

Mr. Robert Perdue

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June 5, 2006

Enclosures:

Form 200

Attachment 1 - Updated Narrative Project Description

Attachment 2 - Updated Site Layout Drawing

Attachment 3 - Updated Influent and Effluent Characteristics

Form 200



State of California
Regional Water Quality Control Board

**APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT**



I. FACILITY INFORMATION

A. Facility:

Name:			
Address:			
City:	County:	State:	Zip Code:
Contact Person:		Telephone Number:	

B. Facility Owner:

Name:		Owner Type (Check One)	
Address:		1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City:	State:	3. <input type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership Agency
Zip Code:	5. <input type="checkbox"/> Other: _____		
Contact Person:		Telephone Number:	Federal Tax ID:

C. Facility Operator (The agency or business, not the person):

Name:		Operator Type (Check One)	
Address:		1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City:	State:	3. <input type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership Agency
Zip Code:	5. <input type="checkbox"/> Other: _____		
Contact Person:		Telephone Number:	

D. Owner of the Land:

Name:		Owner Type (Check One)	
Address:		1. <input type="checkbox"/> Individual	2. <input type="checkbox"/> Corporation
City:	State:	3. <input type="checkbox"/> Governmental Agency	4. <input type="checkbox"/> Partnership Agency
Zip Code:	5. <input type="checkbox"/> Other: _____		
Contact Person:		Telephone Number:	

E. Address Where Legal Notice May Be Served:

Address:		
City:	State:	Zip Code:
Contact Person:		Telephone Number:

F. Billing Address:

Address:		
City:	State:	Zip Code:
Contact Person:		Telephone Number:



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

[] A. WASTE DISCHARGE TO LAND

[] B. WASTE DISCHARGE TO SURFACE WATER

Check all that apply:

- [] Domestic/Municipal Wastewater Treatment and Disposal
[] Cooling Water
[] Mining
[] Waste Pile
[] Wastewater Reclamation
[] Other, please describe:

- [] Animal Waste Solids
[] Land Treatment Unit
[] Dredge Material Disposal
[] Surface Impoundment
[] Industrial Process Wastewater

- [] Animal or Aquacultural Wastewater
[] Biosolids/Residual
[] Hazardous Waste (see instructions)
[] Landfill (see instructions)
[] Storm Water

III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

1. Assessor's Parcel Number(s) Facility: Discharge Point:

2. Latitude Facility: Discharge Point:

3. Longitude Facility: Discharge Point:

IV. REASON FOR FILING

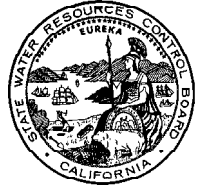
[] New Discharge or Facility [] Changes in Ownership/Operator (see instructions)
[] Change in Design or Operation [] Waste Discharge Requirements Update or NPDES Permit Reissuance
[] Change in Quantity/Type of Discharge [] Other:

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency:
Has a public agency determined that the proposed project is exempt from CEQA? [] Yes [] No
If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.
Basis for Exemption/Agency:
Has a "Notice of Determination" been filed under CEQA? [] Yes [] No
If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.
Expected CEQA Documents:
[] EIR [] Negative Declaration
Expected CEQA Completion Date:



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



VI. OTHER REQUIRED INFORMATION

Please provide a COMPLETE characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods.

Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below:

Three horizontal lines for listing attachments.

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

VIII. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: _____

Title: _____

Signature: _____

Date: _____

FOR OFFICE USE ONLY

Table with 4 columns: Date Form 200 Received, Letter to Discharger, Fee Amount Received, Check #.

Attachment 1

Narrative Project Description

Attachment 1 – Narrative Project Description

Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium in groundwater at the Topock Compressor Station under the oversight of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). The IM consists of groundwater extraction in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems are collectively referred to as Interim Measure No. 3 (IM No. 3). Currently, the IM No. 3 facilities include an existing groundwater extraction system, conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater.

On October 13, 2004, the California Regional Water Quality Control Board, Colorado River Basin Region (Water Board) adopted Waste Discharge Requirements (WDR) Order No. R7-2004-0103, which authorized PG&E to inject treated groundwater into an injection well field at the Topock site. The WDRs specify effluent limitations, prohibitions, specifications, and provisions for subsurface injection. Startup of the IM No. 3 treatment system occurred over a 3-day period from July 25 to July 27, 2005, in accordance with Order R7-2004-0103, and injection has been occurring in compliance with the Order requirements since that time.

Order R7-2004-0103 expires on January 31, 2007 (Provision D.23). To support PG&E's Report of Waste Discharge renewal application, this narrative project description provides supplemental information on the subsurface injection of treated water.

The information contained in this narrative project description is very similar to that which was contained in the original Report of Waste Discharge for subsurface injection of treated water submitted to the Water Board on August 13, 2004. Information from the original application has been updated following the construction, start-up, and operation of the treatment and injection system to reflect current operating conditions. Subsequent to filing the original Report of Waste Discharge, and as required by Order R7-2004-0103, PG&E submitted additional information on the subsurface injection of treated water, as outlined in the documents in Table 1.

TABLE 1

Documents Required by Order R7-2004-0103 and Associated Monitoring and Reporting Program (MRP)^a

Document and Requirement of Order R7-2004-0103	Date Document Submitted to the Water Board
Injection System O&M Plan – Provision D.4	Submitted to Water Board and DTSC on April 7, 2005. Addendum 1 and Addendum 2 submitted June 3, 2005 and June 30, 2005, respectively.
Design Plan for Groundwater Compliance Monitoring - Provision D.6	Submitted to Water Board and DTSC on November 23, 2004. Incorporated agency comments and re-submitted to Water Board and DTSC on January 5, 2005.
Contingency Plan for any plant upset – Provision D.8	Submitted to Water Board on April 15, 2005 as part of Treatment System O&M Plan. Updated and re-submitted to Water Board on April 24, 2006.
Solid Waste Management Plan – Provision D.19	Submitted to Water Board on March 24, 2004. Clarification letter submitted on July 1, 2005.
Groundwater Compliance Monitoring Plan – MRP, Groundwater Monitoring 1	Submitted to Water Board and DTSC on April 11, 2005. Incorporated agency comments and re-submitted to Water Board and DTSC on June 17, 2005. Addendum to CMP submitted December 13, 2005.
Sampling Stations – MRP, Startup 2	Submitted to Water Board June 29, 2005
Startup Report – MRP, Startup 4	Submitted to Water Board August 12, 2005

^a In addition to the documents listed in the table, PG&E has submitted the monitoring reports required by the MRP, in accordance with the required reporting frequency.

Facility Location

As discussed above, the IM No. 3 system extracts groundwater, treats the groundwater, and discharges the treated water using subsurface injection wells. Extracted groundwater is conveyed by piping (influent) to the treatment system located on San Bernardino County Assessor's Parcel No. 650-151-06. The treated water is conveyed by piping (effluent) to the injection wells, located at the west side of the Parcel 650-151-06. The site layout drawing showing the location of the IM No. 3 extraction, conveyance, treatment, and injection facilities is presented as Attachment 2.

Treatment System Flow Rates

The groundwater extraction and treatment system is designed to handle influent groundwater flows up to 135 gallons per minute. The treated effluent flow rate will be in the range of 80 to 95 percent of the influent flow. In addition, treatment residuals include:

- Reverse osmosis concentrate stream containing 18,000 to 24,000 milligrams per liter (mg/L) of total dissolved solids at a flow rate of 5 to 20 percent of influent flow.
- Precipitated solids at a concentration of up to 30 percent solids. The volume of solids varies with treatment conditions, but it is on the order of 100 pounds (dry weight) per day.

Influent and Treated Discharge Characteristics

Influent groundwater and treated effluent characteristics are presented in Attachment 3. The treatment system removes chemically-reduced and precipitated chromium as well as total dissolved solids. Current effluent limitations as stated in the WDR Order No. R7-2004-0103 are shown in Table 2 below

TABLE 2
Effluent Limitations for Chromium (VI) and Chromium (Total) in Order R7-2004-0103

Constituent	Unit	Average Monthly Effluent Limit	Maximum Daily Effluent Limit
Chromium (VI)	µg/L	8	16
Chromium (Total)	µg/L	25	50

In addition, the pH of the effluent is to be maintained within the limits of 6.5 to 8.4, and the effluent is not to contain heavy metals, chemicals, pesticides or other constituents in concentrations toxic to a human health.

The average total dissolved solids concentration in the treated effluent is currently controlled to target 4,200 mg/L, based on the representative total dissolved solids value for the injection area groundwater (*Groundwater and Hydrogeologic Investigation Report for Interim Measures No. 3 Injection Area, CH2M HILL, June 2005*).

Treatment System Description

The treatment system includes chemical reduction of hexavalent chromium to trivalent chromium, precipitation and settling of the resulting insoluble chromium hydroxide, microfiltration to remove remaining suspended particulate matter, and reverse osmosis to remove dissolved salts. The groundwater entering the treatment system may be classified as a hazardous waste (chromium concentrations equal to or greater than 5 mg/L) under

California hazardous waste regulations. Consequently, the treatment system was permitted through the California Tiered Permitting Program under the jurisdiction of the San Bernardino Fire Department, Hazmat Division, which is the Certified Unified Program Agency for San Bernardino County.

The reagents used for treatment of the groundwater include ferrous chloride (for chromium removal), sulfuric acid (for pH control), sodium hydroxide (for pH control to improve precipitation), an anionic polymer to facilitate particle settling, and an anti-scalant to reduce mineral buildup on reverse osmosis membrane surfaces. Reagents are stored and handled in compliance with applicable federal, state, and local requirements.

Ferrous chloride is injected into influent groundwater within a recycle loop pipe reactor, along with sulfuric acid, if required for pH control. The pH setpoint range is from 4.5 to 6.8 and the ferrous chloride dose range is from 45 to 200 mg/L depending on the influent hexavalent chromium concentration. The pipe reactor converts hexavalent chromium to trivalent chromium. Next, the water flows through a chromium reduction tank reactor to ensure complete conversion of remaining hexavalent chromium to trivalent chromium.

The treated groundwater then flows through three oxidation tanks in series. Air is bubbled through these tanks to oxidize soluble ferrous iron to the very insoluble ferric form. The resulting ferric hydroxide precipitate co-precipitates trivalent chromium hydroxide to remove it from the groundwater. Sodium hydroxide is added to one or more of the three tanks to raise the pH of the groundwater to the range 7.5 to 8.2 to further promote precipitation of iron and trivalent chromium.

Treated groundwater from the three tanks flows into an inclined plate clarifier. Sludge drops to the bottom, thickening section of the clarifier, where it is transferred into a container for temporary storage prior to discharge to a container for offsite disposal. Treated wastewater exiting the clarifier is further treated in a microfilter. Solids rejected by the microfilter are returned to the raw water tank. A portion of the microfilter-treated effluent is treated in a reverse osmosis system.

The reverse osmosis system removes and concentrates soluble salts. Total dissolved solids concentrations of water entering the reverse osmosis system are reduced from a range of 5,000 to 8,000 mg/L (based on the blend of Extraction Wells TW-2D, TW-3D, and PE-1), which is lowered to 500 to 1,000 mg/L by the reverse osmosis system. The reverse osmosis permeate is blended with that portion of the microfiltered water that has bypassed the reverse osmosis system to achieve the target effluent total dissolved solids concentration specified in Order R7-2004-0103. Treated water is piped to one or both of the two injection well sites in single-contained piping following the piping alignment shown in Attachment 2.

The reverse osmosis concentrate has an estimated total dissolved solids concentration of 18,000 to 32,000 mg/L. It is conveyed from the treatment system to the MW-20 bench using the same trench as for the influent piping. Storage facilities are located at the MW-20 bench to accommodate the reverse osmosis concentrate stream. The reverse osmosis concentrate is trucked to an offsite permitted disposal facility.

Treatment Chemical Usage

Treatment chemicals and estimated usage rates are:

- Thirty-five percent solution of ferrous chloride: 80 to 140 gallons per day.
- Thirty-five percent solution of sulfuric acid: not required by current groundwater chemistry.
- Twenty-five percent solution of sodium hydroxide: 5 gallons per day.
- Anti-scalant: 2.6 gallons per day.
- Anionic polymer to facilitate floc formation and solids removal in clarifier: approximately 1 pound per day.

Best Management Practices

The following best management practices are in place to prevent releases of hazardous materials or untreated groundwater:

- Treatment chemicals are brought to the site in totes or smaller containers. They are stored and used in a secondarily-contained area.
- The influent groundwater tank and the treatment system are constructed on a coated concrete treatment pad with curbing to contain drips and spills. Groundwater influent to the treatment plant is conveyed in secondary containment piping with electronic leak detection.
- Hazardous materials usage is governed by a Hazardous Materials Business Plan that specifies the location of hazardous materials onsite and includes a spill contingency and emergency response plan.
- Hazardous wastes are managed in accordance with the requirements of Title 22, California Code of Regulations, Division 4.5.
- A treatment system operations manual is maintained at the site. System operators are trained regarding system operation, maintenance, and emergency procedures.
- Electronic control loops are included in the system design to link extraction well operations with treatment system operations; regulate process flow rates within the plant; discharge the treated water and wastes; flow-pace chemical feeds; and backwash filters.
- Level alarms/switches are provided in tanks to prevent overflows and damage to pumps.

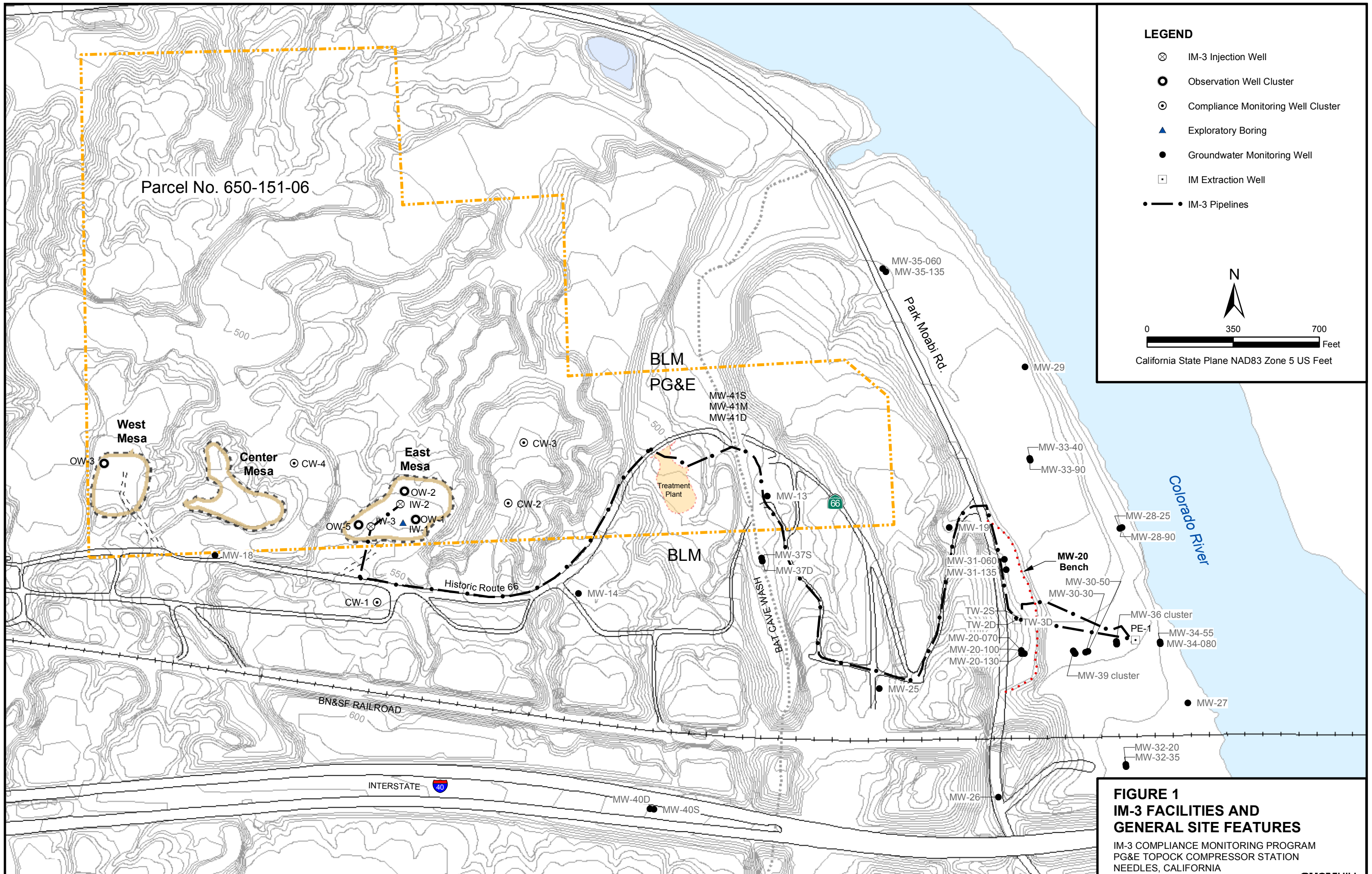
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- The pH and key flow rates are continuously monitored to assess plant performance. Filter effluent turbidity and periodic analytical tests are used to monitor treatment process performance.
 - Extraction well pumps and plant operations are shut down in the event of a process failure and/or mechanical damage. Alarms are indicated on a local control panel at the treatment unit. A manual reset is required to restart the plant.
 - Monitoring of treatment plant performance includes online monitoring of pH, key flow rates, and filter effluent turbidity, as well as periodic effluent sampling and analysis. Testing of effluent, influent, reverse osmosis concentrate, and sludge solids is done per the requirements of Order R7-2004-0103 and the associated Monitoring and Reporting Program.

Disposal of Treatment Residuals

The precipitated solids removed in the clarifier and the reverse osmosis concentrate are trucked offsite to permitted disposal facilities in accordance with federal, state, and local regulations.

Attachment 2

Site Layout Drawing



Attachment 3

Updated Influent and Effluent Characteristics

Attachment 3
Influent Groundwater and Treated Effluent Characteristics
PG&E Topock Interim Measures No. 3

Group	Analyte	Units	Original ROWD Submittal ^a				Actual Data Collected During Operations August 2005 to April 2006 ^b							
			Influent		Effluent		Influent				Effluent			
			Average ^{c, d}	Max	Average ^{c, d}	Max	Frequency of Detection	Average ^c	Max	Date of Max	Frequency of Detection	Average ^c	Max	Date of Max
ANION	Nitrate as Nitrogen	mg/L	---	---	---	---	13 / 13	4.69	5.69	8/29/2005	13 / 13	3.36	4.18	12/13/2005
	Nitrite as Nitrogen	mg/L	---	---	---	---	8 / 9	0.00878	0.0143	8/16/2005	7 / 9	0.00822	0.0211	8/16/2005
	Bromide	mg/L	2.7	5.2	ND (0.5)	ND (0.5)	0 / 0	---	---	---	0 / 0	---	---	---
	Fluoride	mg/L	0.8	1.5	ND (2)	ND (2)	13 / 13	2.54	3.07	8/16/2005	13 / 13	1.91	2.31	12/7/2005
	Sulfate	mg/L	1117	5510	17	82.65	13 / 13	691	742	2/1/2006	13 / 13	450	528	2/1/2006
General	Specific conductance	µS/cm	---	---	---	---	24 / 24	9290	11000	2/1/2006	44 / 44	6810	8530	3/29/2006
	Turbidity	NTU	---	---	---	---	9 / 24	0.0834	0.219	9/21/2005	6 / 44	0.0656	0.256	8/4/2005
	Total organic carbon	mg/L	6.2	39	0.9	5.8	1 / 10	0.32	1.25	4/5/2006	0 / 9	NA	ND (0.3)	NA
	Total suspended solids	mg/L	3.9	5.6	ND (2)	ND (2)	0 / 10	NA	ND (10)	NA	0 / 10	NA	ND (10)	NA
	Total dissolved solids	mg/L	11296	43,600	500 ^e	1000	24 / 24	5890	6360	9/21/2005	57 / 57	3990	4810	12/7/2005
	Ammonia as nitrogen	mg/L	2.0	12.3	0.20	1.2	3 / 9	0.509	1.43	10/12/2005	4 / 9	1.47	7.84	11/2/2005
	Flow	gpm	80	135	80	135	f	f	134.1	Feb 2006	f	f	121.4	Feb 2006
	Winter Temperature	deg F	55	60	55	60	0 / 0	---	---	---	0 / 0	---	---	---
	Summer Temperature	deg F	80	85	80	85	0 / 0	---	---	---	0 / 0	---	---	---
	pH	phunits	7.5	7.9	6.2	7	24 / 24	7.51	7.72	9/28/2005	44 / 44	7.88	8.14	2/8/2006
	Total phosphorus as p	mg/L	0.18	0.25	ND (0.05)	ND (0.05)	8 / 11	0.054	0.219	8/1/2005	10 / 10	0.139	0.258	8/8/2005
	Sulfide	mg/L	ND (0.4)	0.7	ND (0.4)	ND (0.4)	0 / 0	---	---	---	0 / 0	---	---	---
Metals - Filtered	Hexavalent chromium	mg/L	4.9	8.3	ND (0.010)	ND (0.010)	24 / 24	3.77	4.27	8/25/2005 ^g	12 / 44	0.000441	0.00046	8/16/2005
Metals-Unfiltered	Antimony	mg/L	---	---	---	---	0 / 13	NA	ND (0.003)	NA	0 / 13	NA	ND (0.003)	NA
	Arsenic	mg/L	---	---	---	---	0 / 13	NA	ND (0.005)	NA	0 / 13	NA	ND (0.005)	NA
	Aluminum	mg/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0 / 12	NA	ND (0.052)	NA	0 / 12	NA	ND (0.052)	NA
	Barium ^h	mg/L	0.3	1.1	ND (0.025)	ND (0.025)	6 / 13	0.0919	0.027	9/16/2005	6 / 13	0.0922	0.104	8/1/2005
	Boron	mg/L	1.9	3.6	0.750	1.44	13 / 13	1.40	1.66	3/8/2006	13 / 13	1.33	1.62	11/2/2005
	Iron	mg/L	0.78	9.3	ND (0.1)	ND (0.1)	0 / 12	NA	ND (0.3)	NA	0 / 12	NA	ND (0.3)	NA
	Magnesium	mg/L	175	985	5	29.55	5 / 5	21.4	23.2	8/29/2005	5 / 5	11.1	14.7	8/22/2005
	Molybdenum	mg/L	0.03	0.1	0.003	0.010	13 / 13	0.0212	0.028	8/22/2005	12 / 13	0.00885	0.0122	12/7/2005
	Manganese	mg/L	0.24	1.3	0.007	0.039	0 / 13	NA	ND (0.05)	NA	0 / 13	NA	ND (0.05)	NA
	Chromium	mg/L	5.4	10.4	ND (0.025)	ND (0.025)	24 / 24	4.05	7.14	8/4/2005	5 / 44	0.00106	0.0107	1/18/2006
	Lead	mg/L	0.03	0.073	0.0004	0.001	1 / 13	0.00124	0.0024	3/8/2006	1 / 13	0.00124	0.0024	3/8/2006
	Nickel	mg/L	0.04	0.5	0.004	0.05	5 / 13	0.00818	0.0079	8/16/2005	2 / 13	0.00735	0.0093	9/16/2005
	Zinc	mg/L	0.09	0.6	0.003	0.018	8 / 13	0.039	0.197	4/5/2006	8 / 13	0.0581	0.406	4/5/2006
	Copper	mg/L	0.02	0.2	0.002	0.016	4 / 13	0.0101	0.0313	3/8/2006	5 / 13	0.01	0.0328	3/8/2006
OTHER	Color	units	143	150	---	---	0 / 0	---	---	---	0 / 0	---	---	---

NOTES: mg/L milligrams per liter
µS/cm microsiemens per centimeter
NTU nephelometric turbidity units
deg F degree fahrenheit
gpm gallons per minute
ND parameter not detected at the listed reporting limit
--- not sampled
NA not applicable because all samples are not detected

^c For nondetect results, a value equal to half the reporting limit is used to calculate average concentration from each sample. Sometimes the reporting limit may be higher than the detected value causing the average to be higher than the maximum value.
^d Average concentrations are flow-weighted assuming flow from wells TW-2S, TW-2D, MW-26, MW-30-30, with 50% from TW-2D and 16.6% each from the other wells.
^e Subsequent to original ROWD submittal, PG&E and the Water Board agreed on approach to establish and monitor TDS so that discharge is consistent with the Anti-Degradation Policy.
^f Flow is measured continuously and reported as a monthly average
^g The maximum value was detected during two events.
^h Reporting limit increased from 0.003 mg/L to 0.3 mg/L for all analyses completed after September 2005.

^a Assessment based on existing data prior to July 2004 from wells TW-2S, TW-2D, MW-26, MW-30-30.

^b Assessment based on existing data between August 2005 and April 2006 from influent and effluent sampling locations SC-100B and SC-700B.