URS

DOCKET	
08-AFC-3	
DATE	SEP 15 2009
RECD	SEP 16 2009

September 15, 2009

Dockets Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814

RE: Marsh Landing Generating Station
Application for Certification 08-AFC-03

On behalf of Mirant Marsh Landing, LLC (Mirant March Landing), the applicant for the Marsh Landing Generating Station (MLGS), we are pleased to submit this Amendment to the MLGS Application for Certification (AFC). Enclosed are the following documents:

- Sixty print copies of the Amendment to the Application for Certification
- Sixty-five CDs containing the Amendment
- Five copies of a DVD containing Air Quality and Public Health Modeling files

On May 30, 2008, Mirant Marsh Landing filed an AFC with the California Energy Commission (CEC), seeking approval to construct and operate the MLGS. Mirant Marsh Landing now submits this amendment to the AFC to describe proposed modifications to the MLGS project design. As described in the AFC, the MLGS was designed to be a nominal 930-megawatt (MW) natural-gas–fired electricity generating facility consisting of four power blocks: two Siemens Flex Plant 10 (FP10) units operating in combined-cycle mode; and two Siemens 5000F combustion turbine units operating in simple-cycle mode (Simple Cycle units). The two FP10 combined-cycle units were designed to be intermediate load units and were expected to operate at a 40 to 50 percent annual capacity factor. The two Simple Cycle units were designed as peaking units and were expected to operate at less than 10 percent annual capacity factor.

The modified MLGS will still consist of four power blocks within the same 27-acre site, but the power blocks will be four Siemens 5000F combustion turbine units operating in simple-cycle mode. The modified MLGS will use the same four Siemens combustion turbines as originally proposed in the AFC, but all four combustion turbines will operate in simple-cycle mode. As so modified, the MLGS will be a nominal 760-MW facility (at 75 degrees Fahrenheit [°F] temperature and 54 percent relative humidity) that is designed to provide peaking power and is expected to operate at a maximum 20 percent annual capacity factor. The MLGS will be

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capable of producing 719 MW during peak July conditions (103.9 °F temperature and 31 percent relative humidity).

From a construction standpoint, the four Simple Cycle units are a less complex facility than the four power blocks originally proposed in the AFC. Construction is estimated to begin in late 2010 or early 2011. Commercial operation for the MLGS is expected to commence on May 1, 2013.

The elimination of the combined-cycle FP10 units and the reduction in the project's maximum annual capacity factor, also greatly reduces the project's total water consumption to approximately 50 acre-feet per year. With this reduced water use, it is no longer feasible to undertake the capital improvements that would be needed to facilitate the use of recycled water supplied by Delta Diablo Sanitation District. To serve the project's reduced need for process water, Mirant Marsh Landing proposes to use brackish groundwater to be supplied from new groundwater wells. The new wells will be located on the adjacent Contra Costa Power Plant property.

Please include this document in the AFC record.

URS Corporation

Anne C. Connell

Anne Connell
Project Manager

Enclosures as stated

CC: Mike Monasmith

Application for Certification Amendment

Application for Certification (08-AFC-03) for MARSH LANDING GENERATING STATION Contra Costa County, California

September 2009

Prepared for:

MIRANT℠
MARSH LANDING, LLC

Prepared by:

URS

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APPENDIX

TABLES

FIGURES

ACRONYMS

3D	three-dimensional
AAQS	ambient air quality standards
AB	Assembly Bill
ACHE	air-cooled heat exchanger
AFC	Application for Certification
AFY	acre-feet per year
Al	aluminum
Ba	barium
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
bgs	below ground surface
BLS	Bridgehead Lift Station
BPIP-Prime	Building Profile Input Program-Prime
C	carbon
Ca	calcium
$CaCO_3$	calcium carbonate
CAD	Computer-Aided Design
CAISO	California Independent System Operator
CalARP	California Accidental Release Prevention
CARB	California Air Resources Control Board
CAS	Chemical Abstracts Service
CCPP	Contra Costa Power Plant
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
Cl_2	chlorine
CNS	central nervous system
CO	carbon monoxide
CO_2	carbon dioxide
CPUC	California Public Utilities Commission
CTG	combustion turbine generator
Cu	copper
CVRWQCB	Central Valley Regional Water Quality Control Board
dBA	A-weighted decibel
DDSD	Delta Diablo Sanitation District
°F	degrees Fahrenheit
F	fluorine
Fe	iron
FP10	Flex Plant 10
fps	feet per second
ft^3	cubic feet
GGS	Gateway Generating Station
GHG	greenhouse gas
gpm	gallons per minute
gr/100 scf	grains of sulfur per 100 standard cubic feet of natural gas
g/s	grams per second
HAP	hazardous air pollutant
HHV	higher heating value
HRA	health risk assessment
HRSG	heat recovery steam generator

IEPR	Integrated Energy Policy Report
IX	ion exchange
K	potassium
K	Kelvin
KOP	key observation point
kV	kilovolt
lb/hr	pounds per hour
lb/MMBtu	pounds per million British thermal units
lb/yr	pounds per year
lbs	pounds
L_{eq}	equivalent sound level
L_{90}	sound level exceeded 90 percent of the time (used to describe ambient sound level)
LORS	laws, ordinances, regulations and standards
m	meter
Mg	magnesium
mg/kg-day	milligrams per kilogram per day
mg/L	milligrams per Liter
$\mu g/m^3$	micrograms per cubic meter
$\mu g/m^3/g/s$	micrograms per cubic meter per gram per second
MLGS	Marsh Landing Generating Station
MMBtu	million British Thermal Units
µmhos	micromhos
Mn	manganese
m/s	meters per second
MW	megawatt
Na	sodium
NH_4	ammonia
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_3	nitrate
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity unit
O_2	oxygen
Pb	lead
PCE	tetrachloroethylene
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PO_4	phosphate
ppm	parts per million
ppmvd	parts per million by volume, dry basis
PSD	Prevention of Significant Deterioration
REL	reference exposure level
RH	relative humidity
RQ	reportable quantities
RWQCB	Regional Water Quality Control Board
SCR	selective catalytic reduction
SiO_2	silicon dioxide
SO_2	sulfur dioxide
SO_4	sulfate
Sr	Strontium

SR	State Route
STG	steam turbine generator
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TBACT	Toxic Best Available Control Technology
TDS	total dissolved solids
THI	total hazard index
TIBL	thermal internal boundary layer
TPH	total petroleum hydrocarbons
TPQ	threshold planning quantity
TQ	Threshold Quantity
TSDF	treatment, storage, and disposal facility
ULN	ultra low nitrogen
U.S. EPA	U.S. Environmental Protection Agency
UTM	Universal Transverse Mercator
V	vanadium
VOC	volatile organic compound

1.0 INTRODUCTION

On May 30, 2008, Mirant Marsh Landing LLC (Mirant March Landing) filed an Application for Certification (AFC) with the California Energy Commission (CEC), seeking approval to construct and operate the Marsh Landing Generating Station (MLGS) (Docket 08-AFC-3).

Mirant Marsh Landing now submits this amendment to the AFC to describe proposed modifications to the MLGS project design. As described in the AFC, the MLGS was designed to be a nominal 930-megawatt (MW) natural-gas–fired electricity generating facility consisting of four power blocks: two Siemens Flex Plant 10 (FP10) units operating in combined-cycle mode (Simple Cycle units); and two Siemens 5000F combustion turbine units operating in simple-cycle mode. The two FP10 combined-cycle units were designed to be intermediate load units and were expected to operate at a 40 to 50 percent annual capacity factor. The two Simple Cycle units were designed as peaking units and were expected to operate at less than 10 percent annual capacity factor.

The modified MLGS will still consist of four power blocks, but the power blocks will be four Siemens 5000F combustion turbine units operating in simple-cycle mode. The modified MLGS will use the same four Siemens combustion turbines as originally proposed in the AFC, but all four combustion turbines will operate in simple-cycle mode. As so modified, the MLGS will be a nominal 760-MW facility (at 75 degrees Fahrenheit [°F] temperature and 54 percent relative humidity) that is designed to provide peaking power and is expected to operate at a maximum 20 percent annual capacity factor. The MLGS will be capable of producing 719 MW during peak July conditions (103.9 °F temperature and 31 percent relative humidity).

The proposed modifications will align the project's capabilities with the expected needs of the electricity system. The modified MLGS will be a peaking facility that is ideally suited to serve the needs of California's electric system as it increasingly relies on intermittent renewable resources such as solar and wind facilities.

The MLGS is designed to provide the fast-start, peaking, and ramping capabilities that will be necessary to facilitate increasing reliance on renewable resources and displacement of older, less efficient conventional facilities. The four Simple Cycle turbines will be capable of fast-start operation (within about 11 minutes from cold status), and are designed to be started, ramped up and down, and shut down on an intra-day basis as needed to meet the needs of the system. With an expected maximum annual capacity factor of 20 percent, the modified MLGS is designed specifically for fast-start, backup, and peaking service and is intended to operate when electricity needs cannot be met by resources that are higher in the state's preferred loading order.

The need for the MLGS project as modified is evidenced by the fact that the project is now under contract with one of the state's investor-owned utilities, as announced on September 3, 2009.

The remainder of this amendment describes refinements to the project design and determines in more detail whether these refinements would result in any environmental consequences not previously analyzed. As set forth below, the project design refinements do not materially change the environmental consequences of the proposed project, and all impacts are expected to remain less than significant.

VIEW OF EXISTING CCPP FACILITY AND GATEWAY GENERATING STATION

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
28067344

REVISED FIGURE 1-3

8/28/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 1-3_Existing+gateway.ai

SIMULATION WITH PROPOSED PROJECT

September 2009
28067344

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

REVISED FIGURE 1-4

2.0 PROJECT DESCRIPTION MODIFICATIONS

The proposed modifications to the project description fall within the following categories:

1. Plant operation and general arrangement modifications
2. Water balance and water supply modifications due to plant modifications

The MLGS project will be modified from two Siemens FP10 combined-cycle units and two Siemens 5000F combustion turbine units operating in simple-cycle mode (Simple Cycle units) to four Simple Cycle units. The Simple Cycle units will provide peaking power and are expected to operate at a maximum 20 percent annual capacity factor, generating approximately 760 MW (net) when all are operated together at 75 °F temperature and 54 percent relative humidity. The MLGS will be capable of producing 719 MW during peak July conditions.

From a construction standpoint, the four Simple Cycle units are a less complex facility than the four power blocks originally proposed in the AFC. Due to this change, construction of the MLGS is expected to occur over a 27-month period instead of the 33-month period discussed in the AFC. Construction is estimated to begin in late 2010 or early 2011. Commercial operation for the MLGS is expected to commence on May 1, 2013.

The elimination of the combined-cycle FP10 units and the reduction in the project's maximum annual capacity factor (i.e., to a 20 percent maximum annual capacity factor instead of the 40 to 50 annual capacity factor associated with the FP10 units), also greatly reduces the project's total water consumption. Instead of using an average of 736 acre-feet per year (AFY) of water each year as proposed in the AFC, the modified MLGS will use an average of only 50 AFY of water each year. With this reduced water use, it is no longer feasible to undertake the capital improvements that would be needed to facilitate the use of recycled water supplied by Delta Diablo Sanitation District (DDSD). To serve the project's reduced need for process water, Mirant Marsh Landing proposes to use brackish groundwater to be supplied from new groundwater wells. The new wells will be located on property within the site of the existing Contra Costa Power Plant (CCPP), as shown on Revised Figure 2.1-1. Groundwater pumped from these wells will be supplied to the MLGS via a new 2,200-foot pipeline to be constructed along the route shown in Revised Figure 2.1-1.

These modifications are discussed in further detail below.

2.1 PLANT MODIFICATIONS

As explained in Chapter 1, the configuration of the proposed MLGS will include four Simple Cycle units instead of two FP10s and two Simple Cycle units. This modification necessitates the following changes to the project proposed in the AFC:

- The new stacks will be located so that the new westernmost stack (i.e., for one of the four Simple Cycle units) will be at the same location as the original westernmost stack of the former FP10 unit.

- The spacing between the stacks will be approximately 140 feet. The original spacing was approximately 320 feet.

- The stack heights for the new Simple Cycle units will be 165 feet. In the original plan, the stacks for the FP10s were 150 feet, 6 inches, and the stacks for the Simple Cycle units were 150 feet, 3 inches. The inner diameter of the stacks will be 31 feet, 4 inches; the same as originally proposed for the Simple Cycle units.

- The maximum annual startups and shutdowns for each Simple Cycle unit will be changed to 167. (The original Simple Cycle units had 100 startups and shutdowns per year, while the FP10s had 193 startups and shutdowns per year.)

- The maximum requested annual operating hours for the MLGS will be reduced from 8,760 hours to 1,705 hours.

The change in project design also results in modifications to the general arrangement presented in the AFC. These modifications are all within the originally proposed 27-acre project site and do not result in any additional disturbed areas beyond that site, with the exception of a small area within the CCPP property for the new well pad. Revised Tables 2.5-2 and 2.6-1 show the changes to the major structure heights and dimensions. Revised Figure 2.5-1 shows the new plot plans and revised Figures 2.5-2 and 2.5-3 show the new elevation drawings. Modifications to the general arrangement include:

- One of the originally proposed two ammonia tanks (the eastern tank) will be eliminated.
- The two fuel gas/dew point heaters will be moved slightly westward.
- The transmission and other connections will be adjusted as needed to reflect the shift in the Simple Cycle unit locations.
- The administration/control building on the northern portion of the MLGS site will be relocated.
- The nitrogen system, which is not required for the Simple Cycle units, will be eliminated.
- Due to shifting of the power block within the 27-acre site, the grading and drainage plan will be slightly modified (see Revised Figure 2.6-2).

The electrical single-line diagrams of the major and auxiliary plant electrical systems for the modified MLGS are shown on Revised Figure 2.5-7a. Power will be generated by the four combustion turbine generators (CTGs). As described in the AFC, the CTGs will generate power at 16.5 kilovolts (kV). The voltage at each of the generators will then be stepped up by a dedicated generator step-up transformer to 230 kV for transmission to the grid. The high-voltage side of the step-up transformers of the four Simple Cycle units will be connected to two 230-kV transmission lines. The Pacific Gas and Electric Company (PG&E) switchyard will still be the point of interconnection with the transmission system. Revised Figure 2.5-7b shows the single-line diagram for the existing PG&E switchyard after the addition of the project. [Note that Revised Figures 2.5-7a and 2.5-7b replace AFC Figures 2.5-7a through 2.5-7e.]

The 230-kV single-circuit lines for the project will be a direct intertie between the MLGS and PG&E's 230-kV switchyard, which is adjacent to the CCPP and MLGS sites. A conceptual diagram showing the proposed interconnection is provided on Revised Figure 4-1. The new 230-kV circuit lines from the MLGS will interconnect to the adjacent PG&E switchyard and will use six instead of eleven 100-foot-tall steel pole structures. The transmission line interconnections will be approximately 900 feet in total length instead of 1,700 feet as originally proposed.

Interconnection requests were submitted to the California Independent System Operator (CAISO) for the FP10 units and the two originally proposed Simple Cycle units. Both applications were submitted in time for the FP10 units and the two Simple Cycle units to be included in the so-called "Transition Cluster," which is the first cluster of projects that the CAISO is evaluating under its revised large generator interconnection process. The CAISO released a Phase I interconnection study for the Transition Cluster projects on July 29, 2009. That Phase I study does not accurately predict the potential impacts associated with the MLGS. Many projects are likely to withdraw from the Transition Cluster in Phase II of the interconnection process when large amounts of credit support are required to be posted with the CAISO. Mirant Marsh Landing also is amending its Interconnection Request to reflect the change in the MLGS project design and the recent announcement by Mirant Delta, LLC that it has conditionally agreed to retire the existing units at the CCPP after April 30, 2013, subject to regulatory approvals. With those changes in assumptions, the net increase in capacity associated with construction of the entire MLGS (i.e., all four Simple Cycle units) will be reduced to approximately 214 MW, based on the project's maximum (winter) rating. This will significantly reduce potential impacts to the transmission system as a result of the MLGS.

The operation and maintenance of the MLGS will generate nonhazardous and hazardous materials. The types and estimated quantities of wastes likely to be generated during construction are included in Revised Table 2.5-6. The types and estimated quantities of wastes likely to be generated during the operational phase are included in Revised Data Request Table 14-1. Changes in materials and quantities reflect the elimination of the FP10s and associated heat recovery steam generators (HRSGs) and air-cooled heat exchangers (ACHEs), elimination of the nitrogen system, elimination of one ammonia tank, and reduction in number of hours the plant would operate annually. Revised Figure 7.12-1 shows the locations where hazardous materials would be stored at the MLGS site.

2.2 WATER BALANCE AND WATER SUPPLY MODIFICATIONS

The elimination of the combined-cycle FP10 units and the reduction in the project's maximum annual capacity factor greatly reduce the project's annual water use. Process water requirements are expected to average approximately 50 AFY, which is a substantial reduction in water consumption and would be considered a *de minimis* usage. In comparison, the average annual water usage for the MLGS presented in the AFC was approximately 736 AFY. The peak demand would be approximately 420 gallons per minute (gpm), which is substantially less than the peak demand of 1,360 gpm originally proposed in the AFC. The revised water balance is shown on Revised Figure 2.5-8 and summarized in Revised Table 2.5-4.

With this reduced need for water, constructing a new satellite treatment plant at the Bridgehead Lift Station (BLS) is not economically justified. To serve the project's greatly reduced need for process water, Mirant Marsh Landing proposes to modify the project's process water supply source from that presented in the AFC.

Following extensive groundwater testing and analysis, Mirant Marsh Landing now proposes to supply the project's process water needs using brackish groundwater. To supply this groundwater, a new well system is proposed to be located on the adjacent CCPP site. The new well system will consist of the following components.

- The well system will include two wells capable of providing full demand, so that one well provides redundancy.
- Wells will be located in the southern portion of the CCPP site, north of Wilbur Avenue and near the western entrance road to the CCPP, as shown on Revised Figure 2.1-1.
- A new 6-inch-diameter, 2,200-foot-long pipeline will be constructed within the existing CCPP access road right-of-way from the wells to the MLGS Raw Water Storage Tank.
- Wells will be approximately 120 feet deep.
- Each well pad will be approximately 10 feet by 10 feet, as shown on Revised Figure 2.3-1. The wells will be approximately 50 feet apart.

Expected water quality of the groundwater is summarized in Revised Table 2.5-3. The summary reflects extensive testing and analysis of the groundwater underlying the project site, as presented in the report attached to this amendment. As shown in the report, the groundwater proposed for use to serve the MLGS process water demand has elevated total dissolved solids (TDS), chloride, and other constituents inconsistent with potable or fresh water. The groundwater is not potable and exceeds maximum contaminant levels for various constituents. Based on the elevated TDS and chloride levels, the groundwater meets the CEC definition for brackish water.

To meet the specifications of the evaporative coolers and service water requirements for the Simple Cycle units, the groundwater must be treated. Because the plant would only operate up to 20 percent of the time, a trailer-type water treatment system is proposed at this time. During detailed design and pending further discussions with DDSD regarding discharge requirements, a permanent onsite treatment plant with reverse osmosis technology may be evaluated. The mobile equipment will consist of two types of trailers: filtration and ion exchange (IX). Each filtration trailer will contain five equally sized pressure filter vessels operating in parallel. The media within these vessels will remove the suspended solids (turbidity) that would otherwise foul the resins within the IX trailer downstream. A filtration trailer will be considered "spent" when the contaminants within the filters create a pressure drop that calls for backwash. The spent trailer will then be towed to the service center for backwashing and rinse-down. In the meantime, a fresh trailer will take its place at the plant.

The treated effluent from the filtration trailer will flow directly to the IX trailer for removal of dissolved impurities. Each IX trailer will consist of two strong acid cation resin beds/vessels (in parallel), followed by two strong base anion resin beds/vessels (in parallel), followed by a mixed bed. When the resin capacity has been exhausted, the "spent" trailer will be towed to a third party, offsite, licensed service center for backwash and regeneration. In the meantime, a fresh trailer will take its place at the plant.

During peak operating times, it is anticipated that the filtration trailers and IX trailers would be exchanged after approximately 1 day of operation. Each trailer is capable of providing treatment for approximately 24 hours of operation of one Simple Cycle unit.

Other modifications related to changes in the process water supply and wastewater due to reduced water demand include:

- The Raw Water Storage Tank will be smaller than originally proposed (300,000 gallons instead of 1,800,000 gallons).
- A new 300,000-gallon Service Water Storage Tank will be provided.
- The 1,000,000-gallon Reverse Osmosis Permeate Storage Tank and 1,0000,000-gallon Demineralized Water Storage Tank will be eliminated.
- A new 200,000-gallon Secondary Evaporative Cooler Blend Water Storage Tank will be provided.
- The groundwater will be treated onsite at a new trailer water treatment system.
- The Wastewater Storage Tank will be smaller than originally proposed (500,000 gallons instead of 750,000 gallons).
- The satellite treatment system originally proposed at the BLS to produce recycled water from raw sewage would no longer be constructed as part of the MLGS project. The buried recycled water supply line along Wilbur Avenue from the BLS to the project site that was proposed in the AFC also would not be constructed.

Process wastewater will be discharged to DDSD in accordance with an Industrial Wastewater Discharge Permit. Instead of returning process wastewater to DDSD at the BLS as originally proposed, the project's wastewater will be discharged to the City of Antioch sewer line along Wilbur Avenue. The MLGS wastewater pipeline will connect to the city's main sewer line just east of the CCPP main access road (see Revised Figure 2.1-1). The 6-inch-diameter wastewater pipeline will be approximately 3,000 feet long, running between the Wastewater Storage Tank on the MLGS site and the point of connection at Wilbur Avenue. Approximately 500 feet of the pipeline will be along Wilbur Avenue. The wastewater pipeline route along Wilbur Avenue will be similar to, but shorter than, the wastewater pipeline route originally proposed. The pipe will be installed in a trench within existing road rights-of-way.

The process wastewater will be stored in the Wastewater Storage Tank, diluted as needed by relatively low TDS evaporative cooler blowdown, and then discharged to the City's main sewer line.

Potable water demand will be approximately the same as or slightly less than originally proposed. Potable water will still be provided by the City of Antioch, as originally proposed. The point of connection will be the same as presented in the AFC.

Sanitary wastewater production will be approximately the same as, or slightly less than originally proposed. Sanitary wastewater will be conveyed with the process wastewater via the MLGS wastewaster pipeline and discharged to the City of Antioch's sewer line at Wilbur Avenue.

2.3 CONSTRUCTION CHANGES

As a result of the modifications to the project and the change in the commercial operation date, the construction schedule will now be approximately 27 months instead of 33 months as presented in the AFC. Construction is estimated to begin in late 2010 or early 2011. The analysis presented herein is based on a construction start date in early 2011. As presented in the AFC, commercial operation for the Simple Cycle units was expected by summer 2011 and for the FP10 units was expected by summer 2012. Commercial operation for the four Simple Cycle units is expected to occur by May 1, 2013. See Revised Figure 2.7-1 for the updated project schedule.

Other changes resulting from the new construction schedule include the following:

- The peak number of construction workforce will be reduced from the original estimate, decreasing from approximately 403 in June 2011 to approximately 272 in November 2012. The revised projected construction workforce by month is shown in Revised Table 2.7-1 and on Revised Figure 2.7-2.
- Construction equipment usage will be reduced as shown on Revised Table 2.7-3.
- The total amount of construction water required will be reduced from approximately 27 acre-feet to approximately 9.8 acre-feet, as shown on Revised Table 2.7-4.
- Revised Table 2.5-7 shows nonhazardous and hazardous materials and wastes that will be generated during construction. Changes in materials and quantities are shown in bold on the revised table and reflect the elimination of the FP10s and associated HRSGs and ACHEs.

Construction costs for the modified MLGS as presented in this amendment will be reduced in comparison to the construction costs presented in the AFC. Construction is expected to cost approximately $550 million (in 2009 dollars), compared with the originally estimated cost of approximately $800 million (in 2008 dollars). The estimated expenditures for construction employment are approximately $100 million during the 27-month construction period (cost based on 2009 dollars). This estimate excludes payroll taxes and burdens. The estimated cost of locally purchased materials and supplies will be the same as in the AFC, approximately $30 million during construction.

Revised Table 2.5-1
Heat and Material Balance Case Descriptions
Siemens 5000F Simple Cycle Power Blocks

Case		Ambient Temperature (°F)	Relative Humidity (percent)	CTG Load (percent)	Evaporative Cooling
1	A	94	32	100	Yes
	B	94	32	75	Yes
	C	94	32	60	Yes
2	A	75	54	100	Yes
	B	75	54	75	Yes
	C	75	54	60	Yes
3	A	20	90	100	No
	B	20	90	75	No
	C	20	90	60	No

Note:
This table replaces AFC Tables 2.5-1a and 2.5-1b, because the FP10s have been eliminated.

Revised Table 2.5-2
Major Mechanical Equipment

Equipment	Quantity	Size/Capacity	Service/Remarks
Common Structures			
Natural gas compressor	3	128,000 lb/hr each	Combustion turbine fuel (3 × 33 percent)
Combustion turbine fuel gas filter separators	2	198,000 lb/hr each	Natural gas fuel
Four Siemens 5000F Simple-Cycle-Power Blocks			
Combustion turbine generators	4	Siemens 5000F 190 MW	ULN combustion control with inlet air evaporative coolers
Aqueous ammonia storage	1	20,000 gallons	NO_X control (19 wt percent ammonia solution)
SCR catalyst	4	n/a	NO_X control
Oxidation catalyst	4	n/a	VOC and CO control
SCR stacks	4	31 feet, 4 inches in diameter by 165 feet high	
Continuous emissions monitoring system	4	n/a	Monitors NO_X, CO, and O_2

Notes:

CO = carbon monoxide
lb/hr = pounds per hour
MW = megawatts
n/a = not available
NO_x = nitrogen oxides
O_2 = oxygen
SCR = selective catalytic reduction
ULN = ultra low nitrogen
VOC = volatile organic compound

Revised Table 2.5-3
Influent Water Quality and Specifications
(Page 1 of 2)

Constituent		Influent (Groundwater)[1]		Specifications	
		Range	Value Used for Design[2]	Evaporative Cooler Makeup Water	Evaporative Cooler Circulating Water
General					
Alkalinity, M (Total)	mg/L $CaCO_3$	207 – 263	235	20 – 60	30 – 180
Alkali metals	mg/L Na + K	365 – 546	397		
Carbon dioxide	mg/L CO_2	10.1 – 17.6	15.7		
Carbon, total organic	mg/L C	5 – 15	11		
Chlorine, total residual	mg/L Cl_2	<0.04			
Color	Color Units	2.2 – 6.8	6.8		
Conductivity	μmhos	1,720 – 2,990	2560	50 – 750	75 – 2250
Hardness, total	mg/L $CaCO_3$	240 – 351	351		
Oil and grease	mg/L	<5.0	<5.0	< 2.0	< 6.0
Oxygen	mg/L O_2	2.02 – 2.17	2.10		
Oxygen demand, biochem.	mg/L O_2	<4.0	<4.0		
Oxygen demand, chem.	mg/L O_2	<10	<10		
pH		7.3 – 7.63	7.4	6.0 – 8.5	
Silica, Reactive	mg/L SiO_2	42 – 62	48	< 25	< 75
Silica, Total	mg/L SiO_2	17 – 46	45		
Solids, total dissolved[2]	mg/L ions	1,130 – 1,670	1420	30 – 500	45 – 1500
Solids, total suspended	mg/L	<1 – 14.4	14.4	< 5	< 15
Turbidity	NTU	0.401 – 6.43	6.43		
Trace Constituents					
Aluminum, total	mg/L Al	<0.05 – 0.35	0.35		
Barium, total	mg/L Ba	0.014 – 0.033	0.019		
Iron, total	mg/L Fe	<0.02 – 0.5	0.5	< 0.2	< 0.6
Heavy metals	mg/L Fe, Mn, Cu, V, Pb	0.21 – 0.67	0.67		
Manganese, total	mg/L Mn	0.13 – 0.23	0.17		
Strontium, total	mg/L Sr	0.79 – 1.3	1.05		
Cations					
Ammonium	mg/L NH_4	<0.26	<0.26		

Revised Table 2.5-3
Influent Water Quality and Specifications
(Page 2 of 2)

Constituent		Influent (Groundwater)[1] Range	Value Used for Design[2]	Specifications: Evaporative Cooler Makeup Water	Specifications: Evaporative Cooler Circulating Water
Calcium	mg/L Ca	58 – 81	81	20 – 60	50 – 180
Magnesium	mg/L Mg	22 – 36	29		
Potassium	mg/L K	4.1 – 5.6	5.6		
Sodium	mg/L Na	360 – 540	390		
Anions					
Bicarbonate	mg/L $CaCO_3$	210 – 257	235		
Carbonate	mg/L $CaCO_3$	0.19 – 0.50			
Chloride	mg/L Cl	250 – 540	375	< 50	< 150
Fluoride	mg/L F	<0.1 – 0.37	0.26		
Nitrate	mg/L NO_3	<0.1 – 1.3	0.4		
Phosphate[3]	mg/L PO_4	<0.1	0.52		
Sulfate	mg/L SO_4	340 – 470	370		
Corrosion and Scaling Indices					
Larson - Skold			5.6		
Langelier			0.03		0.25 – 0.75
Ryznar			7.31		5.5 – 6.5
Puckorius			6.53		6.0 – 7.0

Notes:

Al = aluminum
Ba = barium
C = carbon
Ca = calcium
$CaCO_3$ = calcium carbonate
Cl = chlorine
Cl_2 = dichlorine
CO_2 = carbon dioxide
Cu = copper
Fe = iron
F = fluorine
K = potassium
Mg = magnesium
mg/L = milligrams per Liter
µmhos = micromhos
Mn = manganese
Na = sodium
NH_4 = ammonia
NO_3 = nitrate
NTU = nephelometric turbidity units
O_2 = oxygen
Pb = lead
PO_4 = phosphate
RO = reverse osmosis
SiO_2 = silicon dioxide
SO_4 = sulfate
Sr = strontium
V = vanadium

1 From samples collected during aquifer test performed between March 30, 2009 and April 2, 2009. Analyzed by McCambell Analytical Laboratory (see Revised/New Appendix I).
2 The water analysis of sample WS-04 was used for design. Although the actual TDS measured was 1,420 mg/L, a "calculated" TDS of 1,623 mg/L was used for design.
3 For design purposes, it is assumed that total phosphorous is converted to ortho-phosphate.

Revised Table 2.5-4
Daily and Annual Average Water Consumption and Wastewater Discharge Requirements

Water Service/Use[1]	Average Daily Use[2] (gpm)	Maximum Daily Use[3] (gpm)	Annual Use[4] (AFY)
Siemens Simple Cycle Units			
Evaporative cooler makeup	146.2	409.0	45.5
Service water	10.0	10.0	3.2
On-line combustion turbine wash	0.2	0.2	0.3
Off-line combustion turbine wash	0.4	0.4	0.6
Total Plant Makeup Water Usage Requirements	**157.0**	**419.5**	**49.6**
Potable water	0.1	0.1	0.2
Process wastewater	50.6	117.6	14.5
Sanitary wastewater	0.1	0.1	0.2

Notes:

AFY = acre-feet per year
gpm = gallons per minute

1 See Revised Figure 2.5-8 for detailed water balance figure.
2 Average daily water use is based on four Simple Cycle units operating at full generating capacity with evaporative cooling on.
3 Maximum daily use is based on peak summer conditions (95° F) and 20 percent relative humidity for all Simple Cycle units operating at full generating capacity.
4 Average annual use based on an annual capacity factor of approximately 20 percent.

Revised Table 2.5-5
MLGS Process Wastewater Composition

Constituent		Daily Average[1]	Annual Average	Peak
General				
Alkalinity, M (Total)	mg/L $CaCO_3$	367	363	408
Carbon dioxide	mg/L CO_2	8.5	9.0	5.8
Conductivity	µmhos	1749	1762	1749
Hardness, total	mg/L $CaCO_3$	171	176	152
Oil and grease	mg/L			
pH		7.92	7.89	8.13
Silica	mg/L SiO_2	23.4	24.1	20.8
Solids, total dissolved	mg/L ions	1224	1236	1226
Trace Constituents				
Aluminum, total	mg/L Al	0.17	0.18	0.15
Barium, total	mg/L Ba	0.01	0.01	0.01
Iron, total	mg/L Fe	0.003	0.003	0.002
Manganese, total	mg/L Mn	0.001	0.001	0.001
Strontium, total	mg/L Sr	0.63	0.65	0.56
Cations				
Ammonium	mg/L NH_4			
Calcium	mg/L Ca	39.4	40.6	35.0
Magnesium	mg/L Mg	17.5	18.1	15.6
Potassium	mg/L K	3.2	3.3	2.9
Sodium	mg/L Na	309	311	312
Anions				
Bicarbonate	mg/L $CaCO_3$	345	340	386
Carbonate	mg/L $CaCO_3$	2.7	2.4	4.9
Chloride	mg/L Cl	214	221	190
Fluoride	mg/L F	0.18	0.19	0.16
Nitrate	mg/L NO_3	0.22	0.23	0.19
Phosphate	mg/L PO_4	0.25	0.26	0.23
Sulfate	mg/L SO_4	180	186	160
Corrosion and Scaling Indices				
Larson - Skold		1.4	1.5	1.1
Langelier (LSI)		0.57	0.54	0.78
Ryznar (RSI)		6.78	6.80	6.57
Diagnostics				
Total Cations	mg/L $CaCO_3$	849	860	837
Total Anions	mg/L $CaCO_3$	838	848	827
Charge Imbalance	%	1.3	1.4	1.2

Notes:

Al	= aluminum	F	= fluorine	NH_4	= ammonia
Ba	= barium	K	= potassium	NO_3	= nitrate
Ca	= calcium	Mg	= magnesium	PO_4	= phosphate
$CaCO_3$	= calcium carbonate	mg/L	= milligrams per Liter	SiO_2	= silicon dioxide
Cl	= chlorine	µmhos	= micromhos	SO_4	= sulfate
CO_2	= carbon dioxide	Mn	= manganese	Sr	= strontium
Fe	= iron	Na	= sodium		

[1] From MLGS water balance shown on Revised Figure 2.5-8.

Revised Table 2.5-6
Summary of Anticipated Construction Waste Streams and Management Methods
(Page 1 of 2)

Waste Stream	Anticipated Waste Stream Classification	Estimated Quantity[1]	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite Treatment
Demolition					
Exterior tank insulation	Class III Waste	200 tons	once	NA	Class II/III disposal
Metal	Scrap	3,000 tons	once	NA	Recycle at offsite metal reclamation plants
Fuel oil tank pump and motor concrete pads	Recyclable	1,500 cubic yards	once	NA	Recycle at offsite concrete crushing plants
Asbestos waste	California hazardous	1,416 cubic yards	once	NA	Disposal at certified landfill facility
Fuel oil tank residual	Nonhazardous	883,424 gallons	once	NA	Local recyclers
Residual pipe fuel oil	Nonhazardous	3,000 to 5,000 gallons	once	NA	Local recyclers
Asphalt from tank berms	Nonhazardous	12,920 cubic yards	once	NA	Local recyclers or disposal
Construction					
Scrap wood, steel, glass, plastic, paper, calcium silicate insulation, mineral wool insulation, cardboard and corrugated packaging	Nonhazardous solids	120 cubic yards	weekly	Containerize, housekeeping	Recycle and/or Class II/III landfill disposal
Empty hazardous material containers	Hazardous solids	1 cubic yard	weekly	Store for fewer than 90 days	Recycle and/or Class I/II landfill disposal
Spent welding materials	Hazardous solid	Less than 1 cubic yard	monthly	Containerize	Dispose at Class I landfill
Drained waste oil filters	Hazardous solid	100 pounds	monthly	Containerize	Dispose at Class II landfill
Used and waste lube oil during combustion turbine generator lube oil flushes	Hazardous or nonhazardous liquids	**18,000 gallons**	**330 drums over life of construction**	Store for fewer than 90 days	Oil will be used for first fill after CTG flushes are complete.

Revised Table 2.5-6
Summary of Anticipated Construction Waste Streams and Management Methods
(Page 2 of 2)

Waste Stream	Anticipated Waste Stream Classification	Estimated Quantity[1]	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite Treatment
Oil rags and oil absorbent generated during normal construction activities (excluding lube oil flushes)	Hazardous solids	Less than 2 cubic yards	Monthly	Store for fewer than 90 days	Oily rags would be recycled. Class I landfill disposal for other solids.
Solvents, paint, adhesives, and aerosols	Hazardous liquids	2 drums	Monthly	Store for fewer than 90 days	Recycle or disposal at TSDF.
Spent lead acid batteries	Hazardous solids	2 batteries	Yearly	Store for fewer than 1 year	Recycle
Spent alkaline batteries	Hazardous solids	60 batteries	Monthly	Store for fewer than 1 year	Recycle
Waste oil from oil waste holding tank (construction equipment lube oil)	Hazardous liquids	33 gallons	Monthly	Store for fewer than 90 days	Recycle
Sanitary waste from potable chemical toilets and construction office holding tanks	Nonhazardous liquids	3,000 gallons	Daily	Periodically pumped to tanker truck by licensed contractors	Removed from site by sanitary toilet constructor
Stormwater from construction area	Nonhazardous liquids	1,326,200 gallons (2-year, 24-hour storm event)	As needed during rainy season	Detain and discharge per NPDES permit requirements	
Fluorescent, mercury vapor lamps	Hazardous solids	30	Yearly	Store for less than 1 year	Recycle
Hydrotest water	Hazardous or nonhazardous liquids	150,0000	As needed	Sample/test. Reuse or discharge if suitable.	If hazardous, dispose to TSDF

Notes:

CTG = combustion turbine generator
HRSG = heat recovery steam generator
NA = not applicable
NPDES = National Pollutant Discharge Elimination System
TSDF = treatment, storage, and disposal facility

[1] Revised values are shown in **bold**. Wastes associated with cleaning and flushing of the FP10 HRSGs was eliminated.

Revised Data Request Table 14-1
Hazardous Materials to be Added at MLGS During Operational Phase (Page 1 of 3)

Hazardous Material	CAS Number	Hazardous Characteristics	Regulatory Thresholds (lbs) Cal-ARP	Federal RQ	Federal TPQ	Federal TQ	Primary Application	Estimated 30-Day Usage	Estimated Storage Quantity[1]	Storage Type	Storage Location (refer to Revised Figure 7.12-1)
Aqueous ammonia (19%)	7664-41-7	Corrosive	500	100	500	20,000 (if >20%) 10,000 anhydrous	NO_X reduction in SCR	16,000 gallons	20,000 gallons	One above-ground tanks	Ammonia Unloading Storage Area
Service Water Treatment											
Polysilicate			–	–	–	–	Corrosion inhibitor for service water system	60 gallons	400 gallons	Manufacturer standard bucket/drum/ tole inside secondary containment	Hazardous Chemical Storage Area
Other Materials											
Acetylene	74-86-2	Toxic Flammable	–	–	–	10,000	Welding	400 ft^3	1,000 ft^3	Cylinder	Hazardous Chemical Storage Area
Paint (Ethylene glycol)	107-21-1 (13463-67-7)	Toxic Flammable	–	5,000	–	–	Painting	5 gallons	300 gallons	Can	Hazardous Chemical Storage Area
Natural gas		Flammable	–	–	–	–	Fuel for power plant	As needed	As needed	Pipeline	Not stored onsite
Mineral oil	8020-83-5	Irritant	–	–	–	–	Transformers	80,000 gallons, initial fill	80,000 gallons	Steel drum	Hazardous Chemical Storage Area
Sulfur hexafluoride	2551-62.4	Asphyxiant	–	–	–	–	Switchyard breakers	As needed	As needed	Within equipment	Equipment Areas
Turbine and Generator Lube Oil (HB-1170 Turbine Oil)	8002-05-9	Toxic Flammable Irritant	–	–	–	–	Rotating equipment	18,000 gallons	18,000 gallons	Steel drum	Equipment Areas
Hydraulic Oil (HB-1150 HYGuard)	8002-05-9	Toxic Flammable Irritant	–	–	–	–	Rotating equipment	1,000 gallons	1,000 gallons	Steel drum	Equipment Areas

Revised Data Request Table 14-1
Hazardous Materials to be Added at MLGS During Operational Phase (Page 2 of 3)

Hazardous Material	CAS Number	Hazardous Characteristics	Regulatory Thresholds (lbs)				Primary Application	Estimated 30-Day Usage	Estimated Storage Quantity[1]	Storage Type	Storage Location (refer to Figure 7.12-1)
			Cal-ARP	Federal RQ	Federal TPQ	Federal TQ					
Hydraulic Fluid	Mixture	Toxic Flammable Irritant	–	–	–	–	Construction vehicles and equipment	10 gallons per week	250 gallons	Drums inside secondary containment	Equipment Areas
Transmission Fluid	Mixture	Toxic Flammable Irritant	–	–	–	–	Construction vehicles and equipment	5 gallons per week	250 gallons	Drums within secondary containment	Equipment Areas
Unleaded Gasoline	8006-61-9	Flammable Toxic Irritant Target Organ (CNS)	–	–	–	–	Construction vehicles	300 gallons per week	500 gallons	Tank with secondary containments	Equipment Areas
Motor Oil (CITGO SuperGard® SAE 30)	Proprietary Mixture	Flammable	–	–	–	–	Construction vehicles and equipment	5 gallons per week	250 gallons	Drums inside secondary containment	Equipment Areas
Propane	74-98-6	Flammable	–	–	–	10,000		300 pounds per month	500 pounds	Cylinder	Equipment Areas
Dryer Desiccant (Silica Gel, SiO_2 99% wt)	112926-00-8		–	–	–	–	Instrument air	1,000 pounds over 3 to 5 years	1,000 pounds	Instrument air dryer	Hazardous Chemical Storage Area
Various Detergents	Various		–	–	–	–	Combustion turbine cleaning	1,000 pounds, before startup; periodic short-term storage, 500 pounds	1,000 pounds	Manufacturer container	Hazardous Chemical Storage Area
Closed Cooling System Treatment Chemicals											
Sodium Nitrate-Borax formulation	Borax 1330-43-4 (Anhydrous)	Irritant	–	–	–	–	Closed cooling water corrosion inhibitor	<5 gallons	30 gallons	Manufacturer standard bucket/drum/ tote inside secondary containment	Hazardous Chemical Storage Area

Revised Data Request Table 14-1
Hazardous Materials to be Added at MLGS During Operational Phase (Page 3 of 3)

Hazardous Material	CAS Number	Hazardous Characteristics	Regulatory Thresholds (lbs) Cal-ARP	Federal RQ	Federal TPQ	Federal TQ	Primary Application	Estimated 30-Day Usage	Estimated Storage Quantity[1]	Storage Type	Storage Location (refer to Figure 7.12-1)
Propylene-glycol	57-55-6	Irritant	–	–	–	–	Auxiliary cooling closed cooling water system	As needed	60,000 gallons, initial fill	Closed cooling water system	Hazardous Chemical Storage Area
Industrial Gases											
Carbon dioxide	124-38-9	Toxic Asphyxiant	–	–	–	–	Instrument air	500 lbs	2,000 lbs	Aboveground CO_2 tank	Hazardous Chemical Storage Area
Oxygen	7782-44-7	Toxic	–	–	–	–	Instrument air, welding	500 ft^3	2,000 ft^3	Cylinder	Hazardous Chemical Storage Area
Nitric oxide	10102-43-9	Toxic	100	10	100	10,000	Instrument air	50 ft^3	120 ft^3	Cylinder	Hazardous Chemical Storage Area
Carbon monoxide	630-08-0	Toxic	–	–	–	–	Instrument air	10 ft^3	255 ft^3	Cylinder	Hazardous Chemical Storage Area
Argon	7440-37-1	Toxic	–	–	–	–	Instrument air	150 ft^3	500 ft^3	Cylinder	Hazardous Chemical Storage Area

Notes:

CalARP = California Accidental Release Prevention
CAS = Chemical Abstracts Service
CNS = central nervous system
CO_2 = carbon dioxide
ft^3 = cubic feet
lbs = pounds
NO_x = nitrogen oxides
RQ = reportable quantities
SCR = selective catalytic reduction
SiO_2 = silicon dioxide
TPQ = Threshold Planning Quantity
TQ = Threshold Quantity

[1] Expected based on 107°F operation condition. Usage and storage will be optimized during final design

Revised Table 2.5-7
Summary of Anticipated Operating Waste Streams and Management Methods
(Page 1 of 3)

Waste Stream	Waste Stream Classification	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite Treatment
Used lubricating oil/oil solvents from small leaks and spills from turbine lubricating oil system	Hazardous liquid	800 pounds	Yearly	Store for fewer than 90 days	Recycle
Used lubricating oil filters from turbine lubricating oil system	Hazardous solids	1,100 pounds	Yearly	Store for fewer than 90 days	Disposal of drained filters to a Class II landfill
Used lubricating oil from maintenance of turbine equipment	Hazardous liquid	4,400 pounds	Yearly	Store for fewer than 90 days	Recycle
Solvents, paint, and adhesives	Hazardous liquid	25 pounds	Monthly		Disposal to a licensed TSDF
Laboratory analysis waste from water treatment	Hazardous solids	40 gallons	Yearly		Disposal to a licensed TSDF
Spent SCR catalyst (heavy metals, including vanadium)	Hazardous solids	100 to 110 tons	Every 10 to 15 years	Removed to truck by licensed contractors	Recycled by SCR manufacturer or disposed in Class I landfill
Spend CO catalyst (heavy metals)	Hazardous solids	18 to 19 tons	Every 10 to 15 years		Recycled by manufacturer
Spent lead acid batteries	Hazardous solids	4 batteries	Lead Acid – Yearly	Store for less than 1 year	Recycle
Spent alkaline batteries	Hazardous solids	5 pounds	Alkaline – Monthly	Store for less than 1 year	Disposal to a licensed TSDF

Revised Table 2.5-7
Summary of Anticipated Operating Waste Streams and Management Methods
(Page 2 of 3)

Waste Stream	Waste Stream Classification	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite Treatment
Unbroken fluorescent bulbs, mercury vapor lamps	Hazardous solids	30 pounds	Yearly	Store for 1 year	Reclaim mercury; disposal to a licensed TSDF
Broken fluorescent bulbs	Hazardous solids	Less than 2 pounds	Monthly	Store for fewer than 90 days	Disposal to a licensed TSDF
Waste oil from oil-water separator	Hazardous liquid	2,000 gallons	Yearly	Store for less than 1 year	Recycle
Oily rags, oil absorbent from CTG and other users of hydraulic actuators and lubricants	Hazardous solids	200 pounds	Monthly	Store for fewer than 90 days	Oily rags would be recycled Class I landfill disposal for other solids
Chemical feed area drainage (spillage, tank overflow, or area washdown water)	May be hazardous if high or low pH	Minimal	Yearly	If contamination is suspect, immediately contain. Store onsite for fewer than 90 days or trucked offsite.	Test prior to discharge. If nonhazardous, discharge to DDSD. If hazardous, drummed or tanker trucked to a licensed TSDF
CTG used air filters	Nonhazardous solids	Several hundred filters	Every 5 years	Store for fewer than 90 days	Recycle/Class II/III landfill disposal

Revised Table 2.5-7
Summary of Anticipated Operating Waste Streams and Management Methods
(Page 3 of 3)

Waste Stream	Waste Stream Classification	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite Treatment
CTG water wash	Hazardous or nonhazardous liquids	10,000 gallons	Quarterly	Sample. Store hazardous portion for fewer than 90 days	Test prior to discharge. Dispose to a TSDF if hazardous
Hydraulic fluid	Hazardous	<50 gallons	Yearly		Recycle
Sanitary wastewater	Nonhazardous liquids	<500 gallons	Daily		Discharge to DDSD
Evaporative cooler blowdown	Nonhazardous liquids	1,260 gallons	Daily		Discharge to DDSD
Stormwater	Nonhazardous liquids	1,326,200 gallons	For a once in 2-year, 24-hour storm event	Stormwater program	Discharge to San Joaquin River, except stormwater from curbed areas discharge to DDSD

Notes:
CO = carbon monoxide
DOSD = Delta Diablo Sanitation District
SCR = selective catalytic reduction
TSDF = treatment, storage, and disposal facility

Revised Table 2.6-1
Major Structures

Structure	Quantity	Size, L×W×H (feet)	Service/Remarks	Visual
Common Structures				
Natural gas compressor enclosure	1	50 × 75 × 12		Corrugated steel, painted tan
Water treatment trailers	up to 6	60 × 8 × 14	Portable	Corrugated steel, painted tan
Raw Water Storage Tank	1	40 feet diameter × 32 feet	0.3-million-gallon capacity	Steel tank, painted tan
Service Water Storage Tank	1	40 feet diameter × 32 feet	0.3-million-gallon capacity	Steel tank, painted tan
Blend Water Storage Tank	1	32 feet diameter × 32 feet	0.2-million-gallon capacity	Steel tank, painted tan
Wastewater Storage Tank	1	44 feet diameter × 44 feet	0.5-million-gallon capacity	Steel tank, painted tan
Transmission structure	6	100-foot-high Monopole towers		Weathered or galvanized steel structure
Admin/control building	1	43 × 142 × 12		Corrugated steel, painted tan
Siemens 5000F Simple-Cycle Power Block				
CTG	4	118 × 112 × 44 (top of air filter)	ULN combustion control w/evap coolers	Industrial equipment
SCR	4	95 × 44 × 80		Industrial equipment
SCR stacks	4	31 feet, 4 inches diameter × 165 feet high		Steel vertical cylinder, painted tan
Aqueous ammonia storage tanks	1	35 feet, 6 inches × 10 diameter	NO_X control (19 wt percent ammonia solution)	Steel horizontal tank, painted white

Notes:

CTG = combustion turbine generator
NO_x = nitrogen oxides
SCR = selective catalytic reduction
ULN = ultra low nitrogen

Revised Table 2.7-1a
Construction Staff by Trade

	2011											2012												2013			
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Months	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
Craft Labor																											
Laborers	2	2	3	4	6	6	5	3	2	2	3	6	11	9	6	4	4	5	7	8	6	6	7	7	4	2	-
Operators	2	3	5	7	9	9	8	4	2	2	2	2	2	2	6	15	23	20	13	7	7	8	10	10	6	3	-
Teamsters	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	3	3	6	6	9	12	9	7	3	-
Cement Finisher	-	-	-	-	-	-	-	-	2	2	2	4	6	5	4	2	2	-	-	-	-	-	-	-	-	-	-
Carpenters	2	2	2	2	2	2	2	2	3	7	12	18	28	26	19	11	5	-	-	-	-	-	-	-	-	-	-
Iron Workers	-	-	-	-	-	-	-	-	2	2	3	7	13	10	38	70	59	60	50	20	13	5	2	2	2	2	-
Millwrights	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15	15	20	20	20	20	15	9	5	3	-
Boilermakers	-	-	-	-	-	-	-	-	-	-	-	-	-	10	18	34	45	40	30	25	10	-	-	-	-	-	-
Pipefitters/AG	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	11	20	33	45	65	75	70	50	43	43	19	-
Electricians/AG	-	-	-	-	-	-	-	-	-	-	-	2	2	2	-	5	12	22	32	55	73	110	113	100	65	39	-
Painter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	3	3	3	3	3	3	2	-
Insulator	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	7	10	10	7	7	2	-
Total Craft Labor	8	9	12	15	19	19	17	11	13	17	24	44	67	69	94	173	191	200	202	211	220	241	222	190	142	75	0
Contractor Staff	18	20	20	21	21	21	22	23	23	23	23	23	25	25	24	25	25	25	27	28	29	31	30	33	31	28	9
Total Site Staff	26	29	32	36	40	40	39	34	36	40	47	67	92	94	118	198	216	225	229	239	249	272	252	223	173	103	9

Revised Table 2.7-1b
Construction Contractor Staff by Trade

		2011											2012													2013			
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Construction Staff	**Months**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
Construction Project Manager	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Construction Coordinator (Project Engr.)	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CSA Coordinator (inc survey)	58	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2					
Mech. Coordinator	11																1	1	1	1	1	1	1	1	1	1	1	
Elec. Coordinator	7																				1	1	1	1	1	1	1	
Const. Coordinator – Cablematic Tech	7																				1	1	1	1	1	1	1	
Construction Coordinator - Intern	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Subcontracts Administrator	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Document Control Manager	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Project Superintendent	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Civil/Structural/Buildings Superintendent	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1													
HRSG/BM Superintendent	7													1	1	1	1	1	1	1								
BOP Mech./Piping Superintendent	8																			1	1	1	1	1	1	1	1	
CTG/STG Turbine Superintendent	12															1	1	1	1	1	1	1	1	1	1	1	1	
Electrical Superintendent	20							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Night Shift Superintendent	3																								1	1	1	
Project Scheduler	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cost Engineer	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Buyer/Expeditor	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Warehouse Superintendent	23		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Warehouse Clerk	15				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									
Start-Up Manager	9																			1	1	1	1	1	1	1	1	1
Start-Up Tech – Mech.	5																					1	1	1	1	1		
Start-Up Tech – Electrical	4																						1	1	1	1		
Start-Up Tech – I & C	4																						1	1	1	1		
Controls/DCS Engineer	4																							1	1	1	1	
Turnover Package Coordinator	6																						1	1	1	1	1	1
Start-Up Clerk	8																			1	1	1	1	1	1	1	1	
Safety/Security Manager	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Safety Supervisor Nightshift	3																								1	1	1	
QA/QC Manager	25		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
QA/QC Technician (Welding)	9													1	1	1	1	1	1	1	1	1						
QA/QC Nightshift	3																								1	1	1	
Office Manager/Accountant	27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Secretary/Receptionist	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Clerks/Timekeepers	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total People Required	**608**	**17**	**19**	**19**	**20**	**20**	**20**	**21**	**21**	**21**	**21**	**21**	**21**	**23**	**23**	**22**	**23**	**23**	**23**	**25**	**26**	**27**	**29**	**28**	**31**	**29**	**26**	**9**
Resident Engineering																												
Environmental Compliance Manager	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Resident Engineer (FTE)	19								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total People Required	**45**	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
Required Resources	**653**	**18**	**20**	**20**	**21**	**21**	**21**	**22**	**23**	**23**	**23**	**23**	**23**	**25**	**25**	**24**	**25**	**25**	**25**	**27**	**28**	**29**	**31**	**30**	**33**	**31**	**28**	**9**

Revised Table 2.7-3
Average Construction Equipment On Site Per Month

Construction Equipment	Percent Usage	HP	Fuel (Diesel/Gas)	2011											2012												2013			
				Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
			Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Demolition																														
Hydraulic Excavator	100%	250	Diesel	2	3	3	3	3	2																					
1-Ton Flatbed Truck	100%	150	Gas	1	1	1	1	1	1																					
Forklift	100%	40	Gas	1	1	1	1	1	1																					
Fuel/Lube Truck	50%	150	Gas	1	1	1	1	1	1																					
Water Truck	100%	300	Diesel	2	2	2	2	2	2																					
Articulating Boom Manlift (120, 80, 60, and 40 feet)	100%	75	Gas	2	2	2	2	2	2																					
Air Compressor	100%	50	Gas	2	2	2	2	2	2																					
Hydraulic Crane (75-ton)	50%	350	Diesel	1	1	1	1	1	1																					
Service Truck	50%	150	Gas	1	1	1	1	1	1																					
Construction																														
Pickup Truck	75%	150	Gas	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	
Tractor	50%	195	Diesel																1	1	1	1	1	1	1					
Forklift	75%	40	Gas	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	
Fuel/Lube Truck	25%	150	Gas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
150-Ton Crawler Crane	50%	300	Diesel															1	2	2	2	2	2	2	1	1				
Hydraulic Crane (55-ton)	65%	300	Diesel		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	
Articulating Boom Manlift (120, 80, 60, and 40 feet)	70%	75	Gas																1	2	4	4	4	4	4	4	4	4	4	
Air Compressor	80%	50	Gas	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1				
Backhoe Loader	40%	80	Diesel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1	1					
Front End Loader	70%	130	Diesel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					1	1					
Dump Truck (30-ton)	100%	300	Diesel																											
Hydraulic Excavator	85%	250	Diesel			1	1	1	1	1	1	1	1	1	1	1	1	1	1											
Bulldozer	80%	300	Diesel																					1	1					
Vibratory Roller	80%	125	Gas		1	1	1	1	1	1	1	1												1	1					
Walk-Behind Vibratory Roller	60%	25	Gas	1	1	1	1														1	1	2	2	2	2	2	1	1	1
Dump Truck	35%	300	Diesel	1	1	1	1																	1	1					
Jumping Jack Compactors	60%	7.5	Gas			1	1	1	1	1	1	1	1	1	2	2	2	2	1	1										
Water Truck	50%	300	Diesel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Concrete Pumper Truck	15%	350	Diesel									1	1	1	1	1	1	1	1											
Welder (Diesel)	70%	25	Diesel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	
Light Plant	30%	25	Gas																						2	2	2			
Well Drilling Rig	85%	250	Diesel	1	1	1	1																							
			Total	**24**	**27**	**29**	**29**	**26**	**25**	**12**	**13**	**15**	**14**	**14**	**15**	**15**	**15**	**16**	**19**	**18**	**20**	**20**	**21**	**26**	**26**	**19**	**16**	**11**	**10**	**1**

Revised Table 2.7-4
Construction Water Requirements

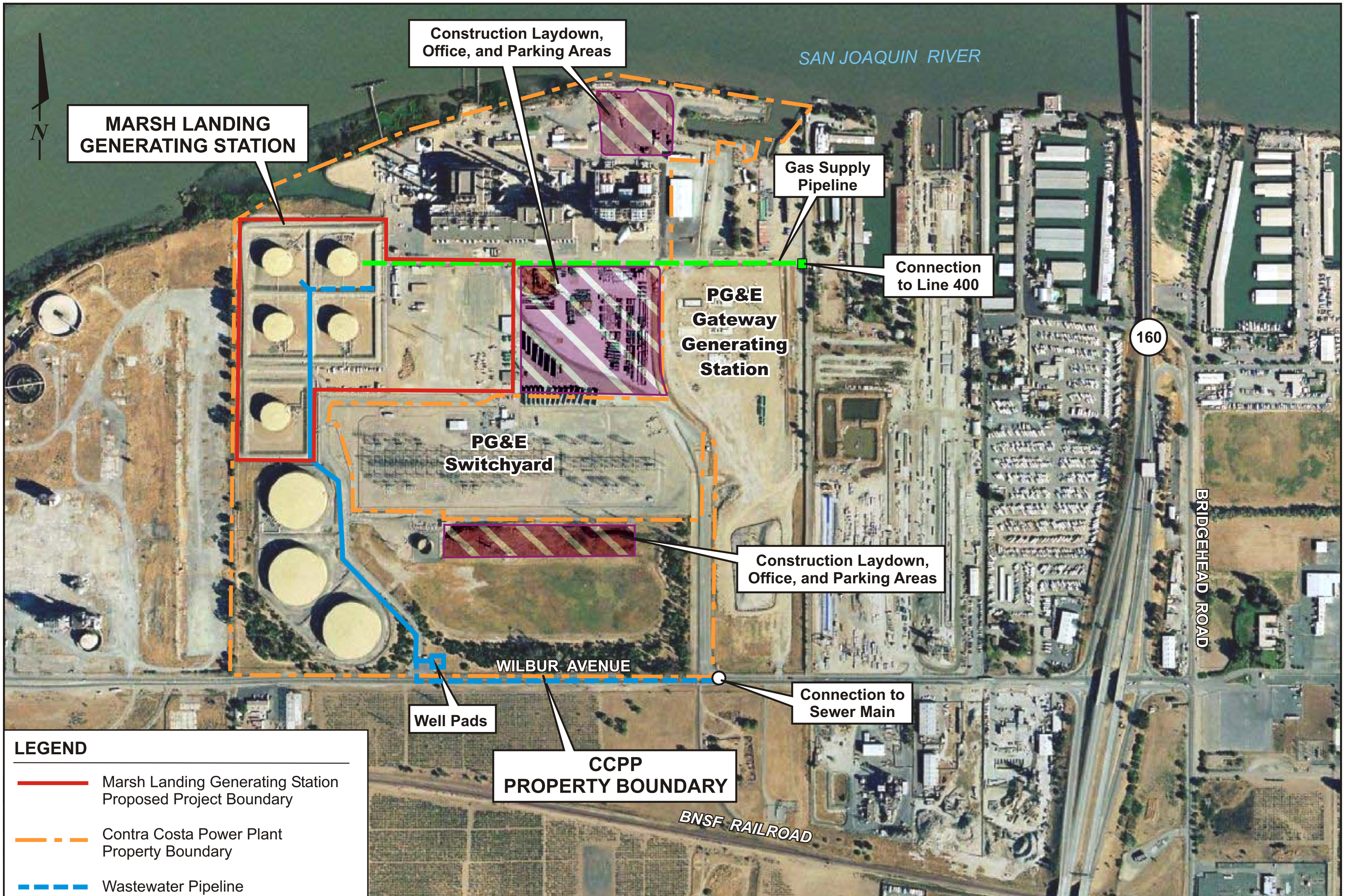
Construction Month		Gallons
February 2011	1	97,000
March 2011	2	98,000
April 2011	3	98,000
May 2011	4	99,000
June 2011	5	100,000
July 2011	6	100,000
August 2011	7	101,000
September 2011	8	99,000
October 2011	9	104,000
November 2011	10	105,000
December 2011	11	107,000
January 2012	12	111,000
February 2012	13	116,000
March 2012	14	117,000
April 2012	15	172,000
May 2012	16	189,000
June 2012	17	193,000
July 2012	18	136,000
August 2012	19	137,000
September 2012	20	139,000
October 2012	21	141,000
November 2012	22	146,000
December 2012	23	192,000
January 2013	24	120,000
February 2013	25	110,000
March 2013	26	44,000
April 2013	27	24,000
Total (gallons)		3,195,000
Total (acre-feet)		9.8
Average Monthly (gallons)		118,000
Average Daily (gallons)		5,900

Note:
Months 23 through 25 include water for hydrotesting and flushing purposes.

Revised Table 2.8-1
Plant Operation Workforce

Department	Personnel	Shift	Workdays
Operations	8 Plant Operators	Rotating 12-hour shift, two employees per shift	7 days a week
Production	1 Operations Specialist 1 Operations Supervisor	Standard 8-hour days	5 days a week with additional coverage as required
Administration	1 Plant Manager 1 Operations and Maintenance Manager 1 Administrative Assistant	Standard 8-hour days	5 days a week with additional coverage as required
Maintenance	1 Instrumentation and Control Technician 1 Electrician 1 Mechanic	Standard 8-hour days	5 days a week with additional coverage as required
Total	16 Personnel		

Note:
All staff will be permanent employees of Mirant Marsh Landing.



LEGEND

- Marsh Landing Generating Station Proposed Project Boundary
- Contra Costa Power Plant Property Boundary
- Wastewater Pipeline
- Water Supply Pipeline
- Gas Supply Pipeline
- Construction Laydown, Office, and Parking Areas

Source of Aerial:
Google Earth 2006

0 500 1,000
Approximate Scale in Feet

SITE PLAN

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
28067344

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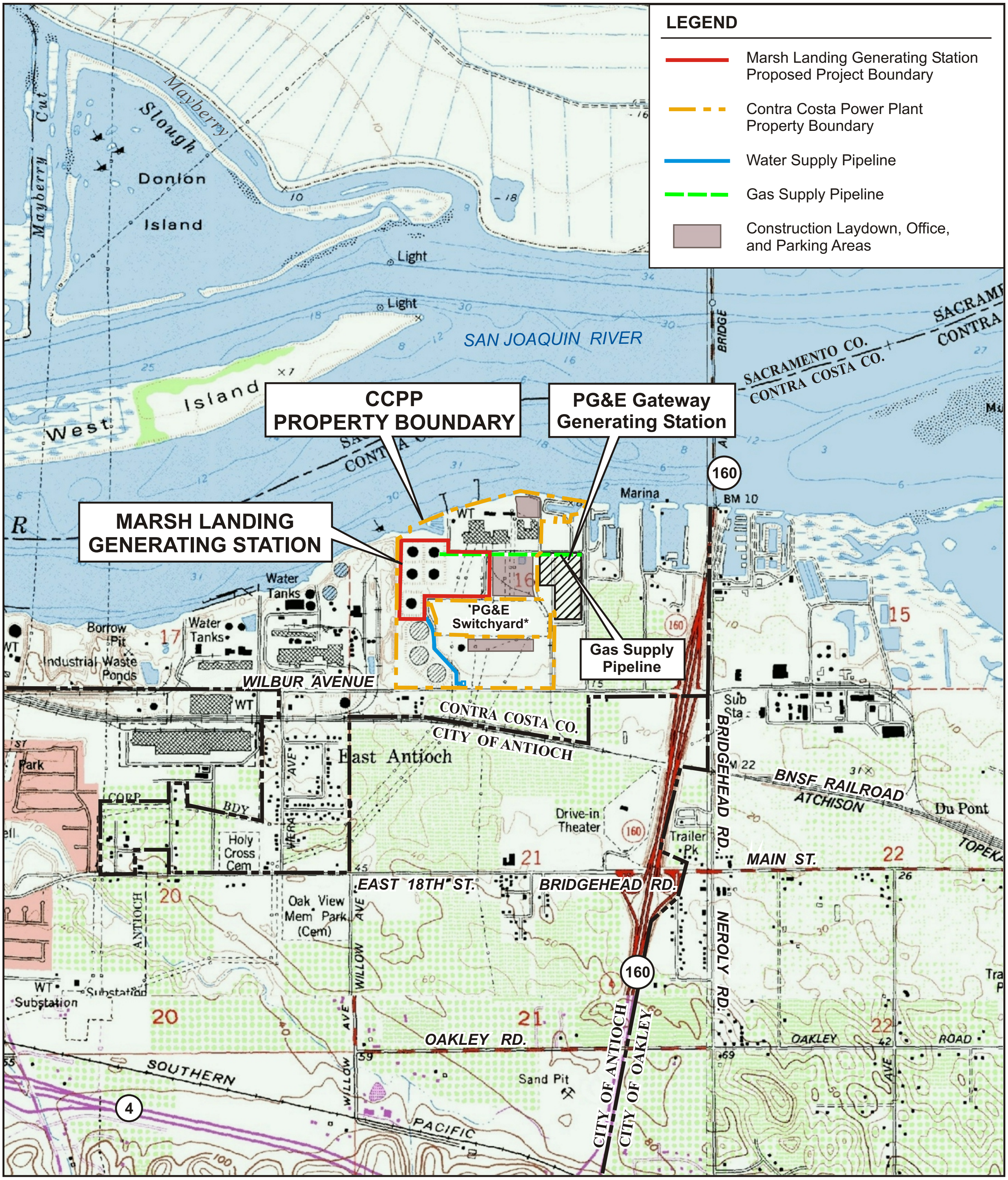
REVISED FIGURE 2.1-1

9/10/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.1-1_site plan.cdr



Source:
USGS Topographic Maps, 7.5 Minute Series:
Antioch North, California, 1978
Antioch South, California, 1980
Jersey Island, California, 1978
Brentwood, California, 1978

* The PG&E Switchyard and PG&E Gateway Project are not part of the Mirant Property.

0 2,000 4,000

Scale in Feet
1:24,000

N

PROJECT LOCATION MAP

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Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

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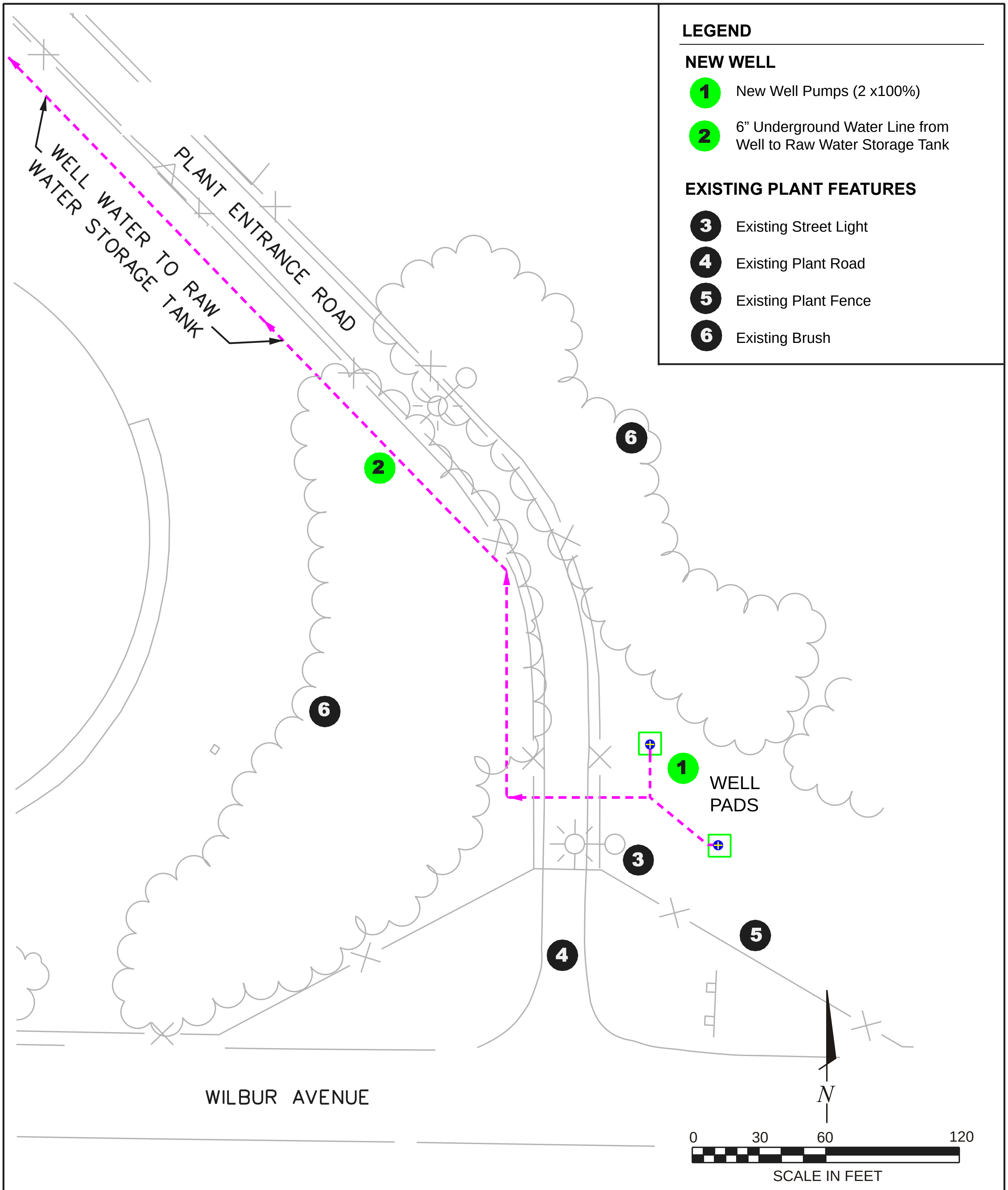
REVISED FIGURE 2.2-1

9/08/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.2-1_proj loc map.cdr



Source:
CH2MHill Lockwood Greene/Wittman Hydro;
Wellpad (September 1, 2009)

ONSITE WELL PAD PLOT PLAN

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
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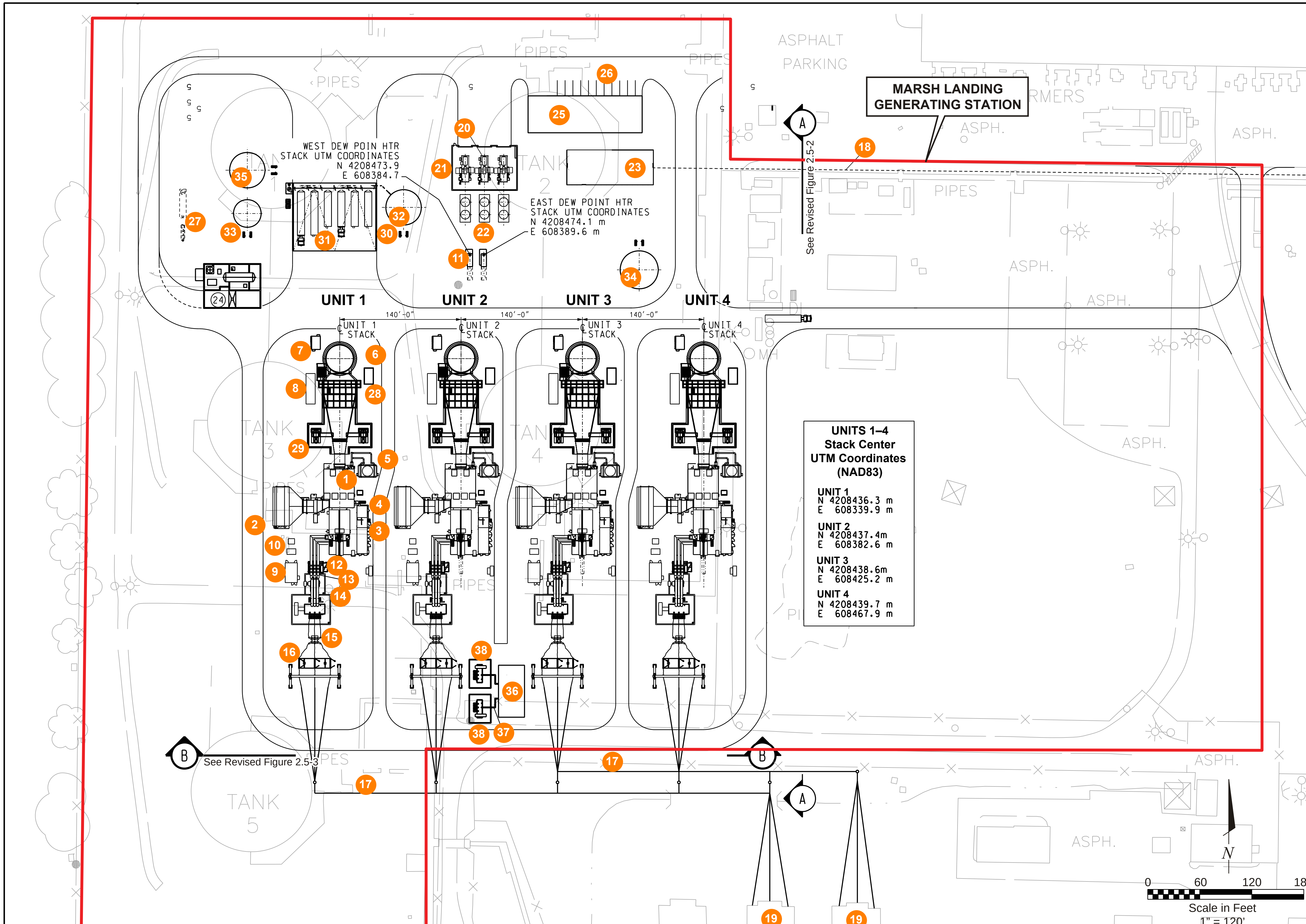
REVISED/NEW FIGURE 2.3-1

9/08/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev-New 2.3-1_well pad.ai



LEGEND

1 Gas Turbine Enclosure
2 Gas Turbine Inlet Filter
3 Electrical Package
4 Lube Oil Cooler
5 Rotary Air Cooler (Fin-Fan)
6 Continuous Emissions Monitoring
7 SCR
8 Sampling Panel
9 SEE/SFC Tranformers
10 SEE/SFC Package
11 Dew Point Heaters
12 Generator Circuit Breaker
13 Auxiliary Transformer
14 Generator Step Up Transformer
15 Circuit Breaker
16 Air Switch
17 Overhead Power Lines
18 12"-Dia. Natural Gas Line
19 Existing Circuit Breakers
20 Fuel Gas Compressor
21 Fuel Gas Compressor Enclosure
22 Fuel Gas Compressor Fin-Fan Coolers
23 Fuel Gas Metering/Conditioning
24 Ammonia Unloading/Storage Area
25 Control/Admin. Building
26 Parking
27 Oil-Water Separator with Wastewater Sump
28 Ammonia Vaporization Skid
29 Air Blowers
30 Evap Cooler Supply Pumps
31 Water Treatment Trailers
32 Service Water Storage Tank (40' dia. x 32' high)
33 Secondary EC Blend WaterTank (32' dia x 32' high)
34 Wastewater Storage Tank (44' dia x 44' high)
35 Raw Water Storage Tank (40' dia. x 32' high)
36 PDC
37 Non-SEC Bus
38 Auxiliary Transformer

Source:
CH2MHill Lockwood Greene; General Arrangement Marsh Landing Generating Station,
Siemens Simple Cycle SGT6-5000F Equipment Layout;
Drawing No: MR-GA-ML-01-26 (Rev. H, 08/27/09)

GENERAL PLOT PLAN

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Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

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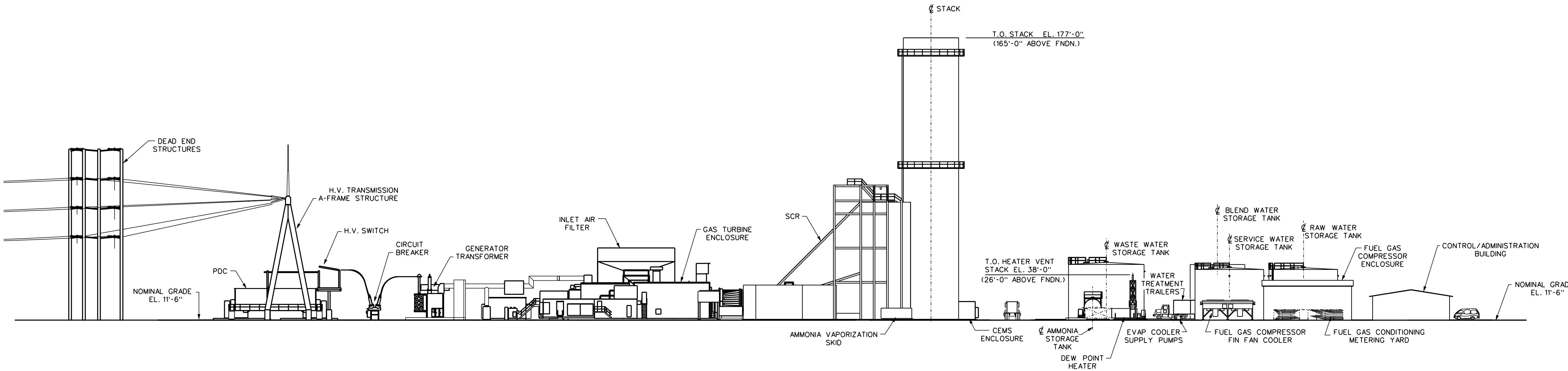
REVISED FIGURE 2.5-1

9/08/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.5-1_plotplan_H.ai



SECTION A-A'
LOOKING WEST

0 60
Approximate Scale in Feet

Source:
CH2MHill Lockwood Greene; General Arrangement, Marsh Landing Generating Station
Siemens Flex Simple Cycle SGT6-5000F Elevation Views;
Drawing No: MR-GA-ML-01-27 (Rev. B, 8/28/09)

Note:
See Revised Figure 2.5-1 for Section Location.

ELEVATION VIEW:
SIMPLE CYCLE UNITS LOOKING WEST

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
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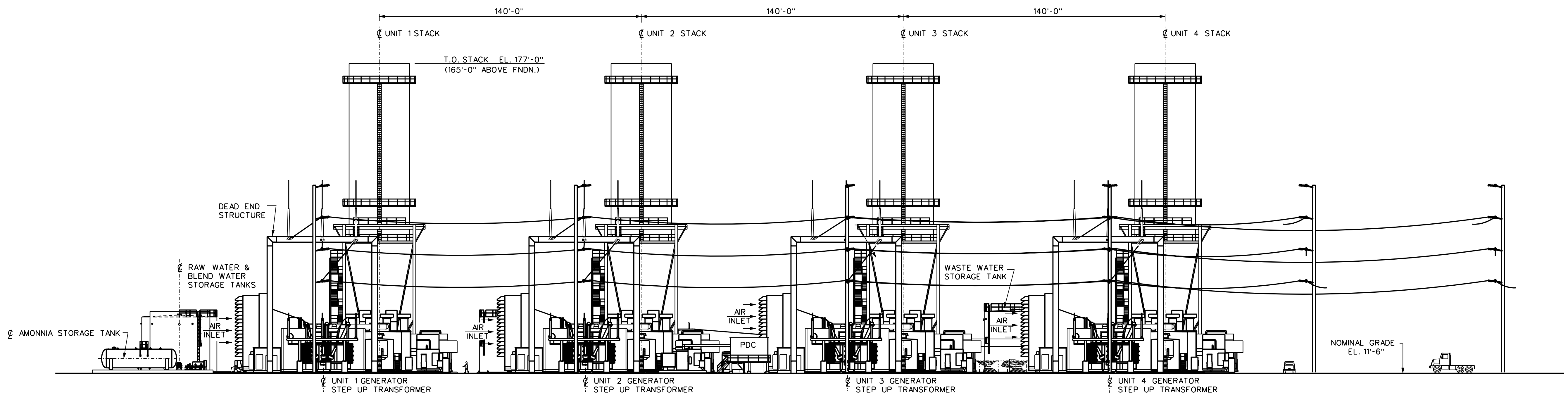
REVISED FIGURE 2.5-2

9/08/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.5-2_elevs west.ai



SECTION B-B'
LOOKING NORTH

0 60
Approximate Scale in Feet

Source:
CH2MHill Lockwood Greene; General Arrangement, Marsh Landing Generating Station
Siemens Flex Simple Cycle SGT6-5000F Elevation Views;
Drawing No: MR-GA-ML-01-27 (Rev. B, 8/28/09)

Note:
See Revised Figure 2.5-1 for Section Location.

ELEVATION VIEW:
SIMPLE CYCLE UNITS LOOKING NORTH

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

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REVISED FIGURE 2.5-3

9/08/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.5-3_elevs north.ai

AERIAL VIEW OF PROPOSED POWER PLANT

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

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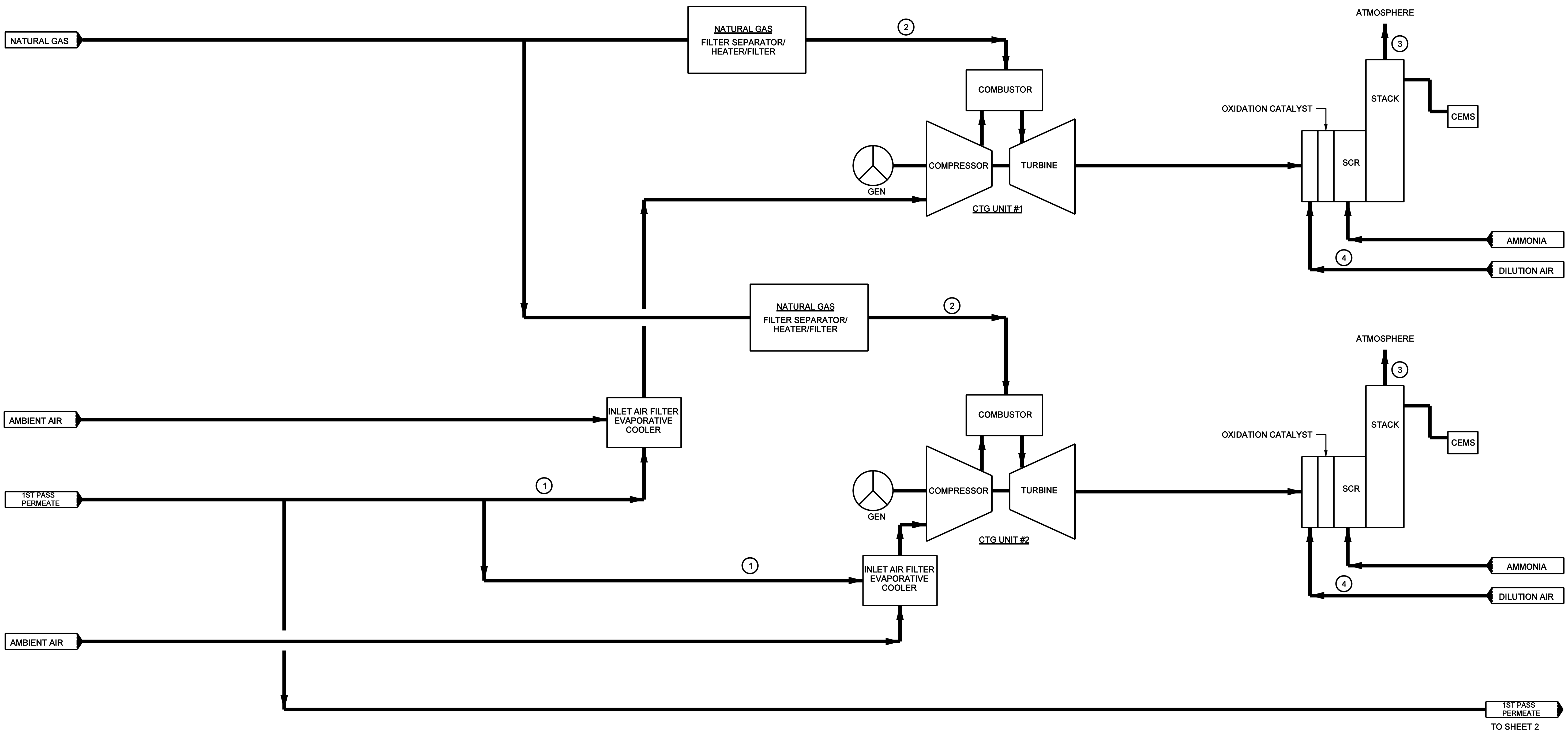
REVISED FIGURE 2.5-4

8/28/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.5-4_model_sim.ai

		Units	20°F, 90% RH 100% Load	75°F, 54% RH 100% Load	94°F, 32% RH 100% Load
	Gross Power Output	MW	222.3	194.7	187.5
	Gross Heat Rate (LHV)	Btu/kW-hr	8,824	9,101	9,202
1	Water Flow (Evap Cooler)	lb/hr	0	8,449	16,767
2	Fuel Flow	lb/hr	95,311	86,112	83,814
3	Exhaust Flow	lb/hr	4,282,933	3,916,687	3,817,191
3	Exhaust Temperature	°F	1,053	1,087	1,097
4	Dilution Air Flow	lb/hr	1,860,166	2,047,291	2,114,453



Source:
CH2MHill Lockwood Greene; Process Flow Diagram, Marsh Landing Generation Station
Simple Cycle Heat & Material Balance
Drawing No: MC-PR-20-20-01 sheet 1 (Rev. Aug 2009)

SIMPLE CYCLE UNITS 1 AND 2
HEAT AND MATERIAL BALANCE

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
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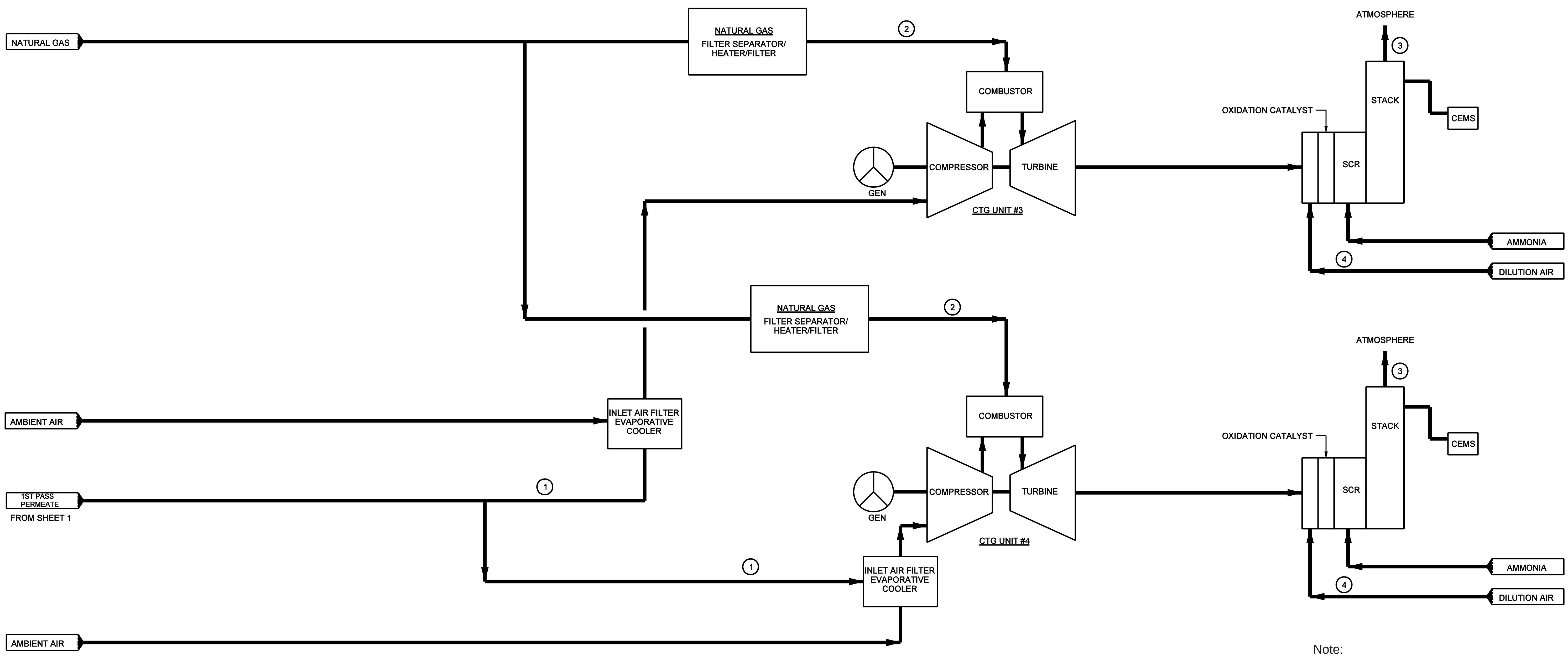
REVISED FIGURE 2.5-5



Note:
See Table on Revised Figure 2.5-5
for Heat and Material Balance values.

Source:
CH2MHill Lockwood Greene; Process Flow Diagram, Marsh Landing Generation Station
Simple Cycle Heat & Material Balance
Drawing No: MC-PR-20-20-011 sheet 2 (Rev. August 2009)

SIMPLE CYCLE UNITS 3 AND 4
HEAT AND MATERIAL BALANCE

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

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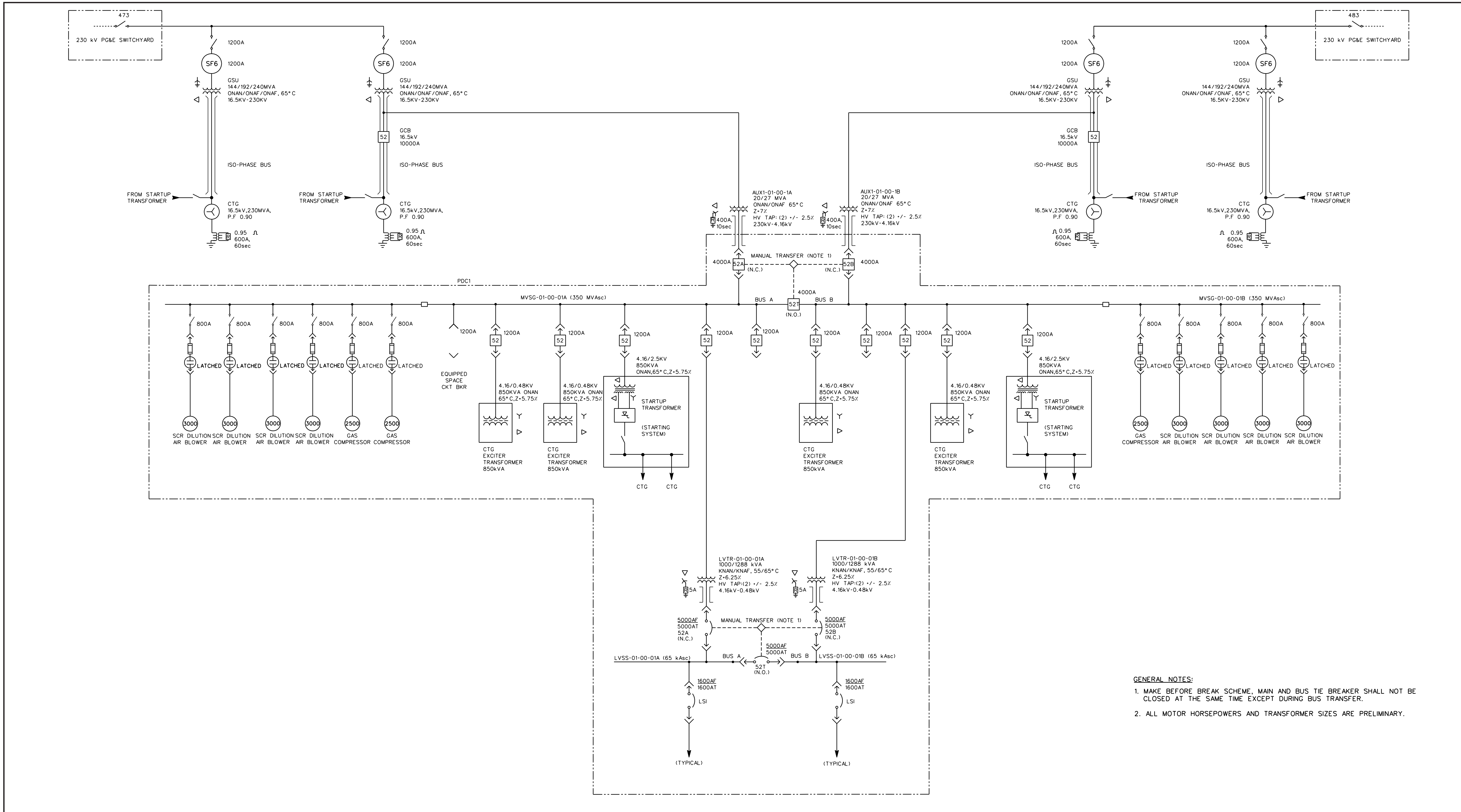
REVISED FIGURE 2.5-6

8/28/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.5-6_HMB_3+4.ai



Source:
CH2MHill Lockwood Greene; Electrical, Marsh Landing Generating Station
Four X Simple Cycle Overall Single Line Diagram;
Drawing No. MR-EE-ML-05 (Rev. P3, 08/27/09)

SIMPLE CYCLE UNITS
OVERALL SINGLE-LINE DIAGRAM

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
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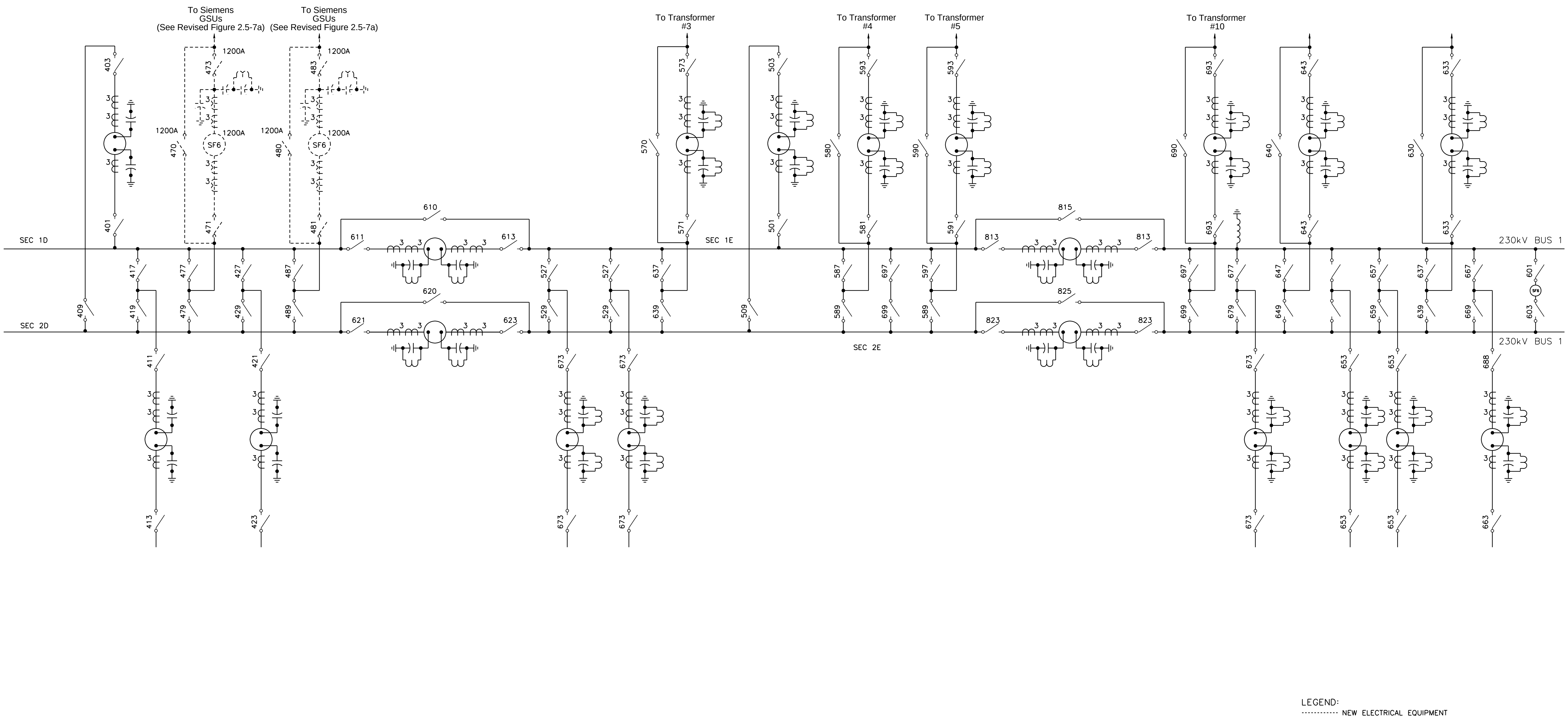
REVISED FIGURE 2.5-7a

9/08/09 vsa..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.5-7a_simplecycle overall line.ai



Source:
CH2MHill Lockwood Greene; Electrical, Marsh Landing Generating Station
Switchyard Single Line Diagram;
Drawing No. MR-EE-ML-01 (Rev. P3, 07/08/08)

SWITCHYARD WITH MLGS
SINGLE-LINE DIAGRAM

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Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

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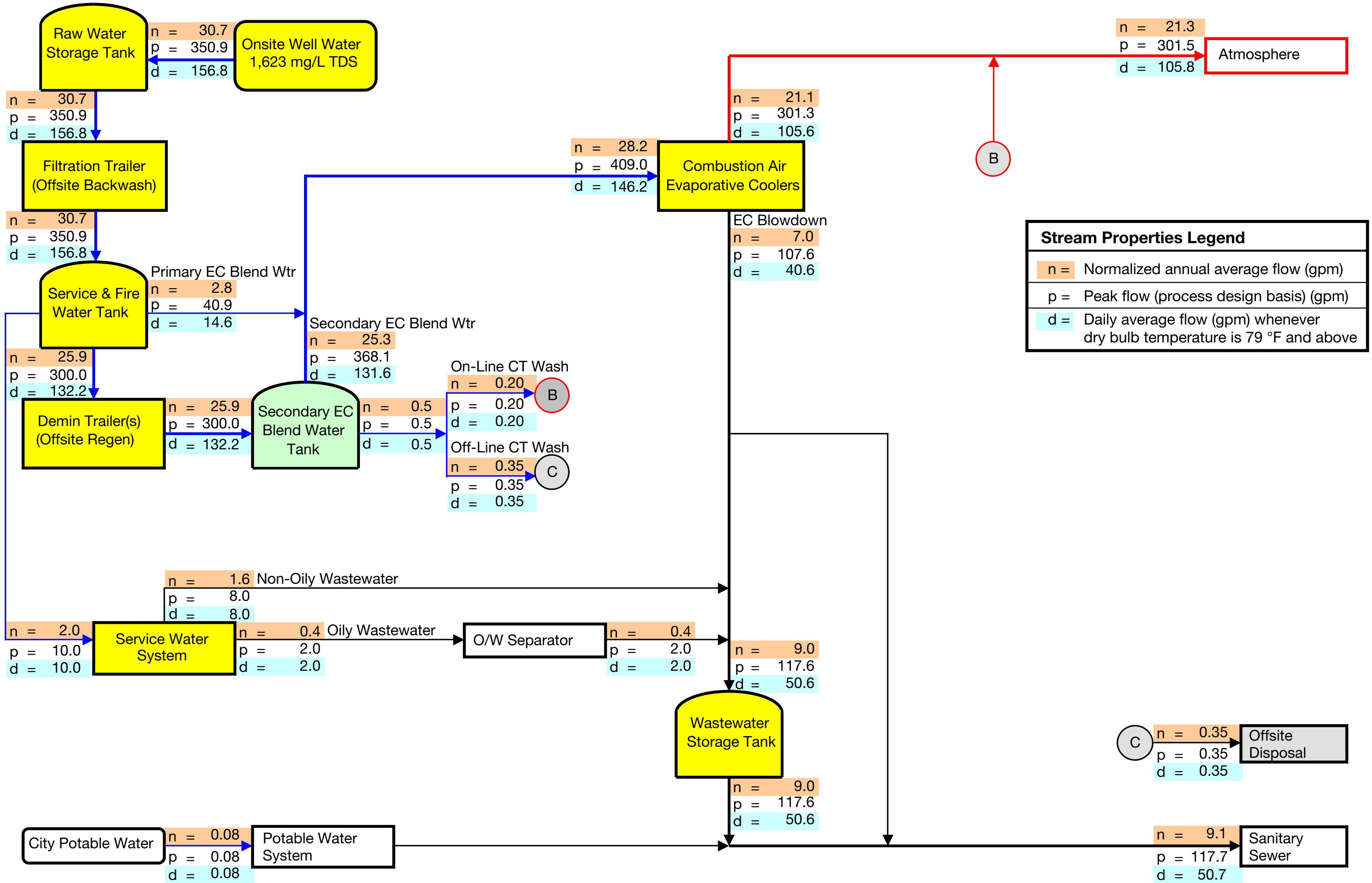
REVISED FIGURE 2.5-7b

9/08/09 vsa..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev_2.5-7b_SW-mlgs.ai



EC = Evaporative Cooler

Source:
CH2MHill Lockwood Greene; Water Balance Model:
WtrBalModel(Conceptual)-MLGS-Groundwater-4SCs_EvapClrs_MobileTrailers
(August 20, 2009)

Notes:
1. Water balance based on four Simple Cycle units with evaporative coolers using onsite groundwater treated by mobile trailers.
2. Flow rates on this drawing reflect operation of all four units.

WATER BALANCE DIAGRAM

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
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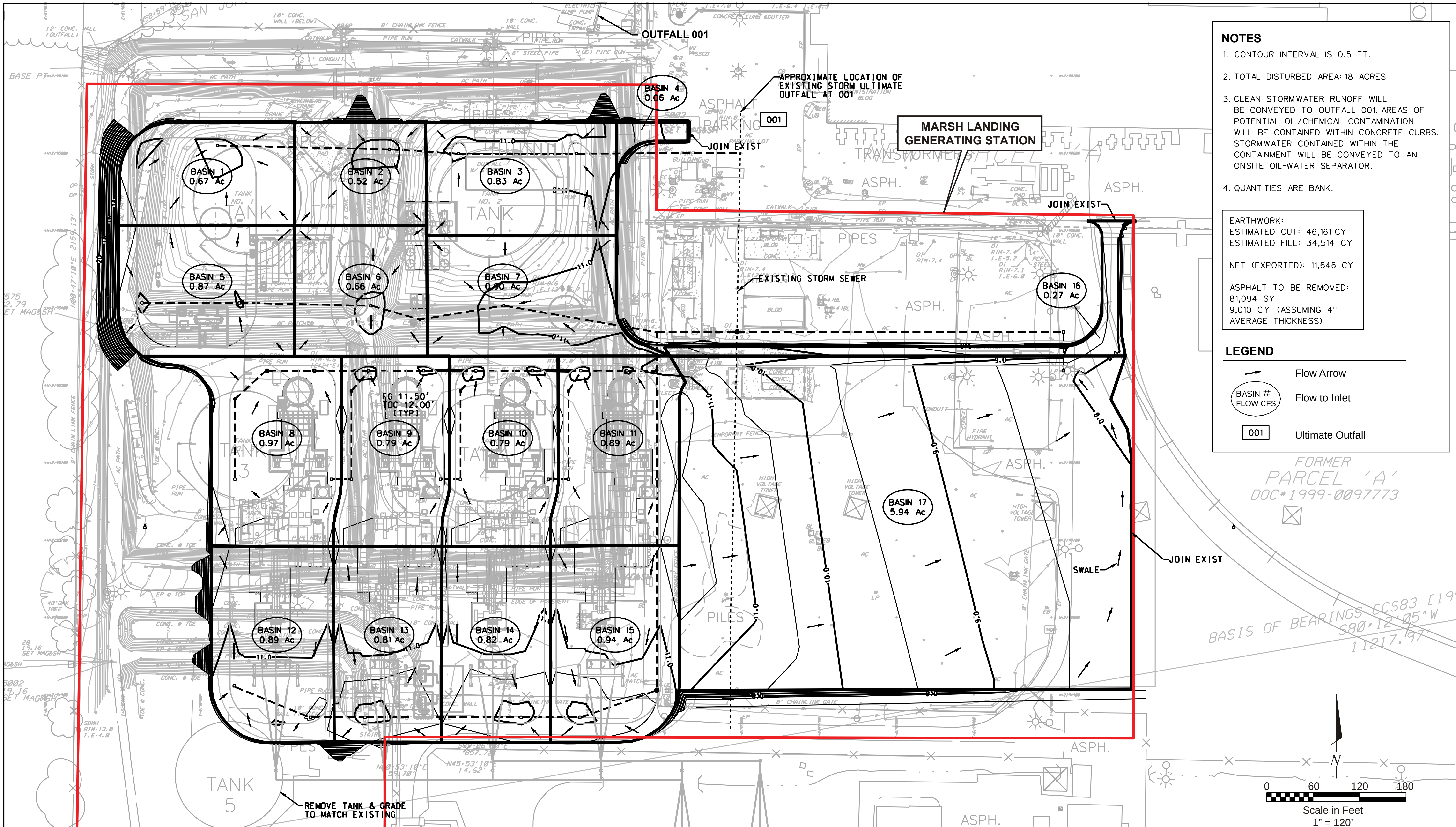
REVISED FIGURE 2.5-8

9/08/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 2.5-8_water balance dia.ai



Source:
CH2MHill Lockwood Greene; Civil Marsh Landing Generating Station, Site Grading & Drainage Plan; Drawing No: MR-CE-CC-00-01 (Rev. E, 8/20/09)

Notes:
CY = cubic yards
SY = square yards
Elevations are based on mean sea level datum NGVD29.

SITE GRADING AND DRAINAGE PLAN

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
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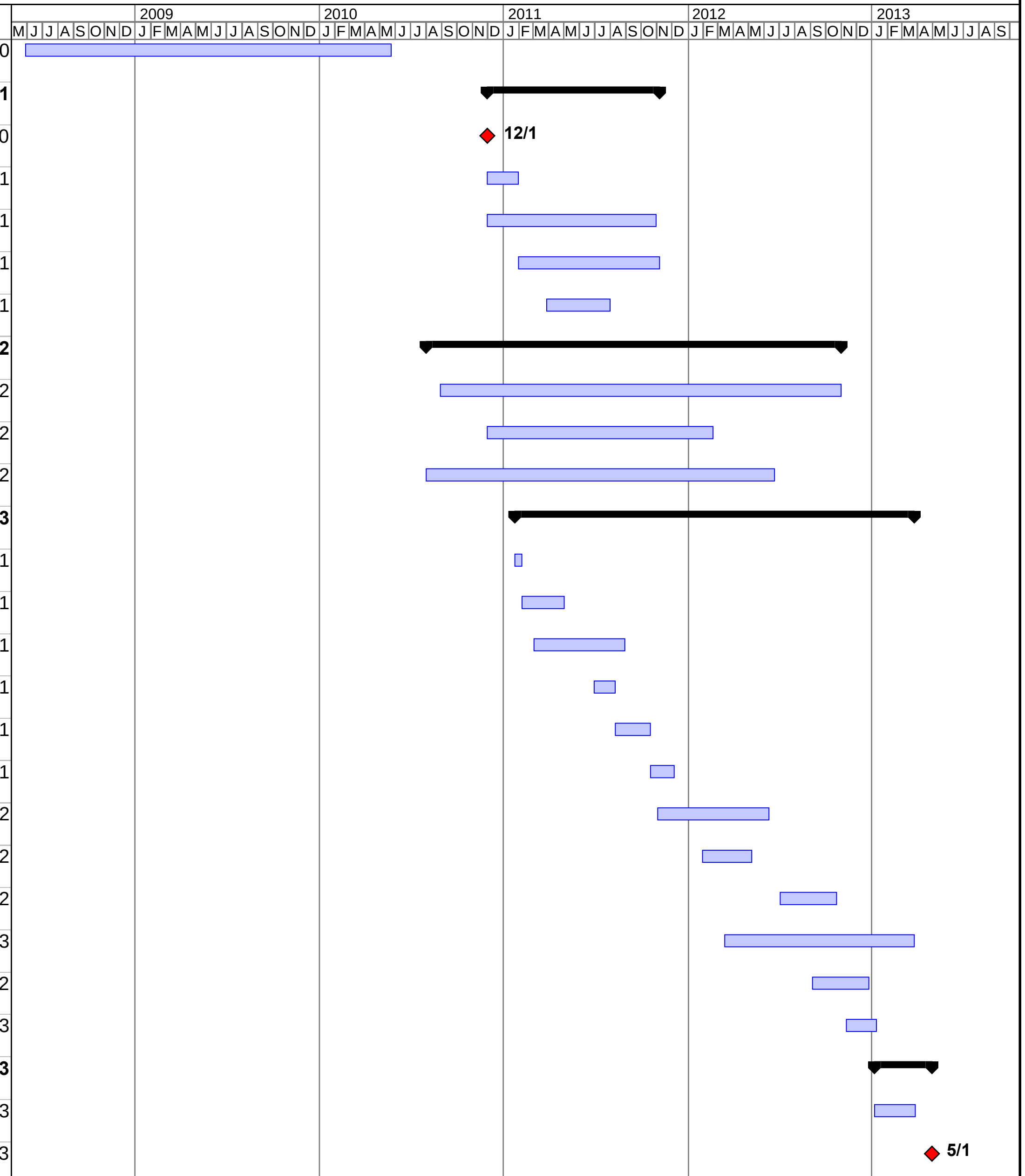
REVISED FIGURE 2.6-2

Mirant Marsh Landing Generating Station

ID	Task Name	Start	Finish
1	**Permitting - Application for Certification**	Fri 5/30/08	Mon 5/24/10
2	**Design**	**Wed 12/1/10**	**Mon 11/7/11**
3	Notice to Proceed	Wed 12/1/10	Wed 12/1/10
4	Preliminary Engineering	Wed 12/1/10	Mon 1/31/11
5	P&IDs	Wed 12/1/10	Mon 10/31/11
6	One-Line Diagrams	Tue 2/1/11	Mon 11/7/11
7	Building Design	Tue 3/29/11	Mon 8/1/11
8	**Procurement/Fabrication/Delivery**	**Mon 8/2/10**	**Thu 11/1/12**
9	Procurement (Equipment, Tanks, Buildings)	Mon 8/30/10	Thu 11/1/12
10	Selective Catalytic Reduction Units	Wed 12/1/10	Tue 2/21/12
11	Simple Cycle Units	Mon 8/2/10	Fri 6/22/12
12	**Construction**	**Tue 1/25/11**	**Tue 3/26/13**
13	Site Mobilization	Tue 1/25/11	Mon 2/7/11
14	Install Wells	Tue 2/8/11	Mon 5/2/11
15	Tank Demolition	Fri 3/4/11	Tue 8/30/11
16	Site Preparation & Site Grading	Fri 7/1/11	Thu 8/11/11
17	Underground Electrical/Piping	Fri 8/12/11	Thu 10/20/11
18	Pilings/Footings/Mats	Fri 10/21/11	Tue 12/6/11
19	Foundations	Fri 11/4/11	Mon 6/11/12
20	Erect Admin Building	Wed 2/1/12	Tue 5/8/12
21	Erect Tanks	Wed 7/4/12	Tue 10/23/12
22	Install Simple Cycle Units	Fri 3/16/12	Tue 3/26/13
23	BOP Equip/Elec/Control/Piping	Thu 9/6/12	Wed 12/26/12
24	Roads/Fencing/Security	Mon 11/12/12	Thu 1/10/13
25	**Startup**	**Mon 1/7/13**	**Wed 5/1/13**
26	Startup & Commisioning	Mon 1/7/13	Thu 3/28/13
27	Commercial Online Date	Wed 5/1/13	Wed 5/1/13



Date:08/27/09 | Task | Critical Path Item | Summary

PROJECT SCHEDULE

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
28067344

URS

REVISED FIGURE 2.7-1

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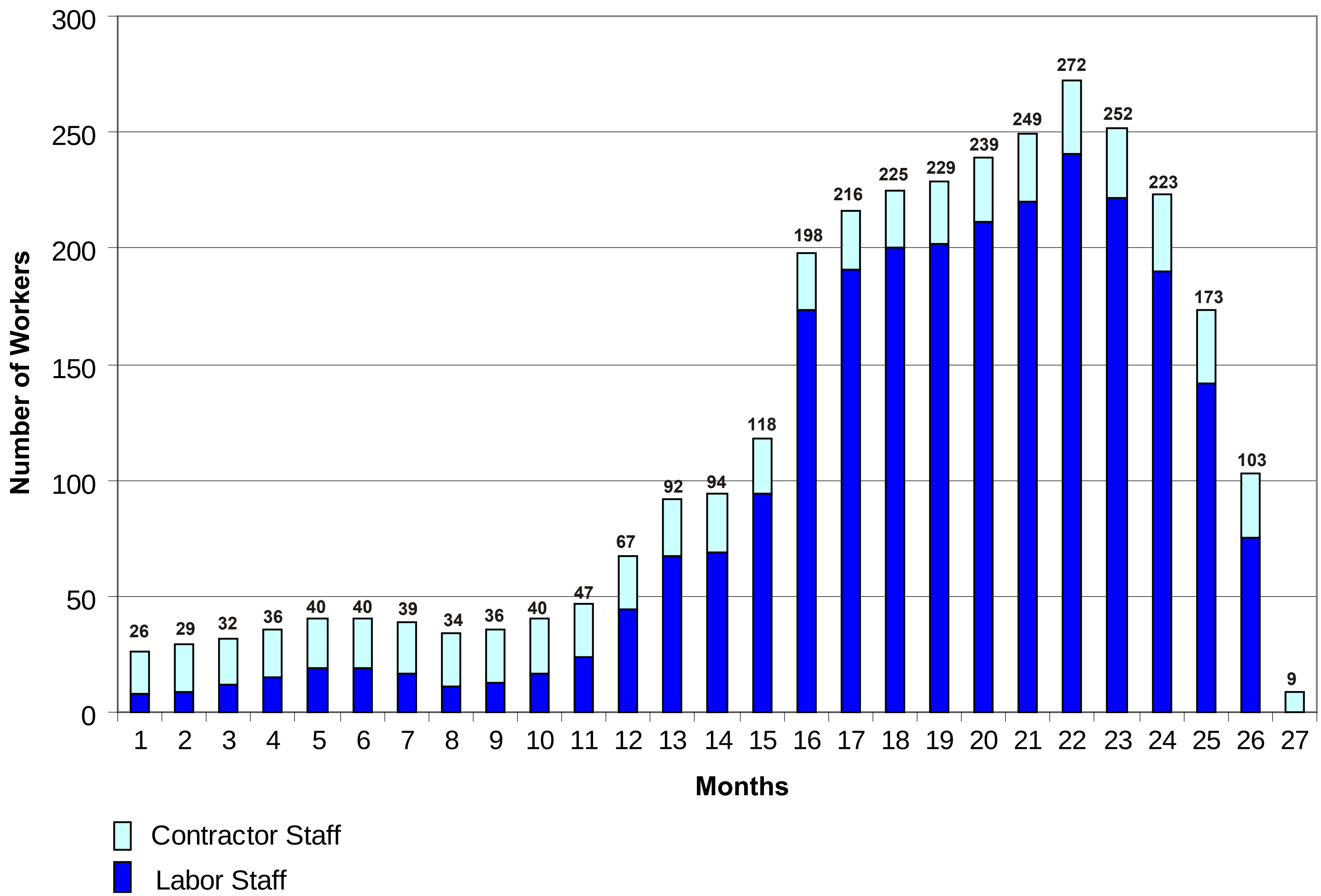

Source:
CH2MHill, September 2009

CONSTRUCTION STAFF BY MONTH

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
28067344

URS

REVISED FIGURE 2.7-2

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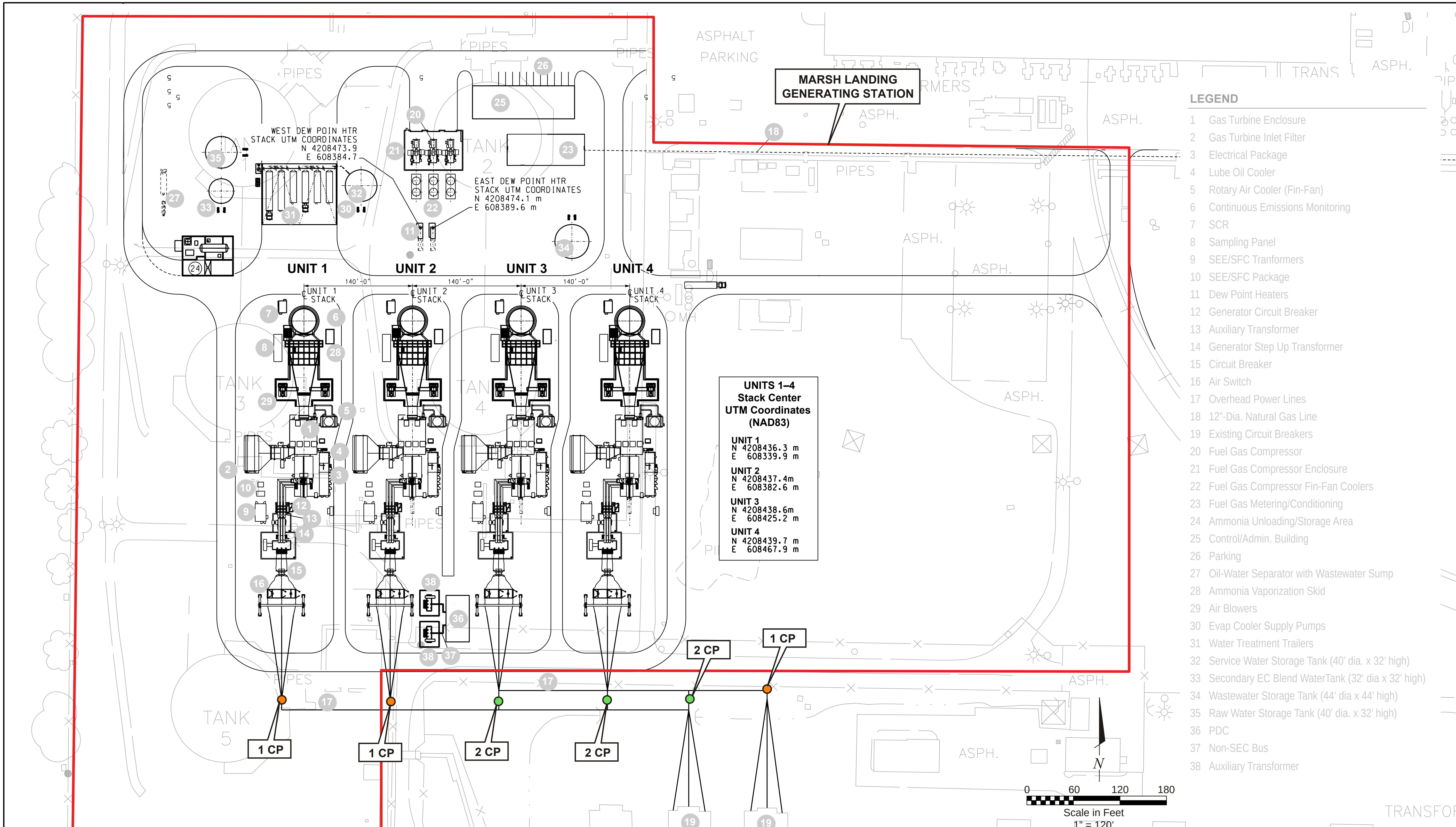


Source:
CH2MHill Lockwood Greene; General Arrangement Marsh Landing Generating Station,
Siemens Simple Cycle SGT6-5000F Equipment Layout;
Drawing No: MR-GA-ML-01-26 (Rev. H, 08/27/09)

LEGEND

- Marsh Landing Generating Station Proposed Project Boundary
- 1 CP Single Circuit Pole
- 2 CP Double Circuit Pole

ELECTRICAL INTERCONNECTION TO THE PG&E SWITCHYARD

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
28067344

URS

REVISED FIGURE 4-1

9/08/09 vsa ..T:\Mirant Contra Costa-Marsh Landing\Graphics\Amendment 2009\Rev 4-1_elect interconnection.ai

3.0 ENVIRONMENTAL CONSEQUENCES

This section discusses potential environmental impacts associated with the proposed project modifications.

3.1 AIR QUALITY

This amended analysis of the potential air quality impacts of four new Simple Cycle units at the MLGS was conducted according to CEC power plant siting requirements. The analysis also addressed U.S. Environmental Protection Agency (U.S. EPA) Prevention of Significant Deterioration (PSD) requirements and Bay Area Air Quality Management District (BAAQMD) permitting requirements for Determination of Compliance/Authority to Construct. This amendment presents information that has changed as a result of the modifications to the project described in Chapters 1 and 2. Tables from the original AFC or from responses to Data Requests that have been revised as a result of this amendment are included with the original table number, but prefaced with "Revised."

AFC Section 7.1.1, Affected Environment, describes the local environment surrounding the project that is relevant to evaluation of the air quality impacts. There will be no changes to the affected environment as a result of this amendment. The equipment general arrangement is shown in Revised Figure 2.5-1.

Some air quality data are presented in other sections of this amendment to the AFC, including an evaluation of toxic air pollutants (see Section 3.6, Public Health) and expected capacity factor of the proposed facility and heat rates (see Chapter 2, Project Description).

This section presents changes to the evaluation of the environmental consequences due to the modification to the project.

3.1.1 Project Construction Emissions

Potential environmental impacts from project construction are presented in AFC Table 7.1-10. The modifications to the MLGS will not result in an increase in the area of disturbance or increase the expected number, duration, or location of construction equipment proposed for the construction of the MLGS presented in the AFC. Therefore, the construction emissions calculated and modeled in AFC Section 7.1.2 accurately characterize the potential air quality impacts during construction for the modified project. All construction mitigation measures agreed upon by the Applicant and CEC staff remain valid and will be implemented during project construction.

3.1.2 Operational Emissions

The proposed combustion turbines will use only pipeline quality natural gas fuel supplied via the PG&E pipeline system. Operational emissions have been revised in this amendment due to the reduced usage of natural gas associated with the change in project design.

3.1.2.1 Normal Operating Emissions

Once it becomes operational, the only emission sources of the project will be the four Siemens Simple Cycle units and the two fuel gas preheaters (also referred to as dew point heaters). Maximum short-term operational emissions from the units were determined from a comparative evaluation of potential emissions corresponding to turbine commissioning, normal operating conditions, and CTG startup/ shutdown conditions. The long-term operational emissions from the units were estimated by summing the emissions contributions from normal operating conditions and CTG startup/shutdown conditions. Estimated annual emissions of air pollutants for the Simple Cycle units have been calculated based on the expected operating schedule for the units presented in Revised Table 7.1-12.

The criteria pollutant emission rates and stack parameters provided by the units vendors for three load conditions (60 percent, 75 percent, and 100 percent) for the Simple Cycle units at three ambient temperatures (94 °F, 60 °F, and 20 °F) are presented in Revised Table 7.1-14.

These cases encompass CTG operations with and without evaporative cooling of the inlet air to the turbines. The combined scenarios presented in these tables bound the expected normal operating range of each proposed unit.

An emission change not associated directly with the project modification is included in this amendment for clarity and completeness. In discussions with the regulatory agencies regarding Best Available Control Technology (BACT) for the gas turbines, the Applicant has agreed to reduce the normal operating emissions for carbon monoxide (CO) and volatile organic compounds (VOCs) from the Simple Cycle units. The CO emissions will be reduced to 2.0 parts per million (ppm), compared to 3.0 ppm in the original AFC. The VOC emissions will be reduced to 1.0 ppm, compared to 2.0 ppm in the original AFC. All of the above concentrations are in units of ppm, dry basis, corrected to 15 percent oxygen. The emissions of CO and VOC shown in Revised Table 7.1-14 reflect the lower concentrations.

3.1.2.2 Turbine Startup and Shutdown Emissions

The expected emissions and durations associated with Simple Cycle unit startup and shutdown events are summarized in Revised Table 7.1-15. No changes to the startup and shutdown times result from this amendment. However, based on discussions with the regulatory agencies, the maximum hourly emissions for two startup cases are estimated. The first case includes a startup and the remainder of the hour at full load operation. The second case includes a startup, a shutdown, a second startup, and the remainder of the hour at full load operation. This second startup case was the basis for maximum hourly emissions for most pollutants, and represents a reasonable worst-case event in which a turbine trip occurs during a startup attempt and an immediate restart is undertaken. Based on vendor information, startup (i.e., the period from initial firing to compliance with emission limits) of the Simple Cycle units will occur within about 11 minutes. During a shutdown event, the efficiency of the emission controls will continue to function at normal operating levels down to a load of 60 percent for the Simple Cycle units; shutdown periods and emissions are measured from the time this load is reached.

Thus, the hours that include a startup event were used for the worst-case short- and long-term emission estimates in the air quality dispersion modeling simulations for these pollutants, which are presented in Revised Table 7.1-16.

3.1.2.3 Emissions Scenarios for Modeling

Reasonable worst-case project emissions scenarios were developed for each pollutant and averaging time for which modeling is required to evaluate the project's maximum potential impacts on air quality, acid deposition, and visibility. These scenarios form the basis for the air dispersion modeling analyses presented in this amendment.

Revised Table 7.1-16 summarizes the worst-case emissions scenarios adopted to assess maximum impacts to air quality and air quality-related values in the modeling analyses for this amendment. Note that modeling of turbine commissioning impacts was conducted separately due to the temporary, one-time nature of this activity.

3.1.2.4 Combined Annual Project Emissions

The total combined annual emissions from all of the project's emission sources are shown in Revised Table 7.1-17, including the four Simple Cycle units. Annual emissions of all pollutants for the four

Simple Cycle units were calculated assuming 1,752 total hours, 167 startups, 167 shutdowns, and 1,705 hours of normal operation at full load at the yearly average temperature of 60 °F.

3.1.2.5 Combustion Turbine Commissioning Emissions

Emissions during commissioning of each new Simple Cycle unit will be unchanged due to this amendment. However, unlike the modeling approach for commissioning in the original AFC, modeling for this amendment was conducted assuming as a worst-case scenario that all four Simple Cycle units would be commissioned simultaneously. This was done to provide the Applicant with the most operational flexibility during the commissioning period.

3.1.2.6 Greenhouse Gas Emissions

The estimated greenhouse gas (GHG) emissions from the project, which includes the four new CTG units, are presented in Revised Table 7.1-20. Additional calculation details are provided in Revised Appendix J3.

3.1.3 Air Quality Impacts Analysis

The Air Quality Impact Analysis was performed using the same model, model option selections, and receptor locations as in the original AFC.

3.1.3.1 Meteorological Data

A copy of the meteorological data set used by BAAQMD was obtained and used in this modeling analysis. An electronic copy of the meteorological data set is included on the Revised Air Quality and Public Health Modeling DVD included with this amendment.

3.1.3.2 Receptor Locations

The receptor grids used were unchanged due to this amendment.

3.1.3.3 Building Wake Effects

As in the modeling analyses for the AFC, effects of building wakes (i.e., downwash) on the plumes from the proposed project's operational emission sources were evaluated using the U.S. EPA Building Profile Input Program – Prime (BPIP-Prime) (Version 04274). However, the BPIP-Prime analysis was rerun to reflect changes in the locations and spacing of the project CTGs, as well as new locations for a number of buildings and other structures in the revised plant layout. The following structures were identified within the proposed project site to be included in the downwash analysis (the number of multiple structures are denoted with parenthesis):

- CTG–selective catalytic reduction stacks (4)
- Gas turbine inlet filters (4)
- Raw Water Storage Tank
- Service Water Storage Tank
- Fuel gas compressor enclosure
- Control/Administration building
- Buildings associated with existing CCPP (4)
- Existing Gateway CTG-HRSGs (2)
- Existing Gateway air-cooled condenser
- Existing CCPP oil tanks (3)

Two additional water storage tanks, the Wastewater Storage Tank and the Blend Water Storage Tank, are either located sufficiently far away from the sources or are low enough that they would not cause downwash effects.

3.1.3.4 Turbine Impact Screening Modeling

The AFC described a turbine impact screening modeling analysis that was performed to determine which CTG operating modes and stack parameters produced the worst-case offsite impacts (i.e., maximum ground-level concentrations for each pollutant and averaging time). This analysis was repeated for the amended project, but in this case only one set of simulations was needed because all four turbines in the revised project are simple-cycle CTGs. Only the emissions from the CTGs were considered in this preliminary modeling step. The AERMOD model simulated transport and dispersion of natural gas combustion emissions released from the four 31.3-foot-diameter (9.5-meter), 165-foot-tall (50.3-meter) stacks that will serve the simple-cycle CTGs.

As in the previous turbine screening runs, the CTG stacks were modeled as point sources at their proposed locations within the project site. Revised Table 7.1-24 summarizes the CTG screening results for a range of nine different CTG operating loads and ambient temperature conditions.

The maximum estimated ground-level concentrations predicted to occur offsite with the unit turbine emission rates for each of the nine operating conditions shown in Revised Table 7.1-24 were then multiplied by the corresponding turbine emission rates for specific pollutants. The highest resulting concentration values for each pollutant and averaging time were then identified, and are presented as the bolded values in Table 7.1-24.

To allow for the greatest operational flexibility and obtain the absolute worst-case modeling scenario, the highest emission rate for any of the nine cases was used for normal operations modeling. The worst-case scenario is the summer maximum 60 percent load case (C3, modeling file case 9). The stack parameters associated with this case were used in most modeling runs.

The stack parameters associated with the maximum predicted impacts (case C3) were then used in all subsequent simulations of the refined AERMOD analyses described below. Note that the lower exhaust temperatures and flow rates at reduced turbine loads correspond to reduced plume rise, in some cases resulting in higher offsite pollutant concentrations than the higher base load emissions. Model input and output files for the screening modeling analysis are included with those from all other modeling tasks on the Air Quality and Public Health Modeling DVDs that are provided separately with this amendment.

3.1.3.4.1 1-Hour Startup Scenarios

The highest hourly nitrogen dioxide (NO_2) and CO impacts would be expected to occur during an hour that involves turbine startups, because the catalytic emission control equipment used with the CTGs is not fully operational during portions of each startup and shutdown. The scenario selected to result in the worst-case turbine emissions over a 1-hour period consists of two startups (each with a duration of about 11 minutes), one shutdown (with a duration of 6 minutes), and maximum full-load normal operations for the remaining 32 minutes. All four turbines were conservatively assumed to undergo this sequence of operations within the same hour. In addition, both fuel gas preheaters were assumed to operate at full capacity during the hour. The turbine screening modeling results discussed previously indicate that maximum hourly NO_2 and CO concentrations during normal operations of the Simple Cycle turbines would occur with the stack parameters corresponding to full-load operations. However the magnitude of the emissions for both these pollutants during the worst-case 60 minutes of a four-turbine startup sequence would be higher than those during normal operations at any ambient temperature condition. Because a startup is a transition from non-operation to full-load operation, the stack exhaust velocity and temperature during a portion of this worst-case hour are lower than the values indicated as “worst-case” by the turbine screening modeling. Accordingly, modeling simulations were conducted to estimate the maximum 1-hour NO_2 and CO concentrations during a startup hour with reduced stack exhaust velocity and temperature, specifically those listed in Revised Table 7.1-25 for the case of 60 percent turbine load and an ambient temperature of 94 ºF.

3.1.3.5 Refined Modeling

A refined modeling analysis was performed to estimate offsite criteria pollutant impacts from operational emissions of the proposed project. The four Simple Cycle units were modeled assuming the worst-case emissions corresponding to each averaging time, along with the turbine stack parameters that were determined in the turbine screening analysis (see above). The maximum mass emission rates that would occur over any averaging time, whether during turbine startups, normal operations, turbine shutdowns, or a combination of these activities, were used in all refined modeling analyses (see Revised Table 7.1-16). Full-load operation of the gas preheaters was assumed to occur during all hours of turbine operation.

3.1.3.6 Fumigation Analysis

Fumigation modeling was conducted in the same manner as described in the Applicant's response to CEC Data Request 8, submitted in December 2008 (URS, 2008). However, because FP10 combined-cycle stacks are no longer a part of MLGS, SCREEN3 was run only once for the simple-cycle stack parameters. New short-term pollutant emissions were used in the fumigation analysis, and for NO_X 1-hour, CO 1-hour, and CO 8-hour emissions, higher startup and shutdown emissions were again incorporated into each emission rate.

Peak concentrations due to nocturnal inversion fumigation are presented in Revised Data Request Table 8-1. Maximum predicted concentrations include impacts from all four turbines. For the Simple Cycle units, the peak shoreline fumigation impacts occurred when the thermal internal boundary layer (TIBL) factor was set to 6. This is confirmed by Revised Data Request Table 8-2, which shows the different Chi over Q (χ/Q) (micrograms per cubic meter per gram per second) values corresponding to different TIBL factors used in the SCREEN3 modeling analysis. Finally, peak concentrations due to shoreline inversion fumigation are presented in Revised Data Request Table 8-3. Maximum predicted concentrations include impacts from all four turbines using a TIBL factor of 6.

Modeling input and output files are included on the Revised Air Quality and Public Health Modeling DVD included with this amendment.

3.1.4 Modeling Results – Compliance with Ambient Air Quality Standards

Air dispersion modeling was performed according to the methodology described above to evaluate the maximum increase in ground-level pollutant concentrations resulting from project emissions, and to compare the maximum predicted impacts, including background pollutant levels, with applicable short-term and long-term state or federal ambient air quality standards (AAQS).

3.1.4.1 Operational Impacts

The emissions used for each pollutant and averaging time are explained and quantified in Revised Table 7.1-16. This subsection describes the maximum predicted operational impacts of the project for normal operating conditions of the Simple Cycle units. Commissioning impacts, which would occur on a temporary, one-time basis and would not be representative of normal operations, were addressed separately, as described below under Turbine Commissioning.

Revised Table 7.1-28 summarizes the maximum predicted criteria pollutant concentrations due to the operational Simple Cycle turbines. The incremental impacts of project emissions would be below the federal PSD significant impact levels for all attainment pollutants, despite the use of worst-case emissions scenarios for all pollutants and averaging times.

Revised Table 7.1-28 also shows that the modeled impacts due to the project emissions, in combination with conservative background concentrations, would not cause a violation of any federal AAQS and would not significantly contribute to the existing violations of the federal and state standards for particulate matter less than or equal to 10 or 2.5 microns in diameter (PM_{10} or $PM_{2.5}$). In addition, as described later, all of the project's operational emissions of nonattainment pollutants and their precursors will be offset to ensure a net air quality benefit.

The locations of predicted maximum impacts would vary by pollutant and averaging time. Revised Figure 7.1-5 shows the locations of the maximum predicted operational impacts for all pollutants and averaging times.

Revised Table 7.1-20 shows the estimated maximum GHG emissions from operations. There are no AAQS for GHG to compare impacts to, so modeling of GHG emissions was not performed. GHG emissions are widely believed to contribute to climate change; however, because climate change is a global impact, the analysis of a project's GHG emissions focuses on whether the project's contribution to GHG emissions will result in a significant adverse cumulative impact. As discussed in the cumulative impacts analysis in Section 3.1.5 below, it is not expected that the project's GHG emissions will contribute to significant cumulative impacts to the environment.

3.1.4.2 Turbine Commissioning

Revised Table 7.1-29 shows the results of the model simulations for turbine commissioning. The tabulated impacts are the highest concentrations for the indicated averaging that are predicted by AERMOD to occur using 5 years of hourly meteorological input data. The modeling was conducted for commissioning of four simple-cycle turbines simultaneously under worst-case emission conditions. Revised Table 7.1-29 demonstrates that when the maximum incremental commissioning impacts are added to applicable background concentrations and compared with the most stringent state or national ambient standards, no violations of the applicable standards for these pollutants are predicted to occur.

3.1.4.3 Impacts for Nonattainment Pollutants and their Precursors

The emission offset program described in the BAAQMD Rules and Regulations was developed to facilitate net air quality improvement for new sources in the BAAQMD. Project impacts of nonattainment pollutants ($PM_{10,}$ $PM_{2.5}$, and ozone) and their precursors (NO_X, sulfur dioxide, and VOC) will be fully mitigated by emission offsets. The emission reductions associated with these offsets have not been accounted for in the modeled impacts noted above. Thus, the impacts indicated in the foregoing presentation of model results for the project may be significantly overestimated.

3.1.4.4 Effects on Visibility from Plumes

The Simple Cycle units will have exhaust gas exiting the stack at temperatures greater than 700 ºF for all operating loads. No visible plumes will occur from these units.

3.1.5 Cumulative Impacts Analysis

In response to CEC Data Request 1, issued in December 2008, a dispersion modeling analysis was conducted to evaluate the maximum cumulative air quality effects of MLGS, the Willow Pass Generating Station, and other sources within 6 miles of either site. This reanalysis of cumulative impacts includes the changes to MLGS discussed in this amendment. All other sources and source emissions remain the same as indicated in the response to this Data Request, submitted in December 2008. The results are presented in Revised Data Request Table 9-2.

Although GHG emissions are not regulated as criteria pollutants, they are discussed in the CEC's California Environmental Quality Act (CEQA) analysis in the context of potential cumulative impacts. Including GHG in CEQA evaluations is part of an evolution of state climate policy. Climate change is addressed comprehensively and across all economic sectors in the California Global Warming Solutions Act of 2006, Assembly Bill (AB) 32 (Nunez, Chapter 488, Statutes of 2006). AB 32 requires the state to reduce its GHG emissions to 1990 levels by 2020. The California Air Resources Control Board (CARB) is tasked with implementing AB 32 and has adopted an AB 32 Scoping Plan that reflects consultation with the CEC and the California Public Utilities Commission (CPUC) regarding how to achieve GHG reductions in the energy sector. CARB is in the process of developing regulations to implement the AB 32 Scoping Plan.

During this interim period before the AB 32 regulations take effect, the CEC Siting Committee has recommended in its Committee Guidance on Fulfilling CEQA Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Cases, March 2009 (GHG Guidance Report) (CEC, 2009a) that the CEC analyze a project's GHG emissions to determine whether the project will have a significant adverse cumulative impact.[1] Based on the principles highlighted in the GHG Guidance Report and the analysis presented in the subsequent consultant report titled Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California, May 2009 (GHG Consultant Report) (CEC, 2009b), the project's GHG emissions will not have a significant adverse cumulative impact, as discussed below.

Achieving a 33 percent renewable portfolio standard is a key feature of the statewide strategy for achieving GHG reductions in accordance with AB 32. As the state's electricity needs are met by a growing renewable fleet, there also will be a growing need for flexible natural-gas–fired resources that can be started quickly and ramped up and down on short notice during periods of peak demand and as needed to provide backup, firming, and shaping service as a complement to intermittent renewable resources. This is recognized in the GHG Guidance Report, which finds that "a system that increasingly relies on renewable generation for energy must likewise provide gas-fired dispatchable generation capacity to make the system reliable when intermittent renewable generators are providing less." The Siting Committee noted that "this is why the 2007 Integrated Energy Policy Report [IEPR] states that natural gas generation must be used prudently as a complementary strategy to reduce greenhouse gas emissions." The CPUC also emphasized this point in its most recent decision authorizing investor-owned utilities to solicit new generation resources from all sources. (CPUC Decision 05-12-052 at 106, 111-112, and 115: "To support the types of needs we anticipate in a GHG-constrained portfolio and to replace the aging units on which some of this authorization is based, we require [each utility] to procure dispatchable ramping resources that can be used to adjust for the morning and evening ramps created by the intermittent types of renewable resources").

The GHG Guidance Report also finds that new gas-fired power plants are more efficient than older power plants and therefore displace the older power plants in the economic dispatch order, even if the older plants are not retired. New gas-fired generation that displaces older facilities therefore provides clear GHG benefits.

The GHG Consultant Report provides support for these conclusions and identifies five roles that gas-fired power plants are most likely to fulfill in the future: (1) intermittent generation support; (2) local capacity requirements; (3) grid operations support; (4) extreme load and system emergencies support; and (5) general energy support. Although a single natural-gas–fired plant produces GHG emissions, the GHG Consultant Report finds that the addition of a gas-fired plant would yield a GHG emission benefit under

[1] The Siting Committee also recommended that the CEC revisit this approach once CARB's regulations are in effect.

three circumstances: "if the plant provided support to integrate renewable energy under a 33 percent Renewable Portfolio Standard, if the addition raised the overall efficiency of the electric system, or of [sic] the new plant served load growth more efficiently than the existing fleet."

Applying this analysis, adding the MLGS to the system can be expected to yield a net GHG benefit. The MLGS will be ideally suited to provide the fast-start, peaking, and ramping capabilities that will be needed to facilitate increasing reliance on renewable resources. The four Simple Cycle turbines will be capable of fast-start operation (within about 11 minutes from cold status), and are designed to be started, ramped up and down, and shut down on an intra-day basis as needed to meet the needs of the system. The units will be capable of providing spinning reserves, non-spinning reserves, and regulating reserves. With an expected maximum annual capacity factor of 20 percent, the modified MLGS is designed specifically for fast-start, backup, and peaking service and is intended to operate when electricity needs cannot be met by resources that are higher in the state's preferred loading order. The MLGS therefore meets the standards in the GHG Consultant Report for providing "intermittent generation support."

The MLGS also will provide "local capacity requirements" as referenced in the GHG Consultant Report. The project is located within a local reliability area (the Greater Bay Area Local Reliability Area) and very close to the load center. Adding the MLGS as a local resource will help displace and facilitate the retirement of older, less efficient resources in the Greater Bay Area Reliability Area, including aging plants that use once-through cooling technology. This will further contribute to the reduction of GHG emissions on a systemwide basis and produce other environmental benefits. This potential displacement is evidenced by the September 3, 2009 announcement by Mirant Delta, LLC that it has conditionally agreed to shut down the existing units at the CCPP after April 30, 2013, subject to regulatory approvals.

Consistent with the GHG Consultant Report, the project also will be capable of providing "grid operation support" (by providing fast start capability, rapid ramping, regulating reserves, spinning reserves, non-spinning reserves, and load following capability), "extreme load and system emergency support" (by providing fast start capability, rapid ramping, regulating reserves, and spinning reserves), and, if necessary in light of the availability of renewable energy, "general energy support" (by providing cost-competitive energy and the ability to help a load serving entity meet its resource adequacy requirements, along with regulating reserves and spinning reserves). The project therefore will be capable of serving all five future roles identified for natural-gas–fired generation in the GHG Staff Report, with capabilities most closely aligned with intermittent generation support and peaking capability.

With these features, the MLGS should be viewed as part of the future California electricity system and the overall strategy for reducing GHG emissions. The need for the MLGS project is demonstrated by the fact that the project as modified is now under contract with one of the state's investor-owned utilities, as announced on September 3, 2009.

3.1.6 Mitigation Measures

Revised estimated required emission reduction credits due to project operations are shown in Revised Table 7.1-31.

3.1.7 Best Available Control Technology Analysis

The lowered emission levels for CO and VOC in exhaust from the Simple Cycle units (based on BACT determinations) were discussed previously in Section 3.1.2.2. None of the other BACT levels for the Simple Cycle units or the fuel gas preheaters changed as a result of this amendment.

Revised Table 7.1-33 presents the proposed BACT determination for the MLGS emission sources. Please note the addition of an entry for GHG.

U.S. EPA policy on whether GHG are subject to Federal PSD Permit review is described in a December 18, 2008 memo (Johnston, 2008). At present, U.S. EPA is not requiring GHG to be regulated under PSD. However, that may change. The Applicant is including this analysis on a voluntary basis should the policy change during this application review.

The Applicant has determined that BACT for GHG for the fossil-fuel–fired simple-cycle gas turbine generators is to employ rapid start capability and limit the annual hours of operation.

GHGs have recently been identified as pollutants that may be regulated under the Clean Air Act. As such, the emissions of GHGs from proposed new projects may in the future be required to undergo BACT analysis. However, GHG emissions contribute to global warming on a global scale; therefore, project-specific impacts of GHG emissions and their resulting impact to the local environment are difficult to specify and quantify through any approved mechanism. Therefore, the BACT for GHG from power plants cannot be evaluated on a project-specific impacts basis, but rather should be evaluated on a global or overall systemwide impacts basis. While it is certainly a worthwhile goal to minimize GHG emissions from individual projects—a goal that MLGS reaches—the establishment of a GHG BACT limit in a one-size-fits-all approach applicable to all types of generation technologies and projects is problematic due to the displacement effects of less efficient generation by new generation technologies, as well as the integration of dispatchable resources to assist in greater usage of intermittent renewable generation resources such as wind and solar. Such an approach ignores the benefits of adding resources that will displace less efficient technologies and facilitate greater reliance on renewable resources that have zero GHG emissions. The vast majority of renewable technologies are intermittent resources that are dependent on wind and solar resources. To facilitate more and more of these types of resources, the system also needs extremely flexible, natural-gas–fired resources that can be started quickly, ramped up and down, and then shut down as needed to accommodate fluctuations in renewable production. A larger fleet of non-GHG–emitting technologies ultimately allows the GHG-emitting facilities to operate for fewer total hours, and only when needed for backup, firming, shaping, and peaking services. In this way, the combination of a larger renewable fleet and the addition of new efficient natural-gas–fired peaking facilities will reduce GHG emissions on a systemwide basis, which is the proper goal for emissions that have a global impact.

As allowed by BAAQMD regulation 2-2-206.1, BACT can be a technique such as "good combustion practice" and does not have to include a numeric based emission limit (i.e., 2.0 ppm NO_X). This GHG BACT determination is based on the former technique. The rapid start peaker technology has zero emissions of GHG pollutants when turned off, but can come on line and be at full load and in full compliance with emissions limits all within about 11 minutes. This surpasses any other reserve techniques such as spinning reserve which, to be ready to ramp up quickly, requires low levels of GHG emissions even when not producing power. Alternatively, combined-cycle units may also cycle on and off and have better thermal efficiency at full load, but require from 3 to 6 hours of higher emissions and less than full power when starting from a cold status. The combined-cycle projects allow installation of equipment that improves thermal efficiency because they are typically licensed to operate for a majority of the time and can recover the cost through higher operating revenues and fuel savings. MLGS is proposed to operate no more than 20 percent of the time on an annual basis. Also, the equipment needed to improve thermal efficiency of the combined-cycle projects increases the start time.

Post-combustion GHG treatment such as carbon capture and sequestration is considered technically and economically infeasible for natural-gas–fired simple-cycle gas turbine applications because it is not commercially demonstrated. BAAQMD has identified good combustion practices as an available combustion control technology for minimizing unburned fuel formation during combustion. MLGS will use good combustion practices to ensure proper air/fuel mixing, achieve complete combustion, and therefore minimize emissions of methane, a component of GHG.

The gas turbine technology embodied for MLGS is exactly the type of resource needed to achieve compliance with the state's ambitious Renewable Portfolio Standard while maintaining reliable and sufficient electrical service. California's Renewable Portfolio Standard requires load serving entities to increase their use of renewable resources such as solar and wind generation. However, as noted above, because solar and wind are intermittent resources that are dependant on nature, it is not only prudent to have a reliable backup, but required by state agencies responsible for maintaining the reliability of the electric system.

As discussed above in the cumulative impacts analysis, the MLGS will be ideally suited to provide the fast-start, peaking, and ramping capabilities that will be needed to facilitate increasing reliance on renewable resources. The four Simple Cycle turbines will be capable of fast-start operation, and are designed to be started, ramped up and down, and shut down on an intra-day basis as needed to meet the needs of the system. The units will be capable of providing spinning reserves, non-spinning reserves, and regulating reserves. With an expected maximum annual capacity factor of 20 percent, the MLGS is designed specifically for fast-start, backup, and peaking service and is intended to operate when electricity needs cannot be met by resources that are higher in the state's preferred loading order. Adding the MLGS as a new resource in a local reliability area also will help displace and facilitate the retirement of older, less efficient resources. With these features, the MLGS will contribute to the reduction of GHG emissions on a systemwide basis.

3.1.8 Laws, Ordinances, Regulations, and Standards

With the exception of the identification of the two proposed $PM_{2.5}$ significant impact levels shown on Revised Table 7.1-28, there is no change to the laws, ordinances, regulation, and standards (LORS) as a result of this amendment.

3.1.9 Involved Agencies and Agency Contacts

Agency contacts regarding air quality assessment of the project have not changed as a result of this amendment.

3.1.10 Permits Required and Permitting Schedule

Permits required for the project that are associated with air quality have not changed as a result of this amendment.

Revised Table 7.1-12
Maximum Simple Cycle Unit Operating Schedule and Stack Parameters

Operating Conditions	Annual Numbers
Number of cold starts per turbine	167
Number of shutdowns	167
Startup time (minutes)	11
Shutdown time (minutes)	6
Turbine operation (hours)	1,705
Total operation (hours)	1,752
Stack height (feet)	165
Stack diameter (feet)	31.33

Revised Table 7.1-14
1-Hour Operating Emission Rates for Simple Cycle Units

Case	Units	1A	1B	1C	2A	2B	2C	3A	3B	3C
Ambient Temperature	**°F**	**Winter Extreme: 20 °F**			**Yearly Average: 60 °F**			**Summer Design: 94 °F**		
CTG Load Level	%	100%	75%	60%	100%	75%	60%	100%	75%	60%
Evap Cooling Status	off/on	Off	Off	Off	85%	Off	Off	On	Off	Off
Gas Turbine Outlet Temperature	ºF	1,065	1,065	1,065	1,090	1,090	1,091	1,123	1,123	1,122
Stack Outlet Temperature	ºF	750	750	750	750	750	750	750	750	750
Exit Velocity	ft/s	70.9	57.6	50.8	68.3	56.6	37.2	65.9	55.4	49.1
NO_X as NO_2 (at 2.5 ppm)	lb/hr	20.83	16.39	13.89	18.89	15.00	12.78	16.94	13.89	11.67
CO (at 3.0 ppm)	lb/hr	10.00	8.00	6.80	9.00	7.50	6.20	8.50	6.50	5.80
VOC (at 2.0 ppm)	lb/hr	2.90	2.30	1.93	2.60	2.10	1.80	2.40	1.90	1.63
PM_{10}	lb/hr	9	8	8	8	8	8	8	8	8
SO_2 (1 gr/100 scf)	lb/hr	6.21	4.90	4.17	5.63	4.51	3.84	5.08	4.11	3.52

Notes:
CO = carbon monoxide
CTG = combustion turbine generator
ºF = degrees Fahrenheit
ft/s = feet per second
gr/100 scf = grains of sulfur per 100 standard cubic feet of natural gas
lb/hr = pounds per hour
NO_X = nitrogen oxides
NO_2 = nitrogen dioxide
PM_{10} = particulate matter less than or equal to 10 microns in diameter
ppm = parts per million
SO_2 = sulfur dioxide
VOC = volatile organic compounds

Revised Table 7.1-15
Criteria Pollutant Emission Rates during Startup and Shutdown

Pollutant	Simple Cycle Units			
	Startup (11 min) Total Emissions (lb/event)	**Shutdown (6 min) Total Emissions (lb/event)**	**Maximum Hourly Two Startups and One Shutdown (lb/hr)**	**Maximum Hourly One Shutdown (lb/hr)**
NO_X (2.5 ppm)	12	10	45.1	28.8
CO (2 ppm)	213	110	544.0	119.0
VOC (1 ppm)	11	5	30.1	7.6
SO_2 (0.4 gr/100 scf)	0.17	0.15	2.5	2.4
SO_2 (1 gr/100 scf)	0.42	0.37	6.2	5.7
PM_{10}	1	1	9.0	9.1

Notes:

CO = carbon monoxide
lb/hr = pounds per hour
NO_X = nitrogen oxides
PM_{10} = particulate matter 10 microns in diameter
ppm = parts per million
gr/100 scf = grains of sulfur per 100 standard cubic feet of natural gas
SO_2 = sulfur dioxide
VOC = volatile organic compounds

Startup/shutdown duration defined as operation of combustion turbine generators below 60 percent load for the Simple Cycle units when gaseous emission rates (lb/hr basis) exceed the controlled rates defined as normal operation.

Startup and shutdown SO_2 emissions are calculated based on the total amount of fuel used for each and the emission rate of SO_2 at a winter extreme of 20 °F; 100 percent load.

Maximum hourly emissions assume two startups, one shutdown, and the remainder of the hour at maximum normal operating rate.

Revised Table 7.1-16
Criteria Pollutant Sources and Emission Totals for the Worst-Case Project Emissions Scenarios for All Averaging Times

Averaging Time	Worst-Case Emission Scenarios by Operating Equipment	Pollutant	Emissions in Pounds – Entire Period Simple Cycle Units/ Turbine
1-hour	**NO_X:** Startup hour	NO_X	45.1
	CO: Startup hour	CO	544.0
	SO_2 (1 gr/100 scf): Operation at 20° F ambient temperature	SO_2	6.2
	PM_{10}: Shutdown hour	PM_{10}	9.1
3-hour	**SO_2:** Three startups, two shutdowns	SO_2	18.6
8-hour	**CO:** Three startups, three shutdowns, and remainder of period at full load operation at 20 °F ambient temperature	CO	1040.5
24-hour	**SO_2 (1 gr/100 scf):** Continuous full-load turbine operation at 20 ºF ambient temperature	SO_2	146.1
	PM_{10}: Three startups, three shutdowns, and the remainder of the period at continuous full-load turbine operation at 20 ºF ambient temperature	PM_{10}	214.4
Annual	**NO_X, SO_2, PM_{10}:** Operation for 1,752 hours at 59 °F, with 167 startups and 167 shutdowns	NO_X	35,874
		SO_2	3,893
		PM_{10}	15,676

Notes:

CO = carbon monoxide
ºF = degrees Fahrenheit
gr/100 scf = grains of sulfur per 100 standard cubic feet of natural gas
NO_X = nitrogen oxides
SO_2 = sulfur dioxide
PM_{10} = particulate matter less than 10 micrometers in diameter

1. Maximum impact scenarios for NO_X and CO are predicted to occur during a portion of the turbine startup sequence with less than full-load emissions and correspondingly reduced stack exhaust velocity and temperature (see discussion under Turbine Impact Screening Modeling in Section 7.1.2.3.

Revised Data Request Table 6-2
Daily Emissions for All Sources

Pollutant	Simple Cycle Units [1,2] (lb/day/CTG)	Fuel Gas Preheaters[3] (lb/day/unit)	MLGS Total[4] (lb/day)
NO_X	548.3	4.12	2,201.4
CO	1,200.5	3.60	4,809.2
VOC	115.1	0.35	461.2
SO_2 (1 gr/100 scf)	146.1	0.34	584.9
PM_{10}	214.4	0.33	858.1

Notes:

CO = carbon monoxide
gr/100 scf = grains of sulfur per 100 standard cubic feet of natural gas
lb/day = pounds per day
lb/day/CTG = pounds per day per combustion turbine generator
lb/day/unit = pounds per day per unit
NO_X = nitrogen oxides
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
SO_2 = sulfur dioxide
VOC = volatile organic compounds

[1] Maximum daily emissions for all pollutants except SO_2 for Simple Cycle units are based on three startups, three shutdowns, and the remaining time in 24 hours at normal operating rate.
[2] Maximum daily emissions for SO_2 for Simple Cycle units are based on normal operating conditions over 24 hours.
[3] There are two Fuel Gas Preheaters. Each preheater has a maximum heat input capacity of 5 million British thermal units per hour. Daily worst-case scenario assumes both preheaters are operating over 24 hours.
[4] MLGS total emissions are based on four Simple Cycle units and two Fuel Gas Preheaters.

Revised Table 7.1-17
Total Project Annual Emissions of Criteria Pollutants

Pollutant	Emissions (tons/year)		
	Simple Cycle Units[1]	Fuel Gas Preheaters	MLGS Total
NO_X	71.75	0.263	72.01
CO	138.57	0.301	138.87
VOC	14.21	0.024	14.23
SO_2	7.79	0.010	7.80
PM_{10}	31.35	0.026	31.38

Notes:
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than or equal to 10 micrometers in diameter
VOC = volatile organic compounds
SO_2 = sulfur dioxide
[1] Simple Cycle units emissions based on 1,752 hours of operation (1,705 hours of operation with 167 startups and 167 shutdowns).

Revised Table 7.1-20
Estimated Greenhouse Gas Emissions from the Project

Emission Rate (metric tons/year)			
CO_2	CH_4	N_2O	Total CO_2 Equivalent
752,900	60	20	760,000

Notes:
CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide

Revised Table 7.1-24
Marsh Landing Turbine Screening Results Simple Cycle Units

Normal Operations – New Siemens SSC6-5000F Simple Cycle Gas Turbines

Case	Case A1	Case A2	Case A3	Case B1	Case B2	Case B3	Case C1	Case C2	Case C3
Ambient Temperature	Winter Minimum: 20°F/90% RH			Yearly Average: 60°F/64% RH			Summer Maximum: 94°F		
CTG Load Level	100%	75%	60%	100%	75%	60%	100%	75%	60%
Evaporative Cooler Status/Effectiveness	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Gas Turbine Outlet Temperature (ºF)	1,065	1,065	1,065	1,090	1,090	1,091	1,123	1,123	1,122
Stack Outlet Temperature (°F)	750	750	750	750	750	750	750	750	750
Stack Outlet Temperature (K)	672.04	672.04	672.04	672.04	672.04	672.04	672.04	672.04	672.04
Stack Exit Velocity (ft/s)	70.9	57.6	50.8	68.3	56.6	50.1	65.9	55.4	49.1
Stack Exit Velocity (m/s)	21.600	17.544	15.498	20.814	17.256	11.347	20.086	16.900	14.965
NO_X as NO_2 (at 2.5 ppm)	20.83	16.39	13.89	18.89	15.00	12.78	16.94	13.89	11.67
CO (at 2.0 ppm)	10.00	8.00	6.80	9.00	7.50	6.20	8.50	6.50	5.80
SO_2 (lb/hr) (based on 0.4 grain total S/100 scf)	2.48	1.96	1.67	2.25	1.80	1.54	2.03	1.65	1.41
SO_2 (lb/hr) (based on 1.0 grain total S/100 scf)	6.21	4.90	4.17	5.63	4.51	3.84	5.08	4.11	3.52
PM_{10} (lb/hr)	9.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
NO_X (g/s)	2.627	2.067	1.752	2.382	1.892	1.611	2.137	1.752	1.471
CO (g/s)	1.26	1.08	0.85	1.134	0.945	0.781	1.071	0.819	0.731
SO_2 (g/s) (based on 0.4 grain total S/100 scf)	0.313	0.247	0.210	0.284	0.227	0.194	0.256	0.208	0.178
SO_2 (g/s) (based on 1.0 grain total S/100 scf)	0.783	0.617	0.526	0.710	0.569	0.485	0.641	0.519	0.444
PM_{10} (g/s)	1.135	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009
Model Results – Maximum X/Q concentration (μg/m³/[g/s]) predicted from AERMOD (all receptors)									
1-hour	1.41	1.59	1.68	1.45	1.61	1.69	1.48	1.62	1.71
3-hour	0.922	0.998	1.05	0.932	1.01	1.06	0.941	1.02	1.07
8-hour	0.577	0.642	0.675	0.589	0.647	0.679	0.601	0.652	0.684
24-hour	0.200	0.222	0.234	0.204	0.224	0.235	0.208	0.226	0.237
annual	0.009	0.011	0.013	0.009	0.011	0.013	0.010	0.012	0.014
Maximum Concentration (μg/m³) predicted per Pollutant Normal Operations (all receptors)									
NO_X 1 hour	3.70451	4.17743	4.41389	3.80961	4.22998	4.44016	3.88843	4.25625	**4.49271**
annual	0.02312	0.02890	0.03416	0.02365	0.02889	0.03415	0.02627	0.03152	**0.03678**
CO 1 hour	1.77817	2.00517	2.11867	1.82861	2.03039	2.13128	1.86644	2.04300	**2.15650**
8 hour	0.72766	0.80963	0.85125	0.74279	0.81594	0.85629	0.75793	0.82224	**0.86260**
SO_2 1 hour	1.10365	1.24454	1.31498	1.13496	1.26019	1.32281	1.15844	1.26802	**1.33847**
3 hour	0.72168	0.78116	0.82187	0.72950	0.79056	0.82969	0.73655	0.79838	**0.83752**
24 hour	0.15655	0.17377	0.18316	0.15968	0.17533	0.18394	0.16281	0.17690	**0.18551**
annual	0.00276	0.00344	0.00407	0.00282	0.00344	0.00407	0.00313	0.00376	**0.00438**
PM_{10} 24 hour	0.22700	0.25197	0.26559	0.23154	0.25424	0.26673	0.23608	0.25651	**0.26900**
annual	0.00999	0.01249	0.01476	0.01022	0.01250	0.01477	0.01136	0.01363	**0.01589**
	Case A1	**Case A2**	**Case A3**	**Case B1**	**Case B2**	**Case B3**	**Case C1**	**Case C2**	**Case C3**

Notes:
CO = carbon monoxide
ºF = degrees Fahrenheit
ft/s = feet per second
g/s = grams per second
gr/100 scf = grains of sulfur per 100 standard cubic feet of natural gas
K = Kelvin
lb/hr = pounds per hour
μg/m³ = micrograms per cubic meter
m/s = meters per second
NO_2 = nitrogen dioxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than or equal to 10 microns in diameter
ppm = parts per million
RH = relative humidity
SO_2 = sulfur dioxide

Revised Table 7.1-25
Maximum Hourly NO_X and CO Stack Parameters Used for Startups

Pollutant and Averaging Time	Description: Turbine Load	Simple Cycle Unit Exhaust Temperature (ºF)	Simple Cycle Unit Exhaust Velocity (ft/s)	Emission Rate per Simple Cycle Unit Turbine (lb/hr)
NO_X 1-hour	All turbines starting up (two startups and one shutdown) with the remainder of the period at normal operations	750	49.1	45.1
CO 1-hour	All turbines starting up (two startups and one shutdown) with the remainder of the period at normal operations	750	49.1	544.0

Notes:

CO = carbon monoxide
ºF = degrees Fahrenheit
ft/s = feet per second
lb/hr = pounds per hour
NO_X = nitrogen oxides

Revised Data Request Table 8-1
Peak Concentrations Due to Nocturnal Inversion Breakup Fumigation

Pollutant	Averaging Time	Maximum Predicted Impact (µg/m³)	Background Concentration (µg/m³)[1]	Total Concentration (µg/m³)	Most Stringent AAQS (µg/m³)
NO_X	1-hour	7.7	122.1	130	339
SO_2	1-hour	1.1	235.8	237	655
	3-hour	0.9	114.4	115	1300
	24-hour	0.4	26.3	27	105
CO	1-hour	93.3	4,715	4,808	23,000
	8-hour	13.6	2,222.0	2,236	10,000
PM_{10}[2,3]	24-hour	0.5	84	85	50
$PM_{2.5}$[2,3]	24-hour	0.5	74	75	35

Notes:

AAQS = ambient air quality standard
CO = carbon monoxide
µg/m³ = micrograms per cubic meter
NO_X = nitrogen oxides
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
SO_2 = sulfur dioxide

[1] Background represents the maximum values measured at the monitoring stations in Marsh Landing AFC.
[2] PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.
[3] All PM_{10} emissions from project sources were also considered to be $PM_{2.5}$.

Revised Data Request Table 8-2 Shoreline Inversion *X*/Q Values for Different Thermal Inversion Boundary Layer Factors	
TIBL Factor	**5000F Simple Cycle turbine X/Q (μg/m^3/g/s)**
2	0.2505
3	0.5837
4	1.027
5	1.527
6	2.024

Notes:
μg/m^3/g/s = micrograms per cubic meter per gram per second
TIBL = thermal internal boundary layer

Revised Data Request Table 8-3
Peak Concentrations Due to Shoreline Inversion Fumigation

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)[1]	Total Concentration ($\mu g/m^3$)	Most Stringent AAQS ($\mu g/m^3$)
NO_X	1-hour	46.0	122.1	168	339
SO_2	1-hour	6.3	235.8	242	655
	3-hour	3.2	114.4	118	1,300
	24-hour	0.5	26.3	27	105
CO	1-hour	554.9	4,715	5,270	23,000
	8-hour	28.1	2,222	2,250	10,000
PM_{10}[2,3]	24-hour	0.7	84	85	50
$PM_{2.5}$[2,3]	24-hour	0.7	74	75	35

Notes:

AAQS = ambient air quality standard
CO = carbon monoxide
$\mu g/m^3$ = micrograms per cubic meter
NO_X = nitrogen oxides
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter
SO_2 = sulfur dioxide

[1] Background represents the maximum values measured at the monitoring stations in Marsh Landing AFC
[2] PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.
[3] All PM_{10} emissions from project sources were also considered to be $PM_{2.5}$.

Revised Table 7.1-28
AERMOD Modeling Results for Project Operations
(All Project Sources Combined)

Pollutant	Averaging Period	Maximum Predicted Impact (μg/m³)	Significant Air Quality Impacts[6] (μg/m³)	Background Concentration (μg/m³)[1]	Total Concentration (μg/m³)	Federal AAQS (μg/m³)	State AAQS (μg/m³)	Maximum UTMX NAD27 (m)	Maximum UTMY NAD27 (m)
NO_2	1-Hour	19.60 (Normal Operations)	19	122.1	141.7	NA	339	608,494	4,208,410
		38.63 (Startup Operations)	NA	122.1	160.7	NA	339	601,000	4,199,675
	Annual	0.12	1.0	22.4	22.6	100	57	608,764	4,208,170
SO_2	1-Hour	5.31	NA	235.8	241.1	NA	655	601,000	4,199,675
	3-Hour	3.31	25	114.4	117.7	1,300	NA	600,000	4,199,750
	24-Hour	0.74	5	26.3	27.0	365	105	600,800	4,199,700
	Annual	0.005	1.0	5.3	5.3	80	NA	608,764	4,208,170
CO	1-Hour	22.47 (Normal Operations)	2,000	4,715	4,738	40,000	23,000	608,494	4,208,410
		465.98 (Startup Operations)	NA	4,715	5,181	40,000	23,000	601,000	4,199,675
	8-Hour	44.93 (Normal Operations)	500	2,222	2,230	10,000	10,000	600,800	4,199,700
		187.89 (Startup Operations)	NA	2,222	2,410	10,000	10,000	600,800	4,199,700
PM_{10}	24-Hour	1.09	5	87	87.1	150	50	600,800	4,199,700
	Annual	0.015	1.0	22	22.6	NA	20	608,764	4,208,146
$PM_{2.5}$	24-Hour	1.09	NA	77	77.1	35	NA	600,800	4,199,700
	Annual	0.015	NA	12	12.6	15	12	608,764	4,208,146

Notes:

AAQS = ambient air quality standards
CO = carbon monoxide
m = meters
μg/m³ = micrograms per cubic meter
NO_2 = nitrogen dioxide
NA = not applicable
SO_2 = sulfur dioxide
PM_{10} = particulate matter less than or equal to 10 microns
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns

1 Background represents the maximum values measured at the monitoring stations identified in Section 7.1.1.2.
2 Results for NO_2 during operations used ozone limiting method with ambient ozone data collected at the Bethel Island monitoring station for the years 2000-2002 and 2004-2005.
3 PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.
4 All PM_{10} emissions from project sources were also considered to be $PM_{2.5}$.
5 In February 2007, the California Air Resources Board approved new, more stringent state AAQS for NO_2 as shown in the table above. These changes became effective in March 2008.
6 Significant Air Quality Impact is applicable only for normal operations. Significant impact levels for $PM_{2.5}$ are proposed.

Revised Table 7.1-29
Project Commissioning Modeling Results

Modeling Scenario	Pollutant	Averaging Period	Maximum Estimated Impact ($\mu g/m^3$)	Background[1] ($\mu g/m^3$)	Total Predicted Concentration ($\mu g/m^3$)	Most Stringent Standard ($\mu g/m^3$)
Simple Cycle Turbines commissioning only	CO	1 hour	2,273.7	4,715	6,988.7	23,000
		8 hours	922.6	2,222	3,144.6	10,000
	NO_2[3]	1 hour	176.3	122.1	298.4	339[2]

Notes:

CO = carbon monoxide
$\mu g/m^3$ = micrograms per cubic meter
NO_2 = nitrogen dioxide

1 Background represents the maximum values measured at the monitoring stations presented in AFC Section 7.1.1.2.
2 In February 2007, the California Air Resources Board approved new, more stringent state ambient air quality standards for NO_2. The new standards of 339 $\mu g/m^3$ (1 hour) and 57 $\mu g/m^3$ (annual) became effective in March 2008.
3 NO_2 modeling for commissioning was conducted with the ozone limiting method algorithm.

Revised Data Request Table 9-2
AERMOD Cumulative Impact Modeling Results

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)[1]	Maximum Total Predicted Concentration ($\mu g/m^3$)	Most Stringent AAQS ($\mu g/m^3$)	UTM Coordinates NAD27	
						East (m)	North (m)
CO	1 hour	410.78	4,715	5,126	23,000	593,500	4,207,000
	8 hour	264.36	2,222	2,486	10,000	593,500	4,207,000
NO_2	1 hour[2]	94.72	122.1	217	339	593,500	4,207,000
	Annual[2]	1.65	22.4	24	57	593,825	4,207,000
PM_{10}	24 hour[3,4]	5.76	84	90	50	599,500	4,209,500
	Annual[3,4]	0.99	22	23	20	599,500	4,209,500
$PM_{2.5}$	24 hour[3,4]	5.76	74	80	35	599,500	4,209,500
	Annual[3,4]	0.99	12	13	12	599,500	4,209,500
SO_2	1 hour	37.06	235.8	273	655	593,500	4,207,000
	3 hour	30.83	114.4	145	1,300	593,500	4,207,000
	24 hour	8.62	26.3	35	105	593,500	4,206,800
	Annual	0.51	5.3	6	80	593,825	4,207,000

Notes:

AAQS = ambient air quality standard
AERMOD = American Meteorological Society and Environmental Protection Agency preferred atmospheric dispersion model
CO = carbon monoxide
m = meters
$\mu g/m^3$ = micrograms per cubic meter
NO_2 = nitrogen dioxide
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter. All PM emissions during operation were assumed to be $PM_{2.5}$
SO_2 = sulfur dioxide
UTM = Universal Transverse Mercator

1 Background represents the maximum values measured at the monitoring stations in Marsh Landing AFC.
2 Results for NO_2 used ozone limiting method with ambient ozone data collected at Bethel Island monitoring station for the years 2000-2002 and 2004-2005.
3 PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.
4 All PM_{10} emissions from project sources were also considered to be $PM_{2.5}$.

Revised Table 7.1-31
Estimated Emission Credit Requirements to Offset Project Emissions

Pollutant	Total Marsh Landing Turbine Potential Emissions (ton/yr)	New Source Review Offset Ratio	Offsets Required (ton/yr)	Current ERC Holdings (ton/yr)	Holdings After Offsets are Deducted (ton/yr)
NO_X	72.0	1.15	82.8	485.7	402.9
CO	138.9	0	0.0	579.2	579.2
VOC	14.2	1.15	16.4	78.0	61.6
SO_2	7.8	1	7.8	130.2	122.4
PM_{10}	31.4	1	31.4	234.2	202.9

Notes:

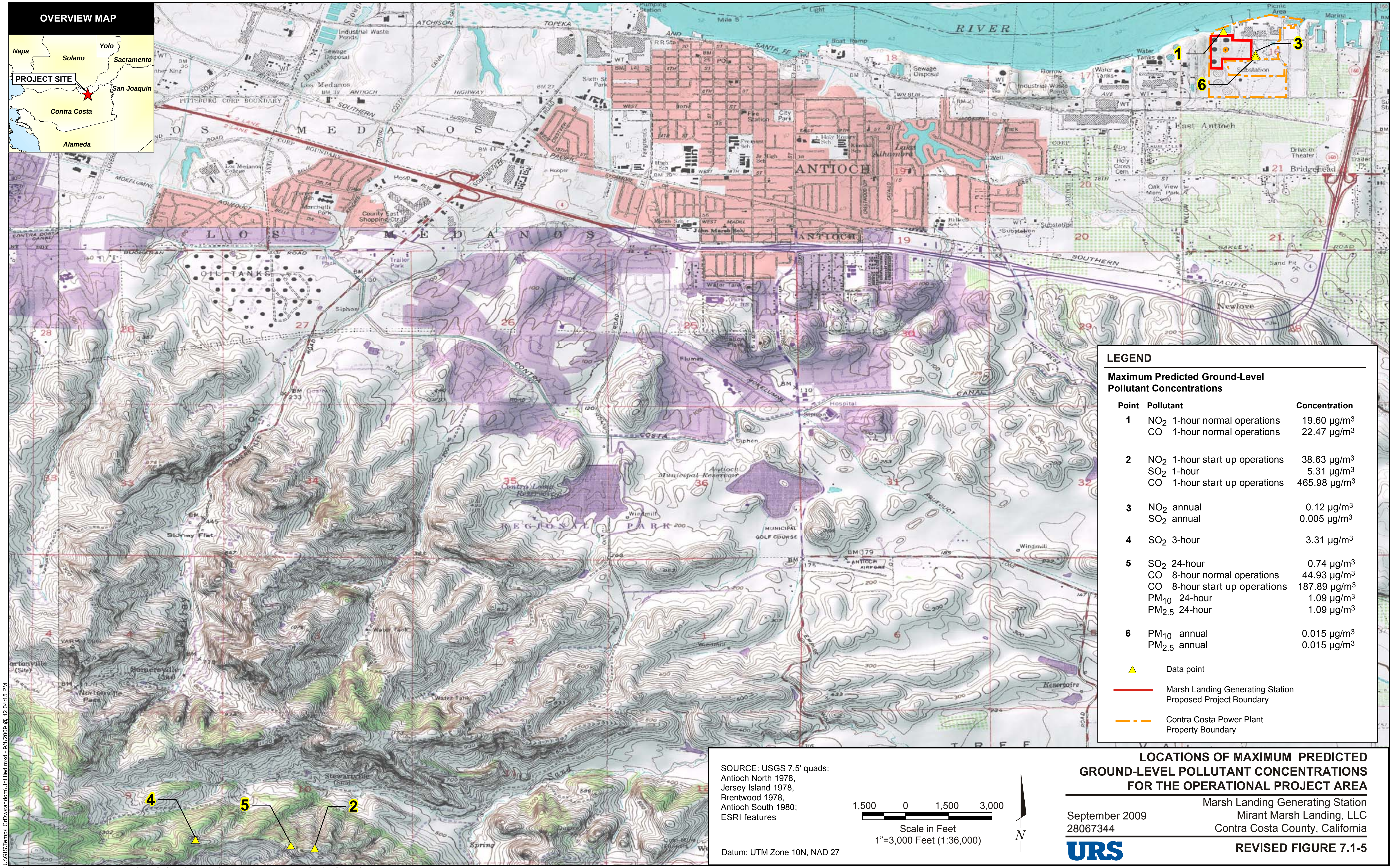
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than or equal to 10 microns
SO_2 = sulfur dioxide
ton/yr = tons per year
VOC = volatile organic compound

Offset ratios are 1.15:1 for NO_X and VOC emissions on a pollutant specific basis, for each pollutant (facility wide) over 35 tons per year.
Below 35 tons is 1:1.
Offset ratios are 1:1 for remaining criteria pollutants.
0.4 grain per 100 standard cubic feet annual average natural gas sulfur.

Revised Table 7.1-33
Summary of Proposed BACT

Pollutant	Control Technology	Concentration
Simple Cycle Units		
NO_X	Ultra low NO_X burner, SCR	2.5 ppmvd (1-hour average) at 15 percent O_2
CO	Catalytic oxidation	2.0 ppmvd at 15 percent O_2
VOC	Catalytic oxidation	1.0 ppmvd at 15 percent O_2
SO_2	Pipeline quality natural gas	NA
PM_{10}	Pipeline quality natural gas	NA
Ammonia slip	Operational limitation	10.0 ppmvd at 15 percent O_2
Greenhouse gases	Rapid start technology, limit on annual usage	NA

Notes:
BACT = Best Available Control Technology
CO = carbon monoxide
NA = not applicable
NO_X = nitrogen oxides
O_2 = oxygen
PM_{10} = particulate matter less than or equal to 10 microns in diameter
ppmvd = parts per million by volume, dry basis
SCR = selective catalytic reduction
SO_2 = sulfur dioxide
VOC = volatile organic compounds



LEGEND

Maximum Predicted Ground-Level Pollutant Concentrations

Point	Pollutant	Concentration
1	NO_2 1-hour normal operations	19.60 µg/m^3
	CO 1-hour normal operations	22.47 µg/m^3
2	NO_2 1-hour start up operations	38.63 µg/m^3
	SO_2 1-hour	5.31 µg/m^3
	CO 1-hour start up operations	465.98 µg/m^3
3	NO_2 annual	0.12 µg/m^3
	SO_2 annual	0.005 µg/m^3
4	SO_2 3-hour	3.31 µg/m^3
5	SO_2 24-hour	0.74 µg/m^3
	CO 8-hour normal operations	44.93 µg/m^3
	CO 8-hour start up operations	187.89 µg/m^3
	PM_{10} 24-hour	1.09 µg/m^3
	$PM_{2.5}$ 24-hour	1.09 µg/m^3
6	PM_{10} annual	0.015 µg/m^3
	$PM_{2.5}$ annual	0.015 µg/m^3

Data point

Marsh Landing Generating Station Proposed Project Boundary

Contra Costa Power Plant Property Boundary

SOURCE: USGS 7.5' quads:
Antioch North 1978,
Jersey Island 1978,
Brentwood 1978,
Antioch South 1980;
ESRI features

Datum: UTM Zone 10N, NAD 27

1,500 0 1,500 3,000
Scale in Feet
1"=3,000 Feet (1:36,000)

N

LOCATIONS OF MAXIMUM PREDICTED GROUND-LEVEL POLLUTANT CONCENTRATIONS FOR THE OPERATIONAL PROJECT AREA

September 2009
28067344

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

URS

REVISED FIGURE 7.1-5

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3.2 BIOLOGICAL RESOURCES

The modification to the MLGS involves general arrangement changes within the 27-acre MLGS site that do not result in any additional disturbed areas other than those identified in the AFC. Because the satellite treatment plant will no longer be constructed at the BLS, this area will no longer be disturbed and the pipeline along Wilbur Avenue will be shorter. As described in AFC Section 7.2 and in supplemental submittals to the CEC (i.e., responses to data requests), no threatened or endangered plant or wildlife species have been observed during biological resource field surveys in the vicinity of the MLGS site.

The new well pad will be located on the CCPP property north of Wilbur Avenue and east of the secondary access road on previously disturbed land. The nearby trees will not be removed. Therefore, the modification to the MLGS will not change the analysis of potential impacts to biological resources described in AFC Section 7.2, and impacts to biological resources are expected to be less than significant with implementation of the mitigation measures agreed upon by Applicant and CEC staff.

3.3 CULTURAL RESOURCES

The modification to the MLGS involves general arrangement changes within the 27-acre MLGS site that do not result in any additional disturbed areas other than those identified in the AFC. Because the satellite treatment plant will no longer be constructed at the BLS, this area will no longer be disturbed and the pipeline along Wilbur Avenue will be shorter. As discussed in AFC Section 7.3, no significant archaeological or historic and architectural (built environmental) resources were identified within the project site or vicinity. Therefore, these modifications of the MLGS would not change the analysis of impacts to cultural resources as described in AFC Section 7.3, and impacts to cultural resources are expected to be less than significant with implementation of the mitigation measures agreed upon by Applicant and CEC staff.

3.4 LAND USE

The modification to the MLGS involves general arrangement changes within the 27-acre project site. These changes would not alter the analysis of potential impacts to land use resources presented in AFC Section 7.4, which found that the proposed project would not disrupt or divide an established community; would not conflict with the established uses of the area; would be consistent with existing zoning and applicable land use plans, policies, and regulations; and would not affect farmlands. Therefore, as described in AFC Section 7.4, potential impacts to land use resources are expected to be less than significant.

3.5 NOISE

The modification to the MLGS will not result in significant changes to the potential noise emissions during construction that were modeled and presented in AFC Section 7.5.3.7. The number of staff and construction equipment to be used will be less than described in the AFC.

A detailed noise model was developed for the operational noise analysis presented in AFC Section 7.5.3.2. This model was modified to incorporate the modifications to the MLGS and to assess potential changes in noise exposure. The changes that are expected to affect the operational noise emissions of the MLGS are the replacement of the two FP10 units with two Simple Cycle units, increasing the stack heights from approximately 150 feet to 165 feet, and shifting the locations of the units.

Ambient noise levels in the vicinity of MLGS increased with the introduction of the Gateway Generating Station (GGS), which began operation in January 2009. The facility is located approximately 1,000 feet east of the MLGS property boundary. The AFC for GGS (Docket No. 00-AFC-1C) contained Conditions of Certification that required an ambient noise survey to demonstrate compliance with CEC regulations regarding environmental noise exposure. These data, which are contained in the GGS Condition of Certification NOISE-6: Summary Report on 25-hour Community Noise Survey (dated January 28, 2009) and reflect the most recent and most accurate noise level data in the environs of MLGS, were used for this analysis. Conservative assumptions based on these data were made and are incorporated in this analysis.

As detailed in the GGS Summary Report, ambient noise level measurements were made at three locations ranging from 700 feet to 1,200 feet away from GGS. At a distance of 1,000 feet, the sound level exceeded 90 percent of the time (L_{90}) was measured at 54 A-weighted decibels (dBA). These data were used to predict noise exposure at noise-sensitive receptor locations LT-1 and LT-2 as referenced in AFC Section 7.5.

3.5.1 Construction Impacts

The potential noise emissions during construction were modeled and presented in AFC Section 7.5.2.1. These impacts were determined to be less than significant. It is anticipated that no changes in noise levels due to construction will occur. Consistent with the conclusion presented in the AFC, construction noise impacts, including the project modifications presented in Chapter 2, are expected to be less than significant with implementation of the mitigation measures agreed upon by Applicant and CEC staff.

3.5.2 Operational Impacts

The modifications outlined in Chapter 2 will alter the project's operational noise levels. The specific modifications that impact project operational noise levels are the removal of the combined-cycle units, the installation of two Simple Cycle units and their respective ancillary components, and the repositioning of all four Simple Cycle units.

The cumulative effects of the modifications outlined in Chapter 2 were evaluated. Revised Table 7.5-5 and Revised Table 7.5-7 illustrate the projected operational noise levels in terms of L_{90} and equivalent sound level (L_{eq}), respectively, as a result of the modifications. The values shown in these tables reflect the effects of GGS operations.

The project-related change in L_{90} at LT-1 and LT-2 is shown in Revised Table 7.5-5. L_{90} is commonly referenced as the background noise level and is a key metric used by CEC staff in evaluating changes in noise exposure. The predicted increase in L_{90} is 0.8 dBA at LT-1 and 4.8 dBA at LT-2. The CEC guidelines state that the area of impact to be studied should include areas where the noise of the project plus the background exceeds the existing background levels by 5 dBA or more at the nearest Noise Sensitive Activity. In previous findings, CEC has considered it reasonable to assume that an increase in background noise levels up to 5 dBA in a residential setting is considered insignificant. Based on these criteria, the increases in L_{90} are not significant.

Revised ambient noise levels have been established in the project area as a result of the operational noise from GGS. In reference to Revised Table 7.5-7, the measured 25-hour L_{eq} levels at LT-1 and LT-2, inclusive of GGS operations, are 59 dBA and 61 dBA, respectively. The projected operational noise levels from MLGS operations are 54 dBA and 50 dBA, respectively. The cumulative L_{eq} will increase by 0.5 dBA at LT-1 and 0.3 dBA at LT-2 due to project operational noise. Increases of this magnitude are not significant.

Therefore, noise impacts are expected to be less than significant with implementation of the mitigation measures presented in AFC Section 7.5.5.

Revised Table 7.5-5
Existing L_{90} Sound Level and MLGS L_{90} Sound Level

Receptor	Distance from MLGS to Receptor (ft)	Measured Sound Level (L_{90})	Gateway Projected Sound Levels (L_{90})	Measured Ambient + Predicted Gateway (L_{90})	Predicted MLGS Sound Level (L_{90})	Calculated Project + Measured (L_{90}) + Gateway	Project Change (L_{90})
LT-1	2,300	46.6 dBA	59.3 dBA	59.6 dBA	52.4 dBA	60.3 dBA	0.8 dBA
LT-2	2,800	41.8 dBA	42.5 dBA	45.2 dBA	48.3 dBA	50.0 dBA	4.8 dBA

Notes:

ft = feet
L_{90} = sound level exceeded 90 percent of the time
dBA = A-weighted decibel

L_{90} for LT-1 and LT-2 is the arithmetic average of the L_{90} during the quietest consecutive 4 hours of the 25-hour measurement period.

Revised Table 7.5-7
Existing L_{eq} Sound Level and MLGS L_{eq} Sound Level

Receptor	Distance from MLGS to Receptor (ft)	Measured Sound Level (L_{eq})	Gateway Projected Sound Levels (L_{eq})	Measured Ambient + Predicted Gateway (L_{eq})	Predicted MLGS Sound Level (L_{eq})	Calculated Project + Measured (L_{eq}) + Gateway	Project Change (L_{eq})
LT-1	2,300	59.0 dBA	60.8 dBA	63.0 dBA	53.9 dBA	63.5 dBA	0.5 dBA
LT-2	2,800	61.0 dBA	44.0 dBA	61.1 dBA	49.8 dBA	61.4 dBA	0.3 dBA

Notes:

ft = feet
L_{90} = sound level exceeded 90 percent of the time
dBA = A-weighted decibel

3.6 PUBLIC HEALTH

The AFC assessed the potential impacts of the proposed MLGS on public heath. The human health risk assessment (HRA) is based on the project's emissions of toxic air contaminants (TACs) and the approach used in this amendment is the same approach described in the AFC. The HRA was reassessed to be consistent with the project modifications described in Chapter 2 and resultant changes in predicted air emissions presented in Section 3.1.

3.6.1.1 Construction Emissions

Potential impacts on public health due to project construction are presented in AFC Section 7.6. The modifications to the MLGS will not result in an increase in the area of disturbance or alter the location of the construction activities. Because the complexity of the project has been reduced and the construction schedule has been shortened (from 33 months to 27 months), the expected quantity of construction equipment and the duration of the equipment's usage proposed for the construction of the modified MLGS will be less than presented in the AFC. All construction mitigation measures agreed upon by applicant and CEC staff remain valid and will be implemented during project construction. Therefore, significant long-term public health effects are not expected to occur as a result of project construction emissions.

3.6.1.2 Operational Emissions

The modified facility operations were evaluated to determine whether particular substances would be used or generated at the project site that could cause adverse health effects upon their release to the air.

Based on BAAQMD and Office of Environmental Health Hazard Assessment guidelines, a list of pollutants with potential cancer and noncancer health effects associated with the emissions from the modified project are listed in Revised Table 7.6-1. These substances are the same substances that were identified for the HRA conducted in the AFC for the original project. For the modified project, the four Simple Cycle units and the two natural-gas–fired preheaters are the only sources of TACs associated with normal MLGS operations.

Worst-case estimates of TAC emissions from the modified project are based on the following:

- Each Simple Cycle turbine would operate with a maximum higher heating value (HHV) fuel energy input rate of 2,202 million British thermal units (MMBtu) per hour (100 percent load at 20 °F, for 1,752 hours per year).

- Each natural-gas–fired preheater would operate with a maximum HHV fuel energy input rate of 5 MMBtu per hour and will operate during every hour of turbine operation (1,752 hours per year).

Model simulations to estimate both hourly and annual average impacts from the modified project used the following stack parameters:

- For the Simple Cycle turbines, exhaust temperature and stack exhaust velocity values corresponding to 60 percent load at an ambient temperature of 94 °F, with no evaporative cooling.

- For the natural-gas–fired preheaters, exhaust temperature and stack exhaust velocity values corresponding to operation at maximum capacity.

The turbine emission parameter combinations were determined from the turbine screening modeling described in Section 3.1, Air Quality, to produce the highest ground-level impacts outside the project site. This parameter combination ensures that impacts from the HRA will not be underestimated for any operating condition.

The emission factors and estimated maximum hourly and annual emissions from each Simple Cycle CTG are presented in Revised Table 7.6-3. While the emission factors and hourly emission rates for each pollutant are the same as presented in AFC Table 7.6-3 for the Simple Cycle CTGs, the annual emission rates have increased due to the increased number of hours of operation from 877 hours to 1,752 hours per year. The modified project no longer includes the FP10 combined-cycle units that would have operated for more than 4,000 hours per year. Emission factors for the natural-gas–fired preheaters, along with the estimated maximum hourly and annual TAC emissions, are presented in Revised Table 7.6-3. Under the Clean Air Act, Section 112, a major source of hazardous air pollutants (HAPs) is a source that emits 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAPs. A summary of the annual HAP emissions can be found in Revised Appendix O2. The modified project is not a major source of HAPs.

At the request of BAAQMD, an additional analysis was conducted to estimate the potential health risks to offsite workers due to operation of the project. The cancer risk was estimated using the default worker parameters of a 40-year exposure for 8 hours per day and 245 days per year. The chronic and acute total hazard indices (THIs) were estimated in the same manner as at the other receptors.

3.6.1.3 Estimated Lifetime Cancer Risk

The maximum incremental cancer risk resulting from project emissions was estimated to be 0.026 in 1 million, located approximately 600 meters southeast of the MLGS boundary (receptor located at 609,244 meters east, 4,207,735 meters north[2]). The peak cancer risk predicted at a sensitive receptor was 0.020 in 1 million, at the Live Oak Community Christian Church, approximately 2 kilometers southeast of the project boundary (610,540 meters east, 4,206,910 meters north). The maximum predicted cancer risk for an offsite worker was 0.0036 approximately 500 meters southeast of the property boundary. Revised Table 7.6-4 presents the detailed cancer risk results of the HRA for the project operations.

The estimated cancer risks at all locations due to the modified project are slightly lower than the estimates for the original project, and are still well below the significance criterion of 10 in 1 million and the Toxic Best Available Control Technology (TBACT) threshold of 1 in 1 million. Thus, the project emissions are expected to pose a less-than-significant increase in terms of carcinogenic health risk. All HARP and AERMOD model files are provided electronically on the Air Quality and Public Health Modeling File CD that is supplied separately with this amendment.

3.6.1.4 Estimated Chronic and Acute Total Hazard Indices

The maximum chronic THI resulting from project's operational emissions was estimated to be 0.001 at a location approximately 600 meters southeast of the MLGS boundary (609,244 meters east, 4,207,760 meters north). The maximum predicted chronic THI at a sensitive receptor due to TAC emissions of the project was 0.0009, at the Live Oak Community Christian Church, approximately 2 kilometers southeast of the project boundary (610,540 meters east, 4,206,910 meters north). The maximum chronic THI was predicted at an offsite worker receptor was 0.0012 approximately 500 meters southeast of the property boundary.

[2] Coordinates are provided in accordance with the Universal Transverse Mercator and North American Datum, 1927, Zone 10.

The maximum acute THI resulting from project emissions was estimated to be 0.052 at a location approximately 11 kilometers southwest of the project (601,000 meters east, 4,199,675 meters north). The maximum acute THI at a sensitive receptor was estimated to be 0.028, at the Bridgeway Church, approximately 2 kilometers south of the project boundary (609,233 meters east, 4,206,127 meters north). Revised Table 7.6-4 presents the detailed noncancer results of the HRA for the project operations. The maximum acute THI predicted at an offsite worker receptor was 0.029, approximately 500 meters southeast of the property boundary.

The estimated chronic and acute THIs are well below the significance criterion of 1.0 and the TBACT chronic threshold of 0.2. Thus, the project emissions of noncarcinogenic TACs would not be expected to pose a significant risk.

3.6.1.5 Criteria Pollutants

As presented in Section 3.1 of this amendment, the results of the air quality analysis show that the modified project would not cause a violation of any state or federal AAQS and would not significantly contribute to existing violations of federal standards. Therefore, no significant adverse health effects are anticipated to result from the modified project's criteria pollutant emissions.

3.6.1.6 Cumulative Impacts

Similar to the analysis presented in the AFC, a cumulative HRA was performed to evaluate the combined impacts of the modified project emissions with those of the existing CCPP Units 6 and 7 (combined 690-MW), the GGS Units 1 and 2 (combined 530-MW), and the GGS natural gas preheater. On September 3, 2009, Mirant Delta, LLC, announced that it has conditionally agreed to retire CCPP Units 6 and 7 after April 30, 2013, subject to regulatory approvals. The analysis in this amendment is therefore overly predictive given the current expectation that CCPP Units 6 and 7 will be retired around the time that the MLGS is coming on line. This conservative analysis was used to ensure that there will be no significant impacts in the event that retirement of CCPP Units 6 and 7 is delayed due to reliability needs.

The predicted cumulative health risks associated with the TAC emissions from the modified MLGS, CCPP, and GGS projects based on HARP model results are summarized in Revised Table 7.6-8. As shown in this table, the maximum cancer risk was predicted to be 0.298 in 1 million at a receptor located approximately 850 meters southeast of the property boundary (receptor located at 609,600 meters east, 4,207,800 meters north). The estimated cancer risk at all locations is below the significance criteria of 10 in 1 million. Therefore, the project's emissions along with the CCPP and GGS emissions would not pose a significant cancer risk to any populations potentially exposed to these emissions.

The maximum chronic noncancer THI from cumulative sources was predicted to be 0.018, located approximately 850 meters southeast of the property boundary (609,600 meters east, 4,207,800 meters north). The maximum acute noncancer THI from cumulative sources was predicted to be 0.095 at a location approximately 500 meters southeast of the property boundary (609,269 meters east, 4,207,885 meters north).

The estimated chronic and acute THIs are both below the THI significance criterion of 1.0. Therefore, the health risk of the modified project combined with the health risk from the CCPP and GGS facilities would not pose a significant noncancer health risk to any populations that would potentially be exposed to these emissions. By definition, the project would therefore not contribute to a cumulatively significant impact, and cumulative impacts of the project would be less than significant.

Revised Table 7.6-1
Toxicity Values Used To Characterize Health Risks

Compound	Sources of Emissions	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Chronic REL ($\mu g/m^3$)	Acute REL ($\mu g/m^3$)
Ammonia	Turbines	NA	2.0E+02	3.2E+03
1,3-Butadiene	Turbines	6.0E-01	2.0E+01	NA
Acetaldehyde	Turbines and preheaters	1.0E-02	9.0E+00	NA
Acrolein	Turbines and preheaters	NA	6.0E-02	1.9E-01
Benzene	Turbines and preheaters	1.0E-01	6.0E+01	1.3E+03
Ethylbenzene[1]	Turbines and preheaters	8.7E-03	2.0E+03	NA
Formaldehyde	Turbines and preheaters	2.1E-02	3.0E+00	9.4E+01
Hexane	Turbines	NA	7.0E+03	NA
Propylene	Turbines and preheaters	NA	3.0E+03	NA
Propylene oxide	Turbines	1.3E-02	3.0E+01	3.1E+03
Toluene	Turbines and preheaters	NA	3.0E+02	3.7E+04
Xylenes	Turbines and preheaters	NA	7.0E+02	2.2E+04
Polycyclic Aromatic Hydrocarbons				
Naphthalene	Turbines and preheaters	1.2E-01	9.0E+00	NA
Benzo(a)anthracene	Turbines and preheaters	3.9E-01	NA	NA
Benzo(a)pyrene	Turbines and preheaters	3.9E+00	NA	NA
Benzo(b)fluoranthene	Turbines and preheaters	3.9E-01	NA	NA
Benzo(k)fluoranthene	Turbines and preheaters	3.9E-01	NA	NA
Chrysene	Turbines and preheaters	3.9E-02	NA	NA
Dibenz(a,h)anthracene	Turbines and preheaters	4.1E-00	NA	NA
Indeno(1,2,3-cd)pyrene	Turbines and preheaters	3.9E-01	NA	NA

Source: OEHHA/CARB, 2008

Notes:
NA = not applicable
mg/kg-day = milligrams per kilogram per day
$\mu g/m^3$ = micrograms per cubic meter
REL = reference exposure levels

Revised Table 7.6-2 Emission Rates from the Operation of Each 5000F Simple Cycle CTG			
Pollutant	**Emission Factor (lb/MMBtu)**	**Hourly Emission Rate (lb/hr)**	**Annual Emission Rate (lb/yr)**
Ammonia		32.91	5.77E+04
1,3-Butadiene	1.24E-07	2.73E-04	4.79E-01
Acetaldehyde	1.34E-04	2.95E-01	5.16E+02
Acrolein	3.62E-06	7.97E-03	1.40E+01
Benzene	3.26E-06	7.18E-03	1.26E+01
Ethylbenzene	1.75E-05	3.85E-02	6.74E+01
Formaldehyde	3.60E-04	7.93E-01	1.39E+03
Hexane	2.53E-04	5.57E-01	9.76E+02
Propylene	7.53E-04	1.66E+00	2.91E+03
Propylene oxide	4.67E-05	1.03E-01	1.80E+02
Toluene	6.93E-05	1.53E-01	2.68E+02
Xylenes	2.55E-05	5.61E-02	9.83E+01
Polycyclic Aromatic Hydrocarbons			
Benzo(a)anthracene	2.21E-08	4.86E-05	8.52E-02
Benzo(a)pyrene	1.36E-08	3.98E-05	1.32E-01
Benzo(b)fluoranthene	1.10E-08	2.43E-05	4.26E-02
Benzo(k)fluoranthene	1.07E-08	2.37E-05	4.14E-02
Chrysene	2.46E-08	5.42E-05	9.50E-02
Dibenz(a,h)anthracene	2.29E-08	5.05E-05	8.85E-02
Indeno(1,2,3-cd)pyrene	2.29E-08	5.05E-05	8.85E-02
Naphthalene	1.62E-06	3.57E-03	6.25E+00
Total Polycyclic Aromatic Hydrocarbons		**3.86E-03**	**6.83E+00**

Notes:

lb/hr = pounds per hour
lb/MMBtu = pounds per million British thermal units
lb/yr = pounds per year

1 Hourly and annual emissions based on maximum combustion turbine generator operations.
2 Annual emissions based on 1,752 hours of operations.
3 Emission factors obtained from the CATEF database for natural-gas–fired combustion turbines. Formaldehyde, benzene, and acrolein emission factors are from the background document for AP-42, Section 3.1, Table 3.4-1 for a natural-gas–fired combustion turbine with a carbon monoxide catalyst.
4 Ammonia emission rate based on an exhaust ammonia limit of 10 parts per million by volume at 15 percent oxygen provided by the turbine vendor.
5 Used a higher heating value of 1,024 British thermal units per standard cubic foot to convert emission factor units.

Revised Table 7.6-3
Emission Rates from the Operation of Each Fuel Gas Preheater

Pollutant	Emission Factor (lb/MMBtu)	Hourly Emission Rate per Heater (lb/hr)	Heater for Simple Cycle Turbines – Annual Emission Rate (lb/yr)
Acetaldehyde	1.37E-05	6.84E-05	1.20E-01
Acrolein	4.73E-06	2.36E-05	4.14E-02
Benzene	1.09E-05	5.47E-05	9.58E-02
Ethylbenzene	2.20E-06	1.10E-05	1.92E-02
Formaldehyde	7.23E-05	3.61E-04	6.33E-01
Propylene	2.29E-04	1.15E-03	2.01E+00
Toluene	2.88E-05	1.44E-04	2.52E-01
Xylenes	1.40E-05	6.98E-05	1.22E-01
Polycyclic Aromatic Hydrocarbons			
Benzo(a)anthracene	1.91E-09	9.57E-09	1.68E-05
Benzo(a)pyrene	9.57E-10	4.79E-09	8.38E-06
Benzo(b)fluoranthene	1.11E-09	5.57E-09	9.75E-06
Benzo(k)fluoranthene	9.67E-10	4.83E-09	8.47E-06
Chrysene	1.36E-09	6.79E-09	1.19E-05
Dibenz(a,h)anthracene	8.96E-10	4.48E-09	7.84E-06
Indeno(1,2,3-cd)pyrene	1.14E-09	5.71E-09	1.00E-05
Naphthalene	1.09E-06	5.47E-06	9.58E-03
Total Polycyclic Aromatic Hydrocarbons		**5.51E-06**	**9.65E-03**

Notes:

lb/hr = pounds per hour
lb/MMBtu = pounds per million British thermal units
lb/yr = pounds per year

[1] Hourly and annual emissions based on maximum fuel energy consumption of 5 MMBtu/hour.
[2] Annual emissions for each 5000F heater are based on 1,752 hours of operations.
[3] Emission factors obtained from the CATEF database for natural-gas–fired heaters (without controls).
[4] Used a higher heating value of 1,024 British thermal units per standard cubic foot to convert emission factor units.

Revised Table 7.6-4
Estimated Cancer Risk
and Acute and Chronic Noncancer Total Hazard Indices
Due to MLGS Emissions of Toxic Air Contaminants

Location	Cancer Risk	Chronic Hazard Index	Acute Hazard Index
Point of maximum impact	0.026 excess risk in 1 million	0.001 total hazard index	0.052 total hazard index
Peak risk at a sensitive receptor	0.020 excess risk in 1 million	0.0009 total hazard index	0.028 total hazard index
Peak risk at an offsite worker receptor	0.0036 excess risk in 1 million	0.0012 total hazard index	0.029 total hazard index

Revised Table 7.6-8
Health Risk Assessment Estimated Cancer Risk
and Acute and Chronic Noncancer Total Hazard Indices
Due to MLGS, Contra Costa Power Plant, and Gateway Generating Station

Cancer Risk	Chronic Hazard Index	Acute Hazard Index
0.298 excess risk in 1 million	0.018 total hazard index	0.095 total hazard index

Note:
The estimated risks are due to the project plus existing Contra Costa Power Plant Units 6 and 7, Gateway Generating Station Units 1 and 2, and Gateway Generating Station preheater.

3.7 WORKER SAFETY AND HEALTH

The modifications outlined in Chapter 2, which primarily involve operational and general arrangement changes within the 27-acre project site, would not change the anticipated workplace hazards or require changes to the safety programs presented in AFC Section 7.7.

3.8 SOCIOECONOMICS

The modifications outlined in Chapter 2, which primarily involve operational and general arrangement changes within the 27-acre project site, would not alter the analysis of potential socioeconomic impacts presented in AFC Section 7.8. As presented in the AFC, the proposed project would not induce substantial growth or concentration of population; induce substantial increases in demand for public service and utilities; displace a large number of people; disrupt or divide an established community; or result in disproportionate adverse effects on minority or low-income populations.

The total estimated construction cost for the modified MLGS is approximately $550 million (in 2009 dollars), compared to $800 million (in 2008 dollars) for the originally proposed project. The construction workforce will be slightly less than for the originally proposed project. Peak construction workforce would be approximately 272 instead of 403. Construction would occur over 27 months instead of 33 months.

The Applicant estimates that the construction employment expenditures will total $100 million during the 27-month construction period (cost based on 2009 dollars). This estimate excludes payroll taxes and burdens. The Applicant estimates that the cost of locally purchased materials and supplies will be approximately $30 million during construction, including materials and other consumables. Indirect business taxes due to direct project construction activities are estimated to contribute $3.6 million to local government revenues over the 27-month construction period, based on IMPLAN analysis.

Estimated secondary beneficial effects of construction that would occur within the Five-County Study Area would include the addition of approximately 920 jobs, $46 million in labor income, $3 million in indirect business taxes (including sales, excise, and other taxes paid during construction), and $135 million in economic output.[3] These impacts would be temporary, occurring over the 27-month construction period, and would lag behind the direct effects of construction by approximately 6 to 12 months. As a result, these temporary impacts would be less than significant.

During the approximately 27-month construction phase, total estimated direct, indirect, and induced positive effects would result in the addition of 1,000 jobs, $146 million in payroll, and $6.4 million in indirect business taxes in the Five-County Project Area. On an annualized basis, these temporary impacts average approximately 500 jobs, $70 million in payroll, and $3.1 million in indirect business taxes. These effects would be temporary, with the indirect and induced effects lagging behind the direct effects by 6 to 12 months.

The operation workforce will be slightly less than originally proposed. Operation and maintenance of the project would require 16 skilled full-time employees, instead of 20 as presented in the AFC. Eight operators would work a rotating 12-hour shift and the other 8 employees would work a standard 8-hour shift (see Revised Table 2.8-1). The Applicant estimates that operation payroll for the project will be approximately $2.5 million in the first year of operation. On average, the estimated budget for the project would be $7.7 million for operations and maintenance. Approximately $385,000 of the operations and maintenance materials will be purchased within the Five-County Study Area. These estimates are in 2009 dollars.

During the project operations phase, total estimated direct, indirect, and induced positive effects would result in 34 additional jobs, $3.2 million in payroll, $135,000 in indirect business taxes, and $10.2 million in economic output in the Five-County Study Area.

[3] Output includes spending for materials and supplies (nonlabor costs), plus value added, which comprises employee compensation, proprietary income, other property income, and indirect business taxes.

Estimated indirect and induced beneficial effects of annual operation that would occur within the Five-County Study Area would be approximately: 18 additional jobs, \$0.7 million in labor income, \$0.2 million in indirect business taxes (including sales, excise, and other taxes paid), and \$3.1 million in output. These estimates are in 2008 dollars.

The basis for property tax assessment is the fair market value of the improvements on the assessment date. To provide an estimate of the project's property taxes after construction, it is assumed that the new assessed value of the parcel on which the project would be located would increase by the cost of new construction. Facility construction would add approximately \$550 million to the current assessed value of \$47 million. Using the property tax rate of 1.12 percent, the estimated increase in property tax revenue that would accrue to Contra Costa County annually (attributable to the project) would be as much as \$6 million. The actual assessed value and tax revenue might differ from these estimated amounts.

With respect to operational sales tax, it is estimated that the project would generate approximately \$32,000 in tax annually (8.25 percent sales tax on \$385,000 worth of locally purchased materials) during its first year of operation. Most of this revenue, \$24,000, would go to the State of California. An estimated \$8,000 would be retained within the Five-County Study Area.

While slightly reduced in comparison to the original proposed project, construction and operation of the MLGS still would have positive impacts on the local economic base and fiscal resources through the employment of workers who reside in the Five-County Study Area, and through the local purchase of materials.

Therefore, as described in AFC Section 7.8, potential socioeconomics impacts are expected to be less than significant.

3.9 SOILS

The modifications outlined in Chapter 2, which primarily involve operational and general arrangement changes within the 27-acre project site, would not result in increased soil erosion or loss of topsoil. AFC Section 7.9 presents project design measures that will be implemented during construction and operation of the MLGS to reduce soil impacts. Therefore, as described in AFC Section 7.9, potential impacts to soil resources are expected to be less than significant.

3.10 TRAFFIC AND TRANSPORTATION

The modifications outlined in Chapter 2 primarily involve operational and general arrangement changes within the 27-acre project site. As discussed in Chapter 2, the number of construction and operation staff would be less than presented in the AFC. Therefore, potential traffic and transportation impacts would be less than presented in AFC Section 7.10, including roadway and intersection levels of service during project construction and operation, and potential impacts to transportation networks. Therefore, as described in AFC Section 7.10, potential traffic and transportation impacts are expected to be less than significant with implementation of the mitigation measures presented in AFC Section 7.10.3.

3.11 VISUAL RESOURCES

AFC Section 7.11 describes the methods used to inventory and assess the study area for visual resources and the potential visual effects of the MLGS. This section analyzes the potential impacts to visual resources that would occur as a result of modifications to the MLGS as compared to the potential impacts that were identified in the AFC. This study and analysis of potential visual effects associated with the modifications of the MLGS is based on the AFC and review of the technical data, including projects maps and drawings, terrestrial and aerial photography, and visual simulations. The affected environment described in the AFC, including the regional landscape setting, has not significantly changed since the AFC was submitted in May 2008.

3.11.1 Visual Project Description Revisions

The project description revisions identified in Chapter 2 include the following major modifications that are visually significant: air-cooled heat exchangers associated with the two originally proposed FP10s would be eliminated; the height of the four Simple Cycle units would be approximately 165 feet in height instead of approximately 150 feet, as originally proposed; and the location of the stacks would be shifted so that they would be spaced approximately 140 feet apart instead of 320 feet.

3.11.2 Key Observation Points

Overall viewing conditions remain unchanged since the AFC was submitted in May 2008, so new photography has not been collected. All of the key observation points (KOPs) identified in the AFC, described below, have been updated to reflect the modifications to the MLGS.

KOP 1: Views from KOP 1 look directly south across the San Joaquin River at the MLGS project site and are primarily representative of sensitive viewers traveling by boat along the San Joaquin River. Although the river landscape is of high visual quality overall, views to the south from boats traveling on the west side of the Antioch Bridge are already degraded by the existing CCPP, PG&E's GGS, and other prominent industrial facilities near the water. Views of the MLGS project site from the river are considered to have low visual quality, due to existing industrial features. Viewers from the river are considered to have moderate to high sensitivity.

KOP 2: Views from KOP 2 represent the views of motorists in southbound lanes of State Route (SR) 160 at the approach of the Antioch Bridge. This location is situated at the foreground distance from the project site; motorists would be traveling at speeds of up to 45 miles per hour, which indirectly would result in shorter viewing durations of the project. The existing facilities (e.g., the existing CCPP Units 1 through 7, PG&E's GGS) result in a low overall visual quality in this view. Panoramic views of the river and hills are compromised by the prominent, highly industrial character of the existing CCPP in the middleground, other industrial facilities to the west, and industrial and commercial development visible to the south. Because of the bridge railing, which partially blocks views by motorists in sedans and other low vehicles, these views are only completely visible to motorists in tall vehicles such as sport utility vehicles and trucks. This KOP is considered to have moderate visual quality. Viewers are considered to have high sensitivity.

KOP 3: Views from KOP 3 represent viewers from the Sportsmen Yacht Club, which has immediate foreground views across an existing access road of the CCPP and PG&E's GGS, which provide screening of views toward the project site. The club has approximately 170 members with two to three long-term "live-aboard" members and one onsite caretaker residence. The club's historic Sausalito Ferry is dry-docked approximately 50 feet from the CCPP's eastern property line and serves as the principal meeting place for club members. A south-facing balcony on the upper level of the facility is the location of KOP 3, and is an extension of that meeting area. This balcony and a similar north-facing balcony are the principal locations from which open views to the site occur. Trees along portions of the property line intermittently filter existing views from the Sportsmen Yacht Club to the project site. Interior views from the ferry to the project site are very limited and of much less importance. As stated earlier, the CCPP and the GGS are situated in the immediate foreground distance and dominate the viewing area, providing a landscape of reduced visual quality. Panoramic views show the prominent, highly industrial character of the existing area. This KOP is considered to have low visual quality due to the presence of existing heavy industrial features. Viewers are considered to have moderate sensitivity due to the existing heavy industrial land uses of the area and the fact that most existing viewers are not permanent residents.

KOP 4: Views from KOP 4 represent the closest residential viewers in eastern Antioch, who will have an immediate foreground view of the proposed MLGS across the existing Burlington Northern Santa Fe Railway and next to an existing vineyard. The CCPP and the GGS are situated in the foreground distance and dominate the view. Other vertical, manmade elements such as aboveground storage tanks and existing power poles contribute to this highly industrial view. This KOP is considered to have moderate to low visual quality due to the numerous manmade alterations and elements present in the landscape. Viewers are considered to be of high sensitivity; however, existing mature trees will somewhat screen views of the project for some of the sensitive viewers.

KOP 5: Views from KOP 5 represent the recreational viewers of an eastern Antioch driving range and batting cages. This view is south toward the proposed MLGS project site. The CCPP and the GGS are situated in the middleground distance zone and can be seen through the net barriers of the driving range. Views are dominated by various vertical elements such as lattice power structures, aboveground storage tanks, and the large wooden poles used to support the netting for the driving range. This KOP is considered to have low visual quality and viewers are considered to have high sensitivity.

KOP 6: This KOP looks north toward the project area from the intersection of Oakley Road and Calle de Oro, near SR 160, to represent commuters along Oakley Road. Vineyards, as well as SR 160, are apparent in the foreground along with vertical industrial elements such as steel-lattice transmission structures. Other vertical industrial elements in the middleground distance include the exhaust stacks from the CCPP and PG&E's GGS, as well as large aboveground storage tanks. Views from KOP 6 are considered to demonstrate low visual quality due to level of modification of the landscape character by the existing industrial facilities and other human alterations. Views from this KOP represent high-sensitivity residential viewers as well as moderate-sensitivity commuters along Oakley Road.

KOP 7: This KOP looks north toward the project area from approximately 1.75 miles away, south of the Southern Pacific Railroad and SR 160. Views from this KOP, located at the back of a residential development off of a cul-de-sac along Bluebell Circle, represent residential views along the hills to the south of SR 4. Vineyards and rolling hills are apparent in the foreground of the photograph, as well as scattered patches of trees and houses. Other elements, which are noticeable in the middleground and background distance zones, are industrial elements such as the exhaust stacks from the CCPP and the arch of the Antioch Bridge. The large tanks located in the western portion of the CCPP site, which mark the approximate location of the MLGS project site, are hardly visible from this distance. They are not apparent to viewers due to the industrial nature surrounding the site and the screening provided by trees in the middleground. Views from this residential area toward the project site are often screened by the expanse of natural elements in the middleground, and tend to be scattered and spotty due to variations in microtopography and the presence of other homes and landscaping. The area is of moderate visual quality typical of a suburban residential neighborhood and has a high level of visual sensitivity due to its residential use.

3.11.3 Environmental Consequences

The assessment of visual impacts associated with the proposed modifications in this amendment is based on reviews of the original AFC document and the technical data, including projects maps and the drawings provided by the project engineer, terrestrial and aerial photography, and visual simulations. The primary factors considered in the assessment of impacts on KOPs include: (1) the susceptibility of a KOP to realize an impact; and (2) the magnitude or severity of impact realized on a KOP.

Due to the scope of the revisions proposed in this amendment, all seven simulations from the AFC have been updated. The new simulations illustrating the proposed modifications indentified in the amendment were developed and compared to the existing conditions photography and to the simulations from the original AFC. This allows the revisions to be evaluated for their potential visual impacts.

3.11.3.1 Photo Simulations

As a result of the changes in the MLGS project description, all of the simulations prepared for the original AFC have been revised for the purpose of assisting in the evaluation of impacts on KOPs. The details of this process are provided in AFC Section 7.11.2.3. The following provides a brief review of the simulation process.

Computer-Aided Design (CAD) equipment and Global Positioning Systems are used to allow for life-size modeling within the computer. This translates to using real world scale and coordinates to locate facilities, other site data, and the actual camera locations corresponding to three-dimensional (3D) simulation viewpoints. A CAD site map is imported as a background reference. The locations of existing and proposed facilities are placed on top of the site map to register and orient the correct locations of KOPs. An electronic camera lens matches the camera lens that was actually used in the field.

Next, the photographic negative is scanned into the 3D database and loaded as an environment within which the view of the 3D model is generated. To generate the correct view relative to the actual photograph, the electronic camera is placed at the location (within the computer) from where the photograph was taken. From here, the 3D wire-frame model is displayed, the correct sun angle is set, materials and textures are applied, and the composite image is rendered through a computer image process known as RayTracing. Any additional filters required for appropriate atmospheric conditions, such as blur, focus, or haze, are applied at this time.

The photo simulations developed for this project have been designed to be viewed 14 inches from the viewer's eye. This distance will portray the most realistic life-size image from the location of the KOPs.

3.11.3.2 Visual Impacts on KOPs

For each of the following KOPs discussed below, the major changes proposed are related to the change to four Simple Cycle units and a change in stack height from 150 feet to 165 feet. Other facilities have minor modifications. In addition, some of the facilities north of the generation units, such as the tanks and administration building, have been rearranged. Overall, the modifications described in the amendment are consistent with the impacts previously discussed in the original AFC submitted in May 2008.

KOP 1 (Revised Figure 7.11-10): The simulation provided in AFC Figure 7.11-10 illustrates the MLGS as proposed in May 2008. Revised Figure 7.11-10 illustrates the MLGS project as revised by this amendment. In the amendment simulations, the four generation units have been closely grouped west of the existing generation units. This new configuration includes a slight increase in the height of the stacks, with all four stacks skylining just above the background hills. Each new stack also appears wider than those in the original AFC. The generation units in the amended simulations appear less massive and have fewer components (e.g., removal of the air-cooled heat exchangers), providing some reduction in visual complexity when compared to the AFC simulation. Overall, the changes proposed in this amendment may provide some increase in the amount of noticeable industrial components when viewed from this KOP. Generally, however, the impacts to viewers of the proposed project, as amended, are adverse but less-than-significant from KOP 1, consistent with the findings of the original AFC.

KOP 2 (Revised Figure 7.11-11): The simulation provided in AFC Figure 7.11-11 illustrates the MLGS as proposed in May 2008. Revised Figure 7.11-11 illustrates the MLGS project as revised by this amendment. In the amendment simulation, all of the proposed generation units are viewed with heavy screening by the existing generation units. None of the generation unit buildings or industrial structures are visible from this KOP except the exhaust stacks, which although taller than the existing CCPP building in front of them, are shorter than the existing stacks. This represents a marginal improvement when compared to the AFC simulation, where one stack on the east unit and some ancillary facilities of the west unit are visible but subordinate to the existing facilities. Overall, the impacts to viewers of the proposed project, as amended, are low and would be insignificant from KOP 2, consistent with the finding of the original AFC.

KOP 3 (Revised Figure 7.11-12): The simulation provided in AFC Figure 7.11-12 illustrates the MLGS as proposed in May 2008. Revised Figure 7.11-12 illustrates the MLGS project as revised by this amendment. The view shown in the amendment simulation from this KOP indicates that none of the generation units or their components are visible. The original AFC simulation shows a partially screened view of two generation units that will not be in view under the revisions of this amendment. Overall, the changes in visual condition of this amendment represent a slight visual improvement. Visual impacts to viewers of the proposed project, as amended, are none to low and would be insignificant from KOP 3, consistent with the findings of the original AFC.

KOP 4 (Revised Figure 7.11-13): The simulation provided in AFC Figure 7.11-13 illustrates the MLGS as proposed in May 2008. Revised Figure 7.11-13 illustrates the MLGS project as revised by this amendment. In the amendment simulation, all four generation units are grouped closer to the viewer as compared to the original AFC simulation. The amended simulation illustrates an increase in both the height and width of the exhaust stacks compared to those of the AFC simulation. The ancillary components of the revised generation units appear less massive and represent a reduced visual complexity (e.g., removal of the air-cooled heat exchangers) when compared to those in the AFC simulation. Overall, the impacts to viewers of the proposed project, as amended, are potentially high and adverse but not significant, due to reduced visual impact susceptibility and limited viewing opportunities. This finding is consistent with the findings of the original AFC.

KOP 5 (Revised Figure 7.11-14): The simulation provided in AFC Figure 7.11-14 illustrates the MLGS as proposed in May 2008. Revised Figure 7.11-14 illustrates the MLGS project as revised by this amendment. The amendment simulation illustrates the change from the comparatively dispersed placement of the generation units in the original simulation to the close grouping proposed here. The exhaust stacks of the amendment appear both taller and wider than those of the original AFC. In the amendment simulation, the existing tanks fully screen the generation buildings of the four units. This change represents a minor reduction in the amount of industrial facilities in view when compared to the original AFC simulation. Overall, the impacts to viewers of the proposed project, as amended, are moderate and would be less than significant from KOP 5, consistent with the finding of the original AFC.

KOP 6 (Revised Figure 7.11-15): The simulation provided in the AFC Figure 7.11-15 illustrates the MLGS as proposed in May 2008. Revised Figure 7.11-15 illustrates the MLGS project as revised by this amendment. The primary change in the amendment is represented by the close grouping of the generation units. Although the stacks are slightly taller and wider in the amendment than in the original AFC simulation, this difference is minor when compared to larger scale of the existing generation units. Overall, the impacts to viewers of the proposed project, as amended, are low and would be insignificant from KOP 6, consistent with the finding of the original AFC.

KOP 7 (Revised Figure 7.11-16): The simulation provided in AFC Figure 7.11-16 illustrates the MLGS as proposed in May 2008. Revised Figure 7.11-16 illustrates the MLGS project as revised by this amendment. From this KOP, a comparison of the amendment simulation to the original AFC simulation reveals a change in placement of the generation units to the close grouping from the previously more dispersed layout. Although the exhaust stacks appear both taller and wider in the amendment simulation than in the AFC simulation, the larger buildings and ancillary facilities of the CCPP and GGS are noticeable. Generally, the existing CCPP and GGS facilities are more dominant than in either the originally proposed project presented in the AFC or in the proposed project as amended herein. Overall, the impacts to viewers of the proposed project, as amended, are low and would be insignificant from KOP 7, consistent with the finding of the original AFC.

Indirect, temporary, and construction-related impacts on all KOPs and other sensitive viewers are unchanged by the proposed modifications and range from no impact to a less-than-significant impact.

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Photograph is intended to be viewed 10 inches from viewer's eyes when printed on 11x17 paper. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.

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Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	9:55 a.m.
Date of photograph:	Feb. 21, 2007
Distance to project:	0.88 mile
Weather condition:	Clear
Viewing direction:	South
Latitude:	38°1'49.93"N
Longitude:	116°34'6.60"W

KOP 1:
VIEW FROM NORTH SIDE OF SAN JOAQUIN RIVER – SIMULATION SHOWING PROJECT

September 2009
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Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

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REVISED FIGURE 7.11-10

Photograph is intended to be viewed 10 inches from viewer's eyes when printed on 11x17 paper.

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Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	2:23 p.m.
Date of photograph:	Feb. 12, 2008
Distance to project:	1.0 mile
Weather condition:	Clear
Viewing direction:	Southwest
Latitude:	38° 1'44.90"N
Longitude:	121°45'5.38"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

KOP 2:
VIEW FROM ANTIOCH BRIDGE
– SIMULATION SHOWING PROJECT

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REVISED FIGURE 7.11-11

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Photograph is intended to be viewed 10 inches from viewer's eyes when printed on 11x17 paper. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.

Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	3:13 p.m.
Date of photograph:	Feb. 21, 2008
Distance to project:	0.35 mile
Weather condition:	Clear
Viewing direction:	Northeast
Latitude:	33°55'50.75"N
Longitude:	116°34'48.99"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

KOP 3:
VIEW FROM SPORTSMEN YACHT CLUB – SIMULATION SHOWING PROJECT

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REVISED FIGURE 7.11-12

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Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	11:57 a.m.
Date of photograph:	Feb. 12, 2008
Distance to project:	0.41 mile
Weather condition:	Clear
Viewing direction:	Northeast
Latitude:	38° 0'38.61"N
Longitude:	121°46'10.85"W

Photograph is intended to be viewed 10 inches from viewer's eyes when printed on 11x17 paper. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.

KOP 4:
VIEW FROM CLOSEST RESIDENTIAL AREA
– SIMULATION SHOWING PROJECT

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REVISED FIGURE 7.11-13

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Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	11:19 p.m.
Date of photograph:	Feb. 12, 2008
Distance to project:	0.72 mile
Weather condition:	Clear
Viewing direction:	North
Latitude:	38° 0'19.64"N
Longitude:	121°45'54.36"W

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Photograph is intended to be viewed 10 inches from viewer's eyes when printed on 11x17 paper. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

KOP 5:
VIEW FROM LOCAL DRIVING RANGE – SIMULATION SHOWING PROJECT

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Marsh Landing Generating Station
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Contra Costa County, California

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REVISED FIGURE 7.11-14

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Photograph is intended to be viewed 10 inches from viewer's eyes when printed on 11x17 paper. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.

Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	11:03 a.m.
Date of photograph:	Feb. 12, 2008
Distance to project:	1.39 miles
Weather condition:	Clear
Viewing direction:	Northwest
Latitude:	37°59'51.43"N
Longitude:	121°45'13.84"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

KOP 6:
VIEW FROM OAKLEY ROAD AND CALLE DE ORO NEAR SR 160 – SIMULATION SHOWING PROJECT

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Contra Costa County, California

September 2009
28067344

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REVISED FIGURE 7.11-15

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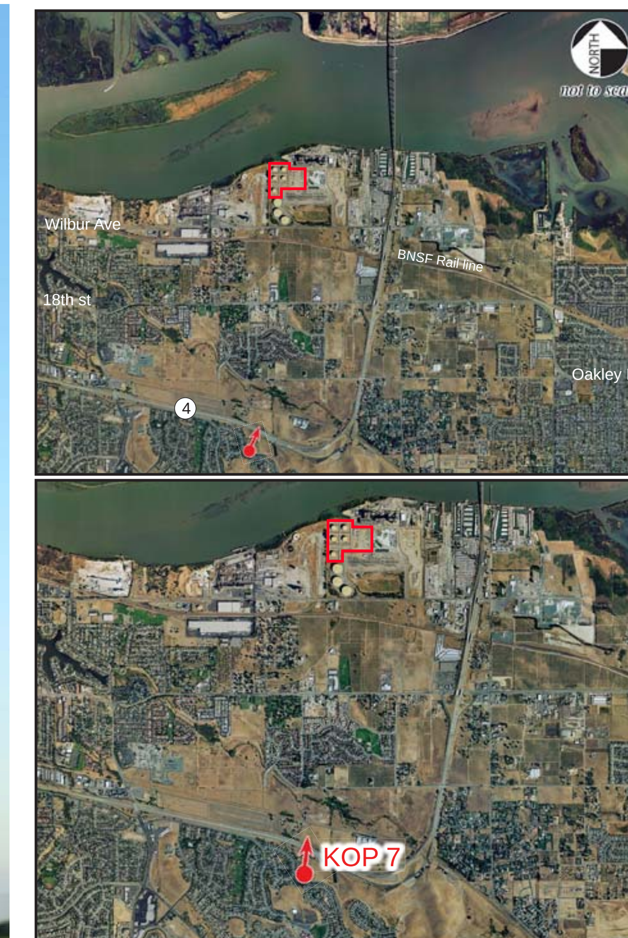
Photograph is intended to be viewed 10 inches from viewer's eyes when printed on 11x17 paper. The photograph below has been cropped top and bottom to show a wide angle of view with the above photograph's area shown in yellow.



Viewpoint Location Maps

Legend

Property Site Boundary

Photograph Information

Time of photograph:	10:17 a.m.
Date of photograph:	Feb. 12, 2008
Distance to project:	1.73 miles
Weather condition:	Clear
Viewing direction:	North
Latitude:	37°59'27.08"N
Longitude:	121°46'9.39"W

Note: A simulation of the previously permitted Gateway Generating Station (currently under construction) has been added to this view of simulated conditions for the proposed project.

KOP 7:
VIEW FROM HILLSIDE RESIDENCE
– SIMULATION SHOWING PROJECT

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
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REVISED FIGURE 7.11-16

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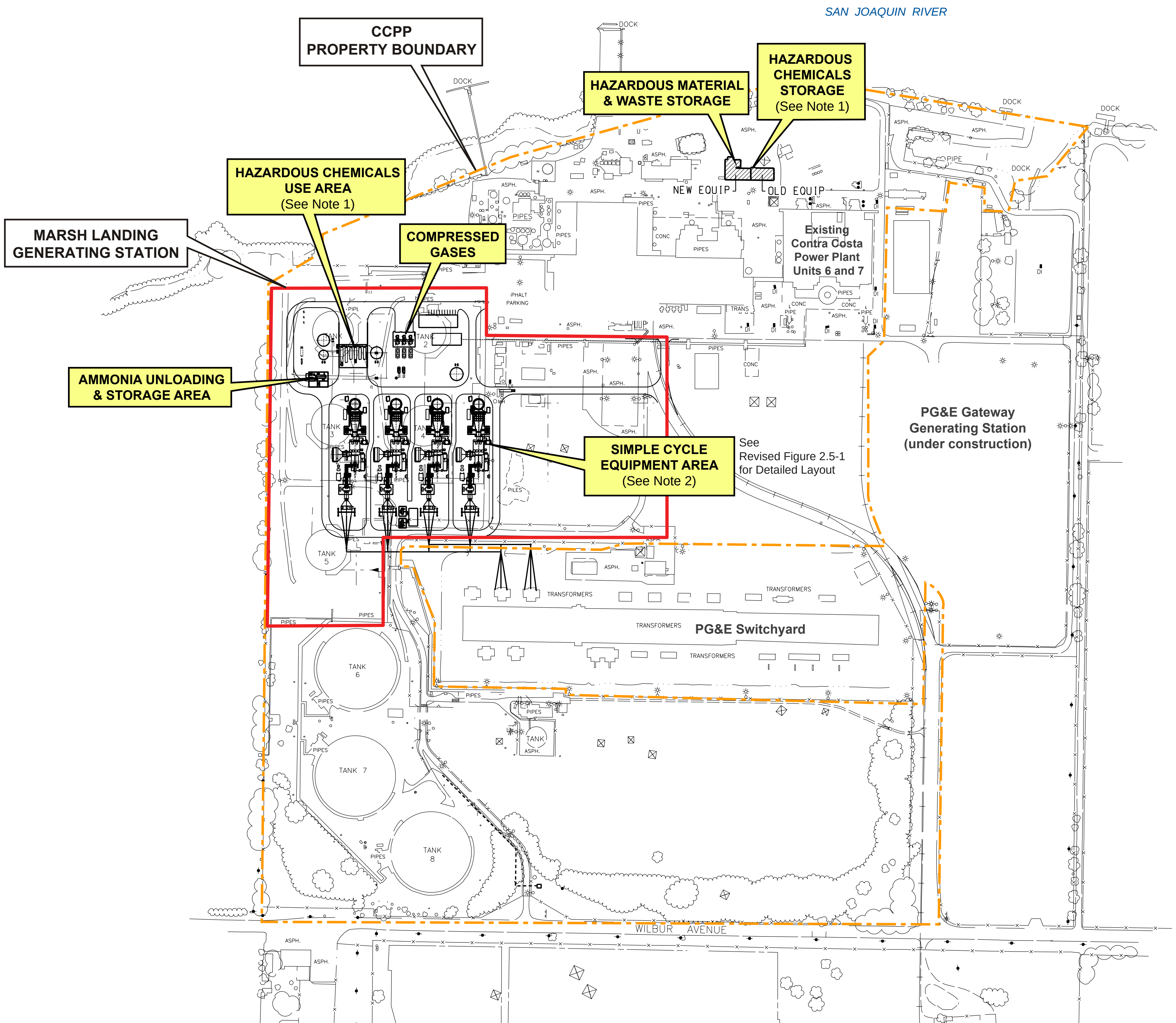
3.12 HAZARDOUS MATERIALS

The modifications outlined in Chapter 2, which primarily involve operational and general arrangement changes within the 27-acre project site, would not result in substantial changes to the hazardous materials that would be used during construction or operation of the MLGS.

The proposed modifications to the MLGS include elimination of the two FP10s, associated ACHEs, and the nitrogen system. Revised Figure 7.12-1 reflects the elimination of the nitrogen system, elimination of one of the ammonia storage tanks, and changes in the general arrangement.

Originally, two 20,000-gallon ammonia tanks were proposed. Due to the change in units and operations, only one 20,000-gallon ammonia tank will be needed. For the modified MLGS, the eastern ammonia tank was eliminated. The western ammonia tank remains in the same location as originally proposed. The ammonia tank would be designed with containment areas and an underground sump, as originally proposed. Revised Figures 7.12-2 and 7.12-3 reflect the change to only one ammonia tank. The results still show that the threshold circles would not extend beyond the facility fenceline in the worst-case scenario. Therefore, the potential impacts of these hypothetical accidental release scenarios would remain less than significant.

Therefore, as described in AFC Section 7.12, potential hazardous materials handling impacts are expected to be less than significant with implementation of the mitigation measures presented in AFC Section 7.12.4.



Note 1:

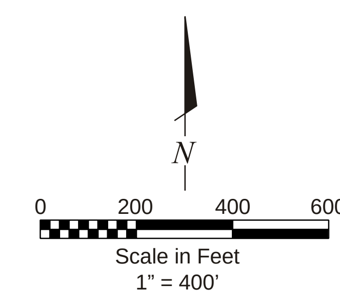
Chemicals Stored and Used in Areas Shown:

- Sodium Hypochlorite
- Polysilicate-Borax

Note 2:

Hydraulic Oil & Lube Oil Used in These Areas

- See Table 7.12-2



Source:
CH2MHill Lockwood Greene; General Arrangement Marsh Landing Generating Station,
Location of Stored & Used Areas of Hazardous Materials;
Drawing Nos: MR-GA-ML-01-22 (Rev. A, 05/09/08) and MR-GA-ML-01-26 (Rev. H, 08/27/09).

LOCATIONS OF HAZARDOUS MATERIALS

Marsh Landing Generating Station
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REVISED FIGURE 7.12-1

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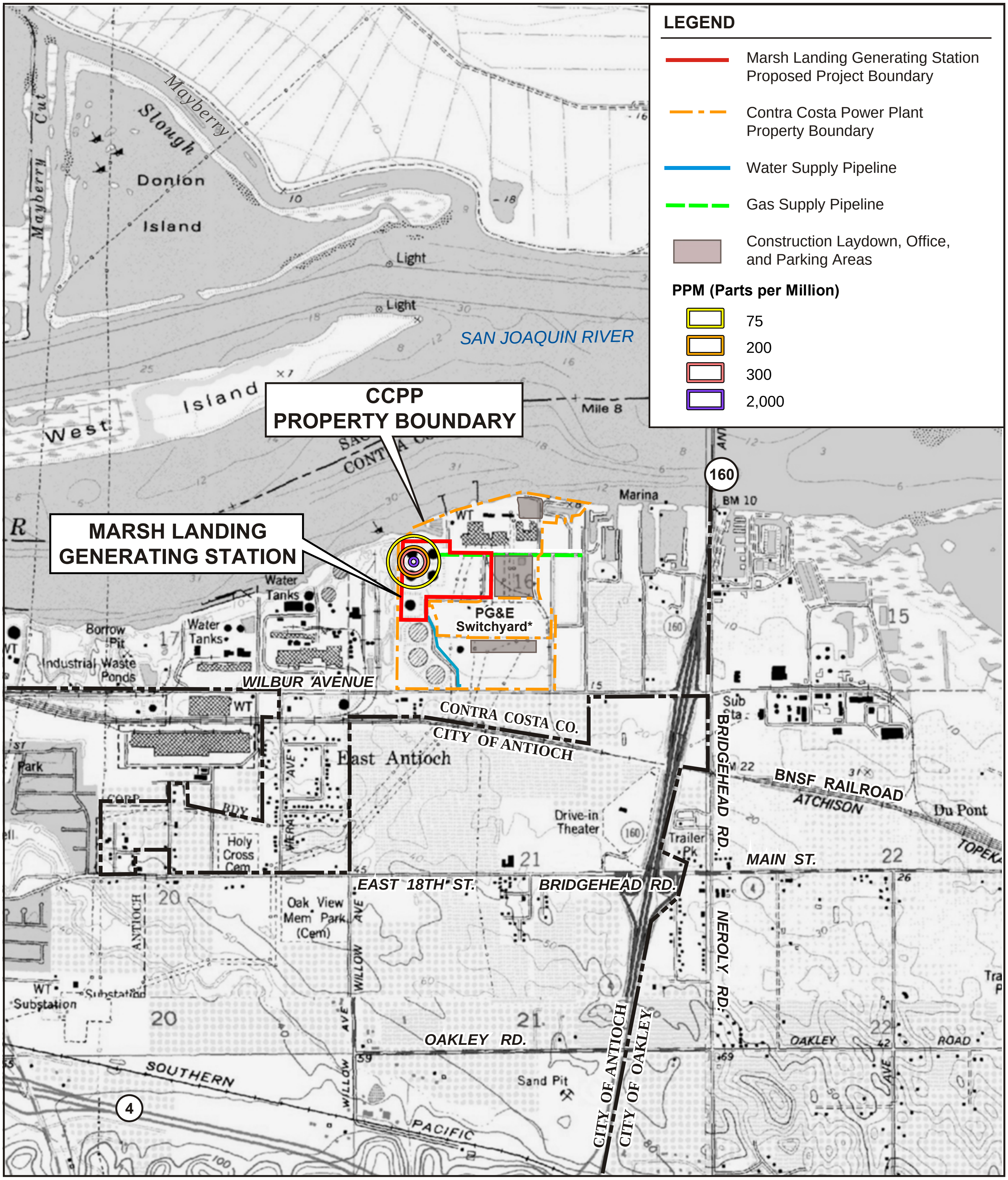

Source:
USGS Topographic Maps, 7.5 Minute Series:
Antioch North, California, 1978
Antioch South, California, 1980
Jersey Island, California, 1978
Brentwood, California, 1978

* The PG&E Switchyard and PG&E Gateway Project are not part of the Mirant Property

0 2,000 4,000
Scale in Feet
1:24,000

N

WORST-CASE SCENARIO PREDICTED AMMONIA CONCENTRATION

September 2009
28067344

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

URS

REVISED FIGURE 7.12-2

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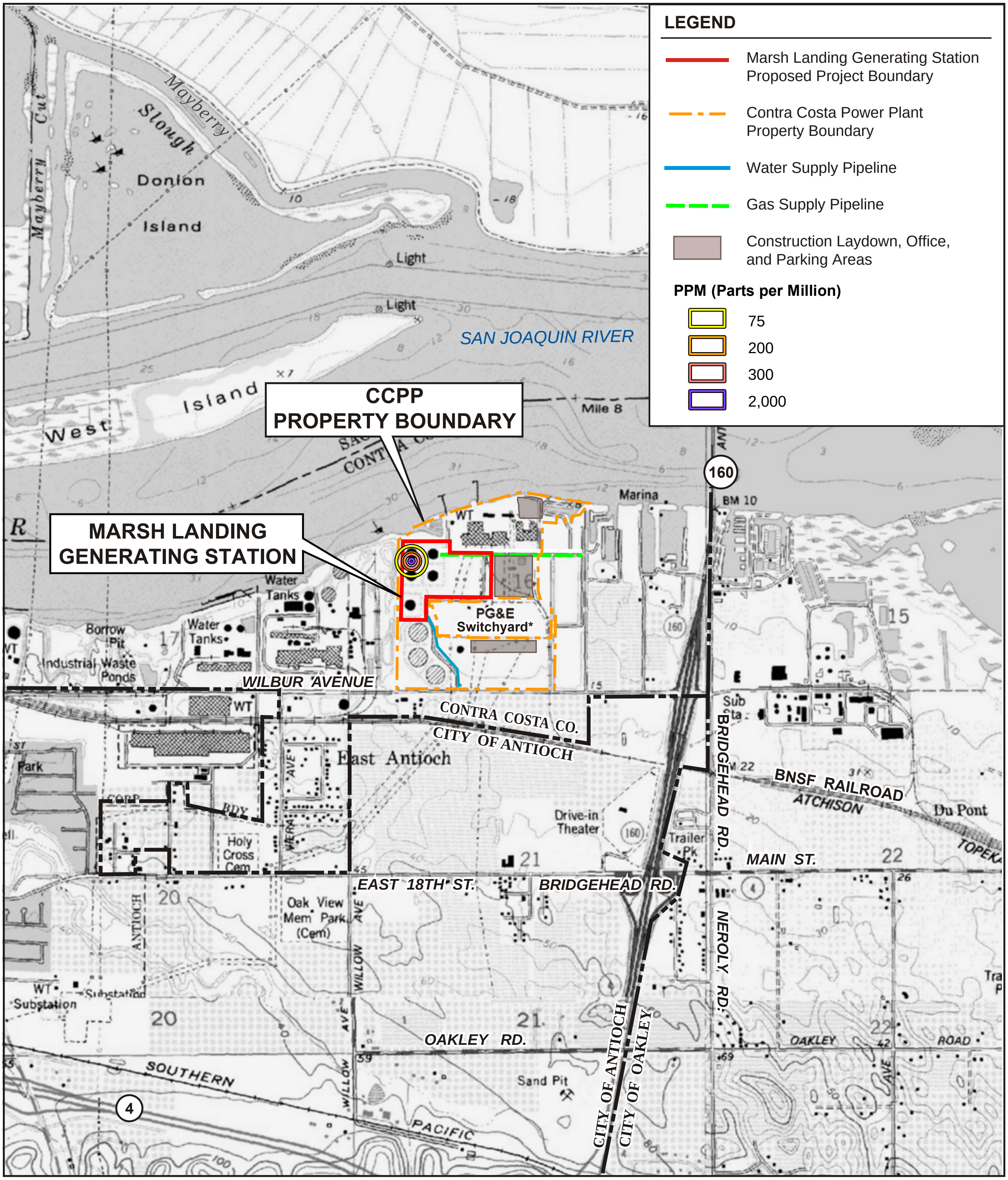

Source:
USGS Topographic Maps, 7.5 Minute Series:
Antioch North, California, 1978
Antioch South, California, 1980
Jersey Island, California, 1978
Brentwood, California, 1978

* The PG&E Switchyard and PG&E Gateway Project are not part of the Mirant Property

0 2,000 4,000

Scale in Feet
1:24,000

N

ALTERNATIVE SCENARIO
PREDICTED AMMONIA CONCENTRATION

Marsh Landing Generating Station
Mirant Marsh Landing, LLC
Contra Costa County, California

September 2009
28067344

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REVISED FIGURE 7.12-3

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3.13 WASTE MANAGEMENT

The modifications outlined in Chapter 2, which primarily involve operational and general arrangement changes within the 27-acre project site, would not increase nonhazardous or hazardous wastes associated with construction or operation of the MLGS. AFC Section 7.13.4 presents best management practices that will be implemented during construction and operation of the MLGS to manage and minimize the amount of waste generated. Therefore, as described in AFC Section 7.13, potential waste management impacts are expected to be less than significant.

3.14 WATER RESOURCES

AFC Section 7.14 described the affected environment, environmental consequences, LORS, involved agencies, and permits required for the MLGS related to water resources. The modifications outlined in Chapter 2 primarily involve operational and general arrangement changes within the 27-acre project site. As discussed in Section 2.2, this AFC amendment also includes revised water balance estimates and an alternative source of process water supply. As such, this section and Revised/New Appendix I present more detailed information regarding the hydrogeologic setting and assess the impacts due to the change in the proposed water supply to groundwater.

3.14.1 Water Supply Modifications

The modified MLGS is designed to operate no more than 20 percent of the time during the year. Process water requirements are expected to average approximately 50 AFY, which is a substantial reduction in water consumption and would be considered a *de minimis* usage. In comparison, the average annual water usage for the MLGS presented in the AFC was approximately 736 AFY. The peak demand would be approximately 420 gpm, which is substantially less than the peak demand of 1,360 gpm originally proposed in the AFC. The revised water balance is shown on Revised Figure 2.5-8 and summarized in Revised Table 2.5-4.

Mirant Marsh Landing proposes to supply the project's process water needs using brackish groundwater. The well system will include two wells capable of providing full demand, so that one well provides redundancy. Both wells will be approximately 120 feet deep and will be located in the southern portion of the CCPP property near Wilbur Avenue and the access road. A new buried pipeline will be installed within the existing CCPP access road right-of-way between the well pad site and the MLGS Raw Water Storage Tank.

Revised/New Appendix I contains a report describing the results of a groundwater investigation and analysis that was prepared to determine the feasibility and potential impacts of using groundwater to supply the plant's needs for process water. Key conclusions from the study include the following:

- Exploratory drilling confirmed the presence of a continuous zone of permeable deposits under the site. The permeable zone, under 10 to 15 feet of surface fill, has an average thickness of 108 feet and consists of fine sand grading coarser with depth to sand and gravel.

- A deep exploratory boring drilled at the site confirmed that the deeper zones (200 to 400 feet below ground surface [bgs]) of the dune sand and the alluvial deposits used for municipal supply by the Cities of Pittsburg, Oakley, and Brentwood are not present under the site. Under the productive zone of sand and gravel, about 120 feet bgs, there is a thick, continuous section of dense clay that extends to at least 640 bgs.

- The shallow groundwater at the site is not potable. Water-quality testing confirmed that groundwater under the site meets the CEC's definition for brackish water. All of the groundwater samples collected from the monitoring wells and the test well had TDS concentrations greater than 1,000 mg/L and associated chloride values at or above 250 mg/L. In addition to TDS and chloride, secondary drinking water standards were exceeded for iron, manganese, and sulfate.

- Aquifer testing demonstrated that the sand and gravel formation under the MLGS is capable of producing large volumes of water. The high yield available at the site makes using conventional vertical wells a feasible option for supply.

- Based on the modeling analysis, there would be minimal drawdown 0.5 mile from the proposed pumping well. The maximum predicted drawdown 0.5 mile from the proposed well pumping at 150 gpm is estimated to be about 0.25 foot. Since the closest municipal water wells in the area are more than 3 miles away, there would be no impacts from the proposed facility on municipal supply wells.

- At the proposed well site, infiltrated water from the river will not reach the well during the 30-year operational life, based on a 20 percent annual capacity factor and an average pumping rate of 150 gpm. The combination of the location of the proposed well, low pumping rate, high transmissivity, and cyclic pumping limit the movement of water from the river into the aquifer. The results indicate that the source of recharge to the proposed pumping well will be inland groundwater.

- Groundwater with elevated concentrations of tetrachloroethylene (PCE), total petroleum hydrocarbons (TPH), and metals in the vicinity of the MLGS would not be expected to reach the pumping well during the 30-year operational period if attenuation is considered. In addition, project-specific pumping would not induce migration of the contaminated groundwater to other users or the river.

As described in Revised/New Appendix I, exploratory drilling confirmed the presence of a continuous zone of permeable deposits under the MLGS site. The permeable zone, under 10 to 15 feet of surface fill, has an average thickness of approximately 108 feet and consists of fine sand grading coarser with depth to sand and gravel. Beneath this productive zone of sand and gravel, there is a thick section of dense clay that extends to at least 640 feet bgs. Aquifer testing demonstrated that the sand and gravel formation under the MLGS is capable of producing large volumes of water.

The shallow groundwater at the site is not potable. Water-quality testing confirmed that groundwater under the site meets the CEC definition for brackish water. All of the groundwater samples collected from the monitoring wells and the test well had TDS values greater than 1,000 mg/L and associated chloride values at or above 250 mg/L. In addition to TDS and chloride, secondary drinking water standards were exceeded for iron, manganese, and sulfate. See Revised Table 2.5-3 for a summary of the expected groundwater quality.

The nearest public water supply wells are located in Oakley, approximately 3.5 miles southeast of the MLGS site. Other municipal supply wells in the region are located more than 5 miles away from the MLGS site in Pittsburg, Brentwood, Discovery Bay, and small service areas in the Delta.

3.14.2 Environmental Consequences

The modification to the MLGS would not result in changes to the analysis of surface water impacts or flood hazards previously presented to the CEC. As described in AFC Section 7.14, impacts to surface water resources are expected to be less than significant with implementation of the mitigation measures presented in AFC Section 7.14.4.

The project will now use groundwater for process water needs. The following discussion assesses potential impacts to water resources due to project-specific pumping.

3.14.2.1 Effect on Water Balance

The groundwater aquifer underlying the MLGS project site has an estimated storage of approximately 46,000 acre-feet, based on an average aquifer thickness of 108 feet, area of 9,500 acres, and specific yield of 0.045 (see Revised/New Appendix I for discussion on aquifer parameters). The proposed project would extract approximately 50 AFY for a total of approximately 1,500 acre-feet over the 30-year life of the project. This would amount to approximately 0.03 percent of the total amount of water stored in the aquifer. The proposed project would not substantially deplete groundwater supplies or interfere with groundwater recharge. Therefore, the effect on the aquifer water balance as a result of the project using groundwater for process water needs would be considered less than significant.

3.14.2.2 Water Level Drawdown Effects

The effect of the proposed project's extraction of groundwater on water levels in the aquifer was evaluated using a 3D groundwater flow model. MODFLOW, a groundwater modeling program developed by the U.S. Geological Survey, was used for the simulation. Aquifer parameters were based on site-specific hydraulic data developed from aquifer testing at the site. Details of the modeling are presented in Revised/New Appendix I.

The model simulates extraction from a proposed well field in the vicinity of the proposed project site. The project would install two wells; however, only one well would operate at one time, since the other is provided for full redundancy. Tentative locations of the proposed wells are shown on Revised Figure 2.1-1. The average pumping rate is assumed to be on the order of 150 gpm. The MLGS facility would operate at a maximum 20 percent annual capacity factor. For purposes of this analysis, it was assumed that the project will operate at the maximum 20 percent capacity factor and for as many as 16 hours per day during periods of peak demand.

The high transmissivity of the formation attenuates drawdowns so that there is minimal drawdown predicted from the proposed pumping at a distance of 0.5 mile. Maximum drawdown 0.5 mile from the pumping well was simulated to be approximately 0.25 foot. While there are no known wells located within 0.5 mile of the proposed project water supply wells, in the event that wells exist, the expected drawdown would be considered minimal. Project-specific pumping would not be expected to have any effect on municipal wells that are located more than 3 miles away.

Subsidence could occur in groundwater basins with thick clay that could compress when dewatered. The permeable zone targeted as the MLGS water supply aquifer is underlain by a thick, continuous layer of dense clay. Based on the modeling analysis described above and in Revised/New Appendix I, which shows that water level drawdown would not be substantial and would not dewater the underlying clay layer, the potential to cause land subsidence is considered to be less than significant.

Based on the modeling analysis described above, the project's impact to water level drawdown would be less than significant.

3.14.2.3 Water Quality Effects

An analysis was performed to assess the effects of the proposed MLGS pumping on the migration of identified groundwater contamination. This analysis is presented in Revised/New Appendix I. There are several areas within the CCPP property with elevated concentrations of arsenic and TPH, with the highest concentrations observed in groundwater in the northeast portion of the CCPP more than 2,300 feet from the proposed wells. Adjacent to the west side of the MLGS is the former Gaylord Container Corporation East Mill property. The current property owner, Forestar Real Estate Group Inc., has a Voluntary Cleanup Agreement with the California Department of Toxic Substances Control to address various areas of contamination resulting from previous Gaylord operations. The two primary areas of groundwater contamination at this site are elevated concentrations of PCE, located approximately 2,400 feet northwest from the proposed MLGS wells; and elevated concentrations of metals, located more than 1,300 feet west from the proposed wells. Dioxins, which are associated with the former paper mill processing activities, have also been identified in groundwater at the East Mill property but have been detected below the maximum contaminant level. The analysis presented in Revised/New Appendix I assumes that these substances are still present in the concentrations historically detected.

While project-specific pumping could induce capture of contaminated groundwater into the proposed wells, the pumping would not induce migration of the contaminated groundwater to other users or to the river. Based on the analysis presented in Revised/New Appendix I, it is unlikely that the potential contaminants identified would reach the MLGS pumping wells within the 30-year project lifetime. If necessary, existing monitoring wells could be used to monitor the possible migration of contaminated water towards the MLGS pumping well. If detected, Marsh Landing would evaluate the need for additional treatment of the process water supply.

Sanitary wastewater would be discharged to the City of Antioch sewer line. The proposed project would not have a septic system and would not discharge any wastewater to the subsurface; therefore, it would not affect the quality of the underlying groundwater in any way and would not affect the beneficial use of the groundwater as designated by the Regional Water Quality Control Board (RWQCB) in the Water Quality Control Plan for the area (RWQCB, 2007).

Impacts to groundwater quality would be less than significant.

3.14.2.4 Relationship to the River

The analysis also evaluated the effect project-specific pumping could have on the San Joaquin River. Movement of water from the river to the well is limited by the combination of the proposed well location (approximately 2,500 feet south of the river), low pumping rate (average rate of 150 gpm), low extraction volume (approximately 50 AFY), high transmissivity of the aquifer, and the cyclic pumping operation consistent with a maximum 20 percent annual capacity factor. The analysis indicates that no infiltrated water would reach the pumping well within the 30-year lifespan of the project. Therefore, potential impacts to the river due to project-specific pumping would be less than significant.

3.14.3 Laws, Ordinances, Regulations, and Standards

The primary agency for regulating surface water and groundwater pollution in California is the RWQCB. The State Water Resources Control Board (SWRCB) delegates authority for implementation of regulations to RWQCB but creates general policies and plans. The SWRCB and RWQCB are agencies within the California Environmental Protection Agency. The federal agencies (e.g., U.S. EPA) have delegated most authority on water pollution issues to the state. Consequently, the RWQCB determines allowable concentration limits for effluents, issues permits, and enforces the regulations.

Local water districts, water suppliers, and health departments may also act when a pollutant has the potential to threaten their drinking water supply. Effluent limitations and toxic and effluent standards are established pursuant to Sections 301, 302, 303(d), 304, 307, and 316 of the Clean Water Act.

The RWQCB for the Central Valley Region produced the most recent *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* in 2007. This document outlines general water quality goals for the Sacramento and San Joaquin rivers, as well as groundwater in the region. Unless otherwise designated or exempted by the Central Valley RWQCB, all groundwater within the region is considered to be potentially suitable for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

The proposed project will operate in accordance with all applicable LORS. The LORS that are potentially applicable to the groundwater resources components of the proposed project are identified below and supplement the LORS discussed in AFC Section 7.14.

3.14.3.1 State

California Water Code § 1355 et seq.

Administering Agency: SWRCB; RWQCB, CEC

Compliance: The SWRCB adopted Resolution 75-58, which encourages the use of nonpotable water such as brackish water for power plant cooling, and established the following order of preference for cooling purposes:

- Wastewater discharged to the ocean
- Ocean water
- Brackish water or irrigation return flow
- Inland wastewater with low TDS
- Other inland water

The CEC's policy on the use of water for power plant cooling was set forth in its 2003 IEPR and generally follows the order of preference in SWRCB Resolution 75-58. The 2003 IEPR discourages the use of "fresh" water for cooling purposes by power plants unless alternative water supply sources and alternative cooling technologies are shown to be environmentally undesirable or economically unsound. The 2003 IEPR also states a preference for zero-liquid discharge technologies unless such technologies are shown to be environmentally undesirable or economically unsound.

The MLGS complies with SWRCB Resolution 75-58 and the CEC's policies on water use and discharge. The project will not employ traditional wet cooling technology and therefore will not use water for power plant cooling purposes. The project will use a small amount (approximately 50 AFY) of water for process water needs that include makeup water for the CTG inlet air evaporative coolers and service water systems, but this water will be supplied using groundwater that is brackish under CEC standards and is not suitable for higher priority uses. The project therefore complies with SWRCB Resolution 75-58 and CEC policy by not using any fresh water for cooling purposes or process uses.

Due to the relatively small quantity of wastewater produced by the project (i.e., approximately 15 AFY), a zero-liquid discharge system was considered to be unwarranted and economically unsound.

California Water Code, Section 13751

Administering Agency: RWQCB

Compliance: A Report of Well Completion must be filed with the local RWQCB within 60 days of well completion. Reports will be filed for the onsite wells planned for the proposed project.

California Well Standards (DWR, 1981 and DWR, 1991)

Administering Agency: Contra Costa County Department of Environmental Health

Compliance: The proposed project will construct, alter, maintain, and destruct the proposed process water supply wells in accordance with the standards stipulated in Department of Water Resources (DWR) Bulletins 74-81 and 74-90.

3.14.3.2 Local

Contra Costa County General Plan (Contra Costa County, 2005)

Administering Agency: Contra Costa County

Compliance: The proposed project will not place potential pollution sources in groundwater recharge areas with high percolation rates (Policy 8-74). The project will not adversely impact the quality of groundwater resources (Policy 8-75). The project will include groundwater monitoring (Policy 8-dd).

Contra Costa County, County Ordinance 414.4.8

Administering Agency: Contra Costa County Health Department

Compliance: Regulates the construction, reconstruction, abandonment, and destruction of wells. Standards meet or exceed the requirements stipulated in DWR Bulletins 74-81 and 74-90. The proposed project will comply with this ordinance, which includes obtaining a permit to construct the new wells.

3.14.3.3 Permits Required and Permit Schedule

Well construction permits will be obtained from the Contra Costa County Environmental Health Department prior to drilling of the water supply wells for the project. Permits will be obtained at least 1 week prior to the start of drilling.

Responsible Party	Permit/Approval	Schedule
County of Contra Costa Department of Environmental Health	Well Permit (addresses construction, reconstruction and destruction of wells)	One week prior to well construction

3.15 GEOLOGIC HAZARDS AND RESOURCES

The modifications outlined in Chapter 2, which primarily involve operational and general arrangement changes within the 27-acre project site, would not result in changes to the analysis of geologic hazards or result in significant adverse impacts to the geologic environment. The general arrangement modifications are within the 27-acre project site and do not result in any additional disturbed areas beyond the site. Therefore, as described in AFC Section 7.15, impacts to geologic hazards and resources are expected to be less than significant with implementation of the mitigation measures presented in AFC Section 7.15.4.

3.16 PALEONTOLOGICAL RESOURCES

AFC Section 7.16 identified potential impacts on paleontological resources that could occur as a result of project construction. The modifications outlined in Chapter 2 primarily involve operational and general arrangement changes within the 27-acre project site that do not result in any additional disturbed areas beyond the site. Therefore, these modifications would not change the analysis of impacts to paleontological resources as described in AFC Section 7.16, and impacts to paleontological resources are expected to be less than significant with implementation of the mitigation measures presented in AFC Section 7.16.4.

4.0 REFERENCES

CEC (California Energy Commission), 2003. Integrated Energy Policy Report, December.

CEC (California Energy Commission), 2009a. Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications. Committee Report. CEC 700-2009-004. March.

CEC (California Energy Commission), 2009b. Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California. http://www.energy.ca.gov/2009publications/CEC-700-2009-009/CEC-700-2009-009.PDF. May.

Contra Costa County, 2005. Contra Costa County General Plan 2005-2020. January.

CVRWQCB (Central Valley Regional Water Quality Control Board), 2007. Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. October.

Siemens, 2005. Siemens Engineering Specification 23T3387: Water Quality Recommendations for Evaporative Coolers. October 5.

SWRCB (State Water Resources Control Board), 1975. Water Quality Control Policy on the Use and Disposal of Inland waters Used for Powerplant Cooling. Technical report, California State Water Resources Control Board. Resolution No. 75-58.

DWR (California Department of Water Resources), 1981. Bulletin 74-81, Water Well Standards: State of California, December.

DWR (California Department of Water Resources), 1991. Bulletin 74-90, California Well Standards, June.

Johnston, Stephen L., 2008. Administrator, U.S. EPA. Memorandum. U.S. EPA's Interpretation of Regulations that Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Permit Program, December 18; notice provided at 73 Federal Register 80300 (December 13).

OEHHA/CARB (Office of Environmental Health Hazard Assessment and California Air Resources Board), 2008. Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. http://www.arb.ca.gov/toxics/healthval/healthval.htm.

RWQCB (Regional Water Quality Control Board), 2007. The Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition. February.

URS, 2008. Responses to Data Request Set 1 (#1-54), Application for Certification (08-AFC-03) for Marsh Landing Generating Station, December.

REVISED/NEW APPENDIX I

AQUIFER CHARACTERIZATION AND GROUNDWATER MODEL REPORT, MARSH LANDING GENERATING STATION

Aquifer Characterization and Groundwater Modeling Report for Marsh Landing Generating Station

Prepared for

Mirant Marsh Landing, LLC

September 10, 2009

Prepared by
Wittman Hydro Planning Associates, Inc.
Bloomington, Indiana

Aquifer Characterization and Groundwater Modeling Report
for Marsh Landing Generating Station

Prepared For:
Mirant Marsh Landing, LLC

September 8, 2009

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The conclusions presented in this report are professional opinions based solely upon the data described in this report, and are consistent with the standards of care customary at the time and place our services were performed. They are intended exclusively for the purpose outlined herein and the site location and project indicated. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this document or the findings or conclusions presented herein is at the sole risk of said user. Opinions presented herein apply to the site conditions existing at the time of our investigation and cannot necessarily apply to site changes of which WHPA/Layne Geosciences is not aware and has not had the opportunity to evaluate.

Contents

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Acronyms and Abbreviations

Af artificial fill

bgs below ground surface

BOD biochemical oxygen demand

CCCP Contra Costa Power Plant

CCWD Contra Costa Water District

CDWR California Department of Water Resources

CEC California Energy Commission

COD Chemical Oxygen Demand

DO dissolved oxygen

DTSC California Department of Toxic Substances Control

DWD Diablo Water District

ECCID East Contra Costa Irrigation District

EMP Environmental Monitoring Program

ESA environmental site assessment

ft feet

GHB general head boundary

GMS Groundwater Modeling System

gpm gallons per minute

$\mathbf{K}_h$ hydraulic conductivity

Ma million years ago

MCL maximum contaminant level

mg/L milligrams per liter

MLGS Marsh Landing Generating Station

Mirant Mirant Marsh Landing, LLC

MW monitoring well

N Nitrate

NSDWR National Secondary Drinking Water Regulations

pg/L picograms per liter

PCE tetrachloroethylene

PDA Pond Disposal Are

Qha alluvial fan deposits

Qhym peaty mud deposits near the San Joaquin River

Qmz Montezuma Formation

Qs dune sand deposits

S storage coefficient

SMCL secondary maximum contaminant level

$\mathbf{S}_y$ specific yield

T aquifer transmissivity

TDS total dissolved solids

TEQ toxic equivalent

Tes tertiary sedimentary rocks

Tms tertiary sedimentary rocks

TOC total organic carbon

TPH total petroleum hydrocarbon

Tps tertiary sedimentary rocks

TSS total suspended solids

TW test production well

UCL upper contaminant level

ug/L micrograms per liter

um micrometer

USEPA United States Environmental Protection Agency

USGS United States Geological Survey

VCA Voluntary Cleanup Agreement

Executive Summary

Mirant Marsh Landing, LLC (Mirant) is considering developing an alternate water supply system for the Marsh Landing Generating Station (MLGS). The MLGS site is located on the southern shore of the San Joaquin River, east of Antioch, California (Figure 1). The proposed process water supply system consists of vertical wells to extract brackish water from the shallow sediment beneath the site. It is assumed that the project would install two wells, one operational and one as backup. The wells would be installed in the southern portion of the Contra Costa Power Plant (CCCP) property, north of Wilbur Avenue and east of the western access road (Figure 2). The wells will be about 120 ft deep, with 30 ft of screen. The proposed project would have a maximum annual capacity factor of 20 percent. Excluding startup and shutdown times, the plant would operate for approximately 1705 hours per year. When operating, the well would pump at an average rate of 150 gpm.

WHPA conducted a site-specific exploration and testing program to characterize the local hydrogeologic setting. Our field investigation included test borings, hydraulic testing, and water-quality sampling. Results of the field investigation were integrated into a transient groundwater flow model of the aquifer that we used to predict yield, evaluate wellfield designs, and evaluate the potential impacts of a pumping center at the site.

The objectives of this project were:

1. Characterize the geologic and hydraulic properties of the shallow aquifer.
2. Evaluate source-water quality.
3. Evaluate the feasibility of using groundwater at the site.
4. Investigate the potential impacts of project-specific pumping on regional water levels, the San Joaquin River, and areas of known groundwater contamination.

Conclusions

- Exploratory drilling confirmed the presence of a continuous zone of permeable deposits under the site. The permeable zone, under $10 - 15\,ft$ of surface fill, has an average thickness of 108 ft and consists of fine sand grading coarser with depth to sand and gravel.
- A deep exploratory boring drilled at the site confirmed that the deeper zones ($200 - 400\,ft$ below ground surface (bgs)) of the dune sand and the alluvial deposits used for municipal supply by the Cities of Pittsburg, Oakley and Brentwood are not present under the site. Under the productive zone of sand and gravel, about 120 $ft\,bgs$, there is a thick, continuous section of dense clay that extends to at least 640 $ft\,bgs$.
- The shallow groundwater at the site is not potable. Water-quality testing confirmed that groundwater under the site meets the California Energy Commission's definition for brackish water. All of the groundwater samples collected from the monitoring wells and the test

well had total dissolved solids (TDS) concentrations greater than $1,000\,mg/l$ and associated chloride values at or above $250\,mg/l$. In addition to TDS and chloride, secondary drinking water standards were exceeded for iron, manganese, and sulfate.

- The sand and gravel formation under the MLGS is capable of reliably producing the anticipated demand for the operational life of the project. Aquifer testing and groundwater flow modeling demonstrated that a single vertical well at the site can sustain a continuous pumping rate in excess of $800\,gpm$. The transmissivity of the sand and gravel unit is on the order of $140,000 - 160,00\,gpd/ft$ and the storage coefficient is about $0.04 - 0.05$.

- Based on the modeling analysis, we expect minimal drawdown $\frac{1}{2}$ mile from the proposed pumping well. The maximum predicted drawdown $\frac{1}{2}$ mile from the proposed well pumping at $150\,gpm$ is about $0.25\,ft$. Since the closest municipal water wells in the area are more than 3 miles away, there would be no impacts from the proposed facility on municipal supply wells.

- At the proposed well site, infiltrated water from the river will not reach the well during the 30-year operational life based on a 20% capacity factor and an average pumping rate of $150\,gpm$. The combination of the location of the proposed well, low pumping rate, high transmissivity, and cyclic pumping limit the movement of water from the river into the aquifer. The results indicate that the source of recharge to the proposed pumping well will be inland groundwater.

- Groundwater with elevated concentrations of PCE, TPH and metals in the vicinity of the MLGS would not be expected to reach the pumping well during the 30-year operational period if attenuation is considered. In addition, project-specific pumping would not induce migration of the contaminated groundwater to other users or the river.

1 Introduction

Mirant Marsh Landing, LLC (Mirant) is considering developing an alternate water supply system for the Marsh Landing Generating Station (MLGS). The MLGS site is located on the southern shore of the San Joaquin River, east of Antioch, California (Figure 1). The proposed process water supply system consists of a vertical wells to extract brackish water from the shallow sediment beneath the site. It is assumed that the project would install two wells, one operational and one as backup. The wells would be installed in the southern portion of the Contra Costa Power Plant (CCCP) property, north of Wilbur Avenue and east of the western access road (Figure 2). The wells will be about 120 ft deep, with 30 ft of screen. The proposed project would have a maximum annual capacity factor of 20 percent. Excluding startup and shutdown times, the plant would operate for approximately 1705 hours per year. When operating, the well would pump at an average rate of 150 gpm.

WHPA conducted a site-specific exploration and testing program to characterize the local hydrogeologic setting. Our field investigation included test borings, hydraulic testing, and water-quality sampling. Results of the field investigation were integrated into a transient groundwater flow model of the aquifer system that we used to predict yield, evaluate wellfield designs, and evaluate the potential impacts of a pumping center at the site.

1.1 Study Objectives

The objectives of this project were:

1. Characterize the geologic and hydraulic properties of the shallow aquifer.
2. Evaluate source-water quality.
3. Evaluate the feasibility of using groundwater at the site.
4. Investigate the potential impacts of project-specific pumping on regional water levels, the San Joaquin River and known groundwater contamination.

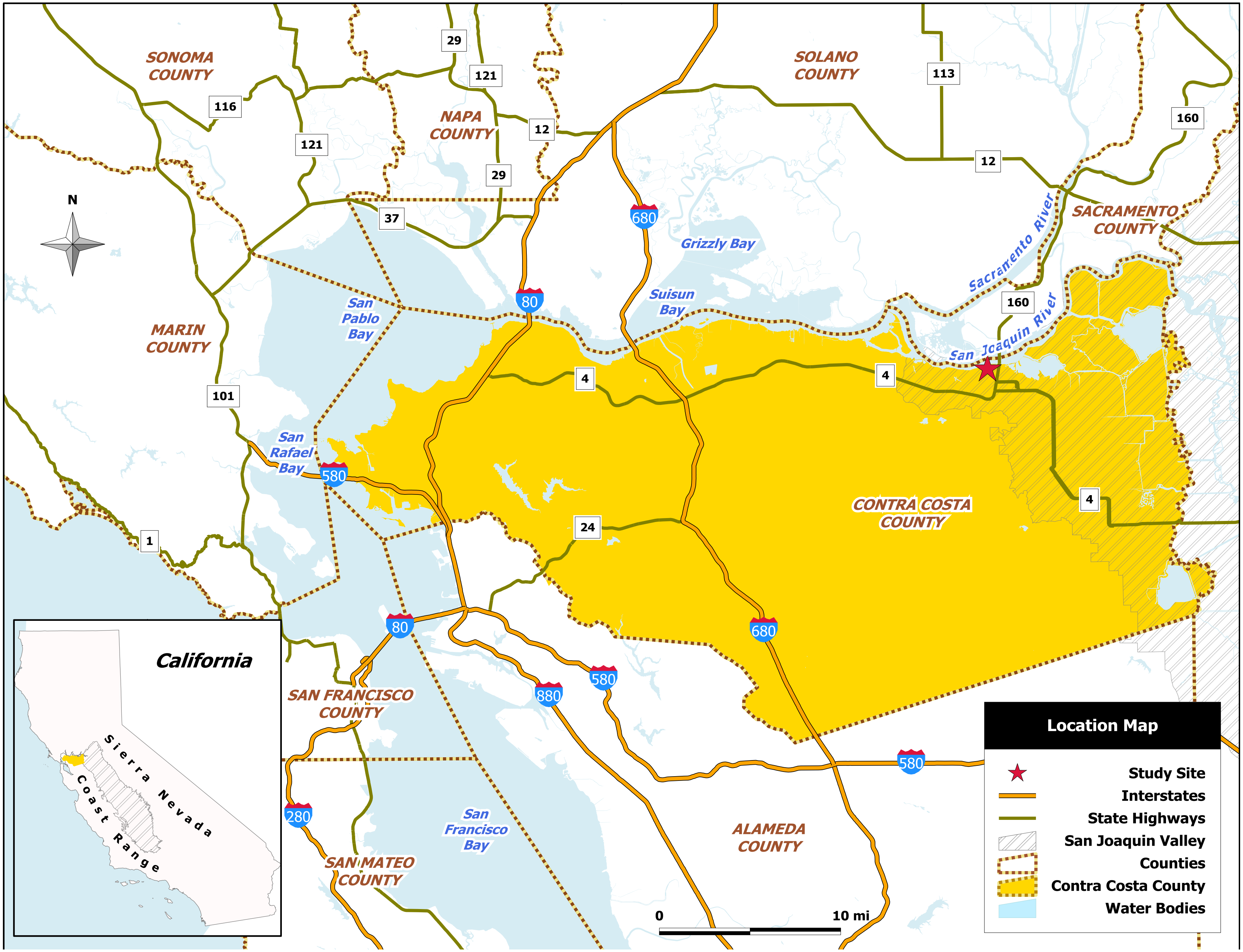


Figure 1: Map showing the location of the study area in Contra Costa County, California.

Figure 2: Proposed well locations.

1.2 Approach

We used the following approach to assess the aquifer, determine the feasibility of using wells at MLGS, and evaluate the potential impacts. Our approach is generally described as follows:

1. Characterize the shallow permeable deposits under the site (<120 ft) using a sonic drilling method.
2. Characterize the deeper marine sediment under the site ($120 - 600\,ft$) using a mud rotary drilling method.
3. Conduct an aquifer test to experimentally determine the transmissivity, storage coefficient, and riverbed conductance at the site.
4. Collect water-quality samples from monitoring wells, the test well, and the river during the aquifer test to characterize water quality.
5. Develop a conceptual model of the aquifer system based on results from steps 1-3.
6. Develop a transient groundwater flow model to assess the potential impacts of pumping on groundwater levels, the San Joaquin River and known contamination.

2 Regional and Local Hydrogeologic Setting

Existing reports and databases provided background information for this study. We assembled pertinent Federal, State, and consultant reports and other information to form a conceptual model of the hydrogeologic system (Table 1). Due to California confidentiality regulations regarding dilling logs, limited geologic information from the area was available. Therefore, we relied on existing reports to formulate a conceptual understanding of the regional aquifer system. Several reports sponsored or written by the Contra Costa Water District and various communities east and south of MLGS that use groundwater were especially useful for understanding the extent and use of the regional aquifer. Since the City of Antioch does not use groundwater, much less existing information was available west of the site.

2.1 Regional hydrogeologic setting

Marsh Landing Generating Station is located at the edge of the San Joaquin Delta, about 5 miles upstream of the confluence of the San Joaquin and Sacramento Rivers (Figure 1). The area between the two rivers and north of the site is a marshy estuarine delta. North of the delta are highlands formed by the Montezuma Formation and south of the delta is the Diablo Range. Mount Diablo is located approximately 10 miles to the southwest of the site (Figure 3). The Diablo Range extends from the Suisun Bay area, south, along the western edge of the San Joaquin Valley.

Table 1: Key references.

Title	Year	Citation	Description of Information
Foundation Investigation	1949	[DM, 1949]	Borings logs from the site and the river
Foundation Investigation Units 6 & 7	1962	[DM, 1962]	Boring logs
Flatland Deposits of the San Francisco Bay Region, California	1973	[Helley and Lajoie, 1979]	Regional geology
Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County, California	1994	[Graymer et al., 1994]	Geologic description and stratigraphy of Contra Costa County
Final Report on the Isotope Project in the Brentwood Region of East Contra Costa County, California	1995	[Davisson and Campbell, 1995]	Description of groundwater resource for region east of site
Phase I Environmental Site Assessment	1997	[CDM, 1997]	General site description, including geology
Phase II Environmental Site Assessment	1998	[Fluor-Daniel, 1998]	General site description, including geology
Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, CA	1998	[Figuers, 1998]	Regional geology
Future Water Supply Implementation- Draft EIR, CCWD	1998	[CCWD, 1998]	Description of water supply in region east of site
Geology of Contra Costa County	1998	[Helley and Graymer, 1998]	Regional geology
Investigation of Ground-Water Resources in the East Contra Costa Area	1999	[LSCE, 1999a]	Regional description of groundwater resource
Water Master Plan for Discovery Bay	1999	[LSCE, 1999b]	Groundwater info for region east of site
Geotechnical Data Report, CCPP Unit 8	2001	[URS, 2001]	Borings logs
Contra Costa County Watershed Atlas	2003	[CCC, 2003]	Watershed boundaries
Groundwater Study- Emerson and Burroughs Properties, Contra Costa County, California	2005	[Engeo, 2005]	Groundwater study in an Oakley neighborhood
East Contra Costa County Habitat Conservation Plan and and Natural Community Conservation Plan	2006	[Jones and Stokes, 2006]	Watershed boundaries
Diablo Water District Groundwater Management Plan for AB 3030	2007	[LSCE, 2007]	Description of groundwater resource in and around Oakley

Marsh Landing Generating Station is located within the far northwestern end of the Tracy Subbasin of the San Joaquin Valley Groundwater Basin (Figure 3) [CDWR, 2006]. The Tracy subbasin covers approximately 360 square miles in Contra Costa, San Joaquin, and Alameda Counties and is bounded by the San Joaquin River to the north and east, the Diablo Range and Pittsburg Plain Basin to the west, and the Delta-Mendota Subbasin to the south.

Marsh Landing Generating Station lies within the Markley Canyon - San Joaquin River drainage subbasin as defined by the United States Geological Survey (USGS) (HUC-180400030907) [USDA, 2009]. Water that falls in the subbasin flows north into the San Joaquin River and ultimately into the Pacific Ocean through San Francisco Bay. Recent documents prepared on behalf of East Contra Costa County describe the site as being in the Oakley subbasin [Jones and Stokes, 2006] or the East County Delta Drainages [CCC, 2003].

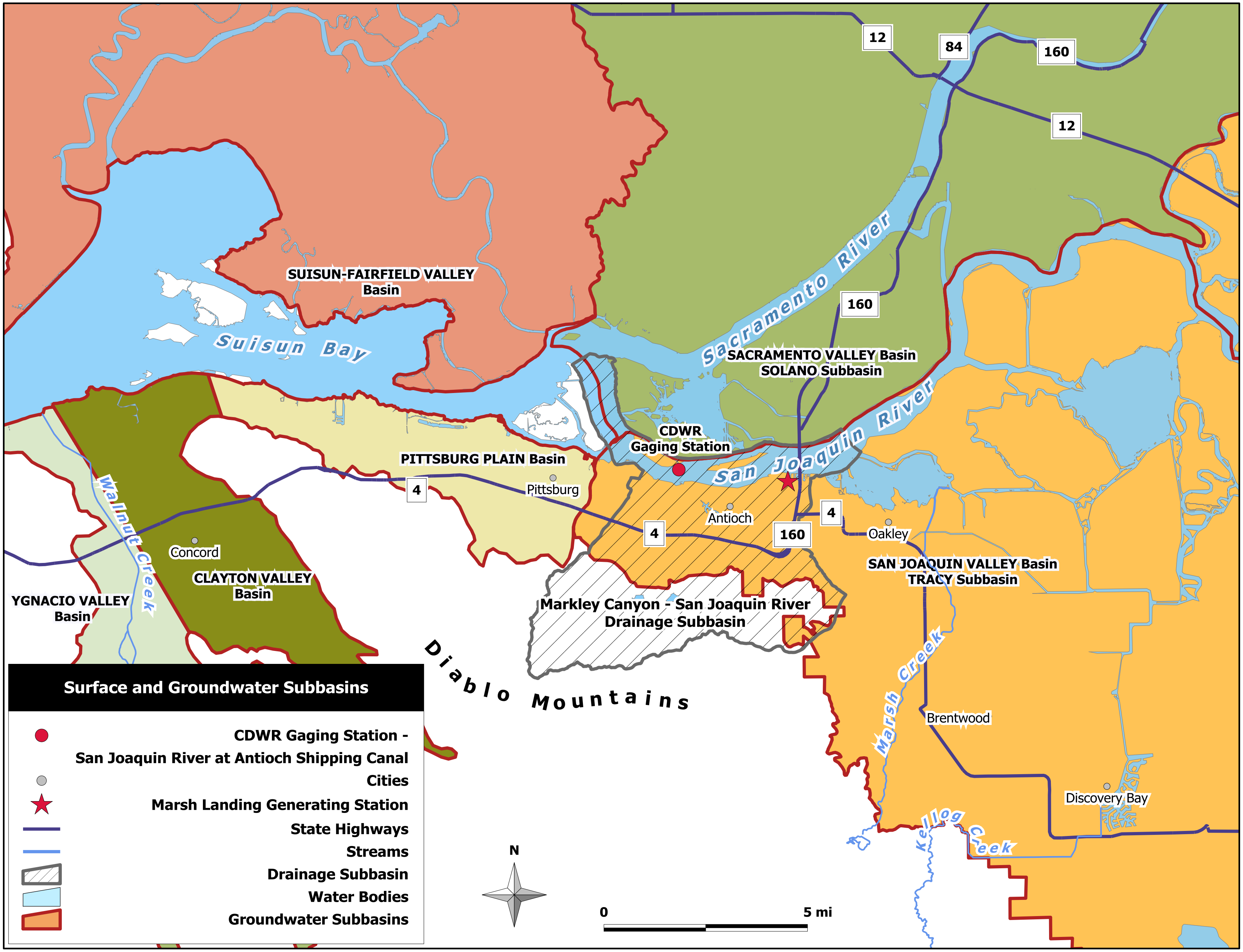


Figure 3: Map showing the location of the study area in relation to groundwater subbasins and drainage subbasins [CDWR, 2006b; USDA, 2009].

2.1.1 General stratigraphy

The Diablo Range, formed during the late Miocene approximately 5 million years ago (Ma), bounds the western edge of the Tracy Subbasin and is a structurally complex region due to faults and folding associated with movement of the North American and Pacific plates. Mount Diablo and the surrounding Diablo Range consists of upper Jurassic-Cretaceous core (around 140 Ma) flanked by late Tertiary (20 Ma) sedimentary rocks [Fluor-Daniel, 1998]. At the northeastern part of the Diablo Range, the bedrock dips steeply to the northeast, becoming buried by Quaternary ($< 1.8\,Ma$) marine and fluvial deposits that fill the valley. Surficial geology of the area, as described by the USGS Geologic Map of the San Francisco Bay Region is shown in Figure 4 [Graymer et al., 2006].

Cross-section A-A′ shows the general stratigraphy of the Antioch area (Figures 4 and 5). Separation and correlation of the alluvial and marine deposits at a regional scale is difficult because of similar lithologic character and poor stratification. Cross-section A-A′ is based on available information [Graymer et. al., 1994; Fluor-Daniel, 199; CDM, 1997; Davisson and Campbell, 1995; LCSE, 1999a].

Surficial deposits in the area include alluvial fan deposits (Qha) at the base of the mountains and mud deposits near the river (Qhym) from the Holocene ($10,000\,yrs-$present) that are about 200 ft thick. Between the river and the base of the mountains are dune sand deposits (Qs) up to 400 ft thick from the Pleistocene ($1.8\,Ma - 10,000\,yrs$). Near the site, these deposits are less than 150 ft thick. To the east of the study area, at the margins of the San Joaquin River, the surficial deposits are artificial fill (Af) and peaty mud deposits (Qhym) from the late Holocene. These deposits overly the dune sand (Qs) (Figure 5).

Beneath the surficial deposits is the Montezuma formation, a 1200 ft thick sequence of poorly consolidated clayey sand, silt, and gravel with marine and fluvial origins from the early Pleistocene $1.8 - 0.78\,Ma$ [CDM, 1997]. The Montezuma Formation forms the highlands to the north of the San Joaquin River. South of the San Joaquin River near the site, the Montezuma Formation is found at depths of around 150 ft or more.

The bedrock that underlies the Tracy Basin is primarily consolidated sedimentary material. The bedrock outcrops as siltstone and sandstone of the Wolfskill Formation (late Tertiary rocks: Tes ($50 - 35\,Ma$), Tms ($20 - 5.3\,Ma$), and Tps ($5.3 - 1.8\,Ma$). No description of deposition was found for the time period between $35 - 20\,Ma$. This discontinuity in the stratigraphic record can be due to erosion of sediments deposited during this time period. It is also possible that this was a period of non-deposition in the region.

2.1.2 Regional aquifer

Public supply, irrigation, and domestic wells in East Contra Costa County pump water from the alluvium and dune sands. Wells in the area are generally completed at depths less than 400 ft below ground surface (bgs) [LSCE, 1999a]. Oil and gas borings indicate that saline water occurs

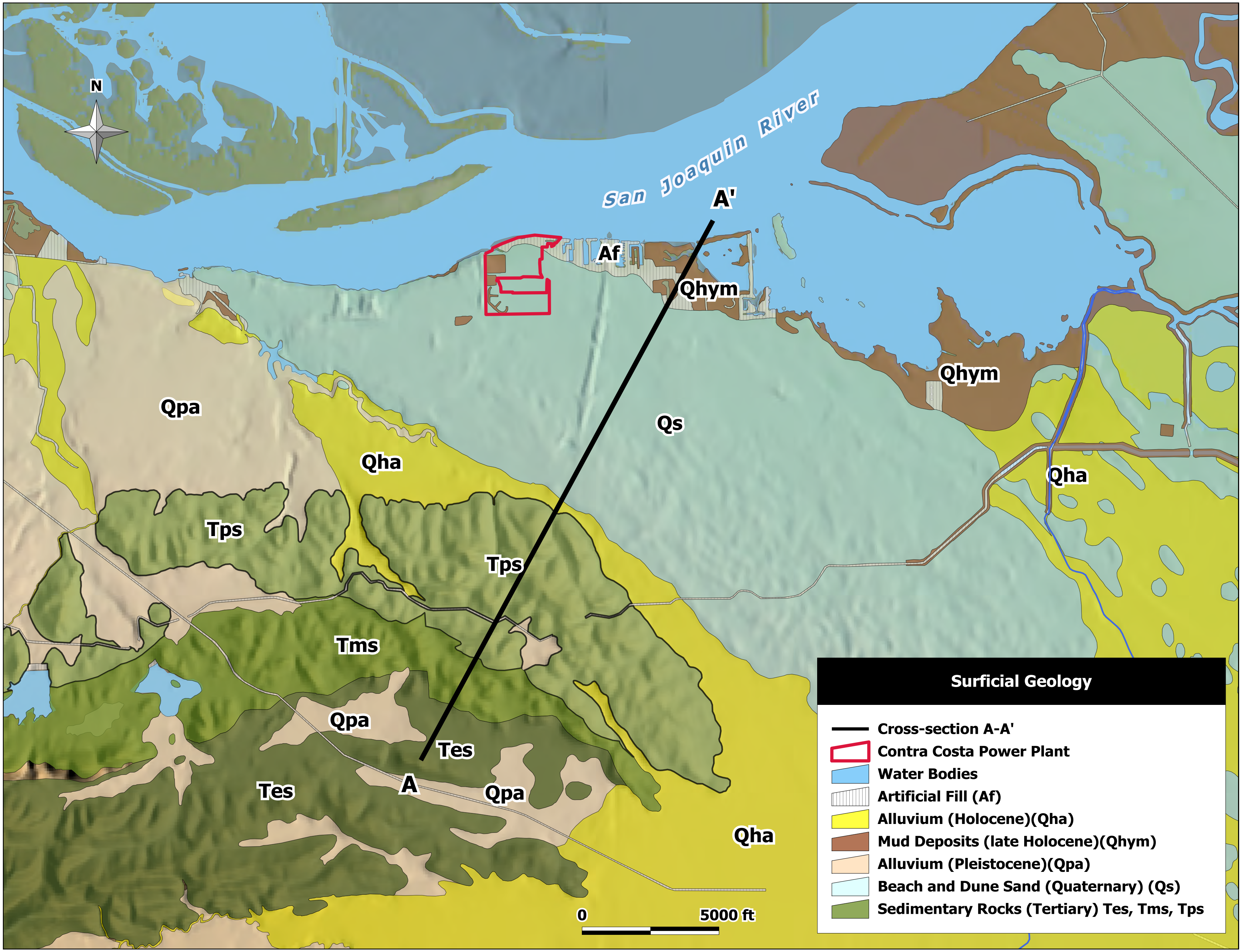
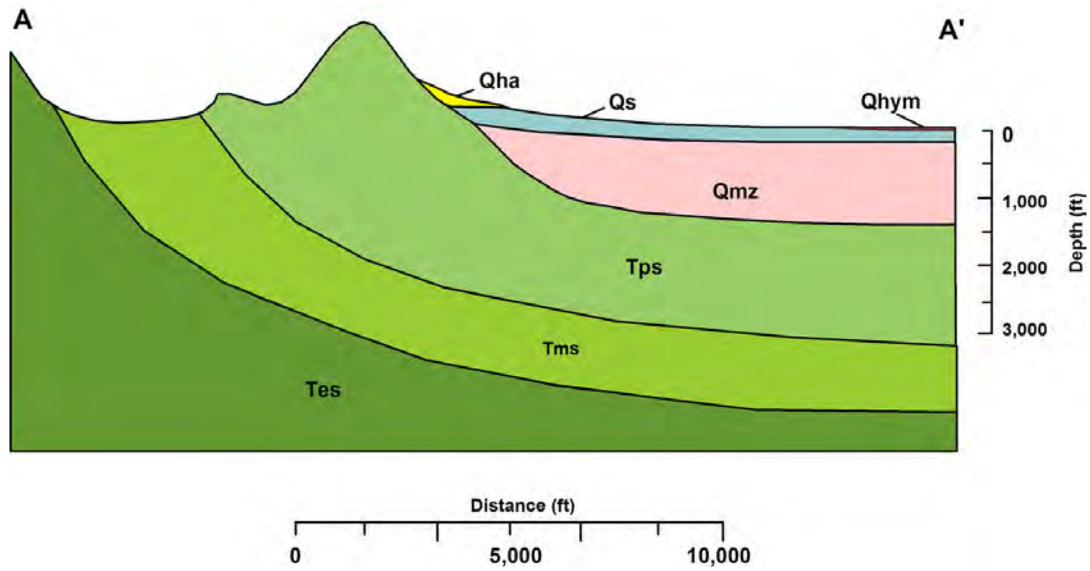


Figure 4: Surficial geology in the study area (modified from Graymer et. al, 2006).



Symbol	Unit Name	Age	Thickness (ft)	Lithology
Qhym	Mud Deposits	late Holocene	0 - 200 thin to non-existent near study area	unconsolidated, water-saturated, dark carbonaceous clay and silty clay
Qha	Alluvium	Holocene (0.6 *Ma* to present)	unknown, foothill deposits	unconsolidated, poorly sorted gravel, sand silt and clay, to weakly consolidated with age and burial depth
Qs	Beach and Dune Sand	Pleistocene to Holocene (1.8 *Ma* to 10,000 *yrs*)	< 400 thins and rises to surface to the west, <150 near study site	extensive non-marine sand deposits, local aquifer
Qmz	Montezuma Formation	Pleistocene (1.8 *Ma* to 0.6 *Ma*)	1,200	poorly consolidated sand with minor gravel, silt and clay
Tps, Tms and Tes	Tertiary sedimentary rocks	Eocene to Pliocene (Tps-5.3 to 1.8 *Ma*) (Tms- 20 to 5.3 *Ma*) (Tes- 50 to 35 *Ma*)	> 2,000 thickness increases towards the valley to the northeast	marine rocks, siltstone and mudstone; steep dip to the north/northeast - fine-grained mudstones with few sand beds

Ma = millions of years ago

Sources: Graymer et. al., 1994; Fluor-Daniel, 1999; CDM, 1997; Davisson and Campbell, 1995; LCSE, 1999a

Figure 5: Geologic cross-section A-A' and general stratigraphy of the Antioch area.

at depths greater that 800 $ft\,bgs$, and possible brackish to saline waters between depths of 400 and 800$ft\,bgs$ [LSCE, 2007]. Domestic wells are generally found within the shallower ($< 200\,ft$) productive layers. Public supply wells are generally between 200 ft and 320$ft\,bgs$ [LSCE, 1999a].

2.1.3 Groundwater recharge and discharge

The principal sources of groundwater recharge in the region are infiltration of precipitation and runoff from the northeastern slope of the Diablo Range. Groundwater moves from the Coast Range foothills through the alluvial plain and delta dune regions to the San Joaquin River [LSCE, 1999a, Davisson and Campbell, 1995].The principal regional flow direction is away from the Diablo Range and towards the San Joaquin River. Near the MLGS, groundwater flows north-northeast towards the river. Average annual precipitation in the area is around 13 in [CDWR, 2006].

2.1.4 Regional groundwater users

The City of Antioch does not use groundwater as a drinking water source because of high total dissolved solids (TDS) concentrations and the absence of the deep productive units in the alluvium. Instead, the City relies on raw water purchased from the Contra Costa Water District (CCWD) in addition to its own pre-1914 diversion from the San Joaquin River. The nearest public water supply well is the Corporation Yard Well in Oakley, about 3.5 miles east of MLGS. The Diablo Water District (DWD) uses this well only for emergency supply due to water-quality issues with TDS.

Other municipal supply wells in the region located at least 5 miles from MLGS are in Oakley, Pittsburg, Brentwood, Discovery Bay, and small service areas in the Delta [LSCE, 1999a]. The DWD operates the Glenn Park Well, about 5.5 miles east of from MLGS. The DWD pumps around $1.5 - 2$ million gallons per day of groundwater from the Glen Park Well (in operation since 2006) in order to supplement surface water distributed by the CCWD through the Contra Costa Canal.

The City of Pittsburg, located about 5 miles to the west, primarily uses surface water with about 15% of their needs met by groundwater from two wells; the Rossmoor Well and the Bodega Well. These wells are set at an average depth of 150 ft.

Brentwood has eight public supply wells, located about 5 miles southeast of MLGS. Due to water-quality issues with nitrates and TDS, Brentwood has recently replaced existing wells with deeper wells (about 300 ft deep). Other groundwater users in the area include the East Contra Costa Irrigation District (ECCID). Water-level data from the ECCID indicates that water levels in east Contra Costa County have remained stable since the District began collecting data in 1958 [LSCE, 1999a].

Other wells potentially in the vicinity of the MLGS include domestic, agricultural/irrigation, and industrial wells [LSCE, 2007]. Limited well information was available for this analysis due to California confidentiality regulations regarding dilling logs. Therefore, little is known about the existence of other wells within $\frac{1}{2}$ mile of the MLGS.

2.1.5 Water quality

The northern portion of the Tracy Subbasin is characterized by a wide range of anionic water types, including bicarbonate, chloride, and mixed carbonate-bicarbonate types [CDWR, 2006]. Water quality in some areas in the subbasin is impaired by elevated chloride and TDS [CDWR, 2006]. These and other water-quality issues have constrained development of groundwater for municipal supply in some parts of east Contra Costa County [LSCE, 2007] in addition to Antioch. The area west of Antioch is poorly defined due to lack of available well logs, but is suspected to be a poor water quality region due to a lack of alluvial deposits and possible brackish water-quality problems [LSCE, 1999a]. Groundwater quality in the Oakley area east of Antioch has generally been classified as "marginal to poor" [LSCE, 2007]. Groundwater in this region is naturally high in TDS (up to $1,000\,mg/l$) and other constituents such as chloride and hardness [LSCE, 1999a]. The DWD's Corporation Yard Well on Main Street in Oakley is used only for emergency supply due to high TDS (about $1,000\,mg/l$).

Elevated nitrate is also a problem in shallow zones impacted by agriculture. In general, this is only a problem in wells that are less than $200\,ft$ deep [LSCE, 1999a]. Brentwood has experienced significant degradation of groundwater quality due to nitrate contamination [LSCE, 2007]. The Lawrence Livermore isotope study in the Brentwood area in 1995 attributes the elevated nitrate concentrations to agricultural practices and infiltration of irrigation water at the land surface [Davisson and Campbell, 1995]. The problem wells in Brentwood have been replaced over time with deeper wells.

2.2 Local setting

To understand the hydrogeologic setting at the site, we reveiwed available consultant reports, including geotechnical foundation reports written prior to development of the first power units at the CCCP site and much later reports associated with regulatory monitoring at the CCCP site (Table 1).

2.2.1 Site stratigraphy

Three general geological units can be found in order of increasing depth below ground surface under the CCPP:

1) approximately $6\,ft$ of artificial fill consisting of a silt, sand, and gravel.

2) approximately $125 - 140\,ft$ of permeable deposits and consisting of fine- to coarse-grained sand interspersed with lenses of clay, silt, and peat (anywhere from 1 to $15\,ft$ in thickness).

3) approximately $1,200\,ft$ of clay, sand, and gravel mixture, which is part of the Montezuma Formation [Fluor-Daniel, 1998].

2.2.2 Aquifer properties

The aquifer, described in Section 2.2.1 as unit 2, is composed of alluvial (estuarine) sand and dune sand, interspersed with lenses of silt, clay, and peaty mud. Beneath the site, peat is more prevalent near the river, while the silt and clay gets thicker and more laterally extensive in the southern part of the site. These finer materials create local confined conditions, as observed on the southern part of the site [Fluor-Daniel, 1998]. The aquifer is bounded on the bottom by the relatively impermeable layer of silts and clays of the Montezuma Formation.

2.2.3 Water quality

During the Phase II Environmental Site Assessment (ESA), TDS concentration was used to assess general water-quality conditions. The TDS concentration in groundwater at the CCPP site ranged from 290 mg/l to $2,100\,mg/l$ [Fluor-Daniel, 1998]. The 90% upper contaminant level (UCL) observed at the site for TDS was $1,133\,mg/l$, a value indicative of brackish conditions. Monitoring results for the Phase II investigation at the CCPP site indicated that shallow groundwater under the site exceeds secondary drinking water standards for several constituents– TDS, manganese, sulfate, iron, chloride, and pH [Fluor-Daniel, 1998].

2.2.4 Potential contamination

Subsurface testing of soil and groundwater was performed at the CCPP site during a Phase II ESA in 1997 [Fluor-Daniel, 1998]. The purpose of the Phase II ESA was to characterize the site and investigate issues previously identified in the Phase I ESA.

Elevated arsenic concentrations were identified in three areas of the CCPP site (Figure 6). The highest arsenic concentrations were observed in groundwater under the northeast corner of the site, $2,300\,ft$ from the proposed pumping well location, where the observed concentrations ranged from $40 - 242\,ug/l$.

Groundwater samples with a total petroleum hydrocarbon (TPH) concentration above $100\,ug/l$ were observed at various locations scattered across the CCPP (Figure 6). The TPH contamination may be localized because the likely source is #6 fuel oil from historical operations. The low solubility and low viscosity of #6 fuel oil inhibit migration of spills and leaks. Concentrations of TPH ranged from non-detectable, at a detection limit of $50\,ug/l$, to $14,000\,ug/l$. The highest TPH concentrations were observed near the river at the foot of the marine terminal pier and surrounding the leach mound, more than $2,500\,ft$ from the proposed MLGS pumping well location (Figure 6). Our analysis assumes that these substances continue to exist at these locations at the measured levels.

Adjacent to the west side of the MLGS site is the former Gaylord Container Corporation East Mill property (Figure 6). The current property owner, Forestar Real Estate Group Inc., has a Voluntary Cleanup Agreement (VCA) with the California Department of Toxic Substances Control

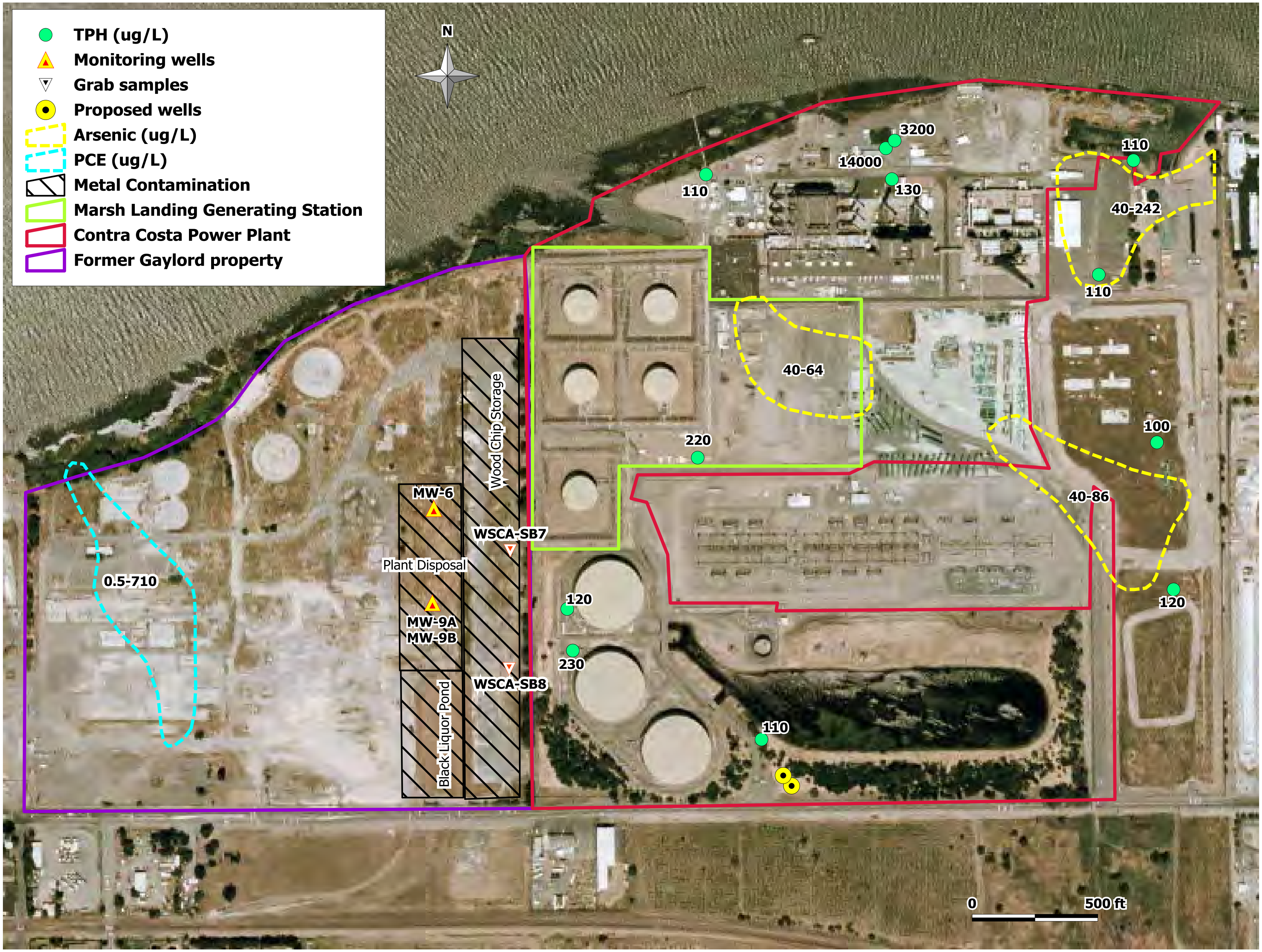


Figure 6: Location of known groundwater contamination in and around the MLGS.

(DTSC) to address various areas of contamination resulting from Gaylord operations. The property owners are currently evaluating cleanup options [Gahry and O'Brien, 2009].

Approximately 20 monitoring wells have been installed at the former Gaylord facility in order to characterize groundwater contamination at the site. Most of the monitoring wells are set at depths of less than 60 $ft\,bgs$. However several wells extend below 100 $ft\,bgs$. The site lithology is generally characterized as having sand with intermittent clay layers until approximately 100 $ft\,bgs$ where it transitions to a gravel layer between $10-40$ ft thick [Gahry and O'Brien, 2009].

There are two primary areas of groundwater contamination at the Gaylord site; Tetrachloroethylene (PCE) underlying the former Non-Processing Area (approximately $2,400\,ft$ from the proposed pumping well) and metals in groundwater underlying the Plant Disposal Area (PDA) and Black Liquor Pond Area (more than $1,300\,ft$ from the proposed pumping well location) [Deshields, 2008]. A plume of PCE is delineated on the west side of the property (Figure 6). ARCADIS is currently evaluating an in-situ chemical oxidation treatment process to treat the PCE plume. Plans to treat other areas with metals contamination have not been published.

The primary area of concern for metals contamination is from the PDA because of the proximity to the proposed MLGS wells. Groundwater sampling at a depth of $20-35$ $ft\,bgs$ (MW-6) in in the PDA in December 2007 indicated three primary constituents of concern; arsenic, chromium, and nickel (Table 2). Observed concentrations in MW-9A and MW-9B were similar but lower than observed in MW-6. The results from MW-9A and MW-9B indicate that at this location, observed concentrations were higher at depth (Table 2). The sample from measuring point MW-9B, screened between $42-52$ $ft\,bgs$, was higher for all three metals than observed in the sample from MW-9A, which is screened between $17-32$ $ft\,bgs$.

Grab samples were taken in 2006 at two locations in the wood chip storage area between the PDA and Mirant property (WCSA-SB7 and WCSA-SB8). The concentrations of the constituents of concern were around or below background levels [BBL, 2005].

Various dioxins were also identified; however, the 2,3,7,8-TCCD Toxic Equivalent (TEQ) is well below the Maximum Contaminant Level (MCL) (Table 2). The MCL is a primary standard that applies to public water systems and is legally enforceable. Dioxin exhibits low water solubility and is not very mobile in groundwater.

Chemicals of concern in the Black Liquor Pond fill material were lead, nickel, and dioxin/furans. In total, 1,747 truck loads or 45,840 tons (34,955 cubic yards) of black liquor pond fill material were removed from the site between November 19, 2004 and January 31, 2005. Backfilling and regrading were completed in May 2005 [DTSC, 2009].

2.2.5 Aquifer properties

Existing information about the hydraulic properties of the aquifer is limited to results from testing at the Gaylord facility. In May 2008, ARCADIS performed a low-flow pump test on a 4 in diameter well screened between $25-40$ $ft\,bgs$ at the Gaylord facility [Deshields, 2008]. The authors analyzed the test data using the Neuman solution for a unconfined aquifer and estimated average

Table 2: Observed concentrations in groundwater near the proposed well at the former Gaylord property [Deshields, 2008].

Location	**Sampled Date**	**Arsenic** (ug/l)	**Chromium** (ug/l)	**Nickel** (ug/l)	**Dioxin TEQ** (pg/l)
Background	–	24	23	22	–
MCL	–	10	50	100	30
MW-6 $(20-35\,ft\,bgs)$	12/5/07	740	510	400	2.3
MW-9A $(17-32\,ft\,bgs)$	12/4/07	25	5	6.7	0.0019
MW-9B $(42-52\,ft\,bgs)$	12/4/07	100	18	37	0.14

ft bgs= feet below ground surface; ug/l=microgram per liter; pg/l=picogram per liter
MCL=Maximum Contaminant Level

values for hydraulic conductivity (K_h; $109\,ft/day$) and specific yield (S_y; $0.056-0.096$).

2.3 San Joaquin River

Due to the proximity of the project site to the San Joaquin River, we compiled data collected from a nearby monitoring station to characterize relevant stage and water-quality characteristics of the San Joaquin River. The California Department of Water Resources (CDWR) operates a gaging station (San Joaquin River at Antioch Ship Canal) on the river about two miles west of the site (Figure 3) as part of the Environmental Monitoring Program. The monitoring station is equipped with real-time monitoring for stage and select water-quality indicators [CDWR, 2009b]. The general location is also a fixed site for water-quality monitoring (Designation D12). Samples have been collected and analyzed for major ions, some metals, nutrients, and other water-quality indicators [CDWR, 2009a]. Select results from that analysis are presented below and in Section 3.4 where we compare the quality of the groundwater (the potential source) with the quality of the river (current source).

It is important to understand the flow characteristics of the San Joaquin River because river stage may affect groundwater yield at the site. In the vicinity of MLGS, the San Joaquin River is influenced by both tidal and delta flows. Diurnal tidal changes influence water-surface elevation, velocity, and flow direction in the Delta. The river flows west toward Suisun Bay during ebb tides and periods of high Delta outflow. The tidal influence fluctuates with gravitational forces and with Delta outflow, but the mean tidal influence in Antioch is $3\,ft$ [URS, 2008]. The mean annual flow from the San Joaquin River is 5,000 cubic feet per second, about 3% of the total inflow to the Delta [URS, 2008]. The observed stage in the river is relatively stable through seasonal variation (Figure 7). The stage varies from about $2\,ft$ to $7\,ft$ throughout the year, with the lower stages occurring in the spring and summer and the higher stages occurring in the fall and and winter. The median stage ($50th$ percentile) is $4.3\,ft$.

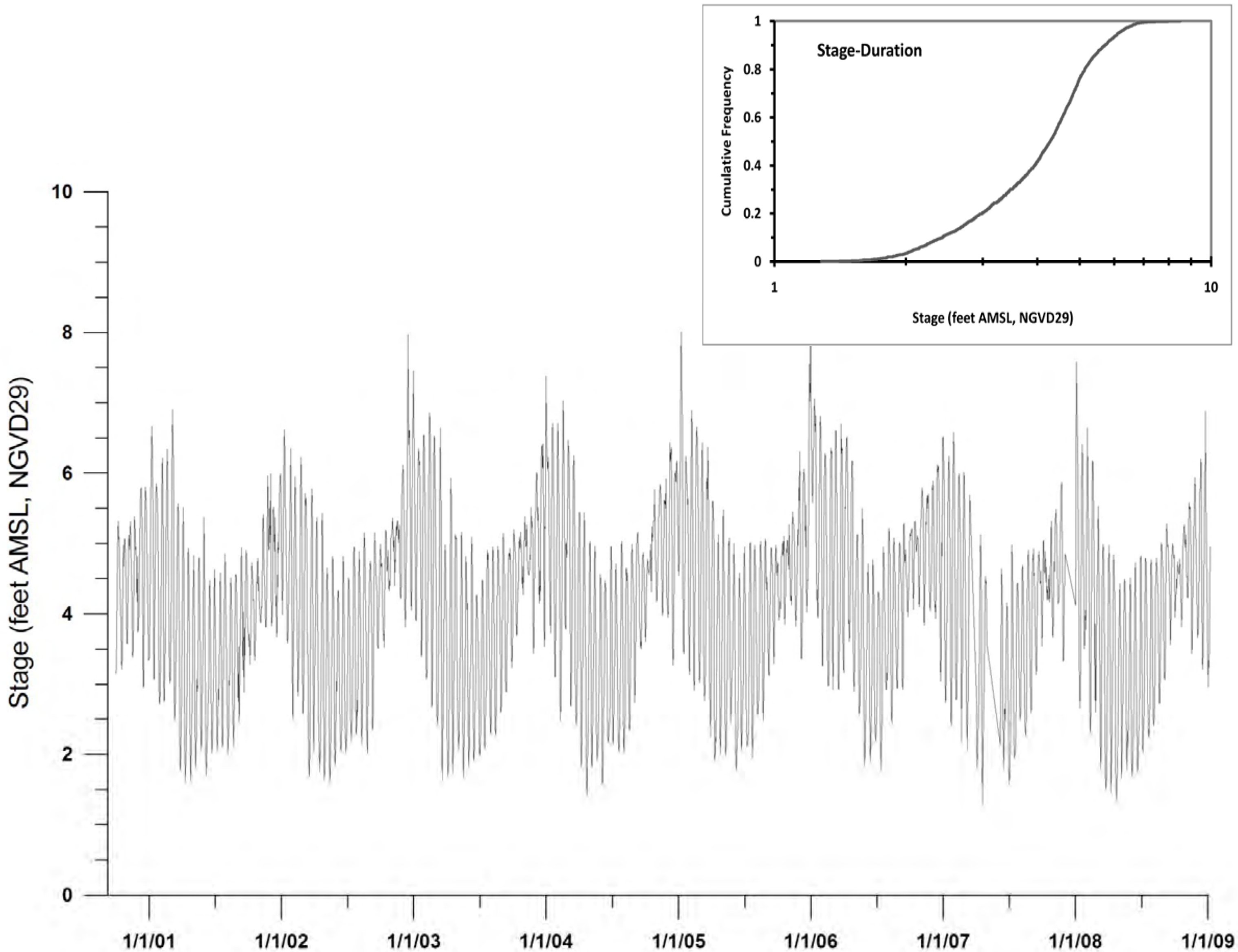


Figure 7: Stage-duration characteristics and observed water level in the San Joaquin River, 2001-2008 [CDWR, 2009a].

3 Field Investigation

WHPA conducted a field investigation at the site to characterize the underlying stratigraphy, estimate aquifer properties, and define the water quality characteristics of the shallow groundwater. The field investigation included test borings, installation of a test production well, an aquifer test, and water quality sampling.

3.1 Test borings

Test borings were drilled at the site to characterize the shallow and deep sediment. The results were combined with existing information to build local and regional geologic cross-sections. The cross-sections were used as the basis for our conceptual model of the aquifer system.

A total of twelve test borings were drilled at the CCPP. With the exception of one deep boring, all exploratory borings were advanced with a rotosonic rig and were completed as monitoring wells. Figure 8 shows the location of all the test borings. The boring logs and static water levels are included as Appendix A. The rotosonic test borings were advanced to depths ranging between $115 - 195\, ft\, bgs$. The lithology encountered in each test boring was described based on visual inspection of highly representative, continuous samples. Representative core samples from three of the borings (WS-01, WS-04, and WS-08) were submitted for grain-size distribution analysis by an independent lab. The sediment from these three test borings were classified according to the Unified Soil Classification System (ASTM-D-2487-98) based on results of the grain-size analysis. Results from the grain-size analyses are in Appendix B.

In addition to the borings advanced in the shallow sediment, a deep exploratory boring was drilled adjacent to WS-01 in order to delineate the vertical extent of the shallow, permeable deposits and to characterize the deeper marine sediment. This deep boring (WS-01D) was advanced with a direct rotary drill rig to a depth of $640\, ft\, bgs$. Unlike the other test borings, the deep boring was not converted to a monitoring well, but was properly abandoned by pressure grouting the open hole.

3.1.1 Results

Results of the test drilling show that the underlying stratigraphy at the site is consistent previous results, as described in Section 2.2.1. Figure 8 shows three geologic cross-sections in map view generated from the test drilling results, existing wells onsite, and existing test borings at the adjacent former Gaylord facility. Cross-section B-B′ generally cuts east-west across the CCCP and includes MW-18, an existing monitoring well at the Gaylord site, and B-1 and B-3, test borings drilled in 1948 (Figure 9). The cross-sections C-C′ and D-D′ run perpendicular to the river, with C-C′ running through the test well and into river (Figures 10 and 11). Cross-section C-C′ includes the large diameter test production well (TW-1) installed for the aquifer test that was conducted for this study. The lithology encountered while drilling TW-1 was not logged. The well is included in the cross-section to show the depth at which the clay was encountered and the relative location of the well and the screen.

About $10 - 15\,ft$ of fine sand and silt fill overlies a sand and gravel zone with an average thickness of $105\,ft$. The permeable zone is characterized by fine sand in the upper $35\,ft$ that, with the exception of intermittent clay and silt layers, grades coarser with depth. Below the fine sand is a $70\,ft$ thick section of medium sand which grades to coarse sand and gravel. The coarser zone appears to be thinning at the former Gaylord property (Figure 9).

Below the sand and gravel, there is a continuous layer of dense clay that is encountered between $115 - 125\,ft\,bgs$ at WS-05. Borings at WS-09 and WS-01D were advanced into the clay, $195\,ft\,bgs$ and $640\,ft\,bgs$ respectively. No other permeable zones were encountered below $125\,ft\,bgs$.

An analysis of sieve results from representative borings (WS-01, WS-04, and WS-08) indicate that the sand is uniform in the finer formations at shallow depth and becomes less uniform in the coarser sections due to the mixture of sands with the gravel (Table 3).

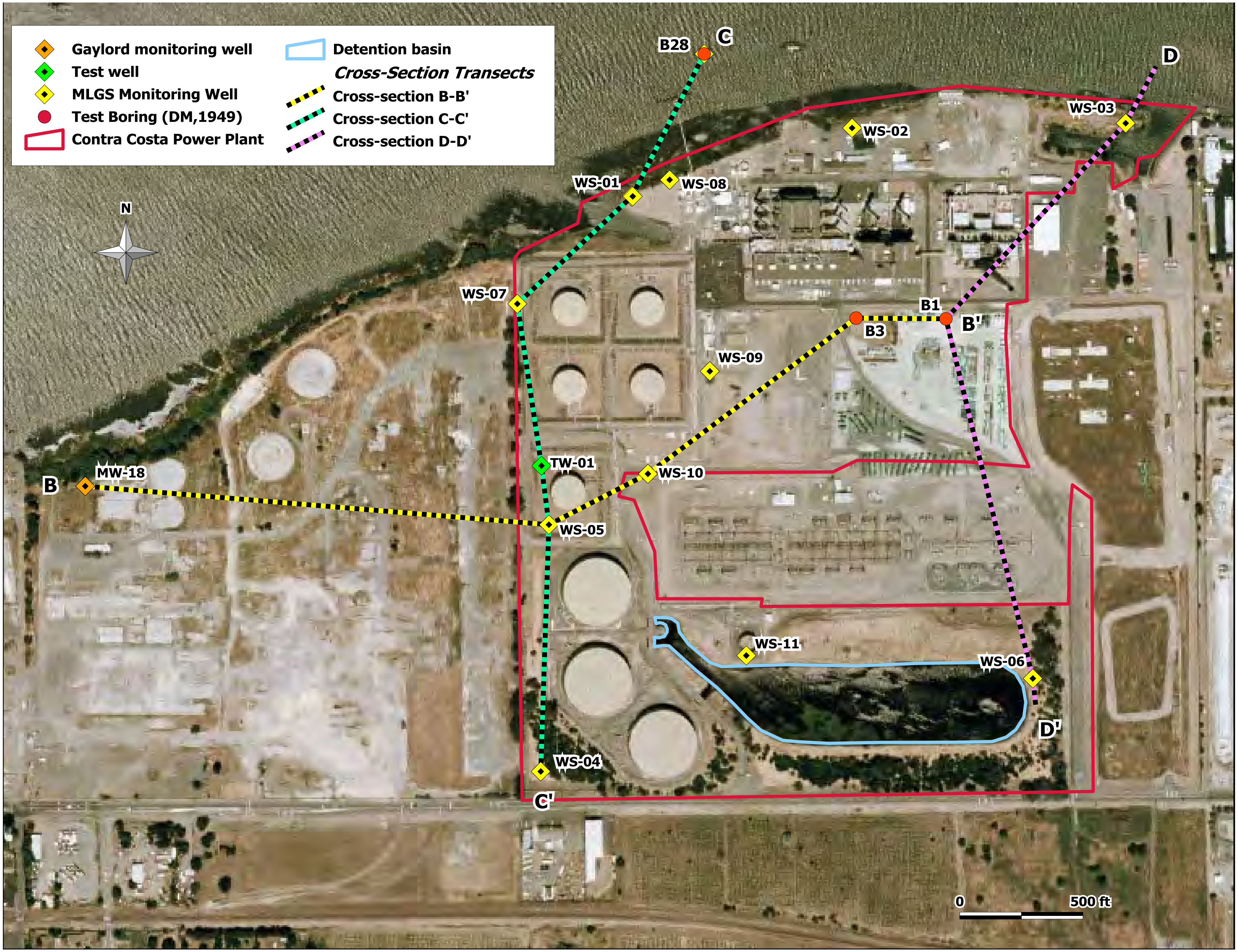


Figure 8: Location of test borings, existing borings, the test production well, and geologic cross-sections B-B′, C-C′, and D-D′.

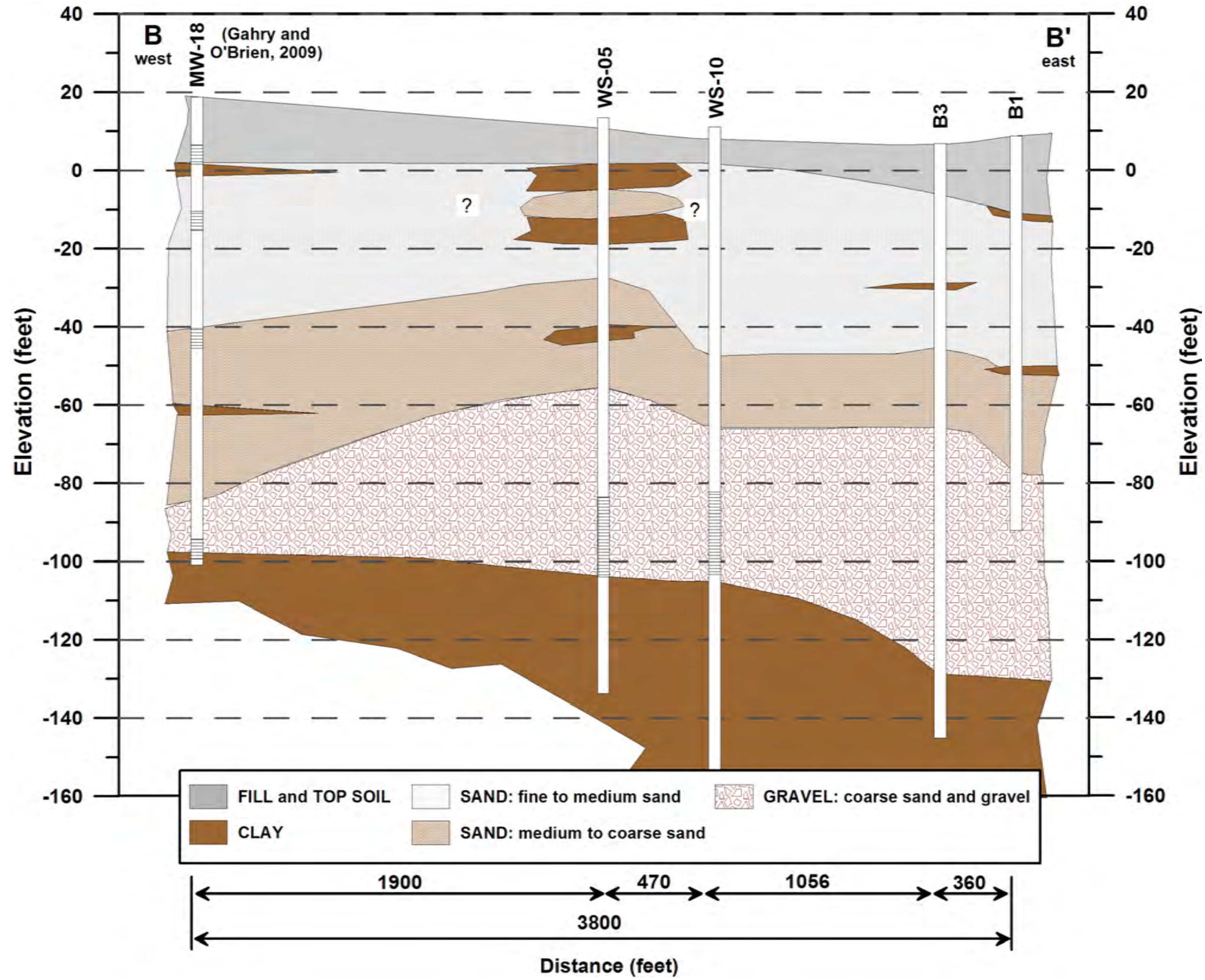


Figure 9: Geologic cross-section B-B′.

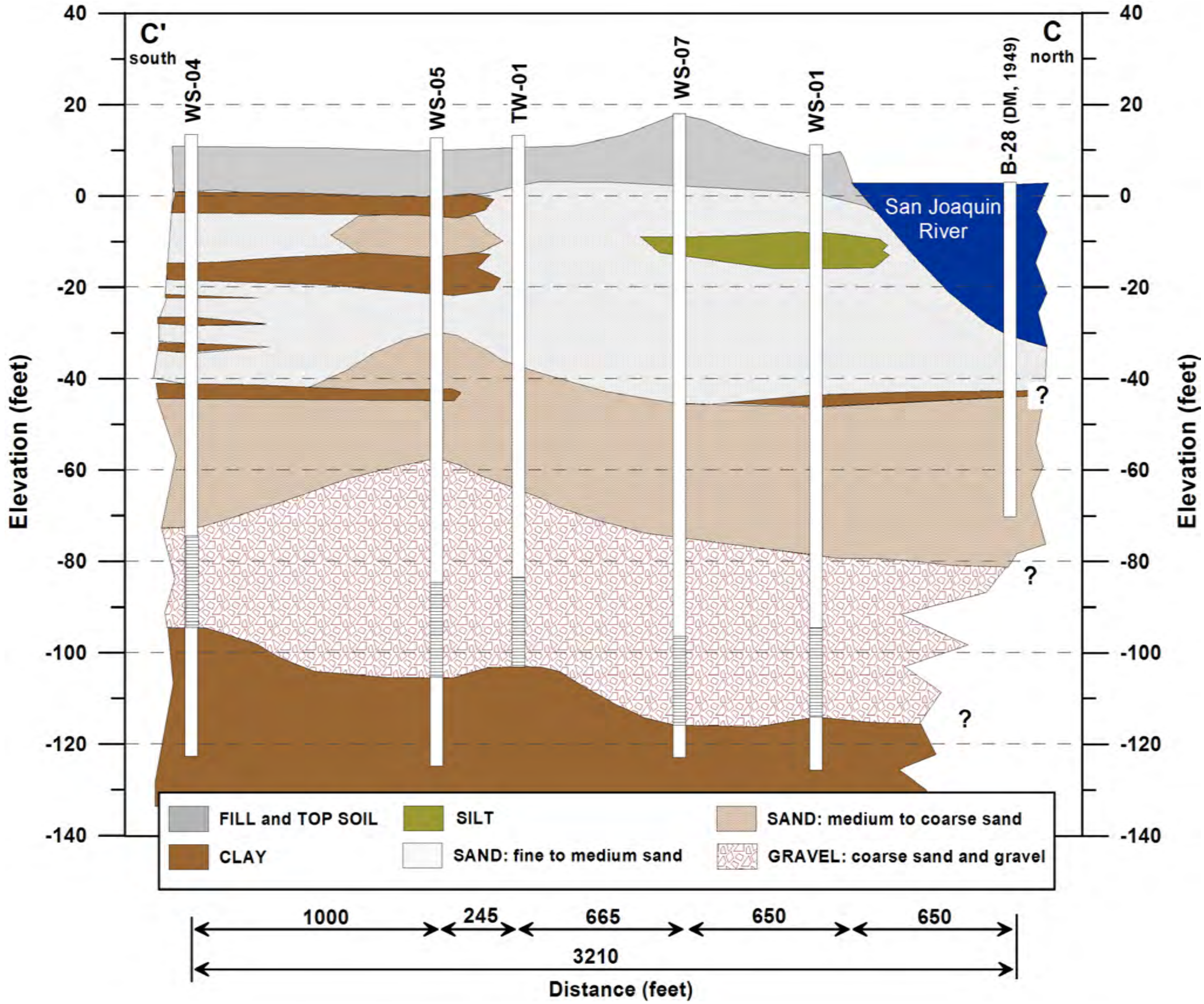


Figure 10: Geologic cross-section C-C′.

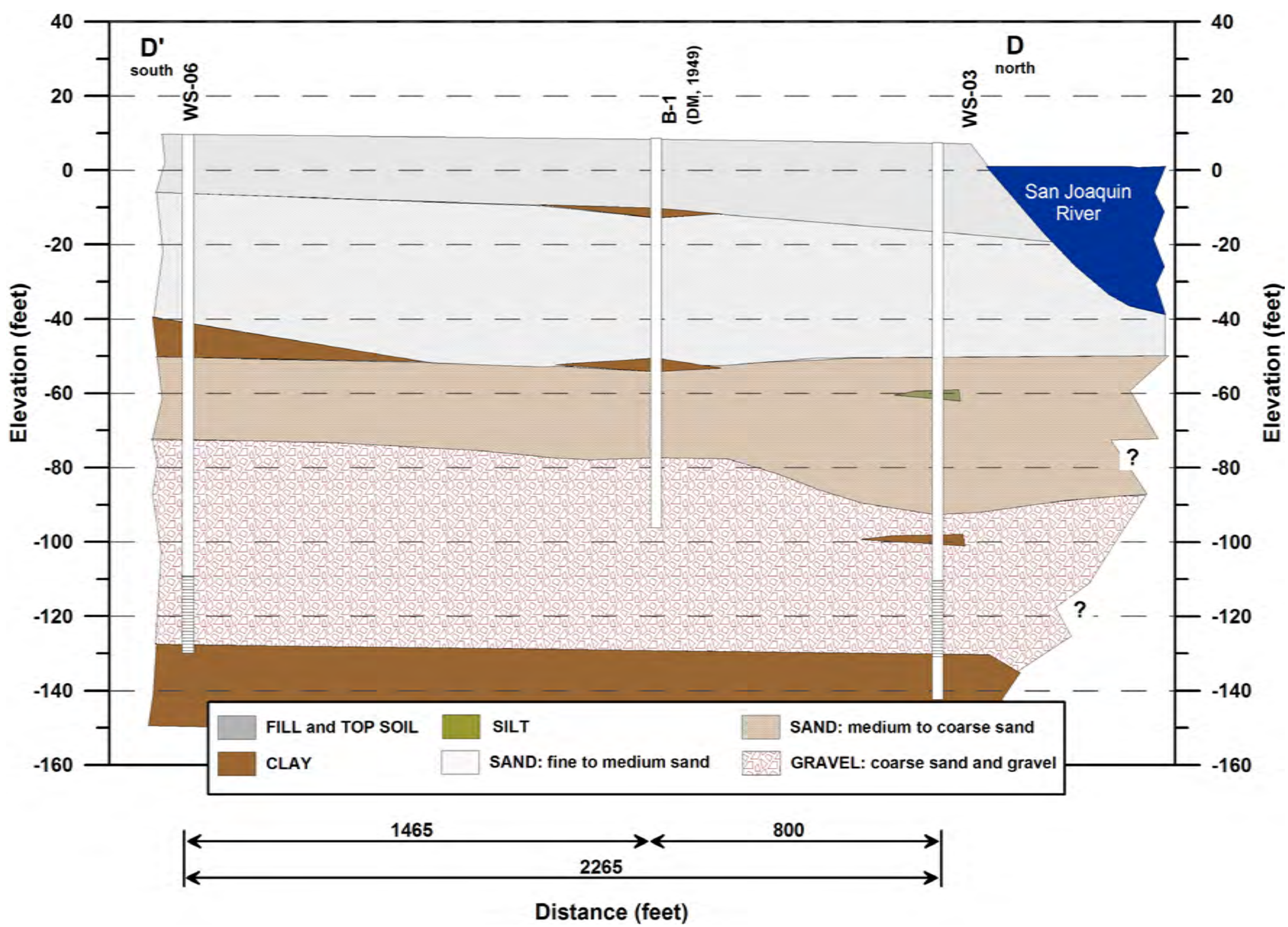


Figure 11: Geologic cross-section D-D′

Table 3: Sieve analysis results from borings WS-01, WS-04, and WS-08.

Depth ($ft\,bgs$)	**Percent Passing Grain Size** (μm)			**Uniformity**
WS-01	**D10**	**D50**	**D60**	**Cu (D60/D10)**
35-50	155	360	420	3
60-70	140	360	430	3
70-80	140	350	420	3
80-85	190	470	550	3
85-90	170	700	1,000	6
90-95	75	260	340	5
95-100	280	3,950	6,200	22
100-105	210	1,400	2,600	12
105-110	220	4,500	6,700	30
110-115	190	4,200	6,000	32
115-120	220	900	1,600	7
120-125	320	3,200	5,100	16
WS-04	**D10**	**D50**	**D60**	**Cu**
50-60	60	300	4,100	68
60-70	170	450	540	3
70-75	160	890	1,700	11
75-80	160	400	460	3
80-85	120	450	550	5
85-90	170	470	560	3
90-95	180	1,600	3,800	21
95-100	60	820	1,700	28
100-105	160	860	1,300	8
WS-08	**D10**	**D50**	**D60**	**Cu**
75-95	140	330	490	4
95-100	180	700	1,100	6
100-105	250	5,600	8,500	34
105-110	115	2,200	4,000	35
110-115	110	1,200	3,300	30
115-120	250	4,000	6,400	26
120-125	230	1,900	6,100	27

ft=feet, bgs=below ground surface, um=micrometer

Test boring locations are shown on Figure 8

Grain-size analysis performed with representative grab samples

Boring logs are in App. A, Grain-size analysis results are in App. B

3.1.2 Regional cross-sections

We used the test boring results to examine the relationship between the permeable deposits at the site and the regional zones used for water supply. Without access to area drilling logs, we used information gleaned from cross-sections published in a regional groundwater study that relied heavily on information in well driller's reports [LSCE, 1999a]. Figure 12 shows the transects of three cross-sections created to illustrate the distribution of sand and gravel deposits in the region surrounding MLGS. Figure 13 shows the generalized cross-section E-E′ as it cuts west to east through the eastern portion of the county, connecting boring results from the current study and existing information from the region east of MLGS. Figure 14 shows the generalized cross-section F-F′, which cuts north-south through the region east of the MLGS.

Correlation of the alluvial and marine deposits at a regional scale is difficult because of similar lithologic character and poor stratification. The sand and gravel beds to the east of the site are generally thin and laterally discontinuous (Figure 14). In some places these thin layers occur in sequence, forming thicker permeable zones. Some of these thicker, subsurface sands may represent older, buried dune fields which were blown from the Delta Island area sand deposits [LSCE, 1999a]. The area beneath the site in Antioch has a thick, continuous permeable zone in the first 125 $ft\,bgs$ (Figure 13). Beneath the permeable zone at the site, we encountered a continuous section of dense clay that occurs at a shallow depth compared to the areas west and east of the MLGS.

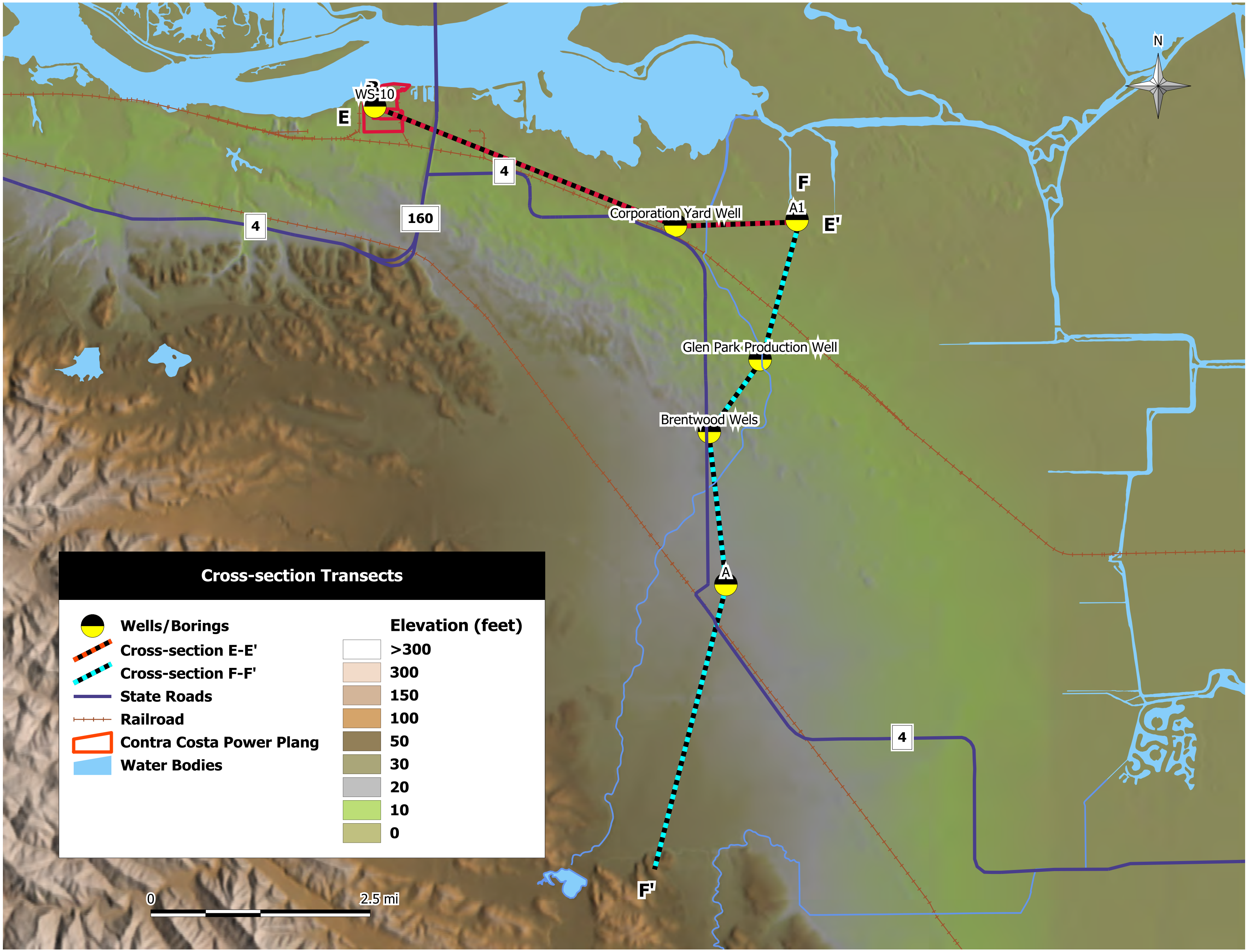


Figure 12: Regional cross-section transects.

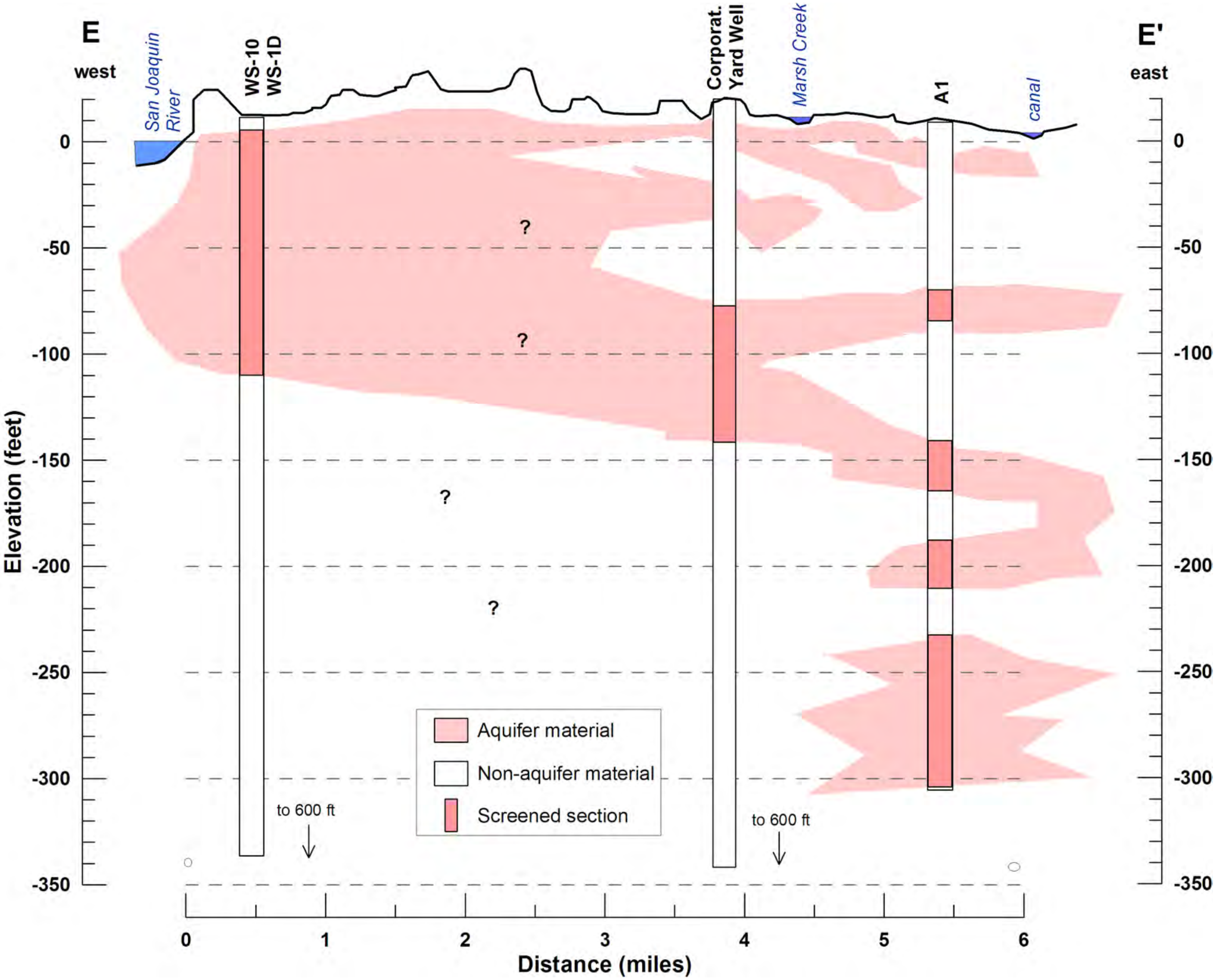


Figure 13: Cross-section E-E′.

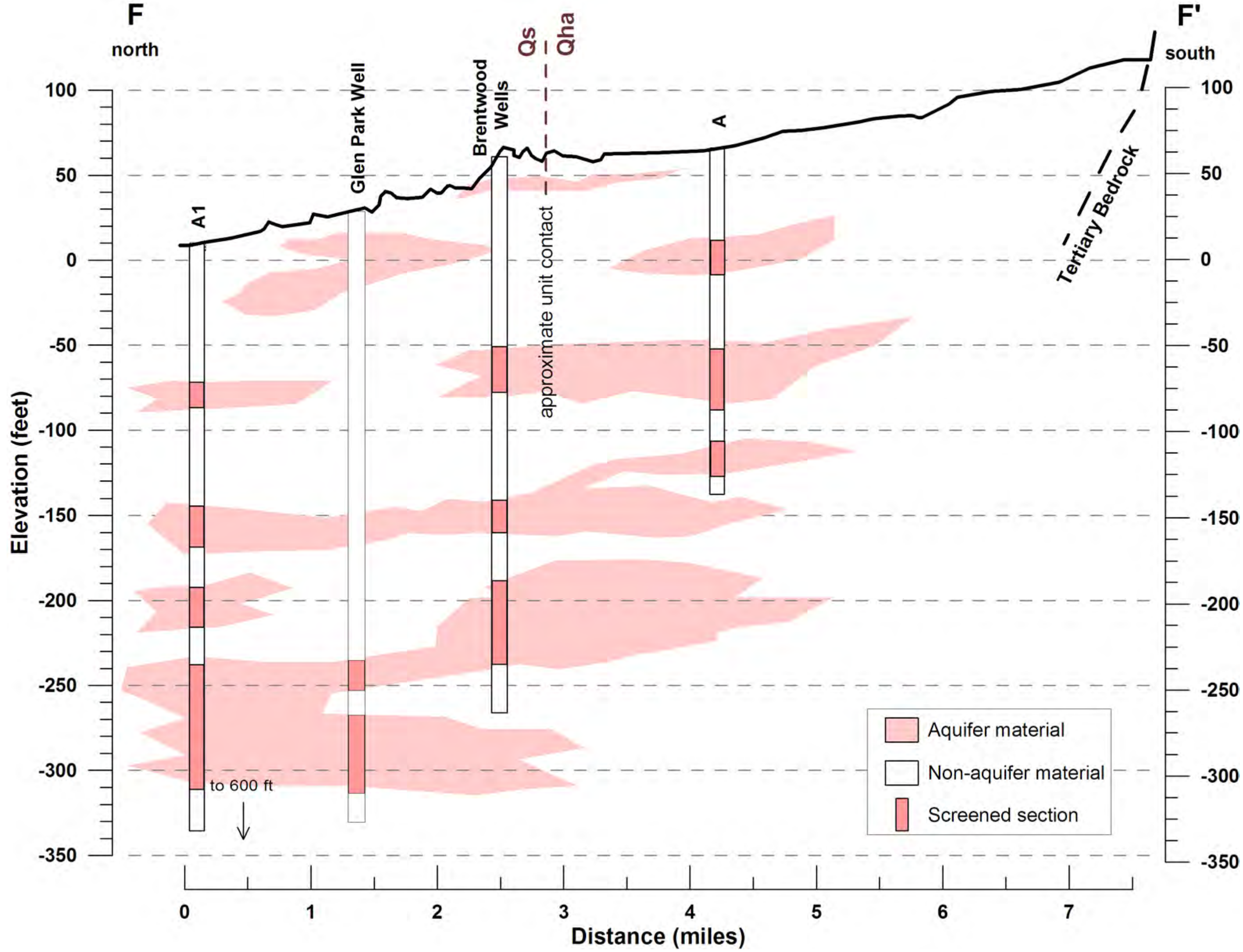


Figure 14: Cross-section F-F′.

Table 4: Characteristics of measuring points used in aquifer test.

Well ID	Longitude	Latitude	Ground Elevation (ft)	Casing Elevation (ft)	Total Depth ($ft\,bgs$)	Screen Interval ($ft\,bgs$)	Distance from test well (ft)
MW-01s[1]	-121.76428	38.01923	7.95	7.55	14	5-14	1,323
P-01	-121.76356	38.01372	4.30	6.32	15	10-15	1,173
P-02	-121.75970	38.01361	7.06	9.31	25	15-25	2,124
P-03	-121.76140	38.01288	6.44	9.23	10	5-10	1,842
WS-01	-121.76503	38.01905	9.91	12.40	135	105-125	1,176
WS-03	-121.75823	38.01977	8.24	8.24	145	114-134	2,725
WS-04	-121.76648	38.01258	11.50	14.35	135	85-105	1,249
WS-05	-121.76628	38.01537	10.44	13.00	135	95-115	238
WS-06	-121.75959	38.01365	10.54	10.32	135	115-135	2,147
WS-07	-121.76671	38.01781	19.58	19.26	135	115-135	660
WS-10	-121.76492	38.01591	8.51	8.28	195	90-110	435
WS-11	-121.76357	38.01386	8.51	8.23	115	95-115	1,134

[1]*Existing monitoring well near WS-08. Name specific to this study.*

Monitoring well locations shown on Figure 15

bgs=below ground surface

Elevations shown are based on NGVD29

3.2 Aquifer Test

An aquifer test is performed by a pumping well at a constant rate and measuring the response in aquifer water levels (drawdown) in monitoring wells located in the general vicinity of the well. WHPA performed a 72-hour aquifer test at the site to determine the hydraulic properties of the water-bearing zone and the degree of connection to the San Joaquin River. The 72-hour constant rate pump test was performed at MLGS between March 30 – April 2, 2009.

3.2.1 Test set-up

The test was designed to observe the response in the aquifer to pumping the test well installed for this study, TW-01. Twelve measuring points were used to measure the aquifer response, including eight monitoring wells installed for this study, one existing monitoring well (MW-01s), and three shallow piezometers (Figure 15). In addition, a stilling well in the river was used to monitor stage fluctuations throughout the test. Location and design data for the monitoring wells and test wells are shown in Table 4.

The monitoring wells were installed as $2\,in$ PVC wells equipped with $20\,ft$ of screen and a protective casing. Shallow measuring points (P-01, P-02, and P-03) were installed adjacent to deeper monitoring wells and around the detention basin to evaluate the potential for artificial recharge of the aquifer. These are $1\,in$ PVC wells equipped with $5-10\,ft$ of screen, installed using a track mounted auger rig with a $5\,in$ drill bit. The monitoring well observations were complemented by water-level observations from a stilling well in the San Joaquin River located near the CCPP water intakes, and from a staff gage located in the detention basin (Figure 15).

Eight monitoring wells were screened in the same general formation as the test well, between $85-105\,ft\,bgs$; wells WS-01, WS-03, WS-04, WS-05, WS-06, WS-07, WS-10, and WS-11. The shallow measuring points MW-01s, P-01, and P-02 are screened near the surface between $5-15\,ft\,bgs$. Observations of pumping induced drawdown in shallow/deep monitoring well pairs were used to assess vertical anisotropy. In addition, observations from the deep/shallow well pairs adjacent to the detention basin (P-01/WS-11, P-02/WS-06) were used to estimate the leakage from the detention basin during the test (Figure 15).

The pumping test well (TW-01) is a $12\,in$ diameter temporary production well installed for this study. The test well was installed with $20\,ft$ of $0.050\,in$ slot, Sch-40 stainless steel screen, set between $95-115\,ft\,bgs$. A submersible pump was set in the well with the intake at approximately $90\,ft\,bgs$. Water discharged from the pumping well was conveyed in $8\,in$ diameter pipe to a culvert which flowed into the detention basin (Figure 15). The pipeline was equipped with an electronic flow meter to monitor the pumping rate. Results from a step-drawdown test were used to determine a pump rate that could be sustained during the 72-hour pump test.

During aquifer testing, water levels in the measuring points were continuously recorded using remote pressure transducers designed to collect and store water-level data at predetermined time intervals. Water-levels were measured and recorded in the measuring points with In-Situ Level Troll water-level monitoring probes. Water levels in the monitoring wells and the test well were verified by hand during the test with an electric water-level indicator. Water-level data measured in the stilling well during the test was verified with measurements from the CDWR water-quality station near the site. The CDWR operates a gaging station (San Joaquin River at Antioch Ship Canal) on the river about two miles west of the site (Figure 3) as part of the Environmental Monitoring Program.

Water-quality samples were collected from the test well, select monitoring wells, and the stilling well during the test and were submitted to an independent laboratory for analysis. The test well was sampled at 22 hours and 70 hours into the test. Water samples were collected from the San Joaquin River and monitoring wells WS-01 and WS-04 between 20 - 22 hours into the test.

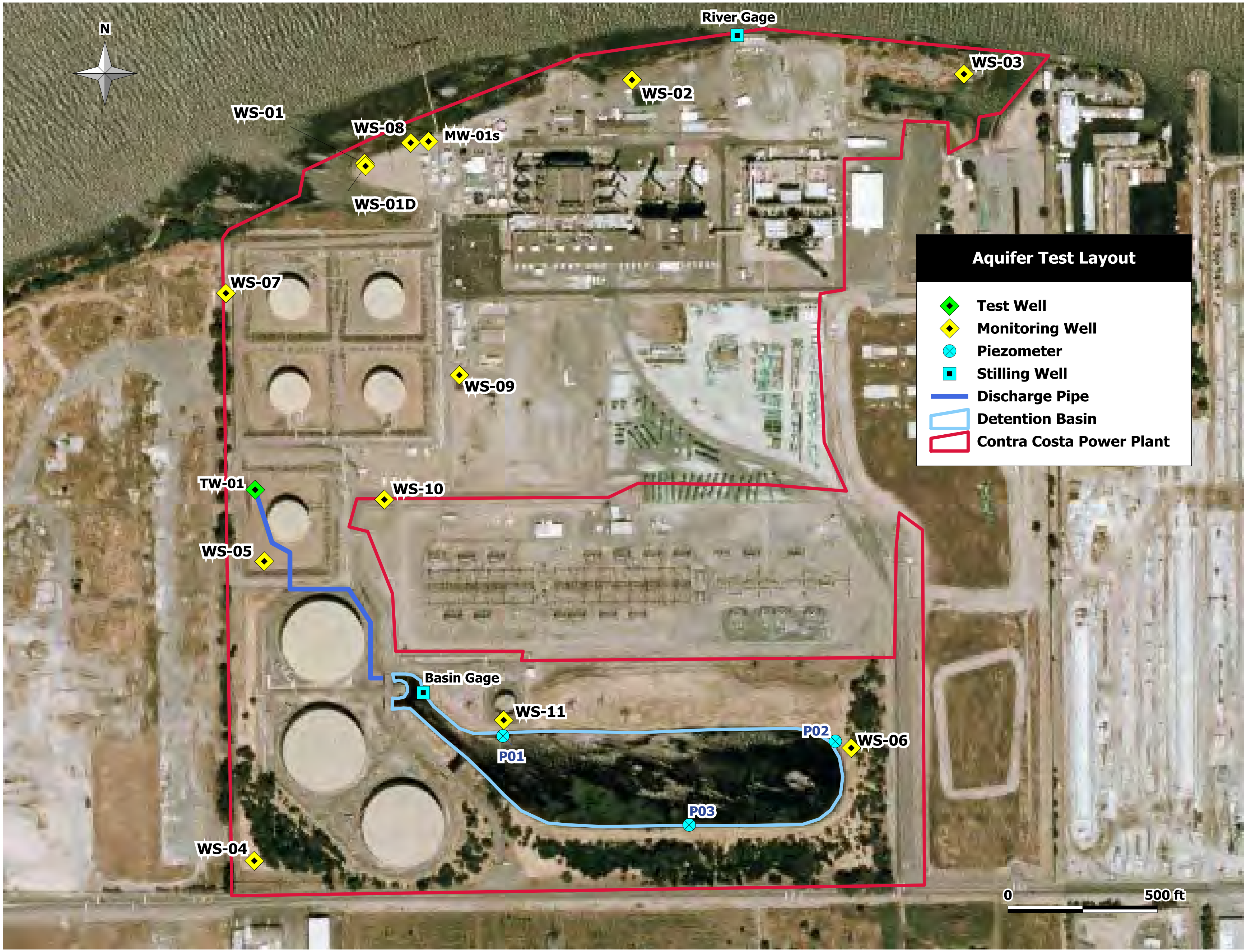


Figure 15: Aquifer test layout.

3.2.2 Test results

The 72-hour, constant rate pumping test was conducted March 30 – April 2, 2009. The test started on March 30 at 1:00 PM and was terminated April 2 at 1:21 PM (72 hours, 21 minutes). The pumping rate for the test was 840 gpm. The total volume of water pumped during the test was approximately $3,497,000$ gal (10.73 $acre\ ft$).

The weather was clear during the test period, with a 0.33 $ft\ H_2O$ total range of barometric pressure over the period. The static water-level elevation at the site was approximately 2.93 $ft\ AMSL$ prior to the start of the test and was slightly lower than the river elevation as reported at the CDWR monitoring station. Throughout the test, the elevation of the river fluctuated with a mixed tidal pattern, varying over a range of about -0.93 *to* 3.54 $ft\ AMSL$.

Aquifer water levels for nearby wells in the primary formation (WS-01, WS-04, WS-05, WS-07, WS-10 and WS-11) responded to pumping and to tidal fluctuations in river stage (Figure 16). The tidal influence was highest in wells close to the river. It was not clear from the test data if the influence from the river was an effect of pressure or a direct hydraulic connection between the aquifer and the river. We assumed that the aquifer and the river are hydraulically connected because the boring logs show coarse, permeable deposits between the river and the test well (see cross-section C-C′, Figure 10). This was confirmed with results of the aquifer test analysis.

The final drawdown in the nearby wells ranged from 2.2 ft at WS-05 to 0.18 ft at WS-11. While drawdown in WS-07 and WS-01 were nearly indiscernible due to tide fluctuations, filtering out the tide shows a drawdown of approximately 0.8 ft for WS-07 and 0.3 ft for WS-01. The deep/shallow pair WS-01/MW-01 response was dominated by changes in the river water level, with the deeper well, WS-01, having a greater tidal amplitude. After filtering out tidal effects, no impact from pumping was detected in wells MW-01s, WS-03, WS-06, and P-02.

The detention basin filled with discharge water during the test. This influenced water levels in adjacent monitoring wells (P-01, P-02, P-03, WS-11, and WS-06) (Figure 17). The deep/shallow pair WS-11/P-01 both responded to pumping and the detention basin filling with water (Figure 17). The wells in the deep/shallow pair WS-06/P-02, located on the opposite side of the detention basin, both responded to the basin filling with water, but neither to the pumping well. The effect of the detention basin was most likely due to pressure as opposed to leakage into the aquifer. The detention basin, designed to contain a spill from the surrounding tanks, was constructed with a clay liner. The thickness of the clay encountered during installation of piezometers P-01, P-02, and P-03 was 10 ft, 15 ft, and 3 ft, respectively. For each location, the static water level was above the bottom of the clay, indicating confined conditions under the detention basin. Filling the detention basin causes an increase in pressure in the aquifer due to the overlying mass of water.

The results of the test were analyzed to determine aquifer properties. The analysis and results are discussed in Section 3.3. Water quality results are discussed in Section 3.4.

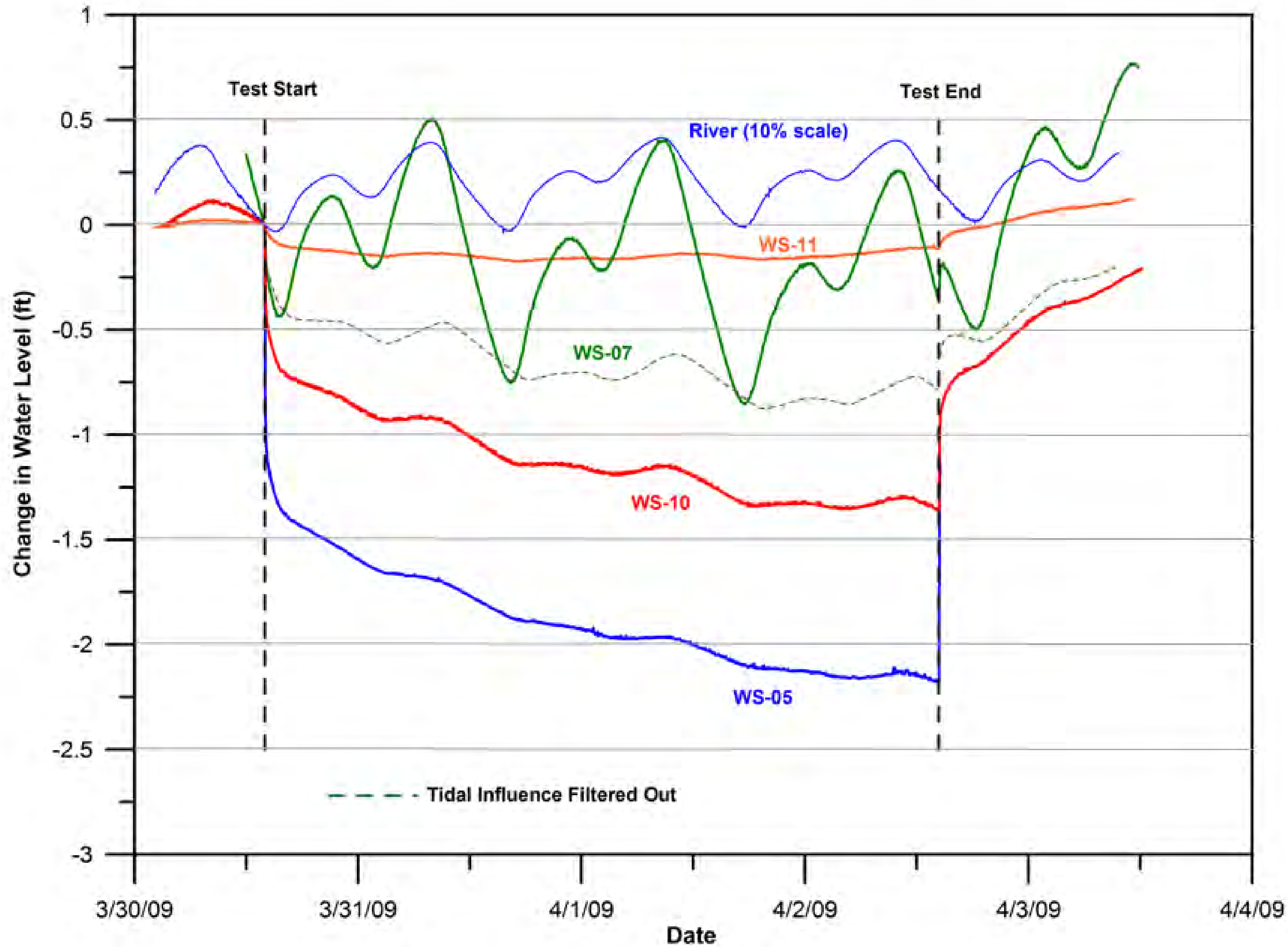


Figure 16: Water-level response in nearby monitoring wells during aquifer test.

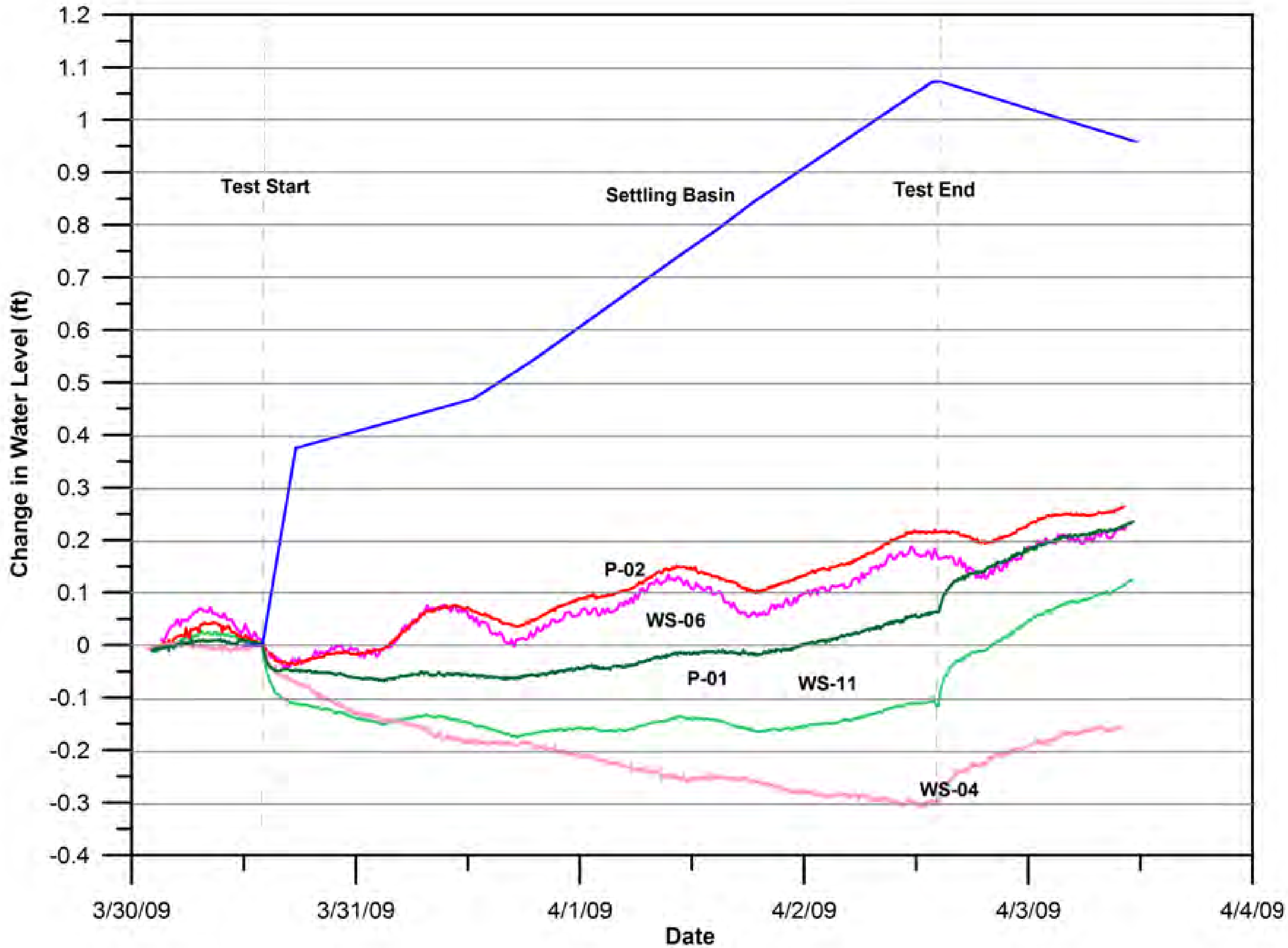


Figure 17: Water-level changes in distant wells during aquifer test.

3.3 Aquifer properties

The data from the aquifer test were analyzed to estimate values for aquifer transmissivity (T), storage coefficient (S), and the riverbed resistance (c/w). Data from monitoring wells WS-04, WS-05, WS-07, WS-10, and WS-11 were used to calibrate a transient groundwater model.

The conditions of this test were complex. The combined effects of filling the detention basin and the mixed tidal influence from the river made using traditional methods for calculating T and S with standard analytic models unreliable. Most of the these models assume radial flow to an infinite aquifer with boundary conditions approximated using the method of images. As a first pass, the AQTESOLV computer program was used with image wells to represent the river and the detention basin *[Duffield, 2002].* Image well locations and rates had to be estimated and multiple solutions were possible based on their locations. All solutions had poor correlations between all monitoring wells, and it was not possible to find a dominant solution. It is also not possible to estimate a value for riverbed conductance using this method. It appeared that these particular features of the test needed to be explicitly included in the analysis to match the conditions.

Consequently, we used WHPA's transient groundwater code *wigaem* together with an inverse model to compute the likely range of values for T, S, and c/w. The *wigaem* code provides a two dimensional solution based on transient inputs for well pump rate, river stage, and detention basin stage. *Wigaem* uses point sinks for vertical wells and line sinks for surface waters and discharge specified perimeter boundaries. Time varying data for these boundary conditions are used with the pumping rate data as forcing inputs into the model. For a detailed description of the method and use of *wigaem*, see [Bakker, 2004]. We used line sinks to represent the river and detention basin, and a point sink to represent the test well (Figure 18).

The model was calibrated using data from monitoring wells WS-04, WS-05, WS-07, WS-10, and WS-11. The calibration was accomplished with the inverse model PEST, a model-independent parameter estimation tool [Doherty, 2004]. When used in this application, PEST provides results that account for hydrogeologic and hydraulic uncertainty. Four adjustable parameters were included in the PEST inverse model (Table 5). The inverse model was calibrated by minimizing the difference between observed and modeled drawdown through time (Figure 19).

Results of the aquifer test analysis are in Table 5. The best-fit transmissivity value is $19,773\,ft^2/d$, with a storage coefficient of 0.0445. Assuming the aquifer is $108\,ft$ thick results in an average hydraulic conductivity of $183\,ft/d$. This hydraulic conductivity is consistent with an expected range of values based on the particle size distributions reported from sieve tests from site borings. The average hydraulic conductivity is higher than the $109\,ft/d$ measured by others at the former Gaylord property (See section 2.2.5). However, the test at the former Gaylord property was conducted with a test well screened in the shallow, finer sediment between $25-40\,ft\,bgs$.

The best-fit resistance/width of the river sediments is $0.0268\,d/ft$. This indicates a hydraulic connection between the pumped aquifer and the San Joaquin River. The low resistance through the riverbed sediments is also consistent with the coarse material near the riverbed shown in cross-section C-C′.

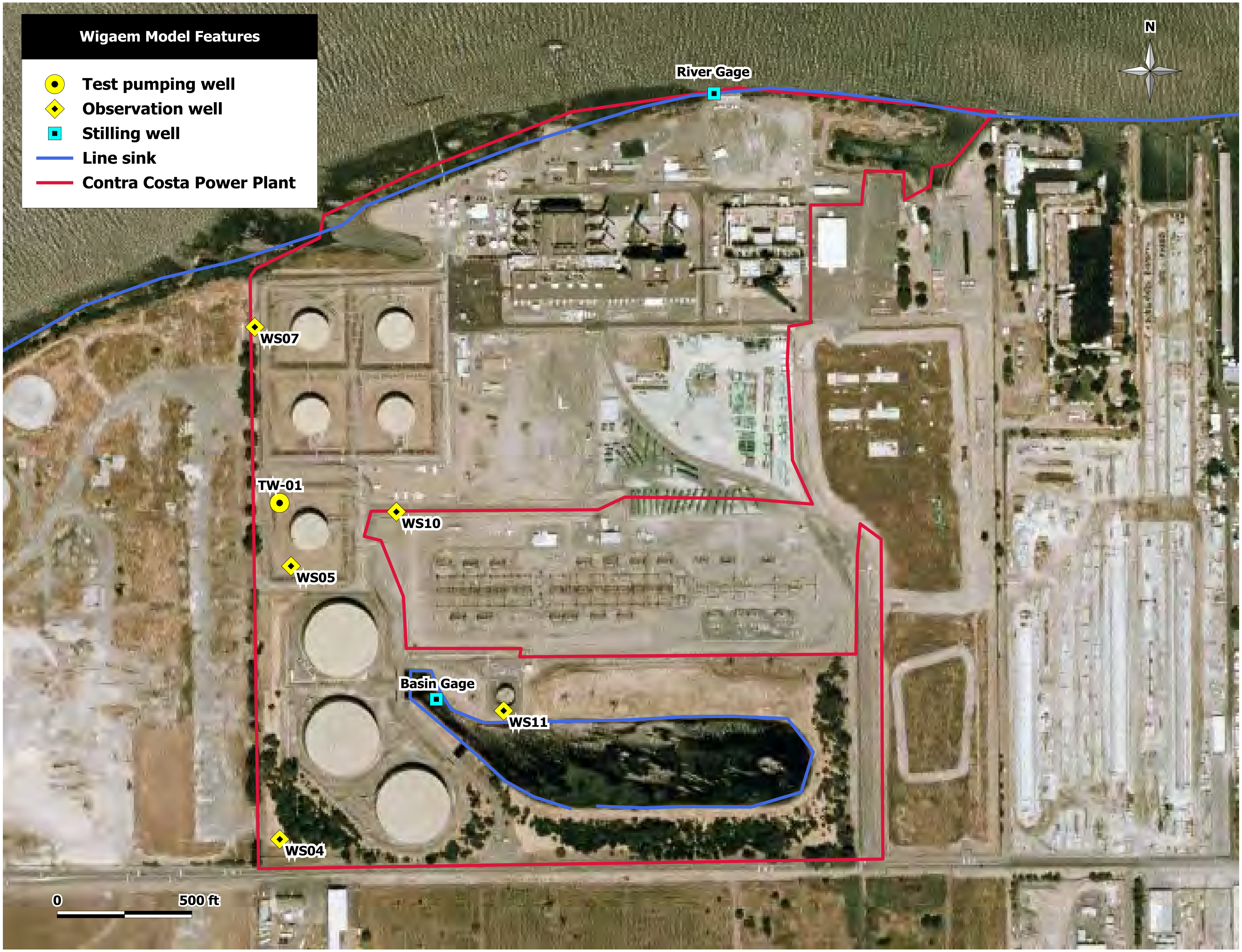


Figure 18: Layout of transient *wigaem* model.

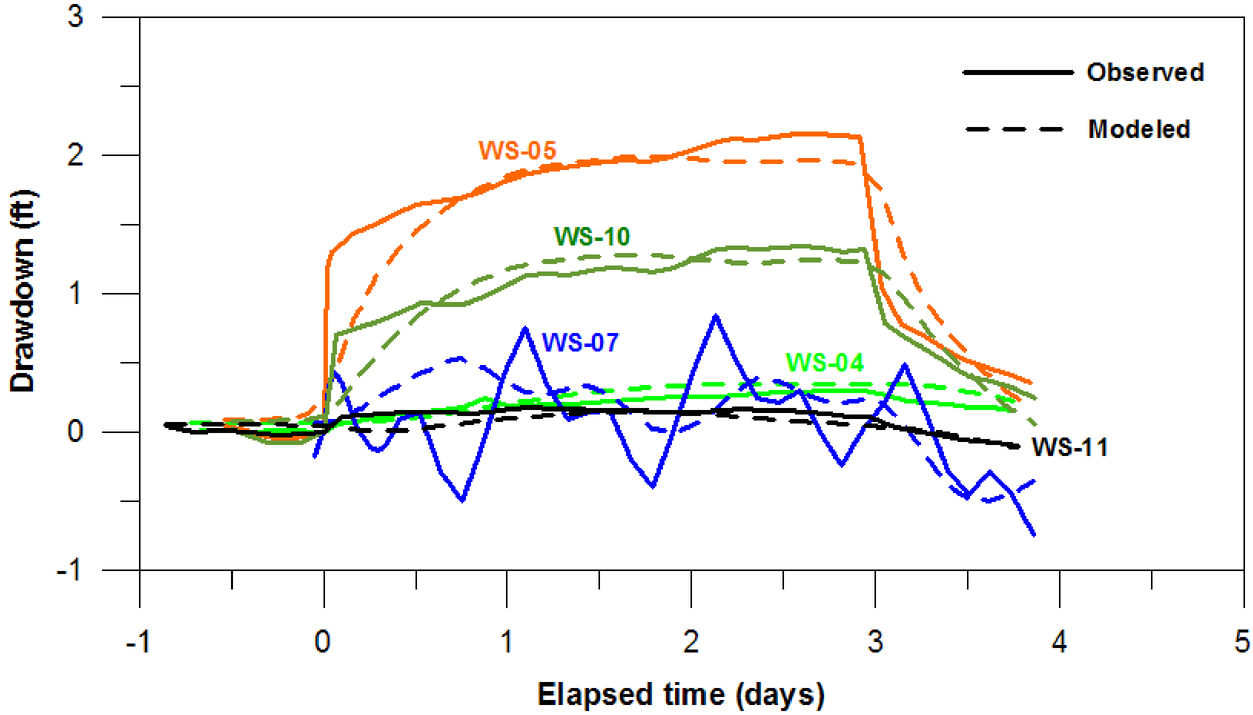
Table 5: Predicted hydraulic properties based on the aquifer test.

Parameter	Units	95% Confidence Interval	Best-fit Value
Transmissivity (T)	$[ft^2/d]$	$18,580 - 21,042$	$19,770$
	$[gpd/ft]$	$138,974 - 157,392$	$147,900$
Hydraulic Conductivity (K)	$[ft/d]$	$172 - 195$	183
Storage Coefficient (S)	$[-]$	$0.0386 - 0.0512$	0.0445
Riverbed Resistance/Width (c/w)	$[d/ft]$	$0.0224 - 0.0322$	0.0268
Riverbed Conductance (w/c)	$[ft^2/d/ft]$	$31 - 45$	37

ft=feet, d=day, gpd=gallons per day

The storage coefficient is at the low end of the range that typically defines an unconfined aquifer [Batu, 1998]. This is consistent with our understanding of the aquifer based on the cross-sections A-A', B-B' and C-C' which show that, with the exception of the intermittent clay layers at around 50 ft depth, the water-bearing sediment appears to be continuous to the surface with no major confining layer. The difference in drawdown observed at the paired monitoring wells WS-11 and P-01 is indicative of a high vertical anisotropy and/or semi-confined conditions.

A



B

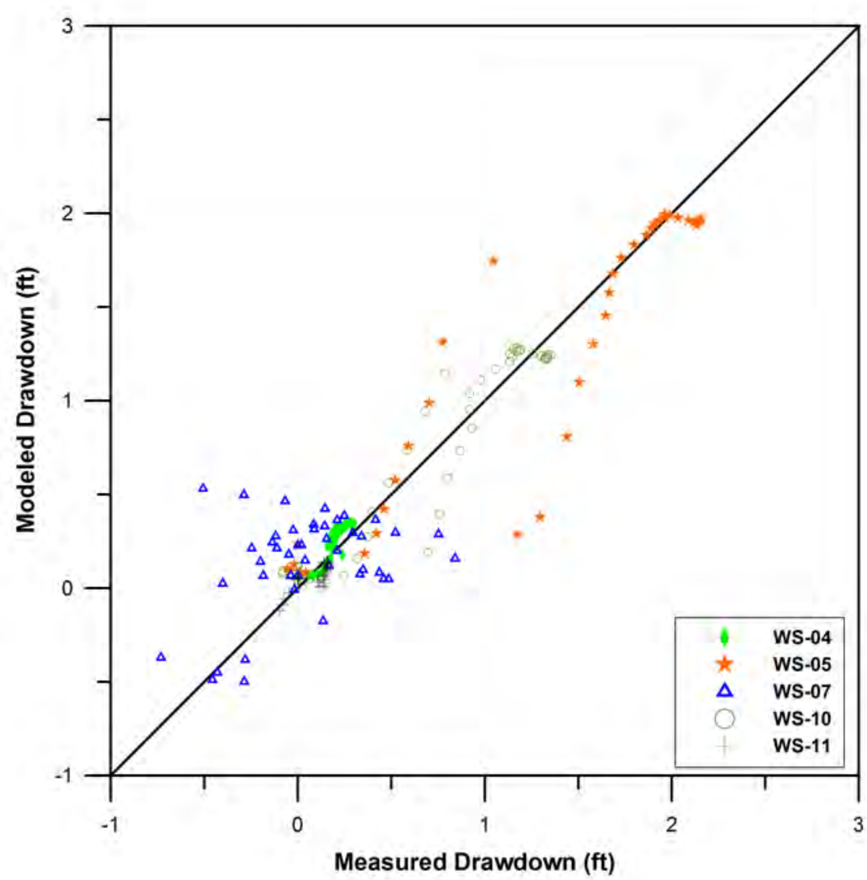


Figure 19: Calibration results from transient analysis of aquifer test: A) Modeled and observed drawdown through time, and B) Modeled versus observed drawdown.

3.4 Water Quality

Samples were collected from monitoring wells and the test well TW-1 to characterize the quality of the groundwater for use as process water. The California Energy Commission (CEC) advocates the use of alternative sources of cooling water for power plants, including brackish or contaminated groundwater supplies [CEC, 2000]. Brackish water is defined as all waters with TDS concentration in the range of $1,000 - 30,000\,mg/l$ and a chloride concentration range of $250 - 12,000\,mg/l$ [CSWRCB, 1975]. Contaminated groundwater is defined as water not suitable for most agricultural or urban uses because of natural or anthropogenic contamination [CEC, 2000].

The water-quality results are compared to national primary and secondary drinking water standards. Primary standards such as the MCL are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water. National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water.

Water-quality samples were collected before and during the aquifer test. Samples were collected from monitoring wells WS-04, WS-05, WS-07, and WS-09 on January 30, 2009 before the test. The purpose of collecting the pretest samples was to characterize the source water for the discharge permit for the aquifer test. During the test, samples were collected from monitoring wells WS-01 and WS-04 and the test well TW-01 to assess potential requirements for pre-treatment. The analyte list used for the test samples, provided by CH2M Hill, were designed to evaluate the source water's potential for combustion turbine inlet evaporative cooler makeup water and identify potential foulants for a reverse osmosis treatment system.

The monitoring wells were sampled with a peristaltic pump and purged of a minimum of one well volume while monitoring dissolved oxygen (DO) and temperature to ensure water quality had stabilized prior to sample collection. The river and monitoring wells were sampled after $20 - 21\,hrs$ of pumping. Water samples were collected from the test well at $22\,hrs$ and $70\,hrs$ into the test. All samples were submitted to McCambell Analytical, Inc. in Pittsburg. The pretest results are reported in Table 6 and the test results are in Table 7. The raw data can be found in Appendix E.

The water-quality results demonstrate that groundwater at the MLGS is not potable (Tables 6 and 7). Based on the State's definition, the water is brackish. All of the groundwater samples collected from the monitoring wells and the test well had TDS values greater than $1,000\,mg/l$. The associated chloride concentrations were all equal to or exceeded $250\,mg/l$. The observed concentration of several constituents exceeded drinking water standards. The MCL was exceeded for arsenic in monitoring wells WS-04 and WS-01. Secondary drinking water standards were exceeded for aluminum, iron, manganese, chloride, and sulfate.

Prior to the test, trichloroethylene (TCE) was detected in the sample from monitoring well WS-06 at a concentration of $1.2\,ug/l$, which is below the MCL of $5\,ug/l$. During the test, no VOCs were detected in any of the groundwater samples.

The water-quality characteristics of the groundwater sampled from monitoring wells and the test well are very different from the river. As summarized in Tables 6 and 7 and shown in Figure 20, the groundwater is higher in TDS, higher in alkalinity, and lower in pH.

Table 6: Water-quality results from samples collected prior to the aquifer test.

Parameter	Units	USEPA MCL (SMCL)	California MCL (SMCL)	WS-04	WS-05	WS-06	WS-07	WS-09
Solids, Total Dissolved (TDS)	mg/L	(500)		1410	934	2,200	1,270	1490
Antimony	µg/L	6	6	<0.5	<0.5	<0.5	<0.5	<0.5
Arsenic	µg/L	10	10	115	9.1	1.7	4.4	7
Barium, Total	µg/L	2,000	1,000	54	24	89	28	20
Beryllium	µg/L	4	4	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	µg/L	5	5	<0.25	<0.25	<0.25	<0.25	<0.25
Cobalt	µg/L			<0.5	<0.5	0.50	<0.5	<0.5
Chromium	µg/L	100	50	<0.5	<0.5	<0.5	2.1	<0.5
Copper, Total	µg/L	(1000)	(1000)	<0.5	<0.5	<0.5	<0.5	<0.5
Lead	µg/L	15	15	<0.5	<0.5	<0.5	<0.5	<0.5
Molybdenum	µg/L			14	13	120	57	26
Mercury	µg/L			<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/L			2.2	0.82	3.5	7.4	1.4
Thallium	µg/L	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	µg/L			<0.19	<0.19	<0.19	<0.19	<0.19
Selenium	µg/L	50	50	<0.5	<0.5	24	<0.5	7.2
Vandium	µg/L			<0.5	<0.5	1.3	<0.5	1.2
Zinc	µg/L	(5000)		<5.0	<5.0	<5.0	<5.0	<5.0
VOCs	µg/L	Trichloro-ethene (5)	Trichloro-ethene (5)	ND	ND	Trichloro-ethene 1.2	ND	ND
Volatile Hydrocarbons as Gasoline	µg/L			<50	<50	<50	<50	<50
Total Extractable Petroleum Hydrocarbons (TPH-Diesel)	µg/L			<50	<50	<50	<50	<50
Total Extractable Petroleum Hydrocarbons (TPH-Moter Oil)	µg/L			<250	<250	<250	<250	<250

USEPA=U.S. Environmental Protection Agency; MCL=Maximum Contaminant Level; SMCL=Secondary Maximum Contaminant Level

Samples were collected on January 30, 2009

See Appendix D for complete water-quality results

See Figure 15 for monitoring well locations

Values that exceed an established MCL or SMCL are highlighted in yellow

Table 7: Water-quality results from samples collected during the aquifer test.

Parameter	Units	USEPA MCL (SMCL)	California MCL (SMCL)	S. Joaquin River (20.5 hrs)	WS-01 (20 hrs)	WS-04 (21.5 hrs)	TW-01 (22 hrs)	TW-01 (70 hrs)
pH @ 23.2 ºC		(6.5-8.5)		7.57	7.3	7.37	7.4	7.63
Specific Conductivity @ 25C	µmhos/cm			374	2,990	2,560	1850	1,720
Solids, Total Dissolved (TDS)	mg/L	(500)		189	1,670	1,420	1,160	1,130
Solids, Total Suspended (TSS)	mg/L			13.1	<1.0	14.4	<1.0	<1.0
Alkalinity Total/Bicarbonate	mg/L			80	207	220	249	263
Hardness, Total	mg/L			94	280	350	250	240
Turbidty	NTU			18.7	0.954	6.43	0.832	0.401
Selective Ultravioet Absorption (SUVA)	cm^{-1}			0.2	0.024	0.025	0.025	0.043
Color	Color Units			77	4.1	6.8	2.2	2.6
Carbon, Dissolved Organic (DOC)	mg/L			5.2	15	7	12	12
Carbon, Total Organic (TOC)	mg/L			9.6	8.1	15	5	15
Carbon Dioxide	mg/L			71	160	150	200	260
Chlorine, Total Residual	mg/L			<0.04	<0.04	<0.04	<0.04	<0.04
Total Coliform	1.0 MPN/100 ml	-		140	<1.0	<1.0	<1.0	<1.0
E. Coli, Enumeration	1.0 MPN/100 ml			20	<1.0	<1.0	<1.0	<1.0
Oil & Grease	mg/L			<5.0	<5.0	<5.0	<5.0	<5.0
Oxygen, Dissolved	mg/L			9.51	2.5	2.02	2.17	1.72
Oxygen Demand, Biochem. (BOD)	mg/L			<4.0	<4.0	<4.0	<4.0	<4.0
Oxygen Demand, Chem. (COD)	mg/L			<10	<10	<10	<10	15
Salinity	mg/L			240	1,910	1,640	1,180	1,100
Phosphorus, Total	mg/L			0.2	0.14	0.17	0.19	0.19
Silica, Reactive	mg/L			18	42	48	51	62
Silica, Total*	µg/L			11,000	17,000	21,000	46,000	25,000
Aluminum, Total	µg/L	(50-200)	1000(200)	970	<50	350	<50	<50
Arsenic	µg/L	10	10	2.4	24	4.8	6.4	7
Barium, Total	µg/L	2,000	1000	26	14	33	19	18
Calcium	µg/L			17,000	58,000	81,000	60,000	60,000
Chromium	µg/L	100	50	2.4	<0.5	1	<0.5	<0.5
Copper, Total	µg/L	(1,000)		4.1	<0.5	0.52	0.9	2.8
Iron, Total	µg/L	(300)		1200	<20	500	78	77
Lead	µg/L	15	15	0.58	<0.5	<0.5	1.6	4
Magnesium	µg/L			13,000	34,000	36,000	24,000	22,000
Manganese, Total	µg/L	(50)		26	230	170	140	130
Mercury	µg/L			<0.012	0.012	<0.012	<0.012	<0.012
Nickel	µg/L			3.6	<0.5	<0.5	<0.5	<0.5
Selenium	µg/L	50	50	<0.5	6.5	<0.5	1	3.2
Sodium	µg/L			41,000	540,000	390,000	380,000	380,000
Strontium, Total	µg/L			160	790	1,300	1,100	1,000
Ammonium	mg/L			<0.2	<0.2	<0.2	<0.2	<0.2
Chloride	mg/L	(250)		55	540	440	270	250
Fluoride	mg/L	4(2)	4(2)	<0.1	<0.1	0.37	0.3	0.29
Nitrate (N)	mg/L	10	10	0.41	<0.1	<0.1	0.24	1.3
Phosphate	mg/L			-	-	-	<0.1	-
Sulfate	mg/L	(250)		-	-	-	340	-
VOCs	mg/L			ND	ND	ND	ND	ND

USEPA=U.S. Environmental Protection Agency; MCL=Maximum Contaminant Level; SMCL=Secondary Maximum Contaminant Level

Samples were collected on March 31 and April 2, 2009

See Appendix D for complete water-quality results

See Figure 15 for monitoring well locations

Values that exceed an established MCL or SMCL are highlighted in yellow

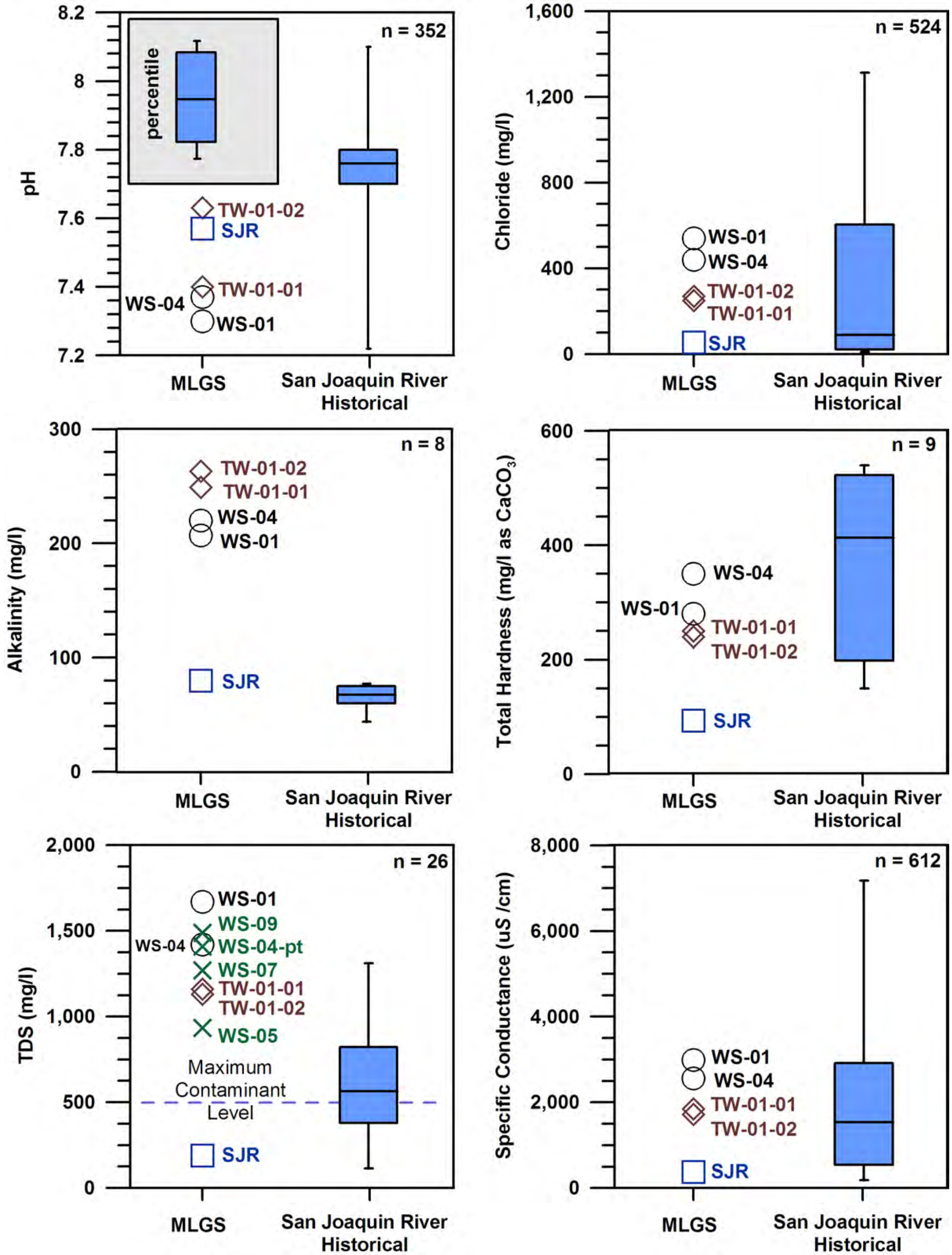


Figure 20: Select water-quality results from this study and observed concentrations in the San Joaquin River.

4 Groundwater Flow Modeling

We formed a conceptual model of the regional groundwater system based on information obtained from historical and recent borings, the aquifer test, and the regional hydrogeology. Then, significant features of the conceptual model were incorporated into a transient groundwater flow model using the MODFLOW finite difference code supported by the GMS user interface [Banta and Harbaugh, 2000] [Aquaveo, 2009]. The aquifer system was modeled using the aquifer parameters estimated from the aquifer test.

The transient MODFLOW model was used in predictive mode to evaluate the potential net impacts of the proposed pumping well on regional aquifer water levels. A transport model, MT3D [Zheng and Wang, 1999], was coupled with the MODFLOW model to evaluate the potential for the well to capture infiltrated water from the river and the potential for the proposed pumping well to capture known contamination.

4.1 Groundwater model development

We selected MODFLOW because it is a standard tool understood by most groundwater flow modelers. More importantly, MODFLOW is capable of simulating the flow processes that we needed for this problem, including transient flow, leakage from nearby surface waters, and time-varying pumping at wells. This code was originally developed by the USGS, and it has been in common use by hydrologists since 1988. We used the GMS preprocessor/postprocessor system because it supports all the modeling features needed for the project.

In addition, the MT3D code/ GMS interface was used to evaluate the potential for the pumping well to capture infiltrated water from the river and to assess the effects that project-specific pumping would have on the migration of groundwater contaminants. MT3D simulates the migration of solutes in the subsurface, given a steady-state or transient flow field computed by MODFLOW. Solutes are assumed to move due to advection (migration with the moving groundwater), dispersion (caused by small-scale variation in the hydraulic conductivity field and molecular diffusion), and chemical processes (chemical reactions or equilibrium partitioning of solutes within the aquifer material). The model uses a particle-tracking methodology to solve the resulting advection-dispersion equation. MT3D has been in use for over a decade, and it is very well supported by its author. Furthermore, its use in conjunction with MODFLOW is facilitated by GMS.

4.2 Conceptual model

The conceptual model of the regional groundwater system was developed based on results of the aquifer test and our understanding of the local and regional hydrogeologic setting. The conceptual model includes the surficial water-bearing zones in the alluvial formation. The conceptual model assumes a single, bounded aquifer with an impermeable, horizontal base and sides (Figure 21).

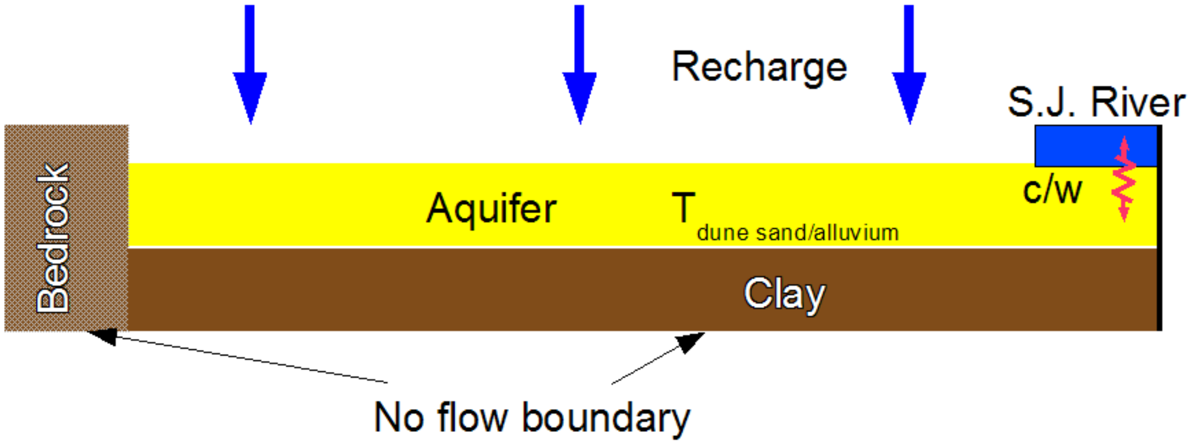


Figure 21: Conceptual model of the regional groundwater system.

This conceptual model of the regional groundwater system was developed and refined based on the aquifer test and our increasingly detailed understanding of the local and regional hydrogeologic setting. the conceptual model includes the surficial water-bearing zones in the alluvial formation.

MLGS overlies a shallow sand and gravel aquifer made up of dune sand deposits from the Pleistocene and Holocene. The site specific stratigraphic data indicate it is a single unconfined/semi-confined aquifer with intermittent clay lenses. The single layer approach is supported by similarities in water levels from deep and shallow wells in the region [LSCE, 1999a]. The aquifer increases in thickness towards the river, with an average thickness across the site of approximately 108 ft.

The aquifer is bounded on the bottom and to the south by thick clays of the Montezuma Formation. To the north, the San Joaquin River is the dominant boundary condition for groundwater flow. To the west, the dune sand transitions into Pleistocene and Holocene alluvium units (Qha and Qpa) (Figures 4 and 13). To the east and southeast, the aquifer opens up into the central valley where the dune sand continues through Oakley and Brentwood eventually transitioning to Holocene Alluvium (Qha). Recent studies indicate these alluvial units have similar hydraulic properties as the dune sand in the area of the site [LSCE, 1999a, LSCE, 2007, LSCE, 2009].

Recharge to the region is a combination of natural recharge from precipitation and local recharge through coarse material along stream beds. Local streams deliver runoff out of the surrounding hills in the Markley Canyon - San Joaquin River drainage basin that seasonally lose water to the surficial aquifer.

Table 8: Hydraulic properties used with MODFLOW in the predictive analysis.

Parameter	Units	Value
Hydraulic Conductivity (K)	$[ft/d]$	183
Riverbed Conductance (w/c)	$[ft^2/d/ft]$	37
Storage Coefficient (S)	$[-]$	0.0445

ft=feet, d=day

4.3 Groundwater flow model

The aquifer was modeled as a single, 108 ft thick, layer. The modeled aquifer parameters were derived from the aquifer test. The aquifer parameters used in the predictive analysis are summarized in Table 8. The model domain was bounded by no-flow perimeter condition along the hills to the south and along the estimated groundwater divide to the east and west (Figure 22). The San Joaquin River was modeled using a general head boundary with resistance and transient water levels based on measured data. The river stage was based on monthly average values observed at the CDWR gaging station in Antioch (San Joaquin River at Antioch Ship Canal) about two miles west of the site (Figure 3).

Aerial recharge was applied to the entire model area at a constant rate of 1.5 in/yr. This conservative, low value is based on calibration of the regional model using the aquifer parameters from the aquifer test. It is also consistent with results of an isotope study in the Brentwood region by the Lawrence Livermore National Laboratory [Davisson and Campbell, 1995]. That study used carbon and oxygen isotopes to infer recharge rates due to historical natural recharge and due to modern agricultural practices. The results demonstrate that in this region, aquifer recharge from natural precipitation is only a small fraction (5%) of the total recharge. Based on results from fourteen wells in the Brentwood region, the estimated average natural recharge rate was 1.3 in/yr and the average irrigation recharge rate was 21 in/yr. The irrigation district that serves the Brentwood area, ECCID, also serves a portion of the Antioch area about 3 miles south of the site. This suggests the that the irrigation recharge rate in the Antioch area is less than Brentwood because the service area is smaller. Regardless of the actual irrigation recharge rate in the Antioch area, the modeled rate is conservative for the purpose of the predictive analysis.

4.4 MLGS Operational Scenario

The model simulates project-specific pumping from the proposed water supply well to be located in the southern portion of the CCPP property, north of Wilbur Avenue and east of the western access road (Figure 2). It is assumed that the project would include two wells, one operational and one as backup. The wells will be about 120 ft deep, with 30 ft of screen. The proposed project would have a maximum annual capacity factor of 20 percent. Excluding startup and shutdown times, the plant would operate for approximately 1705 hours per year. When operating, the well

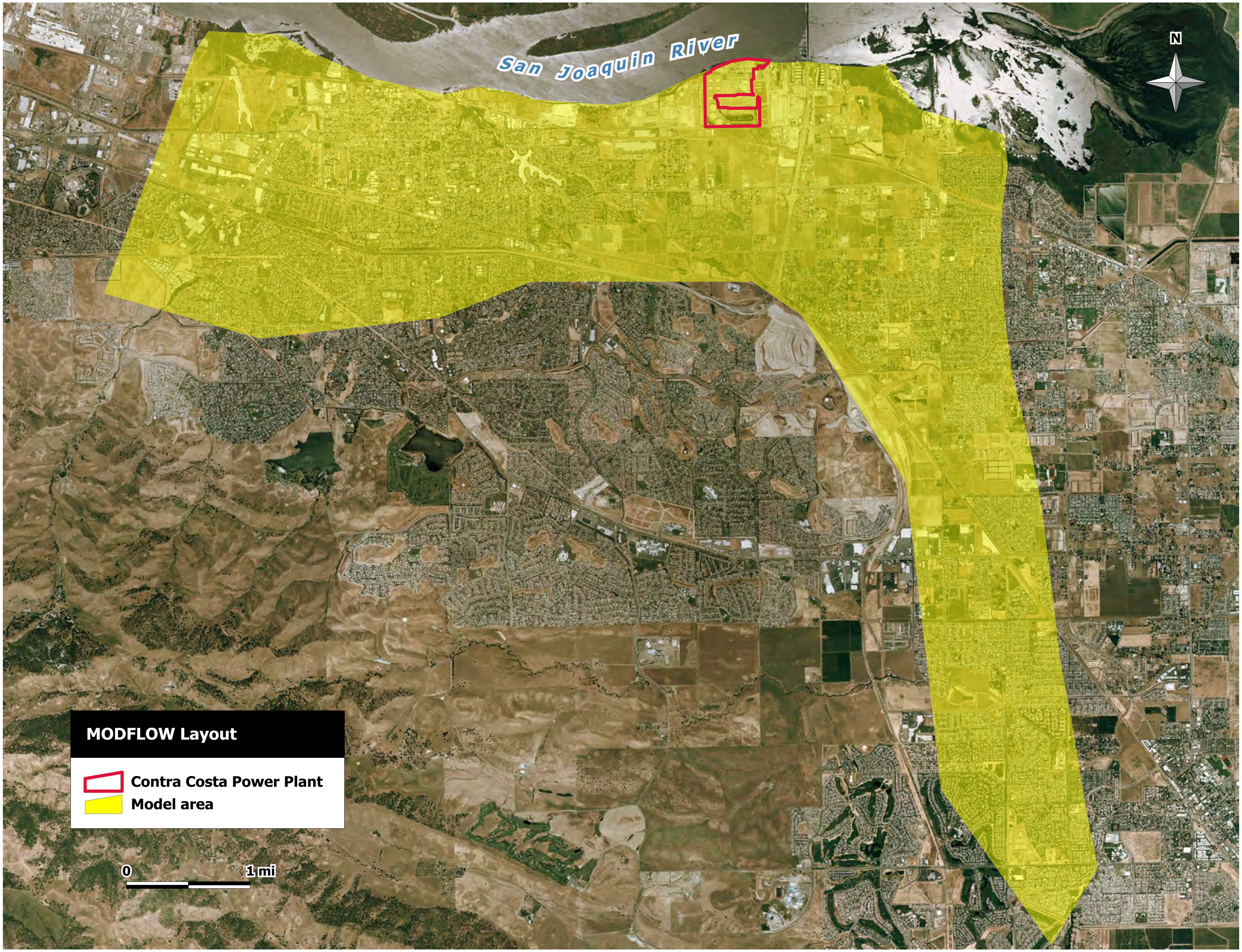


Figure 22: MODFLOW model layout.

would pump an average rate of 150 gpm.

The first year forecasted operational cycle was used to build a 365-day pumping schedule that was duplicated for the 30 years of planned operation (Table 9). While the MLGS could operate at any time of the year, operation would most likely occur during the peak demand months of July – September and October – December. For this analysis, we assumed that the plant would operate for 16 hours per day on most days during July – September and 4 to 6 hours per day on a slightly lower number of days during October – December. The balance of the operation hours were spread through the remaining months.

Table 9: MLGS forecasted monthly dispatch.

Month	**Maximum hours per day**	**20% Capacity Factor**	
		Starts	**Hours**
Jan	6	5	15
Feb	6	5	15
Mar	6	0	0
Apr	8	0	0
May	8	2	10
Jun	8	5	24
Jul	10	27	423
Aug	16	29	453
Sep	16	25	400
Oct	9	20	103
Nov	7	24	163
Dec	6	25	99
Totals		167	1705

4.5 Modeling river water

In order to evaluate the possibility that water may move from the river into the new well, a contaminant transport model was developed to track the fresh water interface. This approach provided insight into the movement of water from the river and into the hyporheic zone along the river bed. In order to capture the intermittent pumping schedule anticipated at the proposed facility we developed a model of the site using Groundwater Modeling System (GMS) software that was revised by representing the general head boundary (GHB) boundary condition at the river and adding a representative surface water concentration of 1.0 (to describe 100 percent surface water at this location).

The MT3D model used to track the movement of the river water required additional aquifer parameters not needed in the MODFLOW model. These values were obtained from literature and were conservative, given the specific properties determined from our field investigation of the subsurface at the site [Fluor-Daniel, 1998].

At each time in the simulation, MT3D predicts the "concentration" of surface water in each cell. Since we were tracking a theoretical "front" of river water, there was no attempt to enable chemical reactions in the MT3D model. Consequently, the model results were used to represent the fraction of what was originally surface water in each cell. This model was developed to determine whether induced recharge ever reaches the well. (In reality, the chemistry of the infiltrated surface water will change chemically as it moves through the aquifer. After sufficient time, the geochemical character would be indistinguishable from ambient groundwater. This process could be simulated in MT3D by enabling chemical reactions in MT3D and selecting appropriate reaction constants.)

4.6 Modeling potential contaminant movement

The transient model combined with the transport model was used to assess the effects of the proposed new withdrawals at the site on the migration of identified groundwater contaminants in neighboring properties. Four different sites with subsurface groundwater contamination are located near the project site (see Figure 6). The nature of the contaminant varies among the sites; hydrocarbons, solvents, and metals have been identified in groundwater adjacent to the site. Within the scope of this analysis, we did not perform a detailed contaminant transport model to attempt to predict future concentrations of contaminants at the proposed pumping well. Instead we used the model to determine the risk that these contaminants could move from their current locations to the well over the life of the project.

The MT3D transport model was used to illustrate the general migration patterns for these contaminants towards the proposed pumping well. The model assumes that the source aquifer is contaminated within each of the mapped regions in Figure 6, and treats each as a "continuous source". This means that throughout the simulation period, we did not alter the concentration of the source terms to the local groundwater. The objective of the model is to assess whether groundwater that comes into contact with a contaminated region could enter the well during the

30-year operational window. This analysis ignores some attenuation processes that will reduce concentrations of the groundwater that migrates from the contaminated areas of the aquifer. This approach needs to be interpreted with an understanding of what was not simulated along the theoretical flowpath. The model does not account for a range of chemical and physical processes that reduce contaminant mobility. (As explained below, even this very conservative approach shows that the proposed site will not alter contaminants in this local system.) Our model ignores the following processes that occur in the subsurface:

Retardation Chemical partitioning between dissolved solutes and the aquifer substrate is typically modeled using a partitioning coefficient that is based on field information and literature values [Rogers, 1991, Schwarzenbach et al., 1993, Mackay et al., 1992, Liu et al., 2006, Linz and Nakles, 1997, Fannin, 2006]. The net effect of chemical partitioning is to retard the velocity of solutes relative to the groundwater velocity. Contaminants often stick to the aquifer matrix so that the contaminant plume moves slower than the groundwater. Ignoring this process results in simulated breakthrough times that are much shorter than what could be expected in the field [Rogers, 1991, Hammer et al., , USEPA, 1996]. For the four identified contaminants, PCE, arsenic, nickel, and THP (from fuel oil #6) the retardation factors are between 2 for the solvent (PCE) and 800 for the metals in this setting.

Chemical reactions In addition to sorption onto the particles of the aquifer along the flow path that causes retardation, another attenuating process that was unaccounted for in this model is the chemical decay of compounds. Many solutes will be affected by chemical reactions in the subsurface. For example, PCE undergoes a decomposition reaction [Rogers, 1991]. The rate of most reactions will depend on the concentration of the contaminant species and the concentrations of other chemical species. One way to simply model reactions is to provide a "half-life" or each contaminant, based on site understanding and measurements. The concentration of a contaminant is halved during each half-life [Linz and Nakles, 1997]. For the last 15 years the literature on the subject generally indicates that petroleum hydrocarbons usually do not migrate more than $500 - 1000\ ft$ from the site of a release [Mackay et al., 1992, USEPA, 1996, Schwarzenbach et al., 1993]. Biologically enhanced decay reduces the concentrations along the flowpath.

Volatilization The concentrations of some of the compounds (e.g., solvents and hydrocarbons) that have been identified in the adjoining properties are also volatile. That means that as they move through the system some of the mass is lost to the subsurface as vapor along the flow path [Linz and Nakles, 1997, Mackay et al., 1992, Schwarzenbach et al., 1993].

4.7 Model operation

The MODFLOW solver supplied with GMS has a limit of 1000 stress periods. Since the purpose of the model is to simulate a well that frequently turns on and off, many stress periods are necessary to complete a simulation. This limitation made it impossible to run a single simulation that is more than two years in length. However, for this analysis it is assumed that the pumping schedule repeats each year. Therefore, the flow field represented in the MODFLOW model may be used for any two-year period in the overall simulation. A longer-term transport simulation may then be computed by the following process:

1. Run a two-year MODFLOW simulation to initialize the model
2. Re-run the MODFLOW model, using the modeled heads at the end of the simulation in step 1 as the initial heads. This yields a cyclic, two-year simulation that may be re-used with MT3D.
3. Configure the MT3D model and set the initial concentrations, and making use of the two-year cyclic MODFLOW simulation.
4. Run the MT3D model, yielding a data set of concentrations after two years.
5. Re-run the MT3D model, using the concentrations at the end of the simulation as the initial concentrations. This yields a data set of concentrations after 4 years. Repeat this step for 30 years (15 simulations) or until the desired breakthrough concentration is reached in the well, whichever comes first.

4.8 Results

The proposed pumping may result in additional drawdown for other water wells in the project region, but not at significant levels. Maximum simulated drawdown of about $2\,ft$ feet occurs at the pumping well. Drawdown decreases radially outward from the pumping well such that the maximum drawdown $\frac{1}{2}$ mile from the proposed site is $0.15 - 0.25\,ft$ (Figure 23). The predicted drawdown through time, at a location $\frac{1}{2}$ mile east of the proposed well location, is shown in Figure 24. The drawdown, a reflection of the transient nature of the proposed pumping, cycles between zero during the off-peak time of the year and the maximum drawdown observed approximately at the end of August each year based on the assumed operation scenario as shown in Table 9.

To assess the potential for river water to enter the proposed well, the transient groundwater flow model and contaminant transport model were used. During peak months when the well is pumped consistently, drawdown in the aquifer causes surface water to infiltrate the aquifer and migrate toward the proposed well. During off-peak months when the well is pumped sporadically, the natural gradient toward the river returns and the infiltrated surface water moves back toward the river. Because the natural gradient is smaller than the pumping-induced gradient, the net movement of the surface water front is toward the proposed well. However, the transport

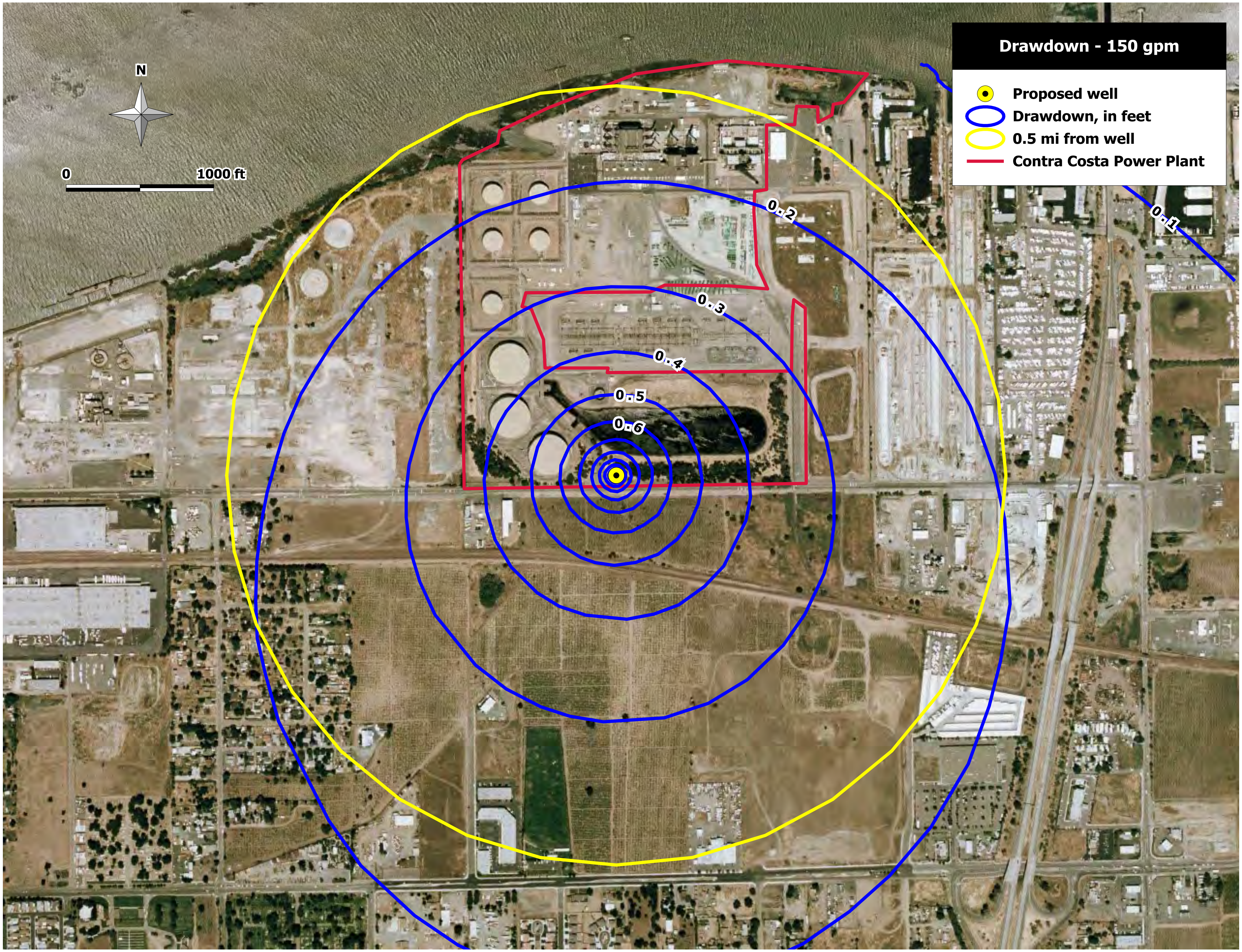


Figure 23: Maximum drawdown,150 gpm pumping rate.

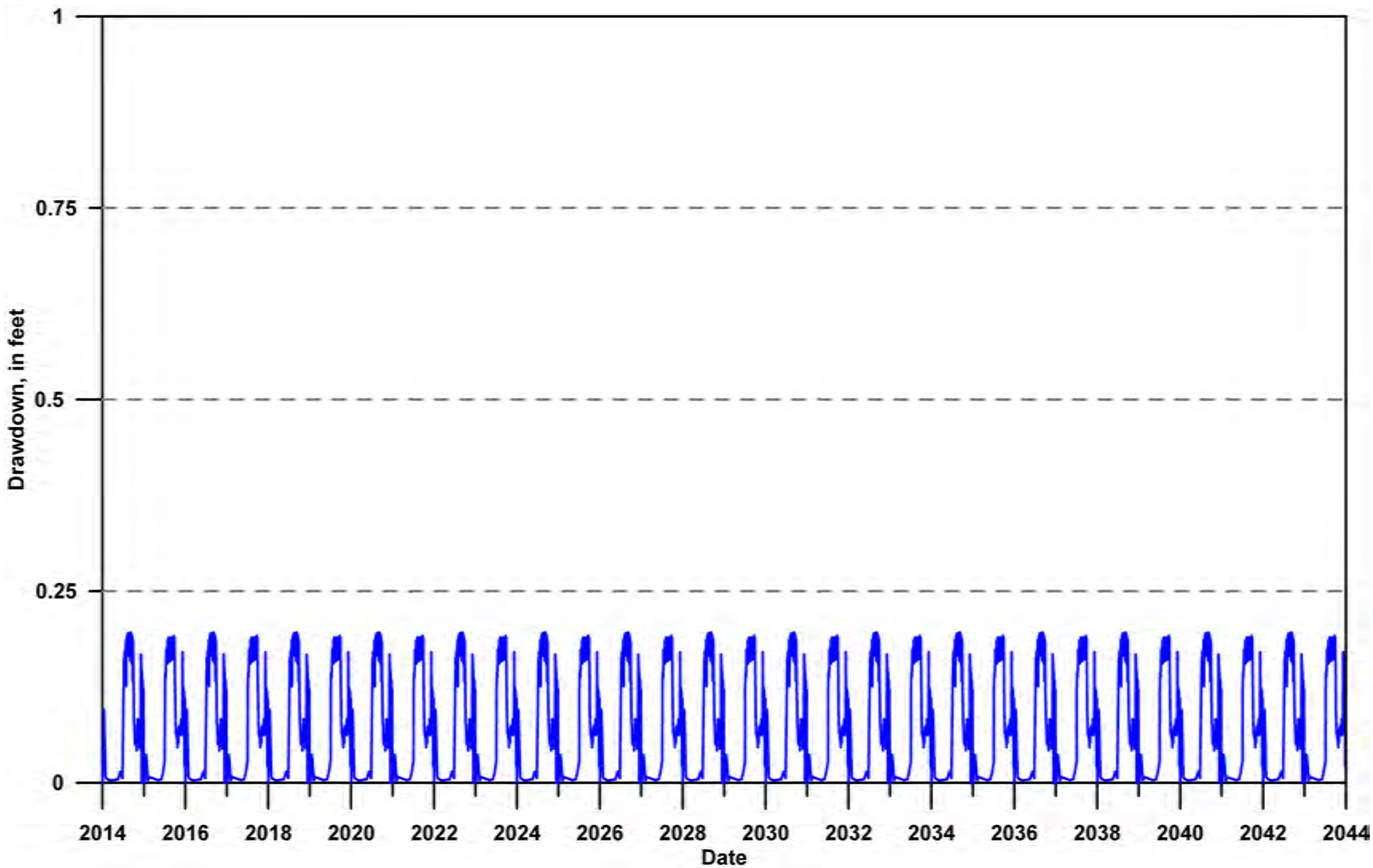


Figure 24: Simulated drawdown at a point $\frac{1}{2}$ mile east of proposed well location, 150 gpm pumping rate.

model predicts that no infiltrated river water would reach the pumping well within the 30-year lifespan of the project. The results indicate that the source of recharge to the well under the proposed pumping conditions would be inland groundwater.

The results also demonstrate that the proposed pumping will not cause significant migration of contaminants to other users or the river. After 30 years of pumping, about 11% of the source water in the well will have passed through or originated in one of the mapped contamination areas (Figure 25). However, the reductions in concentration that are occurring in the aquifer will act together to stabilize the contaminants and inhibit migration. Given the attenuation that has been observed and reported at other sites [Rogers, 1991, Linz and Nakles, 1997, Bethke and Brady, 2000], it is clear that the contaminants that are in the adjoining property are not likely to reach the proposed pumping wells within the operating life of the system.

4.9 Modeling conclusions

The modeling analysis offers these conclusions:

- Maximum drawdown $\frac{1}{2}$ mile from the pumping well would be about $0.15 - 0.25\,ft$
- At the proposed well site, infiltrated water from the river will not reach the well during the 30-year operational life based on a 20% capacity factor and a pumping rate of $150\,gpm$.
- The source of recharge to the proposed well would be inland groundwater.
- Based on an analysis of the system and the contaminants in the neighboring property, it is unlikely that the potential contaminants could reach the pumping well within the 30-year lifespan.
- Project-specific pumping would not induce migration of contaminated groundwater to other user or to the river.

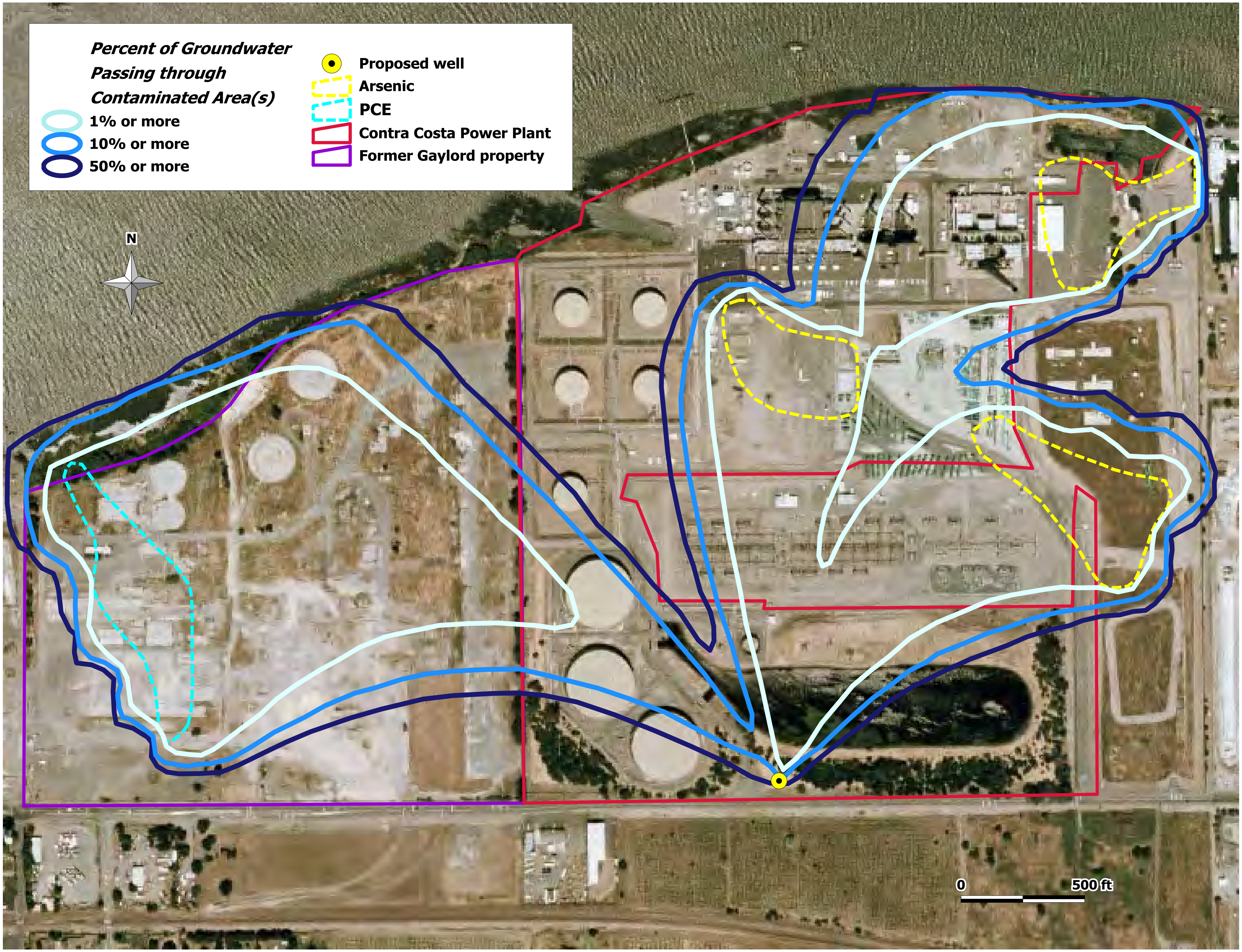


Figure 25: Fraction of groundwater water passing through contaminated areas, 30 year simulation, with pumping rate of 150 gpm.

5 Conclusions and recommendations

Our field investigation included test borings, hydraulic testing, and water-quality sampling. Results of the field investigation were integrated into a groundwater flow model of the aquifer system that we used to predict yield, evaluate wellfield designs, and evaluate the potential impacts of a pumping center at the site. Our conclusions and recommendations are as follows:

Conclusions

- Exploratory drilling confirmed the presence of a continuous zone of permeable deposits under the site. The permeable zone, under $10 - 15\,ft$ of surface fill, has an average thickness of $108\,ft$ and consists of fine sand grading coarser with depth to sand and gravel.

- A deep exploratory hole drilled at the site confirmed previous reports that the deeper zones ($200 - 400\,ft\,bgs$) of the dune sand and the alluvial deposits used for municipal supply by the Cities of Pittsburg, Oakley and Brentwood are not present under the site. Under the productive zone of sand and gravel (about $120\,ft\,bgs$), there is a thick section of dense clay that extends to at least $640\,ft\,bgs$.

- The shallow groundwater at the site is not potable. Water-quality testing confirmed that groundwater under the site meets the CEC definition for brackish water. All of the groundwater samples collected from the monitoring wells and the test well had TDS values greater than $1,000\,mg/l$ and associated chloride values at or above $250\,mg/l$. In addition to TDS and chloride, secondary drinking water standards were exceeded for iron, manganese, and sulfate.

- The sand and gravel formation under the MLGS is capable of reliably producing the anticipated demand for the operational life of the project. Aquifer testing and groundwater flow modeling demonstrated that a single vertical well at the site can sustain a continuous pumping rate in excess of $800\,gpm$. The transmissivity of the sand and gravel unit is on the order of $140,000 - 160,00\,gpd/ft$ and the storage coefficient is about $0.04 - 0.05$.

- Based on the modeling analysis, we expect minimal drawdown $\frac{1}{2}$ mile from the proposed pumping well. The maximum predicted drawdown $\frac{1}{2}$ mile from the proposed well pumping at $150\,gpm$ is about $0.25\,ft$. Since the closest municipal water wells in the area are more than 3 miles away, there would be no impacts from the proposed facility on municipal supply wells.

- At the proposed well site, infiltrated water from the river will not reach the well during the 30-year operational life based on a 20% capacity factor and an average pumping rate of $150\,gpm$. The combination of the location of the proposed well, low pumping rate, high transmissivity, and cyclic pumping limit the movement of water from the river into the aquifer. The results indicate that the source of recharge to the proposed pumping well will be inland groundwater.

- Groundwater with elevated concentrations of PCE, TPH and metals in the vicinity of the MLGS would not be expected to reach the pumping well during the 30-year operational period if attenuation is considered. In addition, project-specific pumping would not induce migration of the contaminated groundwater to other users or the river.

Recommendations

- Because the wells will not be used at the same time, spacing considerations to limit drawdown due to interference is not an issue. However, the wells should be located a minimum of 50 ft from each other.
- If necessary, existing monitoring wells at the site, WS-04 and WS-05, could be used as "sentinel" wells to monitor the possible migration of contaminated groundwater from the former Gaylord property towards the proposed pumping wells.

References

[Bakker, 2004] Bakker, M. (2004). Transient Analytic Elements for Periodic Dupuit-Forchheimer Flow. *Advances in Water Research*, (27):3–12.

[Batu, 1998] Batu, V. (1998). *Aquifer Hydraulics A Comprehensive Guide to Hydrogeologic Data Analysis*. John Wiley and Sons, New York.

[BBL, 2005] BBL (2005). Memo to Janet Naito, DTSC, Re: Groundwater Monitoring Program for East Mill, Gaylor Container Corporation, Antioch, CA. Technical report, Blasland, Bouck, and Lee, Inc.

[Bethke and Brady, 2000] Bethke, C. and Brady, P. (2000). How the Kd Approach Undermines Ground Water Cleanup. *Ground Water*, 38(3):435–443.

[CCC, 2003] CCC (2003). Contra Costa County Watershed Atlas. Technical report, Contra Costa County Community Development Department.

[CCWD, 1998] CCWD (1998). Future Water Supply Implementation- Draft Impact Report. Technical report, Contra Costa Water District.

[CDM, 1997] CDM (1997). Phase I Environmental Site Assessment, Contra Costa Power Plant. Technical report, Pacific Gas and Electronic Company. Prepared by Camp, Dresser, and McKee.

[CDWR, 2006] CDWR (2006). California's Groundwater - Bulletin 118, Tracy Subbasin. Technical report, California Department of Water Resources.

[CDWR, 2009a] CDWR (2009a). Environmental Monitoring Program, Station D12. ASCII Download, California Deptartment of Water Resources. http://baydelta.water.ca.gov/emp/Stations/station_index.php?station=D12.

[CDWR, 2009b] CDWR (2009b). San Joquain River at Antioch Ship Canal. ASCII Download, CA Data Exchange Center, California Deptartment of Water Resources. http://cdec.water.ca.gov.

[CEC, 2000] CEC (2000). Energy Facility Licensing Process- Water Supply Information. Technical report, California Energy Commission.

[CSWRCB, 1975] CSWRCB (1975). Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling. Technical report, California State Water Resources Control Board. Resolution No. 75-58.

[Davisson and Campbell, 1995] Davisson, M. and Campbell, K. (1995). Final Report on the Isotope Project in the Brentwood Region of East Contra Costa County, California. Technical report, Lawrence Livermore National Laboratory.

[Deshields, 2008] Deshields, B. (2008). Preliminary Hydrologic Testing Report Forestar (USA) Real Estate Group, Inc. Former Gaylord Container Corporation, East Mill, Antioch, California. Technical report, ARCADIS U.S.

[DM, 1949] DM (1949). Report of Foundation Investigation, Proposed Contra Costa Steam Plant, Antioch, California. Technical report, Pacific Gas and Electric Company. Prepared by Dames and Moore.

[DM, 1962] DM (1962). Report of Foundation Investigation, Units 6 and 7. Technical report, Pacific Gas and Electric Company. Prepared by Dames and Moore.

[Doherty, 2004] Doherty, J. (2004). PEST - Model-indpendent Parameter Estimation User Manual. Software manual.

[DTSC, 2009] DTSC (2009). Envirostar Summary Report for East Mill, Contra Costa County, California. Shapefile, California Department of Toxic Substances Control. http://www.envirostar.dtsc.ca.gov/public/profile_report.asp?global_id=07260003.

[Duffield, 2002] Duffield, G. (2002). AQTESOLV for Windows Version 3.50 Professional. Technical report, HydroSOLVE, Inc.

[Engeo, 2005] Engeo (2005). Groundwater Study- Emerson and Burroughs Properties, Contra Costa County, California. Technical report, Ponderosa Homes. Prepared by Engeo Incorporated.

[Fannin, 2006] Fannin, C. (2006). An Evaluation of the Chemical Attenuation Capacity of UK Mineral Liner and Geological Barrier Materials for Lanfill Leachate Components. *Quarterly Journal of Engineering Geology & Hydrogeology*, 39(3):267–281.

[Figuers, 1998] Figuers, S. (1998). Groundwater Study and Water Supply History of the East Bay Plain, Alameda and Contra Costa Counties, California. Technical report, Norfleet Consultants.

[Fluor-Daniel, 1998] Fluor-Daniel (1998). Phase II Environmental Site Assessment-Contra Costa Power Plant, Antioch, California. Technical report, Pacific Gas and Electronic Company. Prepared by Fluor-Daniel GTI.

[Gahry and O'Brien, 2009] Gahry, S. and O'Brien, K. (2009). Work Plan for Additional Investigation of PCE Groundwater Plume, East Mill, Former Gaylord Container Corporation Facility, Anitoch, California. Technical report, PES Environmental, Inc.

[Graymer et al., 1994] Graymer, R., Jones, D., and Brabb, E. (1994). Preliminary Geologic Map Emphasizing Bedrock Formations in Contra Costa County, California. Technical report, United States Geological Survey. http://pubs.usgs.gov/of/1994/of94-622/.

[Graymer et al., 2006] Graymer, R., Morning, B., Saucedo, G., Wentworth, C., Brabb, E., and Knudsen, K. (2006). Geologic Map of the San Francisco Bay Region. Scientific Investigations Map 2918, U.S. Geological Survey.

[Hammer et al.,] Hammer, M. J., Gallagher, P. P., and Crocetti, C. A. Mineral Phase and Groundwater Chemistry Characterization to Assess Natural Attenuation of Dissolved Nickel in Groundwater. In *Contaminated Soils, Sediments, and Water*, volume 14.

[Helley and Graymer, 1998] Helley, E. and Graymer, R. (1998). Quaternary Geology of Contra Costa County, and Surrounding Parts of Alameda, Marin, Solano, Sacramento, and San Joaquin Counties, California: A Digital Database. Open File Report 97-98, U.S. Geological Survey.

[Helley and Lajoie, 1979] Helley, E. and Lajoie, K. (1979). Flatland Deposits of the San Francisco Bay Region, California - their Geology and Engineering Properties, and their Importance to Comprehensive Planning. Professional Paper 943, U.S. Geological Survey.

[Jones and Stokes, 2006] Jones and Stokes (2006). East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan. Technical report, Contra Costa County Community Development Department.

[Linz and Nakles, 1997] Linz, D. and Nakles, D., editors (1997). *Environmentally Acceptable Endpoints in Soil*. American Academy of Environmental Engineers.

[Liu et al., 2006] Liu, C.-L., Chang, T.-W., Wang, M.-K., and Huang, C.-H. (2006). Transport of Cadium, Nickel, and Zinc in Taoyuan Red Soil Using and One-dimensional Convective-dispersive Model. *Geoderma*, 131(1-2):181–189.

[LSCE, 1999a] LSCE (1999a). Investigation of Ground-Water Resources in the East Contra Costa Area. Technical report. Prepared by Luhdorff and Scalmanini Consulting Engineers, Inc.

[LSCE, 1999b] LSCE (1999b). Water Master Plan for Discovery Bay. Technical report, Discovery Bay Community Services District. Prepared by Luhdorff and Scalmanini Consulting Engineers, Inc.

[LSCE, 2007] LSCE (2007). Diablo Water District Groundwater Management Plan for AB 3030. Technical report, Diablo Water District. Prepared by Luhdorff and Scalmanini Consulting Engineers, Inc.

[LSCE, 2009] LSCE (2009). Prodcution Well Profile, Bodega Well. Prepared by Luhdorff and Scalmanini Consulting Engineers, Inc.

[Mackay et al., 1992] Mackay, D., Shiu, W. Y., and Ma, K. C. (1992). *Illustrated Handbook of Physical-Chemical Properties and Environmental Fate for Organic Chemicals*. Lewis Publishers.

[Rogers, 1991] Rogers, L. (1991). History Matching to Determine the Retardation of PCE in Ground Water. *Groundwater*, 30(1):50–60.

[Schwarzenbach et al., 1993] Schwarzenbach, R., Gschwend, P., and Imboden, D. (1993). *Environmental Organic Chemistry*. John Wiley & Sons, Inc.

[URS, 2001] URS (2001). Draft Geotechnical Data Report. Technical report, Mirant Corporation. Prepared by URS Corporation.

[URS, 2008] URS (2008). Marsh Landing Generating Station Application for Certification. prepared by URS Corporation.

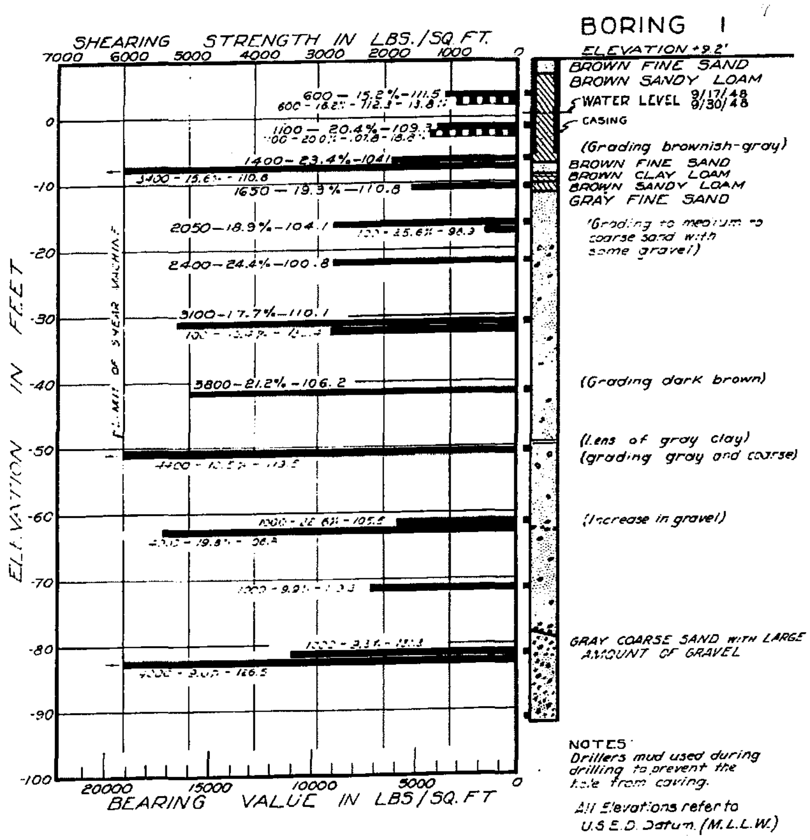
[USEPA, 1996] USEPA (1996). RBCA Tool Kit for Chemical Releases, version 1.0a and Soil Screening Guidance: User's Guide. US EPA Document No: EPA-540/r-96/018, US Environmental Protection Agency.

Appendix A- Static Water Levels and Boring Logs

Static water levels observed in select measuring points prior to aquifer test.

Well ID	Ground Elevation (ft)	Casing Elevation (ft)	Total Depth (ft)	Date	Static Water Level ($ft\,bgs$)
MW-01s[1]	7.95	7.55	14	3/28/09	1.63
P-01	4.30	6.32	15	3/28/09	3.67
P-02	7.06	9.31	25	3/28/09	4.02
WS-01	9.91	12.40	135	3/24/09	2.25
WS-03	8.24	7.84	145	3/28/09	1.87
WS-04	11.50	14.35	135	3/24/09	4.10
				3/28/09	4.01
WS-05	10.44	13.00	135	3/28/09	2.91
WS-06	10.54	10.32	135	3/25/09	3.95
				3/28/09	3.92
WS-07	19.58	19.26	135	3/24/09	2.34
WS-10	8.51	8.28	195	3/24/09	3.00
				3/28/09	2.85
WS-11	8.51	8.23	115	3/28/09	3.55

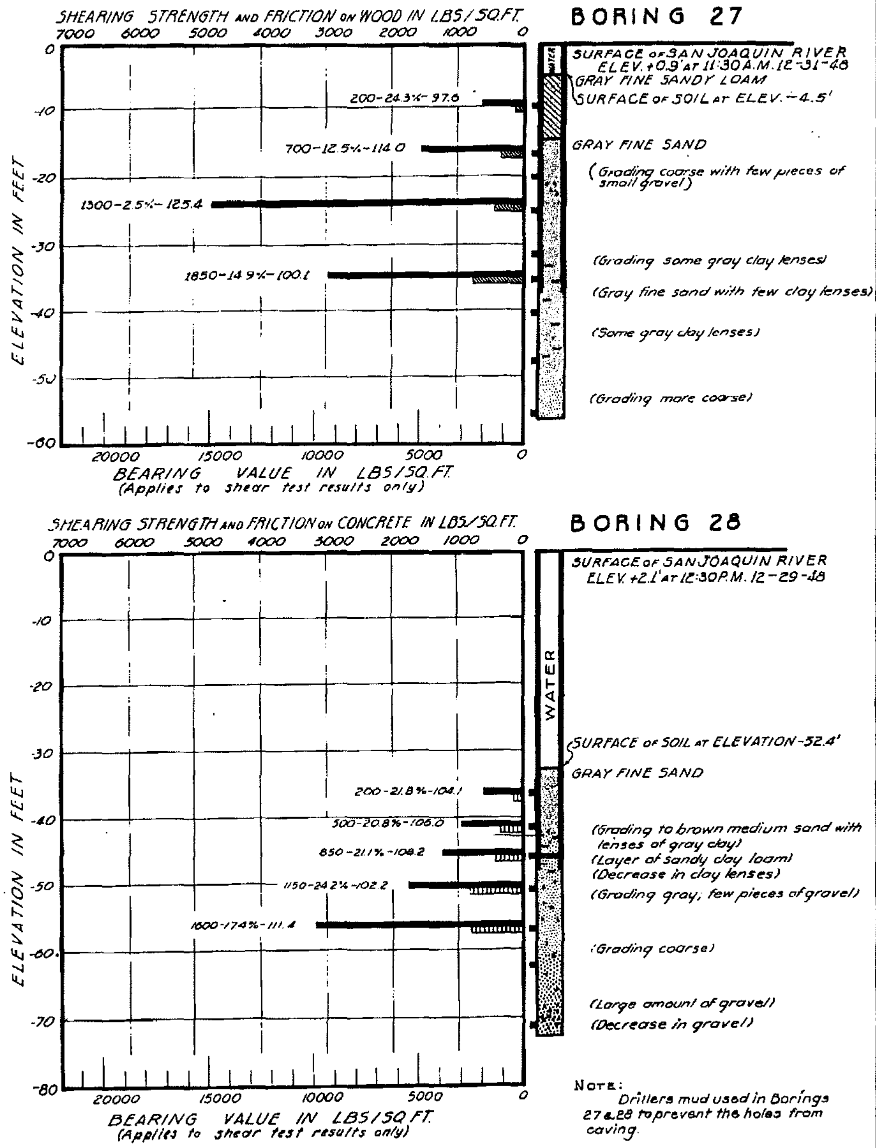
[1]Existing monitoring well near WS-08. Name specific to this study.
bgs: below ground surface
Elevations shown are based on NGVD29
Measuring point locations shown on Figure 15



LOG OF BORINGS

DAMES & MOORE
FOUNDATION ENGINEERS

PLATE 2A



LOG OF BORINGS

DAMES & MOORE
FOUNDATION ENGINEERS

PLATE 25

Wittman Hydro Planning Associates
Water Resource Planning Consultants

WELL BORING LOG

Boring: WS-01

Date: 12/8/2008

Client: Mirant LCC
Driver: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: Antioch
Latitude: 38.01905
Longitude: -121.76503

Top of Casing Elevation: 12.81 feet
Grade Elevation: 9.91 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: sands and fines.	
70%	10	CLAYEY SAND: gray, very fine grained sand.	*Finished 3 ft above grade w/ steel outer casing and concrete pad.*
	20	SANDY SILT : brown, loose, very fine grained sand.	
100%	30	SAND: brown, loose, fine grained sand, traces of silt.	
	40	POORLY-GRADED SAND (SP): loose, gray, fine grained sand with seams of coarse sand.	2 inch ø PVC pipe w/ 20 ft screen
100%	50	SANDY CLAY: dense, with silts and fine grained sand.	
100%	60	WELL-GRADED SAND (SW): firm on top, then loose, brown, medium grained sand, with little coarse sand and trace gravel.	
	70		
100%	80	POORLY-GRADED SAND (SP): loose, brown, medium grained sand.	
	90	WELL-GRADED SAND (SW): loose, gray, medium to coarse grained sand with some gravel.	
	100	POORLY-GRADED GRAVEL (GP): loose, gray, fine grained gravel with sand.	
100%		WELL-GRADED SAND (SW): loose, gray, coarse grained sand with some gravel.	105 ft top of screen
	110	POORLY-GRADED GRAVEL (GP): loose, gray, fine grained gravel with sand.	
	120	WELL-GRADED SAND (SW): loose, gray, coarse grained sand with some gravel.	125 ft bottom of screen
100%		POORLY-GRADED GRAVEL (GP): loose, gray, fine grained gravel with sand.	
	130	CLAY: brown, dense.	
		End of boring at 135 ft bgs	
	140		

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WELL BORING LOG

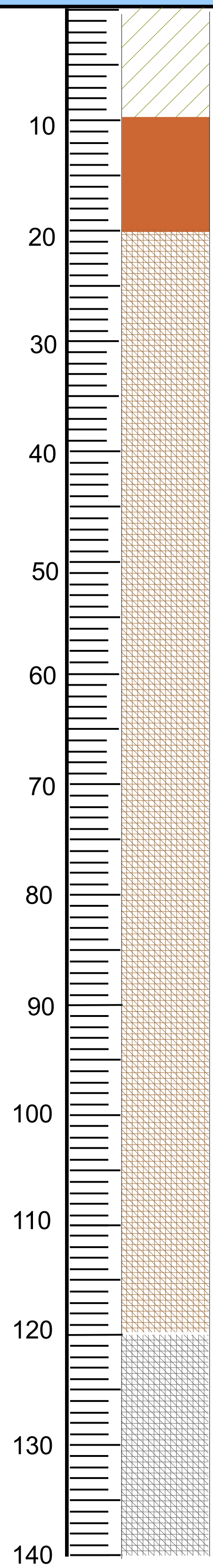
Boring: WS-01d 1/2

Client: Mirant LCC
Driver: WDC
Logged by: BCS

Location: Contra Costa
Latitude: 38.01890
Longitude: -121.76510
Process: Mud Rotory*

Date: 1/13/2009
Top of Casing Elevation: n/a
Grade Elevation: 12.8
Boring Diameter: 8 inch

Recovery	Depth	Material Description	Well Construction



FILL: fine grained sand with silt.

SILT: brown silt with wood debris.

SAND: brown fine grained sand with silt.

SAND: brown, fine to coarse grained sand.

SAND: brown, fine grained sand.

SAND: brown, fine grained sand with silt.

SAND: brown, fine to medium grained sand.

SAND: gray, coarse grained sand with fine gravel.

Continued on next page

No monitoring well installed. Hole was back-filled with concrete.

* *Samples for logging were collected at 10 ft intervals from the mud tub at the top of the boring.*

WELL BORING LOG

Boring: WS-01d 2/2

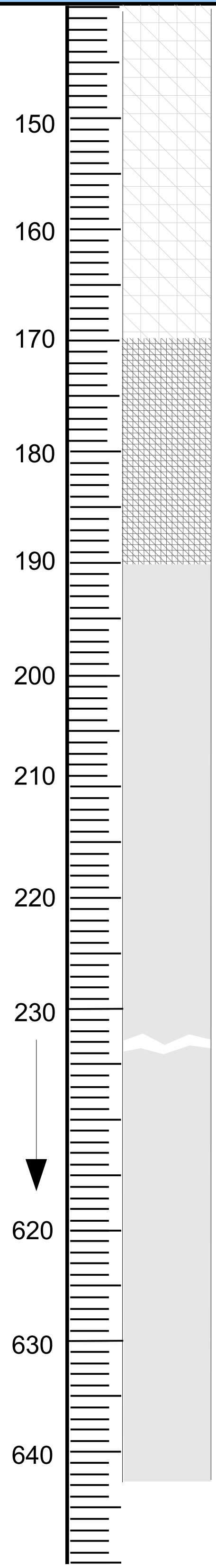
Wittman Hydro Planning Associates
Water Resource Planning Consultants

Client: Mirant LCC
Driller: WDC
Logged by: BCS

Location: Contra Costa
Latitude: 38.01890
Longitude: -121.76510l3
Process: Mud Rotory*

Date: 1/13/2009
Top of Casing Elevation: n/a
Grade Elevation: 12.8
Boring Diameter: 8 inch

Recovery	Depth	Material Description	Well Construction



GRAVEL: loose, gray gravel.

SAND: gray, fine grained sand with silt.

CLAY: very dense, gray,clay with some gravel.

CLAY: very dense, gray,clay with some gravel.

End of boring @ 640 ft bgs

No monitoring well installed. Hole was back-filled with concrete.

* *Samples for logging were collected at 10 ft intervals from the mud tub at the top of the boring.*

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WELL BORING LOG

Boring: WS-02

Date: 12/16/2008

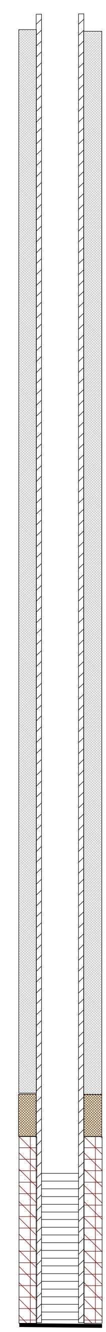
Client: Mirant LCC
Driller: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: Contra Costa
Latitude: 38.01979
Longitude: -121.76198

Top of Casing Elevation: 7.62 feet
Grade Elevation: 7.62 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description
30%	10	FILL: sands and fines, brown top soil.
	20	SAND: firm, brown, very fine grained sand with trace silt.
100%	30	SAND: loose, gray, very fine grained sand with trace silt.
	40	
100%	50	SAND: loose, brown, fine to coarse grained sand with a 0.6' seam of dense silt.
	60	
100%	70	SAND: loose, brown, fine to medium grained sand with trace pebbles
	80	
100%	90	SAND: loose, brown, fine grained sand with 0.5 to 1.0' seams of dense, fine grained sand, silt and clay.
		SAND: loose, brown, fine to medium grained sand with trace gravel and pebble.
	100	
100%	110	
	120	SAND: loose, gray, coarse grained sand With gravel and pebble.
100%	130	CLAY: dense, gray.
	140	*End of boring at 135 ft bgs*

Well Construction



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WELL BORING LOG

Boring: WS-03

Date: 12/9/2008

Client: Mirant LCC
Driller: WDC – MW
Logged by: B.Schroeder

Location: Contra Costa
Latitude: 38.01977
Longitude: -121.75823

Top of Casing Elevation: 8.24 feet
Grade Elevation: 8.24 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: very fine grained sand with silt, gray.	
100%		CLAY: dense, black, with peat.	
	10	SILT: dense, dark gray silt with very fine grained sand and clay.	*Flush mounted w/ steel outer casing and concrete pad*
	20		
100%		SAND: brown, very fine grained sand, with silt and clay.	
	30		
	40	SAND: firm, dark gray, very fine grained sand with silt and clay.	2 inch ø PVC pipe w/ 20 ft screen
75%			
	50		
		SAND: loose, gray, fine to coarse grained sand.	
	60	SAND: loose, gray, fine grained sand with <1' seams of silt.	
100%	70	SAND: loose, gray, fine to medium grained sand.	
	80		
100%	90	SAND: same as above, grading to brown.	
	100	SAND: loose, brown, medium to coarse grained sand with gravel and pebble. 8' clay seam at 103'.	
100%	110		114 ft top of screen
	120	SAND: loose, brown, fine to coarse grained sand with some gravel and pebble.	134 ft bottom of screen
100%	130	CLAY: dense gray/brown clay.	
	140	CLAY: dense brown clay.	

End of boring at 145 ft bgs

WELL BORING LOG

Boring: WS-04

Date: 12/11/2008

Client: Mirant LCC
Driller: WDC – MW
Logged by: B.Schroeder

Location: Contra Costa
Latitude: 38.01258
Longitude: -121.76648

Top of Casing Elevation: 14.74 feet
Grade Elevation: 11.53 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		TOP SOIL – FILL: fine grained sands and fines.	
60%			
	10	CLAY: dense, gray.	*Finished 3 ft above grade w/ steel outer casing and concrete pad.*
		SAND: loose, dark gray, very fine grained sand.	
	20	SAND: loose, brown, fine grained sand.	
100%			
	30	CLAY: dense, brown.	
		SILTY SAND: loose, brown fine grained sand with silt, lenses of clay.	
	40		2 inch ø PVC pipe w/ 20 ft screen
100%			
	50	WELL-GRADED SAND (SW): loose, brownish gray, Medium grained sand.	
		CLAY: dense, brown.	
	60	WELL-GRADED SAND (SW): loose, brownish gray, Medium grained sand, trace of silt.	
100%			
	70	POORLY-GRADED SAND (SP): loose, brown, coarse grained sand.	
	80	WELL-GRADED SAND (SW): loose, brown , some gray sand with little gravel.	
100%			
	90	WELL-GRADED SAND (SW): loose, gray, medium grained sand with little gravel.	
		WELL-GRADED GRAVEL (GW): loose, gray, fine grained gravel with trace silt.	
	100	POORLY-GRADED SAND (SP): loose, gray, coarse grained sand with little gravel.	
100%			85 ft top of screen
	110	CLAY: dense, gray.	
	120		105 ft bottom of screen
100%			
	130		
		End of boring at 135 ft bgs	
	140		

WELL BORING LOG

Boring: WS-05

Date: 12/15/2008

Client: Mirant LCC
Driller: WDC – M. Wilkerson
Logged by: RCM

Location: Contra Costa
Latitude: 38.01537
Longitude: -121.76628

Top of Casing Elevation: 13.52 feet
Grade Elevation: 10.44 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL/TOP SOIL: dry, brown silt with very fine grained sand.	
70%			
	10	CLAY: gray silt with very fine to fine grained sand.	
		CLAY: wet, brown silt with fine grained sand. Dry at the bottom.	*Finished 3 ft above grade w/ steel outer casing and concrete pad.*
	20	SAND: brown medium to coarse grained sand.	
100%		SILT: grayish brown silt with very fine to fine grained sand. Grades courser with depth.	
	30		
	40	SAND: brown, coarse grained sand with fine grained gravel. Reddish brown streaks.	2 inch ø PVC pipe
100%			w/ 20 ft screen
	50	SILT: brown, with very fine to fine grained sand.	
		SAND: brownish gray medium to coarse grained sand. Some fine grained gravel lower half.	
	60		
100%		SAND and GRAVEL: gray coarse grained sand and gravel, with some cobbles.	
	70		
	80	Silty from 80-82'.	
100%			
	90		
	100		
100%			95 ft top of screen
	110		
		CLAY: dense, gray, dry clay with silt.	115 ft bottom of screen
	120		
70%			
	130		
		End of boring at 135 ft bgs	
	140		

WELL BORING LOG

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Boring: WS-06

Date: 12/19/2008

Client: Mirant LCC
Driller: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: Contra Costa
Latitude: 38.01365
Longitude: -121.75959

Top of Casing Elevation: 10.54 feet
Grade Elevation: 10.54 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: firm silt with clay, top soil.	
75%			
	10		*Finished flush grade w/ steel outer casing and concrete pad.*
		SAND: loose, brown, fine grained sand with silt.	
	20		
100%			
	30	SAND: loose, brown and gray, fine grained sand.	
	40		2 inch ø PVC pipe w/ 20 ft screen
100%			
	50	CLAY: very dense, brown clay with silt.	
		SILT: dense, brown, silt with clay and fine grained sand.	
	60		
100%		SAND: loose, brown, fine to medium grained sand With trace coarse grained sand and gravel.	
	70		
	80		
100%		SAND: loose, brown, medium to coarse grained sand with gravel and pebble.	
	90		
	100	SAND: loose, brown, fine to coarse grained sand with trace gravel.	
100%			115 ft top of screen
	110		
		SAND: loose, brown, medium to coarse grained sand with gravel.	
			135 ft bottom of screen
	120	SAND: very loose, brown, coarse grained sand with gravel and pebble.	
100%			
	130		
		CLAY: very dense, gray clay.	
		End of boring at 135 ft bgs	
	140		

WELL BORING LOG

Boring: WS-07

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Water Resource Planning Consultants

Date: 1/5/2009

Client: Mirant LCC
Driller: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: Contra Costa
Latitude: 38.01781
Longitude: -121.76671

Top of Casing Elevation: 19.58 feet
Grade Elevation: 19.58 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: brown to black silt, sand, and gravel.	
75%			
	10		
		SAND: loose, brown, fine grained sand with silt.	*Finished flush w/ steel outer casing and concrete pad.*
	20		
100%			
	30	SAND: fine to medium grained sand with trace gravel.	
	40	SAND: loose, brown, fine grained sand.	2 inch ø PVC pipe
100%			w/ 20 ft screen
	50		
		SAND: loose, brown, fine to coarse grained sand with trace gravel.	
	60		
100%			
	70	SAND: loose, brown, fine to medium grained sand.	
		SAND: very loose, brown, medium to coarse grained sand with trace gravel.	
	80		
100%			
	90	SAND: very loose, gray, medium to coarse grained sand with gravel and pebble.	
	100		
100%			115 ft top of screen
	110		
		SAND: very loose, gray, coarse grained sand, gravel and pebble.	135 ft bottom of screen
	120		
100%			
	130		
		CLAY: dense, gray clay.	
		End of boring at 135 ft bgs	
	140		

WELL BORING LOG

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Boring: WS-08

Date: 1/7/2009

Client: Mirant LCC	Location: Contra Costa	Top of Casing Elevation: 9.88 feet
Driller: WDC – M. Wilkerson	Latitude: 38.01918	Grade Elevation: 9.88 feet
Logged by: B.Schroeder	Longitude: -121.76454	Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: sand and fines.	
75%			
	10		*Finished flush grade w/ steel outer casing and concrete pad.*
		CLAY: dense, brownish gray clay with silt.	
	20		
100%			
	30	SAND: loose, brown, medium to coarse grained sand with gravel.	
		SAND: loose, brown and gray, fine to medium grained sand.	
	40		2 inch ø PVC pipe
100%			w/ 20 ft screen
	50		
		SAND: loose, gray, fine to coarse grained sand.	
	60		
100%			
	70		
		POORLY-GRADED SAND (SP): very loose, brown, medium coarse sand.	
	80		
100%			
	90		
		WELL-GRADED SAND (SW): loose, gray, medium to coarse grained sand with some gravel and trace pebble.	
	100		
100%		POORLY-GRADED GRAVEL (GP): very loose, gray, fine to coarse grained gravel, little sand.	106 ft top of screen
	110		
		POORLY-GRADED GRAVEL (GP): very loose, gray, fine grained gravel, some sand.	
			126 ft bottom of screen
	120		
		POORLY-GRADED GRAVEL (GP): very loose, gray, fine to coarse grained gravel, little sand.	
100%			
	130	CLAY: dense, gray, clay with seams of dense silt.	
		End of boring at 135 ft bgs	
	140		

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WELL BORING LOG

Boring: WS-09

Date: 1/7/2009

Client: Mirant LCC
Driller: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: CCPP
Latitude: 38.01700
Longitude: -121.76402

Top of Casing Elevation: 8.07 feet
Grade Elevation: 8.07 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: firm sand, gravel and fines, top soil.	
75%			
	10		*Finished flush w/ steel outer casing and concrete pad.*
		SAND: very fine grained sand with silt.	
	20	CLAY: very dense, brown clay.	
100%		SAND: loose, brown, fine grained sand.	
	30		
	40		2 inch ø PVC pipe
100%			w/ 20 ft screen
		SAND: loose, coarse grained sand.	
	50	SAND: loose, brown, fine grained sand with silt.	
		SAND: loose, coarse grained sand.	
		SAND: dense, brown, fine grained sand with silt.	
	60	SAND: loose, brown and gray, fine to coarse grained sand with trace gravel.	
100%		SAND: coarse grained sand and gravel.	
	70	SAND: very loose, brown and gray, medium to coarse sand with gravel and pebble. Fine grained sand on top.	
	80	SAND and GRAVEL: very loose, brown and gray, coarse grained sand, gravel and pebble.	
100%			
	90		
	100		
100%			106 ft top of screen
	110		
		CLAY: very dense, brown clay.	
100%	120	GRAVEL: very loose gravel with pebble.	126 ft bottom of screen
		CLAY: very dense, brown clay.	
		End of boring at 125 ft bgs	
	130		

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WELL BORING LOG

Boring: WS-10 1/2

Date: 2/22/2009

Client: Mirant LCC
Driver: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: CCPP
Latitude: 38.01591
Longitude: -121.76492

Top of Casing Elevation: 8.51 feet
Grade Elevation: 8.51 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: sand and fines.	
75%		SAND: loose, brown, fine grained sand with silt.	
	10		*Finished flush grade w/ steel outer casing and concrete pad.*
		SAND: loose, brown, fine grained sand with trace silt.	
	20		
75%			
	30		
	40		2 inch ø PVC pipe w/ 20 ft screen
100%			
	50		
	60		
		SAND: loose, brown fine to medium grained sand with silt.	
100%			
	70		
		SAND and GRAVEL: loose, brown, medium to coarse sand and gravel.	
	80		
100%			
	90		
		SAND: loose, gray, fine grained sand.	
		SAND: loose, gray, medium to coarse sand with some gravel.	
	100		
100%		SAND and GRAVEL: very loose, gray coarse grained sand and gravel,	90 ft top of screen
	110		
		CLAY: very dense, gray clay.	
	120		110 ft bottom of screen
	130		
	140		

Continued next page

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WELL BORING LOG

Boring: WS-10 2/2

Date: 2/23/2009

Client: Mirant LCC
Driller: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: CCPP
Latitude: 38.01591
Longitude: -121.76492

Top of Casing Elevation: 8.51 feet
Grade Elevation: 8.51 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		CLAY: very dense, gray clay with silt.	
100%	150		*Finished flush grade w/ steel outer casing and concrete pad.*
	160		
100%	170		
	180		2 inch ø PVC pipe w/ 20 ft screen
100%	190		
	200	*End of boring at 195 ft bgs*	
	210		
	220		
	230		
	240		90 ft top of screen
	250		
	260		110 ft bottom of screen
	270		
	280		

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WELL BORING LOG

Boring: WS-11

Date: 2/21/2009

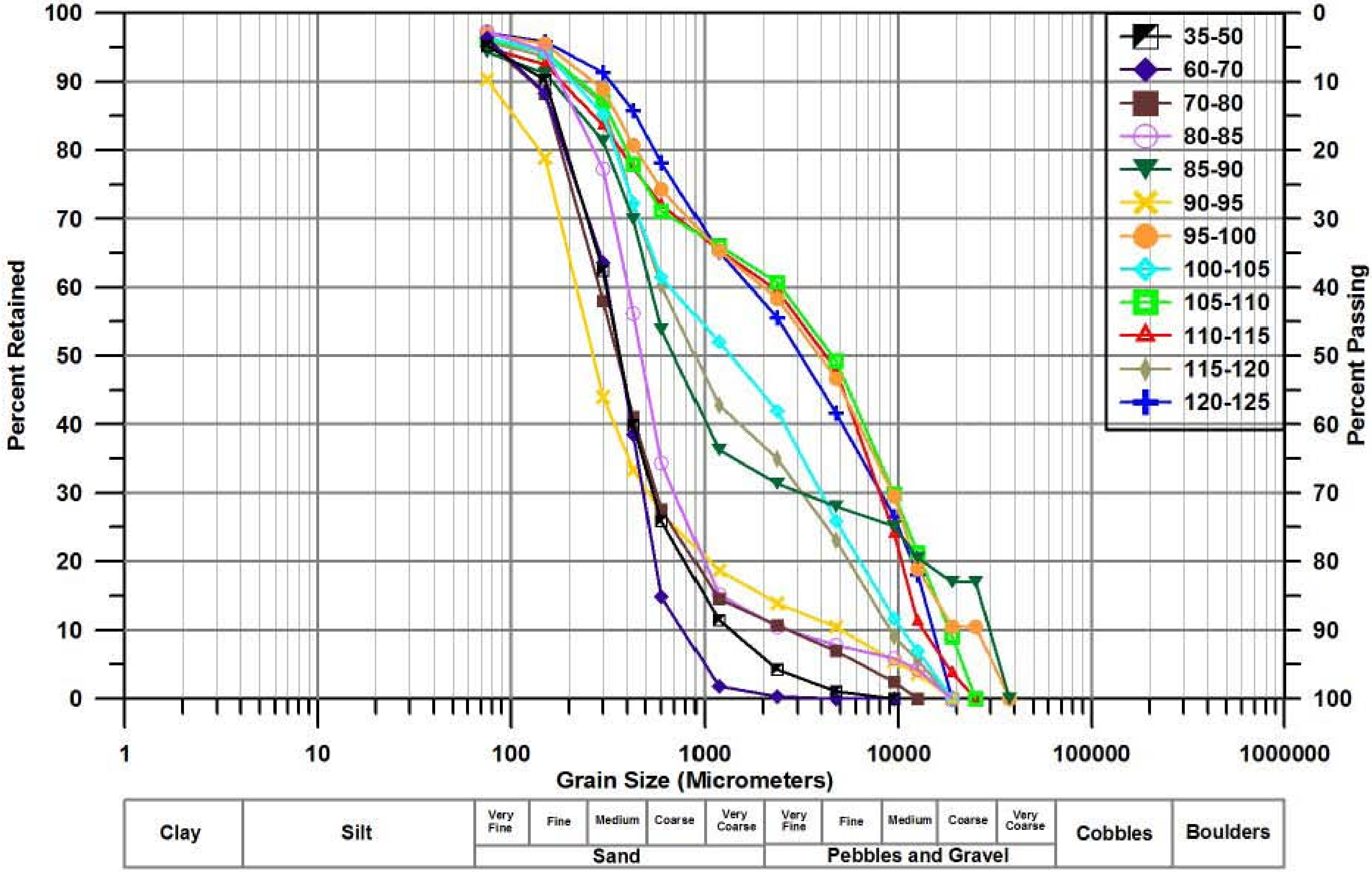
Client: Mirant LCC
Driller: WDC – M. Wilkerson
Logged by: B.Schroeder

Location: CCPP -Pond
Latitude: 38.01386
Longitude: -121.76357

Top of Casing Elevation: 8.51 feet
Grade Elevation: 8.51 feet
Boring Diameter: 4 inch

Recovery	Depth	Material Description	Well Construction
		FILL: fines.	
75%	10	CLAY: very dense, brown clay.	*Finished flush grade w/ steel outer casing and concrete pad.*
		No recovery	
	20	SAND: loose, brown, fine to medium grained sand.	
75%			
	30		
	40		2 inch ø PVC pipe w/ 20 ft screen
100%			
	50	SAND: dense, brown, sand with silt and clay.	
		SAND: loose, brown, fine to coarse grained sand.	
	60		
100%		SAND: same as above, grades coarser.	
	70	SAND: loose brown fine to coarse grained sand with some gravel.	
	80	SAND: very loose, gray, fine to coarse grained sand with gravel.	
100%		SAND: same as above, grades coarser.	
	90		
	100	SAND: very loose, gray, medium to coarse grained sand with trace gravel.	
100%			105 ft top of screen
	110	SAND and GRAVEL: very loose, gray, coarse grained sand and gravel.	
		CLAY: very dense, gray clay (8”).	
		End of boring at 115 ft bgs	115 ft bottom of screen
	120		
	130		
	140		

Appendix B- Sieve Test Results



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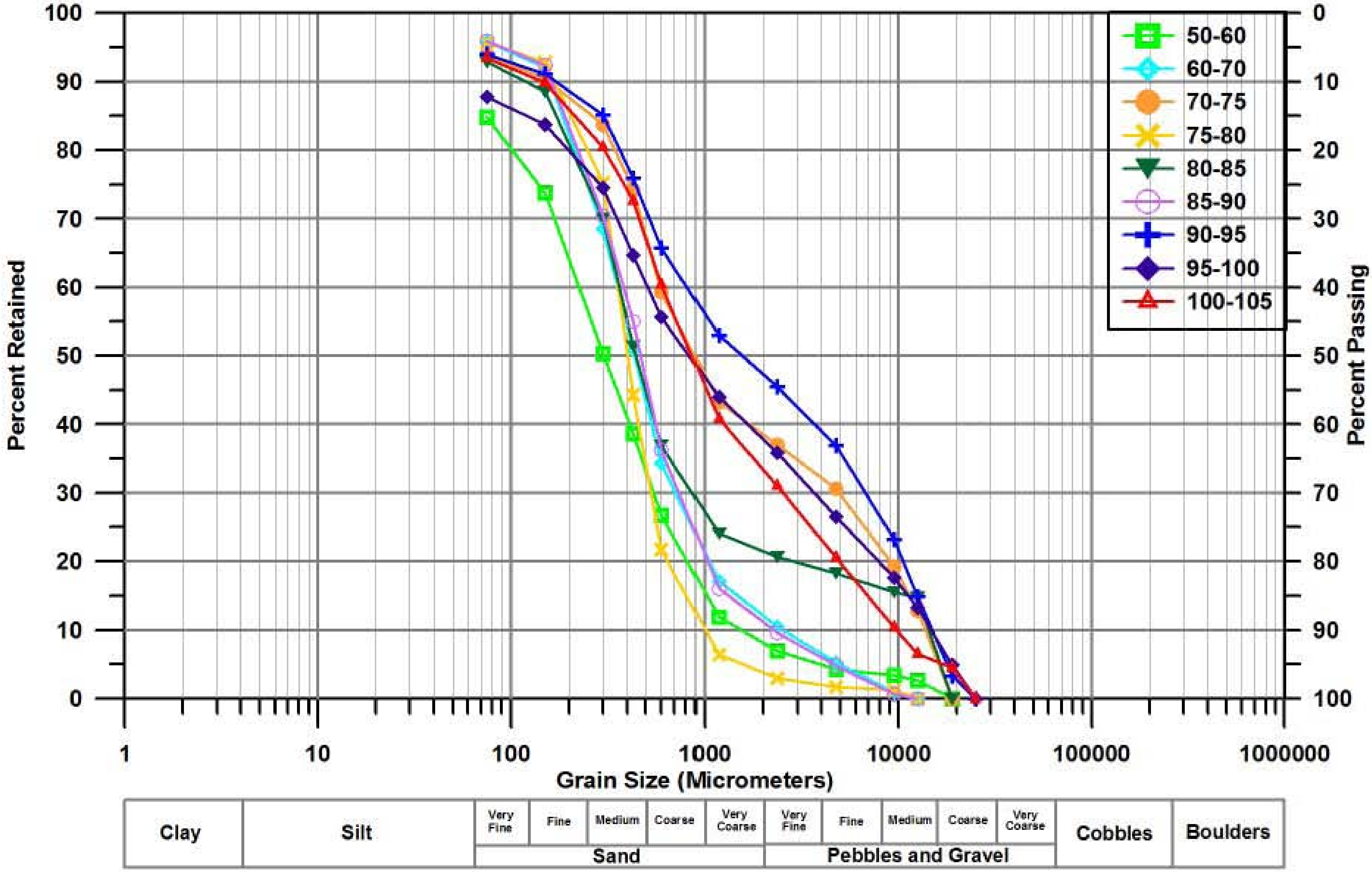
Grain Size Distribution

Project: Mirant

Boring: WS-01

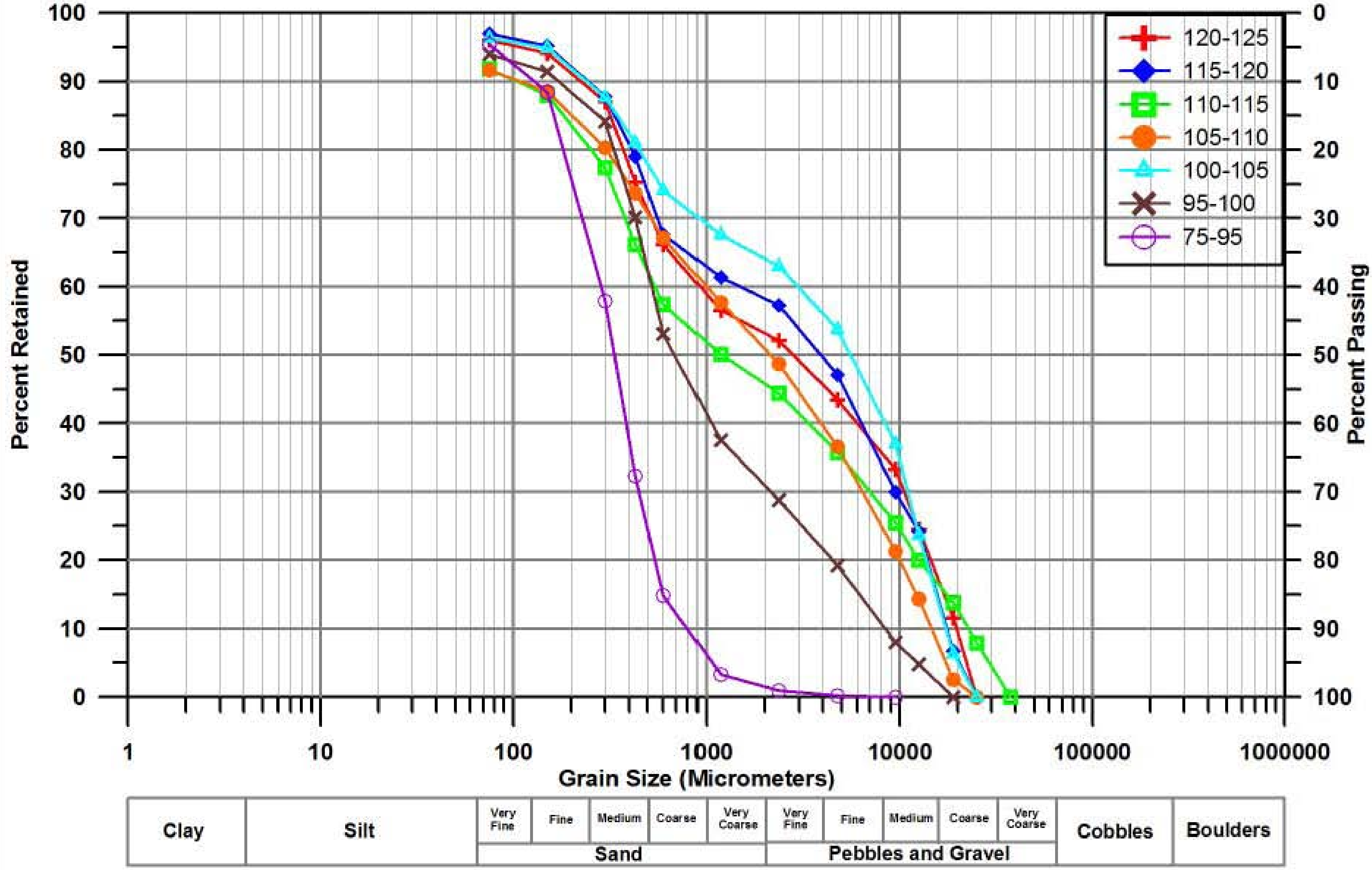


Wittman Hydro Planning Associates

Grain Size Distribution

Project: Mirant

Boring: WS-04



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Grain Size Distribution

Project: Mirant

Boring: WS-08

Appendix C- Aquifer Test Results

Aquifer Pump Test Data: Mirant CCPP	Time zero: 3/30/2009 13:00
Test Well: TW-01	Pumping Rate (ave): 830 gpm

	Water Level (ft)							
Minutes	WS04	WS06	WS07	WS10	WS11	P01	P02	SJR
0	0	0	0	0	0	0	0	0
5	-0.002	-0.003	-0.14	-0.371	-0.009	-0.002	-0.005	-0.052
10	-0.008	-0.013	-0.203	-0.443	-0.025	-0.005	-0.003	-0.117
15	-0.018	-0.01	-0.232	-0.475	-0.035	-0.011	-0.009	-0.117
20	-0.021	-0.011	-0.255	-0.486	-0.041	-0.019	-0.009	-0.124
25	-0.023	-0.002	-0.276	-0.515	-0.046	-0.024	-0.009	-0.102
30	-0.013	-0.014	-0.291	-0.528	-0.051	-0.029	-0.012	-0.198
35	-0.029	-0.02	-0.316	-0.543	-0.06	-0.031	-0.005	-0.231
40	-0.031	-0.024	-0.333	-0.569	-0.063	-0.036	-0.017	-0.237
45	-0.036	-0.024	-0.339	-0.582	-0.066	-0.038	-0.014	-0.273
50	-0.04	-0.025	-0.362	-0.588	-0.069	-0.04	-0.018	-0.283
55	-0.043	-0.024	-0.378	-0.602	-0.074	-0.042	-0.019	-0.268
60	-0.044	-0.021	-0.393	-0.62	-0.077	-0.042	-0.016	-0.294
65	-0.042	-0.021	-0.404	-0.62	-0.08	-0.046	-0.02	-0.314
70	-0.044	-0.036	-0.41	-0.641	-0.08	-0.046	-0.021	-0.313
75	-0.048	-0.022	-0.417	-0.652	-0.083	-0.045	-0.026	-0.307
80	-0.046	-0.023	-0.435	-0.655	-0.089	-0.045	-0.028	-0.294
85	-0.038	-0.025	-0.432	-0.662	-0.09	-0.049	-0.027	-0.274
90	-0.055	-0.028	-0.434	-0.681	-0.092	-0.047	-0.03	-0.308
95	-0.055	-0.029	-0.436	-0.686	-0.094	-0.048	-0.03	-0.25
100	-0.055	-0.033	-0.43	-0.692	-0.093	-0.049	-0.031	-0.206
105	-0.056	-0.028	-0.434	-0.695	-0.097	-0.05	-0.028	-0.143
110	-0.059	-0.035	-0.432	-0.699	-0.096	-0.05	-0.033	-0.198
115	-0.055	-0.042	-0.423	-0.695	-0.1	-0.049	-0.028	-0.114
120	-0.055	-0.039	-0.421	-0.696	-0.101	-0.049	-0.031	-0.1
125	-0.057	-0.03	-0.413	-0.702	-0.1	-0.049	-0.031	0.015
130	-0.057	-0.033	-0.399	-0.703	-0.101	-0.046	-0.034	0.044
140	-0.061	-0.031	-0.379	-0.72	-0.102	-0.046	-0.031	0.141
150	-0.065	-0.04	-0.348	-0.715	-0.103	-0.046	-0.033	0.314
160	-0.066	-0.041	-0.314	-0.73	-0.108	-0.045	-0.036	0.485
170	-0.065	-0.035	-0.287	-0.727	-0.107	-0.046	-0.037	0.632
180	-0.064	-0.027	-0.248	-0.73	-0.11	-0.048	-0.034	0.787
190	-0.067	-0.038	-0.213	-0.729	-0.11	-0.049	-0.034	0.871
200	-0.068	-0.041	-0.18	-0.734	-0.109	-0.048	-0.035	1.07
210	-0.068	-0.032	-0.155	-0.737	-0.11	-0.049	-0.037	1.201
220	-0.074	-0.027	-0.122	-0.752	-0.113	-0.046	-0.037	1.293
230	-0.073	-0.025	-0.099	-0.742	-0.111	-0.049	-0.033	1.422
240	-0.075	-0.036	-0.078	-0.755	-0.112	-0.048	-0.031	1.492
250	-0.078	-0.028	-0.061	-0.758	-0.114	-0.048	-0.034	1.594
260	-0.076	-0.019	-0.039	-0.762	-0.113	-0.048	-0.03	1.644
270	-0.079	-0.027	-0.023	-0.758	-0.113	-0.05	-0.032	1.721

	Water Level (ft)								
Minutes	WS04	WS06	WS07	WS10	WS11	P01	P02	SJR
280	-0.078	-0.021	-0.006	-0.768	-0.114	-0.049	-0.028	1.79
290	-0.08	-0.022	0.013	-0.76	-0.114	-0.049	-0.03	1.833
300	-0.078	-0.028	0.029	-0.761	-0.115	-0.048	-0.026	1.947
310	-0.087	-0.023	0.036	-0.775	-0.116	-0.049	-0.026	1.965
320	-0.085	-0.013	0.048	-0.779	-0.116	-0.052	-0.025	2.014
330	-0.092	-0.01	0.062	-0.77	-0.118	-0.051	-0.026	2.072
340	-0.096	-0.01	0.073	-0.783	-0.119	-0.05	-0.025	2.114
350	-0.089	-0.018	0.085	-0.783	-0.117	-0.05	-0.024	2.161
360	-0.097	-0.012	0.095	-0.778	-0.117	-0.051	-0.023	2.206
370	-0.094	-0.017	0.111	-0.78	-0.122	-0.052	-0.022	2.242
385	-0.096	-0.005	0.118	-0.794	-0.121	-0.051	-0.021	2.294
400	-0.1	-0.006	0.127	-0.798	-0.122	-0.054	-0.019	2.333
415	-0.104	-0.013	0.133	-0.804	-0.121	-0.051	-0.016	2.364
430	-0.103	-0.013	0.139	-0.801	-0.122	-0.053	-0.018	2.376
445	-0.106	0.002	0.132	-0.813	-0.125	-0.052	-0.019	2.372
460	-0.11	-0.013	0.125	-0.817	-0.13	-0.055	-0.017	2.359
475	-0.114	-0.002	0.12	-0.82	-0.128	-0.057	-0.014	2.32
490	-0.116	-0.009	0.103	-0.818	-0.128	-0.055	-0.015	2.271
505	-0.116	-0.009	0.085	-0.835	-0.127	-0.053	-0.014	2.202
520	-0.113	-0.012	0.059	-0.841	-0.128	-0.056	-0.014	2.109
535	-0.121	-0.014	0.025	-0.837	-0.132	-0.058	-0.014	2.002
550	-0.128	-0.003	-0.003	-0.852	-0.134	-0.06	-0.013	1.893
565	-0.124	-0.02	-0.036	-0.854	-0.135	-0.06	-0.015	1.791
580	-0.126	-0.009	-0.056	-0.859	-0.138	-0.061	-0.018	1.693
595	-0.13	-0.009	-0.092	-0.875	-0.139	-0.062	-0.017	1.599
610	-0.13	-0.01	-0.124	-0.872	-0.141	-0.062	-0.016	1.517
625	-0.131	-0.009	-0.144	-0.891	-0.142	-0.062	-0.018	1.445
640	-0.132	-0.01	-0.169	-0.885	-0.142	-0.063	-0.014	1.39
655	-0.131	-0.01	-0.181	-0.892	-0.142	-0.063	-0.013	1.345
670	-0.136	-0.013	-0.193	-0.902	-0.145	-0.063	-0.015	1.324
685	-0.132	-0.011	-0.201	-0.903	-0.143	-0.064	-0.013	1.318
700	-0.137	-0.007	-0.206	-0.906	-0.143	-0.063	-0.011	1.332
715	-0.138	-0.008	-0.196	-0.91	-0.144	-0.063	-0.011	1.378
730	-0.136	-0.015	-0.187	-0.925	-0.146	-0.065	-0.009	1.452
745	-0.142	-0.016	-0.168	-0.925	-0.149	-0.065	-0.011	1.559
760	-0.143	-0.017	-0.137	-0.923	-0.151	-0.067	-0.009	1.694
775	-0.145	-0.004	-0.098	-0.924	-0.15	-0.067	-0.008	1.858
790	-0.143	-0.002	-0.054	-0.932	-0.151	-0.066	-0.004	2.036
805	-0.145	0.006	-0.012	-0.934	-0.147	-0.067	0.001	2.209
820	-0.14	0	0.035	-0.932	-0.145	-0.063	0.005	2.378
835	-0.148	0.015	0.077	-0.932	-0.148	-0.065	0.008	2.532
850	-0.143	0.021	0.118	-0.93	-0.143	-0.062	0.01	2.686
865	-0.148	0.024	0.16	-0.919	-0.142	-0.061	0.015	2.828
880	-0.15	0.028	0.198	-0.931	-0.141	-0.062	0.02	2.96

	Water Level (ft)							
Minutes	WS04	WS06	WS07	WS10	WS11	P01	P02	SJR
895	-0.146	0.024	0.232	-0.93	-0.141	-0.058	0.024	3.081
910	-0.15	0.028	0.263	-0.929	-0.141	-0.059	0.025	3.204
925	-0.152	0.039	0.3	-0.928	-0.141	-0.06	0.03	3.319
940	-0.151	0.046	0.33	-0.916	-0.14	-0.057	0.035	3.419
955	-0.154	0.049	0.363	-0.925	-0.138	-0.056	0.037	3.52
970	-0.148	0.045	0.392	-0.916	-0.137	-0.054	0.044	3.612
985	-0.155	0.048	0.417	-0.92	-0.138	-0.056	0.047	3.697
1000	-0.153	0.065	0.443	-0.911	-0.134	-0.055	0.049	3.765
1015	-0.152	0.056	0.458	-0.923	-0.137	-0.055	0.051	3.824
1030	-0.157	0.069	0.48	-0.92	-0.135	-0.05	0.06	3.874
1045	-0.16	0.072	0.49	-0.92	-0.135	-0.055	0.06	3.911
1060	-0.158	0.074	0.497	-0.921	-0.133	-0.051	0.065	3.927
1075	-0.164	0.063	0.5	-0.914	-0.138	-0.056	0.063	3.932
1090	-0.171	0.063	0.496	-0.919	-0.137	-0.057	0.063	3.904
1105	-0.17	0.067	0.484	-0.93	-0.14	-0.057	0.064	3.863
1120	-0.173	0.068	0.465	-0.929	-0.137	-0.058	0.07	3.764
1135	-0.166	0.068	0.438	-0.929	-0.131	-0.052	0.072	3.637
1150	-0.179	0.077	0.403	-0.939	-0.136	-0.055	0.07	3.485
1165	-0.176	0.063	0.358	-0.943	-0.138	-0.056	0.072	3.298
1180	-0.176	0.076	0.301	-0.941	-0.136	-0.056	0.075	3.105
1195	-0.17	0.075	0.251	-0.944	-0.14	-0.056	0.074	2.913
1210	-0.18	0.074	0.202	-0.961	-0.143	-0.056	0.073	2.728
1225	-0.179	0.064	0.149	-0.957	-0.142	-0.055	0.072	2.535
1240	-0.179	0.071	0.1	-0.965	-0.14	-0.055	0.075	2.361
1255	-0.177	0.059	0.048	-0.979	-0.145	-0.054	0.075	2.175
1270	-0.175	0.053	-0.003	-0.987	-0.147	-0.055	0.073	2.036
1285	-0.186	0.066	-0.046	-0.995	-0.147	-0.057	0.069	1.876
1300	-0.187	0.054	-0.09	-1.002	-0.145	-0.056	0.07	1.73
1315	-0.184	0.061	-0.133	-1.007	-0.145	-0.057	0.07	1.605
1330	-0.187	0.045	-0.184	-1.009	-0.149	-0.058	0.069	1.458
1345	-0.184	0.046	-0.214	-1.026	-0.15	-0.059	0.068	1.336
1360	-0.177	0.041	-0.261	-1.026	-0.152	-0.057	0.064	1.181
1375	-0.19	0.038	-0.306	-1.028	-0.153	-0.058	0.063	1.054
1390	-0.186	0.044	-0.338	-1.034	-0.153	-0.058	0.06	0.929
1405	-0.187	0.042	-0.388	-1.052	-0.154	-0.061	0.059	0.77
1420	-0.183	0.041	-0.43	-1.061	-0.155	-0.059	0.058	0.666
1435	-0.187	0.04	-0.472	-1.068	-0.158	-0.058	0.058	0.528
1450	-0.185	0.036	-0.514	-1.067	-0.159	-0.062	0.057	0.371
1465	-0.184	0.034	-0.55	-1.084	-0.161	-0.061	0.053	0.295
1480	-0.188	0.033	-0.585	-1.08	-0.161	-0.059	0.051	0.169
1495	-0.185	0.022	-0.62	-1.094	-0.163	-0.062	0.052	0.069
1510	-0.187	0.018	-0.651	-1.106	-0.164	-0.061	0.05	-0.056
1525	-0.188	0.021	-0.683	-1.1	-0.166	-0.061	0.047	-0.076
1540	-0.184	0.005	-0.707	-1.109	-0.168	-0.061	0.042	-0.17

	Water Level (ft)							
Minutes	**WS04**	**WS06**	**WS07**	**WS10**	**WS11**	**P01**	**P02**	**SJR**
1555	-0.187	0.008	-0.731	-1.115	-0.168	-0.061	0.045	-0.249
1570	-0.187	0.004	-0.743	-1.121	-0.169	-0.063	0.042	-0.288
1585	-0.183	0.004	-0.742	-1.123	-0.17	-0.062	0.036	-0.26
1600	-0.186	-0.002	-0.738	-1.13	-0.174	-0.062	0.039	-0.136
1615	-0.189	0.009	-0.724	-1.145	-0.171	-0.062	0.037	-0.089
1630	-0.189	0.011	-0.688	-1.148	-0.174	-0.066	0.036	0.068
1645	-0.19	0	-0.65	-1.146	-0.174	-0.062	0.037	0.261
1660	-0.185	0.012	-0.605	-1.144	-0.172	-0.063	0.036	0.476
1675	-0.184	0.014	-0.546	-1.145	-0.173	-0.062	0.039	0.728
1690	-0.184	0.021	-0.495	-1.147	-0.17	-0.059	0.042	0.948
1705	-0.187	0.023	-0.447	-1.14	-0.169	-0.057	0.043	1.154
1720	-0.185	0.016	-0.401	-1.15	-0.17	-0.058	0.046	1.332
1735	-0.19	0.027	-0.361	-1.143	-0.169	-0.055	0.047	1.482
1750	-0.193	0.023	-0.323	-1.136	-0.167	-0.057	0.049	1.612
1765	-0.195	0.028	-0.293	-1.143	-0.164	-0.058	0.05	1.71
1780	-0.194	0.035	-0.272	-1.144	-0.165	-0.057	0.054	1.813
1795	-0.196	0.039	-0.244	-1.134	-0.163	-0.056	0.056	1.919
1810	-0.194	0.044	-0.221	-1.137	-0.164	-0.056	0.058	2.01
1825	-0.199	0.041	-0.198	-1.144	-0.166	-0.057	0.06	2.095
1840	-0.199	0.046	-0.166	-1.135	-0.164	-0.054	0.063	2.175
1855	-0.197	0.042	-0.152	-1.146	-0.16	-0.052	0.065	2.254
1870	-0.197	0.044	-0.134	-1.138	-0.163	-0.051	0.07	2.316
1885	-0.201	0.042	-0.107	-1.138	-0.161	-0.052	0.068	2.38
1900	-0.203	0.047	-0.104	-1.145	-0.162	-0.052	0.072	2.432
1915	-0.203	0.048	-0.089	-1.147	-0.158	-0.049	0.075	2.48
1930	-0.205	0.057	-0.077	-1.146	-0.161	-0.049	0.076	2.518
1945	-0.203	0.06	-0.072	-1.138	-0.161	-0.049	0.076	2.554
1960	-0.205	0.064	-0.067	-1.147	-0.161	-0.046	0.078	2.551
1975	-0.21	0.067	-0.068	-1.138	-0.16	-0.048	0.079	2.556
1990	-0.206	0.058	-0.068	-1.154	-0.161	-0.044	0.084	2.539
2005	-0.21	0.066	-0.076	-1.152	-0.157	-0.047	0.084	2.508
2020	-0.207	0.067	-0.089	-1.153	-0.157	-0.045	0.084	2.471
2035	-0.207	0.066	-0.099	-1.15	-0.159	-0.042	0.087	2.42
2050	-0.212	0.071	-0.113	-1.149	-0.157	-0.045	0.089	2.369
2065	-0.21	0.071	-0.131	-1.162	-0.16	-0.045	0.09	2.312
2080	-0.211	0.07	-0.149	-1.156	-0.159	-0.044	0.088	2.242
2095	-0.208	0.061	-0.167	-1.171	-0.158	-0.042	0.093	2.159
2110	-0.211	0.072	-0.187	-1.172	-0.16	-0.04	0.095	2.11
2125	-0.212	0.068	-0.2	-1.174	-0.156	-0.042	0.095	2.06
2140	-0.218	0.064	-0.208	-1.167	-0.161	-0.044	0.09	2.05
2155	-0.215	0.054	-0.212	-1.175	-0.159	-0.041	0.096	2.029
2170	-0.22	0.061	-0.21	-1.183	-0.164	-0.044	0.091	2.046
2185	-0.219	0.07	-0.214	-1.185	-0.162	-0.046	0.096	2.118
2200	-0.217	0.061	-0.208	-1.182	-0.163	-0.045	0.092	2.115

	Water Level (ft)							
Minutes	**WS04**	**WS06**	**WS07**	**WS10**	**WS11**	**P01**	**P02**	**SJR**
2215	-0.228	0.07	-0.188	-1.179	-0.165	-0.045	0.092	2.187
2230	-0.222	0.064	-0.172	-1.19	-0.163	-0.044	0.095	2.245
2245	-0.227	0.063	-0.151	-1.19	-0.163	-0.042	0.093	2.337
2260	-0.221	0.064	-0.121	-1.179	-0.165	-0.04	0.098	2.444
2275	-0.226	0.07	-0.097	-1.194	-0.163	-0.039	0.101	2.555
2290	-0.226	0.079	-0.062	-1.179	-0.159	-0.039	0.1	2.684
2305	-0.231	0.074	-0.029	-1.18	-0.159	-0.041	0.1	2.812
2320	-0.23	0.086	0.019	-1.177	-0.163	-0.041	0.104	2.949
2335	-0.233	0.085	0.042	-1.184	-0.161	-0.042	0.102	3.089
2350	-0.233	0.079	0.081	-1.186	-0.161	-0.039	0.106	3.215
2365	-0.226	0.084	0.122	-1.183	-0.159	-0.04	0.108	3.334
2380	-0.237	0.082	0.15	-1.181	-0.159	-0.037	0.109	3.427
2395	-0.236	0.086	0.18	-1.178	-0.156	-0.038	0.113	3.517
2410	-0.235	0.103	0.207	-1.172	-0.155	-0.035	0.115	3.614
2425	-0.235	0.105	0.237	-1.171	-0.156	-0.033	0.117	3.692
2440	-0.236	0.11	0.265	-1.16	-0.153	-0.033	0.117	3.777
2455	-0.24	0.111	0.286	-1.154	-0.152	-0.032	0.122	3.853
2470	-0.238	0.108	0.311	-1.165	-0.149	-0.029	0.128	3.92
2485	-0.243	0.11	0.333	-1.163	-0.151	-0.028	0.129	3.989
2500	-0.24	0.113	0.353	-1.16	-0.149	-0.026	0.129	4.034
2515	-0.244	0.119	0.37	-1.149	-0.148	-0.026	0.132	4.075
2530	-0.24	0.127	0.39	-1.144	-0.147	-0.022	0.138	4.129
2545	-0.245	0.128	0.393	-1.147	-0.147	-0.024	0.139	4.146
2560	-0.26	0.134	0.397	-1.148	-0.145	-0.025	0.137	4.151
2575	-0.25	0.12	0.4	-1.153	-0.143	-0.021	0.145	4.125
2590	-0.252	0.133	0.393	-1.149	-0.143	-0.023	0.144	4.086
2605	-0.248	0.12	0.38	-1.157	-0.142	-0.022	0.145	4.003
2620	-0.244	0.126	0.347	-1.161	-0.14	-0.02	0.144	3.879
2635	-0.249	0.135	0.315	-1.159	-0.141	-0.017	0.145	3.741
2650	-0.249	0.132	0.278	-1.159	-0.141	-0.015	0.146	3.57
2665	-0.249	0.121	0.23	-1.166	-0.136	-0.017	0.15	3.406
2680	-0.252	0.129	0.184	-1.161	-0.134	-0.014	0.148	3.221
2695	-0.254	0.119	0.14	-1.175	-0.139	-0.016	0.144	3.075
2710	-0.248	0.117	0.101	-1.18	-0.137	-0.017	0.148	2.895
2725	-0.255	0.125	0.045	-1.187	-0.14	-0.018	0.148	2.729
2740	-0.256	0.121	0.002	-1.182	-0.139	-0.015	0.145	2.588
2755	-0.255	0.111	-0.041	-1.194	-0.141	-0.015	0.146	2.429
2770	-0.253	0.114	-0.091	-1.203	-0.137	-0.016	0.144	2.227
2785	-0.253	0.112	-0.134	-1.202	-0.139	-0.016	0.147	2.129
2800	-0.254	0.113	-0.174	-1.206	-0.141	-0.014	0.137	1.997
2815	-0.253	0.116	-0.217	-1.222	-0.138	-0.014	0.141	1.823
2830	-0.253	0.116	-0.262	-1.223	-0.139	-0.014	0.139	1.672
2845	-0.254	0.11	-0.309	-1.231	-0.141	-0.014	0.137	1.552
2860	-0.256	0.113	-0.348	-1.236	-0.14	-0.014	0.135	1.37

	Water Level (ft)							
Minutes	WS04	WS06	WS07	WS10	WS11	P01	P02	SJR
2875	-0.258	0.11	-0.378	-1.239	-0.142	-0.012	0.134	1.291
2890	-0.252	0.104	-0.432	-1.248	-0.142	-0.012	0.131	1.114
2905	-0.253	0.101	-0.465	-1.256	-0.142	-0.012	0.132	1.039
2920	-0.252	0.091	-0.514	-1.25	-0.145	-0.014	0.13	0.918
2935	-0.253	0.089	-0.556	-1.266	-0.146	-0.01	0.129	0.735
2950	-0.252	0.088	-0.602	-1.273	-0.146	-0.013	0.127	0.522
2965	-0.252	0.089	-0.637	-1.281	-0.148	-0.01	0.129	0.476
2980	-0.253	0.081	-0.676	-1.287	-0.147	-0.015	0.121	0.356
2995	-0.255	0.082	-0.712	-1.294	-0.15	-0.015	0.122	0.287
3010	-0.253	0.08	-0.748	-1.298	-0.153	-0.012	0.122	0.141
3025	-0.254	0.066	-0.773	-1.3	-0.152	-0.011	0.117	0.017
3040	-0.26	0.064	-0.799	-1.312	-0.156	-0.014	0.119	-0.033
3055	-0.257	0.069	-0.826	-1.319	-0.156	-0.015	0.117	-0.073
3070	-0.253	0.064	-0.841	-1.325	-0.157	-0.016	0.113	-0.068
3085	-0.253	0.062	-0.848	-1.327	-0.156	-0.015	0.112	-0.094
3100	-0.252	0.066	-0.849	-1.326	-0.159	-0.014	0.109	0.002
3115	-0.254	0.06	-0.825	-1.325	-0.159	-0.016	0.106	0.037
3130	-0.259	0.056	-0.811	-1.329	-0.162	-0.019	0.102	0.137
3145	-0.258	0.051	-0.78	-1.331	-0.161	-0.017	0.101	0.266
3160	-0.259	0.061	-0.74	-1.338	-0.164	-0.016	0.102	0.491
3175	-0.26	0.065	-0.692	-1.339	-0.163	-0.019	0.104	0.691
3190	-0.262	0.062	-0.644	-1.336	-0.164	-0.017	0.101	0.925
3205	-0.268	0.054	-0.598	-1.328	-0.165	-0.018	0.104	1.1
3220	-0.262	0.063	-0.555	-1.326	-0.164	-0.015	0.106	1.285
3235	-0.262	0.056	-0.516	-1.333	-0.162	-0.012	0.108	1.422
3250	-0.267	0.064	-0.482	-1.335	-0.161	-0.013	0.111	1.755
3265	-0.265	0.074	-0.435	-1.333	-0.16	-0.014	0.109	1.707
3280	-0.266	0.078	-0.411	-1.333	-0.16	-0.011	0.11	1.808
3295	-0.27	0.068	-0.389	-1.321	-0.161	-0.012	0.113	1.901
3310	-0.271	0.07	-0.349	-1.332	-0.16	-0.01	0.115	2.012
3325	-0.273	0.072	-0.328	-1.325	-0.163	-0.01	0.116	2.086
3340	-0.275	0.081	-0.313	-1.331	-0.16	-0.011	0.119	2.157
3355	-0.273	0.078	-0.292	-1.331	-0.158	-0.008	0.118	2.225
3370	-0.276	0.081	-0.269	-1.321	-0.158	-0.009	0.119	2.32
3385	-0.28	0.086	-0.258	-1.33	-0.16	-0.008	0.123	2.351
3400	-0.277	0.081	-0.242	-1.319	-0.161	-0.006	0.124	2.416
3415	-0.28	0.091	-0.226	-1.329	-0.159	-0.005	0.125	2.466
3430	-0.277	0.083	-0.219	-1.328	-0.158	-0.006	0.127	2.497
3445	-0.276	0.096	-0.193	-1.33	-0.156	-0.002	0.129	2.549
3460	-0.281	0.089	-0.19	-1.319	-0.154	-0.002	0.131	2.459
3475	-0.282	0.095	-0.185	-1.317	-0.153	0.002	0.134	2.564
3490	-0.281	0.102	-0.188	-1.33	-0.156	0.003	0.132	2.596
3505	-0.278	0.105	-0.187	-1.33	-0.152	0.002	0.133	2.6
3520	-0.281	0.097	-0.181	-1.329	-0.151	0.002	0.137	2.579

	Water Level (ft)							
Minutes	WS04	WS06	WS07	WS10	WS11	P01	P02	SJR
3535	-0.277	0.107	-0.197	-1.332	-0.151	0.006	0.14	2.544
3550	-0.286	0.094	-0.204	-1.323	-0.15	0.005	0.138	2.506
3565	-0.285	0.108	-0.22	-1.332	-0.149	0.005	0.142	2.441
3580	-0.284	0.108	-0.239	-1.322	-0.15	0.007	0.144	2.367
3595	-0.285	0.103	-0.251	-1.339	-0.15	0.009	0.146	2.322
3610	-0.288	0.098	-0.267	-1.339	-0.15	0.01	0.146	2.254
3625	-0.291	0.099	-0.281	-1.342	-0.148	0.005	0.147	2.207
3640	-0.288	0.111	-0.294	-1.346	-0.15	0.009	0.143	2.174
3655	-0.285	0.1	-0.303	-1.348	-0.151	0.012	0.146	2.152
3670	-0.287	0.109	-0.305	-1.348	-0.15	0.011	0.148	2.134
3685	-0.285	0.101	-0.309	-1.35	-0.145	0.014	0.148	2.112
3700	-0.286	0.104	-0.307	-1.345	-0.146	0.012	0.152	2.15
3715	-0.285	0.109	-0.303	-1.344	-0.145	0.016	0.153	2.166
3730	-0.284	0.109	-0.286	-1.352	-0.141	0.018	0.152	2.241
3745	-0.284	0.113	-0.269	-1.352	-0.146	0.017	0.157	2.299
3760	-0.284	0.119	-0.262	-1.342	-0.142	0.02	0.157	2.362
3775	-0.286	0.112	-0.229	-1.353	-0.142	0.018	0.158	2.463
3790	-0.288	0.116	-0.207	-1.342	-0.141	0.019	0.157	2.54
3805	-0.286	0.117	-0.183	-1.351	-0.14	0.021	0.163	2.664
3820	-0.287	0.129	-0.141	-1.349	-0.138	0.023	0.164	2.769
3835	-0.289	0.135	-0.11	-1.346	-0.138	0.022	0.164	2.9
3850	-0.285	0.134	-0.077	-1.344	-0.138	0.024	0.169	3.003
3865	-0.283	0.14	-0.057	-1.342	-0.138	0.028	0.168	3.115
3880	-0.285	0.135	-0.021	-1.335	-0.133	0.029	0.175	3.209
3895	-0.29	0.132	0.006	-1.328	-0.132	0.031	0.177	3.309
3910	-0.292	0.15	0.036	-1.332	-0.131	0.03	0.176	3.408
3925	-0.293	0.139	0.063	-1.333	-0.131	0.031	0.178	3.494
3940	-0.296	0.143	0.099	-1.33	-0.13	0.03	0.18	3.58
3955	-0.294	0.145	0.125	-1.326	-0.128	0.033	0.184	3.656
3970	-0.293	0.157	0.14	-1.313	-0.127	0.035	0.186	3.731
3985	-0.296	0.152	0.169	-1.322	-0.129	0.035	0.19	3.814
4000	-0.29	0.165	0.198	-1.311	-0.122	0.038	0.193	3.876
4015	-0.295	0.159	0.216	-1.309	-0.122	0.041	0.196	3.928
4030	-0.29	0.162	0.231	-1.308	-0.119	0.043	0.196	3.977
4045	-0.297	0.168	0.244	-1.309	-0.12	0.04	0.201	4.012
4060	-0.3	0.172	0.257	-1.303	-0.117	0.041	0.2	4.026
4075	-0.297	0.175	0.259	-1.302	-0.113	0.046	0.2	4.009
4090	-0.301	0.165	0.257	-1.29	-0.116	0.045	0.207	4.003
4105	-0.304	0.167	0.246	-1.301	-0.115	0.042	0.208	3.946
4120	-0.302	0.17	0.232	-1.3	-0.116	0.044	0.207	3.868
4135	-0.297	0.173	0.21	-1.301	-0.11	0.054	0.211	3.765
4150	-0.298	0.183	0.184	-1.303	-0.112	0.052	0.213	3.646
4165	-0.293	0.173	0.141	-1.306	-0.111	0.055	0.213	3.493
4180	-0.301	0.187	0.107	-1.298	-0.112	0.054	0.218	3.307

	Water Level (ft)							
Minutes	WS04	WS06	WS07	WS10	WS11	P01	P02	SJR
4195	-0.301	0.176	0.06	-1.31	-0.111	0.056	0.22	3.145
4210	-0.303	0.17	0.013	-1.318	-0.11	0.053	0.215	2.976
4225	-0.305	0.176	-0.035	-1.323	-0.11	0.053	0.215	2.852
4240	-0.304	0.174	-0.077	-1.324	-0.108	0.058	0.216	2.646
4255	-0.309	0.17	-0.122	-1.333	-0.11	0.056	0.213	2.535
4270	-0.297	0.177	-0.158	-1.336	-0.109	0.058	0.215	2.361
4285	-0.297	0.168	-0.2	-1.333	-0.108	0.062	0.215	2.107
4300	-0.295	0.176	-0.243	-1.345	-0.108	0.063	0.214	2.049
4315	-0.298	0.177	-0.297	-1.351	-0.111	0.062	0.218	1.927
4330	-0.296	0.173	-0.335	-1.357	-0.116	0.064	0.215	1.815
4345	-0.296	0.162	-0.256	-1.014	-0.107	0.062	0.217	1.675
4360	-0.279	0.166	-0.189	-0.87	-0.079	0.075	0.217	1.49
4375	-0.264	0.162	-0.2	-0.827	-0.061	0.092	0.217	1.438
4390	-0.263	0.159	-0.212	-0.799	-0.058	0.096	0.218	1.344
4405	-0.261	0.166	-0.234	-0.78	-0.051	0.105	0.217	1.208
4420	-0.254	0.162	-0.262	-0.755	-0.041	0.111	0.214	1.029
4435	-0.257	0.169	-0.291	-0.74	-0.038	0.118	0.216	0.992
4450	-0.237	0.167	-0.322	-0.727	-0.033	0.122	0.214	0.75
4465	-0.241	0.151	-0.35	-0.717	-0.03	0.122	0.215	0.774
4480	-0.24	0.152	-0.376	-0.704	-0.031	0.127	0.21	0.559
4495	-0.243	0.147	-0.402	-0.704	-0.026	0.125	0.21	0.517
4510	-0.235	0.15	-0.427	-0.699	-0.023	0.13	0.21	0.358
4525	-0.237	0.152	-0.454	-0.692	-0.02	0.133	0.206	0.343
4540	-0.234	0.15	-0.47	-0.686	-0.018	0.131	0.207	0.206
4555	-0.225	0.139	-0.49	-0.677	-0.017	0.135	0.206	0.276
4570	-0.227	0.135	-0.491	-0.674	-0.013	0.137	0.2	0.105
4585	-0.228	0.13	-0.497	-0.675	-0.014	0.14	0.201	0.187
4600	-0.227	0.136	-0.486	-0.667	-0.012	0.137	0.196	0.192
4615	-0.233	0.14	-0.46	-0.658	-0.013	0.14	0.196	0.328
4630	-0.223	0.135	-0.439	-0.645	-0.011	0.14	0.199	0.443
4645	-0.228	0.129	-0.4	-0.645	-0.009	0.14	0.193	0.579
4660	-0.218	0.132	-0.349	-0.625	-0.007	0.146	0.195	0.798
4675	-0.215	0.142	-0.283	-0.611	-0.001	0.149	0.196	0.994
4690	-0.213	0.136	-0.229	-0.613	0.002	0.151	0.196	1.199
4705	-0.206	0.15	-0.177	-0.598	0.004	0.152	0.201	1.381
4720	-0.208	0.142	-0.114	-0.594	0.008	0.156	0.202	1.573
4735	-0.209	0.143	-0.075	-0.584	0.009	0.157	0.204	1.71
4750	-0.212	0.149	-0.028	-0.575	0.012	0.156	0.203	1.872
4765	-0.206	0.158	0.014	-0.564	0.015	0.16	0.21	1.981
4780	-0.207	0.164	0.054	-0.558	0.017	0.162	0.208	2.107
4795	-0.206	0.157	0.097	-0.545	0.016	0.162	0.208	2.204
4810	-0.207	0.169	0.132	-0.525	0.024	0.166	0.211	2.312
4825	-0.2	0.164	0.171	-0.525	0.026	0.168	0.212	2.418
4840	-0.201	0.162	0.203	-0.515	0.029	0.171	0.216	2.492

	Water Level (ft)							
Minutes	WS04	WS06	WS07	WS10	WS11	P01	P02	SJR
4855	-0.199	0.165	0.229	-0.506	0.029	0.176	0.218	2.587
4870	-0.203	0.17	0.255	-0.495	0.034	0.174	0.222	2.642
4885	-0.198	0.179	0.288	-0.489	0.035	0.173	0.223	2.729
4900	-0.195	0.174	0.316	-0.468	0.041	0.185	0.224	2.793
4915	-0.192	0.184	0.345	-0.457	0.047	0.178	0.232	2.855
4930	-0.189	0.179	0.368	-0.462	0.046	0.184	0.232	2.931
4945	-0.186	0.183	0.394	-0.453	0.053	0.183	0.234	2.98
4960	-0.187	0.188	0.42	-0.442	0.053	0.182	0.235	3.041
4975	-0.186	0.199	0.432	-0.435	0.053	0.183	0.238	3.069
4990	-0.185	0.186	0.443	-0.428	0.058	0.192	0.239	3.093
5005	-0.188	0.196	0.454	-0.421	0.059	0.189	0.239	3.133
5020	-0.189	0.195	0.455	-0.415	0.06	0.191	0.242	3.066
5035	-0.185	0.205	0.467	-0.407	0.066	0.195	0.245	3.052
5050	-0.18	0.2	0.453	-0.404	0.067	0.197	0.247	2.968
5065	-0.182	0.203	0.441	-0.398	0.07	0.197	0.246	2.888
5080	-0.18	0.196	0.424	-0.391	0.067	0.198	0.249	2.831
5095	-0.177	0.204	0.404	-0.39	0.073	0.2	0.246	2.727
5110	-0.179	0.209	0.389	-0.387	0.073	0.201	0.247	2.61
5125	-0.172	0.21	0.371	-0.383	0.076	0.201	0.25	2.545
5140	-0.166	0.197	0.351	-0.379	0.077	0.205	0.248	2.452
5155	-0.17	0.206	0.328	-0.364	0.078	0.207	0.247	2.369
5170	-0.171	0.199	0.314	-0.374	0.083	0.207	0.251	2.281
5185	-0.166	0.207	0.305	-0.368	0.085	0.209	0.251	2.227
5200	-0.168	0.199	0.299	-0.366	0.085	0.206	0.248	2.192
5215	-0.166	0.198	0.281	-0.363	0.083	0.207	0.25	2.166
5230	-0.165	0.198	0.272	-0.362	0.084	0.211	0.252	2.131
5245	-0.169	0.204	0.269	-0.364	0.081	0.207	0.248	2.111
5260	-0.165	0.194	0.268	-0.359	0.084	0.21	0.25	2.099
5275	-0.166	0.206	0.278	-0.351	0.084	0.212	0.246	2.104
5290	-0.157	0.197	0.292	-0.351	0.084	0.209	0.246	2.156
5305	-0.165	0.195	0.298	-0.345	0.088	0.211	0.248	2.193
5320	-0.162	0.198	0.316	-0.342	0.089	0.214	0.248	2.259
5335	-0.162	0.21	0.342	-0.34	0.09	0.212	0.25	2.354
5350	-0.158	0.21	0.374	-0.331	0.095	0.216	0.249	2.444
5365	-0.158	0.206	0.408	-0.324	0.094	0.216	0.252	2.566
5380	-0.154	0.216	0.44	-0.316	0.098	0.217	0.253	2.695
5395	-0.159	0.212	0.475	-0.31	0.098	0.216	0.252	2.81
5410	-0.157	0.216	0.509	-0.303	0.099	0.218	0.252	2.911
5425	-0.165	0.217	0.534	-0.302	0.099	0.218	0.252	3.013
5440	-0.164	0.207	0.572	-0.299	0.096	0.217	0.252	3.132
5455	-0.168	0.209	0.599	-0.291	0.101	0.218	0.252	3.217
5470	-0.158	0.214	0.629	-0.284	0.103	0.22	0.253	3.309
5485	-0.159	0.225	0.656	-0.275	0.108	0.222	0.258	3.375
5500	-0.155	0.226	0.69	-0.27	0.109	0.224	0.259	3.449
5515	-0.155	0.228	0.699	-0.261	0.11	0.225	0.263	

Aquifer Pump Test Data: Mirant CCPP	Time zero: 3/30/2009 13:00
Test Well: TW-01	Pumping Rate (ave): 830 gpm

	Water Level (ft)							
Minutes	WS05	Minutes	WS05	Minutes	WS05	Minutes	WS05	
0	0	41	-1.218	470	-1.534	1085	-1.691	
1	-0.385	42	-1.22	485	-1.537	1100	-1.689	
2	-0.685	43	-1.225	500	-1.544	1115	-1.697	
3	-0.821	44	-1.227	515	-1.55	1130	-1.694	
4	-0.897	45	-1.233	530	-1.559	1145	-1.701	
5	-0.945	46	-1.228	545	-1.569	1160	-1.707	
6	-0.981	47	-1.237	560	-1.574	1175	-1.712	
7	-1.008	48	-1.233	575	-1.582	1190	-1.716	
8	-1.027	49	-1.238	590	-1.591	1205	-1.722	
9	-1.041	50	-1.244	605	-1.589	1220	-1.727	
10	-1.055	51	-1.243	620	-1.602	1235	-1.732	
11	-1.067	52	-1.237	635	-1.608	1250	-1.739	
12	-1.078	53	-1.249	650	-1.615	1265	-1.744	
13	-1.08	54	-1.254	665	-1.622	1280	-1.753	
14	-1.088	55	-1.259	680	-1.627	1295	-1.755	
15	-1.104	56	-1.258	695	-1.634	1310	-1.762	
16	-1.103	57	-1.264	710	-1.637	1325	-1.769	
17	-1.112	58	-1.269	725	-1.645	1340	-1.776	
18	-1.127	210	-1.422	740	-1.648	1355	-1.781	
19	-1.132	220	-1.429	755	-1.653	1370	-1.79	
20	-1.13	230	-1.435	770	-1.659	1385	-1.789	
21	-1.14	240	-1.439	785	-1.661	1400	-1.802	
22	-1.139	250	-1.44	800	-1.66	1415	-1.803	
23	-1.147	260	-1.444	815	-1.66	1430	-1.811	
24	-1.154	270	-1.448	830	-1.657	1445	-1.819	
25	-1.157	280	-1.452	845	-1.656	1460	-1.826	
26	-1.162	290	-1.452	860	-1.666	1475	-1.83	
27	-1.167	300	-1.459	875	-1.668	1490	-1.834	
28	-1.167	310	-1.465	890	-1.666	1505	-1.842	
29	-1.176	320	-1.47	905	-1.671	1520	-1.848	
30	-1.171	330	-1.475	920	-1.673	1535	-1.854	
31	-1.184	340	-1.478	935	-1.673	1550	-1.86	
32	-1.179	350	-1.483	950	-1.672	1565	-1.865	
33	-1.186	365	-1.491	965	-1.666	1580	-1.868	
34	-1.194	380	-1.489	980	-1.674	1595	-1.874	
35	-1.199	395	-1.496	995	-1.676	1610	-1.877	
36	-1.194	410	-1.506	1010	-1.678	1625	-1.884	
37	-1.206	425	-1.512	1025	-1.676	1640	-1.877	
38	-1.207	440	-1.519	1040	-1.68	1655	-1.881	
39	-1.21	455	-1.526	1055	-1.682	1670	-1.887	
40	-1.211	470	-1.534	1070	-1.686	1685	-1.891	

	Water Level (ft)							
Minutes	**WS05**	**Minutes**	**WS05**	**Minutes**	**WS05**	**Minutes**	**WS05**	
1700	-1.89	2375	-1.971	3050	-2.09	3725	-2.154	
1715	-1.889	2390	-1.974	3065	-2.098	3740	-2.157	
1730	-1.879	2405	-1.971	3080	-2.1	3755	-2.155	
1745	-1.891	2420	-1.967	3095	-2.094	3770	-2.161	
1760	-1.895	2435	-1.969	3110	-2.107	3785	-2.157	
1775	-1.893	2450	-1.963	3125	-2.101	3800	-2.155	
1790	-1.899	2465	-1.966	3140	-2.106	3815	-2.156	
1805	-1.898	2480	-1.966	3155	-2.1	3830	-2.162	
1820	-1.901	2495	-1.965	3170	-2.107	3845	-2.159	
1835	-1.902	2510	-1.967	3185	-2.112	3860	-2.159	
1850	-1.905	2525	-1.965	3200	-2.105	3875	-2.153	
1865	-1.906	2540	-1.968	3215	-2.099	3890	-2.153	
1880	-1.909	2555	-1.964	3230	-2.117	3905	-2.156	
1895	-1.91	2570	-1.963	3245	-2.109	3920	-2.154	
1910	-1.907	2585	-1.966	3260	-2.116	3935	-2.156	
1925	-1.913	2600	-1.961	3275	-2.114	3950	-2.149	
1940	-1.914	2615	-1.97	3290	-2.119	3965	-2.145	
1955	-1.912	2630	-1.966	3305	-2.113	3980	-2.148	
1970	-1.917	2645	-1.974	3320	-2.119	3995	-2.142	
1985	-1.919	2660	-1.978	3335	-2.118	4010	-2.143	
2000	-1.92	2675	-1.973	3350	-2.119	4025	-2.142	
2015	-1.924	2690	-1.986	3365	-2.122	4040	-2.14	
2030	-1.925	2705	-1.985	3380	-2.124	4055	-2.137	
2045	-1.927	2720	-1.99	3395	-2.125	4070	-2.132	
2060	-1.928	2735	-1.992	3410	-2.121	4085	-2.124	
2075	-1.933	2750	-2	3425	-2.126	4100	-2.136	
2090	-1.933	2765	-2	3440	-2.122	4115	-2.139	
2105	-1.936	2780	-1.992	3455	-2.121	4130	-2.119	
2120	-1.937	2795	-2.015	3470	-2.126	4145	-2.126	
2135	-1.944	2810	-2.014	3485	-2.128	4160	-2.137	
2150	-1.959	2825	-2.019	3500	-2.127	4175	-2.139	
2165	-1.954	2840	-2.023	3515	-2.128	4190	-2.145	
2180	-1.96	2855	-2.029	3530	-2.131	4205	-2.151	
2195	-1.963	2870	-2.034	3545	-2.133	4220	-2.151	
2210	-1.962	2885	-2.04	3560	-2.136	4235	-2.151	
2225	-1.97	2900	-2.045	3575	-2.131	4250	-2.143	
2240	-1.968	2915	-2.05	3590	-2.139	4265	-2.157	
2255	-1.961	2930	-2.048	3605	-2.135	4280	-2.169	
2270	-1.966	2945	-2.052	3620	-2.146	4295	-2.169	
2285	-1.972	2960	-2.061	3635	-2.15	4310	-2.172	
2300	-1.969	2975	-2.065	3650	-2.147	4325	-2.17	
2315	-1.971	2990	-2.075	3665	-2.146	4340	-2.183	
2330	-1.957	3005	-2.08	3680	-2.156			
2345	-1.973	3020	-2.083	3695	-2.154			
2360	-1.972	3035	-2.089	3710	-2.157			

Aquifer Pump Test Data: Mirant CCPP	Time zero: 3/30/2009 13:00
Test Well: TW-01	Pumping Rate (ave): 830 gpm

	Water Level (ft)								
Minutes	WS01	Minutes	WS01	Minutes	WS01	Minutes	WS01	Minutes	WS01
0	0	615	-0.623	2640	-1.795	3255	-0.512	3870	-1.37
15	0.096	630	-0.585	2655	-1.705	3270	-0.593	3885	-1.428
30	0.172	645	-0.553	2670	-1.614	3285	-0.635	3900	-1.491
45	0.219	660	-0.525	2685	-1.528	3300	-0.687	3915	-1.536
60	0.258	675	-0.505	2700	-1.437	3315	-0.742	3930	-1.591
75	0.27	690	-0.508	2715	-1.353	3330	-0.783	3945	-1.63
90	0.273	705	-0.529	2730	-1.252	3345	-0.806	3960	-1.689
105	0.256	720	-0.544	2745	-1.169	3360	-0.843	3975	-1.728
120	0.199	735	-0.582	2760	-1.091	3375	-0.909	3990	-1.774
135	0.108	750	-0.64	2775	-1.002	3390	-0.95	4005	-1.801
150	0.005	765	-0.713	2790	-0.924	3405	-0.967	4020	-1.846
165	-0.105	780	-0.807	2805	-0.836	3420	-0.999	4035	-1.852
180	-0.221	795	-0.908	2820	-0.755	3435	-1.028	4050	-1.89
195	-0.346	810	-0.995	2835	-0.673	3450	-1.039	4065	-1.893
210	-0.453	825	-1.083	2850	-0.597	3465	-1.033	4080	-1.892
225	-0.533	840	-1.171	2865	-0.529	3480	-1.044	4095	-1.878
240	-0.61	855	-1.253	2880	-0.441	3495	-1.086	4110	-1.842
255	-0.669	870	-1.33	2895	-0.372	3510	-1.065	4125	-1.794
270	-0.746	885	-1.406	2910	-0.291	3525	-1.067	4140	-1.76
285	-0.795	900	-1.472	2925	-0.201	3540	-1.051	4155	-1.693
300	-0.839	915	-1.537	2940	-0.129	3555	-1.017	4170	-1.604
315	-0.878	930	-1.603	2955	-0.065	3570	-0.976	4185	-1.526
330	-0.939	945	-1.662	2970	0.01	3585	-0.961	4200	-1.526
345	-0.975	960	-1.72	2985	0.073	3600	-0.938	4215	-0.938
360	-1.013	975	-1.779	3000	0.144	3615	-0.883	4230	-0.883
375	-1.043	990	-1.815	3015	0.21	3630	-0.871	4245	-0.871
390	-1.07	1005	-1.855	3030	0.257	3645	-0.861	4260	-0.861
405	-1.095	1020	-1.878	3045	0.301	3660	-0.832	4275	-0.832
420	-1.101	1035	-1.922	3060	0.341	3675	-0.824	4290	-0.824
435	-1.104	1050	-1.936	3075	0.361	3690	-0.83	4305	-0.83
450	-1.112	1065	-1.954	3090	0.359	3705	-0.848	4320	-0.848
465	-1.091	1080	-1.944	3105	0.343	3720	-0.865	4335	-0.865
480	-1.077	1095	-1.933	3120	0.292	3735	-0.895	4350	-0.895
495	-1.049	1110	-1.906	3135	0.233	3750	-0.93	4365	-0.93
510	-0.992	1125	-1.852	3150	0.15	3765	-0.974	4380	-0.974
525	-0.955	1140	-1.788	3165	0.043	3780	-1.015	4395	-1.015
540	-0.886	1155	-1.699	3180	-0.052	3795	-1.064	4410	-1.064
555	-0.829	1170	-1.589	3195	-0.165	3810	-1.113	4425	-1.113
570	-0.773	1185	-1.489	3210	-0.263	3825	-1.191	4440	-1.191
585	-0.723	1200	-1.392	3225	-0.356	3840	-1.263	4455	-1.263
600	-0.679	1215	-1.298	3240	-0.437	3855	-1.311	4470	-1.311

Appendix D- Water-Quality Results

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported: 02/06/09
	Client P.O.:	Date Completed: 02/06/09

WorkOrder: 0901601

February 06, 2009

Dear Andrea:

Enclosed within are:

1) The results of the **6** analyzed samples from your project: **#FCI2008.12.101; WHPA Drilling,**
2) A QC report for the above samples,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

0901601

Mirant Corporation
Chain of Custody
3201 Wilbur Avenue
Antioch, CA 94509
Phone 925-427-3554 Fax 925-427-3511

Laboratory: **McCampbell Anayltical**
Maria Venegas
1534 Willow Pass Road
Pittsburg, CA **Phone: 925-252-9262** **Fax: 925-252-9269**

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Andrea Ricci

California EDF Report? ☐ Yes ■ No

Company / Address: 696 West 10th St, Pittsburg, CA 94565

Recommended but not mandatory to complete this section:

Sampling Company Log Code: 090130AK1

Phone No.: (925) 427-3554 **Fax No.:** (925) 427-3511

Global ID:

Project Number: FCI 2008.12.101 **P.O. No.:**

EDF Deliverable To (Email Address): andrea.ricci@mirant.com

Project Name: WHPA Drilling

Sampler Signature: [signature]

Project Address: Contra Costa Power Plant, Pittsburg, CA 94509

Sample Designation	Date	Time	40 ml VOA	250 ml AMBER	1L HDPE	1L AMBER	500 mL HDPE	250 mL HDPE	120 ml Plastic	HCl	HNO_3	ICE	$Na_2S_2O_3$	H_2SO_4	NaOH	WATER	SOIL	Volatile Organic Compounds EPA Method 8260	TPH-gas, diesel, Waste Oil (EPA 8260 & 8015mod)	CAM 17 metals (dissolved) Field Filtered	PAHs (EPA Method 8270c)	Total Dissolved Solids (TDS) EPA Method 2540C	Dioxins added 2/2/09 per email!	TAT	For Lab Use Only
WS-04	1/30	1335	X			X				X	X					X		X	X	X	X	X			
WS-05		1600	X			X				X	X					X		X	X	X	X	X	X		
WS 06		1235	X			X				X	X					X		X	X	X	X	X			
WS-07		1110	X			X				X	X					X		X	X	X	X	X			
WS 09		1450	X			X				X	X					X		X	X	X	X	X			
FB-01		1110	X															X							

TAT: 12hr / 24hr / 48hr / 72hr / 1wk / 2wk / Mix

Relinquished by:	Date	Time	Received by:
[signature]	1/30	1713	[signature]
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks: Five Day TAT Requested

Please also send pdf of test results to fci2000@sbcglobal.net

Bill to: Mirant Corporation c/o Andrea Ricci
696 West 10th Street, Pittsburg, CA

ICE/t° 2.4
GOOD CONDITION ___ APPROPRIATE
HEAD SPACE ABSENT ___ CONTAINERS ___
DECHLORINATED IN LAB ___ PRESERVED IN LAB ___
PRESERVATION VOAS | O & G | METALS | OTHER

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0901601 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: #FCI2008.12.101; WHPA Drilling, Contra Costa Power

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **01/30/2009**
Date Printed: **02/02/2009**

Requested Tests (See legend below)

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
0901601-001	WS-04	Water	1/30/2009 13:35		A	D	C		B	E						
0901601-002	WS-05	Water	1/30/2009 16:00		A	D	C	D	B	E						
0901601-003	WS-06	Water	1/30/2009 12:35		A	D	C		B	E						
0901601-004	WS-07	Water	1/30/2009 11:10		A	D	C		B	E						
0901601-005	WS-09	Water	1/30/2009 14:50		A	D	C		B	E						
0901601-006	FB-01	Water	1/30/2009 11:10		A											

Test Legend:

1	**8260B_W**	**2**	**8270D-PNA_W**	**3**	**CAM17MS_DISS**	**4**	**DIOXIN_W**	**5**	**G-MBTEX_W**
6	**TDS_W**	**7**		**8**		**9**		**10**	
11		**12**							

The following SampIDs: 001B, 002B, 003B, 004B, 005B contain testgroup.

Prepared by: Ana Venegas

Comments: Per Craig Fletcher's request, WS-05 is subbed out for Dioxin. 2/2/09 OC

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Sample Receipt Checklist

Client Name:	**Mirant Corporation**	Date and Time Received:	**01/30/09 5:31:05 PM**
Project Name:	**#FCI2008.12.101; WHPA Drilling, Contra Costa Po**	Checklist completed and reviewed by:	Ana Venegas
WorkOrder N°:	**0901601** Matrix Water	Carrier:	Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes	No	
Chain of custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample labels?	Yes	No	
Sample IDs noted by Client on COC?	Yes	No	
Date and Time of collection noted by Client on COC?	Yes	No	
Sampler's name noted on COC?	Yes	No	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	No	NA
Shipping container/cooler in good condition?	Yes	No	
Samples in proper containers/bottles?	Yes	No	
Sample containers intact?	Yes	No	
Sufficient sample volume for indicated test?	Yes	No	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	No	
Container/Temp Blank temperature	Cooler Temp:	2.4°C	NA
Water - VOA vials have zero headspace / no bubbles?	Yes	No	No VOA vials submitted
Sample labels checked for correct preservation?	Yes	No	
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes	No	NA
Samples Received on Ice?	Yes	No	
	(Ice Type: WET ICE)		

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 02/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0901601

Lab ID: 0901601-001A
Client ID: WS-04
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	103	%SS2:	95
%SS3:	77		

Comments: b1

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment

DHS ELAP Certification 1644 Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 02/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0901601

Lab ID: 0901601-002A
Client ID: WS-05
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	97	%SS2:	94
%SS3:	80		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment

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Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 02/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0901601

Lab ID: 0901601-003A
Client ID: WS-06
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	1.2	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	90	%SS2:	93
%SS3:	79		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 02/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0901601

Lab ID: 0901601-004A
Client ID: WS-07
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	90	%SS2:	94
%SS3:	81		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled:	01/30/09
696 West 10th Street		Date Received:	01/30/09
	Client Contact: Andrea Ricci	Date Extracted:	02/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	02/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0901601

Lab ID: 0901601-005A
Client ID: WS-09
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	92	%SS2:	93
%SS3:	80		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 02/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0901601

Lab ID: 0901601-006A
Client ID: FB-01
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	89	%SS2:	94
%SS3:	79		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled:	01/30/09
696 West 10th Street		Date Received:	01/30/09
	Client Contact: Andrea Ricci	Date Extracted:	01/30/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	02/02/09-02/03/09

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Extraction Method: SW3510C Analytical Method: SW8270C Work Order: 0901601

Lab ID	0901601-001D	0901601-002D	0901601-003D	0901601-004D	Reporting Limit for DF =1	
Client ID	WS-04	WS-05	WS-06	WS-07		
Matrix	W	W	W	W		
DF	1	1	1	1	S	W
Compound		**Concentration**			ug/kg	µg/L
Acenaphthene	ND	ND	ND	ND	NA	0.5
Acenaphthylene	ND	ND	ND	ND	NA	0.5
Anthracene	ND	ND	ND	ND	NA	0.5
Benzo(a)anthracene	ND	ND	ND	ND	NA	0.5
Benzo(a)pyrene	ND	ND	ND	ND	NA	0.5
Benzo(b)fluoranthene	ND	ND	ND	ND	NA	0.5
Benzo(k)fluoranthene	ND	ND	ND	ND	NA	0.5
Benzo(g,h,i)perylene	ND	ND	ND	ND	NA	0.5
Chrysene	ND	ND	ND	ND	NA	0.5
Dibenzo(a,h)anthracene	ND	ND	ND	ND	NA	0.5
Fluoranthene	ND	ND	ND	ND	NA	0.5
Fluorene	ND	ND	ND	ND	NA	0.5
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	NA	0.5
1-Methylnaphthalene	ND	ND	ND	ND	NA	0.5
2-Methylnaphthalene	ND	ND	ND	ND	NA	0.5
Naphthalene	ND	ND	ND	ND	NA	0.5
Phenanthrene	ND	ND	ND	ND	NA	0.5
Pyrene	ND	ND	ND	ND	NA	0.5
Surrogate Recoveries (%)						
%SS1	90	91	88	92		
%SS2	83	85	78	86		
Comments	b1					

* water samples in µg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

#) surrogate diluted out of range; &) low or no surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 01/30/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/02/09-02/03/09

Polynuclear Aromatic Hydrocarbons (PAHs / PNAs) using SIM Mode by GC/MS

Extraction Method: SW3510C Analytical Method: SW8270C Work Order: 0901601

			Reporting Limit for DF =1	
Lab ID	0901601-005D			
Client ID	WS-09			
Matrix	W			
DF	1		S	W
Compound		**Concentration**	ug/kg	µg/L
Acenaphthene	ND		NA	0.5
Acenaphthylene	ND		NA	0.5
Anthracene	ND		NA	0.5
Benzo(a)anthracene	ND		NA	0.5
Benzo(a)pyrene	ND		NA	0.5
Benzo(b)fluoranthene	ND		NA	0.5
Benzo(k)fluoranthene	ND		NA	0.5
Benzo(g,h,i)perylene	ND		NA	0.5
Chrysene	ND		NA	0.5
Dibenzo(a,h)anthracene	ND		NA	0.5
Fluoranthene	ND		NA	0.5
Fluorene	ND		NA	0.5
Indeno (1,2,3-cd) pyrene	ND		NA	0.5
1-Methylnaphthalene	ND		NA	0.5
2-Methylnaphthalene	ND		NA	0.5
Naphthalene	ND		NA	0.5
Phenanthrene	ND		NA	0.5
Pyrene	ND		NA	0.5
Surrogate Recoveries (%)				
%SS1	90			
%SS2	82			

Comments

* water samples in µg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

#) surrogate diluted out of range; &) low or no surrogate due to matrix interference.

b1) aqueous sample that contains greater than ~1 vol. % sediment

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received 01/30/09
	Client Contact: Andrea Ricci	Date Extracted 01/30/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/03/09

CAM / CCR 17 Metals*

ICP-MS Metals, Concentration*

Analytical Method: E200.8 Extraction Method: E200.8 Work Order: 0901601

Lab ID	0901601-001C	0901601-002C	0901601-003C	0901601-004C	Reporting Limit for DF =1; ND means not detected above the reporting limit	
Client ID	WS-04	WS-05	WS-06	WS-07		
Matrix	W	W	W	W	S	W
Extraction Type	DISS.	DISS.	DISS.	DISS.	mg/kg	µg/L
Dilution Factor	1	1	1	1	1	1
Antimony	ND	ND	ND	ND	NA	0.5
Arsenic	15	9.1	1.7	4.4	NA	0.5
Barium	54	24	89	28	NA	5.0
Beryllium	ND	ND	ND	ND	NA	0.5
Cadmium	ND	ND	ND	ND	NA	0.25
Chromium	ND	ND	ND	2.1	NA	0.5
Cobalt	ND	ND	0.50	ND	NA	0.5
Copper	ND	ND	ND	ND	NA	0.5
Lead	ND	ND	ND	ND	NA	0.5
Mercury	ND	ND	ND	ND	NA	0.012
Molybdenum	14	13	120	57	NA	0.5
Nickel	2.2	0.82	3.5	7.4	NA	0.5
Selenium	ND	ND	24	ND	NA	0.5
Silver	ND	ND	ND	ND	NA	0.19
Thallium	ND	ND	ND	ND	NA	0.5
Vanadium	ND	ND	1.3	ND	NA	0.5
Zinc	ND	ND	ND	ND	NA	5.0
%SS:	N/A	N/A	N/A	N/A		

Comments

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received 01/30/09
	Client Contact: Andrea Ricci	Date Extracted 01/30/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/03/09

CAM / CCR 17 Metals*

Reporting Limit for DF =1;
ND means not detected
above the reporting limit

ICP-MS Metals, Concentration*

Analytical Method: E200.8 Extraction Method: E200.8 Work Order: 0901601

Lab ID	0901601-005C		
Client ID	WS-09		
Matrix	W	S	W
Extraction Type	DISS.	mg/kg	μg/L
Dilution Factor	1	1	1
Antimony	ND	NA	0.5
Arsenic	7.0	NA	0.5
Barium	20	NA	5.0
Beryllium	ND	NA	0.5
Cadmium	ND	NA	0.25
Chromium	ND	NA	0.5
Cobalt	ND	NA	0.5
Copper	ND	NA	0.5
Lead	ND	NA	0.5
Mercury	ND	NA	0.012
Molybdenum	26	NA	0.5
Nickel	1.4	NA	0.5
Selenium	7.2	NA	0.5
Silver	ND	NA	0.19
Thallium	ND	NA	0.5
Vanadium	1.2	NA	0.5
Zinc	ND	NA	5.0
%SS:	N/A		

Comments

*water samples are reported in μg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in μg/wipe, filter samples in μg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 02/02/09-02/05/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/02/09-02/05/09

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*

Extraction method SW5030B Analytical methods SW8015Bm Work Order: 0901601

Lab ID	Client ID	Matrix	TPH(g)	DF	% SS
001B	WS-04	W	ND,b1	1	94
002B	WS-05	W	ND	1	94
003B	WS-06	W	ND	1	100
004B	WS-07	W	ND	1	98
005B	WS-09	W	ND	1	96

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

b1) aqueous sample that contains greater than ~1 vol. % sediment

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 02/04/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 02/05/09

Total Dissolved Solids*

Analytical Method: SM2540C Work Order: 0901601

Lab ID	Client ID	Matrix	Total Dissolved Solids	DF
0901601-001E	WS-04	W	1410,b1	1
0901601-002E	WS-05	W	934	1
0901601-003E	WS-06	W	2200	1
0901601-004E	WS-07	W	1270	1
0901601-005E	WS-09	W	1490	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* water samples reported in mg/L.

b1) aqueous sample that contains greater than ~1 vol. % sediment

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AR

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Mirant Corporation	Client Project ID: #FCI2008.12.101; WHPA Drilling, Contra Costa Power	Date Sampled: 01/30/09
696 West 10th Street		Date Received: 01/30/09
	Client Contact: Andrea Ricci	Date Extracted: 01/30/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 01/30/09-01/31/09

Total Extractable Petroleum Hydrocarbons*

Extraction method: SW3510C Analytical methods: SW8015B Work Order: 0901601

Lab ID	Client ID	Matrix	TPH-Diesel (C10-C23)	TPH-Motor Oil (C18-C36)	DF	% SS
0901601-001B	WS-04	W	ND,b1	ND	1	99
0901601-002B	WS-05	W	ND	ND	1	104
0901601-003B	WS-06	W	ND	ND	1	104
0901601-004B	WS-07	W	ND	ND	1	105
0901601-005B	WS-09	W	ND	ND	1	106

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	250	μg/L
	S	NA	NA	mg/Kg

* water samples are reported in μg/L, wipe samples in μg/wipe, soil/solid/sludge samples in mg/kg, product/oil/non-aqueous liquid samples in mg/L, and all DISTLC / STLC / SPLP / TCLP extracts are reported in μg/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

b1) aqueous sample that contains greater than ~1 vol. % sediment

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 41103 | WorkOrder 0901601

EPA Method SW8260B | **Extraction SW5030B** | **Spiked Sample ID: 0901601-005A**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	83.3	85.6	2.71	90.6	90.3	0.344	70 - 130	30	70 - 130	30
Benzene	ND	10	111	113	1.79	115	117	1.66	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	73.1	83.7	13.5	87.1	93	6.48	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	96.6	97.4	0.820	100	102	1.38	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	95.7	98	2.30	103	103	0	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	81.8	81.6	0.240	91.8	90.2	1.78	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	84.1	84.3	0.338	89.4	89.4	0	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	111	112	0.886	116	118	1.80	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	101	104	2.66	111	111	0	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	85.3	88.5	3.69	94	94.7	0.748	70 - 130	30	70 - 130	30
Toluene	ND	10	112	112	0	118	119	1.27	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	94.7	95	0.341	96.2	98.5	2.32	70 - 130	30	70 - 130	30
%SS1:	92	25	87	84	3.46	90	89	1.03	70 - 130	30	70 - 130	30
%SS2:	93	25	92	93	0.546	94	94	0	70 - 130	30	70 - 130	30
%SS3:	80	2.5	83	82	1.21	93	90	2.89	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 41103 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901601-001A	01/30/09 1:35 PM	02/02/09	02/02/09 12:23 PM	0901601-002A	01/30/09 4:00 PM	02/02/09	02/02/09 1:19 PM
0901601-003A	01/30/09 12:35 PM	02/02/09	02/02/09 4:36 PM	0901601-004A	01/30/09 11:10 AM	02/02/09	02/02/09 2:41 PM
0901601-005A	01/30/09 2:50 PM	02/02/09	02/02/09 3:20 PM	0901601-006A	01/30/09 11:10 AM	02/02/09	02/02/09 3:58 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 41116 | WorkOrder 0901601

EPA Method SW8021B/8015Bm | **Extraction SW5030B** | **Spiked Sample ID: 0901601-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	98.3	98.1	0.170	98.8	98.1	0.758	70 - 130	20	70 - 130	20
MTBE	ND	10	127	117	8.32	115	117	1.99	70 - 130	20	70 - 130	20
Benzene	ND	10	99.4	98.3	1.08	96.5	97.2	0.717	70 - 130	20	70 - 130	20
Toluene	ND	10	110	109	0.730	107	107	0	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	108	107	1.56	105	106	0.289	70 - 130	20	70 - 130	20
Xylenes	ND	30	120	119	1.21	117	117	0	70 - 130	20	70 - 130	20
%SS:	94	10	93	94	1.41	94	97	2.98	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 41116 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901601-001B	01/30/09 1:35 PM	02/02/09	02/02/09 11:20 PM	0901601-002B	01/30/09 4:00 PM	02/05/09	02/05/09 1:55 AM
0901601-003B	01/30/09 12:35 PM	02/04/09	02/04/09 5:29 AM	0901601-004B	01/30/09 11:10 AM	02/03/09	02/03/09 12:59 AM
0901601-005B	01/30/09 2:50 PM	02/03/09	02/03/09 1:32 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

DHS ELAP Certification 1644 QA/QC Officer

McCampbell Analytical, Inc.
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Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SW8270C

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 41119 | WorkOrder 0901601

EPA Method SW8270C | **Extraction SW3510C** | **Spiked Sample ID: N/A**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Benzo(a)pyrene	N/A	10	N/A	N/A	N/A	80.6	81	0.539	N/A	N/A	30 - 130	30
Chrysene	N/A	10	N/A	N/A	N/A	89.4	91.2	1.99	N/A	N/A	30 - 130	30
1-Methylnaphthalene	N/A	10	N/A	N/A	N/A	130	130	0	N/A	N/A	30 - 130	30
2-Methylnaphthalene	N/A	10	N/A	N/A	N/A	129	130	0.319	N/A	N/A	30 - 130	30
Phenanthrene	N/A	10	N/A	N/A	N/A	110	112	1.72	N/A	N/A	30 - 130	30
Pyrene	N/A	10	N/A	N/A	N/A	109	110	0.631	N/A	N/A	30 - 130	30
%SS1:	N/A	5	N/A	N/A	N/A	88	92	4.58	N/A	N/A	30 - 130	30
%SS2:	N/A	5	N/A	N/A	N/A	78	84	7.36	N/A	N/A	30 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 41119 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901601-001D	01/30/09 1:35 PM	01/30/09	02/02/09 4:17 PM	0901601-002D	01/30/09 4:00 PM	01/30/09	02/02/09 5:37 PM
0901601-003D	01/30/09 12:35 PM	01/30/09	02/03/09 9:35 AM	0901601-004D	01/30/09 11:10 AM	01/30/09	02/03/09 10:52 AM
0901601-005D	01/30/09 2:50 PM	01/30/09	02/03/09 12:10 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR E200.8

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 41118 WorkOrder: 0901601

EPA Method E200.8 **Extraction E200.8** **Spiked Sample ID: 0901480-008A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Antimony	ND	10	103	105	1.60	91.5	86.6	5.51	70 - 130	20	85 - 115	20
Arsenic	2.1	10	105	104	1.03	95.1	98.6	3.58	70 - 130	20	85 - 115	20
Barium	64	100	100	98.2	1.11	97.1	99.2	2.07	70 - 130	20	85 - 115	20
Beryllium	ND	10	100	102	2.38	108	103	5.02	70 - 130	20	85 - 115	20
Cadmium	ND	10	103	97.6	4.94	94.8	98.6	3.95	70 - 130	20	85 - 115	20
Chromium	ND	10	98.8	97.8	0.889	96	97.3	1.36	70 - 130	20	85 - 115	20
Cobalt	ND	10	98.4	97.2	1.29	94.6	101	6.29	70 - 130	20	85 - 115	20
Copper	9.2	10	94.4	95.7	0.695	89.3	89.7	0.447	70 - 130	20	85 - 115	20
Lead	ND	10	104	109	4.80	96	97.5	1.59	70 - 130	20	85 - 115	20
Mercury	ND	0.25	111	112	0.359	93.3	102	8.77	70 - 130	20	85 - 115	20
Molybdenum	3.2	10	97.9	105	5.33	93.3	94.8	1.65	70 - 130	20	85 - 115	20
Nickel	1.1	10	95.3	97.2	1.78	95.6	97	1.46	70 - 130	20	85 - 115	20
Selenium	0.71	10	102	99.9	1.58	95	95	0	70 - 130	20	85 - 115	20
Silver	ND	10	93.2	93.6	0.407	103	104	1.93	70 - 130	20	85 - 115	20
Thallium	ND	10	98.9	95.4	3.59	102	104	2.82	70 - 130	20	85 - 115	20
Vanadium	3.9	10	97.8	99.4	1.17	95	95.4	0.389	70 - 130	20	85 - 115	20
Zinc	5.5	100	93.7	99.3	5.52	92.7	98.1	5.60	70 - 130	20	85 - 115	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 41118 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901601-001C	01/30/09 1:35 PM	01/30/09	02/03/09 1:22 AM	0901601-002C	01/30/09 4:00 PM	01/30/09	02/03/09 1:30 AM
0901601-003C	01/30/09 12:35 PM	01/30/09	02/03/09 12:58 AM	0901601-003C	01/30/09 12:35 PM	01/30/09	02/03/09 1:39 AM
0901601-004C	01/30/09 11:10 AM	01/30/09	02/03/09 1:47 AM	0901601-005C	01/30/09 2:50 PM	01/30/09	02/03/09 1:55 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

JR QA/QC Officer

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Dissolved Solids **Matrix: W** **WorkOrder: 0901601**

Method Name: SM2540C Units mg/L BatchID: 41081

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0901601-001E	1410	1	1410	1	0.354	<20
0901601-002E	934	1	926	1	0.86	<20
0901601-003E	2200	1	2200	1	0.182	<20
0901601-004E	1270	1	1260	1	0.713	<20
0901601-005E	1490	1	1470	1	1.36	<20

BATCH 41081 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901601-001E	01/30/09 1:35 PM	02/04/09	02/05/09 5:25 PM	0901601-002E	01/30/09 4:00 PM	02/04/09	02/05/09 5:35 PM
0901601-003E	)1/30/09 12:35 PM	02/04/09	02/05/09 5:45 PM	0901601-004E	)1/30/09 11:10 AM	02/04/09	02/05/09 5:55 PM
0901601-005E	01/30/09 2:50 PM	02/04/09	02/05/09 6:05 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 41068 WorkOrder: 0901601

EPA Method SW8015B **Extraction SW3510C** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	98.8	100	1.54	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	101	103	1.39	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 41068 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901601-001B	01/30/09 1:35 PM	01/30/09	01/30/09 8:57 PM	0901601-002B	01/30/09 4:00 PM	01/30/09	01/30/09 10:04 PM
0901601-003B	01/30/09 12:35 PM	01/30/09	01/30/09 11:10 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SW8015B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 41117 | WorkOrder: 0901601

EPA Method SW8015B | **Extraction SW3510C** | **Spiked Sample ID: N/A**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
TPH-Diesel (C10-C23)	N/A	1000	N/A	N/A	N/A	102	102	0	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	98	97	0.689	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 41117 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901601-004B	01/30/09 11:10 AM	01/30/09	01/31/09 12:17 AM	0901601-005B	01/30/09 2:50 PM	01/30/09	01/31/09 1:23 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

McCampbell Analytical, Inc.

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID:	WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street			Date Received:	03/31/09
Pittsburg, CA 94565	Client Contact:	Andrea Ricci	Date Reported:	04/07/09
	Client P.O.:		Date Completed:	04/07/09

WorkOrder: 0903753

April 07, 2009

Dear Andrea:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **WHPA Drilling,**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

Mirant Corporation
Chain of Custody 0903753
696 West 10th St
Pittburg, CA 94565
Phone 925-427-3554 Fax 925-427-3511

Laboratory: **Mc Cambell Anayltical**
Maria Venegas
1534 Willow Pass Road
Pittsburg, CA Phone: 925-252-9262 Fax: 925-252-9269

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Andrea Ricci

Company / Address: 696 West 10th St, Pittsburg, CA 94565

Phone No.: (925) 427-3554 **Fax No.:** (925) 427-3511

Project Number: **P.O. No.:**

Project Name: WHPA Drilling

Project Address: Pittsburg Power Plant Pittsburg, CA 94565

California EDF Report? ☐ Yes ■ No

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Global ID:

EDF Deliverable To (Email Address): andrea.ricci@mirant.com

Sampler Signature:

Sample Designation	Sampling Date	Sampling Time	40 ml VOA	125 mL HDPE	1L HDPE	1L AMBER	500 mL HDPE	250 mL HDPE	120 ml Plastic	HCl	HNO_3	NaOH	$Na_2S_2O_3$	H_2SO_4	WATER	SOIL		Alkalinity	Carbon dioxide, TOC, DOC, COD	Chlorine	Specific Conductivity, pH, TDS	TSS	Color, Turbidity, BOD, DO	Oil and Grease	Metals - Al, Cu, Ba, Fe, Mn, Sr, Se, As, Hg, Ni, Si, Pb, Cr, Ca, Mg, Na, Reactive Silica, Hardness	300-1 - Chloride, fluoride, nitrate	Total Phosphorous (365.1), Ammonium	UV254	Total Coliform	VOC	Salinity		TAT (12hr, 24hr, 48hr, 72hr, 1wk, 2wk, Mix)	For Lab Use Only
River	3/31/09	0900					X								X			X															####	
River			X							X		X		X	X				X														####	
River						X									X					X													####	
River							X								X						X												####	
River					X										X							X											####	
River					X	X	X	X							X								X										####	
River						X				X					X									X									####	
River			X				X	X		X	X				X										X								####	
River				X							X				X											X							####	
River						X								X	X												X						####	
River			X												X													X					####	
River									X				X		X														X				####	
River			X							X					X															X			####	
River				X											X																X		####	

Relinquished by:	Date	Time	Received by:
	3/31	12:15	
Relinquished by:	**Date**	**Time**	**Received by:**
Relinquished by:	**Date**	**Time**	**Received by Laboratory:**

Remarks:

ICE / t° 16.2, No
GOOD CONDITION ✓ APPROPRIATE CONTAINERS ✓
HEAD SPACE ABSENT
DECHLORINATED IN LAB PRESERVED IN LAB
PRESERVATION VOAS O & G METALS OTHER H_2SO_4/NaOH

Bill to: Mirant Corporation c/o Andrea Ricci
696 West 10th Street, Pittsburg, CA

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903753 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **03/31/2009**
Date Printed: **03/31/2009**

Requested Tests (See legend below)

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
0903753-001	River	Water	3/31/2009 9:00		L	R	A	C	S	O	Q	D	M	T	F	K

Test Legend:

1	300_1_W	2	5520B_SG_W	3	8260B_W	4	Alka(spe)_W	5	AMMONIUM_W
6	BOD_W	7	CHLORINE1_W	8	COD_W	9	COLOR_W	10	DO_W
11	DOC_W	12	HARDMS_W						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903753 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **03/31/2009**
Date Printed: **03/31/2009**

Lab ID	Client ID	Matrix	Collection Date	Hold	13	14	15	16	17	18	19	20	21	22	23	24
					Requested Tests (See legend below)											
0903753-001	River	Water	3/31/2009 9:00		E	K	C	I	N	K	H	N	B	S	P	J

Test Legend:

13	IC(CO2)_W	14	METALSMS_W	15	REACTSI_W	16	SALINITY_W	17	SC_W
18	SILICA_W	19	TCEC-Enum_W	20	TDS_W	21	TOC_W	22	TotalP_W
23	TSS_W	24	TURBIDITY_W						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903753 **ClientCode: MCP**

WriteOn	EDF	Excel	Fax	Email	HardCopy	ThirdParty	J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: 5 days

Date Received: 03/31/2009
Date Printed: 03/31/2009

Requested Tests (See legend below)

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
0903753-001	River	Water	3/31/2009 9:00		G											

Test Legend:

1	UV254_W	2		3		4		5	
6		7		8		9		10	
11		12							

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name:	**Mirant Corporation**	Date and Time Received	**03/31/09 1:29:34 PM**
Project Name:	**WHPA Drilling**	Checklist completed and reviewed by:	Maria Venegas
WorkOrder N°:	**0903753** Matrix Water	Carrier:	Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes	N	
Chain of custody signed when relinquished and received?	Yes	N	
Chain of custody agrees with sample labels?	Yes	N	
Sample IDs noted by Client on COC?	Yes	No	
Date and Time of collection noted by Client on COC?	Yes	No	
Sampler's name noted on COC?	Yes	No	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	N	NA
Shipping container/cooler in good condition?	Yes	N	
Samples in proper containers/bottles?	Yes	N	
Sample containers intact?	Yes	N	
Sufficient sample volume for indicated test?	Yes	N	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	N	
Container/Temp Blank temperature	Cooler Temp:	16.2°C	NA
Water - VOA vials have zero headspace / no bubbles?	Yes	N	No VOA vials submitted
Sample labels checked for correct preservation?	Yes	No	
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes	N	NA
Samples Received on Ice?	Yes	N	

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received 03/31/09
	Client Contact: Andrea Ricci	Date Extracted 03/31/09-04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyze 03/31/09-04/01/09

Inorganic Anions by IC*

Extraction method E300.1 Analytical methods E300.1 Work Order: 0903753

Lab ID	Client ID	Matrix	Chloride	DF	Fluoride	DF	Nitrate as N	DF	Nitrate as $NO3^-$	DF	% SS
001L	River	W	55	20	ND	1	0.41	1	1.8	1	96
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	0.1		0.1		0.1		0.45		mg/L
		S	NA		NA		NA		NA		mg/Kg

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as $NO3^-$] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

DHS ELAP Certification 1644 Angela Rydelius, Lab Manager

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696 West 10th Street	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
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Petroleum Oil & Grease with Silica Gel Clean-Up*

Extraction method SM5520B/F   Analytical methods SM5520B/F   Work Order: 0903753

Lab ID	Client ID	Matrix	POG	DF	% SS
0903753-001R	River	W	ND	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	Matrix	POG	Units
	W	5.0	mg/L
	S	NA	NA

* water samples and all TCLP & SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

DF = dilution factor (may be raised to dilute target analyte or matrix interference).

surrogate diluted out of range or not applicable to this sample.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B   Analytical Method: SW8260B   Work Order: 0903753

Lab ID: 0903753-001A
Client ID: River
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	80	%SS2:	88
%SS3:	85		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/01/09

Total & Speciated Alkalinity as Calcium Carbonate*

Extraction method SM2320B Analytical methods SM2320B Work Order: 0903753

Lab ID	Client ID	Matrix	Total*	Carbonate*	Bicarbonate*	Hydroxide*	DF
001C	River	W	80.0	ND	80.0	ND	1

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	1.0	1.0	1.0	1.0	mg CaCO3/L
	S	NA	NA	NA	NA	mg/Kg

*water samples are reported in mg calcium carbonate/L. Hydroxide, Carbonate & Bicarbonate alkalinity measure @ end-point of pH = 8.3 & 4.5 per SM2320B.

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Ammonium as N*

Analytical Method: E350.1 Work Order: 0903753

Lab ID	Client ID	Matrix	Total Ammonium as N	DF
0903753-001S	River	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.2 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 03/31/09-04/05/09

Biochemical Oxygen Demand (BOD)*

Analytical Method: SM5210B Work Order: 0903753

Lab ID	Client ID	Matrix	BOD	DF
0903753-001O	River	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	4.0 mg/L
	S	NA

* water samples are reported in mg/L.

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Chlorine, Total Residual*

Analytical Method: SM4500-Cl DE

Work Order: 0903753

Lab ID	Client ID	Matrix	Chlorine	DF
0903753-001Q	River	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

* water samples are reported in mg/L, soil samples are extracted using DISTLC and rotate for a very short time due to stablibilty of chlorine and reported in mg/kg.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

Chemical Oxygen Demand (COD)*

Analytical Method: E410.4 Work Order: 0903753

Lab ID	Client ID	Matrix	COD	DF
0903753-001D	River	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

Apparent Color*

Analytical Method: SM2120B

Work Order: 0903753

Lab ID	Client ID	Matrix	Apparent Color	DF
0903753-001M	River	W	77	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.0 Color Units
	S	NA

* water samples are reported in Color Units.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 03/31/09

Dissolved Oxygen

Analytical Method: SM4500OG   Work Order: 0903753

Lab ID	Client ID	Matrix	Dissolved Oxygen	DF
0903753-001T	River	W	9.51 @ 21.0 °C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg DO/L @ °C
	S	NA

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	Client Contact: Andrea Ricci	Date Extracted: 04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Dissolved Organic Carbon (DOC)*

Analytical Method: E415.3 Work Order: 0903753

Lab ID	Client ID	Matrix	Dissolved Organic Carbon	DF
0903753-001F	River	W	5.2	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.7 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Hardness*

Extraction method E200.8 Analytical methods SM2340B Work Order: 0903753

Lab ID	Client ID	Matrix	Extraction Type	Hardness	DF	% SS
0903753-001K	River	W	TOTAL	94.0	20	102

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	1.0	mg CaCO3/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in mg CaCO3/L.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Inorganic Carbon as Carbon Dioxide*

Analytical Method: E415.3 Work Order: 0903753

Lab ID	Client ID	Matrix	IC as CO2	DF
0903753-001E	River	W	71	5

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	3.7 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

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Metals*

Lab ID: 0903753-001K
Client ID: River
Matrix: W
Extraction Type: TOTAL

Reporting Limit for DF =1; ND means not detected above the reporting limit

ICP-MS Metals, Concentration*

Analytical Method: E200.8 Extraction Method: E200.8 Work Order: 0903753

	0903753-001K	S (mg/kg)	W (µg/L)
Dilution Factor	1	1	1
Aluminum	970	NA	50
Arsenic	2.4	NA	0.5
Barium	26	NA	5.0
Calcium	17,000	NA	100
Chromium	2.4	NA	0.5
Copper	4.1	NA	0.5
Iron	1200	NA	20
Lead	0.58	NA	0.5
Magnesium	13,000	NA	20
Manganese	26	NA	20
Mercury	ND	NA	0.012
Nickel	3.6	NA	0.5
Selenium	ND	NA	0.5
Sodium	41,000	NA	100
Strontium	160	NA	20
%SS:	106		

Comments

*water samples are reported in ug/L, product/oil/non-aqueous liquid samples and all TCLP / WET / DI WET / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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pH

Analytical Method: SM4500H+B Work Order: 0903753

Lab ID	Client ID	Matrix	pH	DF
0903753-001M	River	W	7.57 @ 23.1 °C	1

Method Accuracy and Reporting Units	W	±0.05, pH units @ °C
	S	NA

* EPA method 9040; pH = -log(aH+) @ _°C; ± 0.05 units

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Reactive Silica*

Analytical Method: SM4500-SiO2 D — Work Order: 0903753

Lab ID	Client ID	Matrix	Reactive Silica	DF
0903753-001C	River	W	18	10

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.05 mg/L
	S	NA

*water samples are reported in mg/L.

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	Client Contact: Andrea Ricci	Date Extracted:	04/06/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/06/09

Salinity*

Analytical Method: SM2520B

Work Order: 0903753

Lab ID	Client ID	Matrix	Salinity	DF
0903753-001I	River	W	240 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* Salinity (mg/L) = 0.64 * S.C.(µmhos/cm @ 25°C) per SSSA volume 5 part 3.

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Specific Conductivity*

Analytical Method: SM2510B

Work Order: 0903753

Lab ID	Client ID	Matrix	Specific Conductivity	DF
0903753-001N	River	W	374 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 µmhos/cm @ 25°C
	S	NA

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Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Silicon*

Extraction method E200.7 Analytical methods 200.7 Work Order: 0903753

Lab ID	Client ID	Matrix	Extraction Type	Silicon	DF	% SS
0903753-001K	River	W	TOTAL	11,000	10	113

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	50	µg/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09

Total Coliform / E. Coli, Enumeration

Analytical Method: SM9223B

Work Order: 0903753

Lab ID	Client ID	Matrix	Total Coliform	95% Confident Interval	E. Coli	95% Confident Interval	DF
0903753-001H	River	W	140	98 - 190	20	12 - 32	1

Reporting Limit & Reporting Units	W	1.0 MPN/100ml
	S	NA

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/05/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/06/09

Total Dissolved Solids*

Analytical Method: SM2540C — Work Order: 0903753

Lab ID	Client ID	Matrix	Total Dissolved Solids	DF
0903753-001N	River	W	189	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* water samples reported in mg/L.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 03/31/09

Total Organic Carbon (TOC)*

Analytical Method: E415.3 Work Order: 0903753

Lab ID	Client ID	Matrix	TOC	DF
0903753-001B	River	W	9.6	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.3 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3. TOC is analyzed as NPOC.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/07/09

Total Phosphorous as P*

Analytical Method: E365.1 Work Order: 0903753

Lab ID	Client ID	Matrix	Total Phosphorous as P	DF
0903753-001S	River	W	0.20	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/01/09

Total Suspended Solids*

Analytical Method: SM2540D

Work Order: 0903753

Lab ID	Client ID	Matrix	Total Suspended Solids	DF
0903753-001P	River	W	13.1	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg/L
	S	NA

* water samples reported in mg/L.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

Turbidity

Analytical Method: SM2130B

Work Order: 0903753

Lab ID	Client ID	Matrix	Turbidity	DF
0903753-001J	River	W	18.7	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.1 NTU
	S	NA

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/02/09

UV-Absorbing Organic Constituents

Analytical Method: SM5910B Work Order: 0903753

Lab ID	Client ID	Matrix	UV254	DF
0903753-001G	River	W	0.20	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.02 cm^{-1}
	S	NA

UV254 Absorbance reporting limit 0.009 cm-1 is approximately the same as 0.5 mg/L Carbon of KHP standard.

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QC SUMMARY REPORT FOR E300.1

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42368 WorkOrder 0903753

EPA Method E300.1 **Extraction E300.1** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chloride	N/A	1	N/A	N/A	N/A	98.6	98.6	0	N/A	N/A	85 - 115	15
Fluoride	N/A	1	N/A	N/A	N/A	104	105	0.118	N/A	N/A	85 - 115	15
Nitrate as N	N/A	1	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
Nitrate as $NO3^-$	N/A	4.4	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
%SS:	N/A	0.10	N/A	N/A	N/A	92	93	0.271	N/A	N/A	90 - 115	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42368 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001L	03/31/09 9:00 AM	03/31/09	03/31/09 7:03 PM	0903753-001L	03/31/09 9:00 AM	04/01/09	04/01/09 4:01 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

surrogate diluted out of range or surrogate coelutes with another peak.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR E410.4

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42281 WorkOrder 0903753

EPA Method E410.4 **Extraction E410.4** **Spiked Sample ID: 0903652-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
COD	ND	400	102	100	1.78	107	104	2.27	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42281 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001D	03/31/09 9:00 AM	03/31/09	03/31/09 6:59 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42299 | WorkOrder 0903753

EPA Method E415.3 | **Extraction E415.3** | **Spiked Sample ID: 0903664-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
IC as CO2	360	36.7	89.2	85.2	0.376	98	99.8	1.83	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42299 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001E	03/31/09 9:00 AM	04/01/09	04/01/09 8:27 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E350.1

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42323 WorkOrder 0903753

EPA Method E350.1 **Extraction SM4500-NH3** **Spiked Sample ID: 0903676-012C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Ammonia as N	13	4	96.7	103	1.54	105	105	0	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42323 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001S	03/31/09 9:00 AM	04/02/09	04/02/09 4:24 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E200.8

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42348 | WorkOrder 0903753

EPA Method E200.8 | **Extraction E200.8** | **Spiked Sample ID: 0903703-002A**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Aluminum	ND	100	110	109	0.824	96.4	96.2	0.208	70 - 130	20	85 - 115	20
Arsenic	1.3	10	99.4	100	0.711	98.9	101	1.77	70 - 130	20	85 - 115	20
Barium	43	100	89.4	90.8	1.05	91.2	91.8	0.689	70 - 130	20	85 - 115	20
Calcium	30,000	1000	MR	NR	NR	96.7	91.3	5.71	70 - 130	20	85 - 115	20
Chromium	ND	10	103	102	1.44	107	108	1.30	70 - 130	20	85 - 115	20
Copper	11	10	93	94.3	0.639	98.8	99.9	1.15	70 - 130	20	85 - 115	20
Iron	ND	100	111	109	1.47	104	97.6	6.23	70 - 130	20	85 - 115	20
Lead	ND	10	98.9	97.7	1.22	100	100	0	70 - 130	20	85 - 115	20
Magnesium	15,000	100	NR	NR	NR	93.8	89.1	5.06	70 - 130	20	85 - 115	20
Manganese	ND	100	112	110	1.44	95.4	90.1	5.77	70 - 130	20	85 - 115	20
Mercury	ND	0.25	119	122	3.29	114	115	0.384	70 - 130	20	85 - 115	20
Nickel	1.3	10	92.8	92.1	0.661	97.5	100	2.68	70 - 130	20	85 - 115	20
Selenium	0.54	10	101	100	0.848	101	104	2.53	70 - 130	20	85 - 115	20
Sodium	55,000	1000	NR	NR	NR	105	99.2	5.64	70 - 130	20	85 - 115	20
Strontium	240	100	93.2	101	2.34	105	106	1.14	70 - 130	20	85 - 115	20
%SS:	105	750	103	103	0	102	105	3.79	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42348 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001K	03/31/09 9:00 AM	03/31/09	04/02/09 10:37 AM	0903753-001K	03/31/09 9:00 AM	03/31/09	04/02/09 10:46 AM
0903753-001K	03/31/09 9:00 AM	03/31/09	04/02/09 10:14 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5520B/F

W.O. Sample Matrix: Water   QC Matrix: Water   BatchID: 42376   WorkOrder 0903753

EPA Method SM5520B/F   **Extraction SM5520B/F**   **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
POG	N/A	20.83	N/A	N/A	N/A	95.8	93.3	2.64	N/A	N/A	70 - 130	25

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42376 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001R	03/31/09 9:00 AM	03/31/09	04/01/09 2:50 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42370 | WorkOrder 0903753

EPA Method SW8260B | **Extraction SW5030B** | **Spiked Sample ID: 0903753-001a**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	104	102	2.07	102	100	2.04	70 - 130	30	70 - 130	30
Benzene	ND	10	122	121	0.820	115	110	3.59	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	89.3	88.5	0.967	81.5	81.9	0.489	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	105	103	1.80	106	103	2.67	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	116	115	0.358	111	109	1.73	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	116	118	1.45	105	105	0	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	97	95.2	1.86	88.3	87	1.45	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	115	113	1.81	96.5	96	0.501	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	120	118	1.27	111	110	1.13	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	111	109	2.37	97.8	97.9	0.0521	70 - 130	30	70 - 130	30
Toluene	ND	10	115	112	3.08	122	118	3.18	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	124	120	3.39	119	118	0.491	70 - 130	30	70 - 130	30
%SS1:	80	25	83	82	1.13	75	76	1.49	70 - 130	30	70 - 130	30
%SS2:	88	25	100	100	0	108	108	0	70 - 130	30	70 - 130	30
%SS3:	85	2.5	77	75	3.03	101	100	0.752	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42370 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001A	03/31/09 9:00 AM	04/02/09	04/02/09 9:48 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Alkalinity **Matrix: W** **WorkOrder: 0903753**

Method Name: SM2320B Units mg CaCO3/L BatchID: 42295

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903753-001C	80.0	1	79.3	1	0.841	<20

BATCH 42295 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001C	03/31/09 9:00 AM	04/01/09	04/01/09 9:48 AM				

Test Method: Dissolved Oxygen **Matrix: W** **WorkOrder: 0903753**

Method Name: SM4500OG Units mg DO/L @ °C BatchID: 42377

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903753-001T	9.51 @ 21.0 °C	1	9.53 @ 21.0 °C	1	0.02	0.05

BATCH 42377 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001T	03/31/09 9:00 AM	03/31/09	03/31/09 3:10 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR SM5210B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42265 WorkOrder 0903753

EPA Method SM5210B **Extraction SM5210B** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
BOD	N/A	198	N/A	N/A	N/A	99	98.2	0.768	N/A	N/A	80 - 120	16

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42265 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001O	03/31/09 9:00 AM	03/31/09	04/06/09 11:26 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-Cl DE

W.O. Sample Matrix: Water   QC Matrix: Water   BatchID: 42317   WorkOrder 0903753

EPA Method SM4500-Cl DE   **Extraction SM4500-Cl DE**   **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chlorine	N/A	0.20	N/A	N/A	N/A	101	99.1	1.80	N/A	N/A	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42317 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001Q	03/31/09 9:00 AM	03/31/09	03/31/09 3:02 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2120B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42238 WorkOrder 0903753

EPA Method SM2120B **Extraction SM2120B** **Spiked Sample ID: 0903601-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	Color Units	Color Units	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
True Color	ND	40	105	106	0.960	101	101	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42238 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001M	03/31/09 9:00 AM	03/31/09	03/31/09 7:24 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder 0903753

EPA Method E415.3 **Extraction E415.3** **BatchID: 42372** **Spiked Sample ID 0903756-001F**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Dissolved Organic	12	50	94.6	105	8.66	60	112	112	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42372 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001F	03/31/09 9:00 AM	04/01/09	04/01/09 2:12 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2340B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42348 | WorkOrder 0903753

EPA Method SM2340B | **Extraction E200.8** | **Spiked Sample ID: 0903703-002A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Hardness	140	2.91	NR	NR	NR	96.2	89.3	7.41	70 - 130	20	85 - 115	20
%SS:	105	0.75	103	103	0	102	105	3.79	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42348 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001K	03/31/09 9:00 AM	03/31/09	04/02/09 10:37 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: pH **Matrix: W** **WorkOrder: 0903753**

Method Name: SM4500H+B Units ±, pH units @ °C BatchID: 42264

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903753-001M	7.57 @ 23.1 °C	1	7.56 @ 23.1 °C	1	0.01	0.02

BATCH 42264 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001M	03/31/09 9:00 AM	03/31/09	03/31/09 3:00 PM				

Test Method: Total Suspended Solids **Matrix: W** **WorkOrder: 0903753**

Method Name: SM2540D Units mg/L BatchID: 42283

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903753-001P	13.1	1	12.8	2	2.32	<15

BATCH 42283 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001P	03/31/09 9:00 AM	04/01/09	04/01/09 4:25 PM				

Test Method: Turbidity **Matrix: W** **WorkOrder: 0903753**

Method Name: SM2130B Units NTU BatchID: 42320

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903753-001J	18.7	1	19.0	1	1.59	<10

BATCH 42320 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001J	03/31/09 9:00 AM	03/31/09	03/31/09 3:40 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR SM4500-SiO2 D

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42371 | WorkOrder 0903753

EPA Method SM4500-SiO2 D **Extraction SM4500-SiO2 D** **Spiked Sample ID: 0903753-001C**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Reactive Silica	18	1	NR	NR	NR	103	105	1.97	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42371 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001C	03/31/09 9:00 AM	03/31/09	04/07/09 12:05 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Salinity | **Matrix: W** | **WorkOrder: 0903753**

Method Name: SM2520B | Units mg/L | BatchID: 42237

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903753-001I	240 @ 25.0°C	1	241 @ 25.0°C	1	0.453	<2

BATCH 42237 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001I	03/31/09 9:00 AM	04/06/09	04/06/09 1:10 PM	0903753-001N	03/31/09 9:00 AM	04/06/09	04/06/09 1:10 PM

Test Method: Specific Conductivity | **Matrix: W** | **WorkOrder: 0903753**

Method Name: SM2510B | Units µmhos/cm @ 25°C | BatchID: 42237

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903753-001N	374 @ 25.0°C	1	376 @ 25.0°C	1	0.453	<2

BATCH 42237 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001I	03/31/09 9:00 AM	04/06/09	04/06/09 1:10 PM	0903753-001N	03/31/09 9:00 AM	04/06/09	04/06/09 1:10 PM

Test Method: Total Dissolved Solids | **Matrix: W** | **WorkOrder: 0903753**

Method Name: SM2540C | Units mg/L | BatchID: 42375

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903753-001N	189	1	208	1	9.57	<20

BATCH 42375 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001N	03/31/09 9:00 AM	04/05/09	04/06/09 2:15 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR 200.7

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42369 | WorkOrder 0903753

EPA Method 200.7 | **Extraction E200.7** | **Spiked Sample ID: 0903703-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Silicon	8400	1000	NR	NR	NR	91.4	98.3	7.29	70 - 130	20	80 - 120	20
%SS:	98	750	96	94	1.82	99	99	0	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42369 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001K	03/31/09 9:00 AM	03/31/09	04/01/09 12:45 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Coliform / E. Coli, Enumeration **Matrix: W** **WorkOrder: 0903753**

Method Name: SM9223B BatchID: 42374

Lab ID	Analyte	Reporting Units	Sample	DF	Dup	DF	% RPD	Acceptance Criteria (%)
0903753-001H	E Coli	MPN/100ml	20	1	20	1	0	<70
	Total Coliform	MPN/100ml	140	1	210	1	41.6	<70

BATCH 42374 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001H	03/31/09 9:00 AM	03/31/09	03/31/09 4:33 PM				

% RPD = abs(Sample - Dup) / ((Sample + Dup) / 2) * 100

N/A = Not Applicable

NR = %RPD may fall outside of laboratory acceptance criteria due to sample inconsistency between two containers.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water | QC Matrix: Water | WorkOrder 0903753

EPA Method E415.3 | **Extraction E415.3** | **BatchID: 42351** | **Spiked Sample ID 0903756-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TOC	5.0	50	103	101	1.87	60	93.1	100	7.13	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42351 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001B	03/31/09 9:00 AM	03/31/09	03/31/09 9:32 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E365.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42301 | WorkOrder 0903753

EPA Method E365.1 | **Extraction E365.1** | **Spiked Sample ID: 0903664-004I**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Total Phosphorous as P	0.099	0.80	92	92.4	0.403	107	104	2.92	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42301 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001S	03/31/09 9:00 AM	03/31/09	04/07/09 1:17 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SM5910B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42373 WorkOrder 0903753

EPA Method SM5910B **Extraction SM5910B** **Spiked Sample ID: 0903756-001g**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	cm^{-1}	cm^{-1}	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
UV254	0.025	0.090	86	86.4	0.313	95.4	96.4	1.04	80 - 120	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42373 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903753-001G	03/31/09 9:00 AM	03/31/09	04/02/09 7:12 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

RD = Absolute Value {Sample - Duplicate}; RPD = 100 * (Sample - Duplicate) / (Sample + Duplicate) * 2.

Calibration formula used to calculate as Carbon mg/L KHP standard is UV254 Abs = 19.3559172 x Amt - 2.7206959

DHS ELAP Certification 1644 QA/QC Officer

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported: 04/07/09
	Client P.O.:	Date Completed: 04/06/09

WorkOrder: 0903756

April 07, 2009

Dear Andrea:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **WHPA Drilling,**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

Mirant Corporation
Chain of Custody
696 West 10th St
Pittburg, CA 94565
Phone 925-427-3554 Fax 925-427-3511

0903756

Laboratory: **Mc Cambell Anayltical**
Maria Venegas
1534 Willow Pass Road
Pittsburg, CA Phone: 925-252-9262 Fax: 925-252-9269

Page 1 of 1

Changed to Rush 4/1/09

RUSH

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Andrea Ricci	California EDF Report? ☐ Yes ■ No
Company / Address: 696 West 10th St, Pittsburg, CA 94565	Recommended but not mandatory to complete this section: Sampling Company Log Code:
Phone No.: (925) 427-3554 / Fax No.: (925) 427-3511	Global ID:
Project Number: / P.O. No.:	EDF Deliverable To (Email Address): andrea.ricci@mirant.com
Project Name: WHPA Drilling	Sampler Signature:
Project Address: Pittsburg Power Plant, Pittsburg, CA 94565	

Sample Designation	Date	Time	40 ml VOA	125 mL HDPE	1L HDPE	1L AMBER	500 mL HDPE	250 mL HDPE	120 ml Plastic	HCl	HNO_3	NaOH	$Na_2S_2O_3$	H_2SO_4	WATER	SOIL	Alkalinity	Carbon dioxide, TOC, DOC, COD	Chlorine	Specific Conductivity, pH, TDS	TSS	Color, Turbidity, BOD, DO	Oil and Grease	Metals - Al, Cu, Ba, Fe, Mn, Sr, Se, As, Hg, Ni, Si, Pb, Cr, Ca Mg, Na, Reactive Silica, Hardness	300-1 - Chloride, fluoride, nitrate	Total Phosphorous (365.1), Ammonium	UV254	Total Coliform	VOC	Salinity	TAT	For Lab Use Only
TW-01-01	3/31/09	1100					X								X		X														####	
TW-01-01			X							X		X		X	X			X													####	
TW-01-01						X									X				X												####	
TW-01-01							X								X					X											####	
TW-01-01					X										X						X										####	
TW-01-01					X	X	X	X							X							X									####	
TW-01-01						X				X					X								X								####	
TW-01-01			X				X	X		X	X				X									X							####	
TW-01-01				X							X				X										X						####	
TW-01-01						X								X	X											X					####	
TW-01-01			X												X												X				####	
TW-01-01									X				X		X													X			####	
TW-01-01			X							X					X														X		####	
TW-01-01				X											X															X	####	

TAT: 12hr, 24hr, 48hr, 72hr, 1wk, 2wk, Mix

Relinquished by:	Date	Time	Received by:
[signature]	3/31	1215	[signature]
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks:
ICE/t° 16.2
GOOD CONDITION ✓ APPROPRIATE
HEAD SPACE ABSENT ✓ CONTAINERS ✓
DECHLORINATED IN LAB ___ PRESERVED IN LAB ___
PRESERVATION VOAS ✓ O&G ✓ METALS ✓ OTHER H2SO4 / NaOH

Bill to: Mirant Corporation c/o Andrea Ricci
696 West 10th Street, Pittsburg, CA

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903756 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: 5 days

Date Received: **03/31/2009**
Date Printed: **03/31/2009**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
0903756-001	TW-01-01	Water	3/31/2009 11:00		L	R	A	C	S	O	Q	D	M	T	F	K

Test Legend:

1	**300_1_W**	**2**	**5520B_SG_W**	**3**	**8260B_W**	**4**	**Alka(spe)_W**	**5**	**AMMONIUM_W**
6	**BOD_W**	**7**	**CHLORINE1_W**	**8**	**COD_W**	**9**	**COLOR_W**	**10**	**DO_W**
11	**DOC_W**	**12**	**HARDMS_W**						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903756 **ClientCode: MCP**

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Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **03/31/2009**
Date Printed: **03/31/2009**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
0903756-001	TW-01-01	Water	3/31/2009 11:00		E	K	C	I	N	K	H	N	B	S	P	J

Test Legend:

13	**IC(CO2)_W**	**14**	**METALSMS_W**	**15**	**REACTSI_W**	**16**	**SALINITY_W**	**17**	**SC_W**
18	**SILICA_W**	**19**	**TCEC-Enum_W**	**20**	**TDS_W**	**21**	**TOC_W**	**22**	**TotalP_W**
23	**TSS_W**	**24**	**TURBIDITY_W**						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

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Pittsburg, CA 94565-1701
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CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903756 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: 5 days

Date Received: 03/31/2009
Date Printed: 03/31/2009

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
0903756-001	TW-01-01	Water	3/31/2009 11:00		G											

Test Legend:

1	**UV254_W**	**2**		**3**		**4**		**5**	
6		**7**		**8**		**9**		**10**	
11		**12**							

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name:	**Mirant Corporation**	Date and Time Received	**03/31/09 3:01:18 PM**
Project Name:	**WHPA Drilling**	Checklist completed and reviewed by:	Maria Venegas
WorkOrder N°:	**0903756** Matrix Water	Carrier:	Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes	N	
Chain of custody signed when relinquished and received?	Yes	N	
Chain of custody agrees with sample labels?	Yes	N	
Sample IDs noted by Client on COC?	Yes	No	
Date and Time of collection noted by Client on COC?	Yes	No	
Sampler's name noted on COC?	Yes	No	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	N	NA
Shipping container/cooler in good condition?	Yes	N	
Samples in proper containers/bottles?	Yes	N	
Sample containers intact?	Yes	N	
Sufficient sample volume for indicated test?	Yes	N	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	N	
Container/Temp Blank temperature	Cooler Temp:	16.2°C	NA
Water - VOA vials have zero headspace / no bubbles?	Yes	N	No VOA vials submitted
Sample labels checked for correct preservation?	Yes	No	
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes	N	NA
Samples Received on Ice?	Yes	N	

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported:	04/07/09
	Client P.O.:	Date Completed:	04/07/09

Work Order: 0903756

April 08, 2009

RE: Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC) Results

A data discrepancy was observed between the TOC and DOC data. Theoretically, TOC concentrations should be greater than DOC but this sample's TOC data is less than its DOC data (5.0 mg/L vs. 12 mg/L)

To verify the original results, the TOC and DOC samples were re-analyzed from 2 new (different) containers and these results confirmed the originally reported data. Also, all QC parameters (Method Blank, LSC/LSCD, MS/MSD & CCV) were found to be within their proper acceptance limits.

TOC is reported as the sum of the Purgeable Organic Carbon (POC) and the Non-Purgeable Organic Carbon (NPOC). DOC is reported as the sum of the Dissolved POC and the Dissolved NPOC.

The NPOC & and Dissolved NPOC concentrations are consistent with both the TOC and DOC results. The POC concentration in the TOC sub-sample is significantly lower than the Dissolved POC in the DOC sub-sample. Since the TOC sub-sample was collected into an HCl preserved VOA and DOC sub-sample was collected into an unpreserved VOA, we hypothesize that there are some purgeable organic compounds in the sample that may have degraded quickly in the acid which caused the data discrepancy.

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AR

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09-04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09-04/01/09

Inorganic Anions by IC*

Extraction Method: E300.1 Analytical Method: E300.1 Work Order: 0903756

Lab ID	0903756-001L		
Client ID	TW-01-01	Reporting Limit for DF =1	
Matrix	W		
DF	1	S	W
Compound	**Concentration**	ug/kg	mg/L
Chloride	270	NA	0.1
Fluoride	0.30	NA	0.1
Nitrate as N	0.24	NA	0.1
Nitrate as $NO3^{-}$	1.0	NA	0.45
ortho-Phosphate as P	ND	NA	0.1
Sulfate	340	NA	0.1
Surrogate Recoveries (%)			
%SS:	95		

Comments

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as $NO3^{-}$] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Petroleum Oil & Grease with Silica Gel Clean-Up*

Extraction method SM5520B/F   Analytical methods SM5520B/F   Work Order: 0903756

Lab ID	Client ID	Matrix	POG	DF	% SS
0903756-001R	TW-01-01	W	ND	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	5.0	mg/L
	S	NA	NA

* water samples and all TCLP & SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

DF = dilution factor (may be raised to dilute target analyte or matrix interference).

surrogate diluted out of range or not applicable to this sample.

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0903756

Lab ID: 0903756-001A
Client ID: TW-01-01
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	77	%SS2:	105
%SS3:	86		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

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Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Total & Speciated Alkalinity as Calcium Carbonate*

Extraction method SM2320B Analytical methods SM2320B Work Order: 0903756

Lab ID	Client ID	Matrix	Total*	Carbonate*	Bicarbonate*	Hydroxide*	DF
001C	TW-01-01	W	249	ND	249	ND	1
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	1.0	1.0	1.0	1.0	mg CaCO3/L
	S	NA	NA	NA	NA	mg/Kg

*water samples are reported in mg calcium carbonate/L. Hydroxide, Carbonate & Bicarbonate alkalinity measure @ end-point of pH = 8.3 & 4.5 per SM2320B.

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/02/09

Ammonium as N*

Analytical Method: E350.1 Work Order: 0903756

Lab ID	Client ID	Matrix	Total Ammonium as N	DF
0903756-001S	TW-01-01	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.2 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09-04/05/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09-04/05/09

Biochemical Oxygen Demand (BOD)*

Analytical Method: SM5210B

Work Order: 0903756

Lab ID	Client ID	Matrix	BOD	DF
0903756-001O	TW-01-01	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	4.0 mg/L
	S	NA

* water samples are reported in mg/L.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 03/31/09

Chlorine, Total Residual*

Analytical Method: SM4500-Cl DE Work Order: 0903756

Lab ID	Client ID	Matrix	Chlorine	DF
0903756-001Q	TW-01-01	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

* water samples are reported in mg/L, soil samples are extracted using DISTLC and rotate for a very short time due to stablibilty of chlorine and reported in mg/kg.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 03/31/09

Chemical Oxygen Demand (COD)*

Analytical Method: E410.4

Work Order: 0903756

Lab ID	Client ID	Matrix	COD	DF
0903756-001D	TW-01-01	W	ND	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	10 mg/L	
		S	NA	

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/01/09

Apparent Color*

Analytical Method: SM2120B   Work Order: 0903756

Lab ID	Client ID	Matrix	Apparent Color	DF
0903756-001M	TW-01-01	W	2.2	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.0 Color Units
	S	NA

* water samples are reported in Color Units.

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Dissolved Oxygen

Analytical Method: SM4500OG

Work Order: 0903756

Lab ID	Client ID	Matrix	Dissolved Oxygen	DF
0903756-001T	TW-01-01	W	2.17 @ 22.5 °C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg DO/L @ °C
	S	NA

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Dissolved Organic Carbon (DOC)*

Analytical Method: E415.3 Work Order: 0903756

Lab ID	Client ID	Matrix	Dissolved Organic Carbon	DF
0903756-001F	TW-01-01	W	12	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.7 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon; POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Hardness*

Extraction method E200.8 Analytical methods SM2340B Work Order: 0903756

Lab ID	Client ID	Matrix	Extraction Type	Hardness	DF	% SS
0903756-001K	TW-01-01	W	TOTAL	250	20	108

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	1.0	mg CaCO3/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in mg CaCO3/L.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/01/09

Inorganic Carbon as Carbon Dioxide*

Analytical Method: E415.3 Work Order: 0903756

Lab ID	Client ID	Matrix	IC as CO2	DF
0903756-001E	TW-01-01	W	200	5

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	3.7 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

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Metals*

Extraction Method: E200.8 Analytical Method: E200.8 Work Order: 0903756

Lab ID	0903756-001K		Reporting Limit for DF =1	
Client ID	TW-01-01			
Matrix	Water			
DF	1			
Extraction Type	TOTAL		S	W
Compound		**Concentration**	µg/kg	µg/L
Aluminum	ND		NA	50
Arsenic	6.4		NA	0.5
Barium	19		NA	5.0
Calcium	60,000		NA	100
Chromium	ND		NA	0.5
Copper	0.90		NA	0.5
Iron	78		NA	20
Lead	1.6		NA	0.5
Magnesium	24,000		NA	20
Manganese	140		NA	20
Mercury	ND		NA	0.012
Nickel	ND		NA	0.5
Selenium	1.0		NA	0.5
Sodium	380,000		NA	100
Strontium	1100		NA	20
Surrogate Recoveries (%)				
%SS:	108			

Comments

*water samples are reported in ug/L, product/oil/non-aqueous liquid samples and all TCLP / WET / DI WET / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

pH

Analytical Method: SM4500H+B

Work Order: 0903756

Lab ID	Client ID	Matrix	pH	DF
0903756-001M	TW-01-01	W	7.40 @ 23.1°C	1

Method Accuracy and Reporting Units	W	±0.05, pH units @ °C
	S	NA

* EPA method 9040; pH = -log(aH+) @ _°C; ± 0.05 units

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/07/09

Reactive Silica*

Analytical Method: SM4500-SiO2 D

Work Order: 0903756

Lab ID	Client ID	Matrix	Reactive Silica	DF
0903756-001C	TW-01-01	W	51	10

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.05 mg/L
	S	NA

*water samples are reported in mg/L.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/01/09

Salinity*

Analytical Method: SM2520B

Work Order: 0903756

Lab ID	Client ID	Matrix	Salinity	DF
0903756-001I	TW-01-01	W	1180 @ 25.0°C	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	10 mg/L	
		S	NA	

* Salinity (mg/L) = 0.64 * S.C.(µmhos/cm @ 25°C) per SSSA volume 5 part 3.

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696 West 10th Street		Date Received: 03/31/09
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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Specific Conductivity*

Analytical Method: SM2510B

Work Order: 0903756

Lab ID	Client ID	Matrix	Specific Conductivity	DF
0903756-001N	TW-01-01	W	1850 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 µmhos/cm @ 25°C
	S	NA

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Silicon*

Extraction method E200.7 Analytical methods 200.7 Work Order: 0903756

Lab ID	Client ID	Matrix	Extraction Type	Silicon	DF	% SS
0903756-001K	TW-01-01	W	TOTAL	22,000	10	106

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	Matrix	Extraction Type	Silicon	Units
	W	TOTAL	50	µg/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Silica*

Extraction method E200.7 Analytical methods 200.7 Work Order: 0903756

Lab ID	Client ID	Matrix	Extraction Type	Silica	DF	% SS
0903756-001K	TW-01-01	W	TOTAL	46,000	10	106

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	110	µg/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed:	04/01/09

Total Coliform / E. Coli, Enumeration

Analytical Method: SM9223B

Work Order: 0903756

Lab ID	Client ID	Matrix	Total Coliform	95% Confident Interval	E. Coli	95% Confident Interval	DF
0903756-001H	TW-01-01	W	ND	---	ND	---	1

Reporting Limit & Reporting Units	W	1.0 MPN/100ml
	S	NA

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/02/09

Total Dissolved Solids*

Analytical Method: SM2540C Work Order: 0903756

Lab ID	Client ID	Matrix	Total Dissolved Solids	DF
0903756-001N	TW-01-01	W	1160	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* water samples reported in mg/L.

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Total Organic Carbon (TOC)*

Analytical Method: E415.3 Work Order: 0903756

Lab ID	Client ID	Matrix	TOC	DF
0903756-001B	TW-01-01	W	5.0	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.3 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3. TOC is analyzed as NPOC.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/06/09

Total Phosphorous as P*

Analytical Method: E365.1 Work Order: 0903756

Lab ID	Client ID	Matrix	Total Phosphorous as P	DF
0903756-001S	TW-01-01	W	0.19	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Total Suspended Solids*

Analytical Method: SM2540D Work Order: 0903756

Lab ID	Client ID	Matrix	Total Suspended Solids	DF
0903756-001P	TW-01-01	W	ND	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	1.0 mg/L	
		S	NA	

* water samples reported in mg/L.

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Turbidity

Analytical Method: SM2130B

Work Order: 0903756

Lab ID	Client ID	Matrix	Turbidity	DF
0903756-001J	TW-01-01	W	0.832	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	0.1 NTU	
		S	NA	

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UV-Absorbing Organic Constituents

Analytical Method: SM5910B Work Order: 0903756

Lab ID	Client ID	Matrix	UV254	DF
0903756-001G	TW-01-01	W	0.025	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.02 cm^{-1}
	S	NA

UV254 Absorbance reporting limit 0.009 cm-1 is approximately the same as 0.5 mg/L Carbon of KHP standard.

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QC SUMMARY REPORT FOR E300.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42368 | WorkOrder 0903756

EPA Method E300.1 **Extraction E300.1** **Spiked Sample ID: N/A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Chloride	N/A	1	N/A	N/A	N/A	98.6	98.6	0	N/A	N/A	85 - 115	15
Fluoride	N/A	1	N/A	N/A	N/A	104	105	0.118	N/A	N/A	85 - 115	15
Nitrate as N	N/A	1	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
Nitrate as NO_3^-	N/A	4.4	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
%SS:	N/A	0.10	N/A	N/A	N/A	92	93	0.271	N/A	N/A	90 - 115	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42368 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001L	03/31/09 11:00 AM	03/31/09	03/31/09 9:05 PM	0903756-001L	03/31/09 11:00 AM	04/01/09	04/01/09 3:21 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

surrogate diluted out of range or surrogate coelutes with another peak.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-SiO2 D

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42371 WorkOrder 0903756

EPA Method SM4500-SiO2 D **Extraction SM4500-SiO2 D** **Spiked Sample ID: 0903753-001C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Reactive Silica	30	1	NR	NR	NR	103	105	1.97	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42371 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001C	03/31/09 11:00 AM	03/31/09	03/31/09 12:09 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5520B/F

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42376 WorkOrder 0903756

EPA Method SM5520B/F **Extraction SM5520B/F** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
POG	N/A	20.83	N/A	N/A	N/A	95.8	93.3	2.64	N/A	N/A	70 - 130	25

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42376 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001R	03/31/09 11:00 AM	03/31/09	04/01/09 3:05 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2120B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42238 | WorkOrder 0903756

EPA Method SM2120B **Extraction SM2120B** **Spiked Sample ID: 0903601-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	Color Units	Color Units	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
True Color	ND	40	105	106	0.960	101	101	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42238 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001M	03/31/09 11:00 AM	04/01/09	04/01/09 3:51 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E365.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42301 | WorkOrder 0903756

EPA Method E365.1 **Extraction E365.1** **Spiked Sample ID: 0903664-004I**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Phosphorous as P	0.099	0.80	92	92.4	0.403	107	104	2.92	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42301 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001S	03/31/09 11:00 AM	03/31/09	04/06/09 12:24 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR 200.7

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42369 WorkOrder 0903756

EPA Method 200.7 **Extraction E200.7** **Spiked Sample ID: 0903703-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Silicon	8400	1000	NR	NR	NR	91.4	98.3	7.29	70 - 130	20	80 - 120	20
%SS:	98	750	96	94	1.82	99	99	0	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42369 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001K	03/31/09 11:00 AM	03/31/09	04/01/09 12:39 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42370 | WorkOrder 0903756

EPA Method SW8260B | **Extraction SW5030B** | **Spiked Sample ID: 0903753-001a**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	104	102	2.07	102	100	2.04	70 - 130	30	70 - 130	30
Benzene	ND	10	122	121	0.820	115	110	3.59	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	89.3	88.5	0.967	81.5	81.9	0.489	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	105	103	1.80	106	103	2.67	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	116	115	0.358	111	109	1.73	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	116	118	1.45	105	105	0	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	97	95.2	1.86	88.3	87	1.45	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	115	113	1.81	96.5	96	0.501	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	120	118	1.27	111	110	1.13	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	111	109	2.37	97.8	97.9	0.0521	70 - 130	30	70 - 130	30
Toluene	ND	10	115	112	3.08	122	118	3.18	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	124	120	3.39	119	118	0.491	70 - 130	30	70 - 130	30
%SS1:	80	25	83	82	1.13	75	76	1.49	70 - 130	30	70 - 130	30
%SS2:	88	25	100	100	0	108	108	0	70 - 130	30	70 - 130	30
%SS3:	85	2.5	77	75	3.03	101	100	0.752	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42370 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001A	03/31/09 11:00 AM	04/01/09	04/01/09 12:17 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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QC SUMMARY REPORT FOR SM4500-SiO2 D

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42371 | WorkOrder 0903756

EPA Method SM4500-SiO2 D **Extraction SM4500-SiO2 D** **Spiked Sample ID: 0903753-001C**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Reactive Silica	18	1	NR	NR	NR	103	105	1.97	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42371 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001C	03/31/09 11:00 AM	03/31/09	04/07/09 12:08 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E200.8

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42379 | WorkOrder 0903756

EPA Method E200.8 **Extraction E200.8** **Spiked Sample ID: 0903703-003A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Aluminum	ND	100	128	127	1.17	95.7	97.4	1.80	70 - 130	20	85 - 115	20
Arsenic	1.3	10	97	96.7	0.273	98.8	97.4	1.38	70 - 130	20	85 - 115	20
Barium	43	100	90	90.1	0.0751	90.3	91.3	1.05	70 - 130	20	85 - 115	20
Calcium	27,000	1000	NR	NR	NR	104	105	1.25	70 - 130	20	85 - 115	20
Chromium	ND	10	99.3	98.3	1.04	98.7	99.5	0.818	70 - 130	20	85 - 115	20
Copper	11	10	96.7	94.8	0.902	97.9	97.9	0	70 - 130	20	85 - 115	20
Iron	ND	100	110	110	0	106	108	1.77	70 - 130	20	85 - 115	20
Lead	ND	10	99.6	99.3	0.296	99.6	100	0.351	70 - 130	20	85 - 115	20
Magnesium	14,000	100	NR	NR	NR	98.2	101	2.56	70 - 130	20	85 - 115	20
Manganese	ND	100	106	104	1.33	108	109	0.460	70 - 130	20	85 - 115	20
Mercury	ND	0.25	117	116	1.03	115	114	0.594	70 - 130	20	85 - 115	20
Nickel	1.2	10	96.4	95.2	1.11	95.9	96.3	0.447	70 - 130	20	85 - 115	20
Selenium	0.58	10	99.4	97.8	1.53	104	102	1.55	70 - 130	20	85 - 115	20
Sodium	51,000	1000	NR	NR	NR	108	107	0.0931	70 - 130	20	85 - 115	20
Strontium	250	100	103	104	0.113	107	109	1.20	70 - 130	20	85 - 115	20
%SS:	107	750	108	108	0	103	105	1.76	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42379 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001K	03/31/09 11:00 AM	03/31/09	04/01/09 1:43 PM	0903756-001K	03/31/09 11:00 AM	03/31/09	04/01/09 1:51 PM
0903756-001K	03/31/09 11:00 AM	03/31/09	04/01/09 4:24 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Alkalinity **Matrix: W** **WorkOrder: 0903756**

Method Name: SM2320B Units mg CaCO3/L BatchID: 42295

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903756-001C	249	1	251	1	0.668	<20

BATCH 42295 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001C	)3/31/09 11:00 AM	04/01/09	)4/01/09 10:12 AM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

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QC SUMMARY REPORT FOR E350.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42323 | WorkOrder: 0903756

EPA Method E350.1 | **Extraction SM4500-NH3** | **Spiked Sample ID: 0903676-012C**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Total Ammonia as N	13	4	96.7	103	1.54	105	105	0	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42323 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001S	03/31/09 11:00 AM	04/02/09	04/02/09 4:42 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5210B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42265 | WorkOrder: 0903756

EPA Method SM5210B | **Extraction SM5210B** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
BOD	N/A	198	N/A	N/A	N/A	99	98.2	0.768	N/A	N/A	80 - 120	16

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42265 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001O	03/31/09 11:00 AM	03/31/09	04/06/09 12:20 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR E410.4

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42281 | WorkOrder 0903756

EPA Method E410.4 **Extraction E410.4** **Spiked Sample ID: 0903652-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
COD	ND	400	102	100	1.78	107	104	2.27	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42281 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001D	03/31/09 11:00 AM	03/31/09	03/31/09 7:17 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR SM4500-Cl DE

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42317 | WorkOrder 0903756

EPA Method SM4500-Cl DE | **Extraction SM4500-Cl DE** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chlorine	N/A	0.20	N/A	N/A	N/A	101	99.1	1.80	N/A	N/A	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42317 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001Q	03/31/09 11:00 AM	03/31/09	03/31/09 4:09 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Dissolved Oxygen **Matrix: W** **WorkOrder: 0903756**

Method Name: SM4500OG Units mg DO/L @ °C BatchID: 42377

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903756-001T	2.17 @ 22.5 °C	1	2.16 @ 22.5 °C	1	0.01	0.05

BATCH 42377 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001T	)3/31/09 11:00 AM	03/31/09	03/31/09 3:40 PM				

Test Method: pH **Matrix: W** **WorkOrder: 0903756**

Method Name: SM4500H+B Units ±, pH units @ °C BatchID: 42318

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903756-001M	7.40 @ 23.1°C	1	7.41 @ 23.1°C	1	0.01	0.02

BATCH 42318 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001M	)3/31/09 11:00 AM	03/31/09	03/31/09 5:02 PM				

Test Method: Turbidity **Matrix: W** **WorkOrder: 0903756**

Method Name: SM2130B Units NTU BatchID: 42320

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903756-001J	0.832	1	0.842	1	1.19	<10

BATCH 42320 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001J	)3/31/09 11:00 AM	03/31/09	03/31/09 4:10 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QA/QC Officer

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder 0903756

EPA Method E415.3 **Extraction E415.3** **BatchID: 42372** **Spiked Sample ID 0903756-001F**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Dissolved Organic	12	50	94.6	105	8.66	60	112	112	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42372 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001F	)3/31/09 11:00 AM	04/01/09	ı4/01/09 12:29 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2340B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42379 | WorkOrder 0903756

EPA Method SM2340B | **Extraction E200.8** | **Spiked Sample ID: 0903703-003A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Hardness	130	2.91	NR	NR	NR	99.7	99.7	0	70 - 130	20	85 - 115	20
%SS:	107	0.75	108	108	0	103	105	1.76	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42379 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001K	03/31/09 11:00 AM	03/31/09	04/01/09 1:43 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42299 | WorkOrder 0903756

EPA Method E415.3 | **Extraction E415.3** | **Spiked Sample ID: 0903664-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
IC as CO_2	360	36.7	89.2	85.2	0.376	98	99.8	1.83	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42299 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001E	03/31/09 11:00 AM	04/01/09	04/01/09 8:19 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Salinity **Matrix: W** **WorkOrder: 0903756**

Method Name: SM2520B Units mg/L BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903756-001I	1180 @ 25.0°C	1	1180 @ 25.0°C	1	0.217	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001I	)3/31/09 11:00 AM	04/01/09	04/01/09 4:10 PM	0903756-001N	)3/31/09 11:00 AM	04/01/09	04/01/09 4:05 PM

Test Method: Specific Conductivity **Matrix: W** **WorkOrder: 0903756**

Method Name: SM2510B Units µmhos/cm @ 25°C BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903756-001N	1850 @ 25.0°C	1	1850 @ 25.°C	1	0.217	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001I	)3/31/09 11:00 AM	04/01/09	04/01/09 4:10 PM	0903756-001N	)3/31/09 11:00 AM	04/01/09	04/01/09 4:05 PM

Dup = Duplicate; SD = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Coliform / E. Coli, Enumeration **Matrix: W** **WorkOrder: 0903756**

Method Name: SM9223B BatchID: 42374

Lab ID	Analyte	Reporting Units	Sample	DF	Dup	DF	% RPD	Acceptance Criteria (%)
0903756-001H	E Coli	MPN/100ml	ND	1	ND	1	N/A	<70
	Total Coliform	MPN/100ml	ND	1	1.0	1	N/A	<70

BATCH 42374 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001H	)3/31/09 11:00 AM	03/31/09	04/01/09 4:33 PM				

% RPD = abs(Sample - Dup) / ((Sample + Dup) / 2) * 100

N/A = Not Applicable

NR = %RPD may fall outside of laboratory acceptance criteria due to sample inconsistency between two containers.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Dissolved Solids **Matrix: W** **WorkOrder: 0903756**

Method Name: SM2540C Units mg/L BatchID: 42375

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903756-001N	1160	1	1160	1	0.0863	<20

BATCH 42375 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001N	)3/31/09 11:00 AM	04/01/09	04/02/09 1:15 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water | QC Matrix: Water | WorkOrder 0903756

EPA Method E415.3 | **Extraction E415.3** | **BatchID: 42351** | **Spiked Sample ID 0903756-001B**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	Spiked mg/L	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
TOC	5.0	50	103	101	1.87	60	93.1	100	7.13	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42351 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001B	)3/31/09 11:00 AM	03/31/09	03/31/09 7:50 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Suspended Solids **Matrix: W** **WorkOrder: 0903756**

Method Name: SM2540D Units mg/L BatchID: 42283

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903756-001P	ND	1	ND<2.00	2	N/A	<15

BATCH 42283 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001P	)3/31/09 11:00 AM	04/01/09	04/01/09 4:35 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR SM5910B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42373 WorkOrder 0903756

EPA Method SM5910B **Extraction SM5910B** **Spiked Sample ID: 0903756-001g**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	cm^{-1}	cm^{-1}	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
UV254	0.025	0.090	86	86.4	0.313	95.4	96.4	1.04	80 - 120	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42373 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903756-001G	03/31/09 11:00 AM	03/31/09	04/01/09 4:39 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

RD = Absolute Value {Sample - Duplicate}; RPD = 100 * (Sample - Duplicate) / (Sample + Duplicate) * 2.

Calibration formula used to calculate as Carbon mg/L KHP standard is UV254 Abs = 19.3559172 x Amt - 2.7206959

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Mirant Corporation	Client Project ID:	WHPA Drilling	Date Sampled:	04/02/09
696 West 10th Street			Date Received:	04/02/09
Pittsburg, CA 94565	Client Contact:	Andrea Ricci	Date Reported:	04/10/09
	Client P.O.:		Date Completed:	04/10/09

WorkOrder: 0904054

April 10, 2009

Dear Andrea:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **WHPA Drilling,**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

Mirant Corporation
Chain of Custody
696 West 10th St
Pittburg, CA 94565
Phone 925-427-3554 Fax 925-427-3511

RUSH

Laboratory: **Mc Cambell Anayltical**
Maria Venegas
1534 Willow Pass Road
Pittsburg, CA Phone: 925-252-9262 Fax: 925-252-9269

rush per A.R. 4/2/09 2:14pm

0904054

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Andrea Ricci	**California EDF Report?** ☐ Yes ■ No
Company / Address: 696 West 10th St, Pittsburg, CA 94565	Recommended but not mandatory to complete this section: **Sampling Company Log Code:**
Phone No.: (925) 427-3554 **Fax No.:** (925) 427-3511	**Global ID:**
Project Number: **P.O. No.:**	**EDF Deliverable To (Email Address):** andrea.ricci@mirant.com
Project Name: WHPA Drilling	**Sampler Signature:**
Project Address: Pittsburg Power Plant Pittsburg, CA 94565	

(+)

Sample Designation	Sampling Date	Sampling Time	Container: 40 ml VOA	125 mL HDPE	1L HDPE	1L AMBER	500 mL HDPE	250 mL HDPE	120 ml Plastic	Preservative: HCl	HNO_3	NaOH	$Na_2S_2O_3$	H_2SO_4	Matrix: WATER	SOIL		Analysis Request: Alkalinity	Carbon dioxide, TOC, DOC, COD	Chlorine	Specific Conductivity, pH, TDS	TSS	Color, Turbidity, BOD, DO	Oil and Grease	Metals - Al, Cu, Ba, Fe, Mn, Sr, Se, As, Hg, Ni, Si, Pb, Cr, Ca' Mg, Na, Reactive Silica, Hardness	300-1 - Chloride, fluoride, nitrate	Total Phosphorous (365.1), Ammonium	UV254	Total Coliform	VOC	Salinity		TAT (12hr, 24hr, 48hr, 72hr, 1wk, 2wk, Mix)	For Lab Use Only
TW-01-02							X								X			X															####	
TW-01-02			X							X		X		X	X				X														####	
TW-01-02						X									X					X													####	
TW-01-02							X								X						X												####	
TW-01-02					X										X							X											####	
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[signature]	4/2/9	12:18	[signature]
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks: ICE/t° 3.1°C
GOOD CONDITION ✓ APPROPRIATE CONTAINERS ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB ___ PRESERVED IN LAB ___
PRESERVATION VOAS ✓ | O & G ✓ | METALS ✓ | OTHER ✓

Bill to: Mirant Corporation c/o Andrea Ricci
696 West 10th Street, Pittsburg, CA

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0904054 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **1 day**

Date Received: **04/02/2009**
Date Printed: **04/02/2009**

Requested Tests (See legend below)

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
0904054-001	TW-01-02	Water	4/2/2009 11:00		O	M	S	A	P	K	F	E	I	L	D	N

Test Legend:

1	300_1_W	2	5520B_SG_W	3	8260B_W	4	Alka(spe)_W	5	AMMONIUM_W
6	BOD_W	7	CHLORINE1_W	8	COD_W	9	COLOR_W	10	DO_W
11	DOC_W	12	HARDMS_W						

The following SampID: 001I contains testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0904054 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
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(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
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ProjectNo: WHPA Drilling

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Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **1 day**

Date Received: **04/02/2009**
Date Printed: **04/02/2009**

Lab ID	Client ID	Matrix	Collection Date	Hold	13	14	15	16	17	18	19	20	21	22	23	24
					Requested Tests (See legend below)											
0904054-001	TW-01-02	Water	4/2/2009 11:00		B	N	A	T	G	N	R	G	C	P	H	J

Test Legend:

13	IC(CO2)_W	14	METALSMS_W	15	REACTSI_W	16	SALINITY_W	17	SC_W
18	SI_W	19	TCEC-Enum_W	20	TDS_W	21	TOC_W	22	TotalP_W
23	TSS_W	24	TURBIDITY_W						

The following SampID: 001I contains testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
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CHAIN-OF-CUSTODY RECORD

WorkOrder: 0904054 **ClientCode: MCP**

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Requested TAT: **1 day**

Date Received: **04/02/2009**
Date Printed: **04/02/2009**

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
					Requested Tests (See legend below)											
0904054-001	TW-01-02	Water	4/2/2009 11:00		Q											

Test Legend:

1	**UV254_W**	**2**		**3**		**4**		**5**	
6		**7**		**8**		**9**		**10**	
11		**12**							

The following SampID: 001I contains testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name:	**Mirant Corporation**	Date and Time Received:	**4/2/09 12:38:26 PM**
Project Name:	**WHPA Drilling**	Checklist completed and reviewed by:	Melissa Valles
WorkOrder N°:	**0904054** Matrix Water	Carrier:	Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes	No	
Chain of custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample labels?	Yes	No	
Sample IDs noted by Client on COC?	Yes	No	
Date and Time of collection noted by Client on COC?	Yes	No	
Sampler's name noted on COC?	Yes	No	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	No	NA
Shipping container/cooler in good condition?	Yes	No	
Samples in proper containers/bottles?	Yes	No	
Sample containers intact?	Yes	No	
Sufficient sample volume for indicated test?	Yes	No	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	No		
Container/Temp Blank temperature	Cooler Temp:	21.6°C		NA
Water - VOA vials have zero headspace / no bubbles?	Yes	No	No VOA vials submitted	
Sample labels checked for correct preservation?	Yes	No		
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes	No		NA
Samples Received on Ice?	Yes	No		

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received 04/02/09
	Client Contact: Andrea Ricci	Date Extracted 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyze 04/02/09

Inorganic Anions by IC*

Extraction method E300.1 Analytical methods E300.1 Work Order: 0904054

Lab ID	Client ID	Matrix	Chloride	DF	Fluoride	DF	Nitrate as N	DF	Nitrate as NO_3^-	DF	% SS
001O	TW-01-02	W	250	100	0.29	1	1.3	1	5.9	1	91

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	Matrix	Chloride	Fluoride	Nitrate as N	Nitrate as NO_3^-	Units
	W	0.1	0.1	0.1	0.45	mg/L
	S	NA	NA	NA	NA	mg/Kg

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as NO_3^-] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/03/09

Petroleum Oil & Grease with Silica Gel Clean-Up*

Extraction method SM5520B/F Analytical methods SM5520B/F Work Order: 0904054

Lab ID	Client ID	Matrix	POG	DF	% SS
0904054-001M	TW-01-02	W	ND	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	5.0	mg/L
	S	NA	NA

* water samples and all TCLP & SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

DF = dilution factor (may be raised to dilute target analyte or matrix interference).

surrogate diluted out of range or not applicable to this sample.

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696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0904054

Lab ID: 0904054-001S
Client ID: TW-01-02
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	78	%SS2:	88
%SS3:	80		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

DHS ELAP Certification 1644 Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Total & Speciated Alkalinity as Calcium Carbonate*

Extraction method SM2320B Analytical methods SM2320B Work Order: 0904054

Lab ID	Client ID	Matrix	Total*	Carbonate*	Bicarbonate*	Hydroxide*	DF
001A	TW-01-02	W	263	ND	263	ND	1
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	1.0	1.0	1.0	1.0	mg CaCO3/L
		S	NA	NA	NA	NA	mg/Kg

*water samples are reported in mg calcium carbonate/L. Hydroxide, Carbonate & Bicarbonate alkalinity measure @ end-point of pH = 8.3 & 4.5 per SM2320B.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Ammonium as N*

Analytical Method: E350.1 Work Order: 0904054

Lab ID	Client ID	Matrix	Total Ammonium as N	DF
0904054-001P	TW-01-02	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.2 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09-04/07/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09-04/07/09

Biochemical Oxygen Demand (BOD)*

Analytical Method: SM5210B Work Order: 0904054

Lab ID	Client ID	Matrix	BOD	DF
0904054-001K	TW-01-02	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	4.0 mg/L
	S	NA

* water samples are reported in mg/L.

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	Client Contact: Andrea Ricci	Date Extracted:	04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/02/09

Chlorine, Total Residual*

Analytical Method: SM4500-Cl DE

Work Order: 0904054

Lab ID	Client ID	Matrix	Chlorine	DF
0904054-001F	TW-01-02	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

* water samples are reported in mg/L, soil samples are extracted using DISTLC and rotate for a very short time due to stablibilty of chlorine and reported in mg/kg.

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696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Chemical Oxygen Demand (COD)*

Analytical Method: E410.4 Work Order: 0904054

Lab ID	Client ID	Matrix	COD	DF
0904054-001E	TW-01-02	W	15	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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	Client Contact: Andrea Ricci	Date Extracted:	04/03/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/03/09

Apparent Color*

Analytical Method: SM2120B

Work Order: 0904054

Lab ID	Client ID	Matrix	Apparent Color	DF
0904054-001I	TW-01-02	W	2.6	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.0 Color Units
	S	NA

* water samples are reported in Color Units.

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	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Dissolved Oxygen

Analytical Method: SM4500OG

Work Order: 0904054

Lab ID	Client ID	Matrix	Dissolved Oxygen	DF
0904054-001L	TW-01-02	W	1.72 @ 21.4 °C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg DO/L @ °C
	S	NA

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Dissolved Organic Carbon (DOC)*

Analytical Method: E415.3

Work Order: 0904054

Lab ID	Client ID	Matrix	Dissolved Organic Carbon	DF
0904054-001D	TW-01-02	W	12	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	0.7 mg/L	
		S	NA	

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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AR

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/03/09

Hardness*

Extraction method: E200.8 Analytical methods: SM2340B Work Order: 0904054

Lab ID	Client ID	Matrix	Extraction Type	Hardness	DF	% SS
0904054-001N	TW-01-02	W	TOTAL	240	20	102

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	1.0	mg CaCO3/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in mg CaCO3/L.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Inorganic Carbon as Carbon Dioxide*

Analytical Method: E415.3 Work Order: 0904054

Lab ID	Client ID	Matrix	IC as CO2	DF
0904054-001B	TW-01-02	W	260	5

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	3.7 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

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Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/03/09

Metals*

Extraction Method: E200.8 Analytical Method: E200.8 Work Order: 0904054

Lab ID	0904054-001N		Reporting Limit for DF =1	
Client ID	TW-01-02			
Matrix	Water			
DF	1			
Extraction Type	TOTAL		S	W
Compound		**Concentration**	μg/kg	μg/L
Aluminum	ND		NA	50
Arsenic	7.0		NA	0.5
Barium	18		NA	5.0
Calcium	60,000		NA	100
Chromium	ND		NA	0.5
Copper	2.8		NA	0.5
Iron	77		NA	20
Lead	4.0		NA	0.5
Magnesium	22,000		NA	20
Manganese	130		NA	20
Mercury	ND		NA	0.012
Nickel	ND		NA	0.5
Selenium	3.2		NA	0.5
Sodium	380,000		NA	100
Strontium	1000		NA	20

Surrogate Recoveries (%)

%SS:	102

Comments

*water samples are reported in ug/L, product/oil/non-aqueous liquid samples and all TCLP / WET / DI WET / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in μg/wipe, filter samples in μg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/02/09

pH

Analytical Method: SM4500H+B Work Order: 0904054

Lab ID	Client ID	Matrix	pH	DF
0904054-001I	TW-01-02	W	7.63 @ 23.3°C	1

Method Accuracy and Reporting Units	W	±0.05, pH units @ °C
	S	NA

* EPA method 9040; pH = -log(aH+) @ _°C; ± 0.05 units

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	Client Contact: Andrea Ricci	Date Extracted:	04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/07/09

Reactive Silica*

Analytical Method: SM4500-SiO2 D

Work Order: 0904054

Lab ID	Client ID	Matrix	Reactive Silica	DF
0904054-001A	TW-01-02	W	62	50

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.05 mg/L
	S	NA

*water samples are reported in mg/L.

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696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/03/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/03/09

Salinity*

Analytical Method: SM2520B

Work Order: 0904054

Lab ID	Client ID	Matrix	Salinity	DF
0904054-001T	TW-01-02	W	1100 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* Salinity (mg/L) = 0.64 * S.C.(µmhos/cm @ 25°C) per SSSA volume 5 part 3.

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		Date Received: 04/02/09
696 West 10th Street	Client Contact: Andrea Ricci	Date Extracted: 04/03/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/03/09

Specific Conductivity*

Analytical Method: SM2510B Work Order: 0904054

Lab ID	Client ID	Matrix	Specific Conductivity	DF
0904054-001G	TW-01-02	W	1720 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 µmhos/cm @ 25°C
	S	NA

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/03/09

Silicon*

Extraction method: E200.7 Analytical methods: 200.7 Work Order: 0904054

Lab ID	Client ID	Matrix	Extraction Type	Silicon	DF	% SS
0904054-001N	TW-01-02	W	TOTAL	25,000	10	---#

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	50	μg/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in μg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in μg/wipe, filter samples in μg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/03/09

Total Coliform / E. Coli, Enumeration

Analytical Method: SM9223B

Work Order: 0904054

Lab ID	Client ID	Matrix	Total Coliform	95% Confident Interval	E. Coli	95% Confident Interval	DF
0904054-001R	TW-01-02	W	ND	---	ND	---	1

Reporting Limit & Reporting Units	W	1.0 MPN/100ml
	S	NA

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	Client Contact: Andrea Ricci	Date Extracted:	04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/03/09

Total Dissolved Solids*

Analytical Method: SM2540C

Work Order: 0904054

Lab ID	Client ID	Matrix	Total Dissolved Solids	DF
0904054-001G	TW-01-02	W	1130	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* water samples reported in mg/L.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Total Organic Carbon (TOC)*

Analytical Method: E415.3 Work Order: 0904054

Lab ID	Client ID	Matrix	TOC	DF
0904054-001C	TW-01-02	W	15	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.3 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3. TOC is analyzed as NPOC.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/03/09

Total Phosphorous as P*

Analytical Method: E365.1 Work Order: 0904054

Lab ID	Client ID	Matrix	Total Phosphorous as P	DF
0904054-001P	TW-01-02	W	0.19	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/03/09

Total Suspended Solids*

Analytical Method: SM2540D Work Order: 0904054

Lab ID	Client ID	Matrix	Total Suspended Solids	DF
0904054-001H	TW-01-02	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg/L
	S	NA

* water samples reported in mg/L.

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696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Turbidity

Analytical Method: SM2130B Work Order: 0904054

Lab ID	Client ID	Matrix	Turbidity	DF
0904054-001J	TW-01-02	W	0.401	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.1 NTU
	S	NA

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	04/02/09
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	Client Contact: Andrea Ricci	Date Extracted:	04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/03/09

UV-Absorbing Organic Constituents

Analytical Method: SM5910B

Work Order: 0904054

Lab ID	Client ID	Matrix	UV254	DF
0904054-001Q	TW-01-02	W	0.043	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.02 cm^{-1}
	S	NA

UV254 Absorbance reporting limit 0.009 cm-1 is approximately the same as 0.5 mg/L Carbon of KHP standard.

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QC SUMMARY REPORT FOR E300.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42368 | WorkOrder 0904054

EPA Method E300.1 | **Extraction E300.1** | **Spiked Sample ID: N/A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Chloride	N/A	1	N/A	N/A	N/A	98.6	98.6	0	N/A	N/A	85 - 115	15
Fluoride	N/A	1	N/A	N/A	N/A	104	105	0.118	N/A	N/A	85 - 115	15
Nitrate as N	N/A	1	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
Nitrate as $NO3^-$	N/A	4.4	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
%SS:	N/A	0.10	N/A	N/A	N/A	92	93	0.271	N/A	N/A	90 - 115	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42368 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001O	04/02/09 11:00 AM	04/02/09	04/02/09 4:27 PM	0904054-001O	04/02/09 11:00 AM	04/02/09	04/02/09 5:07 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

surrogate diluted out of range or surrogate coelutes with another peak.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR SM5520B/F

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42376 | WorkOrder 0904054

EPA Method SM5520B/F | **Extraction SM5520B/F** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
POG	N/A	20.83	N/A	N/A	N/A	95.8	93.3	2.64	N/A	N/A	70 - 130	25

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42376 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001M	04/02/09 11:00 AM	04/02/09	04/03/09 10:20 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42430 | WorkOrder: 0904054

EPA Method SW8260B | **Extraction SW5030B** | **Spiked Sample ID: 0904045-013C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	89.9	92.4	2.67	93.8	98.7	5.13	70 - 130	30	70 - 130	30
Benzene	ND	10	111	117	5.69	109	115	4.60	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	75.1	76.6	1.99	72.3	79.9	9.89	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	96.5	102	5.25	106	107	1.25	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	102	105	2.78	108	111	2.96	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	95.5	98	2.61	101	106	4.67	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	82.4	84.6	2.62	89.1	93.2	4.47	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	99.8	104	3.93	94.8	96.7	2.03	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	107	111	3.56	102	106	4.03	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	100	101	0.992	95.1	98.1	3.14	70 - 130	30	70 - 130	30
Toluene	ND	10	108	114	5.07	116	118	1.50	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	115	118	2.64	126	128	1.42	70 - 130	30	70 - 130	30
%SS1:	76	25	75	76	0.431	75	75	0	70 - 130	30	70 - 130	30
%SS2:	90	25	90	90	0	105	103	1.46	70 - 130	30	70 - 130	30
%SS3:	78	2.5	78	78	0	88	88	0	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42430 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001S	04/02/09 11:00 AM	04/02/09	04/02/09 4:13 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Alkalinity **Matrix: W** **WorkOrder: 0904054**

Method Name: SM2320B Units mg CaCO3/L BatchID: 42380

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904054-001A	263	1	263	1	0.201	<20

BATCH 42380 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001A	)4/02/09 11:00 AM	04/02/09	04/02/09 4:19 PM				

Test Method: pH **Matrix: W** **WorkOrder: 0904054**

Method Name: SM4500H+B Units ±, pH units @ °C BatchID: 42440

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0904054-001I	7.63 @ 23.3°C	1	7.62 @ 23.3°C	1	0.01	0.02

BATCH 42440 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001I	)4/02/09 11:00 AM	04/02/09	04/02/09 5:12 PM				

Test Method: Turbidity **Matrix: W** **WorkOrder: 0904054**

Method Name: SM2130B Units NTU BatchID: 42442

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904054-001J	0.401	1	0.429	1	6.75	<10

BATCH 42442 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001J	)4/02/09 11:00 AM	04/02/09	04/02/09 4:55 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR E350.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42431 | WorkOrder: 0904054

EPA Method: E350.1 | **Extraction: SM4500-NH3** | **Spiked Sample ID: 0904049-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Ammonia as N	ND	4	107	106	0.758	107	106	1.14	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42431 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001P	04/02/09 11:00 AM	04/02/09	04/02/09 5:48 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5210B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42409 | WorkOrder 0904054

EPA Method SM5210B | **Extraction SM5210B** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
BOD	N/A	198	N/A	N/A	N/A	99.7	99.5	0.253	N/A	N/A	80 - 120	16

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42409 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001K	04/02/09 11:00 AM	04/02/09	04/07/09 2:22 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-Cl DE

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42381 | WorkOrder 0904054

EPA Method SM4500-Cl DE | **Extraction SM4500-Cl DE** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chlorine	N/A	0.20	N/A	N/A	N/A	97.6	100	2.63	N/A	N/A	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42381 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001F	04/02/09 11:00 AM	04/02/09	04/02/09 3:32 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E410.4

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42432 | WorkOrder: 0904054

EPA Method: E410.4 | **Extraction: E410.4** | **Spiked Sample ID: 0904049-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
COD	41	400	97.6	97	0.567	106	101	4.13	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42432 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001E	04/02/09 11:00 AM	04/02/09	04/02/09 5:13 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2120B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42401 | WorkOrder: 0904054

EPA Method: SM2120B | **Extraction: SM2120B** | **Spiked Sample ID: 0904011-001B**

Analyte	Sample Color Units	Spiked Color Units	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
True Color	ND	40	127	130	1.97	99	97.3	1.76	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42401 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001I	04/02/09 11:00 AM	04/03/09	04/03/09 9:04 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Dissolved Oxygen **Matrix: W** **WorkOrder: 0904054**

Method Name: SM4500OG Units mg DO/L @ °C BatchID: 42377

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0904054-001L	1.72 @ 21.4 °C	1	1.71 @ 21.4 °C	1	0.01	0.05

BATCH 42377 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001L	)4/02/09 11:00 AM	04/02/09	04/02/09 9:10 PM				

Test Method: Specific Conductivity **Matrix: W** **WorkOrder: 0904054**

Method Name: SM2510B Units µmhos/cm @ 25°C BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904054-001G	1720 @ 25.0°C	1	1710 @ 25.0°C	1	0.408	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001G	)4/02/09 11:00 AM	04/03/09	04/03/09 3:00 PM				

Test Method: Total Dissolved Solids **Matrix: W** **WorkOrder: 0904054**

Method Name: SM2540C Units mg/L BatchID: 42375

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904054-001G	1130	1	1130	1	0.355	<20

BATCH 42375 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001G	)4/02/09 11:00 AM	04/02/09	04/03/09 2:05 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0904054

EPA Method: E415.3 **Extraction: E415.3** **BatchID: 42372** **Spiked Sample ID: 0903756-001F**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Dissolved Organic	12	50	94.6	105	8.66	60	112	112	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42372 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001D	04/02/09 11:00 AM	04/02/09	04/02/09 7:49 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2340B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42434 | WorkOrder: 0904054

EPA Method SM2340B **Extraction E200.8** **Spiked Sample ID: 0903703-006A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Hardness	120	2.91	NR	NR	NR	99.7	99.7	0	70 - 130	20	85 - 115	20
%SS:	103	0.75	102	104	1.43	100	99	0.874	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42434 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001N	04/02/09 11:00 AM	04/02/09	04/03/09 12:50 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42433 WorkOrder 0904054

EPA Method E415.3 **Extraction E415.3** **Spiked Sample ID: 0904049-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
IC as CO2	760	36.7	87.9	98.9	0.511	102	101	1.09	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42433 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001B	04/02/09 11:00 AM	04/02/09	04/02/09 5:15 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E200.8

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42434 | WorkOrder 0904054

EPA Method E200.8 | **Extraction E200.8** | **Spiked Sample ID: 0903703-006A**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Aluminum	ND	100	111	115	3.28	96.9	96.4	0.528	70 - 130	20	85 - 115	20
Arsenic	1.4	10	97.8	96.1	1.54	96.2	94.5	1.80	70 - 130	20	85 - 115	20
Barium	44	100	89.8	91.2	1.04	89.2	88.6	0.731	70 - 130	20	85 - 115	20
Calcium	26,000	1000	NR	NR	NR	102	103	0.683	70 - 130	20	85 - 115	20
Chromium	ND	10	95.3	95	0.305	94.2	94.4	0.180	70 - 130	20	85 - 115	20
Copper	19	10	87.6	86.6	0.361	95.2	94.3	0.908	70 - 130	20	85 - 115	20
Iron	29	100	102	101	0.846	102	98	3.56	70 - 130	20	85 - 115	20
Lead	ND	10	98.8	99.4	0.580	97.3	97.8	0.482	70 - 130	20	85 - 115	20
Magnesium	13,000	100	NR	NR	NR	92.4	93	0.636	70 - 130	20	85 - 115	20
Manganese	ND	100	103	103	0	105	105	0	70 - 130	20	85 - 115	20
Mercury	ND	0.25	118	113	4.27	112	112	0	70 - 130	20	85 - 115	20
Nickel	1.2	10	92	91.2	0.677	90.6	90	0.631	70 - 130	20	85 - 115	20
Selenium	ND	10	98.9	99.7	0.771	98.9	98.9	0	70 - 130	20	85 - 115	20
Sodium	47,000	1000	NR	NR	NR	105	105	0	70 - 130	20	85 - 115	20
Strontium	250	100	NR	NR	NR	104	105	0.191	70 - 130	20	85 - 115	20
%SS:	103	750	102	104	1.43	100	99	0.874	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42434 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001N	04/02/09 11:00 AM	04/02/09	04/03/09 12:50 PM	0904054-001N	04/02/09 11:00 AM	04/02/09	04/03/09 12:59 PM
0904054-001N	04/02/09 11:00 AM	04/02/09	04/03/09 2:23 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-SiO2 D

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42371 | WorkOrder: 0904054

EPA Method: SM4500-SiO2 D **Extraction: SM4500-SiO2 D** **Spiked Sample ID: 0903753-001C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Reactive Silica	18	1	NR	NR	NR	103	105	1.97	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42371 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001A	04/02/09 11:00 AM	04/02/09	04/07/09 12:05 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Salinity **Matrix: W** **WorkOrder: 0904054**

Method Name: SM2520B Units mg/L BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904054-001T	1100 @ 25.0°C	1	1100 @ 25.0°C	1	0.408	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001T	)4/02/09 11:00 AM	04/03/09	04/03/09 3:00 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR 200.7

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42369 | WorkOrder 0904054

EPA Method 200.7 | **Extraction E200.7** | **Spiked Sample ID: 0903703-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Silicon	8400	1000	NR	NR	NR	91.4	98.3	7.29	70 - 130	20	80 - 120	20
%SS:	98	750	96	94	1.82	99	99	0	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42369 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001N	04/02/09 11:00 AM	04/02/09	04/03/09 9:12 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644

QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

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Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Coliform / E. Coli, Enumeration **Matrix: W** **WorkOrder: 0904054**

Method Name: SM9223B BatchID: 42374

Lab ID	Analyte	Reporting Units	Sample	DF	Dup	DF	% RPD	Acceptance Criteria (%)
0904054-001R	E Coli	MPN/100ml	ND	1	ND	1	N/A	<70
	Total Coliform	MPN/100ml	ND	1	1.0	1	NR	<70

BATCH 42374 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001R	)4/02/09 11:00 AM	04/02/09	04/03/09 11:35 AM				

% RPD = abs(Sample - Dup) / ((Sample + Dup) / 2) * 100

N/A = Not Applicable

NR = %RPD may fall outside of laboratory acceptance criteria due to sample inconsistency between two containers.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water | QC Matrix: Water | WorkOrder 0904054

EPA Method E415.3 | **Extraction E415.3** | **BatchID: 42351** | **Spiked Sample ID 0903756-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TOC	5.0	50	103	101	1.87	60	93.1	100	7.13	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42351 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001C	)4/02/09 11:00 AM	04/02/09	04/02/09 8:22 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 | QA/QC Officer

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QC SUMMARY REPORT FOR E365.1

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42441 WorkOrder: 0904054

EPA Method: E365.1 **Extraction: E365.1** **Spiked Sample ID: 0904054-001P**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Phosphorous as P	0.19	0.80	106	105	0.759	99.7	101	1.17	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42441 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001P	04/02/09 11:00 AM	04/02/09	04/03/09 2:30 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Suspended Solids **Matrix: W** **WorkOrder: 0904054**

Method Name: SM2540D Units mg/L BatchID: 42410

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904054-001H	ND	1	ND<2.00	2	N/A	<15

BATCH 42410 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001H	)4/02/09 11:00 AM	04/03/09	04/03/09 2:15 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR SM5910B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42373 WorkOrder 0904054

EPA Method SM5910B **Extraction SM5910B** **Spiked Sample ID: 0903756-001g**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	cm^{-1}	cm^{-1}	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
UV254	0.025	0.090	86	86.4	0.313	95.4	96.4	1.04	80 - 120	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42373 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904054-001Q	04/02/09 11:00 AM	04/02/09	04/03/09 1:46 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

RD = Absolute Value {Sample - Duplicate}; RPD = 100 * (Sample - Duplicate) / (Sample + Duplicate) * 2.

Calibration formula used to calculate as Carbon mg/L KHP standard is UV254 Abs = 19.3559172 x Amt - 2.7206959

DHS ELAP Certification 1644

QA/QC Officer

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"When Quality Counts"

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported: 04/09/09
	Client P.O.:	Date Completed: 04/09/09

WorkOrder: 0904057

April 09, 2009

Dear Andrea:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **WHPA Drilling,**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

Mirant Corporation
Chain of Custody
696 West 10th St
Pittburg, CA 94565
Phone 925-427-3554 Fax 925-427-3511

Laboratory: **Mc Cambell Anayltical**
Maria Venegas
1534 Willow Pass Road
Pittsburg, CA Phone: 925-252-9262 Fax: 925-252-9269

0964057

Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Andrea Ricci

California EDF Report? ☐ Yes ■ No

Company / Address: 696 West 10th St, Pittsburg, CA 94565

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Phone No.: (925) 427-3554

Fax No.: (925) 427-3511

Global ID:

Project Number:

P.O. No.:

EDF Deliverable To (Email Address): andrea.ricci@mirant.com

Project Name: WHPA Drilling

Sampler Signature:

Project Address: Pittsburg Power Plant, Pittsburg, CA 94565

Analysis Request

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	125 mL HDPE	1L HDPE	1L AMBER	500 mL HDPE	250 mL HDPE	120 ml Plastic	Preservative: HCl	HNO_3	NaOH	$Na_2S_2O_3$	H_2SO_4	Matrix: WATER	SOIL	Alkalinity	Carbon dioxide, TOC, DOC, COD	Chlorine	Specific Conductivity, pH, TDS	TSS	Color, Turbidity, BOD, DO	Oil and Grease	Metals - Al, Cu, Ba, Fe, Mn, Sr, Se, Ar, Hg, Ni, Si, Pb, Cr, Ca' Mg, Na, Reactive Silica, Hardness	300-1 - Chloride, fluoride, nitrate	Total Phosphorous (365.1), Ammonium	UV254	Total Coliform	VOC	Salinity	TAT (12hr, 24hr, 48hr, 72hr, 1wk, 2wk, Mix)	For Lab Use Only
(+) TW-01-02-DUP							X								X		X														####	
TW-01-02-DUP			X							X		X		X	X			X													####	
TW-01-02-DUP						X									X				X												####	
TW-01-02-DUP							X								X					X											####	
TW-01-02-DUP					X										X						X										####	
TW-01-02-DUP					X	X	X	X							X							X									####	
TW-01-02-DUP						X				X					X								X								####	
TW-01-02-DUP			X				X	X		X	X				X									X							####	
TW-01-02-DUP				X							X				X										X						####	
TW-01-02-DUP						X								X	X											X					####	
TW-01-02-DUP			X												X												X				####	
TW-01-02-DUP									X				X		X													X			####	
TW-01-02-DUP			X							X					X														X		####	
TW-01-02-DUP				X											X															X	####	

Relinquished by:	Date	Time	Received by:
BSn	4/2/09	1215	[signature]
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks: ICE/t° 21.6°c
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB ___
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB ___
PRESERVATION VOAS | O&G | METALS | OTHER

Bill to: Mirant Corporation c/o Andrea Ricci
696 West 10th Street, Pittsburg, CA

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0904057 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **04/02/2009**
Date Printed: **04/02/2009**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
0904057-001	TW-01-02-DUP	Water	4/2/2009 11:15		O	M	S	A	P	K	F	E	I	L	D	N

Test Legend:

1	**300_1_W**	**2**	**5520B_SG_W**	**3**	**8260B_W**	**4**	**Alka(spe)_W**	**5**	**AMMONIUM_W**
6	**BOD_W**	**7**	**CHLORINE1_W**	**8**	**COD_W**	**9**	**COLOR_W**	**10**	**DO_W**
11	**DOC_W**	**12**	**HARDMS_W**						

The following SampID: 001I contains testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0904057 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **04/02/2009**
Date Printed: **04/02/2009**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
0904057-001	TW-01-02-DUP	Water	4/2/2009 11:15		B	N	A	T	G	N	R	G	C	P	H	J

Test Legend:

13	**IC(CO2)_W**	**14**	**METALSMS_W**	**15**	**REACTSI_W**	**16**	**SALINITY_W**	**17**	**SC_W**
18	**SI_W**	**19**	**TCEC-Enum_W**	**20**	**TDS_W**	**21**	**TOC_W**	**22**	**TotalP_W**
23	**TSS_W**	**24**	**TURBIDITY_W**						

The following SampID: 001I contains testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0904057 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **04/02/2009**
Date Printed: **04/02/2009**

Requested Tests (See legend below)

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
0904057-001	TW-01-02-DUP	Water	4/2/2009 11:15		Q											

Test Legend:

1	**UV254_W**	**2**		**3**		**4**		**5**	
6		**7**		**8**		**9**		**10**	
11		**12**							

The following SampID: 001I contains testgroup.

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name: **Mirant Corporation**

Date and Time Received: **4/2/09 1:15:22 PM**

Project Name: **WHPA Drilling**

Checklist completed and reviewed by: Melissa Valles

WorkOrder N°: **0904057** Matrix Water

Carrier: Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes	No	
Chain of custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample labels?	Yes	No	
Sample IDs noted by Client on COC?	Yes	No	
Date and Time of collection noted by Client on COC?	Yes	No	
Sampler's name noted on COC?	Yes	No	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	No	NA
Shipping container/cooler in good condition?	Yes	No	
Samples in proper containers/bottles?	Yes	No	
Sample containers intact?	Yes	No	
Sufficient sample volume for indicated test?	Yes	No	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	No	
Container/Temp Blank temperature	Cooler Temp:	21.6°C	NA
Water - VOA vials have zero headspace / no bubbles?	Yes	No	No VOA vials submitted
Sample labels checked for correct preservation?	Yes	No	
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes	No	NA
Samples Received on Ice?	Yes	No	

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	04/02/09
696 West 10th Street		Date Received:	04/02/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported:	04/09/09
	Client P.O.:	Date Completed:	04/09/09

Work Order: 0904057

April 10, 2009

RE: Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC) Results

A data discrepancy was observed between the TOC and DOC data. Theoretically, TOC concentrations should be greater than DOC but this sample's TOC data is less than its DOC data (9.1 mg/L vs. 15 mg/L)

To verify the original results, the TOC and DOC samples were re-analyzed from 2 new (different) containers and these results confirmed the originally reported data. Also, all QC parameters (Method Blank, LSC/LSCD, MS/MSD & CCV) were found to be within their proper acceptance limits.

TOC is reported as the sum of the Purgeable Organic Carbon (POC) and the Non-Purgeable Organic Carbon (NPOC). DOC is reported as the sum of the Dissolved POC and the Dissolved NPOC.

The NPOC & and Dissolved NPOC concentrations are consistent with both the TOC and DOC results. The POC concentration in the TOC sub-sample is significantly lower than the Dissolved POC in the DOC sub-sample. Since the TOC sub-sample was collected into an HCl preserved VOA and DOC sub-sample was collected into an unpreserved VOA, we hypothesize that there are some purgeable organic compounds in the sample that may have degraded quickly in the acid which caused the data discrepancy.

AR

Angela Rydelius, Lab Manager

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Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Inorganic Anions by IC*

Extraction method: E300.1 Analytical methods: E300.1 Work Order: 0904057

Lab ID	Client ID	Matrix	Chloride	DF	Fluoride	DF	Nitrate as N	DF	Nitrate as $NO3^{-}$	DF	% SS
001O	TW-01-02-DUP	W	250	100	0.29	1	1.3	1	5.9	1	92
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	0.1		0.1		0.1		0.45		mg/L
		S	NA		NA		NA		NA		mg/Kg

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as $NO3^{-}$] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

DHS ELAP Certification 1644

AR Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/03/09

Petroleum Oil & Grease with Silica Gel Clean-Up*

Extraction method SM5520B/F Analytical methods SM5520B/F Work Order: 0904057

Lab ID	Client ID	Matrix	POG	DF	% SS
0904057-001M	TW-01-02-DUP	W	ND	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	5.0	mg/L
	S	NA	NA

* water samples and all TCLP & SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

DF = dilution factor (may be raised to dilute target analyte or matrix interference).

surrogate diluted out of range or not applicable to this sample.

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B   Analytical Method: SW8260B   Work Order: 0904057

Lab ID: 0904057-001S
Client ID: TW-01-02-DUP
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	78	%SS2:	88
%SS3:	81		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/02/09

Total & Speciated Alkalinity as Calcium Carbonate*

Extraction method SM2320B Analytical methods SM2320B Work Order: 0904057

Lab ID	Client ID	Matrix	Total*	Carbonate*	Bicarbonate*	Hydroxide*	DF
001A	TW-01-02-DUP	W	264	ND	264	ND	1

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	1.0	1.0	1.0	1.0	mg CaCO3/L
	S	NA	NA	NA	NA	mg/Kg

*water samples are reported in mg calcium carbonate/L. Hydroxide, Carbonate & Bicarbonate alkalinity measure @ end-point of pH = 8.3 & 4.5 per SM2320B.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/03/09

Ammonium as N*

Analytical Method: E350.1 Work Order: 0904057

Lab ID	Client ID	Matrix	Total Ammonium as N	DF
0904057-001P	TW-01-02-DUP	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.2 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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696 West 10th Street		Date Received:	04/02/09
	Client Contact: Andrea Ricci	Date Extracted:	04/02/09-04/07/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed:	04/02/09-04/07/09

Biochemical Oxygen Demand (BOD)*

Analytical Method: SM5210B

Work Order: 0904057

Lab ID	Client ID	Matrix	BOD	DF
0904057-001K	TW-01-02-DUP	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	4.0 mg/L
	S	NA

* water samples are reported in mg/L.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Chlorine, Total Residual*

Analytical Method: SM4500-Cl DE   Work Order: 0904057

Lab ID	Client ID	Matrix	Chlorine	DF
0904057-001F	TW-01-02-DUP	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

* water samples are reported in mg/L, soil samples are extracted using DISTLC and rotate for a very short time due to stablibilty of chlorine and reported in mg/kg.

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Chemical Oxygen Demand (COD)*

Analytical Method: E410.4 Work Order: 0904057

Lab ID	Client ID	Matrix	COD	DF
0904057-001E	TW-01-02-DUP	W	32	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Apparent Color*

Analytical Method: SM2120B

Work Order: 0904057

Lab ID	Client ID	Matrix	Apparent Color	DF
0904057-001I	TW-01-02-DUP	W	2.6	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.0 Color Units
	S	NA

* water samples are reported in Color Units.

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Dissolved Oxygen

Analytical Method: SM4500OG

Work Order: 0904057

Lab ID	Client ID	Matrix	Dissolved Oxygen	DF
0904057-001L	TW-01-02-DUP	W	2.11 @ 21.5 °C	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	1.0 mg DO/L @ °C	
		S	NA	

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Dissolved Organic Carbon (DOC)*

Analytical Method: E415.3 Work Order: 0904057

Lab ID	Client ID	Matrix	Dissolved Organic Carbon	DF
0904057-001D	TW-01-02-DUP	W	15	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.7 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Hardness*

Extraction method E200.8 Analytical methods SM2340B Work Order: 0904057

Lab ID	Client ID	Matrix	Extraction Type	Hardness	DF	% SS
0904057-001N	TW-01-02-DUP	W	TOTAL	250	20	104

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	1.0	mg CaCO3/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in mg CaCO3/L.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/02/09

Inorganic Carbon as Carbon Dioxide*

Analytical Method: E415.3 Work Order: 0904057

Lab ID	Client ID	Matrix	IC as CO2	DF
0904057-001B	TW-01-02-DUP	W	220	5

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	3.7 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

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Metals*

Extraction Method: E200.8 Analytical Method: E200.8 Work Order: 0904057

		Reporting Limit for DF =1	
Lab ID	0904057-001N		
Client ID	TW-01-02-DUP		
Matrix	Water		
DF	1		
Extraction Type	TOTAL	S	W
Compound	**Concentration**	µg/kg	µg/L
Aluminum	ND	NA	50
Arsenic	7.0	NA	0.5
Barium	18	NA	5.0
Calcium	76,000	NA	100
Chromium	ND	NA	0.5
Copper	ND	NA	0.5
Iron	82	NA	20
Lead	ND	NA	0.5
Magnesium	23,000	NA	20
Manganese	130	NA	20
Mercury	ND	NA	0.012
Nickel	ND	NA	0.5
Selenium	3.4	NA	0.5
Sodium	360,000	NA	100
Strontium	1100	NA	20
Surrogate Recoveries (%)			
%SS:	106		

Comments

*water samples are reported in ug/L, product/oil/non-aqueous liquid samples and all TCLP / WET / DI WET / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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pH

Analytical Method: SM4500H+B

Work Order: 0904057

Lab ID	Client ID	Matrix	pH	DF
0904057-001I	TW-01-02-DUP	W	7.55 @ 23.2°C	1
Method Accuracy and Reporting Units		W	±0.05, pH units @ °C	
		S	NA	

* EPA method 9040; pH = -log(aH+) @ _°C; ± 0.05 units

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Reactive Silica*

Analytical Method: SM4500-SiO2 D

Work Order: 0904057

Lab ID	Client ID	Matrix	Reactive Silica	DF
0904057-001A	TW-01-02-DUP	W	60	50

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.05 mg/L
	S	NA

*water samples are reported in mg/L.

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	Client Contact: Andrea Ricci	Date Extracted:	04/06/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/06/09

Salinity*

Analytical Method: SM2520B   Work Order: 0904057

Lab ID	Client ID	Matrix	Salinity	DF
0904057-001T	TW-01-02-DUP	W	1260 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* Salinity (mg/L) = 0.64 * S.C.(µmhos/cm @ 25°C) per SSSA volume 5 part 3.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/06/09

Specific Conductivity*

Analytical Method: SM2510B Work Order: 0904057

Lab ID	Client ID	Matrix	Specific Conductivity	DF
0904057-001G	TW-01-02-DUP	W	1970 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 µmhos/cm @ 25°C
	S	NA

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Silicon*

Extraction method E200.7 | Analytical methods 200.7 | Work Order: 0904057

Lab ID	Client ID	Matrix	Extraction Type	Silicon	DF	% SS
0904057-001N	TW-01-02-DUP	W	TOTAL	22,000	10	90

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	50	µg/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Total Coliform / E. Coli, Enumeration

Analytical Method: SM9223B

Work Order: 0904057

Lab ID	Client ID	Matrix	Total Coliform	95% Confident Interval	E. Coli	95% Confident Interval	DF
0904057-001R	TW-01-02-DUP	W	ND	---	ND	---	1

Reporting Limit & Reporting Units	W	1.0 MPN/100ml
	S	NA

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Total Dissolved Solids*

Analytical Method: SM2540C

Work Order: 0904057

Lab ID	Client ID	Matrix	Total Dissolved Solids	DF
0904057-001G	TW-01-02-DUP	W	1120	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* water samples reported in mg/L.

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Total Organic Carbon (TOC)*

Analytical Method: E415.3 Work Order: 0904057

Lab ID	Client ID	Matrix	TOC	DF
0904057-001C	TW-01-02-DUP	W	9.1	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.3 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3. TOC is analyzed as NPOC.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/07/09

Total Phosphorous as P*

Analytical Method: E365.1 Work Order: 0904057

Lab ID	Client ID	Matrix	Total Phosphorous as P	DF
0904057-001P	TW-01-02-DUP	W	0.20	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 04/02/09
696 West 10th Street		Date Received: 04/02/09
	Client Contact: Andrea Ricci	Date Extracted: 04/06/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/06/09

Total Suspended Solids*

Analytical Method: SM2540D

Work Order: 0904057

Lab ID	Client ID	Matrix	Total Suspended Solids	DF
0904057-001H	TW-01-02-DUP	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg/L
	S	NA

* water samples reported in mg/L.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	04/02/09
696 West 10th Street		Date Received:	04/02/09
	Client Contact: Andrea Ricci	Date Extracted:	04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/02/09

Turbidity

Analytical Method: SM2130B

Work Order: 0904057

Lab ID	Client ID	Matrix	Turbidity	DF
0904057-001J	TW-01-02-DUP	W	0.420	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.1 NTU
	S	NA

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	04/02/09
696 West 10th Street		Date Received:	04/02/09
	Client Contact: Andrea Ricci	Date Extracted:	04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/03/09

UV-Absorbing Organic Constituents

Analytical Method: SM5910B Work Order: 0904057

Lab ID	Client ID	Matrix	UV254	DF
0904057-001Q	TW-01-02-DUP	W	0.040	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.02 cm^{-1}
	S	NA

UV254 Absorbance reporting limit 0.009 cm-1 is approximately the same as 0.5 mg/L Carbon of KHP standard.

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QC SUMMARY REPORT FOR E300.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42368 | WorkOrder: 0904057

EPA Method E300.1 | **Extraction E300.1** | **Spiked Sample ID: N/A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Chloride	N/A	1	N/A	N/A	N/A	98.6	98.6	0	N/A	N/A	85 - 115	15
Fluoride	N/A	1	N/A	N/A	N/A	104	105	0.118	N/A	N/A	85 - 115	15
Nitrate as N	N/A	1	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
Nitrate as $NO3^{-}$	N/A	4.4	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
%SS:	N/A	0.10	N/A	N/A	N/A	92	93	0.271	N/A	N/A	90 - 115	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42368 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001O	04/02/09 11:15 AM	04/02/09	04/02/09 5:48 PM	0904057-001O	04/02/09 11:15 AM	04/02/09	04/02/09 6:29 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

surrogate diluted out of range or surrogate coelutes with another peak.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5210B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42409 WorkOrder: 0904057

EPA Method SM5210B **Extraction SM5210B** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
BOD	N/A	198	N/A	N/A	N/A	99.7	99.5	0.253	N/A	N/A	80 - 120	16

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42409 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001K	04/02/09 11:15 AM	04/02/09	04/07/09 2:40 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E365.1

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42441 WorkOrder: 0904057

EPA Method E365.1 **Extraction E365.1** **Spiked Sample ID: 0904054-001P**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Phosphorous as P	0.19	0.80	106	105	0.759	99.7	101	1.17	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42441 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001P	04/02/09 11:15 AM	04/02/09	04/07/09 1:31 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5520B/F

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42376 | WorkOrder 0904057

EPA Method SM5520B/F | **Extraction SM5520B/F** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
POG	N/A	20.83	N/A	N/A	N/A	95.8	93.3	2.64	N/A	N/A	70 - 130	25

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42376 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001M	04/02/09 11:15 AM	04/02/09	04/03/09 10:25 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-Cl DE

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42381 | WorkOrder 0904057

EPA Method SM4500-Cl DE | **Extraction SM4500-Cl DE** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chlorine	N/A	0.20	N/A	N/A	N/A	97.6	100	2.63	N/A	N/A	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42381 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001F	04/02/09 11:15 AM	04/02/09	04/02/09 3:40 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2120B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42401 | WorkOrder 0904057

EPA Method SM2120B | **Extraction SM2120B** | **Spiked Sample ID: 0904011-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	Color Units	Color Units	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
True Color	ND	40	127	130	1.97	99	97.3	1.76	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42401 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001I	04/02/09 11:15 AM	04/03/09	04/03/09 9:04 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42430 | WorkOrder 0904057

EPA Method SW8260B **Extraction SW5030B** **Spiked Sample ID: 0904045-013C**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	89.9	92.4	2.67	93.8	98.7	5.13	70 - 130	30	70 - 130	30
Benzene	ND	10	111	117	5.69	109	115	4.60	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	75.1	76.6	1.99	72.3	79.9	9.89	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	96.5	102	5.25	106	107	1.25	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	102	105	2.78	108	111	2.96	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	95.5	98	2.61	101	106	4.67	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	82.4	84.6	2.62	89.1	93.2	4.47	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	99.8	104	3.93	94.8	96.7	2.03	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	107	111	3.56	102	106	4.03	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	100	101	0.992	95.1	98.1	3.14	70 - 130	30	70 - 130	30
Toluene	ND	10	108	114	5.07	116	118	1.50	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	115	118	2.64	126	128	1.42	70 - 130	30	70 - 130	30
%SS1:	76	25	75	76	0.431	75	75	0	70 - 130	30	70 - 130	30
%SS2:	90	25	90	90	0	105	103	1.46	70 - 130	30	70 - 130	30
%SS3:	78	2.5	78	78	0	88	88	0	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42430 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001S	04/02/09 11:15 AM	04/02/09	04/02/09 4:56 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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QC SUMMARY REPORT FOR E350.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42431 | WorkOrder 0904057

EPA Method E350.1 | **Extraction SM4500-NH3** | **Spiked Sample ID: 0904049-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Ammonia as N	ND	4	107	106	0.758	107	106	1.14	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42431 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001P	04/02/09 11:15 AM	04/03/09	04/03/09 3:45 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E410.4

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42432 | WorkOrder 0904057

EPA Method E410.4 **Extraction E410.4** **Spiked Sample ID: 0904049-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
COD	41	400	97.6	97	0.567	106	101	4.13	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42432 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001E	04/02/09 11:15 AM	04/02/09	04/02/09 5:24 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water   QC Matrix: Water   BatchID: 42433   WorkOrder 0904057

EPA Method E415.3   **Extraction E415.3**   **Spiked Sample ID: 0904049-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
IC as CO_2	760	36.7	87.9	98.9	0.511	102	101	1.09	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42433 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001B	04/02/09 11:15 AM	04/02/09	04/02/09 5:23 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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McCampbell Analytical, Inc.
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1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SM2340B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42434 | WorkOrder 0904057

EPA Method SM2340B **Extraction E200.8** **Spiked Sample ID: 0903703-006A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Hardness	120	2.91	NR	NR	NR	99.7	99.7	0	70 - 130	20	85 - 115	20
%SS:	103	0.75	102	104	1.43	100	99	0.874	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42434 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001N	04/02/09 11:15 AM	04/02/09	04/03/09 6:29 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Alkalinity **Matrix: W** **WorkOrder: 0904057**

Method Name: SM2320B Units mg $CaCO_3$/L BatchID: 42380

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904057-001A	264	1	263	1	0.178	<20

BATCH 42380 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001A	)4/02/09 11:15 AM	04/02/09	04/02/09 4:26 PM				

Test Method: Dissolved Oxygen **Matrix: W** **WorkOrder: 0904057**

Method Name: SM4500OG Units mg DO/L @ °C BatchID: 42377

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0904057-001L	2.11 @ 21.5 °C	1	2.10 @ 21.5 °C	1	0.01	0.05

BATCH 42377 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001L	)4/02/09 11:15 AM	04/02/09	04/02/09 9:20 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0904057

EPA Method E415.3 **Extraction E415.3** **BatchID: 42351** **Spiked Sample ID 0903756-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TOC	5.0	50	103	101	1.87	60	93.1	100	7.13	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42351 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001C	)4/02/09 11:15 AM	04/02/09	04/02/09 8:39 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0904057

EPA Method E415.3 **Extraction E415.3** **BatchID: 42372** **Spiked Sample ID 0903756-001F**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Dissolved Organic	12	50	94.6	105	8.66	60	112	112	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42372 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001D	)4/02/09 11:15 AM	04/02/09	04/02/09 8:05 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E200.8

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42434 | WorkOrder: 0904057

EPA Method E200.8 | **Extraction E200.8** | **Spiked Sample ID: 0903703-006A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Aluminum	ND	100	111	115	3.28	96.9	96.4	0.528	70 - 130	20	85 - 115	20
Arsenic	1.4	10	97.8	96.1	1.54	96.2	94.5	1.80	70 - 130	20	85 - 115	20
Barium	44	100	89.8	91.2	1.04	89.2	88.6	0.731	70 - 130	20	85 - 115	20
Calcium	26,000	1000	NR	NR	NR	102	103	0.683	70 - 130	20	85 - 115	20
Chromium	ND	10	95.3	95	0.305	94.2	94.4	0.180	70 - 130	20	85 - 115	20
Copper	19	10	87.6	86.6	0.361	95.2	94.3	0.908	70 - 130	20	85 - 115	20
Iron	29	100	102	101	0.846	102	98	3.56	70 - 130	20	85 - 115	20
Lead	ND	10	98.8	99.4	0.580	97.3	97.8	0.482	70 - 130	20	85 - 115	20
Magnesium	13,000	100	NR	NR	NR	92.4	93	0.636	70 - 130	20	85 - 115	20
Manganese	ND	100	103	103	0	105	105	0	70 - 130	20	85 - 115	20
Mercury	ND	0.25	118	113	4.27	112	112	0	70 - 130	20	85 - 115	20
Nickel	1.2	10	92	91.2	0.677	90.6	90	0.631	70 - 130	20	85 - 115	20
Selenium	ND	10	98.9	99.7	0.771	98.9	98.9	0	70 - 130	20	85 - 115	20
Sodium	47,000	1000	NR	NR	NR	105	105	0	70 - 130	20	85 - 115	20
Strontium	250	100	NR	NR	NR	104	105	0.191	70 - 130	20	85 - 115	20
%SS:	103	750	102	104	1.43	100	99	0.874	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42434 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001N	04/02/09 11:15 AM	04/02/09	04/03/09 6:38 PM	0904057-001N	04/02/09 11:15 AM	04/02/09	04/07/09 11:01 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: pH **Matrix: W** **WorkOrder: 0904057**

Method Name: SM4500H+B Units ±, pH units @ °C BatchID: 42440

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0904057-001I	7.55 @ 23.2°C	1	7.55 @ 23.3°C	1	0	0.02

BATCH 42440 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001I	)4/02/09 11:15 AM	04/02/09	04/02/09 5:18 PM				

Test Method: Specific Conductivity **Matrix: W** **WorkOrder: 0904057**

Method Name: SM2510B Units µmhos/cm @ 25°C BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904057-001G	1970 @ 25.0°C	1	1960 @ 25.0°C	1	0.662	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001G	)4/02/09 11:15 AM	04/06/09	04/06/09 5:00 PM				

Test Method: Total Suspended Solids **Matrix: W** **WorkOrder: 0904057**

Method Name: SM2540D Units mg/L BatchID: 42410

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904057-001H	ND	1	ND<2.00	2	N/A	<15

BATCH 42410 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001H	)4/02/09 11:15 AM	04/06/09	04/06/09 4:25 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR SM4500-SiO2 D

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42371 | WorkOrder: 0904057

EPA Method SM4500-SiO2 D | **Extraction SM4500-SiO2 D** | **Spiked Sample ID: 0903753-001C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Reactive Silica	18	1	NR	NR	NR	103	105	1.97	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42371 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001A	04/02/09 11:15 AM	04/02/09	04/07/09 12:06 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QA/QC Officer

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Salinity **Matrix: W** **WorkOrder: 0904057**

Method Name: SM2520B Units mg/L BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904057-001T	1260 @ 25.0°C	1	1250 @ 25.0°C	1	0.662	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001T	)4/02/09 11:15 AM	04/06/09	04/06/09 5:00 PM				

Test Method: Turbidity **Matrix: W** **WorkOrder: 0904057**

Method Name: SM2130B Units NTU BatchID: 42442

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904057-001J	0.420	1	0.412	1	1.92	<10

BATCH 42442 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001J	)4/02/09 11:15 AM	04/02/09	04/02/09 5:05 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Coliform / E. Coli, Enumeration **Matrix: W** **WorkOrder: 0904057**

Method Name: SM9223B BatchID: 42374

Lab ID	Analyte	Reporting Units	Sample	DF	Dup	DF	% RPD	Acceptance Criteria (%)
0904057-001R	E Coli	MPN/100ml	ND	1	ND	1	N/A	<70
	Total Coliform	MPN/100ml	ND	1	3.1	1	N/A	<70

BATCH 42374 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001R	)4/02/09 11:15 AM	04/02/09	04/03/09 5:38 PM				

% RPD = abs(Sample - Dup) / ((Sample + Dup) / 2) * 100

N/A = Not Applicable

NR = %RPD may fall outside of laboratory acceptance criteria due to sample inconsistency between two containers.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Dissolved Solids **Matrix: W** **WorkOrder: 0904057**

Method Name: SM2540C Units mg/L BatchID: 42375

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0904057-001G	1120	1	1120	1	0.268	<20

BATCH 42375 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001G	)4/02/09 11:15 AM	04/06/09	04/07/09 1:55 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR SM5910B

W.O. Sample Matrix: Water   QC Matrix: Water   BatchID: 42373   WorkOrder: 0904057

EPA Method SM5910B   **Extraction SM5910B**   **Spiked Sample ID: 0903756-001g**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	cm^{-1}	cm^{-1}	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
UV254	0.025	0.090	86	86.4	0.313	95.4	96.4	1.04	80 - 120	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42373 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0904057-001Q	04/02/09 11:15 AM	04/02/09	04/03/09 1:58 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

RD = Absolute Value {Sample - Duplicate}; RPD = 100 * (Sample - Duplicate) / (Sample + Duplicate) * 2.

Calibration formula used to calculate as Carbon mg/L KHP standard is UV254 Abs = 19.3559172 x Amt - 2.7206959

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported: 04/07/09
	Client P.O.:	Date Completed: 04/07/09

WorkOrder: 0903754

April 07, 2009

Dear Andrea:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **WHPA Drilling,**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

Mirant Corporation
Chain of Custody
696 West 10th St
Pittsburg, CA 94565
Phone 925-427-3554 Fax 925-427-3511

0903754

Laboratory: **Mc Cambell Anayltical**
Maria Venegas
1534 Willow Pass Road
Pittsburg, CA Phone: 925-252-9262 Fax: 925-252-9269

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Andrea Ricci

California EDF Report? ☐ Yes ■ No

Company / Address: 696 West 10th St, Pittsburg, CA 94565

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Phone No.: (925) 427-3554 **Fax No.:** (925) 427-3511

Global ID:

Project Number: **P.O. No.:**

EDF Deliverable To (Email Address): andrea.ricci@mirant.com

Project Name: WHPA Drilling

Sampler Signature:

Project Address: Pittsburg Power Plant, Pittsburg, CA 94565

Sample Designation	Sampling: Date	Sampling: Time	Container: 40 ml VOA	125 mL HDPE	1L HDPE	1L AMBER	500 mL HDPE	250 mL HDPE	120 ml Plastic	Preservative: HCl	HNO_3	NaOH	$Na_2S_2O_3$	H_2SO_4	Matrix: WATER	SOIL		Alkalinity	Carbon dioxide, TOC, DOC, COD	Chlorine	Specific Conductivity, pH, TDS	TSS	Color, Turbidity, BOD, DO	Oil and Grease	Metals - Al, Cu, Ba, Fe, Mn, Sr, Se, As, Hg, Ni, Si, Pb,Cr, Ca' Mg, Na, Reactive Silica, Hardness	300-1 - Chloride, fluoride, nitrate	Total Phosphorous (365.1), Ammonium	UV254	Total Coliform	VOC	Salinity		TAT (12hr, 24hr, 48hr, 72hr, 1wk, 2wk, Mix)	For Lab Use Only
WS-01	3/31/09	0830					X								X			X															####	
WS-01			X							X		X		X	X				X														####	
WS-01						X									X					X													####	
WS-01							X								X						X												####	
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WS-01					X	X	X	X							X								X										####	
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[signature]	3/31	12:18	[signature]
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks: ICE / t° 16.2
GOOD CONDITION ✓ APPROPRIATE CONTAINERS ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB ___ PRESERVED IN LAB ___
PRESERVATION VOAS | O&G | METALS | OTHER
142504/NaOH

Bill to: Mirant Corporation c/o Andrea Ricci
696 West 10th Street, Pittsburg, CA

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903754 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: 5 days

Date Received: 03/31/2009
Date Printed: 03/31/2009

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
					Requested Tests (See legend below)											
0903754-001	WS-01	Water	3/31/2009 8:30		L	R	A	C	S	O	Q	D	M	T	F	K

Test Legend:

1	300_1_W	2	5520B_SG_W	3	8260B_W	4	Alka(spe)_W	5	AMMONIUM_W
6	BOD_W	7	CHLORINE1_W	8	COD_W	9	COLOR_W	10	DO_W
11	DOC_W	12	HARDMS_W						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903754 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
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696 West 10th Street
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(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **03/31/2009**
Date Printed: **03/31/2009**

Lab ID	Client ID	Matrix	Collection Date	Hold	13	14	15	16	17	18	19	20	21	22	23	24
					Requested Tests (See legend below)											
0903754-001	WS-01	Water	3/31/2009 8:30		E	K	C	I	N	K	H	N	B	S	P	J

Test Legend:

13	**IC(CO2)_W**	**14**	**METALSMS_W**	**15**	**REACTSI_W**	**16**	**SALINITY_W**	**17**	**SC_W**
18	**SILICA_W**	**19**	**TCEC-Enum_W**	**20**	**TDS_W**	**21**	**TOC_W**	**22**	**TotalP_W**
23	**TSS_W**	**24**	**TURBIDITY_W**						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903754 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

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Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **03/31/2009**
Date Printed: **03/31/2009**

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
					Requested Tests (See legend below)											
0903754-001	WS-01	Water	3/31/2009 8:30		G											

Test Legend:

1	UV254_W	2		3		4		5	
6		7		8		9		10	
11		12							

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name:	**Mirant Corporation**	Date and Time Received	**03/31/09 2:28:40 PM**
Project Name:	**WHPA Drilling**	Checklist completed and reviewed by:	Maria Venegas
WorkOrder N°:	**0903754** Matrix Water	Carrier:	Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes	N	
Chain of custody signed when relinquished and received?	Yes	N	
Chain of custody agrees with sample labels?	Yes	N	
Sample IDs noted by Client on COC?	Yes	No	
Date and Time of collection noted by Client on COC?	Yes	No	
Sampler's name noted on COC?	Yes	No	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	N	NA
Shipping container/cooler in good condition?	Yes	N	
Samples in proper containers/bottles?	Yes	N	
Sample containers intact?	Yes	N	
Sufficient sample volume for indicated test?	Yes	N	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	N		
Container/Temp Blank temperature	Cooler Temp:	16.2°C		NA
Water - VOA vials have zero headspace / no bubbles?	Yes	N	No VOA vials submitted	
Sample labels checked for correct preservation?	Yes	No		
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes	N		NA
Samples Received on Ice?	Yes	N		

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported:	04/07/09
	Client P.O.:	Date Completed:	04/07/09

Work Order: 0903754

April 08, 2009

RE: Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC) Results

A data discrepancy was observed between the TOC and DOC data. Theoretically, TOC concentrations should be greater than DOC but this sample's TOC data is less than its DOC data (8.1 mg/L vs. 15 mg/L)

To verify the original results, the TOC and DOC samples were re-analyzed from 2 new (different) containers and these results confirmed the originally reported data. Also, all QC parameters (Method Blank, LSC/LSCD, MS/MSD & CCV) were found to be within their proper acceptance limits.

TOC is reported as the sum of the Purgeable Organic Carbon (POC) and the Non-Purgeable Organic Carbon (NPOC). DOC is reported as the sum of the Dissolved POC and the Dissolved NPOC.

The NPOC & and Dissolved NPOC concentrations are consistent with both the TOC and DOC results. The POC concentration in the TOC sub-sample is significantly lower than the Dissolved POC in the DOC sub-sample. Since the TOC sub-sample was collected into an HCl preserved VOA and DOC sub-sample was collected into an unpreserved VOA, we hypothesize that there are some purgeable organic compounds in the sample that may have degraded quickly in the acid which caused the data discrepancy.

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Angela Rydelius, Lab Manager

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Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
		Date Received 03/31/09
696 West 10th Street	Client Contact: Andrea Ricci	Date Extracted 03/31/09-04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyze 03/31/09-04/01/09

Inorganic Anions by IC*

Extraction method E300.1 Analytical methods E300.1 Work Order: 0903754

Lab ID	Client ID	Matrix	Chloride	DF	Fluoride	DF	Nitrate as N	DF	Nitrate as $NO3^{-}$	DF	% SS
001L	WS-01	W	540	200	ND	1	ND	1	ND	1	98

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.1	0.1	0.1	0.45	mg/L
	S	NA	NA	NA	NA	mg/Kg

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as $NO3^{-}$] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

DHS ELAP Certification 1644 Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Petroleum Oil & Grease with Silica Gel Clean-Up*

Extraction method SM5520B/F Analytical methods SM5520B/F Work Order: 0903754

Lab ID	Client ID	Matrix	POG	DF	% SS
0903754-001R	WS-01	W	ND	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	5.0	mg/L
	S	NA	NA

* water samples and all TCLP & SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

DF = dilution factor (may be raised to dilute target analyte or matrix interference).

surrogate diluted out of range or not applicable to this sample.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B   Analytical Method: SW8260B   Work Order: 0903754

Lab ID: 0903754-001A
Client ID: WS-01
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	79	%SS2:	88
%SS3:	84		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

DHS ELAP Certification 1644   Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/01/09

Total & Speciated Alkalinity as Calcium Carbonate*

Extraction method SM2320B Analytical methods SM2320B Work Order: 0903754

Lab ID	Client ID	Matrix	Total*	Carbonate*	Bicarbonate*	Hydroxide*	DF
001C	WS-01	W	207	ND	207	ND	1
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	1.0	1.0	1.0	1.0	mg CaCO3/L
		S	NA	NA	NA	NA	mg/Kg

*water samples are reported in mg calcium carbonate/L. Hydroxide, Carbonate & Bicarbonate alkalinity measure @ end-point of pH = 8.3 & 4.5 per SM2320B.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

Ammonium as N*

Analytical Method: E350.1 Work Order: 0903754

Lab ID	Client ID	Matrix	Total Ammonium as N	DF
0903754-001S	WS-01	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.2 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09-04/05/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09-04/05/09

Biochemical Oxygen Demand (BOD)*

Analytical Method: SM5210B

Work Order: 0903754

Lab ID	Client ID	Matrix	BOD	DF
0903754-001O	WS-01	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	4.0 mg/L
	S	NA

* water samples are reported in mg/L.

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 03/31/09

Chlorine, Total Residual*

Analytical Method: SM4500-Cl DE

Work Order: 0903754

Lab ID	Client ID	Matrix	Chlorine	DF
0903754-001Q	WS-01	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

* water samples are reported in mg/L, soil samples are extracted using DISTLC and rotate for a very short time due to stablibilty of chlorine and reported in mg/kg.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
		Date Received: 03/31/09
696 West 10th Street	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 03/31/09

Chemical Oxygen Demand (COD)*

Analytical Method: E410.4 Work Order: 0903754

Lab ID	Client ID	Matrix	COD	DF
0903754-001D	WS-01	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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AR Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

Apparent Color*

Analytical Method: SM2120B

Work Order: 0903754

Lab ID	Client ID	Matrix	Apparent Color	DF
0903754-001M	WS-01	W	4.1	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.0 Color Units
	S	NA

* water samples are reported in Color Units.

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Angela Rydelius, Lab Manager

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

Dissolved Oxygen

Analytical Method: SM4500OG

Work Order: 0903754

Lab ID	Client ID	Matrix	Dissolved Oxygen	DF
0903754-001T	WS-01	W	2.50 @ 22.0 °C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg DO/L @ °C
	S	NA

AR

Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/01/09

Dissolved Organic Carbon (DOC)*

Analytical Method: E415.3 Work Order: 0903754

Lab ID	Client ID	Matrix	Dissolved Organic Carbon	DF
0903754-001F	WS-01	W	15	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	0.7 mg/L	
		S	NA	

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/02/09

Hardness*

Extraction method: E200.8 Analytical methods: SM2340B Work Order: 0903754

Lab ID	Client ID	Matrix	Extraction Type	Hardness	DF	% SS
0903754-001K	WS-01	W	TOTAL	280	20	104

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	Matrix	Extraction Type	Limit	Units
	W	TOTAL	1.0	mg CaCO3/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in mg $CaCO_3$/L.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Inorganic Carbon as Carbon Dioxide*

Analytical Method: E415.3 Work Order: 0903754

Lab ID	Client ID	Matrix	IC as CO2	DF
0903754-001E	WS-01	W	160	5

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	3.7 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed:	04/02/09

Metals*

Extraction Method: E200.8 Analytical Method: E200.8 Work Order: 0903754

Lab ID	0903754-001K		Reporting Limit for DF =1	
Client ID	WS-01			
Matrix	Water			
DF	1			
Extraction Type	TOTAL		S	W
Compound		**Concentration**	µg/kg	µg/L
Aluminum	ND		NA	50
Arsenic	24		NA	0.5
Barium	14		NA	5.0
Calcium	58,000		NA	100
Chromium	ND		NA	0.5
Copper	ND		NA	0.5
Iron	ND		NA	20
Lead	ND		NA	0.5
Magnesium	34,000		NA	20
Manganese	230		NA	20
Mercury	0.012		NA	0.012
Nickel	ND		NA	0.5
Selenium	6.5		NA	0.5
Sodium	540,000		NA	100
Strontium	790		NA	20
Surrogate Recoveries (%)				
%SS:	104			

Comments

*water samples are reported in ug/L, product/oil/non-aqueous liquid samples and all TCLP / WET / DI WET / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

pH

Analytical Method: SM4500H+B Work Order: 0903754

Lab ID	Client ID	Matrix	pH	DF
0903754-001M	WS-01	W	7.30 @ 23.3°C	1

Method Accuracy and Reporting Units	W	±0.05, pH units @ °C
	S	NA

* EPA method 9040; pH = -log(aH+) @ _°C; ± 0.05 units

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	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/07/09

Reactive Silica*

Analytical Method: SM4500-SiO2 D   Work Order: 0903754

Lab ID	Client ID	Matrix	Reactive Silica	DF
0903754-001C	WS-01	W	42	10

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.05 mg/L
	S	NA

*water samples are reported in mg/L.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/06/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/06/09

Salinity*

Analytical Method: SM2520B Work Order: 0903754

Lab ID	Client ID	Matrix	Salinity	DF
0903754-001I	WS-01	W	1910 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* Salinity (mg/L) = 0.64 * S.C.(µmhos/cm @ 25°C) per SSSA volume 5 part 3.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
		Date Received: 03/31/09
696 West 10th Street	Client Contact: Andrea Ricci	Date Extracted: 04/06/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/06/09

Specific Conductivity*

Analytical Method: SM2510B

Work Order: 0903754

Lab ID	Client ID	Matrix	Specific Conductivity	DF
0903754-001N	WS-01	W	2990 @ 25.0°C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 µmhos/cm @ 25°C
	S	NA

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Silicon*

Extraction method E200.7 Analytical methods 200.7 Work Order: 0903754

Lab ID	Client ID	Matrix	Extraction Type	Silicon	DF	% SS
0903754-001K	WS-01	W	TOTAL	17,000	10	111

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	50	µg/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/01/09

Total Coliform / E. Coli, Enumeration

Analytical Method: SM9223B

Work Order: 0903754

Lab ID	Client ID	Matrix	Total Coliform	95% Confident Interval	E. Coli	95% Confident Interval	DF
0903754-001H	WS-01	W	ND	---	ND	---	1

Reporting Limit & Reporting Units	W	1.0 MPN/100ml
	S	NA

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	04/05/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed:	04/06/09

Total Dissolved Solids*

Analytical Method: SM2540C

Work Order: 0903754

Lab ID	Client ID	Matrix	Total Dissolved Solids	DF
0903754-001N	WS-01	W	1670	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* water samples reported in mg/L.

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09

Total Organic Carbon (TOC)*

Analytical Method: E415.3 Work Order: 0903754

Lab ID	Client ID	Matrix	TOC	DF
0903754-001B	WS-01	W	8.1	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.3 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3. TOC is analyzed as NPOC.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/07/09

Total Phosphorous as P*

Analytical Method: E365.1 Work Order: 0903754

Lab ID	Client ID	Matrix	Total Phosphorous as P	DF
0903754-001S	WS-01	W	0.14	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/01/09

Total Suspended Solids*

Analytical Method: SM2540D

Work Order: 0903754

Lab ID	Client ID	Matrix	Total Suspended Solids	DF
0903754-001P	WS-01	W	ND	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	1.0 mg/L	
		S	NA	

* water samples reported in mg/L.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed	03/31/09

Turbidity

Analytical Method: SM2130B

Work Order: 0903754

Lab ID	Client ID	Matrix	Turbidity	DF
0903754-001J	WS-01	W	0.954	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.1 NTU
	S	NA

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/02/09

UV-Absorbing Organic Constituents

Analytical Method: SM5910B Work Order: 0903754

Lab ID	Client ID	Matrix	UV254	DF
0903754-001G	WS-01	W	0.024	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.02 cm^{-1}
	S	NA

UV254 Absorbance reporting limit 0.009 cm-1 is approximately the same as 0.5 mg/L Carbon of KHP standard.

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QC SUMMARY REPORT FOR E300.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42368 | WorkOrder 0903754

EPA Method E300.1 | **Extraction E300.1** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chloride	N/A	1	N/A	N/A	N/A	98.6	98.6	0	N/A	N/A	85 - 115	15
Fluoride	N/A	1	N/A	N/A	N/A	104	105	0.118	N/A	N/A	85 - 115	15
Nitrate as N	N/A	1	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
Nitrate as $NO3^{-}$	N/A	4.4	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
%SS:	N/A	0.10	N/A	N/A	N/A	92	93	0.271	N/A	N/A	90 - 115	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42368 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001L	03/31/09 8:30 AM	03/31/09	03/31/09 7:44 PM	0903754-001L	03/31/09 8:30 AM	04/01/09	04/01/09 4:42 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

surrogate diluted out of range or surrogate coelutes with another peak.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42370 | WorkOrder 0903754

EPA Method SW8260B | **Extraction SW5030B** | **Spiked Sample ID: 0903753-001a**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	104	102	2.07	102	100	2.04	70 - 130	30	70 - 130	30
Benzene	ND	10	122	121	0.820	115	110	3.59	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	89.3	88.5	0.967	81.5	81.9	0.489	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	105	103	1.80	106	103	2.67	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	116	115	0.358	111	109	1.73	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	116	118	1.45	105	105	0	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	97	95.2	1.86	88.3	87	1.45	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	115	113	1.81	96.5	96	0.501	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	120	118	1.27	111	110	1.13	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	111	109	2.37	97.8	97.9	0.0521	70 - 130	30	70 - 130	30
Toluene	ND	10	115	112	3.08	122	118	3.18	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	124	120	3.39	119	118	0.491	70 - 130	30	70 - 130	30
%SS1:	80	25	83	82	1.13	75	76	1.49	70 - 130	30	70 - 130	30
%SS2:	88	25	100	100	0	108	108	0	70 - 130	30	70 - 130	30
%SS3:	85	2.5	77	75	3.03	101	100	0.752	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42370 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001A	03/31/09 8:30 AM	04/02/09	04/02/09 10:31 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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QC SUMMARY REPORT FOR SM2120B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42238 | WorkOrder: 0903754

EPA Method SM2120B **Extraction SM2120B** **Spiked Sample ID: 0903601-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	Color Units	Color Units	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
True Color	ND	40	105	106	0.960	101	101	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42238 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001M	03/31/09 8:30 AM	03/31/09	03/31/09 7:27 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E410.4

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42281 | WorkOrder: 0903754

EPA Method E410.4 **Extraction E410.4** **Spiked Sample ID: 0903652-001B**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
COD	ND	400	102	100	1.78	107	104	2.27	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42281 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001D	03/31/09 8:30 AM	03/31/09	03/31/09 7:05 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water   QC Matrix: Water   BatchID: 42299   WorkOrder: 0903754

EPA Method E415.3   **Extraction E415.3**   **Spiked Sample ID: 0903664-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
IC as CO2	360	36.7	89.2	85.2	0.376	98	99.8	1.83	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42299 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001E	03/31/09 8:30 AM	04/01/09	04/01/09 8:34 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-Cl DE

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42317 WorkOrder: 0903754

EPA Method SM4500-Cl DE **Extraction SM4500-Cl DE** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chlorine	N/A	0.20	N/A	N/A	N/A	101	99.1	1.80	N/A	N/A	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42317 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001Q	03/31/09 8:30 AM	03/31/09	03/31/09 4:00 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E350.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42323 | WorkOrder: 0903754

EPA Method E350.1 | **Extraction SM4500-NH3** | **Spiked Sample ID: 0903676-012C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Ammonia as N	13	4	96.7	103	1.54	105	105	0	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42323 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001S	03/31/09 8:30 AM	04/02/09	04/02/09 4:30 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E200.8

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42348 WorkOrder: 0903754

EPA Method E200.8 **Extraction E200.8** **Spiked Sample ID: 0903703-002A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Aluminum	ND	100	110	109	0.824	96.4	96.2	0.208	70 - 130	20	85 - 115	20
Arsenic	1.3	10	99.4	100	0.711	98.9	101	1.77	70 - 130	20	85 - 115	20
Barium	43	100	89.4	90.8	1.05	91.2	91.8	0.689	70 - 130	20	85 - 115	20
Calcium	30,000	1000	MR	NR	NR	96.7	91.3	5.71	70 - 130	20	85 - 115	20
Chromium	ND	10	103	102	1.44	107	108	1.30	70 - 130	20	85 - 115	20
Copper	11	10	93	94.3	0.639	98.8	99.9	1.15	70 - 130	20	85 - 115	20
Iron	ND	100	111	109	1.47	104	97.6	6.23	70 - 130	20	85 - 115	20
Lead	ND	10	98.9	97.7	1.22	100	100	0	70 - 130	20	85 - 115	20
Magnesium	15,000	100	NR	NR	NR	93.8	89.1	5.06	70 - 130	20	85 - 115	20
Manganese	ND	100	112	110	1.44	95.4	90.1	5.77	70 - 130	20	85 - 115	20
Mercury	ND	0.25	119	122	3.29	114	115	0.384	70 - 130	20	85 - 115	20
Nickel	1.3	10	92.8	92.1	0.661	97.5	100	2.68	70 - 130	20	85 - 115	20
Selenium	0.54	10	101	100	0.848	101	104	2.53	70 - 130	20	85 - 115	20
Sodium	55,000	1000	NR	NR	NR	105	99.2	5.64	70 - 130	20	85 - 115	20
Strontium	240	100	93.2	101	2.34	105	106	1.14	70 - 130	20	85 - 115	20
%SS:	105	750	103	103	0	102	105	3.79	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42348 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001K	03/31/09 8:30 AM	03/31/09	04/02/09 9:29 AM	0903754-001K	03/31/09 8:30 AM	03/31/09	04/02/09 9:15 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5910B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42373 | WorkOrder: 0903754

EPA Method SM5910B **Extraction SM5910B** **Spiked Sample ID: 0903756-001g**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	cm^{-1}	cm^{-1}	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
UV254	0.025	0.090	86	86.4	0.313	95.4	96.4	1.04	80 - 120	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42373 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001G	03/31/09 8:30 AM	03/31/09	04/02/09 7:00 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

RD = Absolute Value {Sample - Duplicate}; RPD = 100 * (Sample - Duplicate) / (Sample + Duplicate) * 2.

Calibration formula used to calculate as Carbon mg/L KHP standard is UV254 Abs = 19.3559172 x Amt - 2.7206959

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QC SUMMARY REPORT FOR SM5520B/F

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42376 WorkOrder: 0903754

EPA Method SM5520B/F **Extraction SM5520B/F** **Spiked Sample ID: N/A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
POG	N/A	20.83	N/A	N/A	N/A	95.8	93.3	2.64	N/A	N/A	70 - 130	25

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42376 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001R	03/31/09 8:30 AM	03/31/09	04/01/09 2:55 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Alkalinity **Matrix: W** **WorkOrder: 0903754**

Method Name: SM2320B Units mg CaCO3/L BatchID: 42295

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903754-001C	207	1	208	1	0.579	<20

BATCH 42295 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001C	03/31/09 8:30 AM	04/01/09	04/01/09 9:55 AM				

Test Method: Dissolved Oxygen **Matrix: W** **WorkOrder: 0903754**

Method Name: SM4500OG Units mg DO/L @ °C BatchID: 42377

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903754-001T	2.50 @ 22.0 °C	1	2.51 @ 22.0 °C	1	0.01	0.05

BATCH 42377 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001T	03/31/09 8:30 AM	03/31/09	03/31/09 3:20 PM				

Test Method: pH **Matrix: W** **WorkOrder: 0903754**

Method Name: SM4500H+B Units ±, pH units @ °C BatchID: 42318

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903754-001M	7.30 @ 23.3°C	1	7.31 @ 23.3°C	1	0.01	0.02

BATCH 42318 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001M	03/31/09 8:30 AM	03/31/09	03/31/09 4:50 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR SM5210B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42265 | WorkOrder: 0903754

EPA Method SM5210B **Extraction SM5210B** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
BOD	N/A	198	N/A	N/A	N/A	99	98.2	0.768	N/A	N/A	80 - 120	16

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42265 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001O	03/31/09 8:30 AM	03/31/09	04/06/09 11:44 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0903754

EPA Method E415.3 **Extraction E415.3** **BatchID: 42372** **Spiked Sample ID 0903756-001F**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Dissolved Organic	12	50	94.6	105	8.66	60	112	112	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42372 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001F	03/31/09 8:30 AM	04/01/09	04/01/09 1:22 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2340B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42348 | WorkOrder: 0903754

EPA Method SM2340B | **Extraction E200.8** | **Spiked Sample ID: 0903703-002A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Hardness	140	2.91	NR	NR	NR	96.2	89.3	7.41	70 - 130	20	85 - 115	20
%SS:	105	0.75	103	103	0	102	105	3.79	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42348 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001K	03/31/09 8:30 AM	03/31/09	04/02/09 9:21 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E365.1

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42301 WorkOrder 0903754

EPA Method E365.1 **Extraction E365.1** **Spiked Sample ID: 0903664-004I**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Phosphorous as P	0.099	0.80	92	92.4	0.403	107	104	2.92	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42301 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001S	03/31/09 8:30 AM	03/31/09	04/07/09 1:20 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-SiO2 D

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42371 | WorkOrder 0903754

EPA Method SM4500-SiO2 D | **Extraction SM4500-SiO2 D** | **Spiked Sample ID: 0903753-001C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Reactive Silica	18	1	NR	NR	NR	103	105	1.97	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42371 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001C	03/31/09 8:30 AM	03/31/09	04/07/09 12:06 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Salinity **Matrix: W** **WorkOrder: 0903754**

Method Name: SM2520B Units mg/L BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903754-001I	1910 @ 25.0°C	1	1920 @ 25.0°C	1	0.0668	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001I	03/31/09 8:30 AM	04/06/09	04/06/09 1:20 PM	0903754-001N	03/31/09 8:30 AM	04/06/09	04/06/09 1:20 PM

Test Method: Specific Conductivity **Matrix: W** **WorkOrder: 0903754**

Method Name: SM2510B Units µmhos/cm @ 25°C BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903754-001N	2990 @ 25.0°C	1	2990 @ 25.0°C	1	0.0668	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001I	03/31/09 8:30 AM	04/06/09	04/06/09 1:20 PM	0903754-001N	03/31/09 8:30 AM	04/06/09	04/06/09 1:20 PM

Test Method: Total Dissolved Solids **Matrix: W** **WorkOrder: 0903754**

Method Name: SM2540C Units mg/L BatchID: 42375

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903754-001N	1670	1	1690	1	1.19	<20

BATCH 42375 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001N	03/31/09 8:30 AM	04/05/09	04/06/09 2:25 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

DHS ELAP Certification 1644 QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

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Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR 200.7

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42369 | WorkOrder: 0903754

EPA Method 200.7 | **Extraction E200.7** | **Spiked Sample ID: 0903703-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Silicon	8400	1000	NR	NR	NR	91.4	98.3	7.29	70 - 130	20	80 - 120	20
%SS:	98	750	96	94	1.82	99	99	0	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42369 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001K	03/31/09 8:30 AM	03/31/09	04/01/09 12:48 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Coliform / E. Coli, Enumeration **Matrix: W** **WorkOrder: 0903754**

Method Name: SM9223B BatchID: 42374

Lab ID	Analyte	Reporting Units	Sample	DF	Dup	DF	% RPD	Acceptance Criteria (%)
0903754-001H	E Coli	MPN/100ml	ND	1	ND	1	N/A	<70
	Total Coliform	MPN/100ml	ND	1	ND	1	N/A	<70

BATCH 42374 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001H	03/31/09 8:30 AM	03/31/09	04/01/09 4:45 PM				

% RPD = abs(Sample - Dup) / ((Sample + Dup) / 2) * 100

N/A = Not Applicable

NR = %RPD may fall outside of laboratory acceptance criteria due to sample inconsistency between two containers.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0903754

EPA Method E415.3 **Extraction E415.3** **BatchID: 42351** **Spiked Sample ID 0903756-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TOC	5.0	50	103	101	1.87	60	93.1	100	7.13	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42351 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001B	03/31/09 8:30 AM	03/31/09	03/31/09 8:42 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification 1644 QA/QC Officer

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Suspended Solids **Matrix: W** **WorkOrder: 0903754**

Method Name: SM2540D Units mg/L BatchID: 42283

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903754-001P	ND	1	ND<2.00	2	N/A	<15

BATCH 42283 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001P	03/31/09 8:30 AM	04/01/09	04/01/09 4:35 PM				

Test Method: Turbidity **Matrix: W** **WorkOrder: 0903754**

Method Name: SM2130B Units NTU BatchID: 42320

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903754-001J	0.954	1	0.946	1	0.842	<10

BATCH 42320 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903754-001J	03/31/09 8:30 AM	03/31/09	03/31/09 3:50 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

DHS ELAP Certification 1644 QA/QC Officer

McCampbell Analytical, Inc.

"When Quality Counts"

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
Pittsburg, CA 94565	Client Contact: Andrea Ricci	Date Reported: 04/09/09
	Client P.O.:	Date Completed: 04/09/09

WorkOrder: 0903757

April 09, 2009

Dear Andrea:

Enclosed within are:

1) The results of the **1** analyzed sample from your project: **WHPA Drilling,**
2) A QC report for the above sample,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

Mirant Corporation
Chain of Custody
696 West 10th St
Pittburg, CA 94565
Phone 925-427-3554 Fax 925-427-3511

0903757

Laboratory: **Mc Cambell Anayltical**
Maria Venegas
1534 Willow Pass Road
Pittsburg, CA Phone: 925-252-9262 Fax: 925-252-9269 Page 1 of 1

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To): Andrea Ricci

California EDF Report? ☐ Yes ■ No

Company / Address: 696 West 10th St, Pittsburg, CA 94565

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Phone No.: (925) 427-3554 | Fax No.: (925) 427-3511

Global ID:

Project Number: | P.O. No.:

EDF Deliverable To (Email Address): andrea.ricci@mirant.com

Project Name: WHPA Drilling

Sampler Signature:

Project Address: Pittsburg Power Plant, Pittsburg, CA 94565

Sample Designation	Sampling Date	Sampling Time	40 ml VOA	125 mL HDPE	1L HDPE	1L AMBER	500 mL HDPE	250 mL HDPE	120 ml Plastic	HCl	HNO_3	NaOH	$Na_2S_2O_3$	H_2SO_4	WATER	SOIL		Alkalinity	Carbon dioxide, TOC, DOC, COD	Chlorine	Specific Conductivity, pH, TDS	TSS	Color, Turbidity, BOD, DO	Oil and Grease	Metals - Al, Cu, Ba, Fe, Mn, Sr, Se, As, Hg, Ni, Si, Pb, Cr, Ca' Mg, Na, Reactive Silica, Hardness	300-1 - Chloride, fluoride, nitrate	Total Phosphorous (365.1), Ammonium	UV254	Total Coliform	VOC	Salinity		TAT (12hr, 24hr, 48hr, 72hr, 1wk, 2wk, Mix)	For Lab Use Only
WS-04	3/31/09	1010					X								X			X															####	
WS-04			X							X		X		X	X				X														####	
WS-04						X									X					X													####	
WS-04							X								X						X												####	
WS-04					X										X							X											####	
WS-04					X	X	X	X							X								X										####	
WS-04						X				X					X									X									####	
WS-04			X				X	X		X	X				X										X								####	
WS-04				X							X				X											X							####	
WS-04						X								X	X												X						####	
WS-04			X												X													X					####	
WS-04									X				X		X														X				####	
WS-04			X							X					X															X			####	
WS-04				X											X																X		####	

X

Relinquished by:	Date	Time	Received by:
[signature]	3/31	12:10	[signature]
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks:
ICE/t° 6.2
GOOD CONDITION ✓ APPROPRIATE CONTAINERS ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB ___ PRESERVED IN LAB ___
PRESERVATION VOAS ✓ O & G ✓ METALS ✓ OTHER H2SO4 / NaOH

Bill to: Mirant Corporation c/o Andrea Ricci
696 West 10th Street, Pittsburg, CA

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903757 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: 5 days

Date Received: 03/31/2009
Date Printed: 03/31/2009

Lab ID	Client ID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
					Requested Tests (See legend below)											
0903757-001	WS-04	Water	3/31/2009 10:10		L	R	A	C	S	O	Q	D	M	T	F	K

Test Legend:

1	300_1_W	2	5520B_SG_W	3	8260B_W	4	Alka(spe)_W	5	AMMONIUM_W
6	BOD_W	7	CHLORINE1_W	8	COD_W	9	COLOR_W	10	DO_W
11	DOC_W	12	HARDMS_W						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903757 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: 5 days

Date Received: 03/31/2009
Date Printed: 03/31/2009

Requested Tests (See legend below)

Lab ID	Client ID	Matrix	Collection Date	Hold	13	14	15	16	17	18	19	20	21	22	23	24
0903757-001	WS-04	Water	3/31/2009 10:10		E	K	C	I	N	K	H	N	B	S	P	J

Test Legend:

13	IC(CO2)_W	14	METALSMS_W	15	REACTSI_W	16	SALINITY_W	17	SC_W
18	SILICA_W	19	TCEC-Enum_W	20	TDS_W	21	TOC_W	22	TotalP_W
23	TSS_W	24	TURBIDITY_W						

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0903757 **ClientCode: MCP**

WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Report to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565
(925) 427-3554 FAX (925) 427-3511

Email: andrea.ricci@mirant.com
cc:
PO:
ProjectNo: WHPA Drilling

Bill to:
Andrea Ricci
Mirant Corporation
696 West 10th Street
Pittsburg, CA 94565

Requested TAT: **5 days**

Date Received: **03/31/2009**
Date Printed: **03/31/2009**

					Requested Tests (See legend below)											
Lab ID	**Client ID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
0903757-001	WS-04	Water	3/31/2009 10:10		G											

Test Legend:

1	**UV254_W**	**2**		**3**		**4**		**5**	
6		**7**		**8**		**9**		**10**	
11		**12**							

The following SampID: 001M contains testgroup.

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Sample Receipt Checklist

Client Name:	**Mirant Corporation**	Date and Time Received	**03/31/09 3:17:52 PM**
Project Name:	**WHPA Drilling**	Checklist completed and reviewed by:	Maria Venegas
WorkOrder N°:	**0903757** Matrix Water	Carrier:	Client Drop-In

Chain of Custody (COC) Information

Chain of custody present?	Yes	N	
Chain of custody signed when relinquished and received?	Yes	N	
Chain of custody agrees with sample labels?	Yes	N	
Sample IDs noted by Client on COC?	Yes	No	
Date and Time of collection noted by Client on COC?	Yes	No	
Sampler's name noted on COC?	Yes	No	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes	N	NA
Shipping container/cooler in good condition?	Yes	N	
Samples in proper containers/bottles?	Yes	N	
Sample containers intact?	Yes	N	
Sufficient sample volume for indicated test?	Yes	N	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	N		
Container/Temp Blank temperature	Cooler Temp:	16.2°C		NA
Water - VOA vials have zero headspace / no bubbles?	Yes	N	No VOA vials submitted	
Sample labels checked for correct preservation?	Yes	No		
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes	N		NA
Samples Received on Ice?	Yes	N		

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received 03/31/09
	Client Contact: Andrea Ricci	Date Extracted 03/31/09-04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyze 03/31/09-04/01/09

Inorganic Anions by IC*

Extraction method E300.1 Analytical methods E300.1 Work Order: 0903757

Lab ID	Client ID	Matrix	Chloride	DF	Fluoride	DF	Nitrate as N	DF	Nitrate as $NO3^{-}$	DF	% SS
001L	WS-04	W	440	100	0.37	1	ND	1	ND	1	97

Reporting Limit for DF =1; ND means not detected at or above the reporting limit						
	W	0.1	0.1	0.1	0.45	mg/L
	S	NA	NA	NA	NA	mg/Kg

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as $NO3^{-}$] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

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Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Petroleum Oil & Grease with Silica Gel Clean-Up*

Extraction method: SM5520B/F Analytical methods: SM5520B/F Work Order: 0903757

Lab ID	Client ID	Matrix	POG	DF	% SS
0903757-001R	WS-04	W	ND	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	Matrix	POG	Units
	W	5.0	mg/L
	S	NA	NA

* water samples and all TCLP & SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

DF = dilution factor (may be raised to dilute target analyte or matrix interference).

surrogate diluted out of range or not applicable to this sample.

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/02/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/02/09

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0903757

Lab ID: 0903757-001A
Client ID: WS-04
Matrix: Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND	1.0	10	tert-Amyl methyl ether (TAME)	ND	1.0	0.5
Benzene	ND	1.0	0.5	Bromobenzene	ND	1.0	0.5
Bromochloromethane	ND	1.0	0.5	Bromodichloromethane	ND	1.0	0.5
Bromoform	ND	1.0	0.5	Bromomethane	ND	1.0	0.5
2-Butanone (MEK)	ND	1.0	2.0	t-Butyl alcohol (TBA)	ND	1.0	2.0
n-Butyl benzene	ND	1.0	0.5	sec-Butyl benzene	ND	1.0	0.5
tert-Butyl benzene	ND	1.0	0.5	Carbon Disulfide	ND	1.0	0.5
Carbon Tetrachloride	ND	1.0	0.5	Chlorobenzene	ND	1.0	0.5
Chloroethane	ND	1.0	0.5	Chloroform	ND	1.0	0.5
Chloromethane	ND	1.0	0.5	2-Chlorotoluene	ND	1.0	0.5
4-Chlorotoluene	ND	1.0	0.5	Dibromochloromethane	ND	1.0	0.5
1,2-Dibromo-3-chloropropane	ND	1.0	0.2	1,2-Dibromoethane (EDB)	ND	1.0	0.5
Dibromomethane	ND	1.0	0.5	1,2-Dichlorobenzene	ND	1.0	0.5
1,3-Dichlorobenzene	ND	1.0	0.5	1,4-Dichlorobenzene	ND	1.0	0.5
Dichlorodifluoromethane	ND	1.0	0.5	1,1-Dichloroethane	ND	1.0	0.5
1,2-Dichloroethane (1,2-DCA)	ND	1.0	0.5	1,1-Dichloroethene	ND	1.0	0.5
cis-1,2-Dichloroethene	ND	1.0	0.5	trans-1,2-Dichloroethene	ND	1.0	0.5
1,2-Dichloropropane	ND	1.0	0.5	1,3-Dichloropropane	ND	1.0	0.5
2,2-Dichloropropane	ND	1.0	0.5	1,1-Dichloropropene	ND	1.0	0.5
cis-1,3-Dichloropropene	ND	1.0	0.5	trans-1,3-Dichloropropene	ND	1.0	0.5
Diisopropyl ether (DIPE)	ND	1.0	0.5	Ethylbenzene	ND	1.0	0.5
Ethyl tert-butyl ether (ETBE)	ND	1.0	0.5	Freon 113	ND	1.0	10
Hexachlorobutadiene	ND	1.0	0.5	Hexachloroethane	ND	1.0	0.5
2-Hexanone	ND	1.0	0.5	Isopropylbenzene	ND	1.0	0.5
4-Isopropyl toluene	ND	1.0	0.5	Methyl-t-butyl ether (MTBE)	ND	1.0	0.5
Methylene chloride	ND	1.0	0.5	4-Methyl-2-pentanone (MIBK)	ND	1.0	0.5
Naphthalene	ND	1.0	0.5	n-Propyl benzene	ND	1.0	0.5
Styrene	ND	1.0	0.5	1,1,1,2-Tetrachloroethane	ND	1.0	0.5
1,1,2,2-Tetrachloroethane	ND	1.0	0.5	Tetrachloroethene	ND	1.0	0.5
Toluene	ND	1.0	0.5	1,2,3-Trichlorobenzene	ND	1.0	0.5
1,2,4-Trichlorobenzene	ND	1.0	0.5	1,1,1-Trichloroethane	ND	1.0	0.5
1,1,2-Trichloroethane	ND	1.0	0.5	Trichloroethene	ND	1.0	0.5
Trichlorofluoromethane	ND	1.0	0.5	1,2,3-Trichloropropane	ND	1.0	0.5
1,2,4-Trimethylbenzene	ND	1.0	0.5	1,3,5-Trimethylbenzene	ND	1.0	0.5
Vinyl Chloride	ND	1.0	0.5	Xylenes	ND	1.0	0.5

Surrogate Recoveries (%)

%SS1:	79	%SS2:	102
%SS3:	87		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

\# surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled: 03/31/09
696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 04/01/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/01/09

Total & Speciated Alkalinity as Calcium Carbonate*

Extraction method: SM2320B   Analytical methods: SM2320B   Work Order: 0903757

Lab ID	Client ID	Matrix	Total*	Carbonate*	Bicarbonate*	Hydroxide*	DF
001C	WS-04	W	220	ND	220	ND	1
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	1.0	1.0	1.0	1.0	mg CaCO3/L
		S	NA	NA	NA	NA	mg/Kg

*water samples are reported in mg calcium carbonate/L. Hydroxide, Carbonate & Bicarbonate alkalinity measure @ end-point of pH = 8.3 & 4.5 per SM2320B.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 04/02/09

Ammonium as N*

Analytical Method: E350.1

Work Order: 0903757

Lab ID	Client ID	Matrix	Total Ammonium as N	DF
0903757-001S	WS-04	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.2 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09-04/05/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09-04/05/09

Biochemical Oxygen Demand (BOD)*

Analytical Method: SM5210B

Work Order: 0903757

Lab ID	Client ID	Matrix	BOD	DF
0903757-001O	WS-04	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	4.0 mg/L
	S	NA

* water samples are reported in mg/L.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09

Chlorine, Total Residual*

Analytical Method: SM4500-Cl DE

Work Order: 0903757

Lab ID	Client ID	Matrix	Chlorine	DF
0903757-001Q	WS-04	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

* water samples are reported in mg/L, soil samples are extracted using DISTLC and rotate for a very short time due to stablibilty of chlorine and reported in mg/kg.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09

Chemical Oxygen Demand (COD)*

Analytical Method: E410.4 Work Order: 0903757

Lab ID	Client ID	Matrix	COD	DF
0903757-001D	WS-04	W	ND	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Apparent Color*

Analytical Method: SM2120B

Work Order: 0903757

Lab ID	Client ID	Matrix	Apparent Color	DF
0903757-001M	WS-04	W	6.8	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.0 Color Units
	S	NA

* water samples are reported in Color Units.

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Dissolved Oxygen

Analytical Method: SM4500OG

Work Order: 0903757

Lab ID	Client ID	Matrix	Dissolved Oxygen	DF
0903757-001T	WS-04	W	2.02 @ 22.1 °C	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	1.0 mg DO/L @ °C	
		S	NA	

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed:	04/01/09

Dissolved Organic Carbon (DOC)*

Analytical Method: E415.3 Work Order: 0903757

Lab ID	Client ID	Matrix	Dissolved Organic Carbon	DF
0903757-001F	WS-04	W	7.0	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.7 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Hardness*

Extraction method: E200.8 Analytical methods: SM2340B Work Order: 0903757

Lab ID	Client ID	Matrix	Extraction Type	Hardness	DF	% SS
0903757-001K	WS-04	W	TOTAL	350	20	103

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	1.0	mg CaCO3/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in mg CaCO3/L.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Inorganic Carbon as Carbon Dioxide*

Analytical Method: E415.3 Work Order: 0903757

Lab ID	Client ID	Matrix	IC as CO2	DF
0903757-001E	WS-04	W	150	5

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	3.7 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

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Metals*

Extraction Method: E200.8 Analytical Method: E200.8 Work Order: 0903757

Lab ID	0903757-001K	Reporting Limit for DF =1	
Client ID	WS-04		
Matrix	Water		
DF	1		
Extraction Type	TOTAL	S	W
Compound	**Concentration**	µg/kg	µg/L
Aluminum	350	NA	50
Arsenic	4.8	NA	0.5
Barium	33	NA	5.0
Calcium	81,000	NA	100
Chromium	1.0	NA	0.5
Copper	0.52	NA	0.5
Iron	500	NA	20
Lead	ND	NA	0.5
Magnesium	36,000	NA	20
Manganese	170	NA	20
Mercury	ND	NA	0.012
Nickel	ND	NA	0.5
Selenium	ND	NA	0.5
Sodium	390,000	NA	100
Strontium	1300	NA	20

Surrogate Recoveries (%)

%SS:	106

Comments

*water samples are reported in ug/L, product/oil/non-aqueous liquid samples and all TCLP / WET / DI WET / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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pH

Analytical Method: SM4500H+B   Work Order: 0903757

Lab ID	Client ID	Matrix	pH	DF
0903757-001M	WS-04	W	7.37 @ 23.1°C	1

Method Accuracy and Reporting Units	W	±0.05, pH units @ °C
	S	NA

* EPA method 9040; pH = -log(aH+) @ _°C; ± 0.05 units

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Reactive Silica*

Analytical Method: SM4500-SiO2 D

Work Order: 0903757

Lab ID	Client ID	Matrix	Reactive Silica	DF
0903757-001C	WS-04	W	48	10

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.05 mg/L
	S	NA

*water samples are reported in mg/L.

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	Client Contact: Andrea Ricci	Date Extracted: 04/06/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed 04/06/09

Salinity*

Analytical Method: SM2520B

Work Order: 0903757

Lab ID	Client ID	Matrix	Salinity	DF
0903757-001I	WS-04	W	1640 @ 25.0 °C	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* Salinity (mg/L) = 0.64 * S.C.(µmhos/cm @ 25°C) per SSSA volume 5 part 3.

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Specific Conductivity*

Analytical Method: SM2510B Work Order: 0903757

Lab ID	Client ID	Matrix	Specific Conductivity	DF
0903757-001N	WS-04	W	2560 @ 25.0 °C	1
Reporting Limit for DF = 1; ND means not detected at or above the reporting limit		W	10 µmhos/cm @ 25°C	
		S	NA	

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Silicon*

Extraction method: E200.7 Analytical methods: 200.7 Work Order: 0903757

Lab ID	Client ID	Matrix	Extraction Type	Silicon	DF	% SS
0903757-001K	WS-04	W	TOTAL	21,000	10	---#

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	TOTAL	50	µg/L
	S	TOTAL	NA	mg/Kg

*water samples are reported in µg/L, product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

means surrogate diluted out of range; ND means not detected above the reporting limit; N/A means not applicable to this sample or instrument.

TOTAL = acid digestion.
WET = Waste Extraction Test (STLC).
DI WET = Waste Extraction Test using de-ionized water.

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Total Coliform / E. Coli, Enumeration

Analytical Method: SM9223B

Work Order: 0903757

Lab ID	Client ID	Matrix	Total Coliform	95% Confident Interval	E. Coli	95% Confident Interval	DF
0903757-001H	WS-04	W	ND	---	ND	---	1

Reporting Limit & Reporting Units		
	W	1.0 MPN/100ml
	S	NA

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Total Dissolved Solids*

Analytical Method: SM2540C

Work Order: 0903757

Lab ID	Client ID	Matrix	Total Dissolved Solids	DF
0903757-001N	WS-04	W	1420	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	10 mg/L
	S	NA

* water samples reported in mg/L.

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Total Organic Carbon (TOC)*

Analytical Method: E415.3 Work Order: 0903757

Lab ID	Client ID	Matrix	TOC	DF
0903757-001B	WS-04	W	15	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.3 mg/L
	S	NA

* water samples are reported in mg/L. Settleable solids and floatable matter are excluded from analysis per E415.3. TOC is analyzed as NPOC.

* TOC = Total Organic Carbon; NPOC = Non-Purgeable Organic Carbon; DOC = Dissolved Organic Carbon;
POC = Purgeable Organic Cabon; IC = Inorganic Carbon; TC = Total Carbon.

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Pittsburg, CA 94565	Client P.O.:	Date Analyzed	04/07/09

Total Phosphorous as P*

Analytical Method: E365.1 Work Order: 0903757

Lab ID	Client ID	Matrix	Total Phosphorous as P	DF
0903757-001S	WS-04	W	0.17	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.04 mg/L
	S	NA

*water/product/oil/non-aqueous liquid samples and all TCLP / STLC / DISTLC / SPLP extracts are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, filter samples in µg/filter.

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Total Suspended Solids*

Analytical Method: SM2540D

Work Order: 0903757

Lab ID	Client ID	Matrix	Total Suspended Solids	DF
0903757-001P	WS-04	W	14.4	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	1.0 mg/L
	S	NA

* water samples reported in mg/L.

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696 West 10th Street		Date Received: 03/31/09
	Client Contact: Andrea Ricci	Date Extracted: 03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed: 03/31/09

Turbidity

Analytical Method: SM2130B

Work Order: 0903757

Lab ID	Client ID	Matrix	Turbidity	DF
0903757-001J	WS-04	W	6.43	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.1 NTU
	S	NA

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Angela Rydelius, Lab Manager

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Mirant Corporation	Client Project ID: WHPA Drilling	Date Sampled:	03/31/09
696 West 10th Street		Date Received:	03/31/09
	Client Contact: Andrea Ricci	Date Extracted:	03/31/09
Pittsburg, CA 94565	Client P.O.:	Date Analyzed:	04/01/09

UV-Absorbing Organic Constituents

Analytical Method: SM5910B

Work Order: 0903757

Lab ID	Client ID	Matrix	UV254	DF
0903757-001G	WS-04	W	0.025	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	0.02 cm^{-1}
	S	NA

UV254 Absorbance reporting limit 0.009 cm-1 is approximately the same as 0.5 mg/L Carbon of KHP standard.

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QC SUMMARY REPORT FOR E300.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42368 | WorkOrder 0903757

EPA Method E300.1 | **Extraction E300.1** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chloride	N/A	1	N/A	N/A	N/A	98.6	98.6	0	N/A	N/A	85 - 115	15
Fluoride	N/A	1	N/A	N/A	N/A	104	105	0.118	N/A	N/A	85 - 115	15
Nitrate as N	N/A	1	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
Nitrate as NO_3^-	N/A	4.4	N/A	N/A	N/A	93.6	93.5	0.0510	N/A	N/A	85 - 115	15
%SS:	N/A	0.10	N/A	N/A	N/A	92	93	0.271	N/A	N/A	90 - 115	10

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42368 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001L	03/31/09 10:10 AM	03/31/09	03/31/09 9:46 PM	0903757-001L	03/31/09 10:10 AM	04/01/09	04/01/09 6:03 PM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

surrogate diluted out of range or surrogate coelutes with another peak.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2120B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42238 WorkOrder: 0903757

EPA Method SM2120B **Extraction SM2120B** **Spiked Sample ID: 0903601-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	Color Units	Color Units	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
True Color	ND	40	105	106	0.960	101	101	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42238 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001M	03/31/09 10:10 AM	04/01/09	04/01/09 3:54 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E410.4

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42281 WorkOrder: 0903757

EPA Method E410.4 **Extraction E410.4** **Spiked Sample ID: 0903652-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
COD	ND	400	102	100	1.78	107	104	2.27	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42281 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001D	03/31/09 10:10 AM	03/31/09	03/31/09 7:23 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42299 | WorkOrder: 0903757

EPA Method E415.3 | **Extraction E415.3** | **Spiked Sample ID: 0903664-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
IC as CO2	360	36.7	89.2	85.2	0.376	98	99.8	1.83	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42299 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001E	03/31/09 10:10 AM	04/01/09	04/01/09 8:50 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E350.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42323 | WorkOrder: 0903757

EPA Method E350.1 | **Extraction SM4500-NH3** | **Spiked Sample ID: 0903676-012C**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Total Ammonia as N	13	4	96.7	103	1.54	105	105	0	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42323 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001S	03/31/09 10:10 AM	04/02/09	04/02/09 4:48 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5910B

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42373 WorkOrder: 0903757

EPA Method SM5910B **Extraction SM5910B** **Spiked Sample ID: 0903756-001g**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	cm^{-1}	cm^{-1}	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
UV254	0.025	0.090	86	86.4	0.313	95.4	96.4	1.04	80 - 120	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42373 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001G	03/31/09 10:10 AM	03/31/09	04/01/09 5:52 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

RD = Absolute Value {Sample - Duplicate}; RPD = 100 * (Sample - Duplicate) / (Sample + Duplicate) * 2.

Calibration formula used to calculate as Carbon mg/L KHP standard is UV254 Abs = 19.3559172 x Amt - 2.7206959

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QC SUMMARY REPORT FOR SM5520B/F

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42376 | WorkOrder: 0903757

EPA Method SM5520B/F **Extraction SM5520B/F** **Spiked Sample ID: N/A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
POG	N/A	20.83	N/A	N/A	N/A	95.8	93.3	2.64	N/A	N/A	70 - 130	25

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42376 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001R	03/31/09 10:10 AM	03/31/09	04/01/09 3:10 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM2340B

W.O. Sample Matrix: Water   QC Matrix: Water   BatchID: 42379   WorkOrder: 0903757

EPA Method SM2340B   **Extraction E200.8**   **Spiked Sample ID: 0903703-003A**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	RPD	LCS/LCSD	RPD
Aluminum	ND	100	128	127	1.17	95.7	97.4	1.80	70 - 130	20	85 - 115	20
Arsenic	1.3	10	97	96.7	0.273	98.8	97.4	1.38	70 - 130	20	85 - 115	20
Barium	43	100	90	90.1	0.0751	90.3	91.3	1.05	70 - 130	20	85 - 115	20
Calcium	27,000	1000	NR	NR	NR	104	105	1.25	70 - 130	20	85 - 115	20
Chromium	ND	10	99.3	98.3	1.04	98.7	99.5	0.818	70 - 130	20	85 - 115	20
Copper	11	10	96.7	94.8	0.902	97.9	97.9	0	70 - 130	20	85 - 115	20
Hardness	130	2.91	NR	NR	NR	99.7	99.7	0	70 - 130	20	85 - 115	20
Iron	ND	100	110	110	0	106	108	1.77	70 - 130	20	85 - 115	20
Lead	ND	10	99.6	99.3	0.296	99.6	100	0.351	70 - 130	20	85 - 115	20
Magnesium	14,000	100	NR	NR	NR	98.2	101	2.56	70 - 130	20	85 - 115	20
Manganese	ND	100	106	104	1.33	108	109	0.460	70 - 130	20	85 - 115	20
Mercury	ND	0.25	117	116	1.03	115	114	0.594	70 - 130	20	85 - 115	20
Nickel	1.2	10	96.4	95.2	1.11	95.9	96.3	0.447	70 - 130	20	85 - 115	20
Selenium	0.58	10	99.4	97.8	1.53	104	102	1.55	70 - 130	20	85 - 115	20
Sodium	51,000	1000	NR	NR	NR	108	107	0.0931	70 - 130	20	85 - 115	20
Strontium	250	100	103	104	0.113	107	109	1.20	70 - 130	20	85 - 115	20
%SS:	107	0.75	108	108	0	103	105	1.76	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42379 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001K	03/31/09 10:10 AM	03/31/09	04/02/09 8:55 AM	0903757-001K	03/31/09 10:10 AM	03/31/09	04/02/09 9:04 AM
0903757-001K	03/31/09 10:10 AM	03/31/09	04/02/09 8:58 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-Cl DE

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42381 | WorkOrder: 0903757

EPA Method SM4500-Cl DE **Extraction SM4500-Cl DE** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Chlorine	N/A	0.20	N/A	N/A	N/A	97.6	100	2.63	N/A	N/A	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42381 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001Q	03/31/09 10:10 AM	03/31/09	03/31/09 4:14 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM5210B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42265 | WorkOrder: 0903757

EPA Method SM5210B | **Extraction SM5210B** | **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
BOD	N/A	198	N/A	N/A	N/A	99	98.2	0.768	N/A	N/A	80 - 120	16

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42265 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001O	03/31/09 10:10 AM	03/31/09	04/06/09 12:38 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42370 | WorkOrder: 0903757

EPA Method SW8260B | **Extraction SW5030B** | **Spiked Sample ID: 0903753-001a**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
tert-Amyl methyl ether (TAME)	ND	10	104	102	2.07	102	100	2.04	70 - 130	30	70 - 130	30
Benzene	ND	10	122	121	0.820	115	110	3.59	70 - 130	30	70 - 130	30
t-Butyl alcohol (TBA)	ND	50	89.3	88.5	0.967	81.5	81.9	0.489	70 - 130	30	70 - 130	30
Chlorobenzene	ND	10	105	103	1.80	106	103	2.67	70 - 130	30	70 - 130	30
1,2-Dibromoethane (EDB)	ND	10	116	115	0.358	111	109	1.73	70 - 130	30	70 - 130	30
1,2-Dichloroethane (1,2-DCA)	ND	10	116	118	1.45	105	105	0	70 - 130	30	70 - 130	30
1,1-Dichloroethene	ND	10	97	95.2	1.86	88.3	87	1.45	70 - 130	30	70 - 130	30
Diisopropyl ether (DIPE)	ND	10	115	113	1.81	96.5	96	0.501	70 - 130	30	70 - 130	30
Ethyl tert-butyl ether (ETBE)	ND	10	120	118	1.27	111	110	1.13	70 - 130	30	70 - 130	30
Methyl-t-butyl ether (MTBE)	ND	10	111	109	2.37	97.8	97.9	0.0521	70 - 130	30	70 - 130	30
Toluene	ND	10	115	112	3.08	122	118	3.18	70 - 130	30	70 - 130	30
Trichloroethene	ND	10	124	120	3.39	119	118	0.491	70 - 130	30	70 - 130	30
%SS1:	80	25	83	82	1.13	75	76	1.49	70 - 130	30	70 - 130	30
%SS2:	88	25	100	100	0	108	108	0	70 - 130	30	70 - 130	30
%SS3:	85	2.5	77	75	3.03	101	100	0.752	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42370 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001A	03/31/09 10:10 AM	04/02/09	04/02/09 10:35 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Alkalinity **Matrix: W** **WorkOrder: 0903757**

Method Name: SM2320B Units mg $CaCO_3$/L BatchID: 42380

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903757-001C	220	1	221	1	0.486	<20

BATCH 42380 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001C	)3/31/09 10:10 AM	04/01/09	)4/01/09 10:19 AM				

Test Method: Dissolved Oxygen **Matrix: W** **WorkOrder: 0903757**

Method Name: SM4500OG Units mg DO/L @ °C BatchID: 42377

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903757-001T	2.02 @ 22.1 °C	1	2.01 @ 22.1 °C	1	0.01	0.05

BATCH 42377 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001T	)3/31/09 10:10 AM	03/31/09	03/31/09 3:50 PM				

Test Method: pH **Matrix: W** **WorkOrder: 0903757**

Method Name: SM4500H+B Units ±, pH units @ °C BatchID: 42318

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	Precision	Acceptance Criteria
0903757-001M	7.37 @ 23.1°C	1	7.37 @ 23.1°C	1	0	0.02

BATCH 42318 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001M	)3/31/09 10:10 AM	03/31/09	03/31/09 5:08 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0903757

EPA Method E415.3 **Extraction E415.3** **BatchID: 42372** **Spiked Sample ID 0903756-001F**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Dissolved Organic	12	50	94.6	105	8.66	60	112	112	0	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42372 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001F	)3/31/09 10:10 AM	04/01/09	04/01/09 1:56 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR SM4500-SiO2 D

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42371 | WorkOrder 0903757

EPA Method SM4500-SiO2 D | **Extraction SM4500-SiO2 D** | **Spiked Sample ID: 0903753-001C**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Reactive Silica	18	1	NR	NR	NR	103	105	1.97	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42371 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001C	03/31/09 10:10 AM	03/31/09	04/07/09 12:09 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Salinity | **Matrix: W** | **WorkOrder: 0903757**

Method Name: SM2520B | Units mg/L | BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903757-001I	1640 @ 25.0 °C	1	1650 @ 25.0 °C	1	0.506	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001I	)3/31/09 10:10 AM	04/06/09	04/06/09 7:00 PM	0903757-001N	)3/31/09 10:10 AM	04/06/09	04/06/09 7:00 PM

Test Method: Specific Conductivity | **Matrix: W** | **WorkOrder: 0903757**

Method Name: SM2510B | Units µmhos/cm @ 25°C | BatchID: 42378

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903757-001N	2560 @ 25.0 °C	1	2580 @ 25.0 °C	1	0.506	<2

BATCH 42378 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001I	)3/31/09 10:10 AM	04/06/09	04/06/09 7:00 PM	0903757-001N	)3/31/09 10:10 AM	04/06/09	04/06/09 7:00 PM

Test Method: Total Dissolved Solids | **Matrix: W** | **WorkOrder: 0903757**

Method Name: SM2540C | Units mg/L | BatchID: 42375

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903757-001N	1420	1	1410	1	0.917	<20

BATCH 42375 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001N	)3/31/09 10:10 AM	04/06/09	04/07/09 1:15 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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QC SUMMARY REPORT FOR 200.7

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 42369 WorkOrder: 0903757

EPA Method 200.7 **Extraction E200.7** **Spiked Sample ID: 0903703-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Silicon	8400	1000	NR	NR	NR	91.4	98.3	7.29	70 - 130	20	80 - 120	20
%SS:	98	750	96	94	1.82	99	99	0	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42369 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001K	03/31/09 10:10 AM	03/31/09	04/01/09 12:41 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Coliform / E. Coli, Enumeration **Matrix: W** **WorkOrder: 0903757**

Method Name: SM9223B BatchID: 42374

Lab ID	Analyte	Reporting Units	Sample	DF	Dup	DF	% RPD	Acceptance Criteria (%)
0903757-001H	E Coli	MPN/100ml	ND	1	ND	1	N/A	<70
	Total Coliform	MPN/100ml	ND	1	ND	1	N/A	<70

BATCH 42374 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001H	)3/31/09 10:10 AM	03/31/09	04/01/09 4:33 PM				

% RPD = abs(Sample - Dup) / ((Sample + Dup) / 2) * 100

N/A = Not Applicable

NR = %RPD may fall outside of laboratory acceptance criteria due to sample inconsistency between two containers.

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QC SUMMARY REPORT FOR E415.3

W.O. Sample Matrix: Water   QC Matrix: Water   WorkOrder: 0903757

EPA Method E415.3   **Extraction E415.3**   **BatchID: 42351**   **Spiked Sample ID 0903756-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	Spiked	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	mg/L	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TOC	5.0	50	103	101	1.87	60	93.1	100	7.13	70 - 130	20	80 - 120	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42351 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001B	)3/31/09 10:10 AM	03/31/09	03/31/09 9:15 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not applicable to this method.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR E365.1

W.O. Sample Matrix: Water | QC Matrix: Water | BatchID: 42301 | WorkOrder 0903757

EPA Method E365.1 | **Extraction E365.1** | **Spiked Sample ID: 0903664-004I**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
Total Phosphorous as P	0.099	0.80	92	92.4	0.403	107	104	2.92	80 - 120	20	90 - 110	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 42301 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001S	03/31/09 10:10 AM	03/31/09	04/07/09 1:27 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

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QC SUMMARY REPORT FOR WET CHEMISTRY TESTS

Test Method: Total Suspended Solids **Matrix: W** **WorkOrder: 0903757**

Method Name: SM2540D Units mg/L BatchID: 42283

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903757-001P	14.4	1	14.2	2	1.4	<15

BATCH 42283 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001P	)3/31/09 10:10 AM	04/01/09	04/01/09 4:55 PM				

Test Method: Turbidity **Matrix: W** **WorkOrder: 0903757**

Method Name: SM2130B Units NTU BatchID: 42320

Lab ID	Sample	DF	Dup / Ser. Dil.	DF	% RPD	Acceptance Criteria (%)
0903757-001J	6.43	1	6.36	1	1.09	<10

BATCH 42320 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0903757-001J	)3/31/09 10:10 AM	03/31/09	03/31/09 4:20 PM				

Dup = Duplicate; Ser. Dil. = Serial Dilution; MS = Matrix Spike; RD = Relative Difference; RPD = Relative Percent Deviation.

Precision = Absolute Value (Sample - Duplicate)

RPD = 100 * (Sample - Duplicate) / [(Sample + Duplicate) / 2]

%RPD is calculated using results of up to 10 significant figures, however the reported results are rounded to 2 or 3 significant figures. Therefore there may be a slight discrepancy between the %RPD displayed above and %RPD calculated using the reported results. MAI considers %RPD based upon more significant figures to be more accurate.

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REVISED APPENDIX J3

AIR QUALITY MODELING CALCULATIONS

Mirant - Marsh Landing Generating Station
SiemensSSC6-5000F Simple Cycle Gas Turbines
Potential Emission Estimates

Turbine Operating Parameters

Ambient Temperature	UNITS	Winter Minimum (20°F / 90%RH)			Yearly Average (60°F / 64% RH)			Summer Maximum (94°F)		
CTG Load Level	%	**100%**	**75%**	**60%**	**100%**	**75%**	**60%**	**100%**	**75%**	**60%**
Evap Cooling Status	On / Off	Off	Off	Off	85%	OFF	OFF	On	Off	Off
Gas Turbine Outlet Temperature	ºF	1,065	1,065	1,065	1,090	1,090	1,091	1,123	1,123	1,122
Stack Outlet Temperature	ºF	750	750	750	750	750	750	750	750	750
Dilution Air Inlet Temperature	ºF	**25**	**25**	**25**	**64**	**64**	**64**	**99**	**99**	**99**
Dilution Air Flow Rate	lbm/hr	1,971,557	1,601,991	1,416,082	2,071,246	1,718,357	1,525,648	2,189,638	1,842,995	1,630,352
Dilution Air Flow Rate	lbmol/hr	68,079	55,317	48,898	71,521	59,336	52,681	75,609	63,639	56,297

Average Emission Rates from each Gas Turbine (lbs/hr/turbine) - Normal Operation

(Reference: Siemens Turbine/Site Specific Information)	UNITS	Winter Minimum (20°F / 90%RH)			Yearly Average (60°F / 64% RH)			Summer Maximum (94°F)		
Heat Input, LHV	MMBtu/hr	1,984	1,565	1,333	1,800	1,441	1,229	1,624	1,315	1,125
Fuel Heating Value, LHV	Btu/lb	20,670	20,670	20,670	20,670	20,670	20,670	20,670	20,670	20,670
Fuel Heating Value, LHV	Btu/scf	912	912	912	912	912	912	912	912	912
Fuel Flow, LHV	scf/hr	2,174,637	1,715,376	1,461,084	1,972,957	1,579,461	1,347,091	1,780,045	1,441,354	1,233,098
Exhaust Flow	lbm/hr/turbine	4,366,477	3,547,986	3,136,246	4,021,343	3,336,206	2,953,373	3,677,383	3,095,213	2,745,451
O_2	lbm/hr	1,072,080	880,116	787,879	1,047,892	879,547	788,662	1,026,953	874,706	782,932
CO_2	lbm/hr	260,577	205,783	175,316	236,053	189,163	161,845	213,656	173,022	147,980
H_2O	lbm/hr	214,831	169,594	144,895	212,327	170,814	146,487	208,140	169,927	146,607
N_2	lbm/hr	4,710,183	3,829,038	3,386,564	4,519,319	3,751,341	3,325,433	4,344,348	3,658,137	3,243,100
Ar	lbm/hr	80,254	65,210	57,643	76,779	63,698	56,445	73,627	62,280	55,187
NO_x as NO2 (@ 2.5 ppm)	lbm/hr	20.83	16.39	13.89	18.89	15.00	12.78	16.94	13.89	11.67
CO (@ 2.0 ppm)	lbm/hr	10.00	8.00	6.80	9.00	7.50	6.20	8.50	6.50	5.80
VOC (@ 1.0 ppm)	lbm/hr	2.90	2.30	1.93	2.60	2.10	1.80	2.40	1.90	1.63
SO_2 (based on 0.4 gr total S / 100 scf)	lbm/hr	2.48	1.96	1.67	2.25	1.80	1.54	2.03	1.65	1.41
SO_2 (based on 1.0 gr total S / 100 scf) worst-case	lbm/hr	6.21	4.90	4.17	5.63	4.51	3.84	5.08	4.11	3.52
PM_{10}	lbm/hr	9	8	8	9	8	8	8	8	8
NH_3 (@ 10 ppm slip)	lbm/hr	32.91	26.73	23.61	30.46	25.24	22.32	27.99	23.54	20.86
% of HC as VOC (CO @ 3 ppm)	%	29.00	28.75	28.43	28.89	28.00	29.03	28.24	29.23	28.16
Total Inerts (Flue Gas + Dilution Air)	lbm/hr	6,337,924	5,149,741	4,552,297	6,092,370	5,054,562	4,478,873	5,866,723	4,938,073	4,375,806
Stack Gas MW	lb/lbmol	28.46	28.47	28.49	28.39	28.41	28.43	28.33	28.34	28.36
Total Inerts	lbmol/hr	222,696	180,883	159,786	214,596	177,915	157,540	207,085	174,244	154,295
Total	ft^3/min	3,278,539	2,662,970	2,352,374	3,159,287	2,619,272	2,319,317	3,048,718	2,565,228	2,271,538
Exit Velocity	fps	70.9	57.6	50.8	68.3	56.6	50.1	65.9	55.4	49.1

Notes:

All turbine operating parameters and emissions data provided by CH2M Hill based on expected operating parameters at the Contra Costa Site

Assumed average sulfur content in gas (for annual emission):	0.4	gr total S / 100 scf
Assumed average sulfur content in gas (for short term emissions):	1	gr total S / 100 scf
Assumed fuel heating value:	1,015	Btu/scf
hhv/lhv ratio:	1.11	ratio
Stack Diameter:	31.333	ft

Mirant - Marsh Landing Generating Station
SiemensSSC6-5000F Simple Cycle Gas Turbines
Potential Emission Estimates

Startup / Shutdown Emissions from Turbine (1CT)

Startup			Shutdown		
11 (min. in startup)	Max 1-hr. (lb/hr)	Total (lb/ 11 min)	6 (min. in shutdown)	Max 1-hr. (lb/hr)	Total (lb/ 6 min)
NO_X (2.5 ppm)	29.0	12	NOx	28.8	10
CO (2 ppm)	221.17	213	CO	119	110
VOC (1 ppm)	13.4	11	VOC	7.6	5
SO_2 (based on 0.4 gr total S / 100 scf)	2.19	0.17	SO2	2.4	0.15
SO_2 (based on 1.0 gr total S / 100 scf) worst-case	5.49	0.42	SO_2 worst	5.7	0.37
PM_{10}	8.4	1	PM10	9.1	1

Notes:
Startup and Shutdown Emissions from Mirant CC_Siemens SSC6-5000F SC Stack Emissions_04-02-08_Rev 1.xls
Fuel use for SO2 calculations from Mirant_Estimated SU SD Emissions - SGT6-5000F(4) 9 ppm ULN on Natural Gas @ 59 F 3.27.08.pdf
Estimated Startup data are from CTG ignition through 100% CTG load.
Startup and Shutdown Emissions for NOx, CO, VOC and PM10 from data provided by Siemens based on 59°F ambient temperature.
NOx emissions assume SCR is not in operation (no removal).
CO and VOC emissions assume CatOx is not in operation (no removal)
SO_2 emissions assume complete conversion of all sulfur to SO_2

Worst-Case 1 hr Emissions Comparisons

	1-hr. (w/2 SU 1 SD) (lb/hr)	1-hr. (w/1 SD) (lb/hr)	Max 1-hr Operating (lb/hr)
NO_X	**45.1**	28.8	20.8
CO	**544.0**	119.0	10.0
VOC	**30.1**	7.6	2.9
SO_2 (based on 0.4 gr total S / 100 scf)	2.5	2.4	**2.5**
SO_2 (based on 1.0 gr total S / 100 scf) worst-case	6.2	5.7	**6.2**
PM_{10}	9.0	**9.1**	9.0

Worst-Case 1 hr Emissions per Turbine	lb/hr	g/sec
NOx	45.1	5.68
CO	544.0	68.54
SO_2	6.2	0.78
PM_{10}	9.1	1.15

Notes:
SO_2 emissions are based on 1 gr/100 scf

Average Annual Emissions

			Pollutant	Turbine Emissions (lb/yr/CT)	Emissions for Four Turbines (ton/yr/4CT)
Total Hours of Operation	1,752				
Total Number of Cold Starts	167		NO_X	35,873.6	71.7
Cold Start Duration (hr)	0.18		CO	69,283.2	138.6
			CO_2	413,564,565.3	827,129
Total Number of Shutdowns	167		VOC	7,104.2	14.2
Shutdown Duration (hr)	0.10		SO_2	3,892.7	7.8
Average Operation (hr)	1,705		PM_{10}	15,676.2	31.4

Notes:
Average annual emissions are calculated using yearly average- 59°F, at 100 % load.
SO_2 emissions are based on 0.4 gr total S / 100 scf.

9/15/2009

Mirant - Marsh Landing Generating Station
SiemensSSC6-5000F Simple Cycle Gas Turbines
Potential Emission Estimates

Max Annual Emissions

Annual	Turbine Emissions (lb/yr/CT)	Emissions for Four Turbines (ton/yr/4CT)
NO_X	39,188	78.4
CO	70,988	142.0
VOC	7,616	15.23
SO_2	4,285	8.57
PM_{10}	15,676	31.35

Notes:
SO_2 emissions are based on 0.4 gr total S / 100 scf.

Worst-Case 3 hr Emissions per Turbine	lb/3 hr	g/sec
SO_2	18.6	0.78

Notes:
Only SO_2 is considered for a 3-hour average Ambient Air Quality Standard.
Assumes no startups or shutdowns, only "worst-case" operational emissions (winter minimum - 20°F; 100% load)
SO_2 emissions are based on 1 gr total S/100 scf

Worst-Case 8 hr Emissions per Turbine	lb/8 hr	g/sec
CO (2ppm)	1040.5	16.39

Notes:
Only CO is considered for an 8-hour average Ambient Air Quality Standard.
Worst-case daily emissions assumes a total start up of : 3
Worst-case daily emissions assumes a total shut down of : 3
Remainder of time is spent at "worst-case" (winter minimum - 20°F; 100% load).

Worst-Case 24 hr Emissions per Turbine	lb/24hr	g/sec
NOx	548.3	2.88
CO	1200.5	6.30
VOC	115.1	0.60
SO_2	58.4	0.31
SO_2	146.1	0.77
PM_{10}	214.4	1.13

Notes:
Worst-case daily emissions assumes a total start up of : 3
Worst-case daily emissions assumes a total shut down of : 3
Remainder of time is spent at "worst case" (winter minimum - 20°F; 100% load)

Fuel Gas Preheater Operating Parameters

Fuel Gas Preheater Unit per pair of SSC6-5000F (FGP)	1
Hours of Operation (hr/yr)	1,752
Fuel Heat Content (Btu/scf)	1,020
Max Heat Input Capacity (MMBtu/hr)	5

	Emission Factors		Emission Rate
	lb/MCF/FGP	lb/MMBtu/FGP	lb/hr/FGP
CO	35	0.034	0.17
CO_2	120,000	117.65	588.24
NO_x	30.6	0.03	0.15
PM_{10}	3	0.0029	0.015
SO_2 (based on 0.4 gr total S / 100 scf)	1.14	0.0011	0.006
SO_2 (based on 1.0 gr total S / 100 scf) worst-case	2.85	0.0028	0.014
VOC	2.8	0.0027	0.014

Notes:

Emission factors are from FIRE ver 6.25. Using "Fuel Gas Preheaters from natural gas" (SCC 3-10-004-04). The SCC# was obtained from http://www.epa.gov/ttnchie1/eiip/techreport/volume02/ii10.pdf.
SOx emission was calculated based on sulfur content.
CO2 emission factor is from AP-42, Chapter 1, section 4, "TABLE 1.4-2. Emission Factors for Criteria Pollutant and Greenhouse Gases from Natural Gas Combustion"

Modeling Worst-Case 1 hr Emissions per Fuel Gas Preheater

Pollutant	lb/hr/FGP	g/sec/FGP
CO	0.172	0.0216
NO_x	0.150	0.0189
PM_{10}	0.015	0.0019
SO_2 (based on 1.0 gr total S / 100 scf) worst-case	0.014	0.0018
VOC	0.014	0.0017

Average Annual Emissions

	Fuel Gas Preheater Emissions			Emissions for Two Fuel Gas Preheaters
Pollutant	lb/yr/FGP	ton/yr/FGP	g/sec/FGP	(ton/yr/2FGP)
CO	300.6	0.150	0.004	0.301
CO_2	1,030,588	515.3	14.823	1,030.588
NO_x	262.8	0.131	0.004	0.263
PM_{10}	25.8	0.013	0.000	0.026
SO_2 (based on 0.4 gr total S / 100 scf)	9.8	0.005	0.000	0.010
VOC	24.0	0.012	0.000	0.024

Mirant - Marsh Landing Generating Station
Potential Emissions Summary

Pollutant	Total Marsh Landing Turbines Potential Emissions (ton/yr)	PSD Threshold (ton/yr)	Exceed PSD Threshold	Amount of Exceedance (ton/yr)	New Source Review Offset Ratio	Offsets Required (ton/yr)
NO_X	72.0	40	Yes	32.0	1.15	82.8
CO	138.9	100	Yes	38.9	0	0.0
CO_2	828,159.7					
VOC	14.2	40	No	0.0	1.15	16.4
SO_2	7.8	40	No	0.0	1	7.8
PM_{10}	31.4	15	Yes	16.4	1	31.4

Assumptions:
Includes emissions from (4) Siemens SSC6 Simple Cycle Combustion Turbines and (2) Fuel Gas Preheaters
Offset ratios are 1.15 : 1 for NOx and VOC emissions on a pollutant specific basis, for each pollutant (facility wide) over 35 tons per year. Below 35 tons is 1 : 1.
Offset ratios are 1 : 1 for remaining criteria pollutants.

Average Annual Emissions	Turbine Emissions	Fuel Gas Preheater Emissions	Total Emissions
	ton/yr/4CT	ton/yr/2FGP	tons/yr/(4CT + 2FGP)
NO_X	71.75	0.263	72.01
CO	138.57	0.301	138.87
CO_2	827,129	1,031	828,159.72
VOC	14.21	0.024	14.23
SO_2 (based on 0.4 gr total S / 100 scf)	7.79	0.010	7.80
PM_{10}	31.35	0.026	31.38

Worst-Case 1 hr Emissions	Turbine Emissions	Fuel Gas Preheater Emissions	Total Emissions	Total Emissions
	lb/hr/CT	lb/hr/FGP	lb/hr/(4CT + 2FGP)	g/sec/(4CT + 2FGP)
NOx	45.1	0.15	180.70	22.77
CO	544.0	0.17	2176.34	274.21
SO_2 (based on 1.0 gr total S / 100 scf) worst-case	6.2	0.01	24.85	3.13
PM10	9.1	0.01	36.43	4.59

REVISED APPENDIX O2

TOXIC AIR CONTAMINANT EMISSION CALCULATIONS

Marsh Landing Generation Station

	Annual HAP Emissions (Tons/year)		
Federal HAP	**4 Simple Cycle CTGs**	**2 Natural Gas Preheaters**	**Total MLGS**
1,3-Butadiene	0.001		0.001
Acetaldehyde	1.032	1.20E-04	1.033
Acrolein	0.028	4.14E-05	0.028
Benzene	0.025	9.58E-05	0.025
Ethylbenzene	0.135	1.92E-05	0.135
Formaldehyde	2.778	6.33E-04	2.779
Hexane	1.952		1.952
Propylene Oxide	0.360		0.360
Toluene	0.535	2.52E-04	0.535
Xylenes	0.197	1.22E-04	0.197
Naphthalene	0.013	9.58E-06	0.013
PAHs (other than naphthalene)	0.001	7.31E-08	0.001
Total HAP emissions (ton/yr)			**7.058**

Note: Ammonia and propylene are not federally regulated HAPs.
For the CAA112 requirements the combination of all Polyaromatic Hydrocarbons (PAH) will be considered Polycyclic Organic Matter (POM), each individual PAH is not a HAP.

Toxic Air Contaminant Emissions from Each Natural Gas Heater

	Heater for 5000Fs	
Max Fuel Flow (HHV)	**5**	**MMBtu/hr**
Maximum annual hours of operation	**1752**	**hr/yr**

There are 2 heaters for the entire Project

Pollutant	CAS	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMcf)	Emission factor source	Per Heater Hourly Emission Rate (lb/hr)	Per Heater Annual Emission Rate (lb/yr)	Total Project Annual Emission Rate (ton/yr)
Acetaldehyde	75070	1.37E-05	1.40E-02	CATEF mean	6.84E-05	1.20E-01	1.20E-04
Acrolein	107028	4.73E-06	4.84E-03	CATEF mean	2.36E-05	4.14E-02	4.14E-05
Benzene	71432	1.09E-05	1.12E-02	CATEF mean	5.47E-05	9.58E-02	9.58E-05
Ethylbenzene	100414	2.20E-06	2.25E-03	CATEF mean	1.10E-05	1.92E-02	1.92E-05
Formaldehyde	50000	7.23E-05	7.40E-02	CATEF mean	3.61E-04	6.33E-01	6.33E-04
Propylene	115071	2.29E-04	2.35E-01	CATEF mean	1.15E-03	2.01E+00	2.01E-03
Toluene	108883	2.88E-05	2.95E-02	CATEF mean	1.44E-04	2.52E-01	2.52E-04
Xylene (Total)	1330207	1.40E-05	1.43E-02	CATEF mean	6.98E-05	1.22E-01	1.22E-04
PAH							
Benzo(a)anthracene	56553	1.91E-09	1.96E-06	CATEF mean	9.57E-09	1.68E-05	1.68E-08
Benzo(a)pyrene	50328	9.57E-10	9.80E-07	CATEF mean	4.79E-09	8.38E-06	8.38E-09
Benzo(b)fluoranthene	205992	1.11E-09	1.14E-06	CATEF mean	5.57E-09	9.75E-06	9.75E-09
Benzo(k)fluoranthene	207089	9.67E-10	9.90E-07	CATEF mean	4.83E-09	8.47E-06	8.47E-09
Chrysene	218019	1.36E-09	1.39E-06	CATEF mean	6.79E-09	1.19E-05	1.19E-08
Dibenz(a,h)anthracene	53703	8.96E-10	9.17E-07	CATEF mean	4.48E-09	7.84E-06	7.84E-09
Indeno(1,2,3-cd)pyrene	193395	1.14E-09	1.17E-06	CATEF mean	5.71E-09	1.00E-05	1.00E-08
Naphthalene	91203	1.09E-06	1.12E-03	CATEF mean	5.47E-06	9.58E-03	9.58E-06
PAHs (other than naphthalene)					4.17E-08	7.31E-05	7.31E-08

Notes:

a Emission factors obtained from the CATEF database for natural gas-fired heaters.

b Used a HHV of 1024 Btu/scf

Toxic Air Contaminant Emissions from Each 5000F Simple Cycle Turbine

Max Fuel Flow (HHV) **2202** **MMBtu/hr**
Maximum annual hours of operati **1752** **hr/yr**
includes startups and shutdowns
Maximum operations fuel flow based on the winter temperature operation scenario (20°F; 100% load)
There are 4 turbines for the entire Project

Pollutant	CAS	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMcf)	Emission factor source	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)	Total Project Annual Emission Rate (ton/yr)
Ammonia	7664417			max TBACT level	32.91	5.77E+04	1.15E+02
1,3-Butadiene	106990	1.24E-07	1.27E-04	CATEF mean	2.73E-04	4.79E-01	9.57E-04
Acetaldehyde	75070	1.34E-04	1.37E-01	CATEF mean	2.95E-01	5.16E+02	1.03E+00
Acrolein	107028	3.62E-06		AP-42 w CO catalyst	7.97E-03	1.40E+01	2.79E-02
Benzene	71432	3.26E-06		AP-42 w CO catalyst	7.18E-03	1.26E+01	2.52E-02
Ethylbenzene	100414	1.75E-05	1.79E-02	CATEF mean	3.85E-02	6.74E+01	1.35E-01
Formaldehyde	50000	3.60E-04		AP-42 w CO catalyst	7.93E-01	1.39E+03	2.78E+00
Hexane	110543	2.53E-04	2.59E-01	CATEF mean	5.57E-01	9.76E+02	1.95E+00
Propylene	115071	7.53E-04	7.71E-01	CATEF mean	1.66E+00	2.91E+03	5.81E+00
Propylene Oxide	75569	4.67E-05	4.78E-02	CATEF mean	1.03E-01	1.80E+02	3.60E-01
Toluene	108883	6.93E-05	7.10E-02	CATEF mean	1.53E-01	2.68E+02	5.35E-01
Xylenes	1330207	2.55E-05	2.61E-02	CATEF mean	5.61E-02	9.83E+01	1.97E-01
PAH							
Benzo(a)anthracene	56553	2.21E-08	2.26E-05	CATEF mean	4.86E-05	8.52E-02	1.70E-04
Benzo(a)pyrene	50328	1.36E-08	1.39E-05	CATEF mean	3.98E-05	1.32E-01	2.64E-04
Benzo(b)fluoranthene	205992	1.10E-08	1.13E-05	CATEF mean	2.43E-05	4.26E-02	8.52E-05
Benzo(k)fluoranthene	207089	1.07E-08	1.10E-05	CATEF mean	2.37E-05	4.14E-02	8.29E-05
Chrysene	218019	2.46E-08	2.52E-05	CATEF mean	5.42E-05	9.50E-02	1.90E-04
Dibenz(a,h)anthracene	53703	2.29E-08	2.35E-05	CATEF mean	5.05E-05	8.85E-02	1.77E-04
Indeno(1,2,3-cd)pyrene	193395	2.29E-08	2.35E-05	CATEF mean	5.05E-05	8.85E-02	1.77E-04
Naphthalene	91203	1.62E-06	1.66E-03	CATEF mean	3.57E-03	6.25E+00	1.25E-02
PAHs (other than naphthalene)					2.92E-04	5.73E-01	1.15E-03

Notes:
a Emission factors obtained from the CATEF database for natural gas-fired combustion turbines. Formaldehyde, Benzene, and Acrolein emission factors are from the Background document for AP-42 Section 3.1, Table 3.4-1 for a natural gas-fired combustion turbine with a CO catalyst.
b Ammonia emission rate based on an exhaust NH3 limit of 10 ppmv @ 15% O2 provided by the turbine vendor.
c Used a HHV of 1024 Btu/scf

Toxic Air Contaminant Emissions from CCPP Units 6 & 7 Combined

Max Fuel Flow (HHV) Units 6 & 7 Combined	**6635.40**	**MMBtu/hr**
Maximum annual fuel flow (HHV) Units 6 & 7 Combined	**3620850**	**MMBtu/yr**
Maximum annual hours of Unit 7 operations	**2796**	**hr/yr**

Pollutant	CAS	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMcf)	Emission factor source	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)
Ammonia	7664417				15.5	4.33E+04
Acetaldehyde	75070	8.66E-06	8.87E-03	CATEF mean	5.75E-02	3.14E+01
Benzene	71432	4.21E-06	4.31E-03	CATEF mean	2.79E-02	1.52E+01
Formaldehyde	50000	2.16E-04	2.21E-01	CATEF mean	1.43E+00	7.81E+02

Notes:

a Hourly and annual emissions based on maximum fuel input obtained from CEMS data for 2005-2007.

b Emission factors obtained from the CATEF database for natural gas boilers with no controls.

c Ammonia emission rate based on an exhaust NH_3 limit of 10 ppmv obtained from the ATC for addition of SCR for Unit 7 in 2000. There is no SCR on

d Used a HHV of 1024 Btu/scf.

Toxic Air Contaminant Emissions from Each Gateway Combined Cycle Turbine

Max Fuel Flow (HHV)	**2094.4**	**MMBtu/hr**
Max Fuel Flow (HHV)	**17,450,000**	**MMBtu/yr**
Maximum annual hours of operation	**8,332**	**hr/yr**

Pollutant	CAS	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMcf)	Emission factor source	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)
Ammonia	7664417			max TBACT level	29.3	2.44E+05
1,3-Butadiene	106990	1.24E-07	1.27E-04	CATEF mean	2.60E-04	2.16E+00
Acetaldehyde	75070	1.34E-04	1.37E-01	CATEF mean	2.80E-01	2.33E+03
Acrolein	107028	3.62E-06		AP-42 w CO catalyst	7.58E-03	6.32E+01
Benzene	71432	3.26E-06		AP-42 w CO catalyst	6.83E-03	5.69E+01
Ethylbenzene	100414	1.75E-05	1.79E-02	CATEF mean	3.66E-02	3.05E+02
Formaldehyde	50000	3.60E-04		AP-42 w CO catalyst	7.54E-01	6.28E+03
Hexane	110543	2.53E-04	2.59E-01	CATEF mean	5.30E-01	4.41E+03
Propylene	115071	7.53E-04	7.71E-01	CATEF mean	1.58E+00	1.31E+04
Propylene Oxide	75569	4.67E-05	4.78E-02	CATEF mean	9.78E-02	8.15E+02
Toluene	108883	6.93E-05	7.10E-02	CATEF mean	1.45E-01	1.21E+03
Xylenes	1330207	2.55E-05	2.61E-02	CATEF mean	5.34E-02	4.45E+02
PAH						
Benzo(a)anthracene	56553	2.21E-08	2.26E-05	CATEF mean	4.62E-05	3.85E-01
Benzo(a)pyrene	50328	1.36E-08	1.39E-05	CATEF mean	3.98E-05	1.32E-01
Benzo(b)fluoranthene	205992	1.10E-08	1.13E-05	CATEF mean	2.31E-05	1.93E-01
Benzo(k)fluoranthene	207089	1.07E-08	1.10E-05	CATEF mean	2.25E-05	1.87E-01
Chrysene	218019	2.46E-08	2.52E-05	CATEF mean	5.15E-05	4.29E-01
Dibenz(a,h)anthracene	53703	2.29E-08	2.35E-05	CATEF mean	4.81E-05	4.00E-01
Indeno(1,2,3-cd)pyrene	193395	2.29E-08	2.35E-05	CATEF mean	4.81E-05	4.00E-01
Naphthalene	91203	1.62E-06	1.66E-03	CATEF mean	3.40E-03	2.83E+01
Total PAHs					3.67E-03	3.04E+01

Notes:

a Emission factors obtained from the CATEF database for natural gas-fired combustion turbines. Formaldehyde, Benzene, and Acrolein emission factors are from the Background document for AP-42 Section 3.1, Table 3.4-1 for a natural gas-fired combustion turbine with a CO catalyst.

b Ammonia emission rate based on an exhaust NH_3 limit of 10 ppmv obtained from the BAAQMD Engineering Evaluation For Proposed Amended Authority to Construct and Draft PSD Permit, June 2008.

c Used a HHV of 1024 Btu/scf.

d Fuel flow and annual operational hours obtained from the BAAQMD Engineering Evaluation For Proposed Amended Authority to Construct and Draft PSD Permit, June 2008.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION FOR THE MARSH LANDING GENERATING STATION	***DOCKET NO. 08-AFC-3*** **PROOF OF SERVICE** **(REVISED 5/22/09)**

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DECLARATION OF SERVICE

I, Catherine Short, declare that on September 16, 2009, I served and filed copies of the attached *Application of Certification Amendment*. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[http://www.energy.ca.gov/sitingcases/marshlanding/index.html]**. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

For service to all other parties:

____ sent electronically to all email addresses on the Proof of Service list;

__X__ by personal delivery or by depositing in the United States mail at San Francisco, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

____ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 08-AFC-3
1516 Ninth Street, MS-4
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I declare under penalty of perjury that the foregoing is true and correct.

C Short

____

* indicates change