL DEPTH OF COMPLETED WELL 580 (Feet)

WELL OWNER

Name ALBERT BOGETTI
Mailing Address 855 MCCRACKEN ROAD
VERNALIS CA 95385
CITY STATE ZIP

WELL LOCATION

Address LAMMERS & SCHULTE
City TRACY CA 95330-
County SAN JOAQUIN
APN Book ___ Page ___ Parcel ___
Township 0 Range 0 Section 0
Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC.

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
✓ Irrigation ___ Industrial
MONITORING
TEST WELL
CATHODIC PROTECTION
HEAT EXCHANGE
DIRECT PUSH
INJECTION
VAPOR EXTRACTION
SPARGING
REMEDIATION
OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED 6/1/1992
ESTIMATED YIELD · 0 (GPM) & TEST TYPE ___
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN 0 (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	326	28	✓				STEEL	16	.25	
326	390	28		✓			STEEL	16	.25	.070
390	420	28	✓				STEEL	16	.25	
420	580	28		✓			STEEL	16	.25	.070

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	100	✓			
100	580				1/4 X 1/8 GRAV

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analysis
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME CALWATER DRILLING CO., INC
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

300 S. Kilroy Rd. Turlock CA 95380
ADDRESS CITY STATE ZIP

Signed ___ WELL DRILLER/AUTHORIZED REPRESENTATIVE 06/23/15 DATE SIGNED 434218 C-57 LICENSE NUMBER

DWR 188 REV. 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Power Services, Inc.

Pump Test Report

Customer and Facility Data

Plant Location: 27851 S. Lammers Diesel **HP:** 275 **Diesel Make:** Cummins

GPS Coordinates: Lat 37 **N** 69952 **Long** -121 **W** 47799 **Pump Make:**

Pump Type: Turbine

Customer Mailing Address: Bogetti Brothers
PO Box 273
Vernalis, CA 95385

Gear Head Make: Randolph

WaterSource: Well

Contact: Albert Bogetti

Phone: (209) 610-8641 **Fax:** (209) 835-2996 **Cell:**

Test Results

Test Date: 6/18/2015 **Tester:** Brittani Axtell

Run Number: 1

Standing Water Level (Ft):	246
Recovered Water Level (Ft):	0
Draw Down (Ft):	33.0
Pumping Water Level (Ft):	279
Discharge Pressure at Gauge (PSI):	56
Total Lift:	408.4
Power Hydrodynamics Flow Rate (GPM):	1290
Customer Flow Rate (GPM):	1200
Well Yield:	39.1
Acre Feet per 24 Hr:	5.7
Cubic Feet per Second (CFS):	2.9
RPM at Tachometer:	1550.00
RPM at Gear Head:	1750.0
Name Plate RPM:	0.00
Water Horse Power Output (HP):	133.0
Assumed Brake Horsepower input:	275.000
Pump Efficiency (%):	48.4

Remarks

All results are based on conditions during the time of the test. If these conditions vary from the normal operation of your pump, the results shown may not describe the pump's normal performance.
The efficiency of this pump is considered to be good assuming this run represents plant's normal operating condition.
Standing water level based on 5 minutes recovery, well could still be recovering.

This pump has an adequate test section.

This pump had a propeller type flow meter.

Elevation = 191 ft.

Report and Data Prepared By Power Hydrodynamics - A Division of Power Services, Inc.

Power Services, Inc.

Pump Test Report

Customer and Facility Data

Plant Location: 27851 S. Lammers Diesel **HP:** 300

GPS Coordinates: Lat 37 **N** 69952 **Long** -121 **W** 47799

Diesel Make: Cummins

Pump Make:

Pump Type: Turbine

Gear Head Make: Randolph

WaterSource: Well

Customer Mailing Address: Bogetti Brothers
PO Box 273
Vernalis, CA 95385

Contact: Albert Bogetti

Phone: (209) 610-8641 **Fax:** (209) 835-2996 **Cell:**

Test Results

Test Date: 6/18/2015 **Tester:** Brittani Axtell

Run Number: 1

Standing Water Level (Ft):	246
Recovered Water Level (Ft):	0
Draw Down (Ft):	55.5
Pumping Water Level (Ft):	301.5
Discharge Pressure at Gauge (PSI):	1
Total Lift:	303.8
Power Hydrodynamics Flow Rate (GPM):	2220
Customer Flow Rate (GPM):	2400
Well Yield:	40.0
Acre Feet per 24 Hr:	9.8
Cubic Feet per Second (CFS):	4.9
RPM at Tachometer:	1800.00
RPM at Gear Head:	2000.0
Name Plate RPM:	0.00
Water Horse Power Output (HP):	170.3
Assumed Brake Horsepower input:	300.000
Pump Efficiency (%):	56.8

Remarks

All results are based on conditions during the time of the test. If these conditions vary from the normal operation of your pump, the results shown may not describe the pump's normal performance.
The efficiency of this pump is considered to be good assuming this run represents plant's normal operating condition.
Standing water level based on 5 minutes recovery, well could still be recovering.

This pump has an adequate test section.

This pump had a propeller type flow meter.

Elevation = 191 ft.

Report and Data Prepared By Power Hydrodynamics - A Division of Power Services, Inc.

Canal Ranch: 278515 S. Lammers Road Tracy, CA 95304

Owners:

Michael A. Bogetti 635 McCracken Road Vernalis, CA 95385

Albert Bogetti Jr. 635 McCracken Road Vernalis, CA 95385

Angela Bogetti 754 McCracken Road Vernalis, CA 95385

Paulette Bogetti 464 McCracken Road Vernalis, CA 95385

Paula Finton 719 McCracken Road Vernalis, CA 95385

Pump Location: Southwest side of Delta Mendota Canal

571 Ft. with 461 ft of tubing with bowls at the bottom.

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750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

ORELAP 4034

AT-1807

Laboratory Report

for

Del Puerto Water District
Post Office Box 1596
Patterson, CA 95363
Attention: John Hansen
Fax: 209-892-4469

Date of Issue
04/05/2014
EUROFINS EATON ANALYTICAL

JJN: Joline Neal

Project Manager

Report: 474408
Project: AG-WELLS
Group: Short List

* Accredited in accordance with NELAP.
* Laboratory certifies that the test results meet all **TNI NELAP** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.
* This report shall not be reproduced except in full, without the written approval of the laboratory.

12.75 Williams (WMD)

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STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	Mississippi	Certified
Alaska	CA00006	Montana	Cert 0035
Arizona	AZ0778	Nebraska	Certified
Arkansas	Certified	Nevada	CA00006-2012-1
California-Monrovia-ELAP	2813	New Hampshire *	2959
California-Colton- ELAP	2812	New Jersey *	CA 008
California-Folsom- ELAP	2820	New Mexico	Certified
Colorado	Certified	New York *	11320
Connecticut	PH-0107	North Carolina	06701
Delaware	CA 006	North Dakota	R-009
Florida *	E871024	Oregon (Primary AB) *	ORELAP 4034
Georgia	947	Pennsylvania *	68-565
Guam	13-004r	Rhode Island	LAO00326
Hawaii	Certified	South Carolina	87016
Idaho	Certified	South Dakota	Certified
Illinois *	200033	Tennessee	TN02839
Indiana	C-CA-01	Texas *	T104704230-14-6
Kansas *	E-10268.	Utah *	CA000062014-6
Kentucky	90107	Vermont	VT0114
Louisiana *	LA140009	Virginia *	00210
Maine	CA0006	Washington	C838
Maryland	224	West Virginia	9943 C
Commonwealth of Northern Marianas Is.	MP0004	Wisconsin	998316660
Massachusetts	M-CA006	Wyoming	8TMS-L
Michigan	9906	EPA Region 5	Certified
Los Angeles County Sanitation Districts	10264		

* NELAP/TNI Recognized Accreditation Bodies

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ACLASS.
Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Drinking Water	Food & Beverage	Waste Water
1,4-Dioxane	EPA 522	x	x	
2,3,7,8-TCDD	Modified EPA 1613B	x	x	
Acrylamide	In House Method	x	x	
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H (18th)		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x	x	
Asbestos	EPA 100.2	x		
Bicarbonate Alkalinity as HCO3	SM 2330B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method	x	x	
Carbamates	EPA 531.2	x	x	
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x	x	
COD	EPA 410.4 / SM 5220D			x
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x	x	
Chlorinated Acids	EPA 555	x	x	
Chlorine Dioxide	SM 4500-CLO2 D	x	x	
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1			x
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x	x	
Cyanide, Amenable	SM 4500-CN G	x		x
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method	x	x	
Diquat and Paraquat	EPA 549.2	x	x	
DBP/HAA	SM 6251B	x	x	
Dissolved Oxygen	SM 4500-O G		x	x
E. Coli	(MTF/EC+MUG)	x		
E. Coli	CFR 141.21(f)(6)(i)		x	x
E. Coli	SM 9223			x
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x	x	
E. Coli (Enumeration)	SM 9223B	x	x	
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x	x	
EDTA and NTA	In House Method	x	x	
Endothall	EPA 548.1	x	x	
Enterococci	SM 9230B	x		x
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)			x
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x	x	
Fecal Coliform with Chlorine Present	SM 9221E			x
Fecal Streptococci	SM 9230B	x		x
Fluoride	SM 4500-F C	x	x	x
Glyphosate	EPA 547	x	x	
Gross Alpha/Beta	EPA 900.0	x	x	x
HAAs/ Dalapon	EPA 552.3	x	x	
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method	x	x	
Heterotrophic Bacteria	SM 9215 B	x	x	
Hexavalent Chromium	EPA 218.6	x	x	x
Hexavalent Chromium	EPA 218.7	x	x	
Hexavalent Chromium	SM 3500-Cr B or C (20th)			x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Drinking Water	Food & Beverage	Waste Water
Hormones	EPA 539	x	x	
Hydroxide as OH Calc.	SM 2330B	x	x	
Kjeldahl Nitrogen	EPA 351.2			x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA	x	x	
NDMA	EPA 521	x	x	
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x	x	
Ortho Phosphate	EPA 365.1	x	x	
Ortho Phosphate and Total Phosphorous	EPA 365.1/SM 4500-P E			x
Ortho Phosphorous	SM 4500P E	x	x	
Oxyhalides Disinfection Byproducts	EPA 317.0	x	x	
Perchlorate	EPA 331.0	x	x	
Perchlorate	EPA 314.0	x	x	
Perfluorinated Alkyl Acids	EPA 537	x	x	
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method	x	x	
Pseudomonas	IDEXX Pseudalert	x	x	
Radium-226	RA-226 GA	x	x	
Radium-228	RA-228 GA	x	x	
Radon-222	SM 7500RN	x	x	
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D			x
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4			x
Semi-VOC	EPA 525.2	x	x	
Semi-VOC	EPA 625	x	x	x
Silica	SM 4500-Si D	x	x	x
Silica	SM 4500-SiO2 C	x		x
Sulfide	SM 4500-$S^{=}$ D			x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x	x	
Total Coliform	SM 9221 A, B	x	x	
Total Coliform (Enumeration)	SM 9221 A, B, C	x	x	
Total Coliform / E. coli	Colisure	x	x	
Total Coliform	SM 9221B			x
Total Coliform with Chlorine Present	SM 9221B			x
Total Coliform / E.coli	SM 9223	x	x	
TOC	SM 5310C		x	x
TOC/DOC	SM 5310C	x	x	
TOX	SM 5320B			x
Total Phenols	EPA 420.1			x
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P F			x
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x		x
Uranium by ICP/MS	EPA 200.8	x	x	
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x	x	
VOC	EPA 624	x	x	x
VOC	EPA SW 846 8260	x	x	
VOC	In House Method	x	x	
Yeast and Mold	SM 9610	x	x	

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Acknowledgement of Samples Received

Addr: **Del Puerto Water District**
Post Office Box 1596
Patterson, CA 95363

Client ID: DELPUERTO
Folder #: 474408
Project: AG-WELLS
Sample Group: Short List

Attn: John Hansen
Phone: 209-892-4470

Project Manager: Joline Neal
Phone:
PO #: 1467

The following samples were received from you on **March 26, 2014**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical.

Sample #	Sample ID	Sample Date
201403260378	12.75	03/25/2014 0900

Variable ID: WILLIAMS

@ANIONS48	Arsenic Total ICAP/MS	Boron Total ICAP
Manganese Total ICAP/MS	Mercury	Selenium Low Level ICAP/MS
Total Dissolved Solid (TDS)		

Test Description

@ANIONS48 -- Nitrate, Nitrite by EPA 300.0

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Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629

Phone: 626 386 1100
Fax: 626 386 1101

800 566 LABS (800 566 5227)

Website: www.EatonAnalytical.com

CHAIN OF CUSTODY RECORD

474408

EUROFINS EATON ANALYTICAL USE ONLY:

LOGIN COMMENTS: ______

SAMPLES CHECKED AGAINST COC BY: VF
SAMPLES LOGGED IN BY: W
SAMPLES REC'D DAY OF COLLECTION? ☐ (check for yes)

SAMPLE TEMP RECEIVED AT:
☐ Colton / No. California / Arizona ____ °C (Compliance: 4 ± 2 °C)
☑ Monrovia 1.9 °C (Compliance: 4 ± 2 °C)

CONDITION OF BLUE ICE: Frozen ✓ Partially Frozen ____ Thawed ____ Wet Ice ____ No Ice ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / (FedEx) / UPS / DHL / Area Fast / Top Line / Other: ______

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME: Del Puerto Water District		PROJECT CODE: Ag. Wells
EEA CLIENT CODE: Del Puerto	COC ID: PO 1467	SAMPLE GROUP: Short List

TAT requested: rush by adv notice only STD ____ 1 wk X 3 day ____ 2 day ____ 1 day ____

COMPLIANCE SAMPLES ☐ (check for yes) - Requires state forms ☐
NON-COMPLIANCE SAMPLES ☐ (check for yes)
REGULATION INVOLVED: ______ (eg. SDWA, Phase V, NPDES, FDA,...)
Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION

SEE ATTACHED BOTTLE ORDER FOR ANALYSES ✓ (check for yes), *OR*
list ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)

SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX*	FIELD DATA	FIELD DATA	TDS	Metals	Herbicides	SAMPLER COMMENTS
3/24/14 (3/25/14)	0930	12.75	Williams	RGW			X	X	X	

* MATRIX TYPES: RSW = Raw Surface Water, RGW = Raw Ground Water, CFW = Chlor(am)inated Finished Water, FW = Other Finished Water, SEAW = Sea Water, WW = Waste Water, BW = Bottled Water, SW = Storm Water, SO = Soil, SL = Sludge, O = Other - Please Identify

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLED BY:	[signature]	John Hansen	Del Puerto W.D	3/25/14	1200
RELINQUISHED BY:					
RECEIVED BY:	[signature]	Kaiser Ruger	EEA	3/26/14	1124
RELINQUISHED BY:					
RECEIVED BY:					

PAGE ____ OF ____

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Laboratory Hits
Report: 474408

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Del Puerto Water District
John Hansen
Post Office Box 1596
Patterson, CA 95363

Samples Received on:
03/26/2014

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201403260378	**12.75**				
04/01/2014 17:58	Boron Total ICAP		0.69		mg/L	0.05
03/26/2014 16:49	Nitrate as Nitrogen by IC		12	10	mg/L	0.5
03/26/2014 16:49	Nitrate as NO3 (calc)		53	45	mg/L	2.2
04/02/2014 16:55	Selenium Low Level ICAP/MS		2.0		ug/L	2
03/31/2014 16:18	Total Dissolved Solids (TDS)		640	500	mg/L	10

SUMMARY OF POSITIVE DATA ONLY

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750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Data
Report: 474408

Del Puerto Water District
John Hansen
Post Office Box 1596
Patterson, CA 95363

Samples Received on:
03/26/2014

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
12.75 (201403260378)					**Sampled on 03/25/2014 0900**			
	Variable ID: WILLIAMS							
		EPA 200.8 - ICPMS Metals						
3/27/2014	04/02/2014 16:55	761022	(EPA 200.8)	Arsenic Total ICAP/MS	ND	ug/L	1	1
3/27/2014	04/02/2014 16:55	761022	(EPA 200.8)	Manganese Total ICAP/MS	ND	ug/L	2	1
3/27/2014	04/02/2014 16:55	761022	(EPA 200.8)	Selenium Low Level ICAP/MS	2.0	ug/L	2	1
		EPA 200.7 - ICP Metals						
3/27/2014	04/01/2014 17:58	760706	(EPA 200.7)	Boron Total ICAP	0.69	mg/L	0.05	1
		EPA 245.1 - Mercury Total						
4/2/2014	04/02/2014 20:54	760992	(EPA 245.1)	Mercury	ND	ug/L	0.2	1
		EPA 300.0 - Nitrate, Nitrite by EPA 300.0						
	03/26/2014 16:49	759917	(EPA 300.0)	Nitrate as Nitrogen by IC	12	mg/L	0.5	5
	03/26/2014 16:49	759917	(EPA 300.0)	Nitrate as NO3 (calc)	53	mg/L	2.2	5
		E160.1/SM2540C - Total Dissolved Solids (TDS)						
3/31/2014	03/31/2014 16:18	760438	(E160.1/SM2540C)	Total Dissolved Solids (TDS)	640	mg/L	10	1

Rounding on totals after summation.
(c) - indicates calculated results

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750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
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Fax: (626) 386-1101
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Laboratory Comments
Report: 474408

Del Puerto Water District
John Hansen
Post Office Box 1596
Patterson, CA 95363

The Comments Report may be blank if there are no comments for this report.

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750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory
QC Summary: 474408

Del Puerto Water District

QC Ref # 759917 - Nitrate, Nitrite by EPA 300.0 — **Analysis Date: 03/26/2014**

201403260378 12.75 — Analyzed by: CYP

QC Ref # 760438 - Total Dissolved Solids (TDS) — **Analysis Date: 03/31/2014**

201403260378 12.75 — Analyzed by: JRF

QC Ref # 760706 - ICP Metals — **Analysis Date: 04/01/2014**

201403260378 12.75 — Analyzed by: NINA

QC Ref # 760992 - Mercury Total — **Analysis Date: 04/02/2014**

201403260378 12.75 — Analyzed by: KXS

QC Ref # 761022 - ICPMS Metals — **Analysis Date: 04/02/2014**

201403260378 12.75 — Analyzed by: SXK

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750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory QC
Report: 474408

Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
QC Ref# 759917 - Nitrate, Nitrite by EPA 300.0 by EPA 300.0						**Analysis Date: 03/26/2014**			
LCS1	Nitrate as Nitrogen by IC		2.5	2.44	mg/L	98	(90-110)		
LCS2	Nitrate as Nitrogen by IC		2.5	2.45	mg/L	98	(90-110)	20	0.41
MBLK	Nitrate as Nitrogen by IC			<0.10	mg/L				
MRL_CHK	Nitrate as Nitrogen by IC		0.05	0.0473	mg/L	95	(50-150)		
MS_201403260285	Nitrate as Nitrogen by IC	ND	1.3	1.27	mg/L	100	(80-120)		
MS_201403260325	Nitrate as Nitrogen by IC	0.64	1.3	1.89	mg/L	100	(80-120)		
MSD_201403260285	Nitrate as Nitrogen by IC	ND	1.3	1.28	mg/L	101	(80-120)	20	0.78
MSD_201403260325	Nitrate as Nitrogen by IC	0.64	1.3	1.89	mg/L	100	(80-120)	20	0.0
QC Ref# 760438 - Total Dissolved Solids (TDS) by E160.1/SM2540C						**Analysis Date: 03/31/2014**			
DUP_201403250224	Total Dissolved Solid (TDS)	330		320	mg/L		(0-20)	20	3.1
DUP_201403250471	Total Dissolved Solid (TDS)	290		294	mg/L		(0-20)	20	2.1
LCS1	Total Dissolved Solid (TDS)		175	166	mg/L	95	(80-114)		
LCS2	Total Dissolved Solid (TDS)		700	690	mg/L	99	(80-114)		
MBLK	Total Dissolved Solid (TDS)			<10	mg/L				
MRL_CHK	Total Dissolved Solid (TDS)		10	8.00	mg/L	80	(50-150)		
QC Ref# 760706 - ICP Metals by EPA 200.7						**Analysis Date: 04/01/2014**			
LCS1	Boron Total ICAP		0.5	0.498	mg/L	100	(85-115)		
LCS2	Boron Total ICAP		0.5	0.494	mg/L	99	(85-115)	20	0.81
MBLK	Boron Total ICAP			<0.025	mg/L				
MRL_CHK	Boron Total ICAP		0.05	0.0476	mg/L	95	(50-150)		
MS_201403270280	Boron Total ICAP	ND	0.5	0.515	mg/L	99	(70-130)		
MS2_201403270464	Boron Total ICAP	0.10	0.5	0.603	mg/L	101	(70-130)		
MSD_201403270280	Boron Total ICAP	ND	0.5	0.518	mg/L	100	(70-130)	20	0.77
MSD2_201403270464	Boron Total ICAP	0.10	0.5	0.608	mg/L	101	(70-130)	20	0.83
QC Ref# 760992 - Mercury Total by EPA 245.1						**Analysis Date: 04/02/2014**			
LCS1	Mercury		1.5	1.60	ug/L	107	(85-115)		
LCS2	Mercury		1.5	1.55	ug/L	103	(85-115)	20	3.2
MBLK	Mercury			<0.2	ug/L				
MRL_CHK	Mercury		0.2	0.245	ug/L	122	(50-150)		
MS_201403200377	Mercury	ND	1.5	1.65	ug/L	110	(70-130)		
MS_201403200378	Mercury	ND	1.5	1.54	ug/L	102	(70-130)		
MSD_201403200377	Mercury	ND	1.5	1.69	ug/L	113	(70-130)	20	2.4
MSD_201403200378	Mercury	ND	1.5	1.55	ug/L	103	(70-130)	20	0.65
QC Ref# 761022 - ICPMS Metals by EPA 200.8						**Analysis Date: 04/02/2014**			
LCS1	Arsenic Total ICAP/MS		20	21.6	ug/L	108	(85-115)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Laboratory QC
Report: 474408

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	Arsenic Total ICAP/MS		20	21.5	ug/L	108	(85-115)	20	0.46
MBLK	Arsenic Total ICAP/MS			<1	ug/L				
MRL_CHK	Arsenic Total ICAP/MS		1.0	1.04	ug/L	104	(50-150)		
MS_201403270414	Arsenic Total ICAP/MS	ND	20	21.7	ug/L	109	(70-130)		
MS2_201403280112	Arsenic Total ICAP/MS	ND	20	22.7	ug/L	114	(70-130)		
MSD_201403270414	Arsenic Total ICAP/MS	ND	20	21.8	ug/L	109	(70-130)	20	0.46
MSD2_201403280112	Arsenic Total ICAP/MS	ND	20	22.6	ug/L	113	(70-130)	20	0.44
LCS1	Manganese Total ICAP/MS		50	55.7	ug/L	111	(85-115)		
LCS2	Manganese Total ICAP/MS		50	56.4	ug/L	113	(85-115)	20	1.3
MBLK	Manganese Total ICAP/MS			<2	ug/L				
MRL_CHK	Manganese Total ICAP/MS		2.0	2.11	ug/L	106	(50-150)		
MS_201403270414	Manganese Total ICAP/MS	NA	50	52.9	ug/L	103	(70-130)		
MS_201403270414	Manganese Total ICAP/MS	ND	50	52.9	ug/L	103	(70-130)		
MS_201403270414	Manganese Total ICAP/MS	ND	50	52.9	ug/L	103	(70-130)		
MS2_201403280112	Manganese Total ICAP/MS	ND	50	51.9	ug/L	104	(70-130)		
MSD_201403270414	Manganese Total ICAP/MS	NA	50	52.4	ug/L	102	(70-130)	20	0.95
MSD_201403270414	Manganese Total ICAP/MS	ND	50	52.4	ug/L	102	(70-130)	20	0.95
MSD_201403270414	Manganese Total ICAP/MS	ND	50	52.4	ug/L	102	(70-130)	20	0.95
MSD2_201403280112	Manganese Total ICAP/MS	ND	50	50.5	ug/L	101	(70-130)	20	2.7
LCS1	Selenium Low Level ICAP/MS		20	21.7	ug/L	108	(85-115)		
LCS2	Selenium Low Level ICAP/MS		20	21.2	ug/L	106	(85-115)	20	2.3
MBLK	Selenium Low Level ICAP/MS			<2	ug/L				
MRL_CHK	Selenium Low Level ICAP/MS		2.0	2.37	ug/L	119	(50-150)		
MS_201403270414	Selenium Low Level ICAP/MS	NA	20	26.9	ug/L	**135**	(70-130)		
MS2_201403280112	Selenium Low Level ICAP/MS	NA	20	26.5	ug/L	**132**	(70-130)		
MSD_201403270414	Selenium Low Level ICAP/MS	NA	20	27.3	ug/L	**136**	(70-130)	20	1.5
MSD2_201403280112	Selenium Low Level ICAP/MS	NA	20	26.2	ug/L	**131**	(70-130)	20	1.1

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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750 Royal Oaks Drive, Suite 100
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Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

ORELAP 4034

AT-1807

Laboratory Report

for

Del Puerto Water District
Post Office Box 1596
Patterson, CA 95363
Attention: John Hansen
Fax: 209-892-4469

Date of Issue
06/10/2014
EUROFINS EATON ANALYTICAL

JJN: Joline Neal

Project Manager

Report: 480943
Project: AG-WELLS
Group: Long List

* Accredited in accordance with TNI 2009 and ISO/IEC 17025:2005.
* Laboratory certifies that the test results meet all **TNI 2009 and ISO/IEC 17025:2005** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.

12.75 Long. List

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STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	Mississippi	Certified
Alaska	CA00006	Montana	Cert 0035
Arizona	AZ0778	Nebraska	Certified
Arkansas	Certified	Nevada	CA00006-2012-1
California-Monrovia-ELAP	2813	New Hampshire *	2959
California-Colton- ELAP	2812	New Jersey *	CA 008
California-Folsom- ELAP	2820	New Mexico	Certified
Colorado	Certified	New York *	11320
Connecticut	PH-0107	North Carolina	06701
Delaware	CA 006	North Dakota	R-009
Florida *	E871024	Oregon (Primary AB) *	ORELAP 4034
Georgia	947	Pennsylvania *	68-565
Guam	13-004r	Rhode Island	LAO00326
Hawaii	Certified	South Carolina	87016
Idaho	Certified	South Dakota	Certified
Illinois *	200033	Tennessee	TN02839
Indiana	C-CA-01	Texas *	T104704230-14-6
Kansas *	E-10268	Utah *	CA000062014-6
Kentucky	90107	Vermont	VT0114
Louisiana *	LA140009	Virginia *	00210
Maine	CA0006	Washington	C838
Maryland	224	West Virginia	9943 C
Commonwealth of Northern Marianas Is.	MP0004	Wisconsin	998316660
Massachusetts	M-CA006	Wyoming	8TMS-L
Michigan	9906	EPA Region 5	Certified
Los Angeles County Sanitation Districts	10264		

* NELAP/TNI Recognized Accreditation Bodies

Eurofins Eaton Analytical, Inc.
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629
T | 626-386-1100
F | 626-386-1101
www.EatonAnalytical.com

The tests listed below are accredited and meet the requirements of ISO 17025 as verified by the ANSI-ASQ National Accreditation Board/ACLASS.
Refer to Certificate and scope of accreditation (AT 1807) found at: http://www.eatonanalytical.com

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Drinking Water	Food & Beverage	Waste Water
1,4-Dioxane	EPA 522	x	x	
2,3,7,8-TCDD	Modified EPA 1613B	x	x	
Acrylamide	In House Method	x	x	
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H (18th)		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x	x	
Asbestos	EPA 100.2	x		
Bicarbonate Alkalinity as HCO3	SM 2330B	x	x	x
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method	x	x	
Carbamates	EPA 531.2	x	x	
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x	x	
COD	EPA 410.4 / SM 5220D			x
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x	x	
Chlorinated Acids	EPA 555	x	x	
Chlorine Dioxide	SM 4500-CLO2 D	x	x	
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1			x
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x	x	
Cyanide, Amenable	SM 4500-CN G	x		x
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method	x	x	
Diquat and Paraquat	EPA 549.2	x	x	
DBP/HAA	SM 6251B	x	x	
Dissolved Oxygen	SM 4500-O G		x	x
E. Coli	(MTF/EC+MUG)	x		
E. Coli	CFR 141.21(f)(6)(i)		x	x
E. Coli	SM 9223			x
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x	x	
E. Coli (Enumeration)	SM 9223B	x	x	
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x	x	
EDTA and NTA	In House Method	x	x	
Endothall	EPA 548.1	x	x	
Enterococci	SM 9230B	x		x
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)			x
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x	x	
Fecal Coliform with Chlorine Present	SM 9221E			x
Fecal Streptococci	SM 9230B	x		x
Fluoride	SM 4500-F C	x	x	x
Glyphosate	EPA 547	x	x	
Gross Alpha/Beta	EPA 900.0	x	x	x
HAAs/ Dalapon	EPA 552.3	x	x	
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method	x	x	
Heterotrophic Bacteria	SM 9215 B	x	x	
Hexavalent Chromium	EPA 218.6	x	x	x
Hexavalent Chromium	EPA 218.7	x	x	
Hexavalent Chromium	SM 3500-Cr B or C (20th)			x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Drinking Water	Food & Beverage	Waste Water
Hormones	EPA 539	x	x	
Hydroxide as OH Calc.	SM 2330B	x	x	
Kjeldahl Nitrogen	EPA 351.2			x
Mercury	EPA 245.1	x	x	x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA	x	x	
NDMA	EPA 521	x	x	
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x	x	
Ortho Phosphate	EPA 365.1	x	x	
Ortho Phosphate and Total Phosphorous	EPA 365.1/SM 4500-P E			x
Ortho Phosphorous	SM 4500P E	x	x	
Oxyhalides Disinfection Byproducts	EPA 317.0	x	x	
Perchlorate	EPA 331.0	x	x	
Perchlorate	EPA 314.0	x	x	
Perfluorinated Alkyl Acids	EPA 537	x	x	
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method	x	x	
Pseudomonas	IDEXX Pseudalert	x	x	
Radium-226	RA-226 GA	x	x	
Radium-228	RA-228 GA	x	x	
Radon-222	SM 7500RN	x	x	
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D			x
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4			x
Semi-VOC	EPA 525.2	x	x	
Semi-VOC	EPA 625	x	x	x
Silica	SM 4500-Si D	x	x	x
Silica	SM 4500-SiO2 C	x		x
Sulfide	SM 4500-S$^=$ D			x
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x	x	
Total Coliform	SM 9221 A, B	x	x	
Total Coliform (Enumeration)	SM 9221 A, B, C	x	x	
Total Coliform / E. coli	Colisure	x	x	
Total Coliform	SM 9221B			x
Total Coliform with Chlorine Present	SM 9221B			x
Total Coliform / E.coli	SM 9223	x	x	
TOC	SM 5310C		x	x
TOC/DOC	SM 5310C	x	x	
TOX	SM 5320B			x
Total Phenols	EPA 420.1			x
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P F			x
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x		x
Uranium by ICP/MS	EPA 200.8	x	x	
UV 254	SM 5910B	x		
VOC	EPA 524.2/EPA 524.3	x	x	
VOC	EPA 624	x	x	x
VOC	EPA SW 846 8260	x	x	
VOC	In House Method	x	x	
Yeast and Mold	SM 9610	x	x	

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Acknowledgement of Samples Received

Addr: **Del Puerto Water District**
Post Office Box 1596
Patterson, CA 95363

Attn: John Hansen
Phone: 209-892-4470

Client ID: DELPUERTO
Folder #: 480943
Project: AG-WELLS
Sample Group: Long List

Project Manager: Joline Neal
Phone:
PO #: 1475

The following samples were received from you on **May 09, 2014**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical.

Sample #	Sample ID	Sample Date
201405100102	12.75 R	05/08/2014 0930

Variable ID: WMD

@525PLUS	@ANIONS28	@ANIONS48
@EDB-DBC	@ML505	@ML515.4
@ML531.2	Aluminum Total ICAP/MS	Antimony Total ICAP/MS
Barium Total ICAP/MS	Beryllium Total ICAP/MS	Cadmium Total ICAP/MS
Chromium Total ICAP/MS	Copper Total ICAP/MS	Glyphosate
Gross Alpha by Co-precipitation	Iron Total ICAP	Lead Total ICAP/MS
Molybdenum Total ICAP/MS	Nickel Total ICAP/MS	Silver Total ICAP/MS
Sodium Total ICAP	Specific Conductance	Zinc Total ICAP/MS

Test Description

@525PLUS -- Semivolatiles by GCMS

@ANIONS28 -- Chloride, Sulfate by EPA 300.0

@ANIONS48 -- Nitrate, Nitrite by EPA 300.0

@EDB-DBC -- EPA Method 504.1

@ML505 -- Organochlorine Pesticides/PCBs

@ML515.4 -- Chlorophenoxy Herbicides

@ML531.2 -- Aldicarbs

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Eaton Analytical

CHAIN OF CUSTODY RECORD

480943

750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629

Phone: 626 386 1100
Fax: 626 386 1101

800 566 LABS (800 566 5227)

Website: www.EatonAnalytical.com

EUROFINS EATON ANALYTICAL USE ONLY:

LOGIN COMMENTS: ____

SAMPLES CHECKED AGAINST COC BY: JS
SAMPLES LOGGED IN BY: JS
SAMPLES REC'D DAY OF COLLECTION? ☐ (check for yes)

SAMPLE TEMP RECEIVED AT:
☐ Colton / No. California / Arizona ____ °C (Compliance: 4 ± 2 °C)
☑ Monrovia 3.3 °C (Compliance: 4 ± 2 °C)

CONDITION OF BLUE ICE: Frozen ____ Partially Frozen ____ Thawed ____ Wet Ice ✓ No Ice ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / (FedEx) / UPS / DHL / Area Fast / Top Line / Other: ____

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME: DEL PUERTO WATER DISTRICT

PROJECT CODE: AQ. WELLS

EEA CLIENT CODE: DEL PUERTO

COC ID: 1475

SAMPLE GROUP: LONG TEST

TAT requested: rush by adv notice only STD ___ 1 wk ___ 3 day ___ 2 day ___ 1 day ___

COMPLIANCE SAMPLES ☐ (check for yes) - Requires state forms ☐

NON-COMPLIANCE SAMPLES ☐ (check for yes)

REGULATION INVOLVED: ____

Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION (eg. SDWA, Phase V, NPDES, FDA,...)

SEE ATTACHED BOTTLE ORDER FOR ANALYSES ☑ (check for yes), OR

list ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)

SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX *	FIELD DATA	FIELD DATA															SAMPLER COMMENTS
5/8/14	930	12.75 R	WMD	RGW																	

* MATRIX TYPES: RSW = Raw Surface Water, RGW = Raw Ground Water, CFW = Chlor(am)inated Finished Water, FW = Other Finished Water, SEAW = Sea Water, WW = Waste Water, BW = Bottled Water, SW = Storm Water, SO = Soil, SL = Sludge, O = Other - Please Identify

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLED BY:	Kraig Lippincott	KRAIG LIPPINCOTT	DEL PUERTO WATER DIST.	5-8-14	1100
RELINQUISHED BY:					
RECEIVED BY:	[signature]	Dario S.	EEA	5-9-14	1645
RELINQUISHED BY:					
RECEIVED BY:					

PAGE ____ OF ____

MWH LABORATORIES
A Division of MWH Americas, Inc
750 Royal Oaks Drive Suite 100
Monrovia, CA 91016 (626) 386-1100 FAX (626) 386-1124

Kit Order for Del Puerto Water District

Rita S Sprinkle is Your MWH Labs Project Manager

Sampler: please return this paper with your samples

Template: 15734
Created By: SAM
Order Date: 05/14/2012
STG: Bottle Orders

Client ID: DELPUERTO
Project Code: AG-WELLS Bottle Orders
Group Name: Long List
PO#/JOB#:

Ship By:	Ship Sample Kits to	Send Report to	Billing Address
	Del Puerto Water District 17840 Ward Avenue Patterson, CA 95363 Attn: District Office Phone: 209-892-4470 Fax: 209-892-4469	Del Puerto Water District Post Office Box 1596 Patterson, CA 95363 Attn: John Hansen Phone: 209-892-4470 Fax: 209-892-4469	Del Puerto Water District Post Office Box 1596 Patterson, CA 95363 Attn: John Hansen Phone: 209-892-4470 Fax: 209-892-4469

# of Samples	Tests	Bottles - Qty for each sample, type & preservative if any	UN DOT #
6	@525PLUS	2 1L amber glass 2ml of 6N HCl	UN1789
6	@ANIONS48, @ANIONS28, Specific Conductance	1 125ml poly no preservative	
6	@EDB-DBC	3 40ml amber glass vial no preservative	
6	@ML505	4 40ml amber glass vial 1drop thio (8%)	
6	@ML515.4	2 125ml amber glass 7mg SULFITE xls	
6	@ML531.2	2 40ml amber glass vial 0.37g KH2Citrate+6mg ThioSO4	
6	@RADCWB	1 500ml poly 2ml 18%HNO3+125ml poly/no pres	UN2031
6	Aluminum Total ICAP/MS, Antimony Total ICAP/MS, Barium Total ICAP/MS, Beryllium Total ICAP/MS, Cadmium Total ICAP/MS, Chromium Total ICAP/MS, Copper Total ICAP/MS, Lead Total ICAP/MS, Molybdenu Total ICAP/MS, Nickel Total ICAP/MS, Silver Total ICAP/MS, Zinc Total ICAP/MS	1 500ml acid poly 2ml HNO3 (18%)	UN2031
6	Glyphosate	1 125ml amber glass no preservative	
6	Iron Total ICAP, Sodium Total ICAP not rel	1 250ml acid rinsed 1ml HNO3 (18%)	UN2031

Comments

Please split into 6 sample kits. Ship to client for recipt by Friday, May 18.

Code	Status	Date Shipped	Via	Tracking #	# of Coolers	Prepared By

eurofins | Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Hits
Report: 480943

Del Puerto Water District
John Hansen
Post Office Box 1596
Patterson, CA 95363

Samples Received on:
05/09/2014

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201405100102	**12.75 R**				
05/14/2014 14:48	Barium Total ICAP/MS		23	2000	ug/L	2
05/09/2014 17:17	Chloride		140	250	mg/L	5
05/14/2014 14:48	Chromium Total ICAP/MS		13	100	ug/L	1
06/05/2014 16:22	Gross Alpha + adjusted error		3.9		pCi/L	3
06/05/2014 16:22	Gross Alpha by Coprecipitation		3.7		pCi/L	3
05/15/2014 3:02	Iron Total ICAP		0.021	0.3	mg/L	0.02
05/09/2014 17:17	Nitrate as Nitrogen by IC		4.6	10	mg/L	0.5
05/09/2014 17:17	Nitrate as NO3 (calc)		20	45	mg/L	2.2
05/15/2014 3:02	Sodium Total ICAP		140		mg/L	1
06/03/2014 15:35	Specific Conductance, 25 C		1300		umho/cm	2
05/09/2014 17:17	Sulfate		270	250	mg/L	2.5
05/09/2014 17:17	Total Nitrate, Nitrite-N, CALC		4.6		mg/L	0.1

SUMMARY OF POSITIVE DATA ONLY

eurofins | Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Data Report: 480943

Del Puerto Water District
John Hansen
Post Office Box 1596
Patterson, CA 95363

Samples Received on: 05/09/2014

Prepared	Analyzed		QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
12.75 R (201405100102)						**Sampled on 05/08/2014 0930**			
	Variable ID: WMD								
		EPA 200.8 - ICPMS Metals							
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Aluminum Total ICAP/MS	ND	ug/L	20	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Antimony Total ICAP/MS	ND	ug/L	1	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Barium Total ICAP/MS	23	ug/L	2	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Beryllium Total ICAP/MS	ND	ug/L	1	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Cadmium Total ICAP/MS	ND	ug/L	0.5	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Chromium Total ICAP/MS	13	ug/L	1	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Copper Total ICAP/MS	ND	ug/L	2	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Lead Total ICAP/MS	ND	ug/L	0.5	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Molybdenum Total ICAP/MS	ND	ug/L	2	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Nickel Total ICAP/MS	ND	ug/L	5	1
5/12/2014	05/21/2014	13:20	771102	(EPA 200.8)	Silver Total ICAP/MS	ND	ug/L	0.5	1
5/12/2014	05/14/2014	14:48	769713	(EPA 200.8)	Zinc Total ICAP/MS	ND	ug/L	20	1
		EPA 200.7 - ICP Metals							
5/12/2014	05/15/2014	3:02	769664	(EPA 200.7)	Iron Total ICAP	0.021	mg/L	0.02	1
5/12/2014	05/15/2014	3:02	769664	(EPA 200.7)	Sodium Total ICAP	140	mg/L	1	1
		EPA 505 - Organochlorine Pesticides/PCBs							
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Alachlor (Alanex)	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Aldrin	ND	ug/L	0.01	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Chlordane	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Dieldrin	ND	ug/L	0.01	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Endrin	ND	ug/L	0.01	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Heptachlor	ND	ug/L	0.01	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Heptachlor Epoxide	ND	ug/L	0.01	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Lindane (gamma-BHC)	ND	ug/L	0.01	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Methoxychlor	ND	ug/L	0.05	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	PCB 1016 Aroclor	ND	ug/L	0.08	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	PCB 1221 Aroclor	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	PCB 1232 Aroclor	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	PCB 1242 Aroclor	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	PCB 1248 Aroclor	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	PCB 1254 Aroclor	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	PCB 1260 Aroclor	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Total PCBs	ND	ug/L	0.1	1
5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Toxaphene	ND	ug/L	0.5	1

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5/15/2014	05/15/2014	19:10	770427	(EPA 505)	Tetrachlorometaxylene	102	%		1
		EPA 515.4 - Chlorophenoxy Herbicides							
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	2,4,5-T	ND	ug/L	0.2	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	2,4,5-TP (Silvex)	ND	ug/L	0.2	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	2,4-D	ND	ug/L	0.1	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	2,4-DB	ND	ug/L	2	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	3,5-Dichlorobenzoic acid	ND	ug/L	0.5	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Acifluorfen	ND	ug/L	0.2	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Bentazon	ND	ug/L	0.5	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Dalapon	ND	ug/L	1	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Dicamba	ND	ug/L	0.1	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Dichlorprop	ND	ug/L	0.5	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Dinoseb	ND	ug/L	0.2	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Pentachlorophenol	ND	ug/L	0.04	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Picloram	ND	ug/L	0.1	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	Tot DCPA Mono&Diacid Degradate	ND	ug/L	0.1	1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	2,4-Dichlorophenyl acetic acid	105	%		1
5/15/2014	05/17/2014	04:54	770774	(EPA 515.4)	4,4-Dibromooctafluorobiphenyl	97	%		1
		EPA 504.1 - EPA Method 504.1							
5/15/2014	05/16/2014	06:13	770169	(EPA 504.1)	Dibromochloropropane (DBCP)	ND	ug/L	0.01	1
5/15/2014	05/16/2014	06:13	770169	(EPA 504.1)	Ethylene Dibromide (EDB)	ND	ug/L	0.01	1
5/15/2014	05/16/2014	06:13	770169	(EPA 504.1)	1,2-Dibromopropane	96	%		1
		EPA 525.2 - Semivolatiles by GCMS							
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	2,4-Dinitrotoluene	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	2,6-Dinitrotoluene	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	4,4-DDD	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	4,4-DDE	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	4,4-DDT	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Acenaphthene	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Acenaphthylene	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Acetochlor	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Alachlor	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Aldrin	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Alpha-BHC	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	alpha-Chlordane	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Anthracene	ND	ug/L	0.02	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Atrazine	ND	ug/L	0.05	1

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5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Benz(a)Anthracene	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.02	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Benzo(b)Fluoranthene	ND	ug/L	0.02	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Benzo(g,h,i)Perylene	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Benzo(k)Fluoranthene	ND	ug/L	0.02	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Beta-BHC	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Bromacil	ND	ug/L	0.2	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Butachlor	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Butylbenzylphthalate	ND	ug/L	0.5	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Caffeine by method 525mod	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Chlorobenzilate	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Chloroneb	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Chlorothalonil(Draconil,Bravo)	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Chlorpyrifos (Dursban)	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Chrysene	ND	ug/L	0.02	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Delta-BHC	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Diazinon (Qualitative)	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Dibenz(a,h)Anthracene	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Dichlorvos (DDVP)	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Dieldrin	ND	ug/L	0.2	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Diethylphthalate	ND	ug/L	0.5	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Dimethoate	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Dimethylphthalate	ND	ug/L	0.5	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Di-n-Butylphthalate	ND	ug/L	1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Di-N-octylphthalate	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Endosulfan I (Alpha)	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Endosulfan II (Beta)	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Endosulfan Sulfate	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Endrin	ND	ug/L	0.2	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Endrin Aldehyde	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	EPTC	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Fluoranthene	ND	ug/L	0.1	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Fluorene	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	gamma-Chlordane	ND	ug/L	0.05	1
5/21/2014	05/29/2014	19:24	773171	(EPA 525.2)	Heptachlor	ND	ug/L	0.03	1

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5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Heptachlor Epoxide (isomer B)	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Hexachlorobenzene	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Hexachlorocyclopentadiene	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Indeno(1,2,3,c,d)Pyrene	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Isophorone	ND	ug/L	0.5	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Lindane	ND	ug/L	0.04	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Malathion	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Methoxychlor	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Metolachlor	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Metribuzin	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Molinate	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Naphthalene	ND	ug/L	0.3	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Parathion	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Pendimethalin	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Pentachlorophenol	ND	ug/L	1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Permethrin (mixed isomers)	ND (LE)	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Phenanthrene	ND	ug/L	0.04	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Propachlor	ND (LE)	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Pyrene	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Simazine	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Terbacil	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Terbuthylazine	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Thiobencarb (ELAP)	ND	ug/L	0.2	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	trans-Nonachlor	ND	ug/L	0.05	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Trifluralin	ND	ug/L	0.1	1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	98	%		1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Acenaphthene-d10	92	%		1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Chrysene-d12	85	%		1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Perylene-d12	83	%		1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Phenanthrene-d10	92	%		1
5/21/2014	05/29/2014 19:24	773171	(EPA 525.2)	Triphenylphosphate	101	%		1
	EPA 547 - Glyphosate							
	05/20/2014 21:16	770880	(EPA 547)	Glyphosate	ND	ug/L	6	1
	EPA 531.2 - Aldicarbs							
	05/15/2014 22:18	770126	(EPA 531.2)	3-Hydroxycarbofuran	ND	ug/L	0.5	1
	05/15/2014 22:18	770126	(EPA 531.2)	Aldicarb (Temik)	ND	ug/L	0.5	1
	05/15/2014 22:18	770126	(EPA 531.2)	Aldicarb sulfone	ND	ug/L	0.5	1

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	05/15/2014	22:18	770126	(EPA 531.2)	Aldicarb sulfoxide	ND	ug/L	0.5	1
	05/15/2014	22:18	770126	(EPA 531.2)	Baygon	ND	ug/L	0.5	1
	05/15/2014	22:18	770126	(EPA 531.2)	Carbaryl	ND	ug/L	0.5	1
	05/15/2014	22:18	770126	(EPA 531.2)	Carbofuran (Furadan)	ND	ug/L	0.5	1
	05/15/2014	22:18	770126	(EPA 531.2)	Methiocarb	ND	ug/L	0.5	1
	05/15/2014	22:18	770126	(EPA 531.2)	Methomyl	ND	ug/L	0.5	1
	05/15/2014	22:18	770126	(EPA 531.2)	Oxamyl (Vydate)	ND	ug/L	0.5	1
	05/15/2014	22:18	770126	(EPA 531.2)	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	104	%		1
	EPA 300.0 - Nitrate, Nitrite by EPA 300.0								
	05/09/2014	17:17	768951	(EPA 300.0)	Nitrate as Nitrogen by IC	4.6	mg/L	0.5	5
	05/09/2014	17:17	768951	(EPA 300.0)	Nitrate as NO3 (calc)	20	mg/L	2.2	5
	05/09/2014	17:17	768951	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.25	5
	05/09/2014	17:17	768951	(EPA 300.0)	Total Nitrate, Nitrite-N, CALC	4.6	mg/L	0.1	1
	EPA 300.0 - Chloride, Sulfate by EPA 300.0								
	05/09/2014	17:17	768953	(EPA 300.0)	Chloride	140	mg/L	5	5
	05/09/2014	17:17	768953	(EPA 300.0)	Sulfate	270	mg/L	2.5	5
	SM 7110C - Gross Alpha by Co-precipitation								
6/3/2014	06/05/2014	16:22	774423	(SM 7110C)	Alpha, Min Detectable Activity	0.32	pCi/L		1
6/3/2014	06/05/2014	16:22	774423	(SM 7110C)	Alpha, Two Sigma Error	0.27	pCi/L		1
6/3/2014	06/05/2014	16:22	774423	(SM 7110C)	Gross Alpha + adjusted error	3.9	pCi/L	3	1
6/3/2014	06/05/2014	16:22	774423	(SM 7110C)	Gross Alpha by Coprecipitation	3.7	pCi/L	3	1
	SM2510B - Specific Conductance								
	06/03/2014	15:35	773616	(SM2510B)	Specific Conductance, 25 C	1300	umho/cm	2	1

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Flags Legend:

LE - MRL Check recovery was above laboratory acceptance limits.

The Comments Report may be blank if there are no comments for this report.

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QC Ref # 768951 - Nitrate, Nitrite by EPA 300.0 — **Analysis Date: 05/09/2014**
201405100102 12.75 R — Analyzed by: CYP

QC Ref # 768953 - Chloride, Sulfate by EPA 300.0 — **Analysis Date: 05/09/2014**
201405100102 12.75 R — Analyzed by: CYP

QC Ref # 769664 - ICP Metals — **Analysis Date: 05/15/2014**
201405100102 12.75 R — Analyzed by: WBH

QC Ref # 769713 - ICPMS Metals — **Analysis Date: 05/14/2014**
201405100102 12.75 R — Analyzed by: SXK

QC Ref # 770126 - Aldicarbs — **Analysis Date: 05/15/2014**
201405100102 12.75 R — Analyzed by: XWO

QC Ref # 770169 - EPA Method 504.1 — **Analysis Date: 05/16/2014**
201405100102 12.75 R — Analyzed by: SZZ

QC Ref # 770427 - Organochlorine Pesticides/PCBs — **Analysis Date: 05/15/2014**
201405100102 12.75 R — Analyzed by: LRL

QC Ref # 770774 - Chlorophenoxy Herbicides — **Analysis Date: 05/17/2014**
201405100102 12.75 R — Analyzed by: DYM

QC Ref # 770880 - Glyphosate — **Analysis Date: 05/20/2014**
201405100102 12.75 R — Analyzed by: SZZ

QC Ref # 771102 - ICPMS Metals — **Analysis Date: 05/21/2014**
201405100102 12.75 R — Analyzed by: SXK

QC Ref # 773171 - Semivolatiles by GCMS — **Analysis Date: 05/29/2014**
201405100102 12.75 R — Analyzed by: JWC

QC Ref # 773616 - Specific Conductance — **Analysis Date: 06/03/2014**
201405100102 12.75 R — Analyzed by: 6Q4

QC Ref # 774423 - Gross Alpha by Co-precipitation — **Analysis Date: 06/05/2014**
201405100102 12.75 R — Analyzed by: MAL

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Laboratory QC Report: 480943

Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
QC Ref# 768951 - Nitrate, Nitrite by EPA 300.0 by EPA 300.0						**Analysis Date: 05/09/2014**			
LCS1	Nitrate as Nitrogen by IC		2.5	2.44	mg/L	98	(90-110)		
LCS2	Nitrate as Nitrogen by IC		2.5	2.44	mg/L	98	(90-110)	20	0.0
MBLK	Nitrate as Nitrogen by IC			<0.10	mg/L				
MRL_CHK	Nitrate as Nitrogen by IC		0.05	0.0471	mg/L	94	(50-150)		
MS_201405080511	Nitrate as Nitrogen by IC	ND	1.3	6.20	mg/L	97	(80-120)		
MS_201405090599	Nitrate as Nitrogen by IC	ND	1.3	1.26	mg/L	100	(80-120)		
MSD_201405090599	Nitrate as Nitrogen by IC	ND	1.3	1.28	mg/L	101	(80-120)	20	1.6
MSD_201405080511	Nitrate as Nitrogen by IC	ND	1.3	6.25	mg/L	97	(80-120)	20	0.80
LCS1	Nitrite Nitrogen by IC		1.0	0.999	mg/L	100	(90-110)		
LCS2	Nitrite Nitrogen by IC		1.0	1.00	mg/L	100	(90-110)	20	0.10
MBLK	Nitrite Nitrogen by IC			<0.10	mg/L				
MRL_CHK	Nitrite Nitrogen by IC		0.05	0.0465	mg/L	93	(50-150)		
MS_201405090599	Nitrite Nitrogen by IC	ND	0.5	0.509	mg/L	102	(80-120)		
MS_201405080511	Nitrite Nitrogen by IC	ND	0.5	2.42	mg/L	97	(80-120)		
MSD_201405080511	Nitrite Nitrogen by IC	ND	0.5	2.43	mg/L	97	(80-120)	20	0.41
MSD_201405090599	Nitrite Nitrogen by IC	ND	0.5	0.506	mg/L	101	(80-120)	20	0.59
QC Ref# 768953 - Chloride, Sulfate by EPA 300.0 by EPA 300.0						**Analysis Date: 05/09/2014**			
LCS1	Chloride		25	25.6	mg/L	103	(90-110)		
LCS2	Chloride		25	25.6	mg/L	102	(90-110)	20	0.0
MBLK	Chloride			<0.5	mg/L				
MRL_CHK	Chloride		0.5	0.414	mg/L	83	(50-150)		
MS_201405080511	Chloride	81	13	145	mg/L	101	(80-120)		
MS_201405090599	Chloride	ND	13	13.3	mg/L	103	(80-120)		
MSD_201405080511	Chloride	81	13	145	mg/L	102	(80-120)	20	0.0
MSD_201405090599	Chloride	ND	13	13.5	mg/L	104	(80-120)	20	1.5
LCS1	Sulfate		50	49.9	mg/L	100	(90-110)		
LCS2	Sulfate		50	49.8	mg/L	100	(90-110)	20	0.20
MBLK	Sulfate			<0.25	mg/L				
MRL_CHK	Sulfate		1.0	0.969	mg/L	97	(50-150)		
MRLLW	Sulfate		0.25	0.374	mg/L	150	(50-150)		
MS_201405090599	Sulfate	6.9	25	32.6	mg/L	103	(80-120)		
MS_201405080511	Sulfate	220	25	336	mg/L	93	(80-120)		
MSD_201405080511	Sulfate	220	25	337	mg/L	94	(80-120)	20	0.30
MSD_201405090599	Sulfate	6.9	25	33.0	mg/L	105	(80-120)	20	1.2
QC Ref# 769664 - ICP Metals by EPA 200.7						**Analysis Date: 05/15/2014**			
LCS1	Iron Total ICAP		5.0	4.87	mg/L	97	(85-115)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	Iron Total ICAP		5.0	4.92	mg/L	98	(85-115)	20	1.0
MBLK	Iron Total ICAP			<0.01	mg/L				
MRL_CHK	Iron Total ICAP		0.02	0.0222	mg/L	111	(50-150)		
MS_201405080378	Iron Total ICAP	ND	5.0	5.04	mg/L	101	(70-130)		
MS2_201405060250	Iron Total ICAP	ND	5.0	4.97	mg/L	99	(70-130)		
MSD_201405080378	Iron Total ICAP	ND	5.0	5.05	mg/L	101	(70-130)	20	0.0
MSD2_201405060250	Iron Total ICAP	ND	5.0	5.01	mg/L	100	(70-130)	20	0.80
LCS1	Sodium Total ICAP		50	47.3	mg/L	95	(85-115)		
LCS2	Sodium Total ICAP		50	48.6	mg/L	97	(85-115)	20	2.7
MBLK	Sodium Total ICAP			<0.5	mg/L				
MRL_CHK	Sodium Total ICAP		1.0	1.03	mg/L	103	(50-150)		
MS_201405080378	Sodium Total ICAP	3.6	50	52.8	mg/L	99	(70-130)		
MS2_201405060250	Sodium Total ICAP	6.9	50	55.7	mg/L	98	(70-130)		
MSD_201405080378	Sodium Total ICAP	3.6	50	52.6	mg/L	98	(70-130)	20	0.38
MSD2_201405060250	Sodium Total ICAP	6.9	50	55.3	mg/L	97	(70-130)	20	0.72
QC Ref# 769713 - ICPMS Metals by EPA 200.8						**Analysis Date: 05/14/2014**			
LCS1	Aluminum Total ICAP/MS		200	206	ug/L	103	(85-115)		
LCS2	Aluminum Total ICAP/MS		200	208	ug/L	104	(85-115)	20	0.97
MBLK	Aluminum Total ICAP/MS			<20	ug/L				
MRL_CHK	Aluminum Total ICAP/MS		20	20.4	ug/L	102	(50-150)		
MS_201405080575	Aluminum Total ICAP/MS		200	212	ug/L	105	(70-130)		
MS2_201405080513	Aluminum Total ICAP/MS	ND	200	211	ug/L	100	(70-130)		
MSD_201405080575	Aluminum Total ICAP/MS		200	193	ug/L	96	(70-130)	20	9.4
MSD2_201405080513	Aluminum Total ICAP/MS	ND	200	204	ug/L	96	(70-130)	20	3.4
LCS1	Antimony Total ICAP/MS		50	51.2	ug/L	102	(85-115)		
LCS2	Antimony Total ICAP/MS		50	52.0	ug/L	104	(85-115)	20	1.6
MBLK	Antimony Total ICAP/MS			<1	ug/L				
MRL_CHK	Antimony Total ICAP/MS		1.0	0.997	ug/L	100	(50-150)		
MS_201405080575	Antimony Total ICAP/MS		50	51.8	ug/L	104	(70-130)		
MS2_201405080513	Antimony Total ICAP/MS	ND	50	51.5	ug/L	103	(70-130)		
MSD_201405080575	Antimony Total ICAP/MS		50	46.7	ug/L	93	(70-130)	20	10
MSD2_201405080513	Antimony Total ICAP/MS	ND	50	48.5	ug/L	97	(70-130)	20	6.0
LCS1	Barium Total ICAP/MS		100	107	ug/L	107	(85-115)		
LCS2	Barium Total ICAP/MS		100	109	ug/L	109	(85-115)	20	1.9
MBLK	Barium Total ICAP/MS			<2	ug/L				
MRL_CHK	Barium Total ICAP/MS		2.0	2.22	ug/L	111	(50-150)		
MS_201405080575	Barium Total ICAP/MS	51	100	158	ug/L	107	(70-130)		
MS2_201405080513	Barium Total ICAP/MS	110	100	218	ug/L	104	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC Report: 480943

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD_201405080575	Barium Total ICAP/MS	51	100	146	ug/L	95	(70-130)	20	7.2
MSD2_201405080513	Barium Total ICAP/MS	110	100	207	ug/L	93	(70-130)	20	5.2
LCS1	Beryllium Total ICAP/MS		5.0	5.31	ug/L	106	(85-115)		
LCS2	Beryllium Total ICAP/MS		5.0	5.24	ug/L	105	(85-115)	20	1.3
MBLK	Beryllium Total ICAP/MS			<1	ug/L				
MRL_CHK	Beryllium Total ICAP/MS		1.0	1.06	ug/L	106	(50-150)		
MS_201405080575	Beryllium Total ICAP/MS		5.0	6.49	ug/L	129	(70-130)		
MS2_201405080513	Beryllium Total ICAP/MS	ND	5.0	6.03	ug/L	121	(70-130)		
MSD_201405080575	Beryllium Total ICAP/MS		5.0	5.98	ug/L	119	(70-130)	20	8.2
MSD2_201405080513	Beryllium Total ICAP/MS	ND	5.0	5.76	ug/L	115	(70-130)	20	4.6
LCS1	Cadmium Total ICAP/MS		20	21.3	ug/L	106	(85-115)		
LCS2	Cadmium Total ICAP/MS		20	21.3	ug/L	106	(85-115)	20	0.0
MBLK	Cadmium Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Cadmium Total ICAP/MS		0.5	0.591	ug/L	118	(50-150)		
MS_201405080575	Cadmium Total ICAP/MS	ND	20	19.6	ug/L	98	(70-130)		
MS2_201405080513	Cadmium Total ICAP/MS	ND	20	20.2	ug/L	101	(70-130)		
MSD_201405080575	Cadmium Total ICAP/MS	ND	20	17.7	ug/L	88	(70-130)	20	10
MSD2_201405080513	Cadmium Total ICAP/MS	ND	20	19.0	ug/L	95	(70-130)	20	6.1
LCS1	Chromium Total ICAP/MS		100	106	ug/L	106	(85-115)		
LCS2	Chromium Total ICAP/MS		100	106	ug/L	107	(85-115)	20	0.94
MBLK	Chromium Total ICAP/MS			<1	ug/L				
MRL_CHK	Chromium Total ICAP/MS		1.0	1.00	ug/L	100	(50-150)		
MS_201405080575	Chromium Total ICAP/MS	5.3	100	111	ug/L	105	(70-130)		
MS2_201405080513	Chromium Total ICAP/MS	ND	100	102	ug/L	102	(70-130)		
MSD_201405080575	Chromium Total ICAP/MS	5.3	100	102	ug/L	96	(70-130)	20	8.4
MSD2_201405080513	Chromium Total ICAP/MS	ND	100	98.4	ug/L	98	(70-130)	20	4.6
LCS1	Copper Total ICAP/MS		100	106	ug/L	106	(85-115)		
LCS2	Copper Total ICAP/MS		100	106	ug/L	106	(85-115)	20	0.0
MBLK	Copper Total ICAP/MS			<2	ug/L				
MRL_CHK	Copper Total ICAP/MS		2.0	1.99	ug/L	99	(50-150)		
MS_201405080575	Copper Total ICAP/MS	2.1	100	97.5	ug/L	95	(70-130)		
MS2_201405080513	Copper Total ICAP/MS	ND	100	98.0	ug/L	96	(70-130)		
MSD_201405080575	Copper Total ICAP/MS	2.1	100	89.6	ug/L	88	(70-130)	20	8.4
MSD2_201405080513	Copper Total ICAP/MS	ND	100	93.7	ug/L	92	(70-130)	20	4.5
LCS1	Lead Total ICAP/MS		20	20.6	ug/L	103	(85-115)		
LCS2	Lead Total ICAP/MS		20	20.7	ug/L	104	(85-115)	20	0.48
MBLK	Lead Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Lead Total ICAP/MS		0.5	0.499	ug/L	100	(50-150)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MS_201405080575	Lead Total ICAP/MS	0.53	20	19.4	ug/L	94	(70-130)		
MS2_201405080513	Lead Total ICAP/MS	ND	20	19.2	ug/L	96	(70-130)		
MSD_201405080575	Lead Total ICAP/MS	0.53	20	17.8	ug/L	86	(70-130)	20	8.6
MSD2_201405080513	Lead Total ICAP/MS	ND	20	18.0	ug/L	90	(70-130)	20	6.5
LCS1	Molybdenum Total ICAP/MS		100	102	ug/L	102	(85-115)		
LCS2	Molybdenum Total ICAP/MS		100	104	ug/L	104	(85-115)	20	1.9
MBLK	Molybdenum Total ICAP/MS			<2	ug/L				
MRL_CHK	Molybdenum Total ICAP/MS		2.0	2.06	ug/L	103	(50-150)		
MS_201405080575	Molybdenum Total ICAP/MS		100	137	ug/L	104	(70-130)		
MS2_201405080513	Molybdenum Total ICAP/MS	3.7	100	102	ug/L	99	(70-130)		
MSD_201405080575	Molybdenum Total ICAP/MS		100	127	ug/L	93	(70-130)	20	7.6
MSD2_201405080513	Molybdenum Total ICAP/MS	3.7	100	98.0	ug/L	94	(70-130)	20	5.0
LCS1	Nickel Total ICAP/MS		50	52.6	ug/L	105	(85-115)		
LCS2	Nickel Total ICAP/MS		50	52.6	ug/L	105	(85-115)	20	0.0
MBLK	Nickel Total ICAP/MS			<5	ug/L				
MRL_CHK	Nickel Total ICAP/MS		5.0	5.25	ug/L	105	(50-150)		
MS_201405080575	Nickel Total ICAP/MS	ND	50	53.0	ug/L	96	(70-130)		
MS2_201405080513	Nickel Total ICAP/MS	ND	50	50.8	ug/L	97	(70-130)		
MSD_201405080575	Nickel Total ICAP/MS	ND	50	49.6	ug/L	89	(70-130)	20	6.6
MSD2_201405080513	Nickel Total ICAP/MS	ND	50	48.6	ug/L	92	(70-130)	20	4.4
LCS1	Zinc Total ICAP/MS		100	107	ug/L	107	(85-115)		
LCS2	Zinc Total ICAP/MS		100	107	ug/L	107	(85-115)	20	0.0
MBLK	Zinc Total ICAP/MS			<20	ug/L				
MRL_CHK	Zinc Total ICAP/MS		20	21.4	ug/L	107	(50-150)		
MS_201405080575	Zinc Total ICAP/MS	ND	100	113	ug/L	97	(70-130)		
MS2_201405080513	Zinc Total ICAP/MS	ND	100	104	ug/L	104	(70-130)		
MSD_201405080575	Zinc Total ICAP/MS	ND	100	106	ug/L	90	(70-130)	20	6.4
MSD2_201405080513	Zinc Total ICAP/MS	ND	100	99.4	ug/L	99	(70-130)	20	4.5
QC Ref# 770126 - Aldicarbs by EPA 531.2						**Analysis Date: 05/15/2014**			
CCCH	3-Hydroxycarbofuran		25	26.3	ug/L	105	(70-130)		
CCCM	3-Hydroxycarbofuran		10	9.93	ug/L	99	(70-130)		
LCS2	3-Hydroxycarbofuran			5.35	ug/L				
MBLK	3-Hydroxycarbofuran			<0.16	ug/L				
MRL_CHK	3-Hydroxycarbofuran		0.5	0.519	ug/L	104	(50-150)		
MS1_201405060655	3-Hydroxycarbofuran	ND	5.0	5.36	ug/L	107	(70-130)		
MSD1_201405060655	3-Hydroxycarbofuran	ND	5.0	5.09	ug/L	102	(70-130)	20	5.2
CCCH	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	(!		110	%	110	(70-130)		
CCCM	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	(!		108	%	108	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - indicates surrogate compound.
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Report: 480943

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (:			103	%	103	(70-130)		
MBLK	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (:			98.7	%	99	(70-130)		
MRL_CHK	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (:			89.3	%	89	(70-130)		
MS1_201405060655	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (:			112	%	112	(70-130)		
MSD1_201405060655	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (:			113	%	113	(70-130)		
CCCH	Aldicarb (Temik)		25	22.7	ug/L	91	(70-130)		
CCCM	Aldicarb (Temik)		10	9.16	ug/L	92	(70-130)		
LCS2	Aldicarb (Temik)			4.28	ug/L				
MBLK	Aldicarb (Temik)			<0.16	ug/L				
MRL_CHK	Aldicarb (Temik)		0.5	0.316	ug/L	63	(50-150)		
MS1_201405060655	Aldicarb (Temik)	ND	5.0	5.29	ug/L	106	(70-130)		
MSD1_201405060655	Aldicarb (Temik)	ND	5.0	5.45	ug/L	109	(70-130)	20	3.0
CCCH	Aldicarb sulfone		25	26.6	ug/L	107	(70-130)		
CCCM	Aldicarb sulfone		10	10.3	ug/L	103	(70-130)		
LCS2	Aldicarb sulfone			5.17	ug/L				
MBLK	Aldicarb sulfone			<0.16	ug/L				
MRL_CHK	Aldicarb sulfone		0.5	0.428	ug/L	86	(50-150)		
MS1_201405060655	Aldicarb sulfone	ND	5.0	5.13	ug/L	103	(70-130)		
MSD1_201405060655	Aldicarb sulfone	ND	5.0	4.84	ug/L	97	(70-130)	20	5.8
CCCH	Aldicarb sulfoxide		25	24.4	ug/L	97	(70-130)		
CCCM	Aldicarb sulfoxide		10	9.47	ug/L	95	(70-130)		
LCS2	Aldicarb sulfoxide			4.70	ug/L				
MBLK	Aldicarb sulfoxide			<0.16	ug/L				
MRL_CHK	Aldicarb sulfoxide		0.5	0.414	ug/L	83	(50-150)		
MS1_201405060655	Aldicarb sulfoxide	ND	5.0	4.84	ug/L	97	(70-130)		
MSD1_201405060655	Aldicarb sulfoxide	ND	5.0	4.56	ug/L	91	(70-130)	20	6.2
CCCH	Baygon		25	25.3	ug/L	101	(70-130)		
CCCM	Baygon		10	10.2	ug/L	102	(70-130)		
LCS2	Baygon			5.26	ug/L				
MBLK	Baygon			<0.16	ug/L				
MRL_CHK	Baygon		0.5	0.551	ug/L	110	(50-150)		
MS1_201405060655	Baygon	ND	5.0	5.19	ug/L	104	(70-130)		
MSD1_201405060655	Baygon	ND	5.0	5.46	ug/L	109	(70-130)	20	5.1
CCCH	Carbaryl		25	25.8	ug/L	103	(70-130)		
CCCM	Carbaryl		10	10.8	ug/L	108	(70-130)		
LCS2	Carbaryl			5.83	ug/L				
MBLK	Carbaryl			<0.16	ug/L				
MRL_CHK	Carbaryl		0.5	0.445	ug/L	89	(50-150)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MS1_201405060655	Carbaryl	ND	5.0	5.44	ug/L	109	(70-130)		
MSD1_201405060655	Carbaryl	ND	5.0	5.16	ug/L	103	(70-130)	20	5.3
CCCH	Carbofuran (Furadan)		25	26.1	ug/L	104	(70-130)		
CCCM	Carbofuran (Furadan)		10	10.1	ug/L	101	(70-130)		
LCS2	Carbofuran (Furadan)			5.62	ug/L				
MBLK	Carbofuran (Furadan)			<0.16	ug/L				
MRL_CHK	Carbofuran (Furadan)		0.5	0.500	ug/L	100	(50-150)		
MS1_201405060655	Carbofuran (Furadan)	ND	5.0	5.01	ug/L	100	(70-130)		
MSD1_201405060655	Carbofuran (Furadan)	ND	5.0	5.07	ug/L	101	(70-130)	20	1.2
CCCH	Methiocarb		25	25.4	ug/L	101	(70-130)		
CCCM	Methiocarb		10	10.5	ug/L	105	(70-130)		
LCS2	Methiocarb			5.78	ug/L				
MBLK	Methiocarb			<0.16	ug/L				
MRL_CHK	Methiocarb		0.5	0.473	ug/L	95	(50-150)		
MS1_201405060655	Methiocarb	ND	5.0	5.39	ug/L	108	(70-130)		
MSD1_201405060655	Methiocarb	ND	5.0	5.56	ug/L	111	(70-130)	20	3.1
CCCH	Methomyl		25	24.3	ug/L	97	(70-130)		
CCCM	Methomyl		10	9.98	ug/L	100	(70-130)		
LCS2	Methomyl			5.12	ug/L				
MBLK	Methomyl			<0.16	ug/L				
MRL_CHK	Methomyl		0.5	0.338	ug/L	68	(50-150)		
MS1_201405060655	Methomyl	ND	5.0	4.82	ug/L	96	(70-130)		
MSD1_201405060655	Methomyl	ND	5.0	5.18	ug/L	104	(70-130)	20	7.2
CCCH	Oxamyl (Vydate)		25	26.5	ug/L	106	(70-130)		
CCCM	Oxamyl (Vydate)		10	10.5	ug/L	105	(70-130)		
LCS2	Oxamyl (Vydate)			5.62	ug/L				
MBLK	Oxamyl (Vydate)			<0.16	ug/L				
MRL_CHK	Oxamyl (Vydate)		0.5	0.508	ug/L	101	(50-150)		
MS1_201405060655	Oxamyl (Vydate)	ND	5.0	4.77	ug/L	95	(70-130)		
MSD1_201405060655	Oxamyl (Vydate)	ND	5.0	5.52	ug/L	110	(70-130)	20	15
QC Ref# 770169 - EPA Method 504.1 by EPA 504.1						**Analysis Date: 05/15/2014**			
CCCM	1,2-Dibromo-3-chloropropane		0.25	0.239	ug/L	96	(70-130)		
DUP_201405090298	1,2-Dibromo-3-chloropropane	ND		ND	ug/L		(0-20)		
LCS2	1,2-Dibromo-3-chloropropane		0.2	0.187	ug/L	93	(70-130)		
MBLK	1,2-Dibromo-3-chloropropane			<0.01	ug/L				
MRL_CHK	1,2-Dibromo-3-chloropropane		0.01	0.0135	ug/L	135	(60-140)		
MS_201405090297	1,2-Dibromo-3-chloropropane	ND	0.25	0.244	ug/L	97	(65-135)		
CCCM	1,2-Dibromoethane		0.25	0.240	ug/L	96	(70-130)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
DUP_201405090298	1,2-Dibromoethane	ND		ND	ug/L		(0-20)		
LCS2	1,2-Dibromoethane		0.2	0.197	ug/L	98	(70-130)		
MBLK	1,2-Dibromoethane			<0.01	ug/L				
MRL_CHK	1,2-Dibromoethane		0.01	0.0102	ug/L	102	(60-140)		
MS_201405090297	1,2-Dibromoethane	ND	0.25	0.245	ug/L	98	(65-135)		
CCCM	1,2-Dibromopropane (S)			91.8	%	92	(60-140)		
DUP_201405090298	1,2-Dibromopropane (S)			97.6	%	98	(60-140)		
LCS2	1,2-Dibromopropane (S)			91.5	%	92	(60-140)		
MBLK	1,2-Dibromopropane (S)			92.5	%	92	(60-140)		
MRL_CHK	1,2-Dibromopropane (S)			105	%	105	(60-140)		
MRLLW	1,2-Dibromopropane (S)			92.0	%	92	(60-140)		
MS_201405090297	1,2-Dibromopropane (S)			93.1	%	93	(60-140)		
QC Ref# 770427 - Organochlorine Pesticides/PCBs by EPA 505						**Analysis Date: 05/15/2014**			
CCCH	Alachlor (Alanex)		1.0	1.09	ug/L	109	(70-130)		
CCCH	Alachlor (Alanex)		1.0	1.10	ug/L	110	(70-130)		
MBLK	Alachlor (Alanex)			<0.1	ug/L				
MRL_CHK	Alachlor (Alanex)		0.1	0.0733	ug/L	73	(50-150)		
MS1_201405090572	Alachlor (Alanex)	ND	0.2	0.219	ug/L	109	(65-135)		
MS2_201405120169	Alachlor (Alanex)	ND	1.0	1.20	ug/L	120	(65-135)		
CCCH	Aldrin		0.1	0.106	ug/L	106	(70-130)		
CCCH	Aldrin		0.1	0.100	ug/L	100	(70-130)		
MBLK	Aldrin			<0.01	ug/L				
MRL_CHK	Aldrin		0.01	0.00820	ug/L	82	(50-150)		
MS1_201405090572	Aldrin	ND	0.02	0.0216	ug/L	108	(65-135)		
MS2_201405120169	Aldrin	ND	0.1	0.107	ug/L	107	(65-135)		
CCCH	Chlordane		0.5	0.588	ug/L	118	(70-130)		
MBLK	Chlordane			<0.1	ug/L				
MRL_CHK	Chlordane		0.1	0.0849	ug/L	85	(50-150)		
MS1_201405090572	Chlordane	ND	0.5	0.530	ug/L	106	(65-135)		
MS2_201405120169	Chlordane	ND	0.5	0.559	ug/L	112	(65-135)		
CCCH	Dieldrin		0.1	0.105	ug/L	105	(70-130)		
CCCH	Dieldrin		0.1	0.105	ug/L	105	(70-130)		
MBLK	Dieldrin			<0.01	ug/L				
MRL_CHK	Dieldrin		0.01	0.00960	ug/L	96	(50-150)		
MS1_201405090572	Dieldrin	ND	0.02	0.0197	ug/L	99	(65-135)		
MS2_201405120169	Dieldrin	ND	0.1	0.111	ug/L	111	(65-135)		
CCCH	Endrin		0.1	0.105	ug/L	105	(70-130)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
CCCH	Endrin		0.1	0.105	ug/L	105	(70-130)		
MBLK	Endrin			<0.01	ug/L				
MRL_CHK	Endrin		0.01	0.0126	ug/L	126	(50-150)		
MS1_201405090572	Endrin	ND	0.02	0.0197	ug/L	99	(65-135)		
MS2_201405120169	Endrin	ND	0.1	0.111	ug/L	111	(65-135)		
CCCH	Heptachlor		0.1	0.0946	ug/L	95	(70-130)		
CCCH	Heptachlor		0.1	0.0961	ug/L	96	(70-130)		
MBLK	Heptachlor			<0.01	ug/L				
MRL_CHK	Heptachlor		0.01	0.00980	ug/L	98	(50-150)		
MS1_201405090572	Heptachlor	ND	0.02	0.0185	ug/L	93	(65-135)		
MS2_201405120169	Heptachlor	ND	0.1	0.0984	ug/L	98	(65-135)		
CCCH	Heptachlor Epoxide		0.1	0.106	ug/L	106	(70-130)		
CCCH	Heptachlor Epoxide		0.1	0.107	ug/L	107	(70-130)		
MBLK	Heptachlor Epoxide			<0.01	ug/L				
MRL_CHK	Heptachlor Epoxide		0.01	0.00920	ug/L	92	(50-150)		
MS1_201405090572	Heptachlor Epoxide	ND	0.02	0.0223	ug/L	112	(65-135)		
MS2_201405120169	Heptachlor Epoxide	ND	0.1	0.109	ug/L	109	(65-135)		
CCCH	Lindane (gamma-BHC)		0.1	0.110	ug/L	110	(70-130)		
CCCH	Lindane (gamma-BHC)		0.1	0.103	ug/L	103	(70-130)		
MBLK	Lindane (gamma-BHC)			<0.01	ug/L				
MRL_CHK	Lindane (gamma-BHC)		0.01	0.00820	ug/L	82	(50-150)		
MS1_201405090572	Lindane (gamma-BHC)	ND	0.02	0.0239	ug/L	120	(65-135)		
MS2_201405120169	Lindane (gamma-BHC)	ND	0.1	0.106	ug/L	106	(65-135)		
CCCH	Methoxychlor		0.5	0.525	ug/L	105	(70-130)		
CCCH	Methoxychlor		0.5	0.528	ug/L	106	(70-130)		
MBLK	Methoxychlor			<0.05	ug/L				
MRL_CHK	Methoxychlor		0.05	0.0375	ug/L	75	(50-150)		
MS1_201405090572	Methoxychlor	ND	0.1	0.105	ug/L	105	(65-135)		
MS2_201405120169	Methoxychlor	ND	0.5	0.550	ug/L	110	(65-135)		
MBLK	PCB 1016 Aroclor			<0.08	ug/L				
MBLK	PCB 1221 Aroclor			<0.1	ug/L				
MBLK	PCB 1232 Aroclor			<0.1	ug/L				
MBLK	PCB 1242 Aroclor			<0.1	ug/L				
MBLK	PCB 1248 Aroclor			<0.1	ug/L				
MBLK	PCB 1254 Aroclor			<0.1	ug/L				
MBLK	PCB 1260 Aroclor			<0.1	ug/L				
CCCH	Tetrachlorometaxylene (S)			111	%	111	(70-130)		
CCCH	Tetrachlorometaxylene (S)			109	%	109	(70-130)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MBLK	Tetrachlorometaxylene (S)			106	%	106	(70-130)		
MRL_CHK	Tetrachlorometaxylene (S)			108	%	109	(70-130)		
MS1_201405090572	Tetrachlorometaxylene (S)			108	%	109	(70-130)		
MS2_201405120169	Tetrachlorometaxylene (S)			111	%	111	(70-130)		
MBLK	Total PCBs			<0.08	ug/L				
MBLK	Toxaphene			<0.5	ug/L				
QC Ref# 770774 - Chlorophenoxy Herbicides by EPA 515.4						**Analysis Date: 05/16/2014**			
CCCH	2,4,5-T		4.0	4.00	ug/L	100	(70-130)		
CCCM	2,4,5-T		1.0	1.04	ug/L	104	(70-130)		
LCS1	2,4,5-T		3.0	2.88	ug/L	96	(70-130)		
MBLK	2,4,5-T			<0.066	ug/L				
MRL_CHK	2,4,5-T		0.2	0.200	ug/L	100	(50-150)		
MS1_201405140423	2,4,5-T	ND	3.0	3.80	ug/L	122	(70-130)		
MSD1_201405140423	2,4,5-T	ND	3.0	3.84	ug/L	124	(70-130)	30	1.1
CCCH	2,4,5-TP (Silvex)		4.0	4.03	ug/L	101	(70-130)		
CCCM	2,4,5-TP (Silvex)		1.0	1.04	ug/L	104	(70-130)		
LCS1	2,4,5-TP (Silvex)		3.0	2.84	ug/L	95	(70-130)		
MBLK	2,4,5-TP (Silvex)			<0.066	ug/L				
MRL_CHK	2,4,5-TP (Silvex)		0.2	0.203	ug/L	101	(50-150)		
MS1_201405140423	2,4,5-TP (Silvex)	ND	3.0	3.68	ug/L	123	(70-130)		
MSD1_201405140423	2,4,5-TP (Silvex)	ND	3.0	3.72	ug/L	124	(70-130)	30	1.1
CCCH	2,4-D		2.0	1.98	ug/L	99	(70-130)		
CCCM	2,4-D		0.5	0.534	ug/L	107	(70-130)		
LCS1	2,4-D		1.5	1.44	ug/L	96	(70-130)		
MBLK	2,4-D			<0.033	ug/L				
MRL_CHK	2,4-D		0.1	0.110	ug/L	110	(50-150)		
MS1_201405140423	2,4-D	ND	1.5	1.71	ug/L	112	(70-130)		
MSD1_201405140423	2,4-D	ND	1.5	1.71	ug/L	114	(70-130)	30	0.0
CCCH	2,4-DB		40	40.0	ug/L	100	(70-130)		
CCCM	2,4-DB		10	10.4	ug/L	104	(70-130)		
LCS1	2,4-DB		30	27.7	ug/L	92	(70-130)		
MBLK	2,4-DB			<0.666	ug/L				
MRL_CHK	2,4-DB		2.0	1.82	ug/L	91	(50-150)		
MS1_201405140423	2,4-DB	ND	30	37.6	ug/L	125	(70-130)		
MSD1_201405140423	2,4-DB	ND	30	38.0	ug/L	127	(70-130)	30	1.1
CCCH	2,4-Dichlorophenyl acetic acid (S)			99.5	%	100	(70-130)		
CCCM	2,4-Dichlorophenyl acetic acid (S)			105	%	105	(70-130)		
LCS1	2,4-Dichlorophenyl acetic acid (S)			89.5	%	89	(70-130)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MBLK	2,4-Dichlorophenyl acetic acid (S)			96.2	%	96	(70-130)		
MRL_CHK	2,4-Dichlorophenyl acetic acid (S)			98.8	%	99	(70-130)		
MS1_201405140423	2,4-Dichlorophenyl acetic acid (S)			129	%	129	(70-130)		
MSD1_201405140423	2,4-Dichlorophenyl acetic acid (S)			130	%	130	(70-130)		
CCCH	3,5-Dichlorobenzoic acid		10	9.50	ug/L	95	(70-130)		
CCCM	3,5-Dichlorobenzoic acid		2.5	2.31	ug/L	92	(70-130)		
LCS1	3,5-Dichlorobenzoic acid		7.5	7.06	ug/L	94	(70-130)		
MBLK	3,5-Dichlorobenzoic acid			<0.166	ug/L				
MRL_CHK	3,5-Dichlorobenzoic acid		0.5	0.356	ug/L	71	(50-150)		
MS1_201405140423	3,5-Dichlorobenzoic acid	ND	7.5	8.33	ug/L	111	(70-130)		
MSD1_201405140423	3,5-Dichlorobenzoic acid	ND	7.5	8.42	ug/L	112	(70-130)	30	1.1
CCCH	4,4-Dibromooctafluorobiphenyl (I)			102	%	102	(50-150)		
CCCM	4,4-Dibromooctafluorobiphenyl (I)			96.6	%	97	(50-150)		
LCS1	4,4-Dibromooctafluorobiphenyl (I)			101	%	101	(50-150)		
MBLK	4,4-Dibromooctafluorobiphenyl (I)			112	%	112	(50-150)		
MRL_CHK	4,4-Dibromooctafluorobiphenyl (I)			102	%	102	(50-150)		
MS1_201405140423	4,4-Dibromooctafluorobiphenyl (I)			73.3	%	73	(50-150)		
MSD1_201405140423	4,4-Dibromooctafluorobiphenyl (I)			72.9	%	73	(50-150)		
CCCH	Acifluorfen		4.0	4.06	ug/L	101	(70-130)		
CCCM	Acifluorfen		1.0	1.07	ug/L	107	(70-130)		
LCS1	Acifluorfen		3.0	2.78	ug/L	93	(70-130)		
MBLK	Acifluorfen			<0.066	ug/L				
MRL_CHK	Acifluorfen		0.2	0.211	ug/L	105	(50-150)		
MS1_201405140423	Acifluorfen	ND	3.0	3.91	ug/L	130	(70-130)		
MSD1_201405140423	Acifluorfen	ND	3.0	3.88	ug/L	129	(70-130)	30	0.77
CCCH	Bentazon		10	10.2	ug/L	102	(70-130)		
CCCM	Bentazon		2.5	2.51	ug/L	100	(70-130)		
LCS1	Bentazon		7.5	6.88	ug/L	92	(70-130)		
MBLK	Bentazon			<0.166	ug/L				
MRL_CHK	Bentazon		0.5	0.415	ug/L	83	(50-150)		
MS1_201405140423	Bentazon	ND	7.5	9.24	ug/L	123	(70-130)		
MSD1_201405140423	Bentazon	ND	7.5	9.62	ug/L	128	(70-130)	30	4.0
CCCH	Dalapon		20	20.0	ug/L	100	(70-130)		
CCCM	Dalapon		5.0	5.26	ug/L	105	(70-130)		
LCS1	Dalapon		15	14.1	ug/L	94	(70-130)		
MBLK	Dalapon			<0.333	ug/L				
MRL_CHK	Dalapon		1.0	0.873	ug/L	87	(50-150)		
MS1_201405140423	Dalapon	ND	15	18.6	ug/L	124	(70-130)		

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1 800 566 LABS (1 800 566 5227)

Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD1_201405140423	Dalapon	ND	15	18.5	ug/L	123	(70-130)	30	0.54
CCCH	Dicamba		2.0	2.10	ug/L	105	(70-130)		
CCCM	Dicamba		0.5	0.600	ug/L	120	(70-130)		
LCS1	Dicamba		1.5	1.66	ug/L	111	(70-130)		
MBLK	Dicamba			<0.033	ug/L				
MRL_CHK	Dicamba		0.1	0.0706	ug/L	71	(50-150)		
MS1_201405140423	Dicamba	ND	1.5	1.91	ug/L	127	(70-130)		
MSD1_201405140423	Dicamba	ND	1.5	1.95	ug/L	130	(70-130)	30	2.1
CCCH	Dichlorprop		10	9.69	ug/L	97	(70-130)		
CCCM	Dichlorprop		2.5	2.51	ug/L	100	(70-130)		
LCS1	Dichlorprop		7.5	7.40	ug/L	99	(70-130)		
MBLK	Dichlorprop			<0.166	ug/L				
MRL_CHK	Dichlorprop		0.5	0.493	ug/L	99	(50-150)		
MS1_201405140423	Dichlorprop	ND	7.5	8.84	ug/L	118	(70-130)		
MSD1_201405140423	Dichlorprop	ND	7.5	8.92	ug/L	119	(70-130)	30	0.90
CCCH	Dinoseb		4.0	4.08	ug/L	102	(70-130)		
CCCM	Dinoseb		1.0	1.03	ug/L	103	(70-130)		
LCS1	Dinoseb		3.0	2.68	ug/L	89	(70-130)		
MBLK	Dinoseb			<0.066	ug/L				
MRL_CHK	Dinoseb		0.2	0.192	ug/L	96	(50-150)		
MS1_201405140423	Dinoseb	ND	3.0	3.63	ug/L	121	(70-130)		
MSD1_201405140423	Dinoseb	ND	3.0	3.66	ug/L	122	(70-130)	30	0.82
CCCH	Pentachlorophenol		0.8	0.809	ug/L	101	(70-130)		
CCCM	Pentachlorophenol		0.2	0.184	ug/L	92	(70-130)		
LCS1	Pentachlorophenol		0.6	0.594	ug/L	99	(70-130)		
MBLK	Pentachlorophenol			<0.013	ug/L				
MRL_CHK	Pentachlorophenol		0.04	0.0411	ug/L	103	(50-150)		
MS1_201405140423	Pentachlorophenol	ND	0.6	0.748	ug/L	125	(70-130)		
MSD1_201405140423	Pentachlorophenol	ND	0.6	0.754	ug/L	126	(70-130)	30	0.80
CCCH	Picloram		2.0	1.88	ug/L	94	(70-130)		
CCCM	Picloram		0.5	0.534	ug/L	107	(70-130)		
LCS1	Picloram		1.5	1.47	ug/L	98	(70-130)		
MBLK	Picloram			<0.033	ug/L				
MRL_CHK	Picloram		0.1	0.0570	ug/L	57	(50-150)		
MS1_201405140423	Picloram	ND	1.5	1.86	ug/L	124	(70-130)		
MSD1_201405140423	Picloram	ND	1.5	1.89	ug/L	126	(70-130)	30	1.1
CCCH	Tot DCPA Mono&Diacid Degradate		2.0	1.99	ug/L	99	(70-130)		
CCCM	Tot DCPA Mono&Diacid Degradate		0.5	0.531	ug/L	106	(70-130)		

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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	Tot DCPA Mono&Diacid Degradate		1.5	1.77	ug/L	118	(70-130)		
MBLK	Tot DCPA Mono&Diacid Degradate			<0.033	ug/L				
MRL_CHK	Tot DCPA Mono&Diacid Degradate		0.1	0.120	ug/L	120	(50-150)		
MS1_201405140423	Tot DCPA Mono&Diacid Degradate	0.11	1.5	1.92	ug/L	121	(70-130)		
MSD1_201405140423	Tot DCPA Mono&Diacid Degradate	0.11	1.5	1.94	ug/L	122	(70-130)	30	1.0
QC Ref# 770880 - Glyphosate by EPA 547						**Analysis Date: 05/20/2014**			
CCCH	Glyphosate		25	25.3	ug/L	101	(80-120)		
CCCM	Glyphosate		10	9.27	ug/L	93	(80-120)		
LCS1	Glyphosate		10	9.67	ug/L	97	(70-130)		
MBLK	Glyphosate			<6	ug/L				
MRL_CHK	Glyphosate		6.0	5.65	ug/L	94	(50-150)		
MS_201405080210	Glyphosate	ND	10	9.92	ug/L	99	(70-130)		
MS2_201405080531	Glyphosate	ND	10	9.79	ug/L	98	(70-130)		
MSD_201405080210	Glyphosate	ND	10	9.51	ug/L	95	(70-130)	20	4.3
QC Ref# 771102 - ICPMS Metals by EPA 200.8						**Analysis Date: 05/21/2014**			
LCS1	Silver Total ICAP/MS		50	49.0	ug/L	98	(85-115)		
LCS2	Silver Total ICAP/MS		50	48.5	ug/L	97	(85-115)	20	1.0
MBLK	Silver Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Silver Total ICAP/MS		0.5	0.497	ug/L	99	(50-150)		
MS_201405080575	Silver Total ICAP/MS	ND	50	41.8	ug/L	84	(70-130)		
MS2_201405120187	Silver Total ICAP/MS	ND	50	44.5	ug/L	89	(70-130)		
MSD_201405080575	Silver Total ICAP/MS	ND	50	41.7	ug/L	83	(70-130)	20	0.24
MSD2_201405120187	Silver Total ICAP/MS	ND	50	44.6	ug/L	89	(70-130)	20	0.22
QC Ref# 773171 - Semivolatiles by GCMS by EPA 525.2						**Analysis Date: 05/29/2014**			
LCS1	1,3-Dimethyl-2-nitrobenzene (S)			96.9	%	97	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)			94.5	%	95	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			96.9	%	97	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)			95.5	%	95	(70-130)		
MS_201405080210	1,3-Dimethyl-2-nitrobenzene (S)			97.6	%	98	(70-130)		
MSD_201405080210	1,3-Dimethyl-2-nitrobenzene (S)			96.4	%	96	(70-130)		
LCS1	2,4-Dinitrotoluene		2.0	2.19	ug/L	110	(70-130)		
LCS2	2,4-Dinitrotoluene		2.0	2.15	ug/L	108	(70-130)	20	1.8
MBLK	2,4-Dinitrotoluene			<0.05	ug/L				
MRL_CHK	2,4-Dinitrotoluene		0.1	0.121	ug/L	121	(50-150)		
MS_201405080210	2,4-Dinitrotoluene	ND	2.0	2.17	ug/L	108	(70-130)		
MSD_201405080210	2,4-Dinitrotoluene	ND	2.0	2.20	ug/L	110	(70-130)	20	1.4
LCS1	2,6-Dinitrotoluene		2.0	2.30	ug/L	115	(70-130)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	2,6-Dinitrotoluene		2.0	2.25	ug/L	112	(70-130)	20	2.2
MBLK	2,6-Dinitrotoluene			<0.05	ug/L				
MRL_CHK	2,6-Dinitrotoluene		0.1	0.0970	ug/L	97	(50-150)		
MS_201405080210	2,6-Dinitrotoluene	ND	2.0	2.26	ug/L	113	(70-130)		
MSD_201405080210	2,6-Dinitrotoluene	ND	2.0	2.25	ug/L	112	(70-130)	20	0.44
LCS1	4,4-DDD		2.0	2.12	ug/L	106	(70-130)		
LCS2	4,4-DDD		2.0	2.15	ug/L	107	(70-130)	20	1.4
MBLK	4,4-DDD			<0.05	ug/L				
MRL_CHK	4,4-DDD		0.1	0.0920	ug/L	92	(50-150)		
MS_201405080210	4,4-DDD	ND	2.0	2.07	ug/L	103	(70-130)		
MSD_201405080210	4,4-DDD	ND	2.0	2.18	ug/L	109	(70-130)	20	5.2
LCS1	4,4-DDE		2.0	1.96	ug/L	98	(70-130)		
LCS2	4,4-DDE		2.0	1.87	ug/L	93	(70-130)	20	4.7
MBLK	4,4-DDE			<0.05	ug/L				
MRL_CHK	4,4-DDE		0.1	0.0920	ug/L	92	(50-150)		
MS_201405080210	4,4-DDE	ND	2.0	1.88	ug/L	94	(70-130)		
MSD_201405080210	4,4-DDE	ND	2.0	1.97	ug/L	98	(70-130)	20	4.7
LCS1	4,4-DDT		2.0	2.25	ug/L	112	(70-130)		
LCS2	4,4-DDT		2.0	2.22	ug/L	111	(70-130)	20	1.3
MBLK	4,4-DDT			<0.05	ug/L				
MRL_CHK	4,4-DDT		0.1	0.0810	ug/L	81	(50-150)		
MS_201405080210	4,4-DDT	ND	2.0	2.24	ug/L	112	(70-130)		
MSD_201405080210	4,4-DDT	ND	2.0	2.29	ug/L	115	(70-130)	20	1.8
LCS1	Acenaphthene		2.0	1.97	ug/L	99	(70-130)		
LCS2	Acenaphthene		2.0	2.00	ug/L	100	(70-130)	20	1.5
MBLK	Acenaphthene			<0.05	ug/L				
MRL_CHK	Acenaphthene		0.1	0.0920	ug/L	92	(50-150)		
MS_201405080210	Acenaphthene	ND	2.0	1.98	ug/L	99	(70-130)		
MSD_201405080210	Acenaphthene	ND	2.0	2.04	ug/L	102	(70-130)	20	3.0
LCS1	Acenaphthene-d10 (I)			108	%	109	(50-150)		
LCS2	Acenaphthene-d10 (I)			103	%	103	(50-150)		
MBLK	Acenaphthene-d10 (I)			102	%	102	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)			109	%	109	(50-150)		
MS_201405080210	Acenaphthene-d10 (I)			98.4	%	98	(50-150)		
MSD_201405080210	Acenaphthene-d10 (I)			100	%	101	(50-150)		
LCS1	Acenaphthylene		2.0	1.89	ug/L	95	(70-130)		
LCS2	Acenaphthylene		2.0	1.95	ug/L	97	(70-130)	20	3.1
MBLK	Acenaphthylene			<0.05	ug/L				

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Laboratory QC
Report: 480943

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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MRL_CHK	Acenaphthylene		0.1	0.0700	ug/L	70	(50-150)		
MS_201405080210	Acenaphthylene	ND	2.0	1.78	ug/L	89	(70-130)		
MSD_201405080210	Acenaphthylene	ND	2.0	1.90	ug/L	95	(70-130)	20	6.5
LCS1	Acetochlor		2.0	2.27	ug/L	113	(70-130)		
LCS2	Acetochlor		2.0	2.23	ug/L	112	(70-130)	20	1.8
MBLK	Acetochlor			<0.05	ug/L				
MRL_CHK	Acetochlor		0.05	0.0640	ug/L	128	(50-150)		
MS_201405080210	Acetochlor	ND	2.0	2.16	ug/L	108	(70-130)		
MSD_201405080210	Acetochlor	ND	2.0	2.22	ug/L	111	(70-130)	20	2.7
LCS1	Alachlor		2.0	2.05	ug/L	102	(70-130)		
LCS2	Alachlor		2.0	1.97	ug/L	99	(70-130)	20	4.0
MBLK	Alachlor			<0.025	ug/L				
MRL_CHK	Alachlor		0.05	0.0480	ug/L	96	(50-150)		
MS_201405080210	Alachlor	ND	2.0	2.06	ug/L	103	(70-130)		
MSD_201405080210	Alachlor	ND	2.0	2.05	ug/L	103	(70-130)	20	0.49
LCS1	Aldrin		2.0	1.49	ug/L	74	(70-130)		
LCS2	Aldrin		2.0	1.58	ug/L	79	(70-130)	20	6.5
MBLK	Aldrin			<0.025	ug/L				
MRL_CHK	Aldrin		0.05	0.0380	ug/L	76	(50-150)		
MS_201405080210	Aldrin	ND	2.0	1.47	ug/L	73	(70-130)		
MSD_201405080210	Aldrin	ND	2.0	1.49	ug/L	74	(70-130)	20	1.4
LCS1	Alpha-BHC		2.0	2.07	ug/L	104	(70-130)		
LCS2	Alpha-BHC		2.0	2.07	ug/L	104	(70-130)	20	0.0
MBLK	Alpha-BHC			<0.05	ug/L				
MRL_CHK	Alpha-BHC		0.1	0.113	ug/L	113	(50-150)		
MS_201405080210	Alpha-BHC	ND	2.0	2.13	ug/L	106	(70-130)		
MSD_201405080210	Alpha-BHC	ND	2.0	2.12	ug/L	106	(70-130)	20	0.47
LCS1	alpha-Chlordane		2.0	1.92	ug/L	96	(70-130)		
LCS2	alpha-Chlordane		2.0	1.94	ug/L	97	(70-130)	20	1.0
MBLK	alpha-Chlordane			<0.025	ug/L				
MRL_CHK	alpha-Chlordane		0.05	0.0480	ug/L	96	(50-150)		
MS_201405080210	alpha-Chlordane	ND	2.0	2.00	ug/L	100	(70-130)		
MSD_201405080210	alpha-Chlordane	ND	2.0	1.95	ug/L	97	(70-130)	20	2.5
LCS1	Anthracene		2.0	1.95	ug/L	98	(70-130)		
LCS2	Anthracene		2.0	2.01	ug/L	100	(70-130)	20	3.0
MBLK	Anthracene			<0.02	ug/L				
MRL_CHK	Anthracene		0.02	0.0190	ug/L	95	(50-150)		
MS_201405080210	Anthracene	ND	2.0	1.98	ug/L	99	(70-130)		

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Laboratory QC Report: 480943

Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD_201405080210	Anthracene	ND	2.0	1.98	ug/L	99	(70-130)	20	0.0
LCS1	Atrazine		2.0	2.16	ug/L	108	(70-130)		
LCS2	Atrazine		2.0	2.14	ug/L	107	(70-130)	20	0.93
MBLK	Atrazine			<0.025	ug/L				
MRL_CHK	Atrazine		0.05	0.0460	ug/L	92	(50-150)		
MS_201405080210	Atrazine	ND	2.0	2.17	ug/L	109	(70-130)		
MSD_201405080210	Atrazine	ND	2.0	2.20	ug/L	110	(70-130)	20	1.4
LCS1	Benz(a)Anthracene		2.0	1.97	ug/L	99	(70-130)		
LCS2	Benz(a)Anthracene		2.0	1.99	ug/L	100	(70-130)	20	1.0
MBLK	Benz(a)Anthracene			<0.025	ug/L				
MRL_CHK	Benz(a)Anthracene		0.05	0.0460	ug/L	92	(50-150)		
MS_201405080210	Benz(a)Anthracene	ND	2.0	1.85	ug/L	93	(70-130)		
MSD_201405080210	Benz(a)Anthracene	ND	2.0	2.00	ug/L	100	(70-130)	20	8.3
LCS1	Benzo(a)pyrene		2.0	2.19	ug/L	110	(70-130)		
LCS2	Benzo(a)pyrene		2.0	2.05	ug/L	103	(70-130)	20	6.6
MBLK	Benzo(a)pyrene			<0.01	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0110	ug/L	55	(50-150)		
MS_201405080210	Benzo(a)pyrene	ND	2.0	2.13	ug/L	107	(70-130)		
MSD_201405080210	Benzo(a)pyrene	ND	2.0	2.18	ug/L	109	(70-130)	20	2.3
LCS1	Benzo(b)Fluoranthene		2.0	2.32	ug/L	116	(70-130)		
LCS2	Benzo(b)Fluoranthene		2.0	2.30	ug/L	115	(70-130)	20	0.87
MBLK	Benzo(b)Fluoranthene			<0.01	ug/L				
MRL_CHK	Benzo(b)Fluoranthene		0.02	0.0180	ug/L	90	(50-150)		
MS_201405080210	Benzo(b)Fluoranthene	ND	2.0	2.40	ug/L	120	(70-130)		
MSD_201405080210	Benzo(b)Fluoranthene	ND	2.0	2.43	ug/L	122	(70-130)	20	1.2
LCS1	Benzo(g,h,i)Perylene		2.0	2.16	ug/L	108	(70-130)		
LCS2	Benzo(g,h,i)Perylene		2.0	1.89	ug/L	95	(70-130)	20	13
MBLK	Benzo(g,h,i)Perylene			<0.025	ug/L				
MRL_CHK	Benzo(g,h,i)Perylene		0.05	0.0300	ug/L	60	(50-150)		
MS_201405080210	Benzo(g,h,i)Perylene	ND	2.0	2.18	ug/L	109	(70-130)		
MSD_201405080210	Benzo(g,h,i)Perylene	ND	2.0	2.27	ug/L	114	(70-130)	20	4.0
LCS1	Benzo(k)Fluoranthene		2.0	2.22	ug/L	111	(70-130)		
LCS2	Benzo(k)Fluoranthene		2.0	2.08	ug/L	104	(70-130)	20	7.0
MBLK	Benzo(k)Fluoranthene			<0.01	ug/L				
MRL_CHK	Benzo(k)Fluoranthene		0.02	0.0180	ug/L	90	(50-150)		
MS_201405080210	Benzo(k)Fluoranthene	ND	2.0	2.13	ug/L	106	(70-130)		
MSD_201405080210	Benzo(k)Fluoranthene	ND	2.0	2.13	ug/L	107	(70-130)	20	0.0
LCS1	Beta-BHC		2.0	2.08	ug/L	104	(70-130)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	Beta-BHC		2.0	2.00	ug/L	100	(70-130)	20	3.9
MBLK	Beta-BHC			<0.05	ug/L				
MRL_CHK	Beta-BHC		0.1	0.0880	ug/L	88	(50-150)		
MS_201405080210	Beta-BHC	ND	2.0	2.06	ug/L	103	(70-130)		
MSD_201405080210	Beta-BHC	ND	2.0	2.08	ug/L	104	(70-130)	20	1.5
LCS1	Bromacil		2.0	2.38	ug/L	119	(70-130)		
LCS2	Bromacil		2.0	2.23	ug/L	111	(70-130)	20	6.5
MBLK	Bromacil			<0.05	ug/L				
MRL_CHK	Bromacil		0.1	0.106	ug/L	106	(50-150)		
MS_201405080210	Bromacil	ND	2.0	2.35	ug/L	117	(70-130)		
MSD_201405080210	Bromacil	ND	2.0	2.32	ug/L	116	(70-130)	20	0.86
LCS1	Butachlor		2.0	2.20	ug/L	110	(70-130)		
LCS2	Butachlor		2.0	2.17	ug/L	108	(70-130)	20	1.4
MBLK	Butachlor			<0.025	ug/L				
MRL_CHK	Butachlor		0.05	0.0440	ug/L	88	(50-150)		
MS_201405080210	Butachlor	ND	2.0	2.09	ug/L	104	(70-130)		
MSD_201405080210	Butachlor	ND	2.0	2.09	ug/L	105	(70-130)	20	0.0
LCS1	Butylbenzylphthalate		2.0	1.84	ug/L	92	(70-130)		
LCS2	Butylbenzylphthalate		2.0	1.86	ug/L	93	(70-130)	20	1.1
MBLK	Butylbenzylphthalate			<0.15	ug/L				
MRL_CHK	Butylbenzylphthalate		0.15	0.150	ug/L	100	(50-150)		
MS_201405080210	Butylbenzylphthalate	ND	2.0	1.89	ug/L	94	(70-130)		
MSD_201405080210	Butylbenzylphthalate	ND	2.0	1.88	ug/L	94	(70-130)	20	0.53
LCS1	Caffeine by method 525mod		2.0	2.03	ug/L	101	(45-137)		
LCS2	Caffeine by method 525mod		2.0	1.70	ug/L	85	(45-137)	20	18
MBLK	Caffeine by method 525mod			<0.01	ug/L				
MRL_CHK	Caffeine by method 525mod		0.05	0.0450	ug/L	90	(50-150)		
MS_201405080210	Caffeine by method 525mod	ND	2.0	1.88	ug/L	94	(46-144)		
MSD_201405080210	Caffeine by method 525mod	ND	2.0	1.92	ug/L	96	(46-144)	20	2.6
LCS1	Chlorobenzilate		2.0	1.94	ug/L	97	(70-130)		
LCS2	Chlorobenzilate		2.0	2.07	ug/L	104	(70-130)	20	6.5
MBLK	Chlorobenzilate			<0.05	ug/L				
MRL_CHK	Chlorobenzilate		0.1	0.0650	ug/L	65	(50-150)		
MS_201405080210	Chlorobenzilate	ND	2.0	1.61	ug/L	80	(70-130)		
MSD_201405080210	Chlorobenzilate	ND	2.0	1.69	ug/L	85	(70-130)	20	4.8
LCS1	Chloroneb		2.0	2.14	ug/L	107	(70-130)		
LCS2	Chloroneb		2.0	2.15	ug/L	108	(70-130)	20	0.0
MBLK	Chloroneb			<0.05	ug/L				

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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MRL_CHK	Chloroneb		0.1	0.110	ug/L	110	(50-150)		
MS_201405080210	Chloroneb	ND	2.0	2.22	ug/L	111	(70-130)		
MSD_201405080210	Chloroneb	ND	2.0	2.18	ug/L	109	(70-130)	20	1.8
LCS1	Chlorothalonil(Draconil,Bravo)		2.0	2.19	ug/L	110	(70-130)		
LCS2	Chlorothalonil(Draconil,Bravo)		2.0	2.22	ug/L	111	(70-130)	20	1.4
MBLK	Chlorothalonil(Draconil,Bravo)			<0.05	ug/L				
MRL_CHK	Chlorothalonil(Draconil,Bravo)		0.05	0.0370	ug/L	74	(50-150)		
MS_201405080210	Chlorothalonil(Draconil,Bravo)	ND	2.0	2.20	ug/L	110	(70-130)		
MSD_201405080210	Chlorothalonil(Draconil,Bravo)	ND	2.0	2.13	ug/L	107	(70-130)	20	3.2
LCS1	Chlorpyrifos (Dursban)		2.0	2.11	ug/L	106	(70-130)		
LCS2	Chlorpyrifos (Dursban)		2.0	1.91	ug/L	95	(70-130)	20	9.9
MBLK	Chlorpyrifos (Dursban)			<0.025	ug/L				
MRL_CHK	Chlorpyrifos (Dursban)		0.05	0.0510	ug/L	102	(50-150)		
MS_201405080210	Chlorpyrifos (Dursban)	ND	2.0	2.08	ug/L	104	(70-130)		
MSD_201405080210	Chlorpyrifos (Dursban)	ND	2.0	2.07	ug/L	103	(70-130)	20	0.48
LCS1	Chrysene		2.0	2.06	ug/L	103	(70-130)		
LCS2	Chrysene		2.0	2.07	ug/L	104	(70-130)	20	0.48
MBLK	Chrysene			<0.01	ug/L				
MRL_CHK	Chrysene		0.02	0.0170	ug/L	85	(50-150)		
MS_201405080210	Chrysene	ND	2.0	2.07	ug/L	104	(70-130)		
MSD_201405080210	Chrysene	ND	2.0	2.07	ug/L	103	(70-130)	20	0.0
LCS1	Chrysene-d12 (I)			104	%	104	(50-150)		
LCS2	Chrysene-d12 (I)			99.6	%	100	(50-150)		
MBLK	Chrysene-d12 (I)			90.4	%	90	(50-150)		
MRL_CHK	Chrysene-d12 (I)			98.7	%	99	(50-150)		
MS_201405080210	Chrysene-d12 (I)			95.4	%	95	(50-150)		
MSD_201405080210	Chrysene-d12 (I)			99.3	%	99	(50-150)		
LCS1	Delta-BHC		2.0	2.06	ug/L	103	(70-130)		
LCS2	Delta-BHC		2.0	2.05	ug/L	102	(70-130)	20	0.97
MBLK	Delta-BHC			<0.05	ug/L				
MRL_CHK	Delta-BHC		0.1	0.102	ug/L	102	(50-150)		
MS_201405080210	Delta-BHC	ND	2.0	2.03	ug/L	101	(70-130)		
MSD_201405080210	Delta-BHC	ND	2.0	1.98	ug/L	99	(70-130)	20	2.5
LCS1	Di-(2-Ethylhexyl)adipate		2.0	2.17	ug/L	109	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2.0	2.17	ug/L	109	(70-130)	20	0.0
MBLK	Di-(2-Ethylhexyl)adipate			<0.15	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.296	ug/L	99	(50-150)		
MS_201405080210	Di-(2-Ethylhexyl)adipate	ND	2.0	2.17	ug/L	109	(70-130)		

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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD_201405080210	Di-(2-Ethylhexyl)adipate	ND	2.0	2.21	ug/L	111	(70-130)	20	1.8
LCS1	Di(2-Ethylhexyl)phthalate		2.0	1.98	ug/L	99	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2.0	2.01	ug/L	101	(70-130)	20	1.5
MBLK	Di(2-Ethylhexyl)phthalate			<0.15	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.573	ug/L	96	(50-150)		
MS_201405080210	Di(2-Ethylhexyl)phthalate	ND	2.0	2.00	ug/L	100	(70-130)		
MSD_201405080210	Di(2-Ethylhexyl)phthalate	ND	2.0	2.04	ug/L	102	(70-130)	20	2.0
LCS1	Diazinon (Qualitative)		2.0	1.95	ug/L	97	(70-130)		
LCS2	Diazinon (Qualitative)		2.0	1.87	ug/L	93	(70-130)	20	4.2
MBLK	Diazinon (Qualitative)			<0.10	ug/L				
MRL_CHK	Diazinon (Qualitative)		0.1	0.0850	ug/L	85	(50-150)		
MS_201405080210	Diazinon (Qualitative)		2.0	1.97	ug/L	99	(70-130)		
MSD_201405080210	Diazinon (Qualitative)		2.0	2.04	ug/L	102	(70-130)	20	3.5
LCS1	Dibenz(a,h)Anthracene		2.0	2.38	ug/L	119	(70-130)		
LCS2	Dibenz(a,h)Anthracene		2.0	2.10	ug/L	105	(70-130)	20	13
MBLK	Dibenz(a,h)Anthracene			<0.025	ug/L				
MRL_CHK	Dibenz(a,h)Anthracene		0.05	0.0280	ug/L	56	(50-150)		
MS_201405080210	Dibenz(a,h)Anthracene	ND	2.0	2.30	ug/L	115	(70-130)		
MSD_201405080210	Dibenz(a,h)Anthracene	ND	2.0	2.51	ug/L	126	(70-130)	20	8.7
LCS1	Dichlorvos (DDVP)		2.0	2.13	ug/L	107	(70-130)		
LCS2	Dichlorvos (DDVP)		2.0	2.11	ug/L	105	(70-130)	20	0.94
MBLK	Dichlorvos (DDVP)			<0.025	ug/L				
MRL_CHK	Dichlorvos (DDVP)		0.05	0.0470	ug/L	94	(50-150)		
MS_201405080210	Dichlorvos (DDVP)	ND	2.0	2.09	ug/L	104	(70-130)		
MSD_201405080210	Dichlorvos (DDVP)	ND	2.0	2.09	ug/L	104	(70-130)	20	0.0
LCS1	Dieldrin		2.0	1.90	ug/L	95	(70-130)		
LCS2	Dieldrin		2.0	1.94	ug/L	97	(70-130)	20	2.1
MBLK	Dieldrin			<0.05	ug/L				
MRL_CHK	Dieldrin		0.1	0.0870	ug/L	87	(50-150)		
MS_201405080210	Dieldrin	ND	2.0	1.85	ug/L	93	(70-130)		
MSD_201405080210	Dieldrin	ND	2.0	1.91	ug/L	95	(70-130)	20	3.2
LCS1	Diethylphthalate		2.0	2.24	ug/L	112	(70-130)		
LCS2	Diethylphthalate		2.0	2.26	ug/L	113	(70-130)	20	0.44
MBLK	Diethylphthalate			<0.15	ug/L				
MRL_CHK	Diethylphthalate		0.15	0.162	ug/L	108	(50-150)		
MS_201405080210	Diethylphthalate	ND	2.0	2.25	ug/L	113	(70-130)		
MSD_201405080210	Diethylphthalate	ND	2.0	2.30	ug/L	115	(70-130)	20	2.2
LCS1	Dimethoate		2.0	1.75	ug/L	88	(35-100)		

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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	Dimethoate		2.0	1.86	ug/L	93	(35-100)	20	6.1
MBLK	Dimethoate			<0.05	ug/L				
MRL_CHK	Dimethoate		0.1	0.100	ug/L	100	(35-100)		
MS_201405080210	Dimethoate	ND	2.0	1.78	ug/L	89	(34-111)		
MSD_201405080210	Dimethoate	ND	2.0	1.87	ug/L	94	(34-111)	20	4.9
LCS1	Dimethylphthalate		2.0	2.18	ug/L	109	(70-130)		
LCS2	Dimethylphthalate		2.0	2.18	ug/L	109	(70-130)	20	0.0
MBLK	Dimethylphthalate			<0.15	ug/L				
MRL_CHK	Dimethylphthalate		0.3	0.309	ug/L	103	(50-150)		
MS_201405080210	Dimethylphthalate	ND	2.0	2.17	ug/L	109	(70-130)		
MSD_201405080210	Dimethylphthalate	ND	2.0	2.21	ug/L	110	(70-130)	20	1.8
LCS1	Di-n-Butylphthalate		4.0	4.24	ug/L	106	(70-130)		
LCS2	Di-n-Butylphthalate		4.0	4.34	ug/L	109	(70-130)	20	2.3
MBLK	Di-n-Butylphthalate			<0.15	ug/L				
MRL_CHK	Di-n-Butylphthalate		0.3	0.298	ug/L	99	(50-150)		
MS_201405080210	Di-n-Butylphthalate	ND	4.0	4.30	ug/L	108	(70-130)		
MSD_201405080210	Di-n-Butylphthalate	ND	4.0	4.29	ug/L	107	(70-130)	20	0.23
LCS1	Di-N-octylphthalate		2.0	1.98	ug/L	99	(70-130)		
LCS2	Di-N-octylphthalate		2.0	1.97	ug/L	98	(70-130)	20	0.51
MBLK	Di-N-octylphthalate			<0.05	ug/L				
MRL_CHK	Di-N-octylphthalate		0.1	0.102	ug/L	102	(50-150)		
MS_201405080210	Di-N-octylphthalate	ND	2.0	1.87	ug/L	93	(70-130)		
MSD_201405080210	Di-N-octylphthalate	ND	2.0	2.03	ug/L	101	(70-130)	20	8.2
LCS1	Endosulfan I (Alpha)		2.0	1.92	ug/L	96	(70-130)		
LCS2	Endosulfan I (Alpha)		2.0	1.80	ug/L	90	(70-130)	20	7.0
MBLK	Endosulfan I (Alpha)			<0.05	ug/L				
MRL_CHK	Endosulfan I (Alpha)		0.1	0.0670	ug/L	67	(50-150)		
MS_201405080210	Endosulfan I (Alpha)	ND	2.0	1.85	ug/L	93	(70-130)		
MSD_201405080210	Endosulfan I (Alpha)	ND	2.0	1.75	ug/L	88	(70-130)	20	5.6
LCS1	Endosulfan II (Beta)		2.0	1.86	ug/L	93	(70-130)		
LCS2	Endosulfan II (Beta)		2.0	1.98	ug/L	99	(70-130)	20	6.3
MBLK	Endosulfan II (Beta)			<0.05	ug/L				
MRL_CHK	Endosulfan II (Beta)		0.1	0.105	ug/L	105	(50-150)		
MS_201405080210	Endosulfan II (Beta)	ND	2.0	2.09	ug/L	104	(70-130)		
MSD_201405080210	Endosulfan II (Beta)	ND	2.0	2.00	ug/L	100	(70-130)	20	4.4
LCS1	Endosulfan Sulfate		2.0	2.08	ug/L	104	(70-130)		
LCS2	Endosulfan Sulfate		2.0	2.14	ug/L	107	(70-130)	20	2.8
MBLK	Endosulfan Sulfate			<0.05	ug/L				

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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MRL_CHK	Endosulfan Sulfate		0.1	0.0880	ug/L	88	(50-150)		
MS_201405080210	Endosulfan Sulfate	ND	2.0	2.08	ug/L	104	(70-130)		
MSD_201405080210	Endosulfan Sulfate	ND	2.0	2.17	ug/L	109	(70-130)	20	4.2
LCS1	Endrin		2.0	1.98	ug/L	99	(70-130)		
LCS2	Endrin		2.0	1.95	ug/L	98	(70-130)	20	2.0
MBLK	Endrin			<0.05	ug/L				
MRL_CHK	Endrin		0.1	0.0610	ug/L	61	(50-150)		
MS_201405080210	Endrin	ND	2.0	1.95	ug/L	98	(70-130)		
MSD_201405080210	Endrin	ND	2.0	1.96	ug/L	98	(70-130)	20	0.51
LCS1	Endrin Aldehyde		2.0	1.89	ug/L	94	(70-130)		
LCS2	Endrin Aldehyde		2.0	1.92	ug/L	96	(70-130)	20	1.6
MBLK	Endrin Aldehyde			<0.05	ug/L				
MRL_CHK	Endrin Aldehyde		0.1	0.0940	ug/L	94	(50-150)		
MS_201405080210	Endrin Aldehyde	ND	2.0	1.92	ug/L	96	(70-130)		
MSD_201405080210	Endrin Aldehyde	ND	2.0	1.87	ug/L	94	(70-130)	20	2.6
LCS1	EPTC		2.0	2.12	ug/L	106	(70-130)		
LCS2	EPTC		2.0	2.13	ug/L	106	(70-130)	20	0.47
MBLK	EPTC			<0.05	ug/L				
MRL_CHK	EPTC		0.1	0.111	ug/L	111	(50-150)		
MS_201405080210	EPTC	ND	2.0	2.13	ug/L	106	(70-130)		
MSD_201405080210	EPTC	ND	2.0	2.15	ug/L	107	(70-130)	20	0.94
LCS1	Fluoranthene		2.0	2.02	ug/L	101	(70-130)		
LCS2	Fluoranthene		2.0	2.01	ug/L	100	(70-130)	20	0.50
MBLK	Fluoranthene			<0.05	ug/L				
MRL_CHK	Fluoranthene		0.05	0.0460	ug/L	92	(50-150)		
MS_201405080210	Fluoranthene	ND	2.0	2.06	ug/L	103	(70-130)		
MSD_201405080210	Fluoranthene	ND	2.0	2.02	ug/L	101	(70-130)	20	2.0
LCS1	Fluorene		2.0	2.04	ug/L	102	(70-130)		
LCS2	Fluorene		2.0	2.07	ug/L	103	(70-130)	20	0.97
MBLK	Fluorene			<0.05	ug/L				
MRL_CHK	Fluorene		0.05	0.0470	ug/L	94	(50-150)		
MS_201405080210	Fluorene	ND	2.0	2.06	ug/L	103	(70-130)		
MSD_201405080210	Fluorene	ND	2.0	2.10	ug/L	105	(70-130)	20	1.9
LCS1	gamma-Chlordane		2.0	1.97	ug/L	99	(70-130)		
LCS2	gamma-Chlordane		2.0	2.00	ug/L	100	(70-130)	20	1.5
MBLK	gamma-Chlordane			<0.025	ug/L				
MRL_CHK	gamma-Chlordane		0.05	0.0380	ug/L	76	(50-150)		
MS_201405080210	gamma-Chlordane	ND	2.0	1.97	ug/L	99	(70-130)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD_201405080210	gamma-Chlordane	ND	2.0	1.97	ug/L	99	(70-130)	20	0.0
LCS1	Heptachlor		2.0	2.25	ug/L	112	(70-130)		
LCS2	Heptachlor		2.0	2.11	ug/L	106	(70-130)	20	6.4
MBLK	Heptachlor			<0.015	ug/L				
MRL_CHK	Heptachlor		0.04	0.0380	ug/L	95	(50-150)		
MS_201405080210	Heptachlor	ND	2.0	2.31	ug/L	116	(70-130)		
MSD_201405080210	Heptachlor	ND	2.0	2.29	ug/L	114	(70-130)	20	0.87
LCS1	Heptachlor Epoxide (isomer B)		2.0	2.07	ug/L	103	(70-130)		
LCS2	Heptachlor Epoxide (isomer B)		2.0	1.85	ug/L	93	(70-130)	20	11
MBLK	Heptachlor Epoxide (isomer B)			<0.025	ug/L				
MRL_CHK	Heptachlor Epoxide (isomer B)		0.05	0.0460	ug/L	92	(50-150)		
MS_201405080210	Heptachlor Epoxide (isomer B)	ND	2.0	2.00	ug/L	100	(70-130)		
MSD_201405080210	Heptachlor Epoxide (isomer B)	ND	2.0	2.01	ug/L	100	(70-130)	20	0.0
LCS1	Hexachlorobenzene		2.0	2.03	ug/L	101	(70-130)		
LCS2	Hexachlorobenzene		2.0	2.04	ug/L	102	(70-130)	20	0.49
MBLK	Hexachlorobenzene			<0.025	ug/L				
MRL_CHK	Hexachlorobenzene		0.05	0.0480	ug/L	96	(50-150)		
MS_201405080210	Hexachlorobenzene	ND	2.0	2.05	ug/L	103	(70-130)		
MSD_201405080210	Hexachlorobenzene	ND	2.0	2.06	ug/L	103	(70-130)	20	0.49
LCS1	Hexachlorocyclopentadiene		2.0	2.25	ug/L	112	(70-130)		
LCS2	Hexachlorocyclopentadiene		2.0	2.35	ug/L	118	(70-130)	20	4.3
MBLK	Hexachlorocyclopentadiene			<0.025	ug/L				
MRL_CHK	Hexachlorocyclopentadiene		0.05	0.0530	ug/L	106	(50-150)		
MS_201405080210	Hexachlorocyclopentadiene	ND	2.0	2.29	ug/L	114	(70-130)		
MSD_201405080210	Hexachlorocyclopentadiene	ND	2.0	2.39	ug/L	120	(70-130)	20	4.3
LCS1	Indeno(1,2,3,c,d)Pyrene		2.0	2.22	ug/L	111	(70-130)		
LCS2	Indeno(1,2,3,c,d)Pyrene		2.0	1.96	ug/L	98	(70-130)	20	13
MBLK	Indeno(1,2,3,c,d)Pyrene			<0.025	ug/L				
MRL_CHK	Indeno(1,2,3,c,d)Pyrene		0.05	0.0280	ug/L	56	(50-150)		
MS_201405080210	Indeno(1,2,3,c,d)Pyrene	ND	2.0	2.23	ug/L	111	(70-130)		
MSD_201405080210	Indeno(1,2,3,c,d)Pyrene	ND	2.0	2.40	ug/L	120	(70-130)	20	7.3
LCS1	Isophorone		2.0	1.96	ug/L	98	(70-130)		
LCS2	Isophorone		2.0	1.94	ug/L	97	(70-130)	20	1.0
MBLK	Isophorone			<0.25	ug/L				
MRL_CHK	Isophorone		0.1	0.0920	ug/L	92	(50-150)		
MS_201405080210	Isophorone	ND	2.0	1.95	ug/L	97	(70-130)		
MSD_201405080210	Isophorone	ND	2.0	1.96	ug/L	98	(70-130)	20	0.51
LCS1	Lindane		2.0	2.05	ug/L	103	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	Lindane		2.0	2.11	ug/L	106	(70-130)	20	2.9
MBLK	Lindane			<0.02	ug/L				
MRL_CHK	Lindane		0.04	0.0400	ug/L	100	(50-150)		
MS_201405080210	Lindane	ND	2.0	2.14	ug/L	107	(70-130)		
MSD_201405080210	Lindane	ND	2.0	2.03	ug/L	101	(70-130)	20	5.3
LCS1	Malathion		2.0	1.82	ug/L	91	(70-130)		
LCS2	Malathion		2.0	2.00	ug/L	100	(70-130)	20	9.4
MBLK	Malathion			<0.05	ug/L				
MRL_CHK	Malathion		0.1	0.130	ug/L	130	(50-150)		
MS_201405080210	Malathion	ND	2.0	2.02	ug/L	101	(70-130)		
MSD_201405080210	Malathion	ND	2.0	2.08	ug/L	104	(70-130)	20	3.4
LCS1	Methoxychlor		2.0	2.28	ug/L	114	(70-130)		
LCS2	Methoxychlor		2.0	2.25	ug/L	113	(70-130)	20	1.3
MBLK	Methoxychlor			<0.05	ug/L				
MRL_CHK	Methoxychlor		0.1	0.115	ug/L	115	(50-150)		
MS_201405080210	Methoxychlor	ND	2.0	2.26	ug/L	113	(70-130)		
MSD_201405080210	Methoxychlor	ND	2.0	2.26	ug/L	113	(70-130)	20	0.0
LCS1	Metolachlor		2.0	2.18	ug/L	109	(70-130)		
LCS2	Metolachlor		2.0	2.20	ug/L	110	(70-130)	20	0.46
MBLK	Metolachlor			<0.025	ug/L				
MRL_CHK	Metolachlor		0.05	0.0490	ug/L	98	(50-150)		
MS_201405080210	Metolachlor	ND	2.0	2.17	ug/L	109	(70-130)		
MSD_201405080210	Metolachlor	ND	2.0	2.12	ug/L	106	(70-130)	20	2.3
LCS1	Metribuzin		2.0	2.40	ug/L	120	(70-130)		
LCS2	Metribuzin		2.0	2.32	ug/L	116	(70-130)	20	3.4
MBLK	Metribuzin			<0.05	ug/L				
MRL_CHK	Metribuzin		0.05	0.0510	ug/L	102	(50-150)		
MS_201405080210	Metribuzin	ND	2.0	2.31	ug/L	116	(70-130)		
MSD_201405080210	Metribuzin	ND	2.0	2.26	ug/L	113	(70-130)	20	2.2
LCS1	Molinate		2.0	2.19	ug/L	110	(70-130)		
LCS2	Molinate		2.0	2.17	ug/L	108	(70-130)	20	0.92
MBLK	Molinate			<0.05	ug/L				
MRL_CHK	Molinate		0.1	0.101	ug/L	101	(50-150)		
MS_201405080210	Molinate	ND	2.0	2.16	ug/L	108	(70-130)		
MSD_201405080210	Molinate	ND	2.0	2.20	ug/L	110	(70-130)	20	1.8
LCS1	Naphthalene		2.0	1.83	ug/L	91	(70-130)		
LCS2	Naphthalene		2.0	1.86	ug/L	93	(70-130)	20	1.6
MBLK	Naphthalene			<0.05	ug/L				

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MRL_CHK	Naphthalene		0.1	0.0950	ug/L	95	(50-150)		
MS_201405080210	Naphthalene	ND	2.0	1.84	ug/L	92	(70-130)		
MSD_201405080210	Naphthalene	ND	2.0	1.86	ug/L	93	(70-130)	20	1.1
LCS1	Parathion		2.0	1.96	ug/L	98	(70-130)		
LCS2	Parathion		2.0	2.02	ug/L	101	(70-130)	20	3.0
MBLK	Parathion			<0.05	ug/L				
MRL_CHK	Parathion		0.1	0.119	ug/L	119	(50-150)		
MS_201405080210	Parathion	ND	2.0	1.93	ug/L	97	(70-130)		
MSD_201405080210	Parathion	ND	2.0	1.93	ug/L	97	(70-130)	20	0.0
LCS1	Pendimethalin		2.0	1.92	ug/L	96	(70-130)		
LCS2	Pendimethalin		2.0	1.94	ug/L	97	(70-130)	20	1.0
MBLK	Pendimethalin			<0.05	ug/L				
MRL_CHK	Pendimethalin		0.1	0.123	ug/L	123	(50-150)		
MS_201405080210	Pendimethalin	ND	2.0	1.96	ug/L	98	(70-130)		
MSD_201405080210	Pendimethalin	ND	2.0	1.94	ug/L	97	(70-130)	20	1.0
LCS1	Pentachlorophenol		8.0	8.00	ug/L	100	(70-130)		
LCS2	Pentachlorophenol		8.0	7.97	ug/L	100	(70-130)	20	0.38
MBLK	Pentachlorophenol			<0.6	ug/L				
MRL_CHK	Pentachlorophenol		0.5	0.471	ug/L	94	(50-150)		
MS_201405080210	Pentachlorophenol	ND	8.0	6.10	ug/L	76	(70-130)		
MSD_201405080210	Pentachlorophenol	ND	8.0	5.96	ug/L	74	(70-130)	20	2.5
LCS1	Permethrin (mixed isomers)		4.0	3.91	ug/L	98	(70-130)		
LCS2	Permethrin (mixed isomers)		4.0	3.89	ug/L	97	(70-130)	20	0.51
MBLK	Permethrin (mixed isomers)			<0.1	ug/L				
MRL_CHK	Permethrin (mixed isomers)		0.15	0.319	ug/L	<u>213</u>	(50-150)		
MS_201405080210	Permethrin (mixed isomers)	ND	4.0	3.82	ug/L	96	(70-130)		
MSD_201405080210	Permethrin (mixed isomers)	ND	4.0	4.00	ug/L	100	(70-130)	20	4.6
LCS1	Perylene-d12 (S)			100	%	100	(70-130)		
LCS2	Perylene-d12 (S)			96.3	%	96	(70-130)		
MBLK	Perylene-d12 (S)			82.3	%	82	(70-130)		
MRL_CHK	Perylene-d12 (S)			80.2	%	80	(70-130)		
MS_201405080210	Perylene-d12 (S)			98.6	%	99	(70-130)		
MSD_201405080210	Perylene-d12 (S)			100	%	100	(70-130)		
LCS1	Phenanthrene		2.0	2.00	ug/L	100	(70-130)		
LCS2	Phenanthrene		2.0	2.00	ug/L	100	(70-130)	20	0.0
MBLK	Phenanthrene			<0.02	ug/L				
MRL_CHK	Phenanthrene		0.02	0.0190	ug/L	95	(50-150)		
MS_201405080210	Phenanthrene	ND	2.0	2.00	ug/L	100	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Laboratory QC
Report: 480943

Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
MSD_201405080210	Phenanthrene	ND	2.0	1.98	ug/L	99	(70-130)	20	1.0
LCS1	Phenanthrene-d10 (I)			109	%	109	(50-150)		
LCS2	Phenanthrene-d10 (I)			104	%	104	(50-150)		
MBLK	Phenanthrene-d10 (I)			103	%	103	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)			109	%	109	(50-150)		
MS_201405080210	Phenanthrene-d10 (I)			101	%	101	(50-150)		
MSD_201405080210	Phenanthrene-d10 (I)			104	%	104	(50-150)		
LCS1	Propachlor		2.0	2.15	ug/L	107	(70-130)		
LCS2	Propachlor		2.0	2.18	ug/L	109	(70-130)	20	1.4
MBLK	Propachlor			<0.025	ug/L				
MRL_CHK	Propachlor		0.05	0.0760	ug/L	152	(50-150)		
MS_201405080210	Propachlor	ND	2.0	2.24	ug/L	112	(70-130)		
MSD_201405080210	Propachlor	ND	2.0	2.29	ug/L	115	(70-130)	20	2.2
LCS1	Pyrene		2.0	2.03	ug/L	101	(70-130)		
LCS2	Pyrene		2.0	2.00	ug/L	100	(70-130)	20	1.5
MBLK	Pyrene			<0.025	ug/L				
MRL_CHK	Pyrene		0.05	0.0440	ug/L	88	(50-150)		
MS_201405080210	Pyrene	ND	2.0	2.03	ug/L	102	(70-130)		
MSD_201405080210	Pyrene	ND	2.0	1.99	ug/L	100	(70-130)	20	2.0
LCS1	Simazine		2.0	2.26	ug/L	113	(70-130)		
LCS2	Simazine		2.0	2.17	ug/L	109	(70-130)	20	4.5
MBLK	Simazine			<0.025	ug/L				
MRL_CHK	Simazine		0.05	0.0300	ug/L	60	(50-150)		
MS_201405080210	Simazine	ND	2.0	2.20	ug/L	110	(70-130)		
MSD_201405080210	Simazine	ND	2.0	2.24	ug/L	112	(70-130)	20	1.8
LCS1	Terbacil		2.0	2.19	ug/L	110	(70-130)		
LCS2	Terbacil		2.0	2.12	ug/L	106	(70-130)	20	3.3
MBLK	Terbacil			<0.05	ug/L				
MRL_CHK	Terbacil		0.1	0.130	ug/L	130	(50-150)		
MS_201405080210	Terbacil	ND	2.0	2.08	ug/L	104	(70-130)		
MSD_201405080210	Terbacil	ND	2.0	2.04	ug/L	102	(70-130)	20	1.9
LCS1	Terbuthylazine		2.0	2.28	ug/L	114	(70-130)		
LCS2	Terbuthylazine		2.0	2.27	ug/L	114	(70-130)	20	0.44
MBLK	Terbuthylazine			<0.2	ug/L				
MRL_CHK	Terbuthylazine		0.1	0.107	ug/L	107	(50-150)		
MS_201405080210	Terbuthylazine	ND	2.0	2.29	ug/L	115	(70-130)		
MSD_201405080210	Terbuthylazine	ND	2.0	2.34	ug/L	117	(70-130)	20	2.2
LCS1	Thiobencarb		2.0	2.12	ug/L	106	(70-130)		

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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Del Puerto Water District

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS2	Thiobencarb		2.0	2.12	ug/L	106	(70-130)	20	0.0
MBLK	Thiobencarb			<0.1	ug/L				
MRL_CHK	Thiobencarb		0.1	0.0880	ug/L	88	(50-150)		
MS_201405080210	Thiobencarb	ND	2.0	2.09	ug/L	104	(70-130)		
MSD_201405080210	Thiobencarb	ND	2.0	2.09	ug/L	105	(70-130)	20	0.0
LCS1	trans-Nonachlor		2.0	1.98	ug/L	99	(70-130)		
LCS2	trans-Nonachlor		2.0	1.95	ug/L	97	(70-130)	20	1.5
MBLK	trans-Nonachlor			<0.025	ug/L				
MRL_CHK	trans-Nonachlor		0.05	0.0400	ug/L	80	(50-150)		
MS_201405080210	trans-Nonachlor	ND	2.0	2.03	ug/L	101	(70-130)		
MSD_201405080210	trans-Nonachlor	ND	2.0	1.98	ug/L	99	(70-130)	20	2.5
LCS1	Trifluralin		2.0	2.27	ug/L	114	(70-130)		
LCS2	Trifluralin		2.0	2.26	ug/L	113	(70-130)	20	0.44
MBLK	Trifluralin			<0.05	ug/L				
MRL_CHK	Trifluralin		0.1	0.127	ug/L	127	(50-150)		
MS_201405080210	Trifluralin	ND	2.0	2.34	ug/L	117	(70-130)		
MSD_201405080210	Trifluralin	ND	2.0	2.36	ug/L	118	(70-130)	20	0.85
LCS1	Triphenylphosphate (S)			106	%	106	(70-130)		
LCS2	Triphenylphosphate (S)			103	%	103	(70-130)		
MBLK	Triphenylphosphate (S)			100	%	100	(70-130)		
MRL_CHK	Triphenylphosphate (S)			99.3	%	99	(70-130)		
MS_201405080210	Triphenylphosphate (S)			103	%	103	(70-130)		
MSD_201405080210	Triphenylphosphate (S)			103	%	103	(70-130)		

QC Ref# 773616 - Specific Conductance by SM2510B **Analysis Date: 06/03/2014**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
DUP_201405290010	Specific Conductance	780		772	umho/cm		(0.000-20)	20	0.54
DUP_201405290011	Specific Conductance	640		642	umho/cm		(0.000-20)	20	0.14
LCS1	Specific Conductance		1000	1010	umho/cm	101	(95-105)		
LCS2	Specific Conductance		1000	1010	umho/cm	101	(95-105)	20	0.0
MBLK	Specific Conductance			<2	umho/cm				
MRL_CHK	Specific Conductance		1.6	2.00	umho/cm	123	(50-150)		

QC Ref# 774423 - Gross Alpha by Co-precipitation by SM 7110C **Analysis Date: 06/05/2014**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPDLimit (%)	RPD%
LCS1	Gross Alpha by Coprecipitation		9.7	11.2	pCi/L	116	(80-120)		
LCS2	Gross Alpha by Coprecipitation		9.7	11.4	pCi/L	118	(80-120)	20	1.8
MBLK	Gross Alpha by Coprecipitation			<3	pCi/L				
MS_201404230565	Gross Alpha by Coprecipitation	ND	9.7	12.5	pCi/L	127	(70-130)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

EXHIBIT E

Alternative Water Availability Assessment Report

Prepared for:
GWF Energy

Date: April 29, 2015
Project No: 1501650

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GEI Consultants

April 29, 2015

Geotechnical
Environmental and
Water Resources
Engineering

Mr. Neftali Nevarez
GWF Energy LLC
14950 W. Schulte Road
Tracy, CA 95377

Re: Alternative Water Availability Assessment for GWF's Tracy Combined Cycle Power Plant Tracy, California

Dear Mr. Neftali:

GEI Consultants, Inc. (GEI) has prepared this report to assess alternative water supplies for GWF's Tracy Combined Cycle Power Plant. Our evaluation included assessing whether groundwater, potable water, or recycled water could be available for use at the facility. The analysis has included an evaluation of the capacity of each source, water quality, costs, and schedule for implementation. Laws and ordinances are presented for each option.

The results of the assessment demonstrated that both recycled water and groundwater are viable water supply options. Obtaining recycled water as the supply source is the least expensive, is preferred by the California Energy Commission, and is the most secure and reliable supply; however, it will take the longest to implement. Groundwater supplies can be developed, but have a higher cost and with the execution of the Sustainable Groundwater Management Act implementation may be subject to restricted use. It has the shortest duration for implementation. GWF will need to assess their budgets and schedule to select the most viable alternative, which will require approval by the California Energy Commission.

If you have any questions or concerns pertaining to this report, please contact Richard Shatz at (916) 631-4566.

Regards,

Richard W. Shatz, C.HG. 84
Principal Hydrogeologist

Lorraine White
Senior Scientist

Enclosures

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Abbreviations

ACC	air cooled condenser
AF	acre-feet
AFC	Application for Certification
AFY	acre-feet per year
AGR	agricultural supply
BBID	Byron Bethany Irrigation District
CDPH	California Department of Public Health
CEC	California Energy Commission
CEQA	California Environmental Quality Act
City	City of Tracy
Clay	Corcoran Clay
CO	carbon monoxide
CTG	combustion turbine generators
CVP	Central Valley Project
CWC	California Water Code
DMC	Delta-Mendota Canal
DWR	Department of Water Resources
EAEC	East Altamont Energy Center
ENR	Engineering News Record
gpd	gallons per day
gpm	gallons per minute
GSA	Groundwater Sustainability Agency
HRSG	heat recovery system generators

IND	industrial service supply
LF	linear feet
MCLs	maximum contaminant levels
Mf	older fanglomerate
MGD	million gallons per day
MHCSD	Mountain House Community Service District
msl	mean sea level
MUN	municipal and domestic water supply
MW	megawatts
NL	notification level
NOx	nitrogen oxide
PG&E	Pacific Gas and Electric Company
PRO	industrial process supply
Qal	alluvium
QTt	Tulare Formation
SBR	sequencing batch reactor
SGMA	Sustainable Groundwater Management Act
SSJID	South San Joaquin Irrigation District
STG	steam turbine generator
Subbasin	Tracy Groundwater Subbasin
SJV Basin	San Joaquin Valley Groundwater Basin
TDS	total dissolved solids
USBR	United States Bureau of Reclamation
VOC	volatile organic compounds
WWTP	wastewater treatment plant
ZLD	zero liquid discharge

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1 Introduction

GWF Energy, LLC's (GWF Tracy) Tracy Combined Cycle Power Plant is currently permitted by the California Energy Commission (CEC) to use up to 54 acre-feet per year (AFY) and has a nominal power generation capacity of 336 megawatts (MW) of electricity. It was constructed with a single source of water supply for power generation: surface water from the Delta-Mendota Canal (DMC). This assessment is to identify potentially suitable alternative sources of water supply for use at the power plant. These alternatives being considered include the use of groundwater, potable water, and recycled water. If favorable conditions are present the assessment will then need to be approved by the California Energy Commission (CEC).

1.1 Location

The GWF Tracy power plant is located at 14950 West Schulte Road, just outside the sphere of influence of the City of Tracy (City). It is located on approximately 16 acres owned by GWF. GWF owns a total of 43.4 acres, part of which surrounds the existing facility and part of which is located on the north side of West Schulte Road. The property is located southwest of the City and approximately 20 miles southwest of the City of Stockton. The property is bounded by the DMC to the south and the Union Pacific Railroad to the north; north of the railroad tracks. South of Schulte Road is the Owens-Illinois glass bottle manufacturing plant. The inactive Tracy Biomass power plant is approximately 0.6 miles to the northwest of the GWF facility, on the south side of West Schulte Road (CEC, 2010). These facilities are surrounded by agricultural property to the north and east. The location of the plant is shown on **Figure 1**.

1.2 Site Description

GWF Energy, LLC originally constructed a nominal 167 MW simple cycle natural gas fired power plant, the Tracy Peaker Project, which was approved by the CEC in 2002 (CEC, 2002a). After operating the peaker plant for six years, GWF submitted an Application for Certification (AFC) to the CEC in 2008 to convert the Tracy Peaker Project to a combined cycle plant with a generating capacity of 336 MW (CEC, 2012). This conversion included adding two heat recovery steam generators, a steam turbine, and an air cooled condenser, requiring approximately 26.3 AFY of additional water supplies (GWF Energy, 2008).

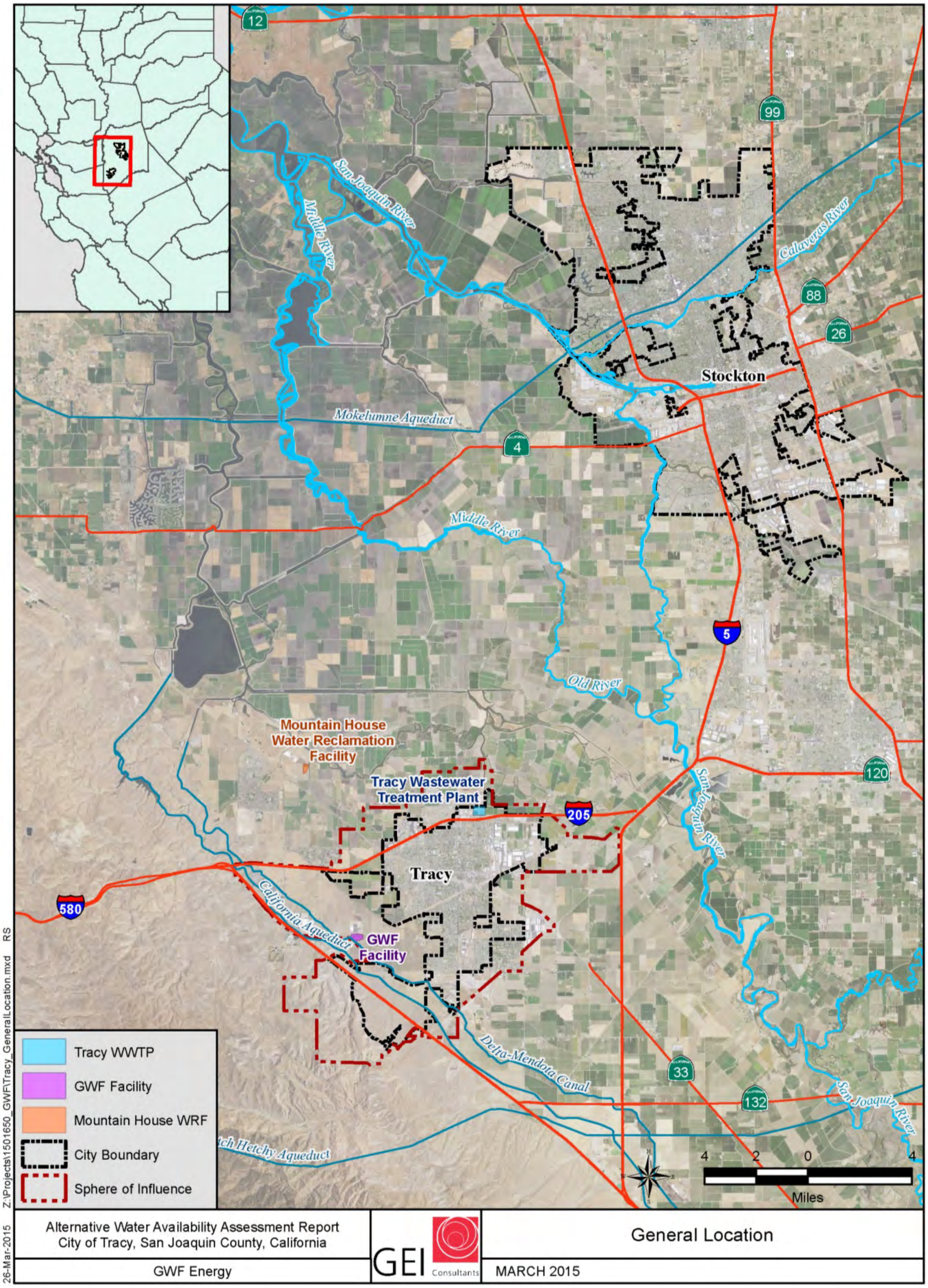

Figure 1. General Location

The current power plant consists of the power plant, an air cooled condenser unit, two onsite 115-kilovolt switchyards, an onsite natural gas supply interconnection, an onsite electric transmission line, an approximately 1,470-foot water supply pipeline, and an access road approximately three-quarters of a mile in length (see **Figure 2**). The power plant generates electricity with two natural gas fired General Electric Model MS7121EA combustion turbine generators (CTG) operating in simple-cycle mode. Two Alstom Heat Recovery Steam Generators (HRSG) receive exhaust from these generators to produce steam that is then used in the nominal 167 MW (net output) condensing steam turbine generator (STG). Steam is then cooled for re-use by the Air Cooled Condenser (ACC) system, which is 114-foot-tall by 234-foot-long by 215-foot-wide. The combustion turbines use a dry-low nitrogen oxide (NOx) combustion system to minimize air emissions. A high efficiency oxidation catalyst system within each HRSG is used to control carbon monoxide (CO) and volatile organic compounds (VOC) emissions to comply with the Title V operating permit limits (CEC, 2009). A Selective Catalytic Reduction catalyst is used to control nitrogen oxide emissions (NOx) to comply with the Title V operating permit limits (CEC, 2009). An evaporative cooling system is used on the inlet air for use at higher ambient temperatures to boost the efficiency of the generators. Pacific Gas & Electric Company (PG&E) supplies natural gas via an outside interconnection with an existing transmission pipeline.

Figure 2. Site Layout

Untreated surface water is supplied to the GWF facility via a 1,470 foot pipeline from the DMC through an existing agreement with Byron Bethany Irrigation District (BBID). This water is treated onsite with ultrafiltration (to remove suspended solids) and resin beds (to remove dissolved solids) so it can be used for the industrial process needs. A clarifier is also used as a polishing step (Gary Bishop, 2015a). Water is also demineralized for make-up supplies to the HRSG and auxiliary boiler, inlet cooling system, and turbine wash water. **Figure 3** shows a schematic of the plant's water sources, treatment, and recycling loops. The water treatment system has been optimized to reduce water supply requirements and minimize offsite water disposal.

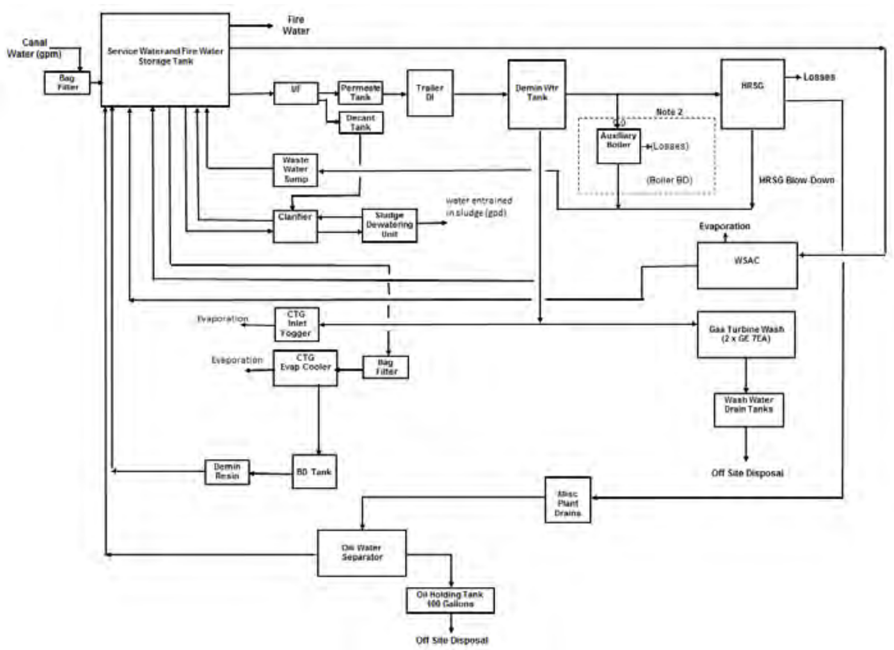

Figure 3. GWF Water Use Schematic

1.3 Water Demand

The GWF power plant currently operates well below its nameplate capacity and thus uses about 33,000 to 1,800,000 gallons per month to generate power. The monthly average is about 700,000 gallons. The annual water demand was 9,016,182 gallons or 27.7 acre-feet (AF) in 2013 and 7,876,812 gallons or 24.2 AF in 2014 (See **Table 1**). However, the plant's annual demand running at maximum capacity is roughly 17,596,000 gallons or 54 AFY. Any alternative water source needs to be able to meet this maximum demand in case the plant's operating status changes. These water demands are relatively low for a power generation facility of this size because of the water efficient methods employed by GWF. The ACC cooling system installed during the plant upgrade allowed for a large increase in electricity generation, from 169 to 337 MW, while needing only a small increase in water demand, from 30 to 54 AFY. The plant also recycles process water and only loses water to evaporation. Salts concentrated in the cooling tower after evaporation is removed from the remaining water by use of resin filters.

Table 1. GWF Power Facility Water Demand

Tracy Power Plant Water Demand (gallons)		
	2013	**2014**
January	344,908	855,098
February	32,600	544,746
March	254,606	383,376
April	545,072	648,740
May	284,598	589,082
June	543,442	910,844
July	1,836,684	1,109,704
August	1,230,976	171,476
September	1,798,216	815,326
October	636,352	1,240,430
November	614,510	481,828
December	894,218	126,162
Total (gallons)	**9,016,182**	**7,876,812**
Total (AFY)	**27. 7**	**24.2**

(Gary Bishop, 2015b)

The plant currently is only used at about 30 percent capacity. Its usage increases in the summer months (June to September) and decreases in the winter (Gary Bishop, 2015b) as shown on **Figure 4**. Its peak monthly demand is about 1,800,000 gallons.

The power plant's peak hourly demand at full capacity is 65 gallons per minute (gpm) and is in part met by flows directly from the DMC into a set of on site above ground water storage tanks with a combined capacity of 674,000 gallons. According to GWF personnel, a source supply of 50 gpm is sufficient to meet their water demands at full capacity.

Potable water supplies from the City are not currently available to the Tracy power plant. Bottled water is supplied for drinking at the GWF facility.

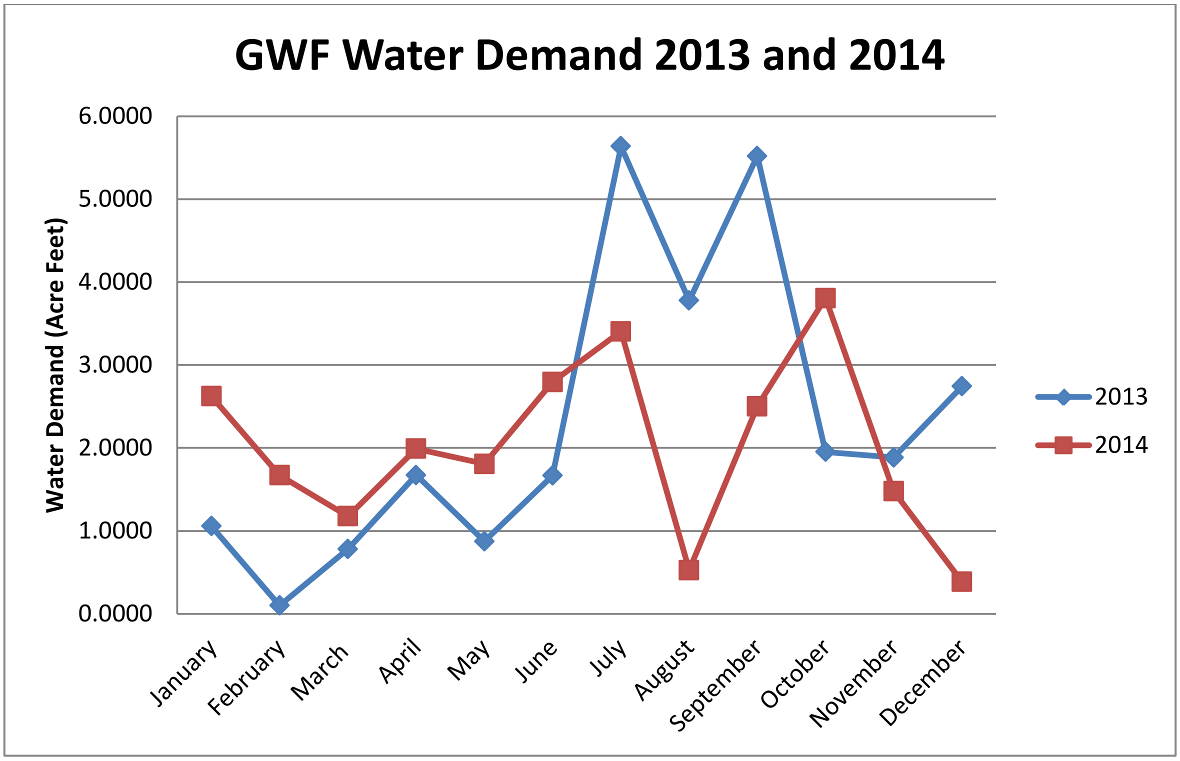

Figure 4. GWF Power Plant Monthly Water Demands

1.4 Policies and Regulations

The CEC and the Department of Water Resources (DWR) in conjunction with various groups have developed policies and regulations for the sustainable use of water in California. Specifically, these policies and laws govern the management of surface and groundwater, the protection of wetlands and water resources, and the use of potable water for industrial purposes. Requirements most applicable to this project include the Sustainable Groundwater Act (DWR), the Power Plant Water Use Policy (CEC), Zero Liquid Discharge Requirements (CEC), the Co-Equal Goals of the Delta Reform Act (DWR), and the Bay Delta Plan.

The Sustainable Groundwater Management Act has placed the authority to manage groundwater in the hands of local agencies. These groups will assess the conditions of their groundwater basins and then develop locally based management plans. These plans will outline actions to prevent overdraft or re-balance an over-drafted basin (California, 2014).

The CEC Power Plant Water Use Policy is intended to ensure that fresh water supplies, especially potable water, are protected and conserved. This policy is intended to promote the use of all feasible alternative water supplies in lieu of potable sources. The use of potable water for cooling purposes by power plants will only be approved if the alternative water supply sources (such as recycled wastewater) and alternative cooling technologies (such as air-cooled systems) are shown to be “environmentally undesirable” or “economically unsound (CEC, 2003b).”

Another part of the CEC’s Water Use Policy is the Zero Liquid Discharge (ZLD) requirement. The ZLD requirement imposed by CEC is intended to promote all feasible means of avoiding adverse impacts to water quality from wastewater discharges from power plants. It promotes the maximal on-site recycling of wastewater to eliminate off-site discharge and increase water conservation. ZLD systems are required unless such technology is shown to be environmentally undesirable or economically unsound (CEC, 2003b).

The Delta Reform Act defined goals for the management and protection of the Delta. The Co-Equal Goals were defined in this legislation, and aim to provide more reliable water supplies to California while protecting, restoring, and enhancing the Delta ecosystem. The Delta Stewardship Council was also created from this legislation to achieve these goals (Delta Stewardship Council, 2013).

The Bay Delta Plan is a 50 year habitat conservation plan that aims to restore the Sacramento-San Joaquin Delta ecosystems and attain more reliable water supplies for California. The main focus of this plan is to build new water delivery and transmission infrastructure while operating the Delta in a way that provides reliable water supplies and improves the ecological health of the Delta (DWR, 2013).

1.5 Goals and Objectives

The goals of this assessment are to evaluate alternative sources of water supply for the GWF facility and recommend the most feasible alternative based on cost, schedule, and applicable policies and laws which will be enforced by the CEC. The objectives are to select an alternative that would increase the reliability of GWF power plant operations through a more resilient water supply portfolio. Groundwater, potable water, and recycled water were evaluated. This report discusses the evaluation and considerations for each option alternative water supply source to the current BBID raw canal water supply and then provides recommendation for the most feasible and reasonable source.

1.6 Report Organization

This report is organized into four chapters with one chapter to discuss each of the alternative water supply sources and one chapter to evaluate all of the alternative water supply sources to determine the most feasible and reasonable alternative. The final chapter provides recommendations and considerations.

2 Groundwater Assessment

This section presents a summary of groundwater supply options considered for use by the GWF power plant facility. This section provides a description of the regional and local geologic conditions, definition of the aquifers, groundwater levels, groundwater flow directions, storage, and water quality to assess whether there are aquifers and if they could supply sufficient water to meet the power plant's water demand. A conceptual well design along with permitting requirements and an engineer's opinion of cost is provided. An assessment of the potential impacts to the groundwater basin and nearby wells is also provided.

2.1 Groundwater Basin

GWF Tracy is located within the Tracy Groundwater Subbasin (Subbasin) as shown in **Figure 5**. The Subbasin is located in the northwest portion of the expansive San Joaquin Valley Groundwater Basin (SJV Basin), which is a structural trough about 200 miles long and 70 miles wide. The SJV Basin is filled with up to 32,000 feet of marine and continental sediments deposited by periodic inundation by the Pacific Ocean and erosion of the surrounding mountains. Locally near the City there are over 3,400 feet of non-marine continental sediments (State Division of Mines, 1943). Only the upper 800 to 2,000 feet of these sediments contain water that is considered potable or suitable for drinking or agricultural use (Page, 1973 and Berkstresser, 1973).

The Subbasin is bounded on the east and north by the San Joaquin and Sacramento rivers; and on the west by the Diablo Mountain Range. The southern boundary of the Subbasin is coincident with the San Joaquin-Stanislaus County line and is a political rather than a geologic or hydrologic boundary.

There is little change in ground surface elevation in the Subbasin. Ground elevations are the highest along the western and southern boundaries at over 200 feet above mean sea level (msl). Surface topography drops to below sea level in the islands of the Delta.

Beneficial uses of groundwaters in the Central Valley region is considered to be suitable or potentially suitable, at a minimum, for municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO) (RWQCB, 2011). The highest beneficial use is for municipal water supply.

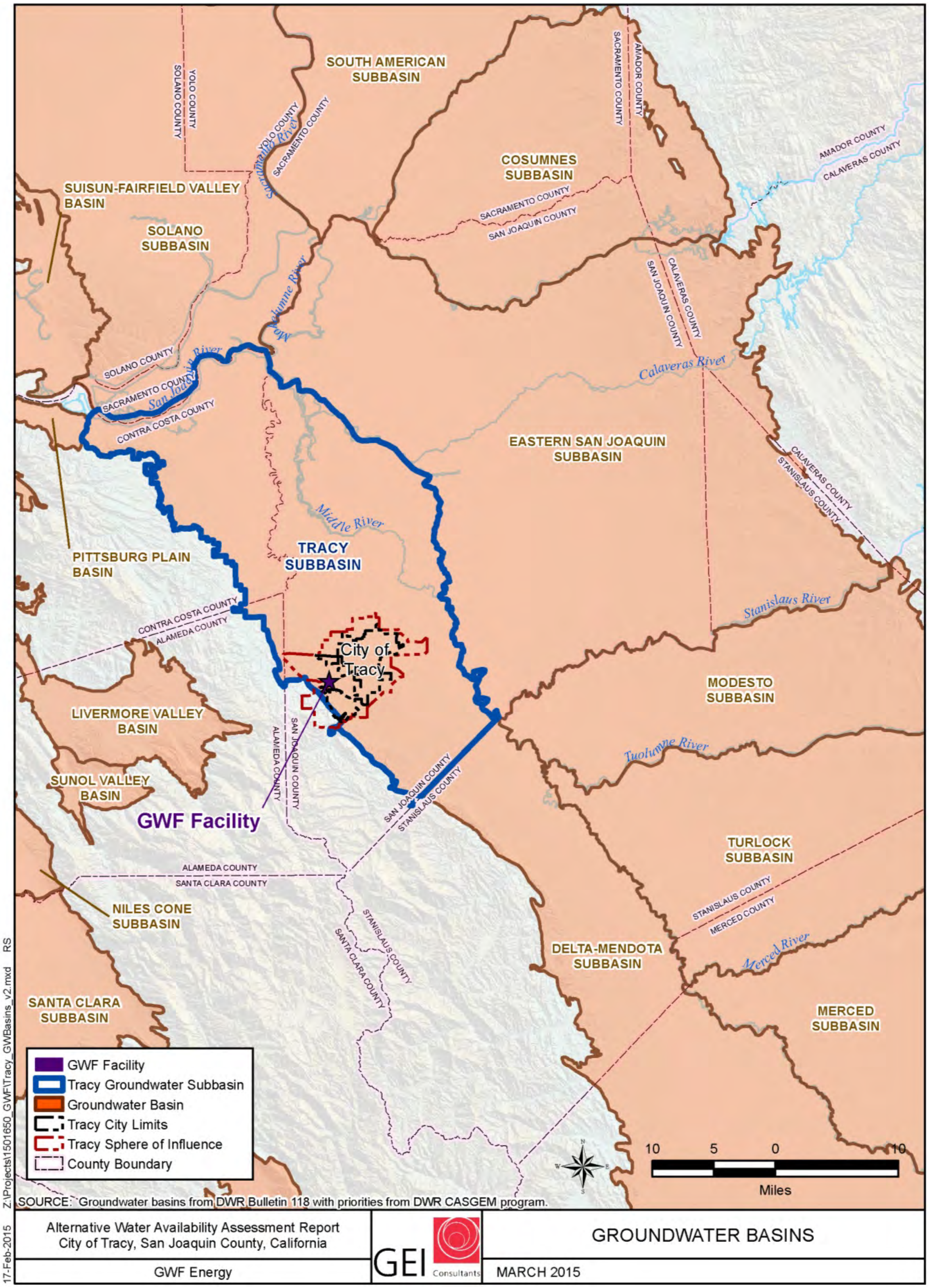

Figure 5. Groundwater Basins

2.2 Groundwater Use

Groundwater in the Subbasin is used for domestic, municipal, industrial, and agricultural purposes. Entities using groundwater in the Subbasin are shown in **Table 2**. The amount of groundwater use in the Subbasin has not been estimated.

Table 2. Summary of Water Use

Entity	Groundwater Use	Surface Water Use
CITY OF TRACY	Yes	Yes
MOUNTAIN HOUSE CSD	Yes	Yes
BANTA-CARBONA I.D.	Yes	Yes
BYRON BETHANY I.D.	No	Yes
WEST STANISLAUS I.D.	Yes	Unknown
DEL PUERTO W.D.	Yes	Yes
SOUTH DELTA WATER AGENCY	Yes	Unknown
SJ COUNTY FC&WCD	Yes	Unknown
DISCOVERY BAY CSD	Yes	Unknown
OTHER CSDs	Varies	Varies
THE WEST SIDE I.D.	No	Yes
NAGLEE BURK I.D.	Unknown	Yes
PLAIN VIEW W.D.	Unknown	Unknown
STOCKTON-EAST W.D.	Unknown	Unknown
CENTRAL DELTA WATER AGENCY	Unknown	Unknown
RECLAMATION DISTRICTS (20+)	Varies	Varies
TRACY ARMY DEPOT	Yes	No
SMALL PRIVATE FARMS	Yes	No
DOMESTIC WELLS	Yes	No

2.3 Regional Geology

The Subbasin is underlain by poorly-consolidated to well-consolidated sediments of Tertiary to Quaternary age. The deposits are primarily continentally-derived alluvial sediments eroded from the surrounding mountains. The sediments are generally coarser grained in the western portion of the Subbasin, having been deposited as coalescing alluvial fans from the nearby Diablo Mountain Range and finer grained to the east and north where the deposits are primarily from the San Joaquin and Sacramento Rivers.

The fresh water-bearing sediments beneath in the Subbasin are grouped into recent alluvium (Qal), older fanglomerate (Mf), and the Tulare Formation (QTt) (CGS, 2005). Underlying the Tulare Formation are the San Joaquin clays (SDMG, 1943). The clays are present at a depth of about 900 feet below ground surface (bgs) near the City. **Figure 6** shows a map of the surface geology and **Figures 7 and 8** show cross-sections that illustrate the extent and relationships of the sedimentary units (GEI, 2007).

Recent alluvium is generally found in the valley floor and along recent stream channels. The alluvium is generally thicker and finer grained in the valley and thins and becomes coarser towards the southwest as it approaches the Coast Ranges.

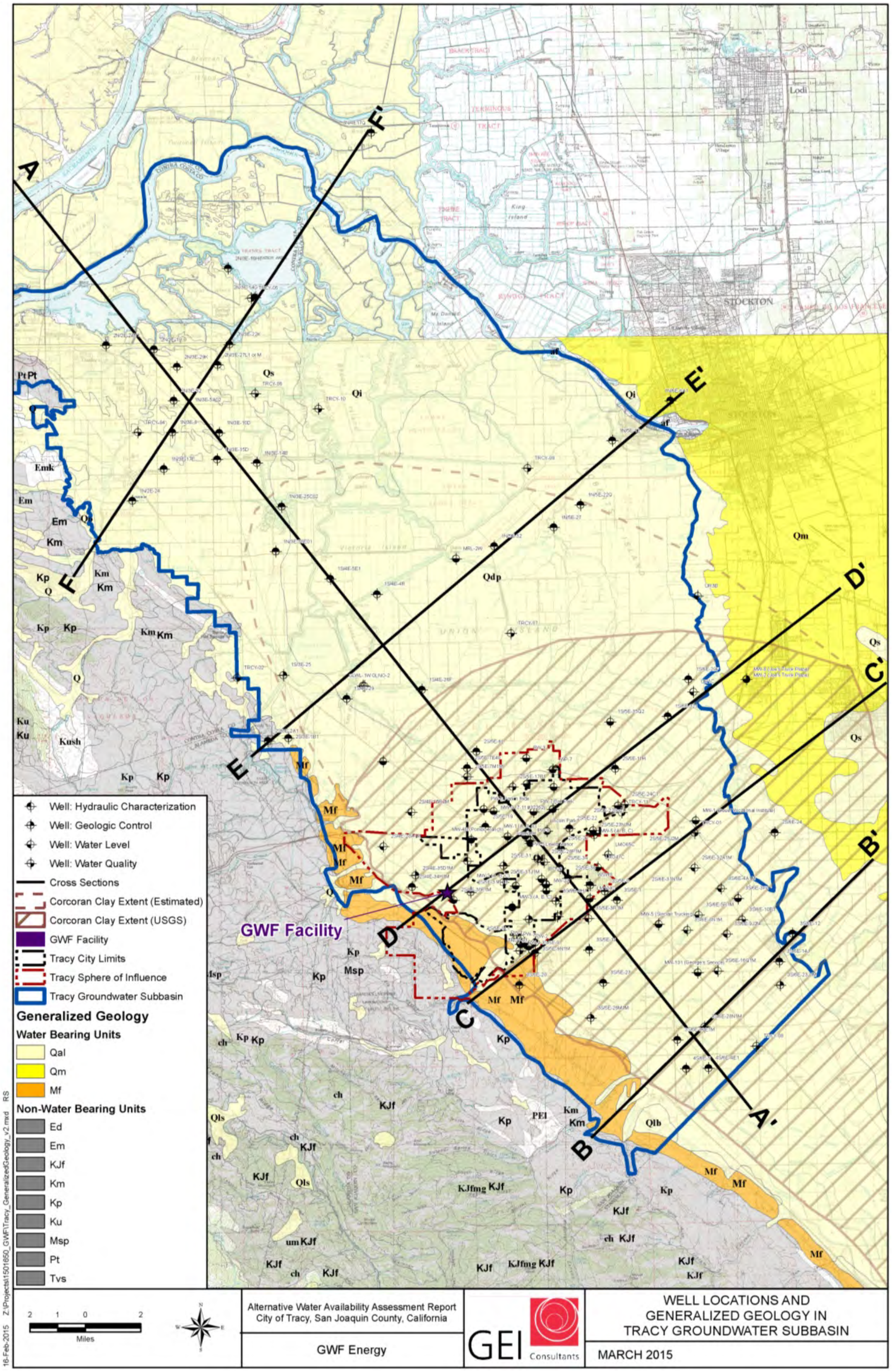

Figure 6. Surface Geology and Geologic Sections from GMP

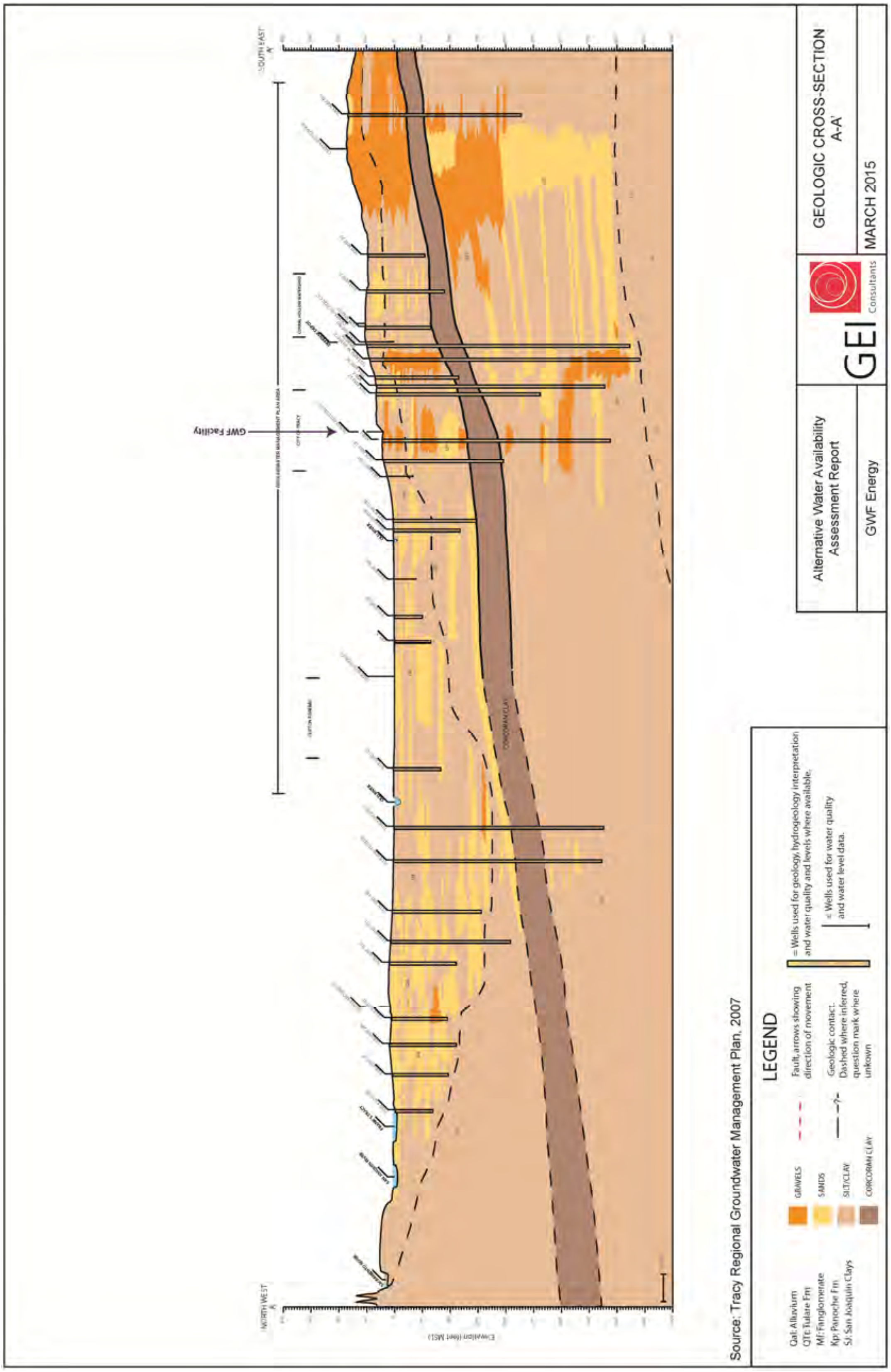

Figure 7. Geologic Section A-A' from GMP

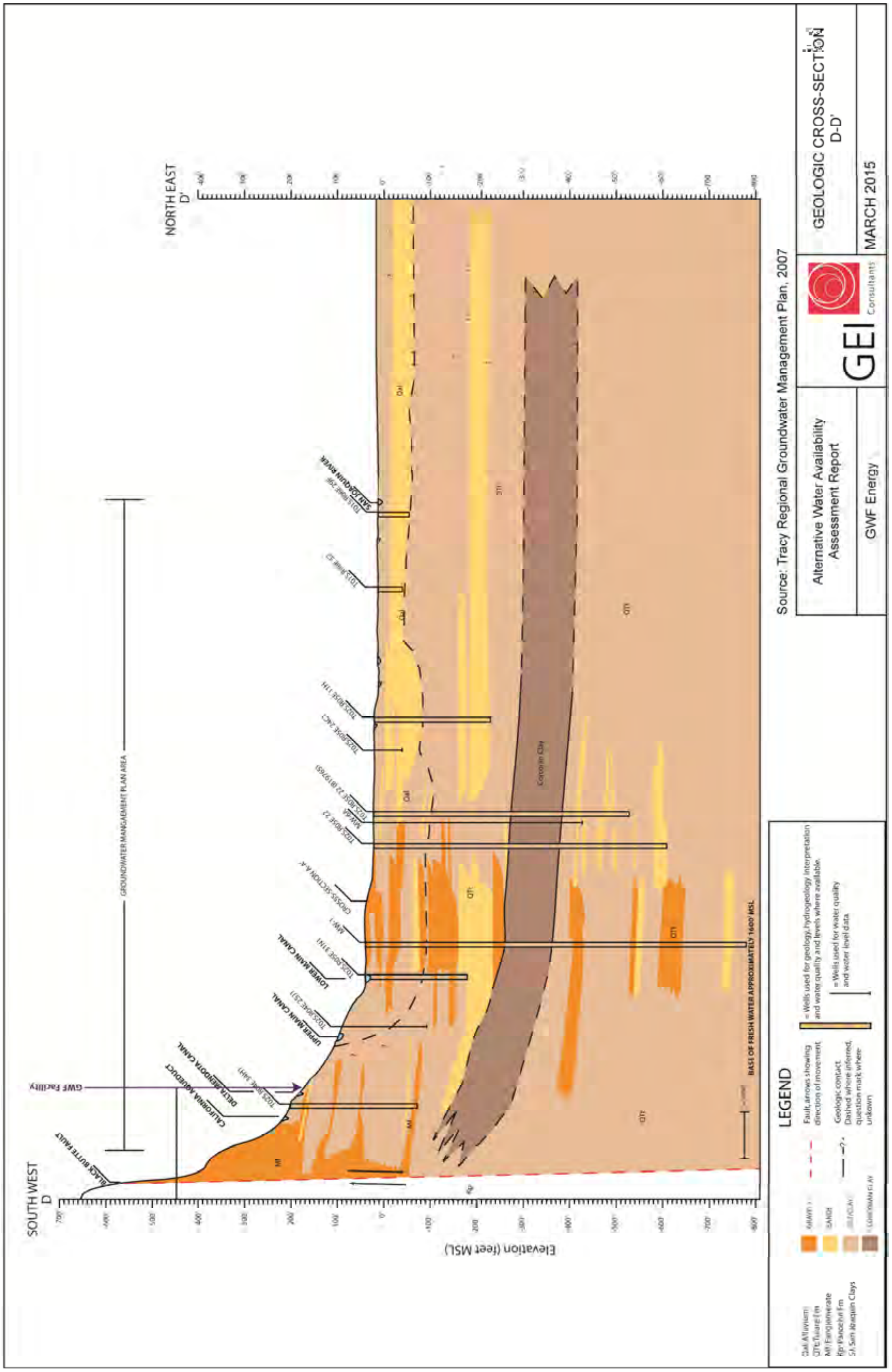

Figure 8. Geologic Section D-D' from GMP

Underlying the recent alluvium is the Tulare Formation, the older fanglomerate, and the San Joaquin clays. The Tulare Formation is subdivided into an upper and lower portion that is separated by a thick regional clay bed known as the Corcoran Clay (also known as the E-Clay). The upper portions of the Tulare Formation above the Corcoran Clay (Clay) consist of fine- to coarse-grained floodplain, fan, and terrace deposits. The fan sediments consist of angular gravels mixed with sand, clay, and silt and are thicker near the southwestern margin of the Subbasin and thin toward the center of the valley.

The Clay formed in a large lake that extends from the Bakersfield area north to Tracy and is found mostly beneath the western half of the San Joaquin Valley. The Clay is about 60 to 100 feet thick in the Subbasin (Page, 1986). **Figures 7 and 8** show the extent and structure of the Clay. Older studies (Hotchkiss and Balding, 1971 and DWR, 1967) indicated that the clay ended south of the City, but more recent studies (Page, 1986) show the Clay may end west of the City as shown on **Figure 6.** An analysis of geophysical logs indicated the Clay likely continues past the City (GEI, 2007) and may even extend further to the west as shown on **Figures 7 and 8**.

The lower portion of the Tulare Formation is typically coarser than the upper portion of the formation. The sediments consist of sand and gravel beds that are interbedded with clays and silt.

The Tulare Formation, in the central portion of the Subbasin, rests on the San Joaquin clay. **Figure 7** shows the location of the clay and depths where it was encountered. Although the formation was not fully penetrated, it is at least 400 feet thick.

The Diablo Mountain Range is separated from the Subbasin by the inactive Black Butte Fault. It is unknown whether the fault is a barrier to groundwater flow.

2.4 Local Geology

The GWF facility is located southwest of the City of Tracy near the foothills where the older fanglomerates and the Tulare Formation are present. The relationship between these two formations is not well defined in this area, but the Tulare Formation (including the Clay) likely interfingers with the fanglomerates as shown on **Figure 8**. The fanglomerates may have prevented the Clay from being deposited near the foothills. The fanglomerates may create a potential conduit to allow recharge from precipitation in the Diablo Mountain Range to migrate below the Clay.

The geologic profile shown on **Figure 8** crosses very near the GWF facility and can be used to assess the types of sediments that may be present that could convey groundwater to a well. The profile shows there is greater than 1,000 feet of older fanglomerates and the Tulare Formation sediments beneath the facility; however, they are mostly fine grained (silts and clays) but there are some coarse grained sediments (sand and gravels), that can contribute water to wells. The Clay is projected to occur from about 350 to about 470 feet bgs. Above the Clay there are only 70 feet of coarse grained sediments, but only 40 feet of them are saturated. Below the Clay, there may be about 120 feet of saturated coarse grained sediments.

2.5 Aquifers

Sand and gravel beds are generally grouped together to form aquifers that may display similar characteristics. The aquifers are separated by single or multiple clay layers (or aquitards) that can slow or prevent vertical movement of groundwater between aquifers.

There are two principal aquifers in the subbasin that are separated by the Corcoran Clay. The Clay acts as a regional low permeability layer that limits vertical movement of groundwater. **Figure 9** shows the relationship and extent of the aquifers near the GWF facility.

Above the Clay is an unconfined to semi-confined aquifer (hereafter referred to as the unconfined aquifer). The groundwater is not compressed and results in a water surface that is at atmospheric pressure or a water table aquifer. Beneath the GWF facility and above the Clay there are about 40 feet of saturated coarse grained sediments that could contribute water to a well.

Below the Clay, the aquifer is confined. In a confined aquifer, the groundwater is under pressure with water levels that rise above the confining bed or aquitard. The confined aquifer appears to be over 500 feet thick, but only about 120 feet may be saturated coarse grained sediments. These coarse grained sediments have been divided into three zones (Zones A, B, and C from shallowest to deepest, respectively) (GEI, 2007). Each of these zones has different groundwater levels and water quality suggesting they are potentially separate and distinct aquifers. There may be additional aquifers below the depths explored. The depth to water in the confined aquifer is lower than is found in the unconfined aquifer.

2.6 Base of Fresh Water

The entire Tracy Subbasin is underlain by saline water. The base of fresh water is the boundary where the water exceeds a specific conductance of 3,000 micromhos per centimeter (µmhos/cm) (equivalent to total dissolved solids (TDS) of about 2,000 mg/L). In the Tracy Subbasin, the mapped base of fresh water ranges from about 800 feet bgs below the City to depths of 2,000 feet bgs beneath the western part of the City (Page, 1973 and Berkstresser, 1973). This suggests there could be other fresh water aquifers beneath the GWF facility to depths of about 1,600 feet bgs.

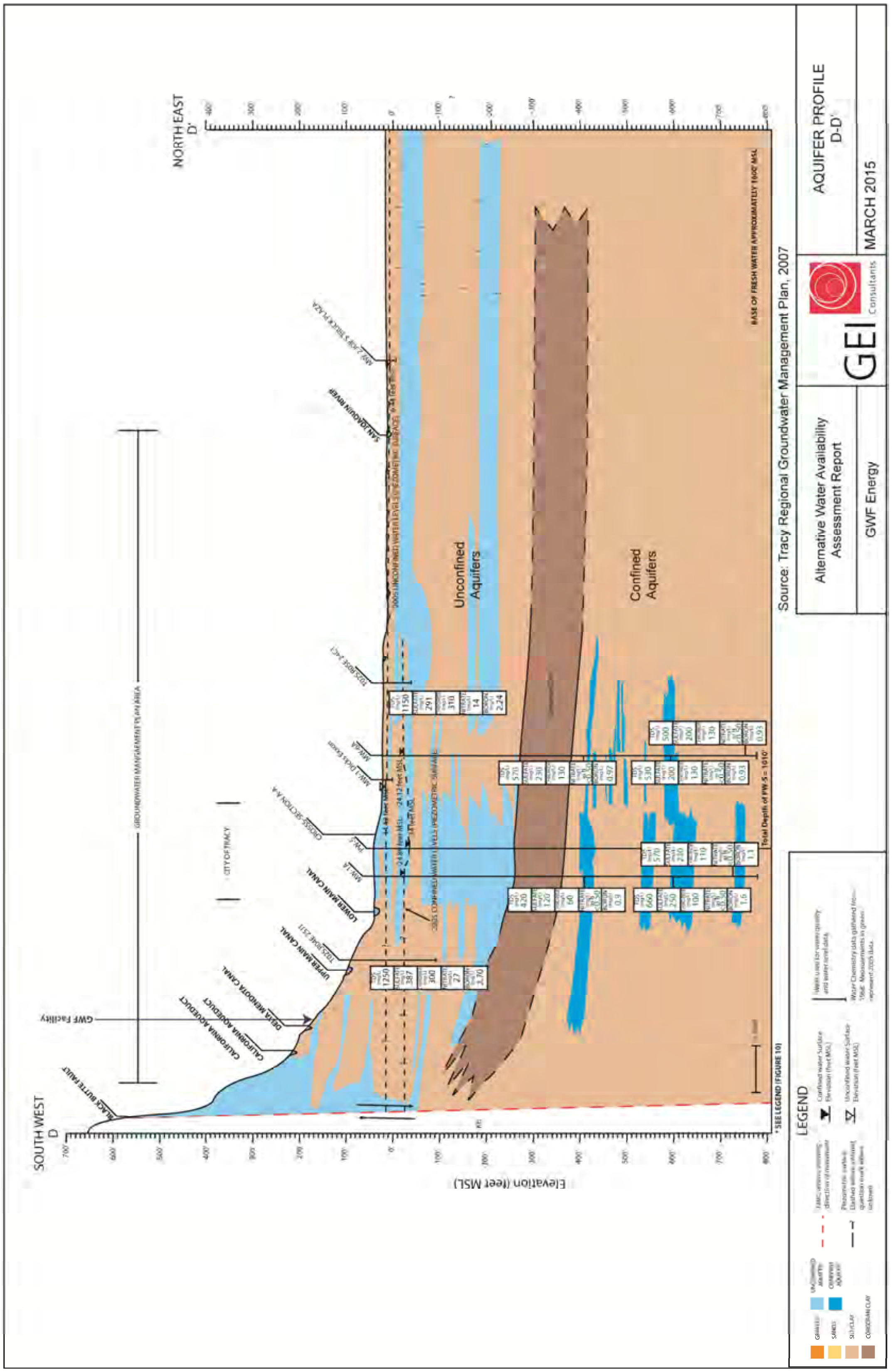

Figure 9. Aquifers along Section D-D' from GMP

2.7 Groundwater Levels

Groundwater levels in the unconfined aquifer near the GWF facility are monitored in wells BC-19, BC-20, and MW-23 as shown on **Figure 10**. However, these wells have not been monitored since 2006. Based on the available data, unconfined water levels in the area are about 50 to 60 feet above mean sea level as shown on **Figure 11**. The water levels are trending flat and do not show significant seasonal fluctuations. Beneath the GWF facility the depth to water in the unconfined aquifer is projected to about 150 feet bgs.

The City has constructed monitoring wells at six locations within their boundary to monitor the groundwater levels and quality in the aquifers below the Clay. The City regularly measures groundwater levels in the monitoring well network. Their locations are shown on **Figure 12**. MW-3, the closest monitoring well to the GWF facility, is screened at three distinct levels within the confined aquifer (designated A, B, and C from shallowest to deepest respectively). Groundwater levels in the confined aquifer show seasonal fluctuations of as much as 20 feet in response to pumping and seasonal recharge as shown on **Figure 10**. The groundwater levels have shown a gradual rise since 2004, which continued until early 2013 likely in response to reduced pumping of City wells, but there are other private wells in the Subbasin that could affect this trend. In 2013 and 2014, the water levels have declined in response to reduced recharge due to drought conditions and possibly increased pumping. Beneath the GWF facility the depth to water in the confined aquifer is projected to about 190 feet bgs; about 40 feet lower than in the unconfined aquifer.

2.8 Groundwater Flow Directions

Figures 10 and 12 show groundwater contours developed for the GMP in 2005 and represent the most complete set of groundwater contours in the area. These maps indicate the direction of groundwater flow, recharge areas, and areas of discharge. The groundwater flow direction is typically 90 degrees to the groundwater contour.

The groundwater flow direction in the unconfined aquifer is northerly, toward the San Joaquin River as shown on **Figure 10**. Groundwater recharge to the unconfined aquifer is from the Diablo Mountain Range, possibly from Corral Hollow Creek or Hospital Creek. Groundwater in the unconfined aquifer may discharge to the San Joaquin River or the Delta channels.

In the confined aquifer, the City monitors groundwater levels in three different sedimentary layers (Zone A, B, and C from shallowest to deepest, respectively) starting at a depth of about 400 feet to 800 feet bgs. The groundwater contours (piezometric heads) shown in **Figure 9** are for Zone A of the clustered monitoring wells and represent groundwater movement in a coarse-grained layer immediately beneath the Clay. The contours show there are two pumping depressions, a relatively large one beneath the City

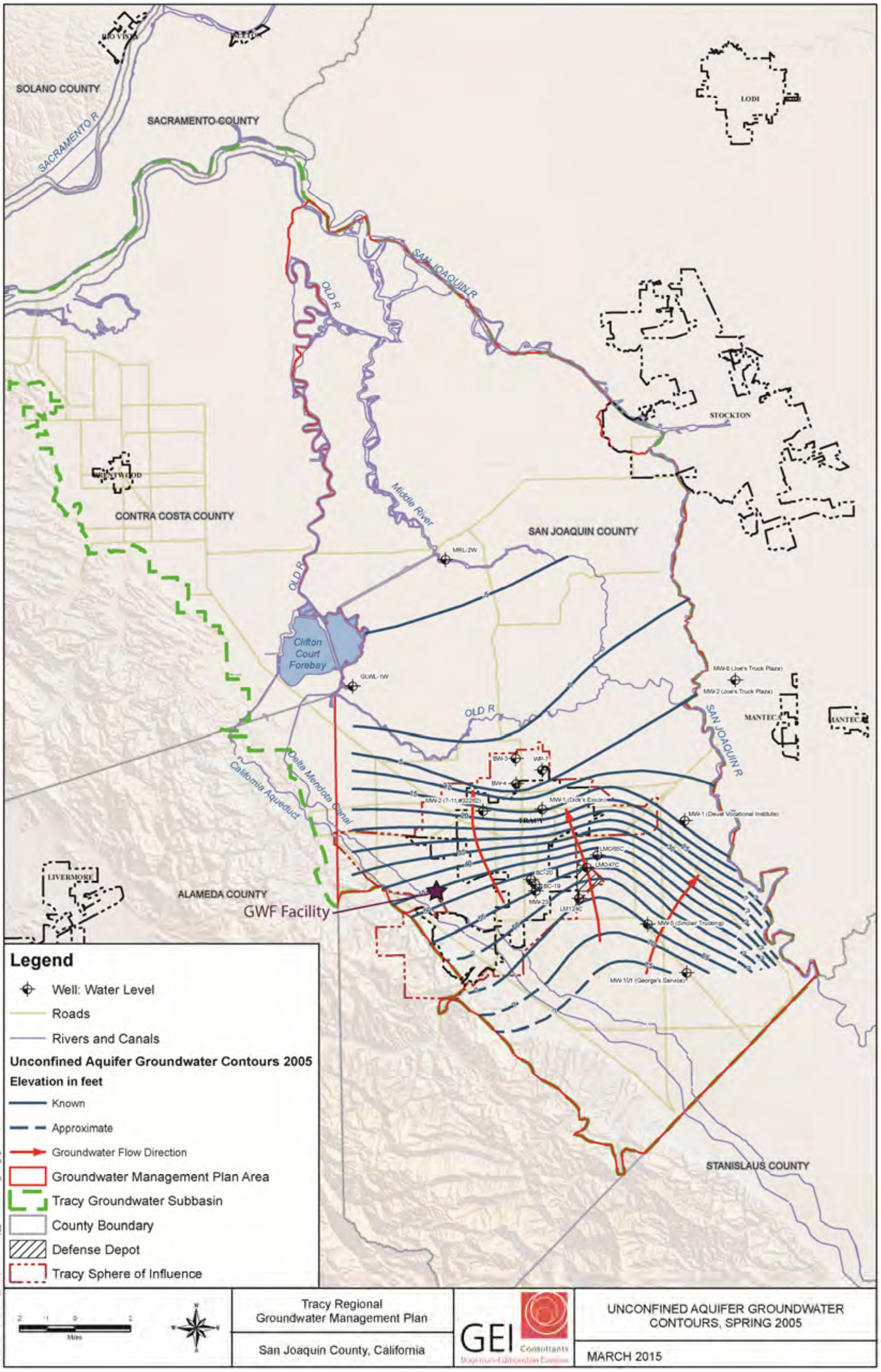

Figure 10. Unconfined Aquifer Groundwater Contours, Spring 2005

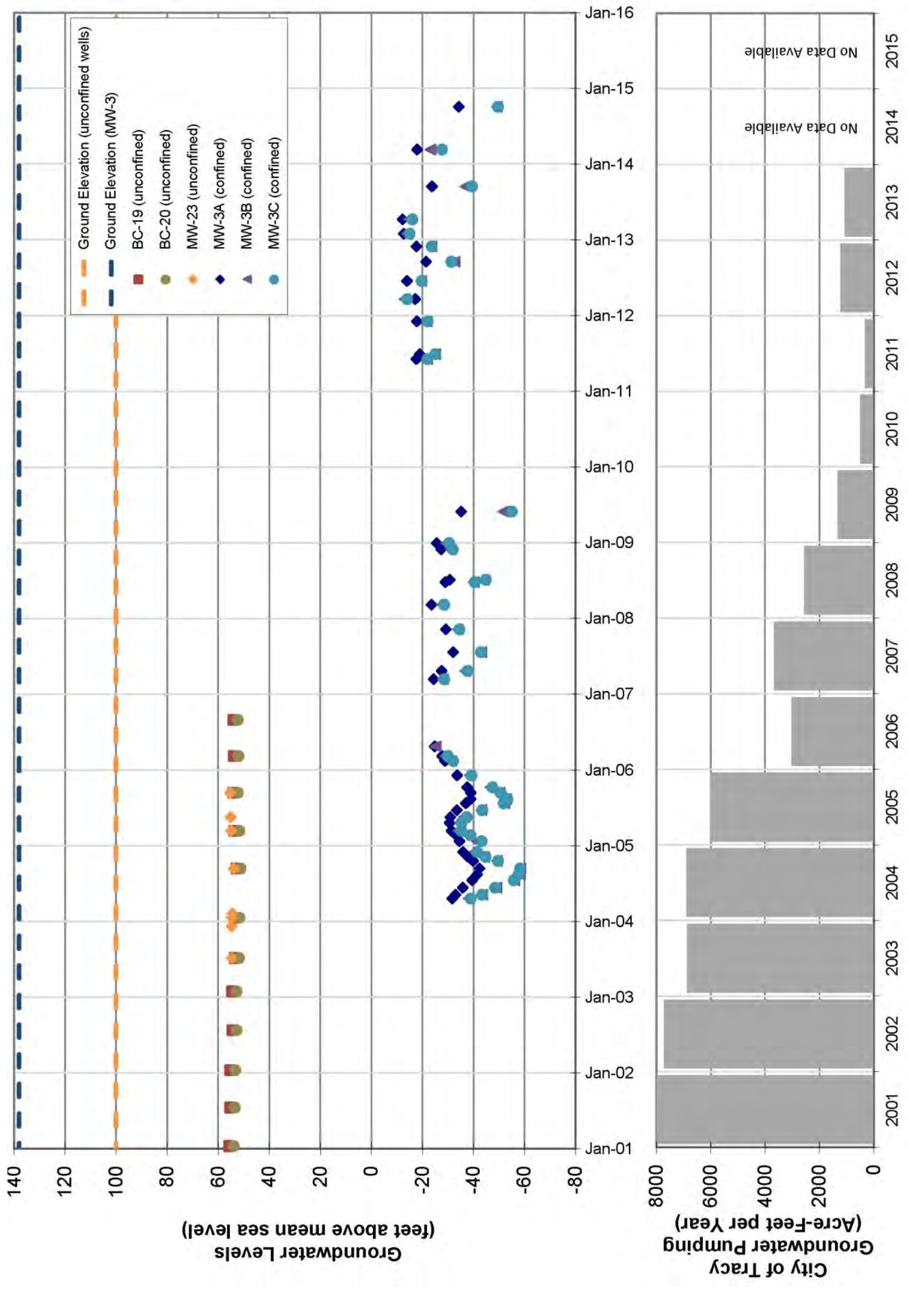

Figure 11. Water Level Hydrographs

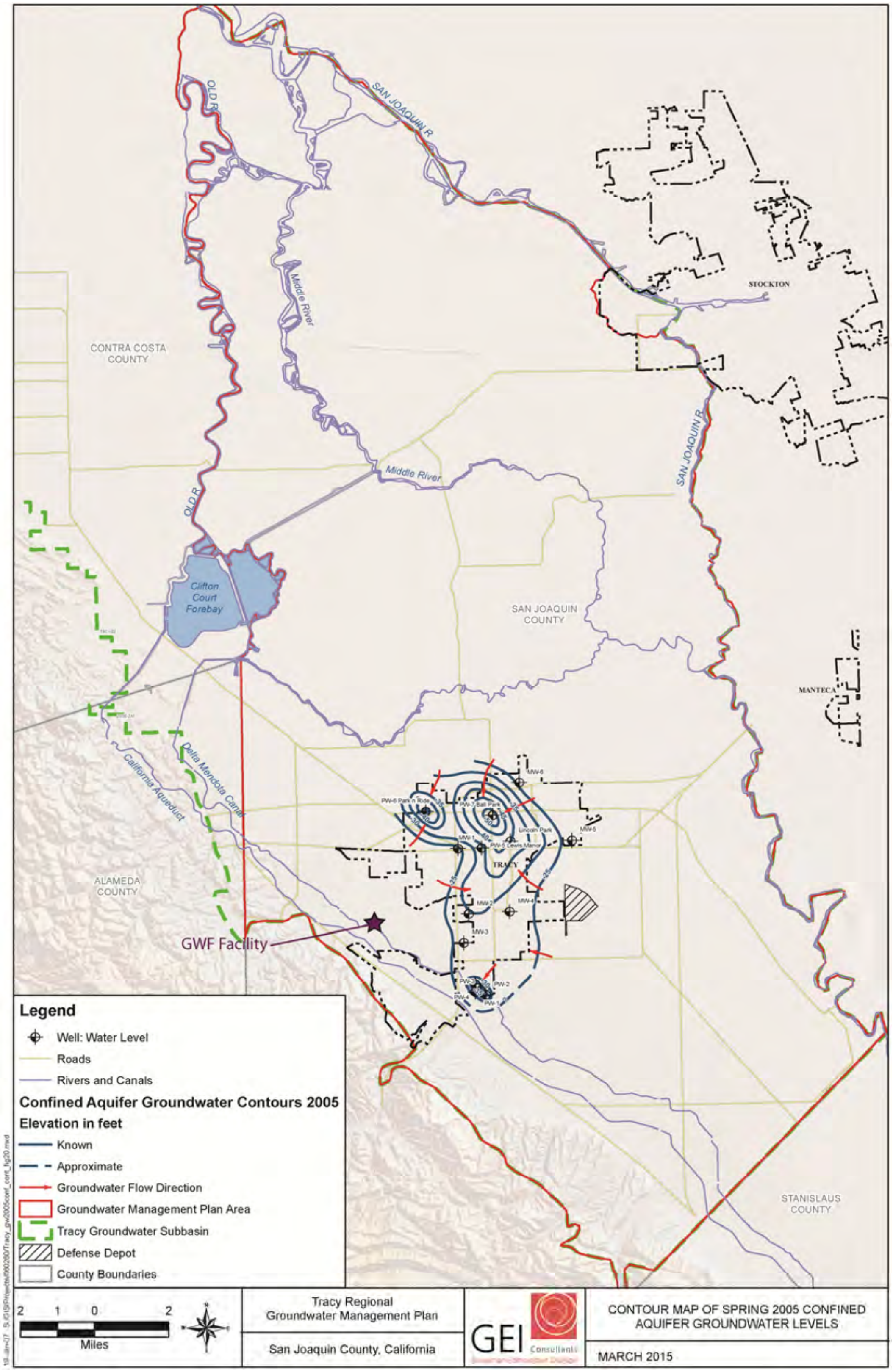

Figure 12. Confined Aquifer Groundwater Contours, Spring 2005

and a smaller one near the Tracy airport. Groundwater is moving in a radial pattern from the south, east, west, and north toward pumping depressions beneath central portions of the City. The gradient is steeper on the north side of the depression, suggesting the presence of lower permeability aquifers or a recharge source.

Another pumping depression is centered over Production Well 1 near the Tracy airport. This pumping depression has been present since monitoring began, but the size of the depression is poorly constrained (few or no monitoring wells south, west, or east of the well field).

Groundwater flow in the deeper confined aquifers (Zones B) is similar to that in the Zone A aquifer, but the flow pattern suggests they are more influenced by sources east of Tracy. Groundwater contours for the deep aquifer (Zone C monitoring wells) are similar to the intermediate aquifer (Zone B), but with recharge to the aquifer from the east and little to no recharge from the southwest.

2.9 Aquifer Hydraulic Characteristics

The hydraulic characteristics of sediments that make up the aquifers are data that provide the foundation for predicting the pumping effects of wells. They are basic scientific parameters used to estimate and predict the speed and direction of groundwater movement, groundwater storage, and the potential effects of groundwater pumping on groundwater levels.

The hydraulic characteristics of sediments and aquifers use several terms to quantify the ability to store and transmit water. The hydraulic conductivity is the ability of the sediments to transmit water. Transmissivity, a term applied to aquifers, is the hydraulic conductivity multiplied by the thickness of the sediments capable of storing water. All sediments have some void space between the particles; this void space is reported as porosity. Water in the void spaces cannot be entirely removed. The storage coefficient is the percentage of water that can be removed from the pores by gravity drainage and is applied when describing unconfined aquifers. Storativity is similar to storage coefficient, but is the percentage of water that can be released from the pores by a decrease in pressure. Storativity is used when referring to semi-confined or confined aquifers.

The hydraulic characteristics of the unconfined aquifer in the Tracy area are highly variable. Wells in the unconfined aquifer produce 6 to 5,300 gpm. Pumping test data are limited. The transmissivity of the unconfined aquifers, including the recent alluvium and upper portions of the Tulare Formation, ranges between 600 to greater than 2,300 gallons per day per foot (gpd/ft). (GEI, 2007) The average range for hydraulic conductivity is about 1 to 4 ft/day. The storativity is estimated to be about 0.05 based on descriptions of the sediments. Where thicker sequences of sand are present, the transmissivity may be higher.

The hydraulic characteristics of the confined aquifer are typically higher than the unconfined aquifer. Wells typically produce about 700 to 2,500 gpm. The transmissivity ranges from about 12,000 to 37,000 gpd/ft and may range up to 120,000 gpd/ft where large sequences of gravel are present (GEI, 2007). The hydraulic conductivity typically ranges between 30 and 80 ft/day but as in one instance was estimated as high as 270 ft/day. An aquifer test performed in May 1990 on a well near the GWF facility provided a transmissivity of 50,000 gpd/ft. The storage coefficient or storativity is obtained through aquifer tests such as the testing that has occurred at Production Well 8. The storativity is about 0.0001 (Padre, personal communication, 2004).

The hydraulic characteristics of the fanglomerate are unknown but may be relatively low. Well 4S/6E-5, as shown on **Figure 6**, has a yield of about 60 gpm, which is quite low and may be an indicator of low transmissivity sediments. No additional pumping information is available to fully assess the hydraulic characteristics.

2.10 Corcoran Clay Hydraulic Characteristics

The Clay is a regional layer that restricts movement between the unconfined and confined aquifers. There is about 40 feet of head difference between the unconfined and confined aquifers suggesting the Clay is a regional barrier to groundwater flow. No test data are available for the Clay, but some groundwater models have "backed into" what appear to be reasonable permeability values. The vertical hydraulic conductivity was estimated to range from 0.01 to 0.007 feet per day (Burow et al., 2004).

The Clay's ability to act as a regional aquitard is uncertain because of the large number of wells. The gravel pack surrounding the wells and the wells themselves act to connect the unconfined aquifer with the confined aquifer (Page and Balding, 1973).

2.11 Groundwater in Storage

There is insufficient data currently available on the amount of groundwater in storage for the Subbasin. It has been inferred that the approximate storage capacity of the southern portion of the Subbasin is on the order of 1,300,000 AF (DWR, 2006).

2.12 Sustainable Yield

A groundwater budget and an estimate of the sustainable yield for this subbasin have not been developed due to insufficient published data (DWR, 2006). As required by the 2014 Sustainable Groundwater Management Act; however, a sustainable yield will be required to be developed by 2022.

Groundwater level trends and pumping data can be used to give a qualitative assessment of the sustainable yield of the basin over time. **Figure 11** shows groundwater levels in the unconfined aquifer near the GWF facility have a flat trend, suggesting the aquifer is within its sustainable yield. It is possible the flat trend is also due to an abundant recharge source, as the aquifers could potentially be in communication with surface water (i.e., the Delta).

A pumping depression is present beneath the City in the confined aquifer since at least 2004. The depression has recently been shrinking. The City is managing the depression to store water through its Aquifer Storage and Recovery program. Between 2011 and 2013 the City conducted several injection and extractions that have resulted overall in a positive balance of 25 AF of water being stored in the aquifer.

Groundwater levels in the confined aquifer fluctuate seasonally, but levels have risen about 20 feet between 2004 and 2013, as shown on **Figure 11**. The increasing groundwater levels suggest the confined aquifer is also within its sustainable yield. Groundwater levels have declined since 2013, but this is likely just a short-term response to drought conditions with limited recharge and/or increased pumping.

2.13 Groundwater Quality

Published groundwater quality data for the unconfined aquifer and confined aquifer in the immediate vicinity of the GWF facility are limited.

Well 2S/4E-36P1 is located about one- mile from the GWF facility and obtains water from the unconfined aquifer, but the most recent data is from 1962. There are also measurements from 1968 in well 2S/4E-25J1, which is located 1¼ miles to the northeast. This data was supplemented by more recent data collected in 2005, 2008, and 2011 as part of the GAMA program at TRCY-03 to characterize the unconfined aquifer. The well is more than three miles from the GWF facility but is located at a similar elevation and distance from the foothills as the GWF facility. **Table 3** shows the water quality for these wells. The maximum contaminant levels (MCLs) for drinking water are also included on the table to give a relative sense of the quality of the water and its appropriateness for other uses. Overall, the groundwater quality in the unconfined aquifer is above the recommended secondary MCL for total dissolved solids (TDS), sulfate and at times chloride. Although a MCL has not been established for boron, the California Department of Public Health (CDPH) regulates boron as a drinking water contaminant. The current State Notification Level (NL) for boron, set by CDPH, is 1 mg/L. The water in the unconfined aquifer would exceed the NL. The boron concentration limits the ability to use the water for irrigation on sensitive crops (Todd, 1980).

Table 3. Groundwater Quality Near the GWF Facility

Aquifer	Well ID	Owner	Date Sampled	TDS mg/L	EC uhmos/cm	pH	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	CO3 mg/L	HCO3 mg/L	SO4 mg/L	Cl mg/L	NO3 mg/L as N	NO2 mg/L as N	NH3 mg/L as N	N mg/L total	As ug/L	B mg/L	Total Cr ug/L	F mg/L	Fe ug/L	Mn ug/L	Se ug/L	SiO2 mg/L	Alpha Gross pCi/L
	Drinking Water MCLs			500*	900*	6-8							250*	250*	10				10		50	2	300*	50*	50		15
Unconfined	2S/4E-36P1	DWR	7/27/1962	**860**	**1290**	**8.1**	73	35	143	3.5	NM	NM	**299**	126	2.7	NM	NM	NM	NM	1.3	NM	0.2	NM	NM	NM	28	NM
	2S/4E-25J1	USGS	4/30/1968	**1250**	**1860**	7.8	102	44	256	2.5	0	178	**387**	**300**	6	NM	NM	NM	NM	2.7	NM	0.1	20	NM	NM	40	NM
	TRCY-03	USGS	1/6/2005	**751**	**1110**	7.5	80.9	26.8	138	3.17	<1	235	248	102	2.3	<0.008	NM	2.44	0.8	2.19	7.2	0.23	3.9	0.19	1.2	23.4	1.4
	TRCY-03	USGS	3/31/2008	**782**	**1170**	7.5	82.4	26.3	135	3.12	NM	NM	**259**	108	2.49	<0.002	NM	2.61	0.79	2.12	6.9	0.25	6.1	0.3	1.1	20.5	NM
	TRCY-03	USGS	12/6/2011	**851**	**1290**	7.6	91.8	30.2	143	3.25	NM	NM	**290**	119	NM	NM	0.01	2.31	0.83	2.09	7.3	0.2	25.1	2.73	1.5	21.9	NM
Confined	MW-2A	COT	4/19/2005	410	637	**8.2**	27	10	97	1.5	1.05	102	140	63	<0.50	NM	NM	NM	4	0.87	<1.0	<0.1	1.5	**65**	NM	NM	<3.00
	MW-2A	COT	2/21/2013	340	590	**8.8**	9.8	7.8	98	1.2	2.9	78	110	63	<0.20	<0.1	NM	NM	5.8	0.85	<1.0	0.078	1.4	9	<5	NM	NM
	MW-2B	COT	4/19/2005	**840**	**1160**	8	92	36	120	4.1	1.25	193	**310**	120	1.1	NM	NM	NM	<2.0	1.9	39	0.15	5.9	43	NM	NM	<3.00
	MW-2B	COT	2/21/2013	**810**	**1200**	**8.1**	87	38	120	3.7	<2.0	190	**300**	120	0.98	<0.25	NM	NM	2.5	2	8.7	0.14	0.51	11	<5	NM	NM
	MW-2C	COT	4/19/2005	**730**	**1050**	8	76	33	110	4.4	0.975	150	**280**	110	0.93	NM	NM	NM	<2.0	1.4	7.2	0.14	8.8	45	NM	NM	<3.00
	MW-2C	COT	2/21/2013	**750**	**1100**	**8.1**	73	34	110	4.1	<2.0	150	**280**	110	0.91	<0.25	NM	NM	2.9	1.4	7	0.13	1.8	13	<5	NM	NM
	MW-3A	COT	4/19/2005	350	587	**8.6**	9.2	12	95	3.3	1.54	59.7	120	83	<0.50	NM	NM	NM	<2.0	0.92	<1.0	<0.1	1	48	NM	NM	<3.00
	MW-3A	COT	2/21/2013	330	590	**9.6**	1.8	3.6	110	3.7	23	79	92	66	<0.20	<0.1	NM	NM	1.9	0.86	<1.0	<0.05	1.6	24	<5	NM	NM
	MW-3B	COT	4/19/2005	400	741	**9**	3.3	19	120	4	7.73	119	66	140	<0.50	NM	NM	NM	<2.0	1.2	<1.0	<0.1	1	34	NM	NM	<3.00
	MW-3B	COT	2/21/2013	440	820	**9.3**	2.2	14	140	4.6	16	120	93	120	<0.25	<0.25	NM	NM	2	1.3	<1.0	0.087	0.49	19	<5	NM	NM
	MW-3C	COT	4/19/2005	**500**	804	**8.8**	11	28	110	4.4	2.12	51.7	200	110	<0.50	NM	NM	NM	<2.0	1.4	<1.0	<0.1	1.5	**56**	NM	NM	<3.00
	MW-3C	COT	2/21/2013	410	730	**9.1**	3.4	15	120	4	5.8	72	110	110	<0.20	<0.1	NM	NM	1.4	1.5	<1.0	0.076	2.3	**59**	<5	NM	NM

* = Secondary MCL
NM = Not Measured
Bold = above MCL

The confined aquifer is generally targeted by drinking water users because of the better water quality. Most of the groundwater quality data for the confined aquifer is collected by the City from their monitoring wells. The two closest wells are MW-2 (A,B,C) and MW-3 (A,B,C) and are located about one- to two-miles east of the GWF facility, as shown on **Figure 12**. **Table 1** shows the water quality for the wells. Water in the confined aquifer in Zone A is of high quality and meets all primary and secondary drinking water standards. Water from the B and C Zones is more variable and typically exceed the secondary MCL for TDS and sulfate.

There was a one-time detection of high levels of chromium that may exceed the new MCL for hexavalent chromium. Hexavalent chromium was not part of standard water quality analyses until the MCL was established in 2014.

The constituents of highest concern for use in cooling the GWF Tracy facility and that are currently treated by the demineralizer are TDS in excess of 2,010 mg/L, silica (SiO_2) in excess of 67 mg/L, chloride in excess of 150 mg/L, ammonia in excess of 2.0 mg/L, and pH outside the range of 6.2-8.8 . Lower levels are desirable to keep maintenance and disposal costs low. The water quality in aquifers, both above and below the Clay, meet the criteria except for the chloride in the unconfined and confined aquifers.

2.14 Summary of Conditions

Aquifers are present beneath the GWF facility both above and below the Corcoran Clay based on projections from nearby wells. The well capacity and the water quality are different in the aquifers above and below the Clay.

The aquifers above the Clay are relatively thin and may only have a saturated thickness of about 40 feet. The potential capacity of a well screened in these aquifers with the assumption of an average transmissivity of 1,500 gpd/ft and pumping the well 6 hours per day would be about 100 gpm. The aquifers above the Clay appear to receive recharge from the southwest and from precipitation on portions of the Diablo Mountain Range. The water quality suggests these aquifers may also receive some water from deep percolation of agricultural water. The water quality in this aquifer is of poorer quality than those below the Clay. Water quality for aquifers above the Clay would exceed the secondary drinking water standard MCLs for TDS (751 to 1,250 mg/L), sulfate (248 to 387 mg/L) and possibly chloride (102 to 300 mg/L). Boron is present at 1.3 to 2.7 mg/L and would exceed the NL for drinking water and would not be able to be used for irrigation of sensitive plants.

The confined aquifers beneath the Clay are more extensive and may have a saturated thickness of about 120 feet. Wells obtaining water from these sediments commonly have capacities of over 700 gpm. Based on the nearest monitoring well (MW-3) the aquifer has water quality that meets all drinking water standards other than pH and at times for manganese. However, water quality in the aquifers changes generally from north to south with higher TDS values present towards the north. Pumping could migrate the poorer quality water into higher quality aquifers laterally.

There could be additional aquifers present beneath the depth explored as the base of fresh water is projected to be as deep as 1,600 feet MSL but exploration has only been made to about -1000 feet in the area (PW-5). The water will likely be of poorer quality and exceed drinking water standards.

According to CEC recommendations for power plants the water for cooling purposes should be water that does not meet or cannot be treated to drinking water standards. Currently all of the groundwater above 1,000 feet could be treated to be used for drinking water. Groundwater above the Clay is the poorest quality water but is still within the short term secondary MCLs and could be used as a drinking water supply without treatment.

2.15 Groundwater Wells

The following sections describe the basis of design for construction of water supply wells for the GWF facility. A basis of the design for the wells is provided along with an exploration program proposed well construction details, required permits, and approvals; and an opinion of cost to construct these facilities along with an estimated time to construct the wells and outfit them with pumps.

2.15.1 Basis of Design

A well for the GWF facility must be capable of meeting the peak daily demand through the use of storage and the water supply well. The peak demand is 60 gpm, but due to power generating periods GWF personnel consider that the peak daily demand would be met by a well capable of pumping 50 gpm for 24 hours per day. Most utilities pump their wells to refill storage between 10 PM and 4 AM each day to avoid adding additional demand during peak power periods and also to obtain lower power costs. Also groundwater wells should not be pumped 24 hours per day, 365 days per year, as this type of pumping does not allow the groundwater levels to recover and would create a permanent cone of depression that could lower groundwater levels. Allowing the well to rest for an equal time that it is pumped allows for groundwater levels to recover. Therefore, to meet the peak daily demand and to allow the groundwater levels to recover daily the well capacity and diameter will be sized for 200 gpm for a period of 6 hours on a daily basis.

2.15.1.1 Unconfined Aquifer Well

The unconfined aquifer based on the existing information details would not be capable of a single well producing 200 gpm. Therefore, two new wells each pumping at 100 gpm would have to be constructed to supply water to meet the GWF facility demand of 200 gpm. One well could be located at the GWF facility and the other well would be recommended to be located on the eastern edge of the GWF property. The water quality would be expected to have concentrations for TDS of 750 to 1,250 mg/L, sulfate 248 to

387 mg/L and possibly chloride 126 to 300 mg/L. The water would have a pH of 7.5 to 8.1. The chloride concentrations are in excess of current ideal levels for the GWF and may increase treatment costs.

The design for the well above the Clay includes a concrete annular seal to completely seal off water from above the Clay. Standard sizes for pumps capable of producing 100 gpm with an estimated total dynamic head of about 285 feet (150 feet depth to static water level + 95 feet of drawdown + 20 feet lift to top of the storage tank + about 20 feet for friction losses for piping (for well on the eastern edge of the property) and the water treatment system) are a minimum of 5-inches in diameter. Therefore, the well casing and screen diameter should be a minimum of 8-inches. The total depth of the well based on current information is project to be 360 feet bgs.

2.15.1.2 Confined Aquifer Well

Alternatively one well could be constructed below the Clay where wells can easily produce 200 gpm. As the A Zone contains the highest quality of water throughout the City this zone would not be used by the GWF well. The well would be screened at depths similar to the B and C Zones designated by the City. The water would likely have a TDS concentration of 400 to 840 mg/L with chloride concentrations between 110 and 140 mg/L, negligible ammonium, and a pH of 8.0 to 9.3. The chloride concentrations are in excess of current ideal levels for the GWF and may increase treatment costs.

The design for below the Clay considers the pumping rate and the size of the pump. Standard sizes for pumps capable of producing 200 gpm with an estimated total dynamic head of about 220 feet (190 feet depth to static water level + 15 feet of drawdown + 20 feet lift to top of the storage tank + about 10 feet for friction losses for piping and the water treatment system) are 8-inches in diameter. Therefore, the well diameter should be a minimum of 12-inches. The total depth of the well based on current information is projected to be 865 feet bgs.

2.15.2 Exploratory Investigation

To confirm the presence of the aquifers and their potential capacity to produce the required amount of water, exploratory boring(s) should be drilled and monitoring wells constructed at various depths to test the water quality prior to proceeding to a final well design. A deep boring would be constructed on the GWF property. If it was determined that the shallow aquifer was appropriate for the water supply, an additional boring would be drilled at the second well site on the eastern edge of the property.

Boring and well details and estimated costs for both explorations are included in **Figures 13 and 14** and **Tables 4 and 5**. The deep boring shown on **Figure 14** would proceed to a depth of about 1000 feet, beyond the depth of the C Zone that ends at about 850 feet. Proceeding past the C Zone will help determine if there are aquifers deeper than the C Zone that could provide water. If suitable aquifer materials are present, the deepest well would be screened at that depth to determine the water quality and potential for drawing water from this deeper water, which is potentially of poorer quality. If aquifers are not present, the hole would be backfilled and screened as shown in **Figure 14**. The nested wells shown in this figure are designed to monitor the B and C Zones as well as the unconfined aquifer

If it is determined that the unconfined aquifer is suitable for water supply, an exploratory boring and monitoring well would be constructed at the eastern property edge site with typical details as shown in **Figure 13**.

2.15.3 Proposed Well Construction Details

Typical well construction details for the two wells in the unconfined aquifer are shown in **Figure 15**. Typical details for a well in the confined aquifer are shown in **Figure 16**. Screens in the unconfined aquifer well are designed to withdraw water from just above the Clay, where the confined aquifer well screens are designed to withdraw from the B and C Zones.

2.15.1 Permits and Approvals

A well drilling permit to be obtained from the San Joaquin County Environmental Health Department will be required.

The California Regional Water Quality Control Board Central Valley Region, Resolution R5-2013-0145, Waivers of Reports of Waste Discharge and Waste Discharge Requirements for Specific Types of Discharges within the Central Valley Region, has determined that fresh water well drilling muds/borings and wastes and testing of fresh water wells to land pose a low threat to quality of water in the State. Therefore, as long as the water is considered to be fresh water and remains on the property a permit would not be required.

CEC will require the GWF facility to perform an environmental impacts analysis equivalent to that required by the California Environmental Quality Act (CEQA) to assess the potential impacts of using groundwater. Since the well will be new, the equivalent of a Mitigated Negative Declaration will likely be required.

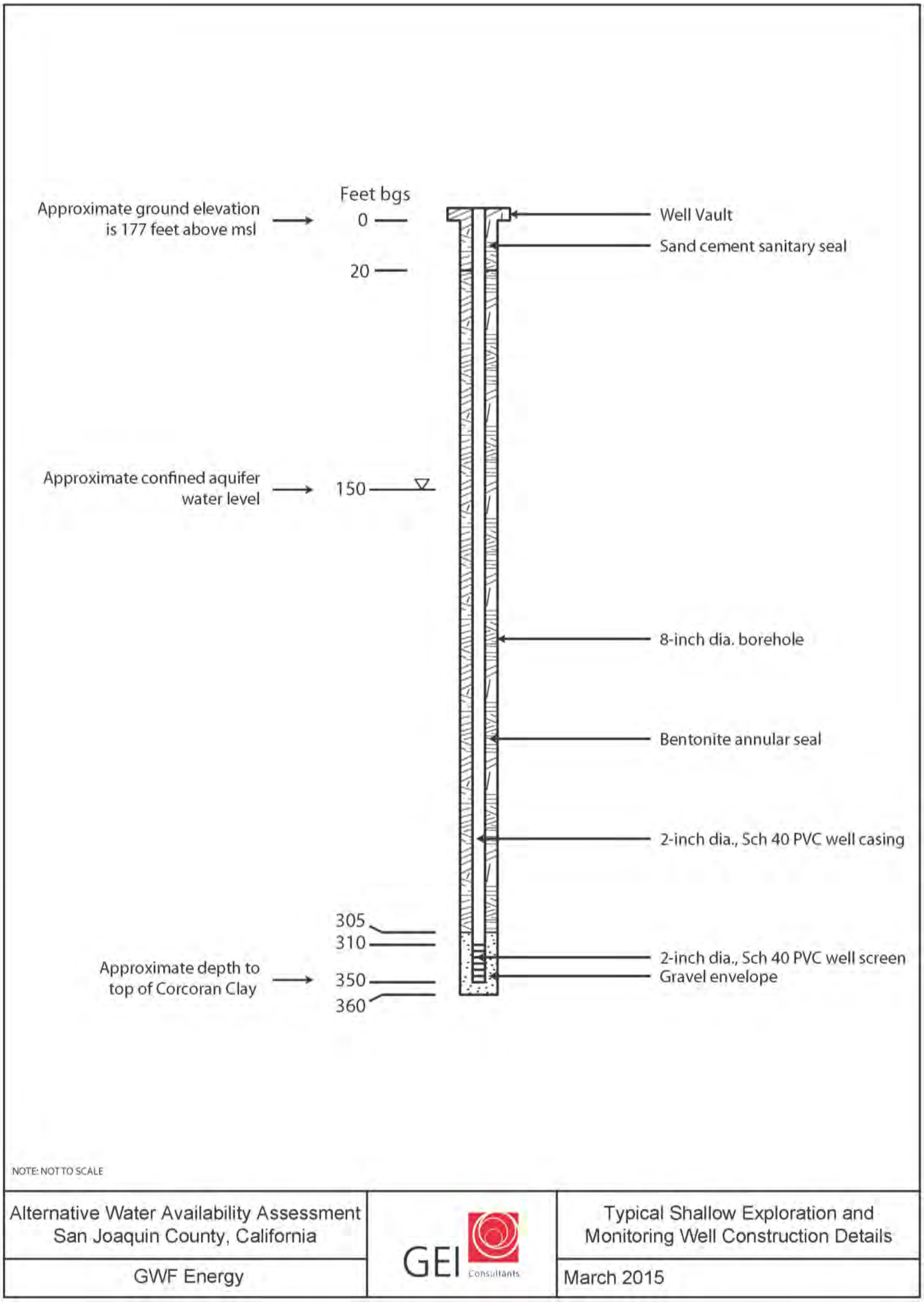

Figure 13. Shallow Aquifer Exploratory Borehole and Monitoring Well Details

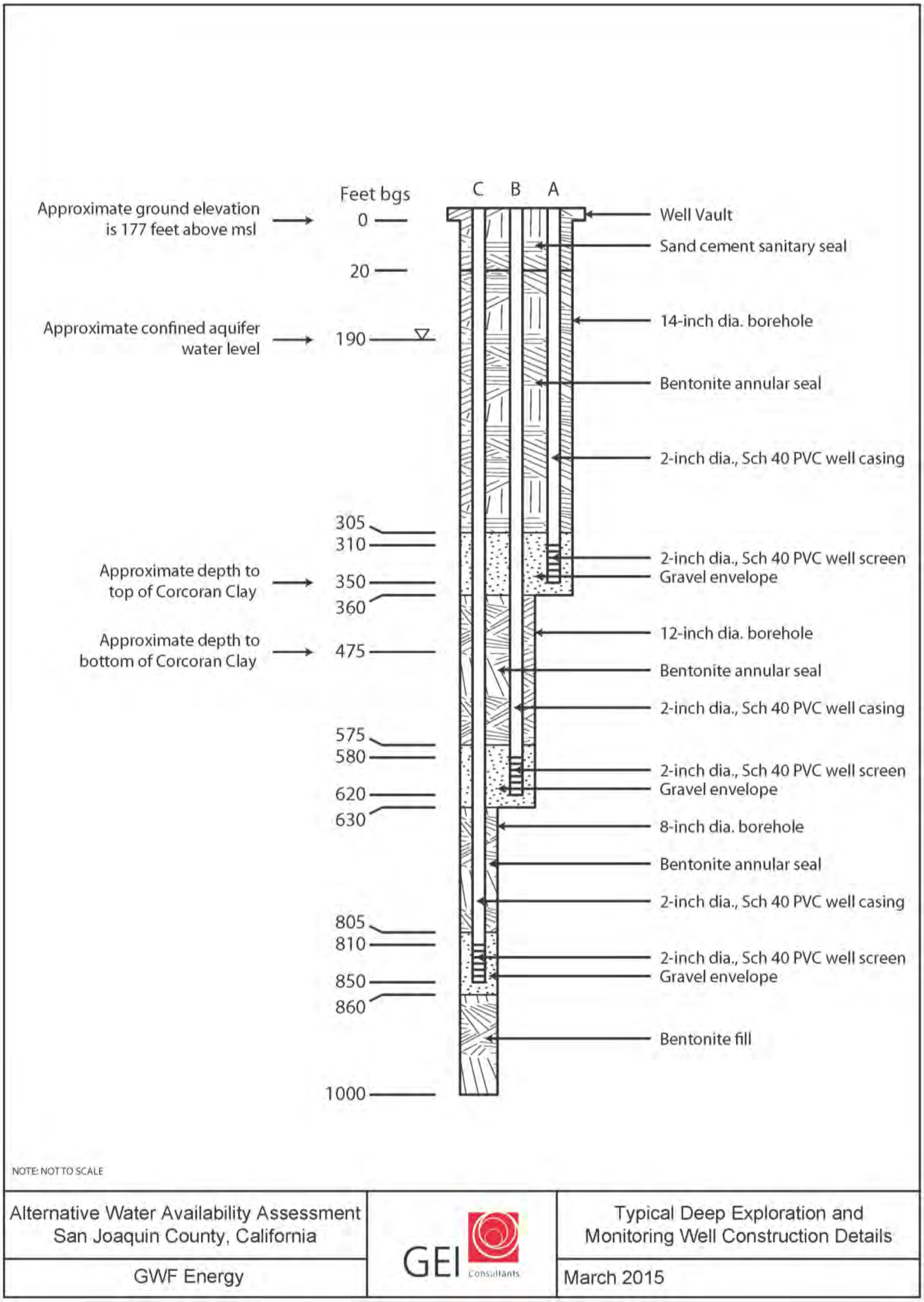

Figure 14. Deep Aquifer Exploratory Borehole and Monitoring Wells Details

Table 4. Unconfined Aquifer Exploratory Borehole and Monitoring Well Construction Opinion of Costs

Contract #		**Engineer's Estimate**
Project	**Alternative Water Availability Assessment**	**1 Exploration borehole and 1 well**
	Monitoring Wells Opinion of Cost	
Client	GWF Energy	
Proj Mgr	David Fairman	
Bid Date	3/18/2015	
Project #	1501650	

Item No.	Item	Unit	Quanity	Unit Cost	Item Cost
1	Mobilization/Demobilization	LS	0	$30,000	$0
2	Site to site	LS	1	$2,500	$2,500
3	8" Diameter Pilot Hole Drilling	LF	360	$24	$8,640
4	Geophysical Logs (Electric)	LS	1	$2,000	$2,000
5	Caliper Survey	LS	1	$1,500	$1,500
6	8" Diameter Reaming/hole cleanout	LF	360	$12	$4,320
7	12" Diameter Reaming	LF	0	$15	$0
8	14" Diameter Reaming	LF	0	$30	$0
9	2-inch , PVC, Sch 40, flush thread Well Casing, plus centralizers every 60 feet	LF	310	$7	$2,170
10	2-inch, PVC, Sch 40, flush thread Well Screen	LF	40	$10	$400
11	Borehole Seals	LF	285	$10	$2,850
12	Gravel Envelop	LF	55	$20	$1,100
13	Sanitary Seal	LF	20	$23	$460
14	Well Development - Bailing and Surging/Air-Lift	HR	4	$300	$1,200
15	Furnish and Install Sampling Pump	LS	1	$1,000	$1,000
16	Pump Develop	HR	4	$300	$1,200
17	Borehole Destruction	LF	0		$0
18	Furnish and install enclosures and boulards	LS	1	$1,400	$1,400
19	Drill cuttings and mud disposal	LS	1	$2,500	$2,500
20	Standby	HR	4	$500	$2,000
	Estimated Price (calculated)				$35,240
	Permitting (5% of Construction)				$ 1,762
	Engineering (8% of Construction)				$ 2,819
	Special Engineering Investigations				
	Surveying (2% of Construction)				$ 705
	Geotechnical (2% of Construction)				$ -
	Environmental (5% of Construction)				$ 1,762
	Adminstration and Legal (2% of Construction)				$ 705
	Construction Management (10% of Construction)				$ 3,524
	Construction Contigency (15% of Construction)				$ 5,286
	Subtotal				$ 16,563
	Total				**$51,803**

Notes:

1) This OPCC is classified as a Class 4 cost estimate per AACE quidlines. Stated accuracy range = -20% to + 35%.
2) Pricing has not been escalated to MPC. Pricing basis = 3rd Qtr 2007, Current Caltrans Price Index 335.
3) Pricing assumes one mobilization per contract.
4) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).

Table 5. Confined Aquifer Exploratory Borehole and Monitoring Well Construction Opinion of Costs

Contract #		**Engineer's Estimate**
Project	**Alternative Water Availability Assessment**	**1 Exploration borehole and 3 wells**
	Monitoring Wells Opinion of Cost	
Client	GWF Energy	
Proj Mgr	David Fairman	
Bid Date	3/18/2015	
Project #	1501650	

Item No.	Item	Unit	Quanity	Unit Cost	Item Cost
1	Mobilization/Demobilization	LS	1	$30,000	$30,000
2	Site to site	LS	0	$2,500	$0
3	8" Diameter Pilot Hole Drilling	LF	1000	$24	$24,000
4	Geophysical Logs (Electric)	LS	1	$3,000	$3,000
5	Caliper Survey	LS	1	$2,000	$2,000
6	8" Diameter Reaming/hole cleanout	LF	230	$12	$2,760
7	12" Diameter Reaming	LF	270	$15	$4,050
8	14" Diameter Reaming	LF	360	$30	$10,800
9	2-inch , PVC, Sch 40, flush thread Well Casing, plus centralizers every 60 feet	LF	1700	$7	$11,900
10	2-inch, PVC, Sch 40, flush thread Well Screen	LF	120	$10	$1,200
11	Borehole Seals	LF	815	$10	$8,150
12	Gravel Envelop	LF	165	$20	$3,300
13	Sanitary Seal	LF	20	$23	$460
14	Well Development - Bailing and Surging/Air-Lift	HR	12	$300	$3,600
15	Furnish and Install Sampling Pump	LS	3	$1,000	$3,000
16	Pump Develop	HR	6	$300	$1,800
17	Borehole Destruction	LF	0		$0
18	Furnish and install enclosures and boulards	LS	1	$1,400	$1,400
19	Drill cuttings and mud disposal	LS	1	$2,500	$2,500
20	Standby	HR	4	$500	$2,000
	Estimated Price (calculated)				$115,920
	Permitting (5% of Construction)				$ 5,796
	Engineering (8% of Construction)				$ 9,274
	Special Engineering Investigations				
	Surveying (2% of Construction)				$ 2,318
	Geotechnical (2% of Construction)				$ -
	Environmental (5% of Construction)				$ 5,796
	Adminstration and Legal (2% of Construction)				$ 2,318
	Construction Management (10% of Construction)				$ 11,592
	Construction Contigency (15% of Construction)				$ 17,388
	Subtotal				$ 54,482
	Total				**$170,402**

Notes:

1) This OPCC is classified as a Class 4 cost estimate per AACE quidlines. Stated accuracy range = -20% to + 35%.
2) Pricing has not been escalated to MPC. Pricing basis = 3rd Qtr 2007, Current Caltrans Price Index 335.
3) Pricing assumes one mobilization per contract.
4) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).

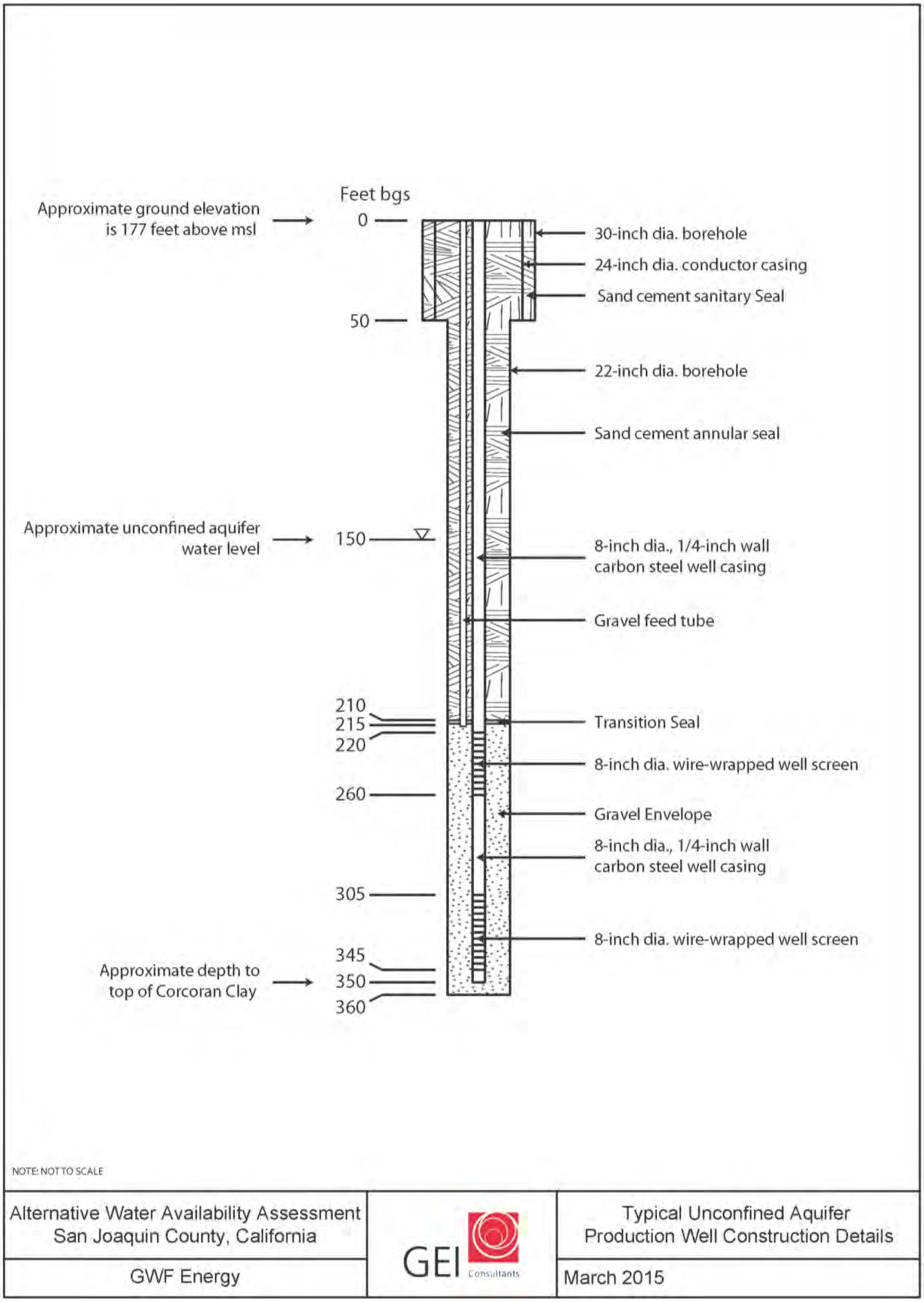

Figure 15. Typical Unconfined Aquifer Production Well Construction Details

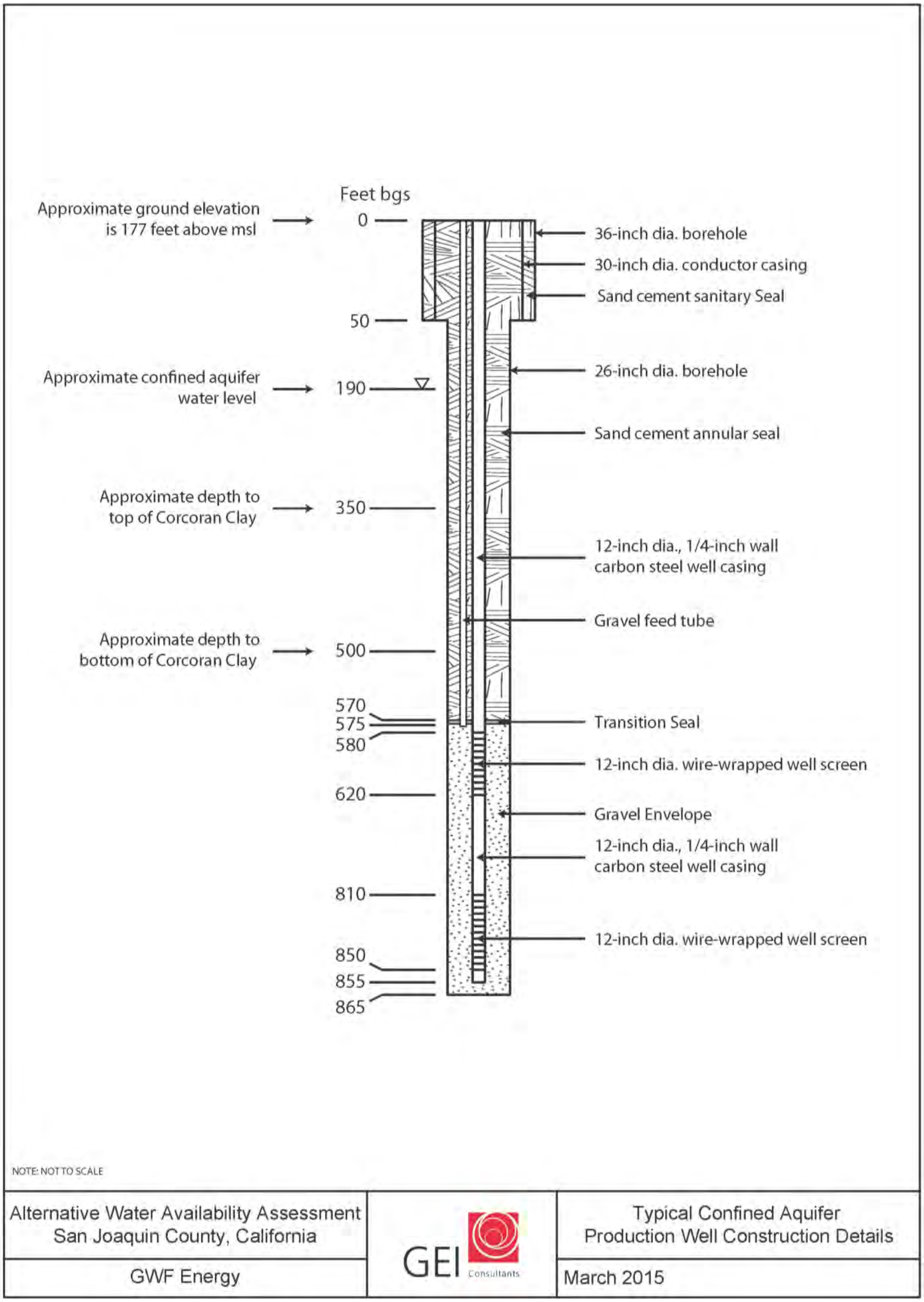

Figure 16. Typical Confined Aquifer Production Well Details

2.15.2 Opinion of Costs

The estimated costs to drill exploration borings to confirm the presence of aquifers above and below the Clay and their water quality along with monitoring wells are provided on **Tables 4 and 5**.

The estimated cost to construct two water supply wells to a depth of 360 feet is shown on **Table 6**. The estimates also include costs to furnish and install new pumps and appurtenances, and 1,000 feet of 4-inch diameter pipeline from the well on the east edge of the property. Estimates are also provided for environmental, permitting and engineering services. The costs assumes one of the wells would be drilled near the existing outlet of the pipe that currently delivers surface water supply from the Delta-Mendonta Canal to the GWF facility.

The estimated cost to construct a water supply well to a depth of 865 feet is shown on **Table 7.** This also includes cost estimates to furnish and install a new pump and appurtenances and also environmental, permitting and engineering services. The costs assume the well would be drilled near the existing outlet of the pipe that currently delivers surface water supply from the Delta Mendota Canal to the GWF facility.

Actual costs may vary due to market conditions.

2.15.1 Schedule

The availability of drilling contractors, with the continuing drought, significantly affects the ability to drill the exploratory boring and to construct the wells. The duration to have a completed and equipped well is estimated to be about two years.

Should GWF assume some risk and proceed directly to construction of the wells, the schedule to complete and equip the wells would be about one year.

Table 6. Unconfined Aquifer Production Well Construction Opinion of Costs

Contract #		**Engineer's Estimate**
Project	**Alternative Water Availability Assessment**	**Two Wells in Unconfined Aquifer**
	Production Well Opinion of Cost	
Client	GWF Energy	
Proj Mgr	David Fairman	
Date	3/18/2015	
Project #	1501650	

Item No.	Item	Unit	Unit Cost	Quanity	Amount
Well Construction					
1	Mobilization/Demobilization	LS	$30,000	1	$30,000
2	Site to site	LS	$10,000	1	$10,000
3	Conductor Casing and Sanitary Seal	LF	$450	100	$45,000
4	12" Pilot Hole Drilling	LF	$40	620	$24,800
5	Ream Pilot Hole to 22"	LF	$50	620	$31,000
6	Geophysical Surveys	LS	$4,300	2	$8,600
7	Furnish & install 8-inch diameter 1/4 wall Carbon Steel Well Casing	LF	$50	540	$27,000
8	Furnish & install 8-inch diameter 1/4 Louvered Well Screen (0.050-slot)	LF	$80	160	$12,800
9	Furnish and install 3-inch Gravel Feed Pipe	LF	$11	430	$4,730
10	Furnish and install Gravel Envelop	LF	$30	290	$8,700
11	Annular Seal	LF	$25	430	$10,750
12	Temporary Storage Tanks	LS	$9,000	2	$18,000
13	Temporary Discharge Piping	LS	$6,000	2	$12,000
14	Irrigation System to Dispose of Water	LS	$22,000	0	$0
15	Well Development	HR	$400	48	$19,200
16	Furnish and Install Test Pump	LS	$7,000	2	$8,000
17	Pump Development	HR	$275	48	$13,200
18	Aquifer Testing	HR	$275	72	$19,800
19	Water Quality (General Mineral and Physical)	LS	$300	2	$600
20	Plumbness & Alignment Tests	LS	$2,700	2	$5,400
21	Video Camera Survey	LS	$1,000	2	$2,000
22	Well Disinfection	LS	$1,000	2	$2,000
23	Pump Pad	LS	$5,000	2	$10,000
24	Drill Cuttings Disposal	LS	$1,000	2	$2,000
25	Drilling Fluids Disposal	LS	$5,000	2	$10,000
	Subtotal				**$335,580**
Pumping Plant					
25	Purchase Submersible pump and motor	LS	$20,000	2	$40,000
26	Purchase column pipe, power cable, sounding tube	LF	$50	320	$16,000
27	Install pump and motor	LS	$5,000	2	$10,000
28	Purchase and Install Motor Controls and Electrical	LS	$50,000	2	$100,000
29	Fabricate and Install onsite Piping and Valves	LS	$25,000	2	$50,000
30	Trench and install 4" piping from second well to current DMC connection point	LF	$30	1000	$30,000
31	Fencing	LS	$7,000	1	$7,000
	Subtotal				**$253,000**
	Calculated Total				**$588,580**
	Permitting (3% of Construction)				$ 17,657
	Engineering (8% of Construction)				$ 47,086
	Special Engineering Investigations				
	Surveying (2% of Construction)				$ 11,772
	Solid and Liquid Waste Disposal (5% of Construction)				$ 29,429
	Environmental (5% of Construction)				$ 29,429
	Adminstration and Legal (2% of Construction)				$ 11,772
	Construction Management (10% of Construction)				$ 58,858
	Construction Contigency (15% of Construction)				$ 88,287
	Subtotal				$ 294,290
	Total				**$882,870**

Notes:

1) This OPCC is classified as a Class 4 cost estimate per AACE quidlines. Stated accuracy range = -20% to + 35%.
2) Pricing has not been escalated to MPC. Pricing basis = 3rd Qtr 2007, Current Caltrans Price Index 335.
3) Pricing assumes one mobilization per contract.
4) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).

Table 7. Confined Aquifer Well Construction Opinion of Costs

		Engineer's Estimate
Contract #		One Well in Confined Aquifer
Project	Alternative Water Availability Assessment	
	Production Well Opinion of Cost	
Client	GWF Energy	
Proj Mgr	David Fairman	
Date	3/18/2015	
Project #	1501650	

Item No.	Item	Unit	Unit Cost	Quanity	Amount
Well Construction					
1	Mobilization/Demobilization	LS	$60,000	1	$60,000
2	Conductor Casing and Sanitary Seal	LF	$480	50	$24,000
3	12" Pilot Hole Drilling	LF	$80	815	$65,200
4	Ream Pilot Hole to 28"	LF	$85	815	$69,275
5	Geophysical Surveys	LS	$4,300	1	$4,300
6	Furnish & install 12-inch diameter 1/4 wall Carbon Steel Well Casing	LF	$60	775	$46,500
7	Furnish & install 12-inch diameter 1/4 Louvered Well Screen (0.050-slot)	LF	$100	80	$8,000
8	Furnish and install 3-inch Gravel Feed Pipe	LF	$11	575	$6,325
9	Furnish and install Gravel Envelop	LF	$80	290	$23,200
10	Annular Seal	LF	$60	570	$34,200
11	Temporary Storage Tanks	LS	$9,000	1	$9,000
12	Temporary Discharge Piping	LS	$6,000	1	$6,000
13	Irrigation System to Dispose of Water	LS	$22,000	0	$0
14	Well Development	HR	$450	24	$10,800
15	Furnish and Install Test Pump	LS	$10,000	1	$10,000
16	Pump Development	HR	$300	24	$7,200
17	Aquifer Testing	HR	$300	36	$10,800
18	Water Quality (General Mineral and Physical)	LS	$300	1	$300
19	Plumbness & Alignment Tests	LS	$2,700	1	$2,700
20	Video Camera Survey	LS	$1,500	1	$1,500
21	Well Disinfection	LS	$1,500	1	$1,500
22	Pump Pad	LS	$6,000	1	$6,000
23	Drill Cuttings Disposal	LS	$1,000	1	$1,000
24	Drilling Fluids Disposal	LS	$5,000	1	$5,000
	Subtotal				**$412,800**
Pumping Plant					
25	Purchase Submersible pump and motor	LS	$25,000	1	$25,000
26	Purchase column pipe, power cable, sounding tube	LF	$50	300	$15,000
27	Install pump and motor	LS	$5,000	1	$5,000
28	Purchase and Install Motor Controls and Electrical	LS	$50,000	1	$50,000
29	Fabricate and Install onsite Piping and Valves	LS	$25,000	1	$25,000
30	Fencing	LS	$15,000	0	$0
	Subtotal				**$120,000**
	Calculated Total				**$532,800**
	Permitting (5% of Construction)				$ 26,640
	Engineering (8% of Construction)				$ 42,624
	Special Engineering Investigations				
	Surveying (2% of Construction)				$ 10,656
	Geotechnical (2% of Construction)				$ -
	Environmental (5% of Construction)				$ 26,640
	Adminstration and Legal (2% of Construction)				$ 10,656
	Construction Management (10% of Construction)				$ 53,280
	Construction Contigency (15% of Construction)				$ 79,920
	Subtotal				$ 250,416
	Total				**$783,216**

Notes:
1) This OPCC is classified as a Class 4 cost estimate per AACE quidlines. Stated accuracy range = -20% to + 35%.
2) Pricing has not been escalated to MPC. Pricing basis = 3rd Qtr 2007, Current Caltrans Price Index 335.
3) Pricing assumes one mobilization per contract.
4) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).

2.16 Groundwater Laws and Ordinances

There are multiples laws and regulations that apply to the use of groundwater and the construction of wells. A brief discussion of these rules and regulations are provided below.

State Water Resources Control Board (State Board) allows for most areas of California, overlying land owners may extract percolating groundwater and put it to beneficial use without approval from the State Board or a court. California does not have a permit process for regulation of groundwater use. In several basins; however, groundwater use is subject to regulation in accordance with court decrees adjudicating the groundwater rights within the basins.

The California Supreme Court decided in the 1903 case Katz v. Walkinshaw that the "reasonable use" provision that governs other types of water rights also applies to groundwater. Prior to this time, the English system of unregulated groundwater pumping had dominated but proved to be inappropriate to California's semiarid climate. The Supreme Court case established the concept of overlying rights, in which the rights of others with land overlying the aquifer must be taken into account. Later court decisions established that groundwater may be appropriated for use outside the basin, although appropriator's rights are subordinate to those with overlying rights (SWRCB, website, 2015).

California Legislative bills SB 1168, SB 1319 and AB 1739 are commonly known as the Sustainable Groundwater Management Act (SGMA) which was signed into law by Governor Brown September 16, 2014. The SGMA empowers local agencies to adopt groundwater management plans that are tailored to the resources and needs of their communities. Good groundwater management will provide a buffer against drought and climate change, and contribute to reliable water supplies. The SGMA requires the development of a Groundwater Sustainability Agency (GSA). The GSA shall consider the interests of all beneficial uses and users of groundwater including agriculture, domestic, municipal, public water systems, local land planning agencies, environmental users of groundwater, surface water users, the federal government, California Native American tribes, and disadvantaged communities. The GSA shall have the authority and may regulate groundwater extraction by regulating, limiting or suspending extractions. A GSA application for the Subbasin must be developed and submitted to DWR by January 1, 2017. Currently groundwater stakeholders in the Subbasin have held several organization meetings but selection of a final GSA has yet to be made. After development of the GSA a Groundwater Sustainability Plan must be developed by 2022, in which groundwater management actions will be defined.

State Water Resources Control Board Policies (Resolution No. 88-63) designates all groundwater and surface waters of the State as potential sources of drinking water, worthy of protection for current or future beneficial uses, except where: (a) the total dissolved solids (TDS) are greater than 3,000 milligrams per liter (mg/L), (b) the well yield is less than 200 gallons per day (gpd) from a single well, (c) the water is a geothermal resource, or in a water conveyance facility, or (d) the water cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices.

San Joaquin County Well Standards, San Joaquin County Ordinance Code Section 9-1115.6, February 2005 requires that a licensed well contractor (C-57), or their authorized representative, shall make application for a permit to the San Joaquin County Environmental Health Department prior to construction of a test boring that penetrates below groundwater, monitoring wells, and water supply well. The ordinance also provides minimum design standards for water supply wells. To prohibit intermingling of poor quality aquifers above and below the Clay layer, wells constructed and perforated below the Clay layer shall have sealing requirements determined on a site specific basis and approved by the Director. Within 60 days after completion of drilling a well log shall be submitted to San Joaquin County Environmental Health Department. DWR Form 188 shall satisfy this requirement as stipulated under California Water Code Section 13571.

The **City of Tracy** is a city within San Joaquin County that has passed a local well ordinance; however, the City defers all permitting of wells to San Joaquin County.

2.17 Assessment of Potential Impacts

CEQA requires that projects be analyzed for impacts to water resources. The level of significance criteria are:

a. Will the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

b. Will the project substantially degrade water quality.

The following analyses provide a preliminary assessment of potential impacts for a well constructed by GWF into the confined aquifer.

2.17.1 Regional Pumping Effects

Prior estimates of the amount of groundwater in storage are about 1,300,000 AF. Assuming a saturated aquifer thickness of about 800 feet for the Subbasin the amount of water in storage per foot of saturated thickness is about 1,600 AF. Assuming there was no recharge during a year, the new GWF well, taking a maximum of 54 AFY, would lower groundwater levels in the basin by about 0.03 feet; a less than significant amount.

2.17.2 Local Pumping Effects

The Theis equation was used to assess the potential drawdown effects at points distant from the well. We used the aquifer characteristics from unconfined and confined aquifers to estimate the amount of drawdown. The wells constructed into the unconfined aquifers were assumed to pump 100 gpm each. The new well constructed into the confined aquifer would produce about 200 gpm. We assumed the wells would be pumped for six hours per day and then allowed to rest for the remainder of the day.

2.17.2.1 Unconfined Aquifer Well

Using a hydraulic conductivity of 3 ft/day and an aquifer saturated thickness of 40 feet (the thickness of saturated aquifer above the Corcoran Clay from **Figure 8**); the average transmissivity of the aquifer is estimated to be about 900 gpd/ft for the unconfined aquifer. The drawdown created by pumping one well at 100 gpm for 6 hours would be about 92 feet at the well. Using the Theis analysis, the drawdown of greater than one foot would be limited to areas within 63 feet of the well. **Figure 17** shows the one-foot contours for the two proposed production wells.

Because the groundwater surface is sloping, the drawdown effects would propagate in the up gradient direction and potentially lessen the pumping effects in the down-gradient or cross-gradient directions. The effects of pumping of other wells in the area that would affect the drawdown have not been evaluated in this analysis. Pumping of other nearby wells could increase the drawdown.

2.17.2.2 Confined Aquifer Well

Using a hydraulic conductivity of 50 ft/day and an aquifer saturated thickness of 80 feet (Zones B and C) the transmissivity of the aquifer is estimated to be about 30,000 gpd/ft for the confined aquifer. The drawdown created by a single well pumping at 200 gpm for 6 hours would be about 13 feet at the well. The drawdown at distances away from the well was projected using the Theis analysis. **Figure 18** shows the estimated 1-foot and 2-foot drawdown at distances from the proposed GWF well.

Because the groundwater surface is sloping, the drawdown effects would propagate in the up gradient direction and potentially lessen the pumping effects in the down-gradient or cross-gradient directions. The effects of pumping of other wells in the area that would affect the drawdown have not been evaluated in this analysis. Pumping of other nearby wells could increase the drawdown.

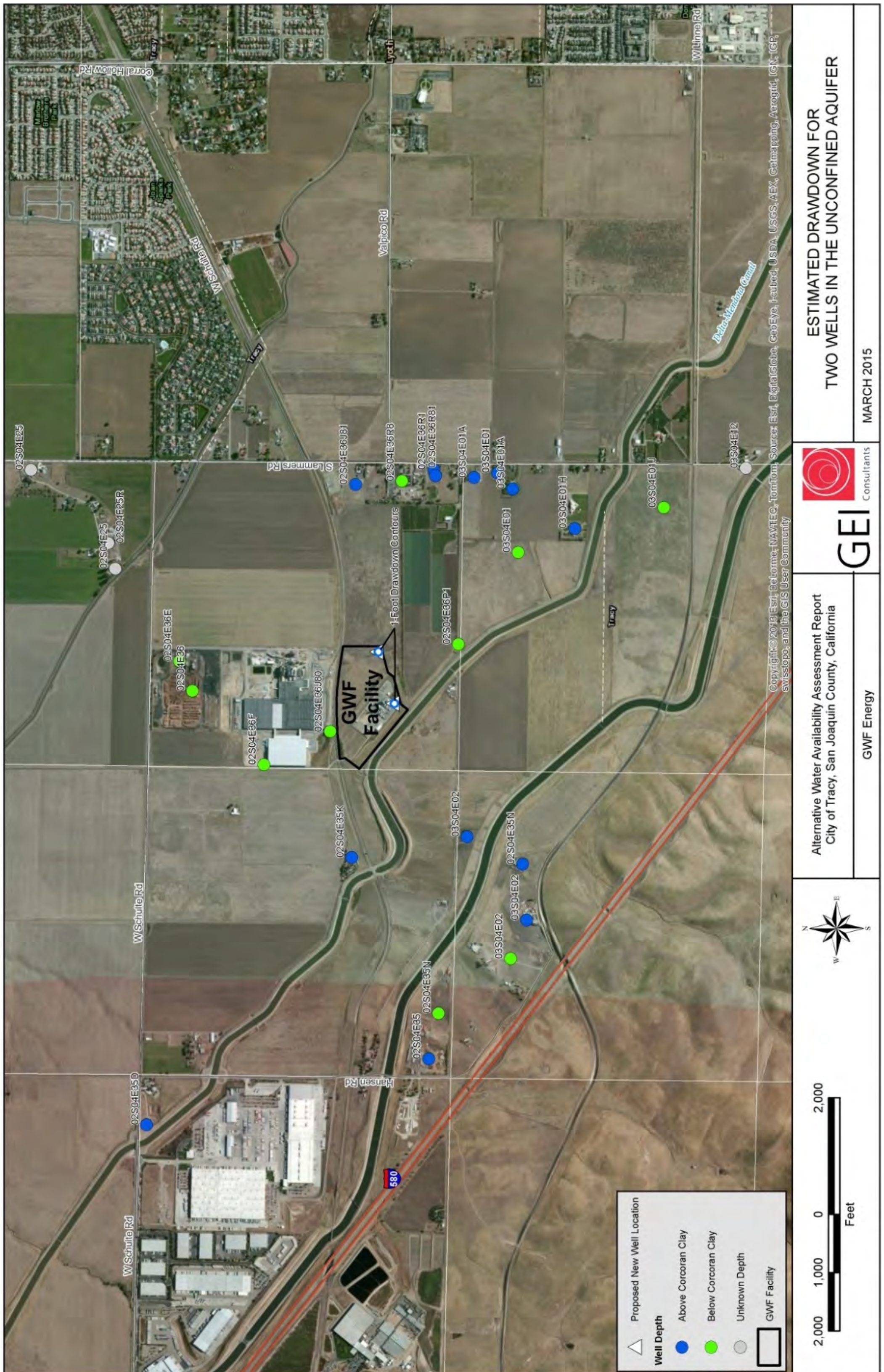

Figure 17. Estimated Drawdown For Two Wells in the Unconfined Aquifer

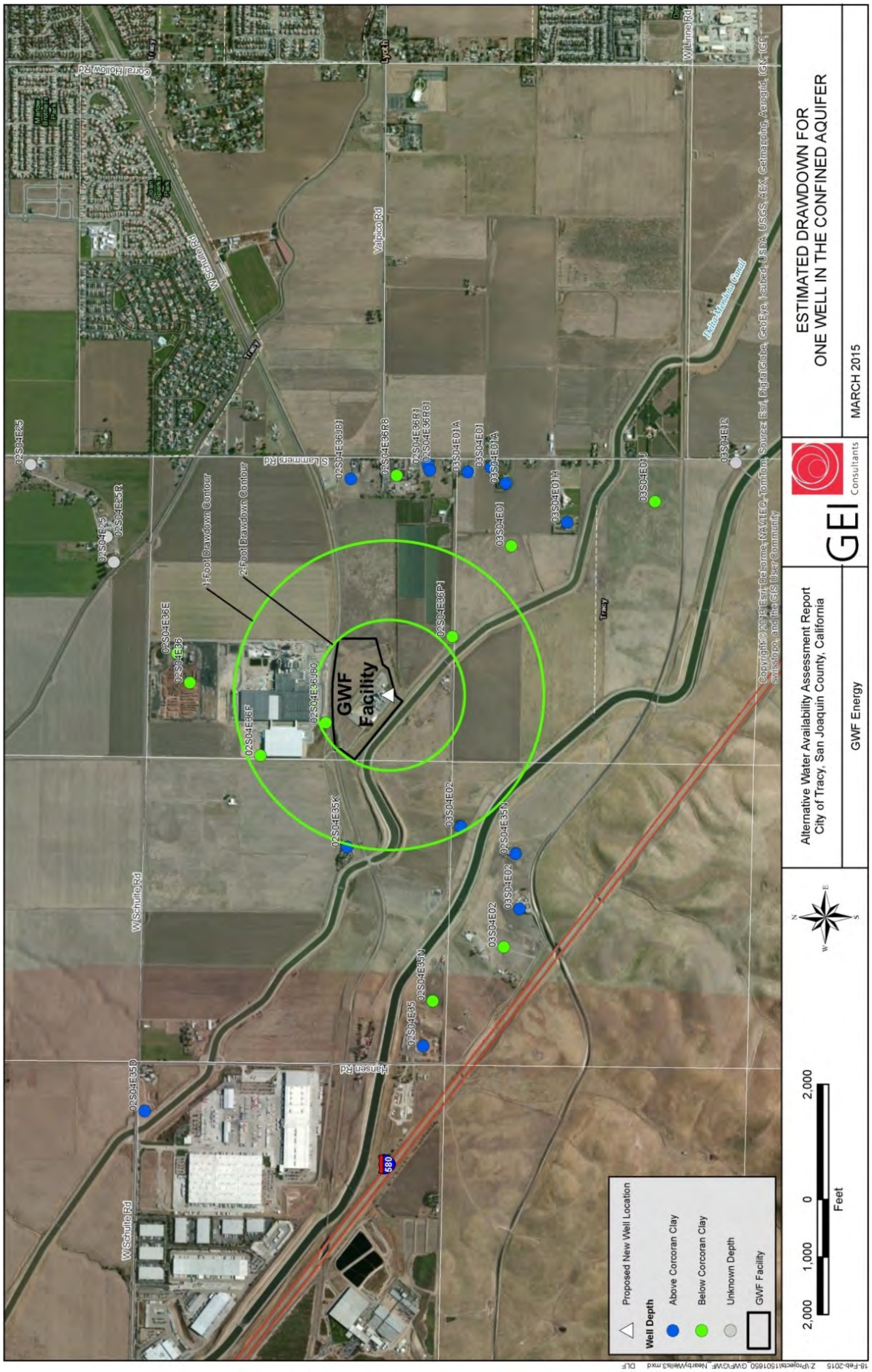

Figure 18. Estimated Drawdown For One Well in the Confined Aquifer

2.17.1 Nearby Wells

A canvas of nearby wells was performed using well logs, Google Earth, and a drive-by canvas of the area. Locations of wells within a one-mile radius of the site are shown on **Figures 17 and 18**. Logs of the wells were reviewed and then sorted by aquifer and colorized accordingly. There are no wells that would be affected by the pumping in the unconfined aquifer. There are two wells within the pumping cone of depression for the confined aquifer located on the property north of the GWF facility. Both of these wells could experience about 1 to 2 feet of drawdown during pumping each 6-hour pumping cycle, but the aquifer should be able to fully recover in the 18 hours between cycles.

2.17.2 Water Quality

The water quality above the Clay is generally of rather uniform poor quality water. Pumping of the aquifers above the Clay would not be expected to result in any degradation of the aquifers unless the sustainable yield is exceeded in which case poor quality water intrusion from the Delta is possible.

Water quality above the Clay is of poorer quality than below the Clay. Because the well design seals the borehole through the Clay degradation of the water quality due to well construction is unlikely. As described above the drawdown due to pumping will be less than 5 feet and at all time the piezometeric head in the confined aquifer will remain above the Clay. Therefore, water quality degradation from above the Clay is unlikely.

The water quality below the Clay in the three designated Zones varies both vertically and horizontally. The well below the confined aquifer is designed to produce water from only the B and C Zones leaving the highest quality water in Zone A for municipal use. The water in the B and C Zones varies from being of potable quality to exceeding the secondary recommended MCLs. Therefore, pumping of the Band C Zone wells could allow migration of poorer quality water if the sustainable yield of the aquifer is exceeded. However, the potential for this to occur is low due to the small amount of pumping anticipated by the GWF facility.

Saline water is present beneath the entire Subbasin. Because the drawdown will be less than five feet the potential for upwelling of the saline water from below is unlikely.

Overall, the potential to degrade water quality due to the construction of the GWF well is low to none existent.

3 Potable Water Assessment

This chapter presents a summary of the City's potable water supply and whether it could be a potential water supply to the GWF facility.

3.1 Local Water Supplies

The DMC and the California Aqueduct are located just south of the City. Surface water from the Sacramento-San Joaquin Delta is currently provided to the City and other nearby customers via these canals by the United States Bureau of Reclamation (USBR), the South San Joaquin Irrigation District (SSJID), and other water agencies, including Byron Bethany Irrigation District (BBID). BBID is the current water supplier for the GWF facility via the DMC (Erler & Kalinowski, Inc., 2011).

Approximately 97 percent of the City's potable water supply in 2010 was provided by USBR and SSJID from the Sacramento-San Joaquin Delta. The City; however, also has water rights and contracts with West Side Irrigation District, BBID, Banta-Carbona Irrigation District, and a water banking agreement with Semitropic Water Storage District (CEC, 2002b). The City uses groundwater wells to produce 3 to as much as 8 percent (2009) of the City's potable water portfolio, but their reliance on surface water has been steadily increasing. This is expected to continue, as the groundwater in the aquifer beneath Tracy contains hard, high-TDS groundwater of low quality. Non-potable water is also available via diversions from Sugar Cut, shallow groundwater wells, and from West Side Irrigation District (CEC, 2002b).

3.1.1 Increasing Constraints of Raw (Canal) Supplies

These surface water supplies may not be reliable in the near future. As the drought in California continues, surface water from the Central Valley Project (CVP), of which the DMC is a part, will be stretched thinner and thinner. This makes the supply less reliable then it has been in previous years. The USBR estimates that the annual unmet demands for the CVP service area over the 21st century will fluctuate between 2.7 and 8.2 million AFY (across a range of 18 social-economic scenarios). The bulk of the projected unmet demands occurred in the South-of-Delta Divisions, including San Felipe, West San Joaquin, and Friant (USBR, 2014). The City and the surrounding areas will likely be greatly affected if the drought continues.

Additionally, cutbacks on the DMC/CVP water supply will occur during drought conditions to help reduce environmental impacts. The severity and length of these cutbacks will depend on the severity of the regional water supply storage and environmental conditions in the Delta. This is especially true in multiple dry year conditions. For example during the drought in 1991, USBR reduced the City's CVP allotment by 50 percent. The

City projects that they would receive 65 percent and 40 percent of their municipal and industrial water supply from the DMC under single and multiple dry year conditions, respectively (CEC, 2002b).

3.1.2 Drivers of Demand, Constraints and Local Goals/Objectives

In addition to the reduced reliability of the CVP supply, the City is expecting to grow significantly in the coming decade. It is estimated that by 2020 the population will be 109,000, up from 82,484 in 2010. That is a 32 percent increase in residential water users. The annual potable water demand is expected to increase as well, from 16,390 AF in 2010 to a projected 28,300 AF (CEC, 2002b). Many other communities in the region that also rely on the CVP for water are also projecting growth, which will further strain the limited water supply. This significant increase in potable water demand by priority groups will greatly reduce the availability and reliability of potable water to GWF. Under a single dry year scenario (assuming no water banking) the City will have a deficit in potable water by 2025 (see **Table 8**) (CEC, 2002b). Given the current drought and the date that these projections were made it can be assumed the City will be in the "Single Dry Year" or a "Multiple Dry Year" scenario. With that said the CVP cannot be relied on over the next 10 years to supply potable water to the GWF facility.

Table 8. Current and Projected Potable Water Supply vs. Demand for the City under Three Scenarios

			2010	2015	2020	2025	2030	2035
Normal Water Year		Projected Water Supply	25,300	30,500	33,000	35,500	36,500	36,500
		Projected Water Demand	17,900	23,000	25,000	28,300	31,000	33,600
		Difference	7,400	7,500	8,000	7,200	5,500	2,900
Single Dry Year		Projected Water Supply	21,100	24,400	25,700	27,100	27,400	27,400
		Projected Water Demand	17,900	23,000	25,000	28,300	31,000	33,600
		Difference	3,200	1,400	700	-1,200	-3,600	-6,200
Multiple Dry Year	Year 1	Projected Water Supply	23,300	27,700	28,900	30,100	30,300	30,300
		Projected Water Demand	17,900	23,000	25,000	28,300	31,000	33,600
		Difference	5,400	4,700	3,900	1,800	-700	-3,300
	Year 2	Projected Water Supply	23,300	27,700	28,900	30,100	30,300	30,300
		Projected Water Demand	18,920	23,400	25,660	28,840	31,520	34,136
		Difference	4,380	4,300	3,240	1,260	-1,220	-3,836
	Year 3	Projected Water Supply	23,300	27,700	28,900	30,100	30,300	30,300
		Projected Water Demand	20,960	23,800	26,320	29,380	32,040	34,672
		Difference	2,340	3,900	2,580	720	-1,740	-4,372

Source: CEC 2002b

3.2 Feasibility

The use of local surface water for cooling at the power facility is not a sustainable or reliable practice for GWF. The water that feeds the DMC is relied on heavily by communities and farmers along the canal. Many of these communities are projected to expand, while droughts and climate change are negatively impacting the water supply. Additionally, domestic and agricultural use of the canal water will take priority over the industrial uses, including GWF. In addition, there are several pieces of legislation that would make it difficult to receive approval from the CEC to use potable water for an industrial use such as power generation. For example, California Water Code (CWC) Section 13550 requires the use of reclaimed water for industrial purposes subject to reclaimed water being available and meeting certain conditions such as the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, and the use is not detrimental to public health (California, 1991). Another section of the CWC, Section 13552.6, prohibits the use of domestic water for cooling towers if suitable recycled water is available (California, 2012). The State Water Resource Control Board Resolutions 75-58 & Resolutions 88-63, the Energy Commissions’ Power Plant Water Use Policy, and the Recycling Act of 1991 (Water Code §13575 et esq.) all state that potable water may only be used for cooling if alternative water supplies are either unavailable or uneconomical. In the case of GWF it would be extremely difficult to make the case for using potable water for cooling.

The City prefers to deliver potable water within the City limits as they have control of how and for what purposes the water is used. The City does not have surplus potable water available. Therefore, potable water supplies from the City is not a feasible alternative.

4 Recycled Water Assessment

This chapter presents a summary of the recycled water supply that is potentially available to the GWF facility. It provides a definition of the source, describes current and planned recycled water distribution infrastructure in the City, and presents available information on recycled water production and water quality. Using this information a conceptual design recycled water distribution pipeline and the costs associated with this supply are provided. Additionally, a summary is included of all local requirements, permits, and approvals regarding the development, delivery and use of recycled water for non-potable uses in the Tracy region.

As discussed earlier in this report, the GWF facility currently receives untreated water from the DMC through an existing contract with the BBID. A 1,470 foot, 10-inch diameter, supply pipeline is used to convey water from the DMC to GWF, which is adjacent to the canal (CEC, 2002b). The power plant currently has an average monthly demand of about 700,000 gallons (for 2013-2014). This water is used for steam generation and cooling. For the steam cycle, cooling is done by the ACC system, a significant water use efficiency attribute. The annual water demand was 9,016,182 gallons in 2013 and 7,876,812 gallons in 2014. During peak hours, demand increases to 65 gpm; with the site's large on-site surge tank, delivery maximum capacity of 50 gpm from any water source over 24 hour period will be sufficient. However, the plant's annual demand running at max capacity is 54 AF, or roughly 17,596,000 gallons. Recycled water must be available in excess of this amount to be considered a viable alternative water supply for the power plant.

4.1 Recycled Water

There are two recycled water facilities near the GWF power facility, which are located in the Cities of Mountain House and Tracy.

The Mountain House Water Reclamation Facility is a 3 mgd (with a build-out capacity of 5.4 mgd) state-of -the-art recycled water plant owned by the Mountain House Community Service District (MHCSD). MHCSD treats wastewater to meet stringent standards outlined in Title 22 for unrestricted non-potable reuse. This requires secondary treatment followed by enhanced coagulation, filtration, and disinfection. The plant also uses a hybrid sequencing batch reactor (SBR) to produce their recycled water. MHCSD estimates that they will produce 5,000 to 7,000 AFY at build out (CH2M Hill, 2001). However, the water produced at this facility is already being used by Calpine Corporation at the nearby East Altamont Energy Center (EAEC). MHCSD currently produces 5,000 AFY of recycled water, of which 4,616 AFY is used by the EAEC (CEC, 2003a). As a result, recycled water supplied by MHCSD is not considered a feasible alternative source for GWF's facility.

The City collects and treats wastewater at the wastewater treatment plant (WWTP) located on Holly Drive in Tracy. There the water is also treated to Title 22 Disinfected Tertiary standard for unrestricted non-potable reuse and is planned to be distributed to various non-potable end-users (CH2M Hill, 2012). The current capacity of the WWTP is 10.8 million gallons per day (mgd), and it receives 9 mgd for dry weather flow. At build out, the quantity of recycled water supply available is expected to be up to 22.4 mgd (25,000 AFY) based on projected wastewater flows and current plant capacity (Steve Bayley, 2015).

Based on current estimates provided by the City, only 8,000 AFY of the projected 25,000 AFY is expected to be used within the City for various non-potable water demands such as landscape irrigation. This will leave a significant amount of surplus – roughly 17,200 AFY (CEC, 2002b). Other future demands for non-potable water may include the Mulqueeney Ranch Pumped Storage Project, the Roberts Island Project, and the Tracy Green Energy Project. Unfortunately, the timeline for these projects and their estimated water demand are unknown (Steve Bayley, 2015). In the absence of any estimates, it is still expected that recycled water supplies available to GWF will far exceed the power plant’s peak demand of 54 AFY. Even when considering peak daily flows of 50 gpm or maximum monthly (5.6 AF) demands of the power plant, the City’s recycled water supply will be more than sufficient.

Table 9. City of Tracy Projected Recycled Water Supply and Demand

Month	Available Wastewater Flow (AF)	Recycled Water Demand (AF)	Surplus (AF)
January	2151	102	2049
February	1927	164	1763
March	2116	281	1835
April	2101	571	1530
May	2113	649	1464
June	2018	1032	986
July	2139	1282	857
August	2125	1274	851
September	2064	993	1071
October	2117	837	1280
November	2051	399	1652
December	2077	227	1850
Total	**24999**	**7811**	**17188**

Source: West Yost Associates, 2012

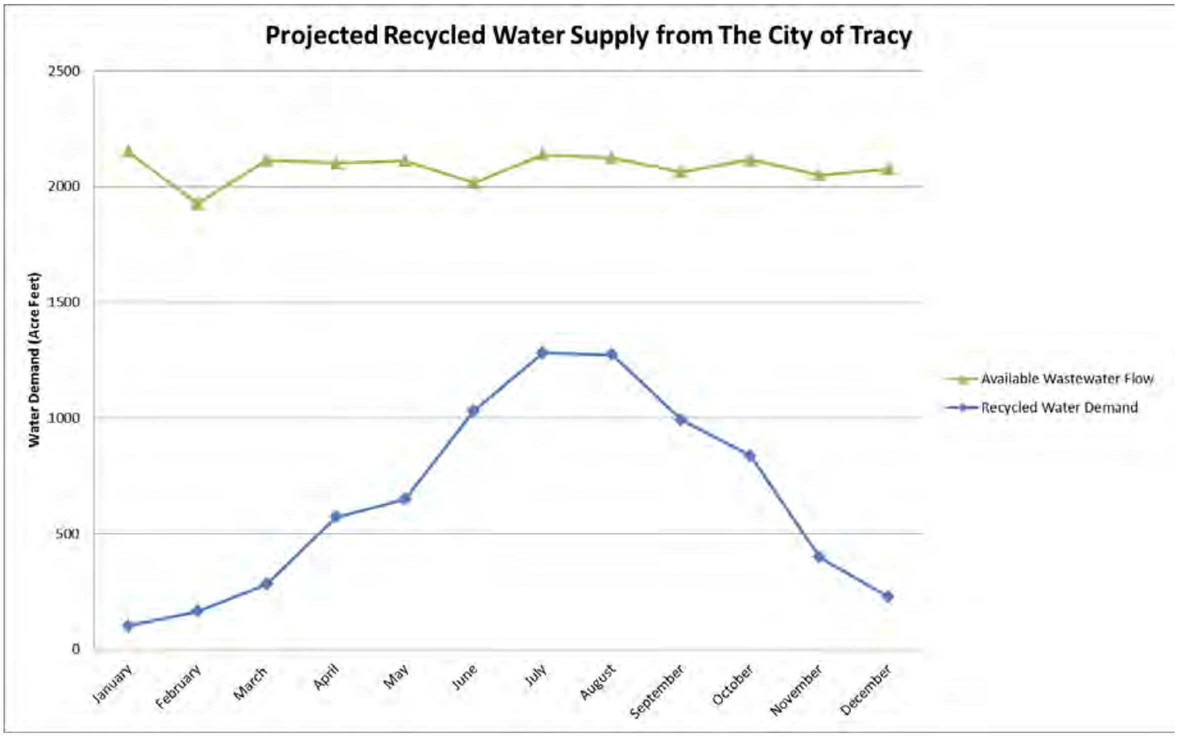

Figure 19. City of Tracy Projected Recycled Water Supply, Demand, and Surplus

The City has planned recycled water tanks, out in the distribution system, to provide diurnal storage of up to 10 million gallons. As of 2012, the recycled water distribution system was planned to be drastically expanded to make recycled water available to more customers (see **Figure 20**). This new system will include an additional 75 miles of purple pipe, which will range in diameter from 8 to 30 inches. This includes a 12-inch pipe that will run south through West Schulte Road to the adjacent property north of GWF. Five pump stations will also be included in the distribution system, ranging from 3,000 to 16,000 gpm. The City selected the pipeline alignment shown on **Figure 20** to minimize construction of large diameter recycled water pipelines in major city streets and to avoid utility crossings. The build out of this system expansion will be coordinated with the proposed schedule of the new development (e.g., Tracy Hills) to ensure the system is installed before the development needs the recycled water (Steve Bayley, 2015). The major recycled water transmission pipeline is expected to be completed in 2019.

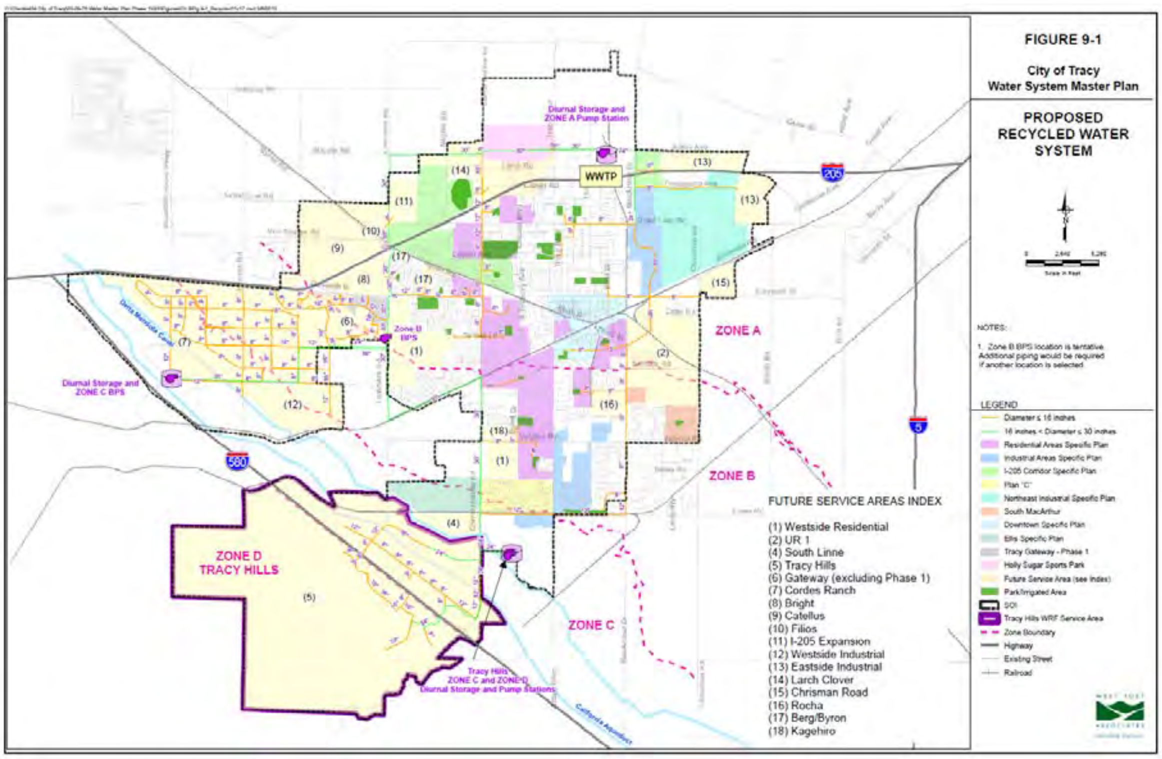

Figure 20. Map of Planned Recycled Water Supply Infrastructure

4.2 Projected Wastewater Availability

As potable water use increases, the City's wastewater flows will increase as well. The City projects that wastewater flows will increase from 8.8 mgd in 2010 to 11.1 mgd in 2015, 13.3 mgd in 2020, and 15.6 mgd in 2025. It is expected to continue to increase linearly until 2035. As these flows increase there will be more recycled water produced (CEC, 2002b). The City's WWTP has a capacity to treat 10.8 mgd, with a permitted capacity of 16 mgd. The City is currently reviewing options to address the increased wastewater flows. One option is to expand the current plant to 21.1 mgd. The other approach is to expand the existing plant to 19.1 mgd, but also build an additional WWTP. This new plant would primarily treat wastewater from the new Tracy Hills development. The City Council granted this second plant conceptual approval in December 2010 (Steve Bayley, 2015).

4.2.1 Water Quality

Water quality is a major concern for the process water used at GWF's power facility. The quality of the BBID surface water (via the DMC) can vary due to algal blooms in the Delta and run off along the canal and other surface water sources. This can lead to inconsistent water quality that needs to be monitored and treatment processes that need to be adjusted in response to the variability. The groundwater in the Tracy area is heavily mineralized and has high TDS, sulfate, and hardness (CEC, 2002b), which can lead to more stringent treatment requirements as well. Recycled water from the Tracy WWTP should only have small variability in water quality as a result of meeting the Title 22 requirements. Recycled water quality from the Tracy WWTP in 2014 is presented in **Table 10**. Not all constituents were analyzed.

Table 10. Recycled Water Quality

Constituent	Tracy Recycled Water
Total Dissolved Solids (TDS) (mg/L)	592-795
Specific Conductance (umho/cm)	1053-1418
Boron (mg/l)	unknown
Sodium (mg/l)	unknown
Calcium (mg/l)	unknown
Magnesium (mg/l)	unknown
Potassium (mg/l)	unknown
Chloride (mg/l)	unknown
Ammonium (mg/l as N)	0.566-1.28 (2014)
Nitrogen (Total N) (mg/l)	unknown
Nitrate (mg/l as N)	unknown
Sulfate (mg/l)	unknown
Silica (mg/l)	unknown
Selenium (mg/l)	unknown

4.2.2 Additional Treatment Requirements

The treatment processes currently employed by GWF (microfiltration and resin beds) are used to treat the DMC water specifically for TDS. The recycled water is very similar in quality to the canal water that is currently used, with the exception of these two constituents. The slightly higher TDS and conductance in the recycled water will require only a slight adjustment to the treatment process, including increased exchange frequency of the demineralized resin beds. It may require a small increase in flow through volume as well. This will lead to slightly higher operations and maintenance cost for the treatment system as compared to the DMC canal supplies.

4.2.3 Permits and Approvals

GWF will need to obtain several permits and approvals to use recycled water instead of the current canal water. Many of these approvals will be determined by the legislation and policies listed in **Tables 11 and 12** below. GWF will first need approval from the CEC to change cooling water sources. They will then need to make an agreement with the City to distribute the cost of the transmission pipeline and purchase the recycled water. They will also need encroachment permits in order to connect to the City's recycled water supply line currently planned in West Schulte Road. Design, permitting, and construction of pipelines from the WWTP to West Schulte Road will be done by the City.

Table 11. Federal and State Laws and Regulations

Laws and Regulations	
Applicable Law	Description
Federal	
Clean Water Act (CWA) (33 USC Section 1251 et seq.)	The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water.
State	
California Constitution, Article X, Section 2	The State Constitution requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited.
California Water Code (CWC) Section 13550	CWC Section 13550 requires the use of reclaimed water for industrial purposes subject to reclaimed water being available and meeting certain conditions such as the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, and the use is not detrimental to public health.
California Water Code (CWC) Section 13552.6	CWC Section 13552.6 prohibits the use of domestic water for cooling towers if suitable recycled water is available.
Recycling Act of 1991 (Water Code § 13575 et esq.)	The Water Recycling Act of 1991 encourages the use of recycled water for certain uses and establishes standards for the development and implementation of recycled water programs.

Table 12. State and Local Policies and Guidelines

Policies and Guidelines	
Applicable Policies and Guidelines	Description
State	
Energy Commission Integrated Energy Policy Report (IEPR) 2003	Consistent with State Water Resources Control Board Policy 75-58 and the Warren–Alquist Act, the Energy Commission will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound". "Additionally, the Energy Commission will require zero liquid discharge technologies unless such technologies are shown to be "environmentally undesirable" or "economically unsound".
State Water Resources Control Board (SWRCB) Policies: Resolution 75-58 & Resolution 88-63	The principal policy of the SWRCB that addresses the specific siting of energy facilities is the Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (adopted by the Board on June 19, 1976, by Resolution 75-58). This policy states that use of fresh inland waters should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. Resolution 75-58 defines fresh inland waters as those "which are suitable for use as a source of domestic, municipal, or agricultural water supply and which provide habitat for fish and wildlife". Resolution 88-63 defines suitability of sources of drinking water. The total dissolved solids must exceed 3,000 mg/l for it to not be considered suitable, or potentially suitable, for municipal or domestic water supply.
Local	
San Joaquin County General Plan 2010, Section IV (Community	Section IV of the Plan (Community Development) defines policies regarding transmission lines in the Utilities Section. Policies regarding soil conservation are found in the Agricultural Lands Section of the Resources portion (Section VI) of the Plan.
Title 9—Development Title of San Joaquin County	The Development Title of San Joaquin County provides requirements for land alteration within the county. Divisions of concern within the Development Title include: Division 6 (Agricultural Zones), Division 11 (Infrastructure Standards), Division 14 (Grading and Excavation Regulations), and Division 15 (Natural Resources Regulations).
Improvement Standards for San Joaquin County	The Improvement Standards for San Joaquin County provide minimum design standards and standard plans for road, storm drain, water system, sewer system, and other improvements within the county.
San Joaquin County Standard Specifications and Special Provisions	The San Joaquin County Standard Specifications and Special Provisions provide the county's minimum requirements for excavation safety, dust control, earthwork, watering, erosion control, and pollution control.

4.3 Design

4.3.1Basis of Design

Based on the site characteristics some assumptions were made for the design of the recycled water pipeline. The first assumption is that the GWF power plant would need a constant supply of 50 gpm, even at peak hours. It is also assumed that because of the large surplus, other demands on the City's recycled water will not hinder the deliveries to GWF. Although peak demand can go up to 65 gpm a surge tank on site is used to alleviate these spikes. The design also assumes that the existing intake structure on the south side of the plant will be used to accept recycled water. Based on information from the City of Tracy, it is assumed that the a 20 inch diameter recycled water distribution line will run along W. Schulte Road to at least the intersection with the access road on the western edge of the Corning property. The pipe from the City's 12-inch distribution line to the GWF intake structure will be 3 inches in diameter, approximately 5,000 feet in length, and run down the west side of the Corning property (beneath GWF's existing driveway, under the railroad track, southeasterly along the GWF property line, and connect with the current water intake at the GWF facility (see **Figure 21**). This pipeline will need to be installed 6 inches below any potable water lines that exist in the area (beneath West Schulte Road). Therefore, the expected depth of the recycled water line is assumed to be 24 inches bgs.

4.3.2 Cost

The estimated construction costs are based on the City's selected pipeline alignment shown on **Figure 21**. Construction costs were developed based on published industry standard cost data, construction costs for similar facilities, and cost estimations provided within the City of Tracy's Master Plan (Master Plan, WY, 2012). Construction costs have been adjusted to reflect 2015 dollars using the Engineering News Record (ENR) Index. Construction costs do not represent the lowest prices, but instead represent the expected typical cost based on experience and have been developed for initial planning purposes only.

The recycled water pipeline cost estimate is based on estimated linear footage of the pipeline alignment shown on **Figure 21**. The itemized costs for the pipeline from the Tracy WWTP to the intersection of West Schulte Road and the access road are shown in **Table 13**. The cost is based on ductile iron pipe for diameters larger than 12 inches, and PVC for 12-inch diameter pipes as was used in the Master Plan. The Master Plan notes cost estimates of ductile iron pipe was assumed for larger diameter pipelines because the cost of PVC pipeline increases faster with larger diameters than the cost for ductile iron pipelines, and depending on time of bidding could be more or less than ductile iron pipe. The estimate includes costs for pipeline materials, trenching, placing pipe, valves, fittings, service connections, placing imported pipe bedding, native backfill material, and asphalt pavement replacement where applicable. For pipeline construction, which requires boring and jacking.

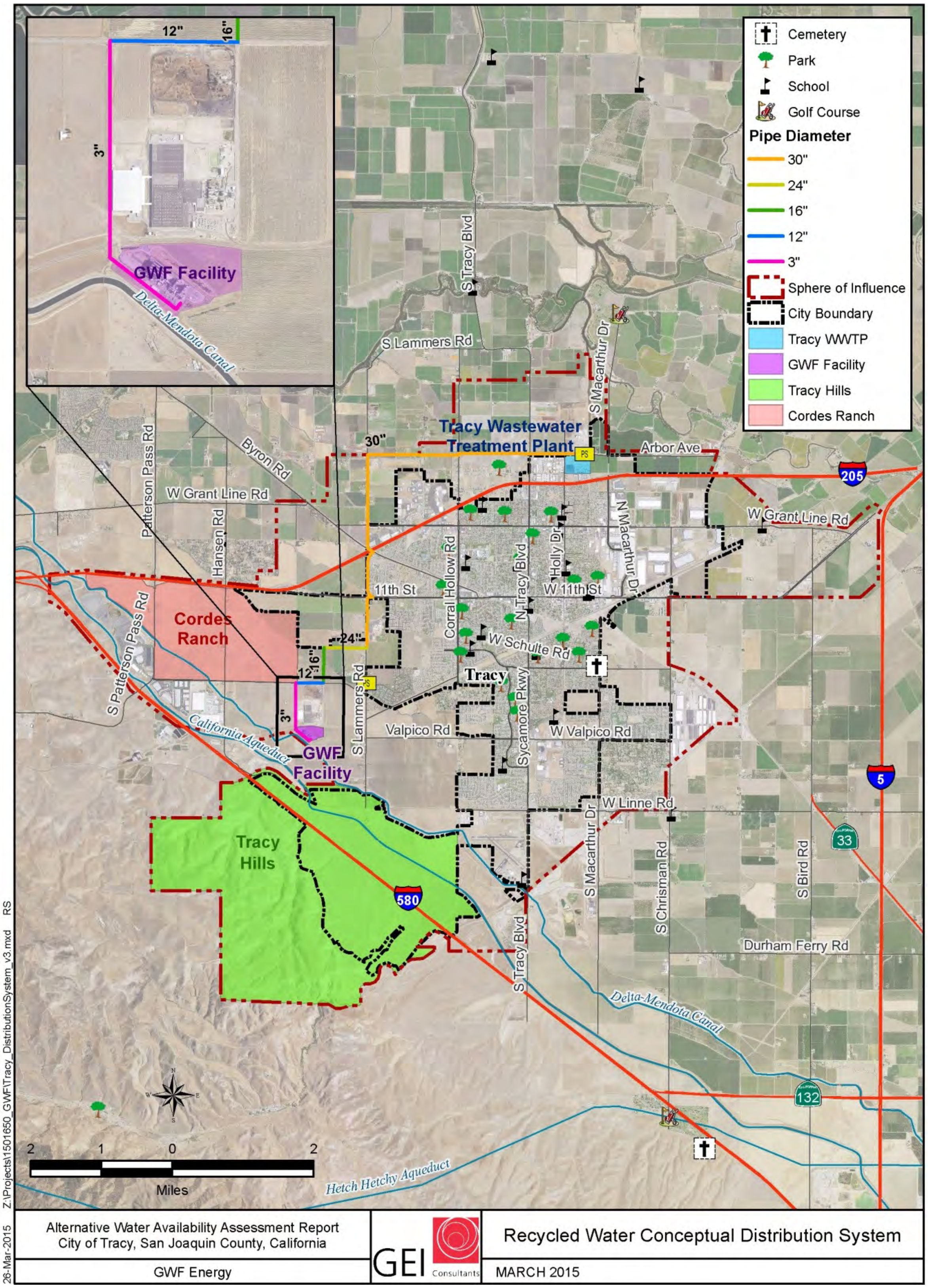

Figure 21. Recycled Water Pipeline Details

Table 13. Itemized Costs for Complete Recycled Water Line (from Tracy WWTP to GWF) Materials

Project	**Alternative Water Availability Assessment fot the GWF Power Plant**			**Engineer's Estimate** Recycled Water Pipeline from the Tracy WWTP to the GWF Facility	
Client	GWF Energy LLC				
Proj Mgr	Mr. Neftali Nevarez				
	14950 W. Schulte Road				
	Tracy, CA 95377				

Item No.	Item	Unit	Quantity	Unit Price	Amount
1	Mobilization/Demobilization	LS	1	$1,345,316.00	$1,345,316
2	12" Recycled Water - PVC	LF	5,000	$189.00	$945,000
3	16" Recycled Water - Ductile Iron Cement Lined	LF	2,700	$250.00	$675,000
4	24" Recycled Water - Ductile Iron Cement Lined	LF	3,200	$348.00	$1,113,600
5	30" Recycled Water - Ductile Iron Cement Lined	LF	31,700	$440.00	$13,948,000
6	Bore and Jack - 16" Recycled Water - Ductile Iron Cement Lined	LF	200	$897.00	$179,400
7	Bore and Jack - 30" Recycled Water - Ductile Iron Cement Lined	LF	600	$1,527.00	$916,200
8	Booster Pump Station A	LS	1	$5,651,360.00	$5,651,360
9	Booster Pump Station B	LS	1	$3,477,760.00	$3,477,760
	Calculated Total				$28,251,636
	Permitting (3% of Construction)				$ 847,549
	Engineering (8% of Construction)				$ 2,260,131
	Special Engineering Investigations				
	Surveying (2% of Construction)				$ 565,033
	Geotechnical (2% of Construction				$ 565,033
	Environmental (5% of Construction)				$ 1,412,582
	Adminstration and Legal (2% of Construction)				$ 565,033
	Construction Management (10% of Construction)				$ 2,825,164
	Construction Contigency (15% of Construction)				$ 4,237,745
	Subtotal				$ 13,278,269
	Total				**$41,529,905**

(i.e., railroad, highway, and canals), the cost for pipeline construction is included under a different cost item. The cost of pipeline considers both developed and undeveloped areas and provides a weighted unit cost for the entire pipeline with this specific alignment. The unit cost of pipeline installation may vary with a new alignment that would consider different developed and undeveloped areas.

The bore and jack pipeline cost is assumed for several crossing locations along the pipeline alignment. Each crossing assumes a length of 200 linear feet of bore and jacking. The pipeline crossings determined to require bore and jacking include:

1. The 30-inch pipeline crossing an irrigation canal near Corral Hollow Road and Larch Road.

2. The 30-inch pipeline crossing irrigation facility at Lammers Road and 11th Street.

3. The 30-inch pipeline crossing the railroad at Interstate 205 and Lammers.

4. The 20-inch pipeline crossing an irrigation canal near West Schulte Road and Lammers Road.

The bore and jacking costs include pipeline materials, auger boring, casing, placing pipeline, and construction of jacking and receiving pits. The cost associated with bore and jacking is variable, and dependent on additional factors that are unknown at this time. These factors include, but are not limited to, soil stratigraphy, groundwater, railroad special requirements, and Caltrans requirements for Interstate 205.

The booster pump station cost estimate is for Booster Pump Station A and B of **Figure 20**. The estimate is primarily based on the cost estimation provided within the Master Plan, and adjusted to reflect 2015 dollars. As such, the estimate is for the City's typical booster pump station configurations, which includes 2 to 4 variable speed booster pumps installed in parallel. The cost estimate includes the installation of the booster pumps, site piping, earthwork, paving, a chemical feed system, on-site backup power generator, and a supervisory control and data acquisition system. As noted within the Tracy Master Plan, booster pump station costs can vary significantly based on architectural design, pump capacity, pumping head, and electrical transmission.

Contingency costs have been included within this cost estimate to account for construction uncertainties (i.e., unexpected soil conditions, unforeseen mechanical items, etc.) as well as permitting, engineering, environmental, administration and legal, and construction management costs. These additional costs amount to 47 percent of the estimated construction cost (see **Table 13**).

Table 14 estimates the cost of the 3-inch recycled water line from the City's planned 12-inch recycled water distribution line beneath West Schulte Road along the access road to the GWF facility's and to its current water intake structure. The length of this pipeline would be approximately 5,000 feet. This would be the total cost of the project after the recycled water distribution system has been built by the City.

As discussed earlier in this section, the vast majority of these capital costs ($41,530,000) will be borne by the City and recouped through fees to be paid by customers for the recycled water supplies. The City is currently applying for grant funding from the State for $20,000,000. The City will be the lead in the design, permitting and construction of these facilities. GWF, on the other hand, will be responsible for costs associated with the design, permitting and construction of the site supply pipelines expected to be 3-inches in diameter and approximately 5,000 feet in length. The total estimated cost to GWF for construction and materials of 5,000 linear feet (LF) of a 3" "Purple Pipe" PVC line is approximately $120,400 (unit cost of $24.07 per LF). The cost including mobilization, demobilization, and the railroad crossing (on the north boundary of the property) is approximately $301,000. If a 1.47 multiplier for contingencies (i.e., permitting, engineering, environmental, etc.) is included (as listed in the table), costs increase to $442,400 (unit cost of $88.48 per LF). The cost does not include the pavement replacement for the 3-inch pipeline trenching within West Schulte Road, but this is expected to be a minor cost. Ongoing costs associated with the use of the recycled water include the unit costs of the water which will be determined as part of the agreement negotiations between GWF and the City for the recycled water supply.

4.3.3 Schedule

Getting a recycled water supply to the GWF facility currently is estimated to take 3 to 5 years. This includes time required by GWF to obtain CEC approval to change the water source, estimated to take approximately 6 months. The City is currently applying for $20,000,000 grant fund from the State to help finance the design, permitting and construction of the recycle water distribution system. Several other grant opportunities are available for which this project may qualify including the Bureau of Reclamations' WaterSmart and DWR's Implementation Grants. Once funding is in place, the City can proceed with the development of the recycled water distribution system. After this process GWF can proceed with the install of their supply line. The City currently anticipates the recycled water supply line to be built and operating no earlier than 2019. However, delays in obtaining funding could affect this schedule.

Table 14. Itemized Costs for Recycled Water Line Materials from West Schulte Road to GWF

	Alternative Water Availability Assessment	**Engineer's Estimate**
Project	**fot the GWF Power Plant**	Recycled Water Pipeline from the West Schulte Road to the GWF Facility
Client	GWF Energy LLC	
Proj Mgr	Mr. Neftali Nevarez	
	14950 W. Schulte Road	
	Tracy, CA 95377	

Item No.	Item	Unit	Quantity	Unit Price	Amount
1	Mobilization/Demobilization	LS	1	$8,600.00	$8,600
2	3" PVC Recycled Water	LF	5000	$24.07	$120,350
3	Bore and Jack - 3" PVC Recycled Water	LF	200	$860.00	$172,000
	Calculated Total				$300,950
	Permitting (3% of Construction)				$ 9,029
	Engineering (8% of Construction)				$ 24,076
	Special Engineering Investigations				
	Surveying (2% of Construction)				$ 6,019
	Geotechnical (2% of Construction				$ 6,019
	Environmental (5% of Construction)				$ 15,048
	Adminstration and Legal (2% of Construction)				$ 6,019
	Construction Management (10% of Construction)				$ 30,095
	Construction Contigency (15% of Construction)				$ 45,143
	Subtotal				$ 141,447
	Total				**$442,397**

5 Alternative Water Supply Comparison

As discussed in previous sections, two alternative supplies are viable for use at the GWF Combined Cycled Power Plant in Tracy, California: groundwater and recycled water. This section compares these two alternative supplies.

5.1 CEC Preference of Water Sources

GWF has already complied with the CEC's policies regarding the use of non-potable water supplies for power plant purposes for the most part. The power plant uses untreated DMC canal water for plant processes, not high quality potable supplies. With the use of the ACC system for cooling their steam cycle, the Tracy Power Plant also employs significant water conservation measures. In addition, GWF employs numerous internal water recycling processes to further increase water use efficiency and minimize wastewater. Ultimately, GWF disposes of it wastewater from plant drains and gas turbine wash water (typically 12,000 gal/yr) via a contract with authorized shipper who ships the concentrated liquid waste an authorized disposal facility. Blow down from the HRSG, Auxiliary Boiler and Evaporative Cooler is processed through a demineralizing resin trailer; the resin is regenerated offsite. Selection of any alternative should likewise continue this process.

As discussed previously, groundwater makes up to approximately 8 percent of the City's potable water supplies; however, as groundwater quality continues to decline, the region's reliance on surface water supplies has increased. Use of poorer quality groundwater found in the unconfined aquifer in lieu of the higher quality BBID canal water may be found to be more consistent with the policy by the CEC than the use of the confined aquifer groundwater. Numerous decisions by the CEC have already found use of recycled water to be consistent with these policies.

5.2 Availability

Groundwater is available for use by the power plant but will require borehole exploration and the construction of monitoring and supply wells. Recycled water produced at the Tracy WWTP is also available for use at the power plant and likewise requires the construction of infrastructure to deliver recycled water to the plant. Although viable and available, neither alternative supply is immediately accessible.

5.3 Water Quality

Water quality data from for BBID surface water, groundwater (confined and unconfined), and recycled water from the City are presented in **Table 15**. As seen in this table, water quality of each of these supplies varies and for certain constituents can vary significantly. All of these supplies can be treated by the power plants existing treatment system for use in the plant. However, the more the water must be treated in order to be used for the various plant processes, the higher the overall operations and maintenance costs GWF will incur. Considering the water quality parameter of most concern to GWF, conductivity below 1,250 umho/cm, the alternative supply that most closely approaches this level of quality is the groundwater found in the confined aquifer. Due to the variability in the overall quality of the alternative supplies, the unconfined aquifer and recycled water sources are still of sufficient quality for use by the power plant.

Table 15. Water Quality of Alternative Supplies (mg/L)

Constituent	BBID Surface Water (DMC)	Groundwater (Unconfined)	Groundwater (Confined)	Tracy Recycled Water
Total Dissolved Solids (TDS)	416	750-1250	350-840	592-795
Specific Conductance (umho/cm)	749	1110-1860	640-1160	1053-1418
Boron (mg/l)	unknown	1.3-2.7	0.9-1.9	unknown
Sodium (mg/l)	120	135-260	95-120	unknown
Calcium (mg/l)	41	73-102	3-92	unknown
Magnesium (mg/l)	0.12	26-44	10-36	unknown
Potassium (mg/l)	unknown	2.5-3.5	1.5-4.4	unknown
Chloride (mg/l)	140	100-300	60-140	unknown
Ammonium (as N)	unknown	0.01	unknown	0.566-1.28
Nitrogen (Total N) (mg/l)	unknown	2.4-2.6	unknown	unknown
Nitrate (mg/l as N)	2.1	2.3-6.0	<0.5-1.1	unknown
Sulfate (mg/l)	120	250-390	70-310	unknown
Silica (mg/l)	20	21-40	unknown	unknown
Selenium (mg/l)	<0.001	1.1-1.2	unknown	unknown

Sources: CEC 2009, CH2MHill 2001, City of Tracy 2014.

5.4 Cost to Develop

Costs to develop explore and develop groundwater supplies for use by the power plant range from about $883,000 to $987,000 (two exploration boreholes) for the unconfined aquifer source to about $783,000 to $953,000 for the confined aquifer source. Costs for groundwater are primarily associated with the construction and testing of the wells which would be borne entirely by GWF. Ongoing costs associated with groundwater supplies will include pumping and well maintenance expenses, as well as a slight increase in treatment related costs.

Costs to develop the recycled water supplies are primarily associated with developing the distribution system from the WWTP to the power plant. Costs to the City to construct the needed infrastructure from the WWTP to West Schulte Road are estimated at more than $41 million, while the costs to GWF for the site supply line from the 12 inch distribution line south of West Schulte Road to the power plant are approximately $442,000. Based on available quality data, it is also expected that the recycled water supplies will require more treatment than the current BBID canal water, and thus costs associated with this greater level of treatment will be higher than the current supply.

5.5 Schedule

Based on experience and industry estimates, permitting and construction of the groundwater wells is expected to take at least two years or about 2017. Access to recycled water is expected to take longer; based on estimate from the City the recycled water distribution system is not expected to be completed before 2019. Without assistance with funding for the City and accelerating the permitting processes, it is unlikely that these schedules will change. If the City is not successful in obtaining grant funding from the State the work could be delayed as they seek alternative grant sources.

6 Recommendations

Viable alternative water supplies exist for the GWF Combined Cycle Power Plant. Accessing these supplies in the immediate future, however, is unlikely. Permitting and constructing the necessary infrastructure required to deliver either of these supplies to the power plant will take time. In light of these circumstances, it is recommended that GWF take a phased approach to the development of a more reliable and sustainable water supply for its Tracy power plant.

Regardless of which supply is ultimately chosen, GWF must go before the CEC to obtain approval of its proposed alternative. Choosing a supply that is plentiful, has minimal adverse impacts, complies with State policies and regulations, and is supported by the City of Tracy will facilitate a more rapid review by the CEC. At present, the recycled water alternative best fits these criteria, but will take the most time to develop the needed infrastructure to deliver supplies to the power plant. Groundwater, although more quickly accessible to GWF, has higher direct development costs to GWF, is trending to poorer quality over time and will become more constrained as demand for potable supplies increase in the future.

Considering these circumstance, it is recommended that GWF pursue both alternative supplies as part of a reliable and sustainable water supply portfolio. Groundwater is recommended as a bridge supply to augment available BBID DMC supplies until such time as recycled water infrastructure bring supplies within the proximity of West Schulte Road. To control costs associated with this approach, it is recommended that GWF develop groundwater supplies from the confined aquifer. As the city expands its recycled water delivery infrastructure, GWF can negotiate its needed agreements with the City of Tracy, construct its site supply infrastructure, and ultimately, obtain delivery of recycled water to its power plant as a primary source. Once recycled water is supplied to the power plant, groundwater and the BBID DMC can be used only as back-up water supplies in the event of the disruption to the recycled water supply.

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EXHIBIT F

STAR WEST

31 March 2015

Mr. Kul Sharma
Director of Utilities
City of Tracy
520 Tracy Boulevard
Tracy, CA 95376

Re: Letter of Support for the Implementation of the City of Tracy's Recycled Water Master Plan, San Joaquin County, California

Dear Mr. Sharma:

As we had discussed last October 2014 during our meeting with you, Star West Generation LLC ("Star West") owns and operates the GWF Tracy Combined Cycle Power Plant ("Tracy Power Plant" or "Tracy") near the City of Tracy. The Tracy Power Plant is located at 14950 West Schulte Road, Tracy, CA. The plant is a combined cycle power plant with a generating capacity of 337 megawatt and is certified to use up to about 54 acre-feet of water each year per its permit with the California Energy Commission. Currently, the plant uses untreated surface water which is supplied to the Tracy Power Plant from the Delta Mendota Canal through an existing agreement with Byron Bethany Irrigation District ("BBID"). Star West is currently evaluating alternative water supplies to allow the Tracy Power Plant to have redundant and more reliable water supplies.

The California Energy Commission Power Plant Water Use Policy is intended to ensure that fresh water supplies, especially potable water, are protected and conserved. This policy is intended to promote the use of all feasible alternative water supplies in lieu of potable sources. As such, the use of recycled water for the power plant cooling water is a preferred source of supply.

Star West supports the City of Tracy's efforts to implement its Recycled Water Master Plan which would construct the major recycled water transmission pipelines into the vicinity of the GWF's Tracy Power Plant.

If you have any questions regarding this letter, please call me at (713) 496-9837 or e-mail at tlee@starwestgen.com.

Sincerely,

Tina C. Lee

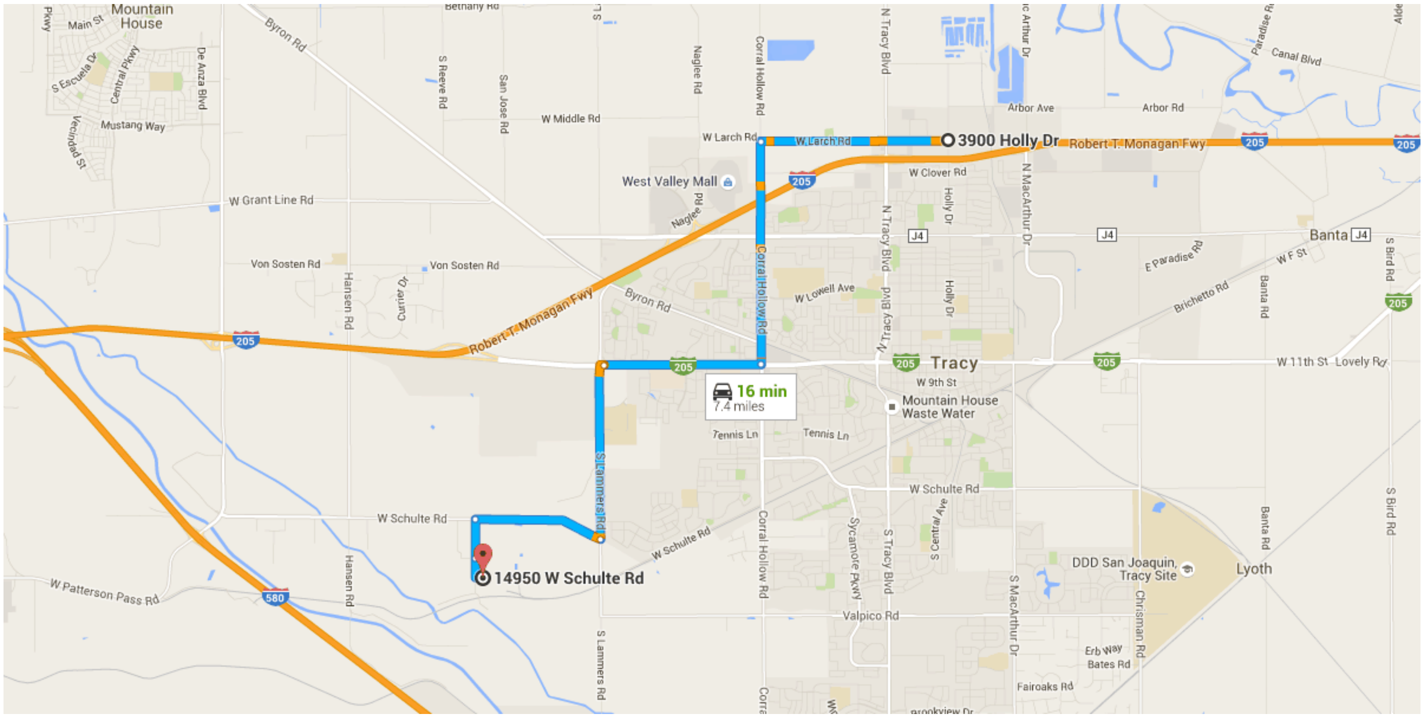
Tina C. Lee
EVP, Commercial Operations

EXHIBIT G

Google

Drive 7.4 miles, 16 min

Directions from **3900 Holly Dr** to **14950 W Schulte Rd**



3900 Holly Dr

Tracy, CA 95304

Follow **W Larch Rd** to **Corral Hollow Rd**

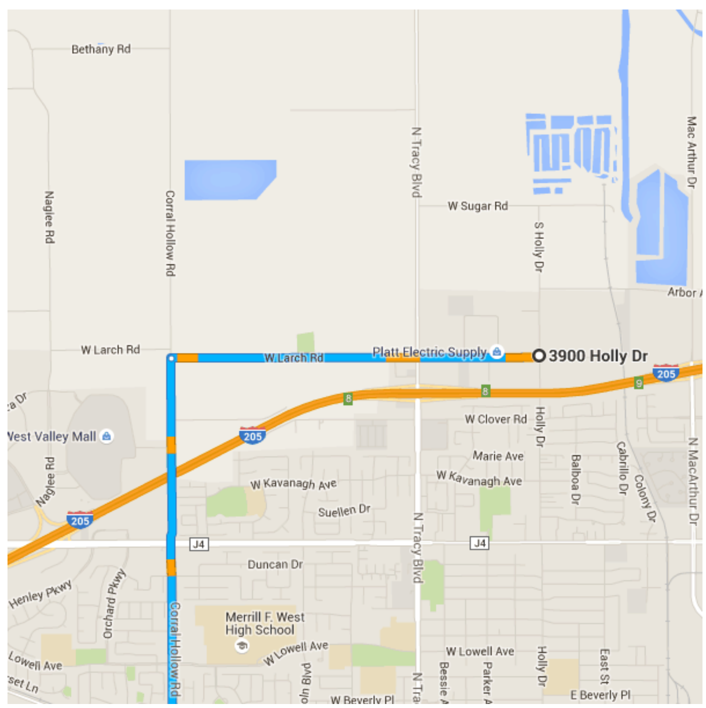
1.5 mi / 4 min

1. Head **south** on **Holly Dr** toward **W Larch Rd**

   49 ft

2. Turn **right** at the 1st cross street onto **W Larch Rd**

   1.5 mi



Drive along **S Lammers Rd**

5.5 mi / 11 min

3. Turn **left** onto **Corral Hollow Rd**

1.8 mi

4. Turn **right** onto **I-205BUS/W 11th St**

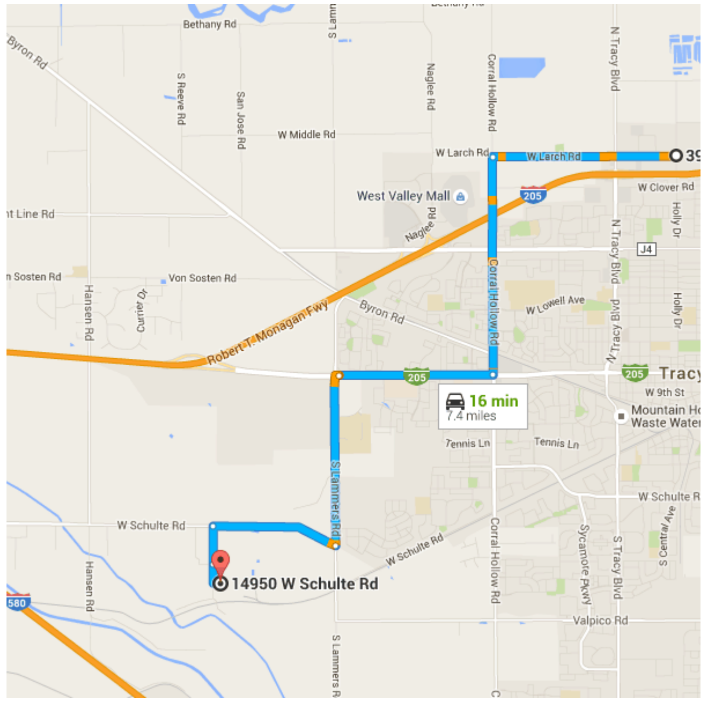
1.2 mi

5. Turn **left** onto **S Lammers Rd**

1.4 mi

6. Turn **right** onto **W Schulte Rd**

1.0 mi



Drive to your destination

0.5 mi / 2 min

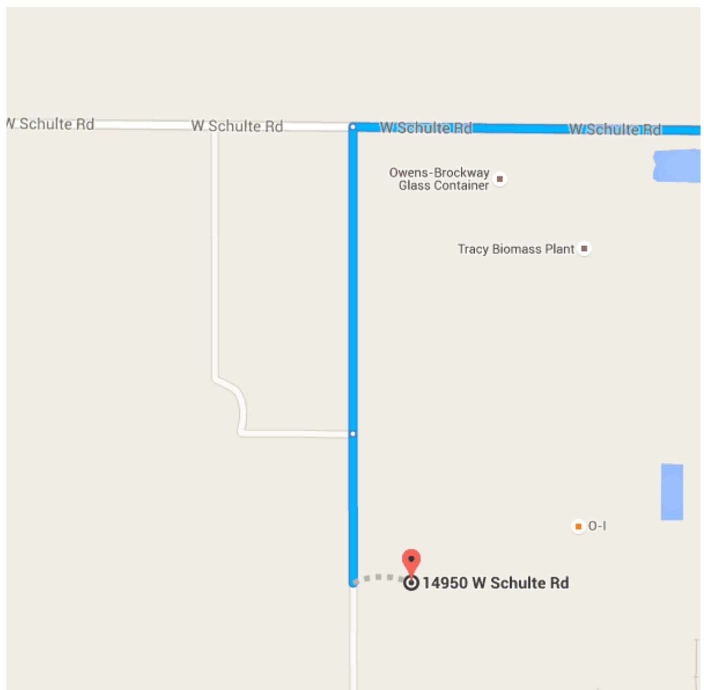
7. Turn **left**

0.3 mi

8. Continue straight

Destination will be on the left

0.2 mi



14950 W Schulte Rd

Tracy, CA 95377

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

EXHIBIT H

Temporary Storage Layout Plan

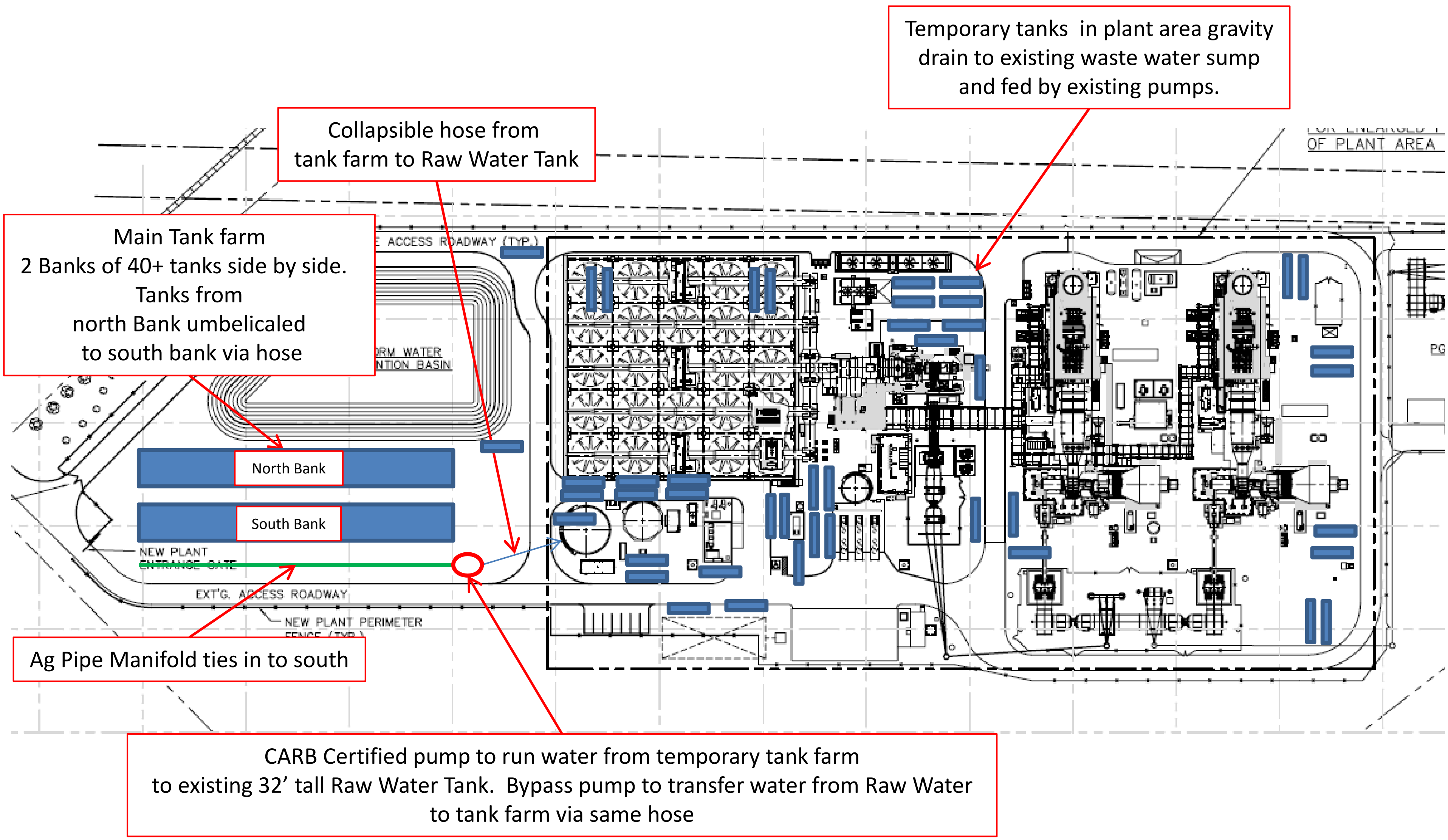


EXHIBIT I


800.782.1500

EXHIBIT J


A2379
A1392
A1768
A5943
A3431
A1419
ADLER
1-800-421-7471

EXHIBIT K


ADLER
1-800-421-7471
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A4442
A4457
A5630
A3389