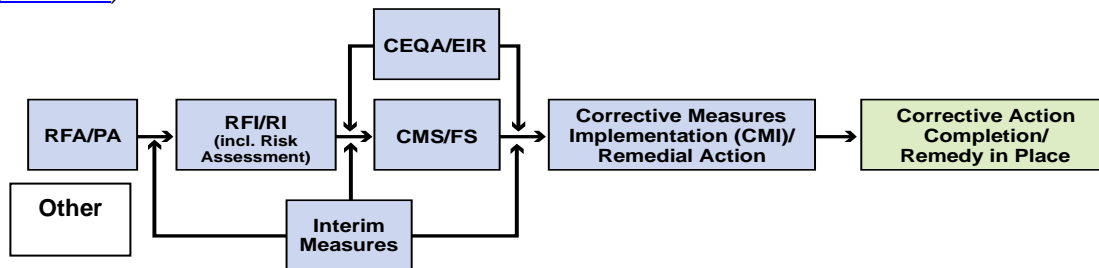


Topock Project Executive Abstract

<p>Document Title:</p> <p>Topock IM No. 3 WDR Fourth Quarter 2008 Monitoring and Semiannual Jul-Dec 2008 / Annual Jan-Dec 2008 O&M Report</p> <p>Submitting Agency/ Authored by: RWQCB</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>		<p>Date of Document: January 15, 2008</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p>	
<p>Priority Status: <input type="checkbox"/> HIGH <input type="checkbox"/> MED <input checked="" type="checkbox"/> LOW</p> <p>Is this time critical? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>		<p>Action Required:</p> <p><input checked="" type="checkbox"/> Information Only <input type="checkbox"/> Review & Comment</p> <p>Return to: _____</p> <p>By Date: _____</p> <p><input type="checkbox"/> Other / Explain:</p>	
<p>Type of Document:</p> <p><input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo</p> <p><input type="checkbox"/> Other / Explain:</p>			
<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>		<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>	
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Submittal of this report is a compliance requirement of RWQCB Waste Discharge Requirements/Order No. R7-2006-0060</p>		<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>	
<p>Brief Summary of attached document:</p> <p>This report covers the IM No. 3 groundwater treatment system monitoring activities during the Fourth Quarter 2008 and the operation and maintenance activities during the July 1, 2008 to December 31, 2008 period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.</p> <p>Written by: PG&E</p>			
<p>Recommendations:</p> <p>This report is for your information only.</p>			
<p>How is this information related to the Final Remedy or Regulatory Requirements:</p> <p>The IM No. 3 WDR Fourth Quarter 2008 Monitoring and Semiannual July-December 2008 O&M Report is related to the Interim Measure, and is designed to monitor compliance with RWQCB Waste Discharge Requirements/Order No. R7-2006-0060.</p>			
<p>Other requirements of this information?</p> <p>None.</p>			

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).



Legend

RFA/PA – RCRA Facility Assessment/Preliminary Assessment

RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)

CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

CEQA/EIR – California Environmental Quality Act/Environmental Impact Report



**Pacific Gas and
Electric Company**

Curt Russell
Topock Site Manager
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January 15, 2009

Robert Perdue
Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

Subject: Board Order R7-2006-0060
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System Discharge to Injection Wells
***Combined Fourth Quarter 2008 Monitoring and Semiannual July-December 2008/
Annual January-December 2008 Operation and Maintenance Report for Interim Measure
No. 3 Groundwater Treatment System***

Dear Mr. Perdue:

Enclosed is the Combined Fourth Quarter 2008 Monitoring and Semiannual July-December 2008 / Annual January-December 2008 Operation and Maintenance Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure (IM) No. 3 Groundwater Treatment System.

This report is being submitted in compliance with the Waste Discharge Requirements (WDRs) issued September 20, 2006 by the California Regional Water Quality Control Board, Colorado River Basin Region (Water Board) under Order R7-2006-0060 and in compliance with the revised Monitoring and Reporting Program for Order R7-2006-0060, issued August 28, 2008. The WDRs apply to IM No. 3 Treatment System discharge by subsurface injection.

The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

If you have any questions regarding this report, please call me at (760) 326-5582.

Sincerely,

Curt Russell
Topock Site Manager

Enclosures:

Fourth Quarter 2008 Monitoring, Semiannual July-December 2008 Operation and Maintenance,
and Annual January-December 2008 Operation and Maintenance Report for the IM No. 3
Groundwater Treatment System

Robert Perdue
January 15, 2009
Page 2

cc: Abdi Haile, Water Board
Cliff Raley, Water Board
Tom Vandenberg, State Water Resources Control Board
Aaron Yue, DTSC

**Combined Fourth Quarter 2008 Monitoring
and Semiannual July-December 2008 /
Annual January – December 2008
Operation and Maintenance Report
for Interim Measure No. 3
Groundwater Treatment System**

**Waste Discharge Requirements
Board Order No. R7-2006-0060
PG&E Topock Compressor Station
Needles, California**

Prepared for
**California Regional Water Quality Control Board
Colorado River Basin Region**

On behalf of
Pacific Gas and Electric Company

January 15, 2009

CH2MHILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

**Combined Fourth Quarter 2008 Monitoring and
Semiannual July-December 2008 / Annual January - December 2008
Operation and Maintenance Report
for Interim Measure No. 3 Groundwater Treatment System
Waste Discharge Requirements Order No. R7-2006-0060
PG&E Topock Compressor Station
Needles, California**

Prepared for
Pacific Gas and Electric Company

January 15, 2009

This report was prepared under the supervision of a
California Certified Professional Engineer



John Porcella, P.E.
Project Engineer

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7	Board Order No. R7-2006-0060 Waste Discharge Requirements Sludge Monitoring Results

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- A Semiannual Operations and Maintenance Log
- B Daily Volumes of Groundwater Treated
- C Flowmeter Calibration Records
- D Fourth Quarter 2008 Laboratory Analytical Reports

Acronyms and Abbreviations

μmhos/cm	micromhos per centimeter
IM	Interim Measure
MRP	Monitoring and Reporting Program
NTU	nephelometric turbidity unit
PG&E	Pacific Gas and Electric Company
ppb	parts per billion
RCRA	Resource Conservation and Recovery Act
Truesdail	Truesdail Laboratories, Inc.
Water Board	California Regional Water Quality Control Board, Colorado River Basin Region
WDR	Waste Discharge Requirements

1.0 Introduction

Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The IM consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems collectively are referred to as IM No. 3. Figure 1 provides a map of the project area. All figures are located at the end of this report.

California Regional Water Quality Control Board, Colorado River Basin Region (Water Board) Board Order No. R7-2006-0060 authorizes PG&E to inject treated groundwater into injection wells located on San Bernardino County Assessor's Parcel No. 650-151-06. Order No. R7-2006-0060 was issued September 20, 2006 and is the successor to Order No. R7-2004-0103. The revised Monitoring and Reporting Program (MRP) under the Order, issued August 28, 2008, requires quarterly monitoring reports to be submitted by the fifteenth day of the month following the end of the quarter.

This report covers the IM No. 3 groundwater treatment system monitoring activities during the Fourth Quarter 2008; the operation and maintenance activities during the July 1, 2008 to December 31, 2008 semiannual period; and (by reference) the operation and maintenance activities during the January 1, 2008 to June 30, 2008 annual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

2.0 Sampling Station Locations

Table 1 lists the locations of sampling stations. (All tables are located at the end of this report.) Sampling station locations are shown on the process and instrumentation diagrams, Figures TP-PR-10-10-04, TP-PR-10-10-08, and TP-PR-10-10-06, provided at the end of this report.

3.0 Description of Monitoring Activities

This report describes fourth quarter 2008 monitoring activities, and the July 1, 2008 through December 31, 2008 operation and maintenance activities related to the IM No. 3 groundwater treatment system. IM No. 3 monitoring activities from July 1, 2008 through September 30, 2008 (third quarter), and IM No. 3 operation and maintenance activities from January 1, 2008 through June 30, 2008 (first and second quarters), were reported in the following monitoring reports:

- *June 2008 and Second Quarter 2008 Monitoring Report/ Semiannual January 1- June 30, 2008 Operation and Maintenance Report for IM No. 3 Groundwater Treatment System Waste Discharge Requirements Order No. R7-2006-0060*, submitted to the Water Board July 15, 2008.
- *IM No. 3 Groundwater Treatment System Discharge to Injection Wells July 2008 Monitoring Report*, submitted to the Water Board August 15, 2008.
- *Third Quarter 2008 Monitoring Report for IM No. 3 Groundwater Treatment System Waste Discharge Requirements Order No. R7-2006-0060*, submitted to the Water Board October 15, 2008.

3.1 Groundwater Treatment System

The treatment system was initially operated between July 25 and July 28, 2005 for the Waste Discharge Requirement (WDR)-mandated startup phase. Discharge to the injection wells was initiated July 31, 2005 after successfully completing the startup phase in accordance with Order R7-2004-0103. Full-time operation of the treatment system commenced in August 2005.

Influent to the treatment facility, permitted by Order R7-2006-0060 (successor to Order R7-2004-0103), includes:

- Groundwater from extraction wells TW-2S, TW-2D, TW-3D, and PE-1.
- Purged groundwater and water generated from rinsing field equipment during monitoring events.
- Groundwater generated during well installation, well development, and aquifer testing.

Operation of the groundwater treatment system results in the following three effluent streams:

- **Treated Effluent:** Treated water that is discharged to the injection well(s).
- **Reverse Osmosis Concentrate (brine):** Treatment byproduct that is transported and disposed of offsite at a permitted facility.

- **Sludge:** Treatment byproduct that is transported offsite for disposal at a permitted facility, which occurs either when a sludge waste storage bin reaches capacity, or within 90 days of the start date for accumulation in the storage container, whichever occurs first.

3.2 Groundwater Treatment System Flow Rates for Fourth Quarter 2008

Downtime is defined as any periods when all extraction wells are not operating so that no groundwater is being extracted and piped into IM No. 3 as influent. Periods of planned and unplanned extraction system downtime (that together resulted in approximately 4.4 percent downtime during Fourth Quarter 2008) are summarized in the Operations and Maintenance Log provided in Appendix A. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site. Periods of planned and unplanned extraction system downtime during the months July 2008 – September 2008 are reported in the *Third Quarter 2008 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System Waste Discharge Requirements Order No. R7-2006-0060, PG&E Topock Compressor Station, Needles, CA*, published October 15, 2008.

Data regarding daily volumes of groundwater treated and discharged are provided in Appendix B. The IM No. 3 groundwater treatment system flowmeter calibration records are included in Appendix C.

3.2.1 Treatment System Influent

During the Fourth Quarter 2008, extraction wells TW-3D and PE-1 operated at a target pumping rate of 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction well TW-2D ran for a short period on October 3, 2008 and December 4, 2008, for sampling activities, during the Fourth Quarter 2008. Extraction well TW-2S was not pumped during Fourth Quarter 2008. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 96.5 percent during October 2008.
- 97.6 percent during November 2008.
- 92.8 percent during December 2008.

The Fourth Quarter 2008 treatment system monthly average flow rates (influent, effluent, and reverse osmosis concentrate) are presented in Table 2. The system influent flow rate was measured by flow meters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03).

The IM No. 3 facility treated approximately 17,120,448 gallons of extracted groundwater during Fourth Quarter 2008.

In addition to extracted groundwater, during Fourth Quarter 2008 the IM No. 3 facility treated 11,665 gallons of water generated from the groundwater monitoring program and 24,960 gallons of injection well development water.

3.2.2 Effluent Streams

The treatment system effluent flow rate was measured by flow meters in the piping leading to injection wells IW-2 and IW-3 (Figure TP-PRR-10-10-11) and in the piping running from the treated water tank T-700 to the injection wells (Figure TP-PR-10-10-04). The IM No. 3 facility injected 16,703,808 gallons of treatment system effluent during fourth quarter 2008. The monthly average flow rate to injection wells is shown in Table 2.

The reverse osmosis concentrate flow rate was measured by a flow meter at the piping carrying water from reverse osmosis concentrate tank T-701 to the truck load-out station (Figure TP-PR-10-10-08). The IM No. 3 facility generated 572,358 gallons of reverse osmosis concentrate during fourth quarter 2008. The monthly average reverse osmosis concentrate flow rate is shown in Table 2.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Four sludge containers were shipped offsite from the IM No. 3 facility during fourth quarter 2008. The shipment dates and approximate weights are provided in Section 5.3.

3.3 Sampling and Analytical Procedures

With the exception of pH, all samples were collected at the designated sampling locations and placed directly into containers provided by Truesdail Laboratories, Inc. (Truesdail). Sample containers were labeled and packaged according to standard sampling procedures.

The samples were stored in a sealed container chilled with ice and transported to Truesdail via courier under chain-of-custody documentation. The laboratories confirmed the samples were received in chilled condition upon arrival.

Truesdail is certified by the California Department of Health Services (Certification No. 1237) under the State of California's Environmental Laboratory Accreditation Program. California-certified laboratory analyses were performed in accordance with the latest edition of the *Guidelines Establishing Test Procedures for Analysis of Pollutants* (40 Code of Federal Regulations Part 136), promulgated by the United States Environmental Protection Agency.

During the Fourth Quarter 2008, analysis of pH was conducted by field method pursuant to the Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements) authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

As required by the MRP, the analytical method selected for total chromium has a method detection limit of 1 part per billion, and the analytical method selected for hexavalent chromium has a method detection limit of 0.2 part per billion.

Influent, effluent, reverse osmosis concentrate, and sludge sampling was conducted in accordance with the revised MRP, issued August 28, 2008. See Table 3 for sample collection dates. The sampling frequency during the Fourth Quarter 2008 was as follows:

- The influent was sampled monthly.
- The effluent was sampled weekly.

- The reverse osmosis concentrate was sampled monthly.
- The sludge was sampled each time a sludge roll-off bin was transported offsite, creating a single composite sample for the quarter.
- The sludge is required to have an aquatic bioassay test annually.

Groundwater quality is being monitored in observation and compliance wells according to Order R7-2006-0060 and the procedures and schedules approved in the *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area* submitted to the Water Board on June 17, 2005. Quarterly groundwater monitoring analytical results for the injection area (wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D) are reported in a separate document, in conjunction with groundwater level maps of the same monitoring wells.

4.0 Analytical Results

The analytical results and laboratory reports for the IM No. 3 groundwater treatment system monitoring program between July 1, 2008 and September 30, 2008 were included in the July Monthly Report and the Third Quarter Monitoring Report submitted to the Water Board (see Section 3.0 for a complete listing of reports).

Laboratory reports for samples collected in Fourth Quarter 2008 were prepared by certified analytical laboratories, and are presented in Appendix D. The Fourth Quarter 2008 analytical results are presented in Tables 4, 5, 6, and 7:

- Influent analytical results are presented in Table 4.
- Effluent analytical results are presented in Table 5. There were no exceedances of effluent limitations during the reporting period.
- Reverse osmosis concentrate analytical results are presented in Table 6.
- Sludge analytical results are presented in Table 7.
- The sludge is required to have an aquatic bioassay test annually. The aquatic bioassay test results were presented in the July Monthly Report and the Third Quarter Monitoring Report submitted to the Water Board.

Table 8 identifies the following information for each analysis:

- Sample location
- Sample identification number
- Sampler name
- Sample date
- Sample time
- Laboratory performing analysis
- Analysis method
- Analysis date
- Laboratory technician

5.0 Semiannual Operation and Maintenance

Pursuant to the WDRs Operations and Maintenance Section 1:

The discharger shall inspect and document any operation/maintenance problems by inspecting each unit process. In addition, calibration of flow meters and equipment shall be performed in a timely manner and documented. Operation and Maintenance reports shall be submitted to the Regional Water Board Office twice annually.

This section includes the Semiannual Operation and Maintenance Report for the IM No. 3 groundwater treatment system for the period July 1, 2008 through December 31, 2008. The IM No. 3 operation and maintenance activities between, January 1, 2008 through June 30, 2008, were reported in the June 2008 and Semiannual January 1- June 30, 2008 Operation and Maintenance Report, submitted July 15, 2008.

All operations and maintenance records are maintained at the facility, including site inspection forms, process monitoring records, hazardous waste generator records (i.e., waste manifests), and self-monitoring reports. These records will be maintained onsite for a period of at least 5 years. Operational programmable logic controller data (flow rates, system alarms, process monitoring data, etc.) are maintained electronically via data historian software. Operations and maintenance records are also archived using maintenance software. The following sections summarize the operations and maintenance activities during this semiannual reporting period.

5.1 Flowmeter Calibration Records

The IM No. 3 groundwater treatment system flowmeter calibration records are included in Appendix C. Flowmeter calibrations are performed in a timely manner consistent with the use, flow, material, and manufacturer recommendations. The following flowmeters are used at the plant to measure groundwater flow.

Location	Flowmeter Location ID	Current Flowmeter Serial No.	Date of Most Recent Re-Calibrated Meter Installation	Previous Flowmeter Serial No.
Extraction well PE-1	FIT-103	6C036F16000	January 4, 2007	6A022216000
Extraction well TW-3D	FIT-102	6C037016000	January 25, 2008	6A022116000
Extraction well TW-2D ^a	FIT-101	6A021F16000	July 28, 2005	---
Extraction well TW-2S ^b	FIT-100	6A022016000	July 28, 2005	---
Injection well IW-02	FIT-1202	6A022116000	February 2, 2007	6C037016000
Injection well IW-03	FIT-1203	6C037216000	April 9, 2008	7700F216000
Combined IW-02 and IW-03	FIT-700	7700C616000	February 13, 2008	7700F316000
Reverse osmosis concentrate	FIT-701	6C022216000	February 2, 2007	6C037316000

Notes:

^a TW-2D is a backup extraction well only operated for brief testing and sampling periods since January 2006.

^b TW-2S is a backup extraction well only operated for brief testing and sampling periods since October 2005.

5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between July 1, 2008 and December 31, 2008 are provided in Appendix B. The daily volumes of groundwater treated from January 1, 2008 through June 30, 2008 were reported in the Semiannual January 1- June 30, 2008 Operation and Maintenance Report, submitted July 15, 2008.

Approximately 34,236,306 gallons of groundwater were extracted and treated between July 1, 2008 and December 31, 2008. Treatment of this water at the IM No. 3 facility is being performed in accordance with the conditions of Order No. R7-2006-0060.

Additionally, approximately 13,785 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing) and 99,760 gallons of injection well re-development water were treated at the IM No. 3 facility during the July 1, 2008 through December 31, 2008 semiannual period.

A total of approximately 33,285,022 gallons of treated groundwater was injected back into the Alluvial Aquifer between July 1, 2008 and December 31, 2008.

5.3 Residual Solids Generated (Sludge)

During the July 1, 2008 through December 31, 2008 reporting period, nine containers of sludge were shipped offsite for disposal. The containers of sludge shipped offsite for disposal from January 1, 2008 through June 30, 2008 were reported in the Semiannual January 1- June 30, 2008 Operation and Maintenance Report, submitted July 15, 2008. The sludge was shipped to Chemical Waste Management at Kettleman Hills for disposal. A listing of each shipment during the July 1, 2008 through December 31, 2008 reporting period is provided below.

Date Sludge Bin Removed from Site	Approximate Quantity from Waste Manifests (cubic yards)	Approximate Wet Weight (lbs)	Type of Shipment
7/22/08	9	11,380	non-RCRA hazardous waste
7/28/08	8	11,260	non-RCRA hazardous waste
8/21/08	8	10,460	non-RCRA hazardous waste
9/8/08	9	13,660	non-RCRA hazardous waste
9/29/08	8	10,680	non-RCRA hazardous waste
10/20/08	10	13,780	non-RCRA hazardous waste
10/28/08	9	18,120	non-RCRA hazardous waste
12/1/08	10	17,000	non-RCRA hazardous waste
12/3/08	8	15,160	non-RCRA hazardous waste

Notes:

The approximate wet weight is provided by the disposal facility based on full container weight less the empty container weight.

RCRA = Resource Conservation and Recovery Act.

5.4 Reverse Osmosis Concentrate Generated

Data regarding daily volumes of reverse osmosis concentrate generated are provided in Appendix B, as measured by flowmeter FIT-701 (Figure TP-PR-10-10-08). From July 1, 2008 through December 31, 2008, approximately 1,337,410 gallons of reverse osmosis concentrate were transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal. The daily volumes of reverse osmosis concentrate generated from January 1, 2008 through June 30, 2008 were reported in the Semiannual January 1- June 30, 2008 Operation and Maintenance Report, submitted July 15, 2008.

5.5 Summary of WDR Compliance

No WDR violations were identified during the July 1, 2008 through December 31, 2008 semiannual reporting period, nor during the January 1, 2008 through June 30, 2008 semiannual reporting period.

Two release events were reported by telephone to Cliff Raley of the Water Board on October 1, 2008. Mr. Raley indicated by telephone that PG&E should include a description of the two events with the next scheduled Self-Monitoring Report, and that no further actions would be required. The following description of the two events was presented in the Third Quarter Monitoring Report submitted to the Water Board October 15, 2008:

- The first release was approximately 100 - 200 gallons of combined sewage/potable water from the sewage holding tank. The release occurred September 30, 2008, and overflowed from the holding tank vent to the onsite gravel area adjacent to and west of the office trailer. The release was due to a failure of the toilet in the IM No. 3 office trailer to stop flow after flushing. To mitigate odor and to disinfect the area affected by the release, PG&E applied a mix of 17 gallons sodium hypochlorite and 17 gallons water to the affected area with sprayers. The septic system is not a part of the IM No. 3 groundwater treatment system and Mr. Raley confirmed that this release event is not a violation of the WDRs.
- The second release also occurred September 30, 2008 when approximately 1 - 5 gallons of treatment water sprayed out from failed microfilter tubing onto the surface of the adjacent gravel roadway within the station fence line. The treatment plant was immediately shut down and all the wetted gravel was collected and disposed of offsite at a permitted disposal facility. The water released was downstream of the hexavalent chromium reduction and the sludge removal steps in the IM No. 3 process, and just upstream of the final microfiltration step. A sample of water flowing through the microfilter tubing was collected on September 30, 2008 immediately after the release. On-site laboratory analysis indicated that the sampled water was non-detect for hexavalent chromium and total chromium (with a detection limit of 5 parts per billion [ppb] and 10 ppb respectively), 9,150 micromhos per centimeter ($\mu\text{mhos/cm}$) specific conductivity, pH 8.2, and 63.3 nephelometric turbidity units (NTU) turbidity. After evaluating the information that PG&E provided to him concerning this event, Mr. Raley provided written confirmation to PG&E that "your prompt and immediate action to repair the pinhole leak (before a substantial problem occurred) prevented the facility

from being in violation of Discharge Prohibition A.4. which states, ‘...bypass overflow, discharge or spill of untreated or partially treated wastewater is prohibited.’”

A third release event was reported by telephone (December 17, 2008) and by email (December 18, 2008) to Cliff Raley of the Water Board. The release occurred December 17, 2008, and consisted of approximately 400 gallons of treated effluent released onto PG&E-owned property in the gravel area adjacent to the treated water storage tank within the IM No. 3 treatment plant. The release was due to a failed CPVC valve fitting. A plant operator saw the release and was able to stop the discharge within two minutes. Staff responded by hand-digging a small sump in the gravel area, and used a small submersible pump to pump the water into the process drain tank (for return into the treatment system). Staff continued to pump water from this location until tests showed that the salinity of the water was less than a comparable location outside of the zone affected by the spill. The valve was repaired prior to the plant returning to service. Mr. Raley responded by email December 18, 2008 that PG&E’s response appears appropriate in resolving the problem.

5.6 Operation and Maintenance – Required Shutdowns

Appendix A contains a summary of the operation or maintenance issues that required the groundwater extraction system to be shut down during the July 1, 2008 through December 31, 2008 semiannual reporting period. The summary of operation or maintenance issues that required the groundwater extraction system to be shut down during the January 1, 2008 through June 30, 2008 period was reported in the Semiannual January 1- June 30, 2008 Operation and Maintenance Report, submitted July 15, 2008. Records of routine maintenance are kept onsite.

5.7 Treatment Plant Modifications

No major IM No. 3 treatment plant modifications that affected the quality or quantity of treated effluent were performed during the July 1, 2008 through December 31, 2008 semiannual reporting period. The summary of treatment plant modifications during the January 1, 2008 through June 30, 2008 period was reported in the Semiannual January 1- June 30, 2008 Operation and Maintenance Report, submitted July 15, 2008.

6.0 Conclusions

There were no exceedances of effluent limitations during the reporting period.

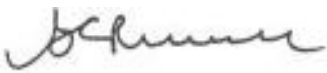
In addition, no incidents of non-compliance were identified during the reporting period. No events that caused an immediate or potential threat to human health or the environment, and no new releases of hazardous waste or hazardous waste constituents, or new solid waste management units, were identified during the reporting period.

7.0 Certification

On August 12, 2005, PG&E submitted a signature delegation letter to the Water Board, delegating PG&E signature authority to Mr. Curt Russell and Ms. Yvonne Meeks for correspondence regarding Board Order R7-2004-0103. Order R7-2006-0600 is the successor to Order R7-2004-0103; an additional signature authority delegation is not required, as confirmed in an email from Jose Cortez dated December 12, 2006.

Certification Statement:

I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Signature:  _____

Name: _____ Curt Russell

Company: _____ Pacific Gas and Electric Company

Title: _____ Topock Site Manager

Date: _____ January 15, 2009

Tables

TABLE 1
Sampling Station Descriptions
Fourth Quarter 2008 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Sampling Station	Sample ID^a	Location
Sampling Station A: Groundwater Treatment System Influent	SC-100B-WDR-###	Sample collected from tap on pipe into T-100 (see Figure TP-PR-10-10-04).
Sampling Station B: Groundwater Treatment System Effluent	SC-700B-WDR-###	Sample collected from tap on pipe downstream from T-700 (see Figure TP-PR-10-10-04).
Sampling Station D: Groundwater Treatment System Reverse Osmosis Concentrate	SC-701-WDR-###	Sample collected from tap on pipe into T-701 (see Figure TP-PR-10-10-08).
Sampling Station E: Groundwater Treatment System Sludge	SC-SLUDGE-WDR-###	Sample collected from sludge accumulated in the phase separator used this quarter (see Figure TP-PR-10-10-06).

Note:

= Sequential sample identification number at each sample station.

^a The sample event number is included at the end of the sample ID (e.g., SC-100B-WDR-015).

TABLE 2
Flow Monitoring Results
Fourth Quarter 2008 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	System Influent^{a,b} (gpm)	System Effluent^{b,c} (gpm)	Reverse Osmosis Concentrate^b (gpm)
October 2008 Average Monthly Flowrate	130.7	125.7	6.3
November 2008 Average Monthly Flowrate	131.7	128.4	4.2
December 2008 Average Monthly Flowrate	125.3	124.2	2.4

Notes:

gpm: gallons per minute.

^a Extraction wells TW-3D and PE-1 were operated during the Fourth Quarter 2008. Extraction well TW-2D ran for short periods on October 3 and December 4 during sampling events.

^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Fourth Quarter 2008 is approximately 1.2 percent.

^c Effluent was discharged into injection wells IW-02 and IW-03 during the Fourth Quarter 2008.

TABLE 3
Sample Collection Dates
Fourth Quarter 2008 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	Sample Collection Dates	Results
Influent ^a	October 1, 2008	See Table 4
	November 6, 2008	
	December 4, 2008	
Effluent ^b	October 1, 2008	See Table 5
	October 9, 2008	
	October 16, 2008	
	October 23, 2008	
	October 29, 2008	
	November 6, 2008	
	November 12, 2008	
	November 18, 2008	
	November 25, 2008	
	December 4, 2008	
	December 10, 2008	
	December 16, 2008	
	December 23, 2008	
	December 31, 2008	
Reverse Osmosis Concentrate ^c	October 1, 2008	See Table 6
	November 12, 2008	
	December 4, 2008	
Sludge ^d	October 20, 2008	See Table 7
	October 28, 2008	
	December 1, 2008	
	December 3, 2008	

Notes:

^a Influent sampling is required monthly.

^b Effluent sampling is required weekly.

^c Reverse Osmosis Concentrate sampling is required quarterly; was required monthly prior to August 28, 2008.

^d One composite sludge sample is required quarterly (sent to laboratory December 16, 2008); sludge sampling was required monthly (if shipped offsite during month) prior to August 28, 2008. Sludge bioassay analysis is required annually; was required quarterly prior to August 28, 2008.

TABLE 4
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Influent Monitoring Results ^a
Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Required Sampling Frequency		Monthly																								
<div>Sample ID</div>	<div>Date</div>	<div>Analytes Units ^b MDL</div>	TDS	Turbidity	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc	
			mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
			50.4	0.0070	0.153	---	0.532	3.04	1.28	0.0090	0.225	0.0750	0.162	0.0048	1.30	0.0250	0.182	1.40	0.168	1.27	0.0840	0.0010	2.40	2.40	1.15	
SC-100B-WDR-171	10/01/2008		4710	ND (0.100)	7710	7.6	1350	1260	ND (50.0)	ND (0.500)	ND (10.0)	3.49	23.0	0.907	ND (5.00)	2.69	ND (10.0)	ND (10.0)	17.2	ND (10.0)	3.15	ND (0.0050)	576	ND (20.0)	11.8	
RL			250	0.100	2.00	---	1.00	21.0	50.0	0.500	10.0	0.200	10.0	0.200	5.00	0.500	10.0	10.0	10.0	10.0	1.00	0.0050	50.0	20.0	10.0	
SC-100B-WDR-176	11/06/2008		5190	0.124	7260	7.4	1140	1240	ND (50.0)	ND (0.500)	ND (10.0)	1.77	28.7	1.09	ND (5.00)	2.78	ND (10.0)	84.5	ND (10.0)	ND (10.0)	3.35	0.0122	577	ND (20.0)	29.8	
RL			250	0.100	2.00	---	2.00	20.0	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	10.0	10.0	10.0	1.00	0.0050	25.0	20.0	10.0	
SC-100B-WDR-180	12/04/2008		4660	ND (0.100)	7710	7.4	1230	1240	ND (50.0)	ND (0.500)	ND (10.0)	2.62	20.7	1.19	20.6	2.96	ND (10.0)	ND (10.0)	20.6	ND (10.0)	3.70	0.0052	593	ND (20.0)	ND (10.0)	
RL			250	0.100	2.00	---	1.00	21.0	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	10.0	10.0	10.0	1.00	0.0050	50.0	20.0	10.0	

NOTES:
(---) = not required by the WDR Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
MDL = method detection limit
mg/L = milligrams per liter
N = nitrogen
ND = parameter not detected at the listed value
NTU = nephelometric turbidity units
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

^a Sampling Location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).
^b Units reported in this table are those units required in the WDRs.
^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 5
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Effluent Monitoring Results^a
Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

WDRs Effluent Limits ^b	Ave. Monthly Max Daily	NA	NA	NA	6.5-8.4	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		NA	NA	NA	6.5-8.4	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Required Sampling Frequency		Weekly							Monthly																	
<div><div></div><div></div><div></div></div>	Analyses Units ^c	TDS	Turbidity	Specific Conductance	Field pH ^e	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc		
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	
	MDL ^d	50.4	0.0070	0.153	---	---	0.266	0.152	1.28	0.0090	0.225	0.0750	0.162	0.0048	1.30	0.0250	0.182	1.40	0.168	1.27	0.0840	0.0010	2.40	2.40	1.15	
Sample ID	Date																									
SC-700B-WDR-171	10/01/2008	4170	0.141	5720	8.00	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (10.0)	ND (0.200)	10.7	0.965	ND (5.00)	2.14	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)	2.66	ND (0.0050)	465	ND (20.0)	19.4		
	RL	125	0.100	2.00	---	1.00	0.200	50.0	0.500	10.0	0.200	10.0	0.200	5.00	0.500	10.0	10.0	10.0	10.0	1.00	0.0050	25.0	20.0	10.0		
SC-700B-WDR-172	10/09/2008	4280	ND (0.100)	6270	8.20	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-173	10/16/2008	4260	ND (0.100)	6270	8.20	ND (1.00)	0.400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-174	10/23/2008	4340	ND (0.100)	6120	7.70	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-175	10/29/2008	4270	ND (0.100)	6270	7.80	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-176	11/06/2008	4360	ND (0.100)	6350	8.40	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (10.0)	ND (1.00)	17.5	0.997	ND (5.00)	2.36	ND (10.0)	ND (10.0)	ND (10.0)	ND (10.0)	3.43	ND (0.0050)	484	ND (20.0)	15.1		
	RL	250	0.100	2.00	---	1.00	0.200	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	10.0	10.0	10.0	1.00	0.0050	25.0	20.0	10.0		
SC-700B-WDR-177	11/12/2008	4080	ND (0.100)	6500	8.10	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-178	11/18/2008	4340	ND (0.100)	6500	8.00	ND (1.00)	ND (1.00)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	1.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-179	11/25/2008	4210	ND (0.100)	6590	7.80	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-181	12/01/2008	4430	ND (0.100)	6590	7.60	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-180	12/04/2008	3770	ND (0.100)	6410	7.40	ND (1.00)	ND (1.05)J	ND (50.0)	ND (0.500)	ND (10.0)	ND (1.00)	14.6	1.04	25.4	2.50	ND (10.0)	53.3	16.0	ND (10.0)	3.08	ND (0.0050)	489	ND (20.0)	48.6		
	RL	125	0.100	2.00	---	1.00	1.05	50.0	0.500	10.0	1.00	10.0	0.200	5.00	0.500	10.0	10.0	10.0	10.0	1.00	0.0050	50.0	20.0	10.0		
SC-700B-WDR-182	12/16/2008	4320	ND (0.100)	6450	7.20	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-183	12/23/2008	4210	ND (0.100)	6590	7.90	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
SC-700B-WDR-184	12/31/2008	3820	ND (0.100)J	6550	7.10	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
	RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		

TABLE 5
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Effluent Monitoring Results^a
Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

NOTES:

(---) = not required by the WDR Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
MDL = method detection limit
mg/L = milligrams per liter
N = nitrogen
NA = not applicable
ND = parameter not detected at the listed value
NTU = nephelometric turbidity units
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

- ^a Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection wells (see attached P&ID TP-PR-10-10-04).
- ^b In addition to the listed effluent limits, the WDRs state that the effluent shall not contain heavy metals, chemicals, pesticides or other constituents in concentrations toxic to human health.
- ^c Units reported in this table are those units required in the WDRs.
- ^d MDL listed is the target MDL by analysis method; however, the MDL may change for each sample analysis due to the dilution required by the matrix to meet the method QC requirements. The target MDL for each method/analyte combination is calculated annually.
- ^e Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 6
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Reverse Osmosis Concentrate Monitoring Results ^a
Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Required Sampling Frequency		Quarterly																						
<div>Sample ID</div>	<div>Analytes Units^b MDL</div>	TDS	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
		mg/L	µmhos/cm	pH units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
		252	0.153	---	0.00053	0.00076	0.00023	0.00015	0.00016	0.00038	0.00012	0.00025	0.0013	0.0250	0.00018	0.00017	0.000030	0.0013	0.00016	0.00021	0.00018	0.00012	0.0012	
SC-701-WDR-171	10/01/2008	21800	28600	8.3	ND (0.0020)	ND (0.0010)	ND (0.0100)	ND (0.0020)	0.0925	ND (0.0020)	ND (0.0030)	0.00525	ND (0.0050)	11.0	ND (0.0100)	0.102	ND (0.00020)	ND (0.0100)	0.0182	0.0362	ND (0.0020)	ND (0.0050)	ND (0.0100)	
RL		625	2.00	---	0.0020	0.0010	0.0100	0.0020	0.0100	0.0020	0.0030	0.0050	0.0050	0.500	0.0100	0.0100	0.00020	0.0100	0.0100	0.0100	0.0020	0.0050	0.0100	
SC-701-WDR-177	11/12/2008	20800	26700	8.2	0.00112	ND (0.00020)	ND (0.0100)	0.000400	0.0685	ND (0.0020)	0.00548	0.00634	ND (0.0050)	11.8	ND (0.0100)	0.0777	ND (0.00020)	ND (0.0100)	0.0159	ND (0.0050)	ND (0.0020)	ND (0.0050)	ND (0.0100)	
RL		625	2.00	---	0.0010	0.00020	0.0100	0.00020	0.0100	0.0020	0.0030	0.0050	0.0050	0.500	0.0100	0.0100	0.00020	0.0100	0.0100	0.0050	0.0020	0.0050	0.0100	
SC-701-WDR-180	12/04/2008	43400	52800	7.5	ND (0.0020)	ND (0.0052)	ND (0.0100)	ND (0.0020)	0.0164	ND (0.0020)	ND (0.0030)	ND (0.0050)	0.0586	30.1	ND (0.0100)	0.0165	ND (0.00020)	ND (0.0100)	ND (0.0100)	0.0102	ND (0.0020)	ND (0.0050)	0.0288	
RL		1250	2.00	---	0.0020	0.0052	0.0100	0.0020	0.0100	0.0020	0.0030	0.0050	0.0050	0.500	0.0100	0.0100	0.00020	0.0100	0.0100	0.0100	0.0020	0.0050	0.0100	

NOTES:
(---) = not required by the WDR Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
MDL = method detection limit
mg/L = milligrams per liter
ND = parameter not detected at the listed value
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

^a Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID TP-PR-10-10-08).
^b Units reported in this table are those units required in the WDRs.
^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 7
Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)
Sludge Monitoring Results^a
Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Required Sampling Frequency		Quarterly																		
<div><div></div><div></div><div></div></div>	Analytes	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
	Units ^b	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	MDL	0.0766	1.33	0.0266	0.0405	0.0117	0.0135	0.0230	0.0090	0.0153	0.0225	0.0252	0.00077	0.00014	0.0153	0.00072	0.0077	0.0329	0.0153	0.0140
Sample ID	Date																			
SC-Sludge-WDR-180	12/16/2008	15200	173	326	17.3	95.5	189	24.4	5.99	81.9	68.8	ND (4.14)	28.4	0.243	ND (2.07)	ND (2.07)	ND (4.14)	9.68	294	66.3
RL		20.7	9.01	4.14	4.14	2.07	2.07	4.14	2.07	2.07	18.0	4.14	2.07	0.162	2.07	2.07	4.14	4.14	2.07	10.4

NOTES:
(---) = not required by the WDR Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
mg/kg = milligrams per killogram
mg/L = milligrams per liter
MDL = method detection limit
ND = parameter not detected at the listed reporting limit
RL = project reporting limit

^a Sampling location for all sludge samples is the sludge collection bin (see attached P&ID TP-PR-10-10-06).
^b Units reported in this table are those units required in the WDRs.

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-171	John Deetz	10/01/2008	14:55:00	TLI	EPA 120.1	SC	10/02/2008	Tina Acquiat
					TLI	EPA 200.7	B	10/21/2008	Hope Trinidad
					TLI	EPA 200.7	FE	10/21/2008	Hope Trinidad
					TLI	EPA 200.8	PB	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	SB	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	NI	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	MO	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	MN	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	CR	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	BA	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	AS	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	ZN	11/06/2008	Romuel Chaves
					TLI	EPA 200.8	AL	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	CU	10/29/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	10/02/2008	Michael Nonezyan
					TLI	EPA 300.0	FL	10/02/2008	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	10/02/2008	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	10/02/2008	Giawad Ghenniwa
					FIELD	HACH	PH	10/01/2008	John Deetz
					TLI	SM2130B	TRB	10/02/2008	Gautam Savani
					TLI	SM2540C	TDS	10/02/2008	Tina Acquiat
					TLI	SM4500NH3D	NH3N	10/06/2008	Iordan Stavrev
					TLI	SM4500NO2B	NO2N	10/02/2008	Tina Acquiat
SC-100B	SC-100B-WDR-176	Joe Aide	11/06/2008	13:05:00	TLI	EPA 120.1	SC	11/07/2008	Tina Acquiat
					TLI	EPA 200.7	B	11/28/2008	Hao Ton
					TLI	EPA 200.7	MN	11/28/2008	Hao Ton
					TLI	EPA 200.7	FE	11/28/2008	Hao Ton
					TLI	EPA 200.8	ZN	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	SB	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	PB	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	NI	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	MO	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	CU	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	CR	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	BA	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	AS	12/08/2008	Romuel Chaves

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Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-176	Joe Aide	11/06/2008	13:05:00	TLI	EPA 200.8	AL	12/08/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	11/21/2008	Michael Nonezyan
					TLI	EPA 300.0	FL	11/08/2008	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	11/08/2008	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	11/07/2008	Giawad Ghenniwa
					FIELD	HACH	PH	11/06/2008	Joe Aide
					TLI	SM2130B	TRB	11/07/2008	Gautam Savani
					TLI	SM2540C	TDS	11/11/2008	Tina Acquiat
					TLI	SM4500NH3D	NH3N	11/11/2008	Iordan Stavrev
					TLI	SM4500NO2B	NO2N	11/07/2008	Tina Acquiat
SC-100B	SC-100B-WDR-180	Chris Knight	12/04/2008	14:31:00	TLI	EPA 120.1	SC	12/08/2008	Tina Acquiat
					TLI	EPA 200.7	FE	12/18/2008	Hao Ton
					TLI	EPA 200.7	B	12/18/2008	Hao Ton
					TLI	EPA 200.8	MO	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	ZN	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	SB	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	PB	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	NI	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	BA	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	MN	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	CR	01/08/2009	Romuel Chaves
					TLI	EPA 200.8	AS	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	AL	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	CU	01/08/2009	Romuel Chaves
					TLI	EPA 218.6	CR6	12/05/2008	Michael Nonezyan
					TLI	EPA 300.0	SO4	12/08/2008	Giawad Cheniwa
					TLI	EPA 300.0	FL	12/05/2008	Giawad Cheniwa
					TLI	EPA 300.0	NO3N	12/05/2008	Giawad Cheniwa
					FIELD	HACH	PH	12/04/2008	Chris Knight
					TLI	SM2130B	TRB	12/05/2008	Gautam Savani
					TLI	SM2540C	TDS	12/08/2008	Tina Acquiat
					TLI	SM4500NH3D	NH3N	12/08/2008	Iordan Stavrev
					TLI	SM4500NO2B	NO2N	12/05/2008	Tina Acquiat
SC-700B	SC-700B-WDR-171	John Deetz	10/01/2008	14:32:00	TLI	EPA 120.1	SC	10/02/2008	Tina Acquiat
					TLI	EPA 200.7	FE	10/21/2008	Hope Trinidad
					TLI	EPA 200.7	B	10/21/2008	Hope Trinidad

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Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-171	John Deetz	10/01/2008	14:32:00	TLI	EPA 200.8	MO	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	AS	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	AL	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	BA	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	CR	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	MN	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	NI	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	SB	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	ZN	11/06/2008	Romuel Chaves
					TLI	EPA 200.8	CU	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	PB	10/29/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	10/02/2008	Michael Nonezyan
					TLI	EPA 300.0	SO4	10/02/2008	Giawad Ghenniwa
					TLI	EPA 300.0	FL	10/02/2008	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	10/02/2008	Giawad Ghenniwa
					FIELD	HACH	PH	10/01/2008	John Deetz
					TLI	SM2130B	TRB	10/02/2008	Gautam Savani
					TLI	SM2540C	TDS	10/02/2008	Tina Acquiat
					TLI	SM4500NH3D	NH3N	10/06/2008	Iordan Stavrev
					TLI	SM4500NO2B	NO2N	10/02/2008	Tina Acquiat
SC-700B	SC-700B-WDR-172	Joe Aide	10/09/2008	12:30:00	TLI	EPA 120.1	SC	10/10/2008	Tina Acquiat
					TLI	EPA 200.8	CR	10/15/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	10/10/2008	Michael Nonezyan
					FIELD	HACH	PH	10/09/2008	Joe Aide
					TLI	SM2130B	TRB	10/10/2008	Gautam Savani
					TLI	SM2540C	TDS	10/14/2008	Tina Acquiat
SC-700B	SC-700B-WDR-173	Joe Aide	10/16/2008	11:45:00	TLI	EPA 120.1	SC	10/17/2008	Tina Acquiat
					TLI	EPA 200.8	CR	10/21/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	10/20/2008	Michael Nonezyan
					FIELD	HACH	PH	10/16/2008	Joe Aide
					TLI	SM2130B	TRB	10/17/2008	Gautam Savani
					TLI	SM2540C	TDS	10/20/2008	Tina Acquiat
SC-700B	SC-700B-WDR-174	Joe Aide	10/23/2008	08:01:00	TLI	EPA 120.1	SC	10/24/2008	Tina Acquiat
					TLI	EPA 200.8	CR	10/28/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	10/24/2008	Michael Nonezyan
					FIELD	HACH	PH	10/23/2008	Joe Aide

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Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-174	Joe Aide	10/23/2008	08:01:00	TLI	SM2130B	TRB	10/23/2008	Gautam Savani
					TLI	SM2540C	TDS	10/27/2008	Tina Acquiat
SC-700B	SC-700B-WDR-175	Joe Aide	10/29/2008	08:15:00	TLI	EPA 120.1	SC	10/30/2008	Tina Acquiat
					TLI	EPA 200.8	CR	10/30/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	11/03/2008	Michael Nonezyan
					FIELD	HACH	PH	10/29/2008	Joe Aide
					TLI	SM2130B	TRB	10/30/2008	Gautam Savani
					TLI	SM2540C	TDS	10/30/2008	Tina Acquiat
					TLI	SM4500-HB	PH	10/30/2008	Tina Acquiat
SC-700B	SC-700B-WDR-176	Joe Aide	11/06/2008	12:50:00	TLI	EPA 120.1	SC	11/07/2008	Tina Acquiat
					TLI	EPA 200.7	FE	11/28/2008	Hao Ton
					TLI	EPA 200.7	MN	11/28/2008	Hao Ton
					TLI	EPA 200.7	B	11/28/2008	Hao Ton
					TLI	EPA 200.8	ZN	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	AL	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	AS	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	BA	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	CR	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	CU	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	MO	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	NI	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	PB	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	SB	12/03/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	11/21/2008	Michael Nonezyan
					TLI	EPA 300.0	NO3N	11/07/2008	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	11/08/2008	Giawad Ghenniwa
					TLI	EPA 300.0	FL	11/08/2008	Giawad Ghenniwa
					FIELD	HACH	PH	11/06/2008	Joe Aide
					TLI	SM2130B	TRB	11/07/2008	Gautam Savani
					TLI	SM2540C	TDS	11/11/2008	Tina Acquiat
					TLI	SM4500NH3D	NH3N	11/11/2008	Iordan Stavrev
					TLI	SM4500NO2B	NO2N	11/07/2008	Tina Acquiat
SC-700B	SC-700B-WDR-177	Joe Aide	11/12/2008	07:39:00	TLI	EPA 120.1	SC	11/13/2008	Tina Acquiat
					TLI	EPA 200.8	CR	11/17/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	11/13/2008	Michael Nonezyan
					FIELD	HACH	PH	11/12/2008	Joe Aide

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-177	Joe Aide	11/12/2008	07:39:00	TLI	SM2130B	TRB	11/13/2008	Gautam Savani
					TLI	SM2540C	TDS	11/17/2008	Tina Acquiat
SC-700B	SC-700B-WDR-178	John Deetz	11/18/2008	08:20:00	TLI	EPA 120.1	SC	11/19/2008	Tina Acquiat
					TLI	EPA 200.8	CR	11/21/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	11/20/2008	Michael Nonezyan
					FIELD	HACH	PH	11/18/2008	John Deetz
					TLI	SM2130B	TRB	11/18/2008	Gautam Savani
					TLI	SM2540C	TDS	11/19/2008	Tina Acquiat
SC-700B	SC-700B-WDR-179	John Deetz	11/25/2008	08:00:00	TLI	EPA 120.1	SC	11/26/2008	Tina Acquiat
					TLI	EPA 200.8	CR	12/01/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	11/26/2008	Michael Nonezyan
					FIELD	HACH	PH	11/25/2008	John Deetz
					TLI	SM2130B	TRB	11/26/2008	Gautam Savani
					TLI	SM2540C	TDS	11/26/2008	Tina Acquiat
SC-700B	SC-700B-WDR-180	Chris Knight	12/04/2008	14:36:00	TLI	EPA 120.1	SC	12/08/2008	Tina Acquiat
					TLI	EPA 200.7	FE	12/18/2008	Hao Ton
					TLI	EPA 200.7	B	12/18/2008	Hao Ton
					TLI	EPA 200.8	AS	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	BA	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	CR	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	CU	01/08/2009	Romuel Chaves
					TLI	EPA 200.8	MN	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	MO	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	NI	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	PB	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	SB	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	ZN	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	AL	12/19/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	12/05/2008	Michael Nonezyan
					TLI	EPA 300.0	NO3N	12/05/2008	Giawad Cheniwa
					TLI	EPA 300.0	FL	12/05/2008	Giawad Cheniwa
					TLI	EPA 300.0	SO4	12/08/2008	Giawad Cheniwa
					FIELD	HACH	PH	12/04/2008	Chris Knight
					TLI	SM2130B	TRB	12/05/2008	Gautam Savani
					TLI	SM2540C	TDS	12/08/2008	Tina Acquiat
					TLI	SM4500NH3D	NH3N	12/08/2008	Iordan Stavrev

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-180	Chris Knight	12/04/2008	14:36:00	TLI	SM4500NO2B	NO2N	12/05/2008	Tina Acquiat
SC-700B	SC-700B-WDR-181	Chris Knight	12/01/2008	15:32:00	TLI	EPA 120.1	SC	12/12/2008	Tina Acquiat
					TLI	EPA 200.8	CR	12/11/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	12/11/2008	Michael Nonezyan
					FIELD	HACH	PH	12/01/2008	Chris Knight
					TLI	SM2130B	TRB	12/11/2008	Gautam Savani
					TLI	SM2540C	TDS	12/12/2008	Tina Acquiat
SC-700B	SC-700B-WDR-182	Chris Knight	12/16/2008	12:41:00	TLI	EPA 120.1	SC	12/22/2008	Tina Acquiat
					TLI	EPA 200.8	CR	12/18/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	12/17/2008	Michael Nonezyan
					FIELD	HACH	PH	12/16/2008	Chris Knight
					TLI	SM2130B	TRB	12/18/2008	Gautam Savani
					TLI	SM2540C	TDS	12/19/2008	Tina Acquiat
SC-700B	SC-700B-WDR-183	Chris Knight	12/23/2008	11:57:00	TLI	EPA 120.1	SC	12/29/2008	Tina Acquiat
					TLI	EPA 200.8	CR	12/31/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	12/24/2008	Michael Nonezyan
					FIELD	HACH	PH	12/23/2008	Chris Knight
					TLI	SM2130B	TRB	12/24/2008	Gautam Savani
					TLI	SM2540C	TDS	12/29/2008	Tina Acquiat
SC-700B	SC-700B-WDR-184	Chris Knight	12/31/2008	11:00:00	TLI	EPA 120.1	SC	01/05/2009	Tina Acquiat
					TLI	EPA 200.8	CR	01/05/2009	Romuel Chaves
					TLI	EPA 218.6	CR6	01/07/2009	David Blackburn
					FIELD	HACH	PH	12/31/2008	Chris Knight
					TLI	SM2130B	TRB	01/05/2009	Gautam Savani
					TLI	SM2540C	TDS	01/05/2009	Tina Acquiat
SC-701	SC-701-WDR-171	John Deetz	10/01/2008	14:35:00	TLI	EPA 120.1	SC	10/02/2008	Tina Acquiat
					TLI	EPA 200.8	ZN	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	V	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	TL	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	SE	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	SB	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	PB	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	NI	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	MO	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	AG	10/24/2008	Romuel Chaves

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-701	SC-701-WDR-171	John Deetz	10/01/2008	14:35:00	TLI	EPA 200.8	BA	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	AS	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	CR	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	CO	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	CD	10/24/2008	Romuel Chaves
					TLI	EPA 200.8	BE	10/29/2008	Romuel Chaves
					TLI	EPA 200.8	CU	10/24/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	10/02/2008	Michael Nonezyan
					TLI	EPA 245.1	HG	10/25/2008	Romuel Chaves
					TLI	EPA 300.0	FL	10/02/2008	Giawad Ghenniwa
					FIELD	HACH	PH	10/01/2008	John Deetz
					TLI	SM2540C	TDS	10/02/2008	Tina Acquiat
SC-701	SC-701-WDR-177	Joe Aide	11/12/2008	07:50:00	TLI	EPA 120.1	SC	11/13/2008	Tina Acquiat
					TLI	EPA 200.8	CO	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	ZN	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	V	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	TL	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	AG	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	BA	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	CD	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	PB	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	AS	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	SE	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	BE	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	SB	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	NI	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	MO	12/08/2008	Romuel Chaves
					TLI	EPA 200.8	CU	12/03/2008	Romuel Chaves
					TLI	EPA 200.8	CR	12/03/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	11/13/2008	Michael Nonezyan
					TLI	EPA 245.1	HG	11/13/2008	Romuel Chaves
					TLI	EPA 300.0	FL	11/14/2008	Giawad Ghenniwa
					FIELD	HACH	PH	11/12/2008	Joe Aide
					TLI	SM2540C	TDS	11/17/2008	Tina Acquiat
SC-701	SC-701-WDR-180	Chris Knight	12/04/2008	14:40:00	TLI	EPA 120.1	SC	12/08/2008	Tina Acquiat
					TLI	EPA 200.8	SB	12/19/2008	Romuel Chaves

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Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-701	SC-701-WDR-180	Chris Knight	12/04/2008	14:40:00	TLI	EPA 200.8	CR	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	ZN	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	V	01/08/2009	Romuel Chaves
					TLI	EPA 200.8	SE	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	PB	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	NI	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	TL	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	CU	01/08/2009	Romuel Chaves
					TLI	EPA 200.8	CO	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	CD	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	BE	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	BA	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	AS	12/19/2008	Romuel Chaves
					TLI	EPA 200.8	AG	01/08/2009	Romuel Chaves
					TLI	EPA 200.8	MO	12/19/2008	Romuel Chaves
					TLI	EPA 218.6	CR6	12/05/2008	Michael Nonezyan
					TLI	EPA 245.1	HG	12/14/2008	Romuel Chaves
					TLI	EPA 300.0	FL	12/05/2008	Giawad Cheniwa
					FIELD	HACH	PH	12/04/2008	Chris Knight
					TLI	SM2540C	TDS	12/08/2008	Tina Acquiat
Phase Seperator	SC-Sludge-WDR-180	Chris Knight	12/16/2008	09:00:00	TLI	EPA 300.0	FL	12/17/2008	Giawad Cheniwa
					TLI	EPA 6010B	ZN	01/06/2009	Hao Ton
					TLI	EPA 6010B	CD	01/06/2009	Hao Ton
					TLI	EPA 6010B	CO	01/06/2009	Hao Ton
					TLI	EPA 6010B	CR	01/06/2009	Hao Ton
					TLI	EPA 6010B	CU	01/06/2009	Hao Ton
					TLI	EPA 6010B	NI	01/06/2009	Hao Ton
					TLI	EPA 6010B	PB	01/06/2009	Hao Ton
					TLI	EPA 6010B	SB	01/06/2009	Hao Ton
					TLI	EPA 6010B	V	01/06/2009	Hao Ton
					TLI	EPA 6010B	BA	01/06/2009	Hao Ton
					TLI	EPA 6010B	AS	01/06/2009	Hao Ton
					TLI	EPA 6010B	AG	01/06/2009	Hao Ton
					TLI	EPA 6010B	BE	01/06/2009	Hao Ton
					TLI	EPA 6010B	TL	01/06/2009	Hao Ton
					TLI	EPA 7471A	HG	01/09/2009	Romuel Chaves

TABLE 8

Board Order No. R7-2006-0060 Waste Discharge Requirements (WDRs)

Monitoring Information

Fourth Quarter 2008 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
Phase Separator	SC-Sludge-WDR-180	Chris Knight	12/16/2008	09:00:00	TLI	SW 6020A	MO	01/09/2009	Romuel Chaves
					TLI	SW 6020A	SE	01/09/2009	Romuel Chaves
					TLI	SW 7199	CR6	12/31/2008	David Blackburn

NOTES:

SC-700B = Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection well IW-2 (see attached P&ID TP-PR-10-10-04).

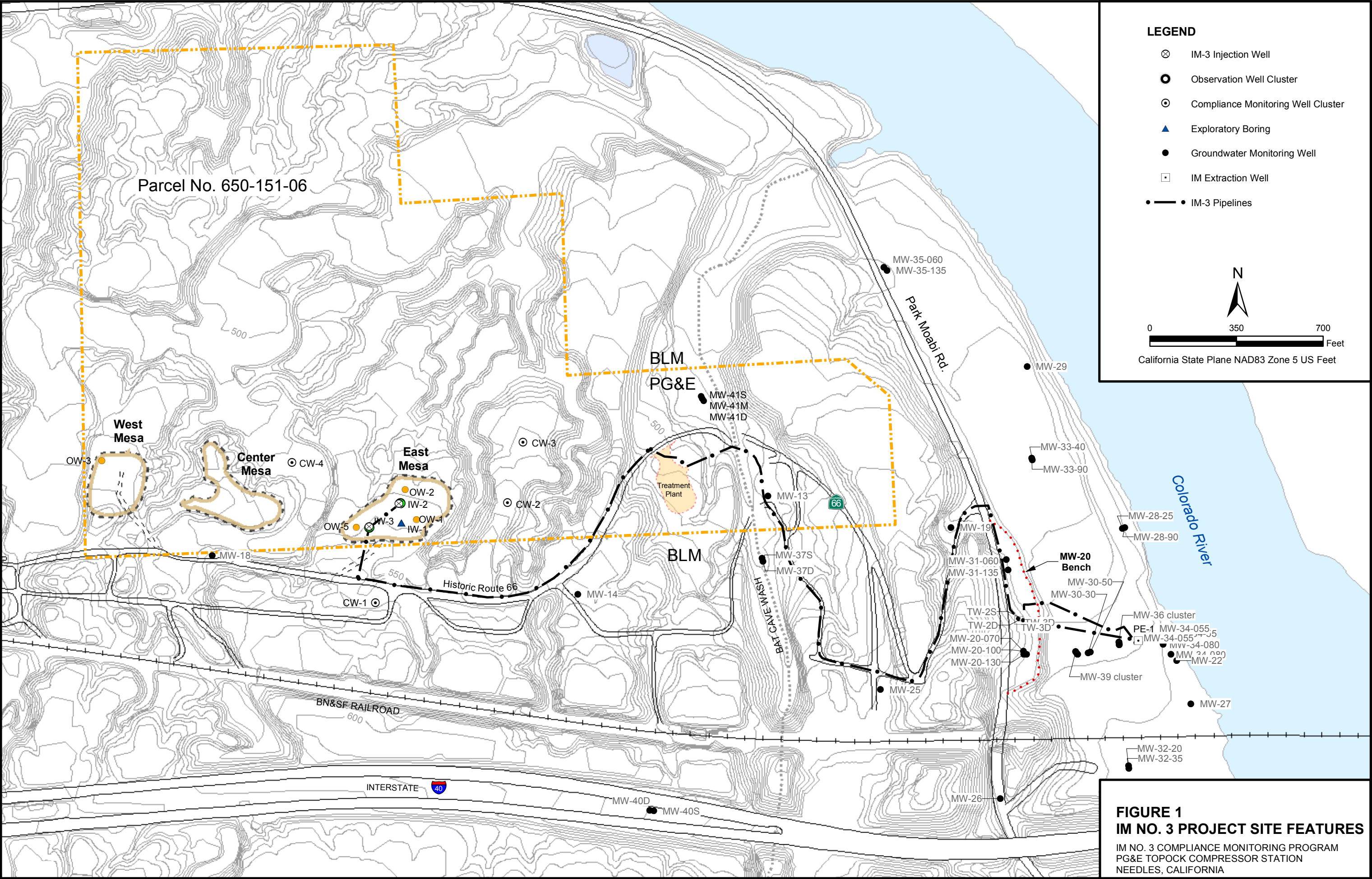
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

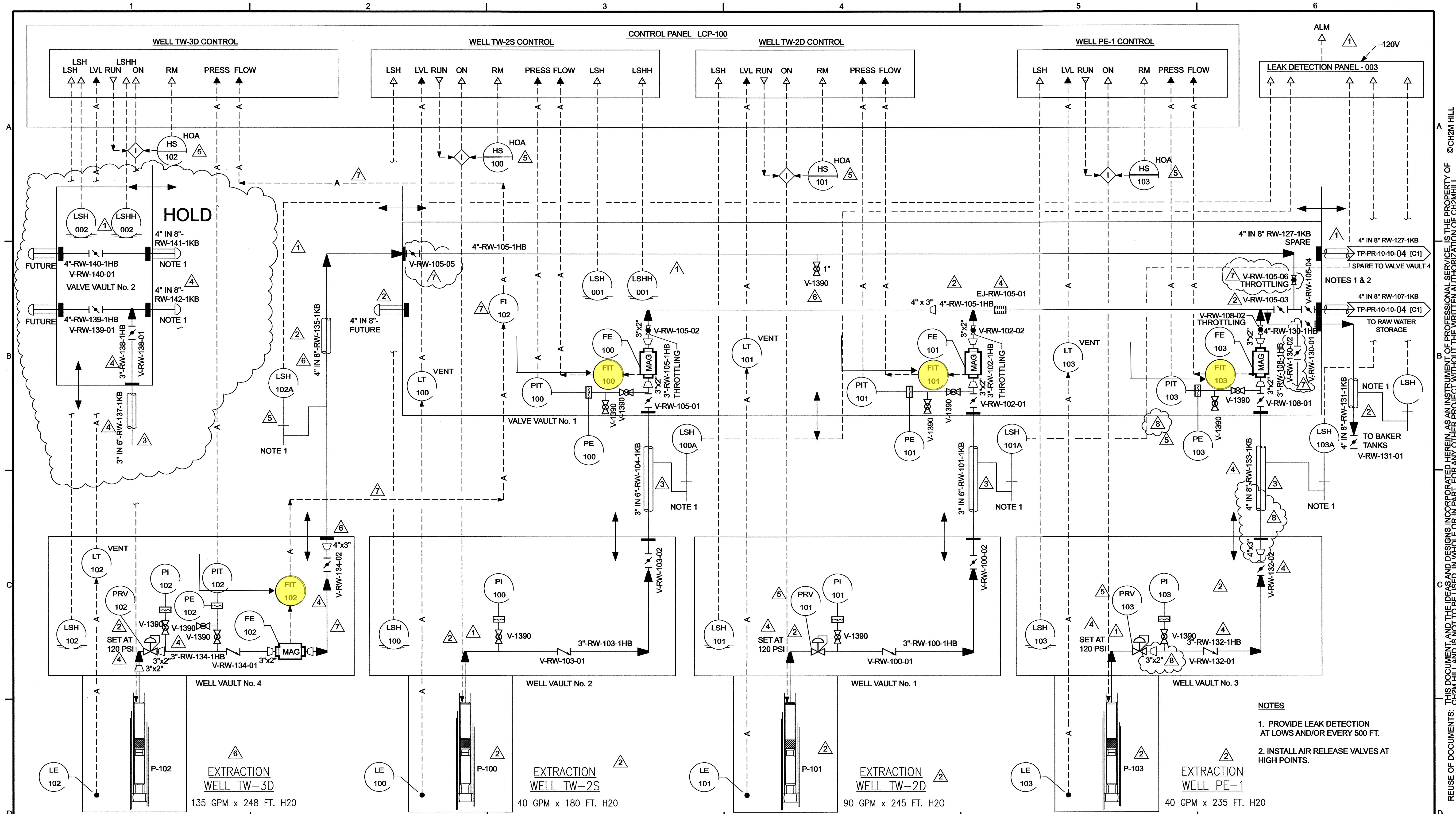
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID TP-PR-10-10-08).

Prior to April 11, 2007 the analytical methods listed in the 40 CFR Part 136 for pH and TDS were E150.1 and E160.1, respectively. Per EPA and Department of Health Services guidelines, the analytical methods listed in the current 40 CFR Part 136 have changed to SM4500-H B and SM2540C as shown on the table.

AL =	aluminum	NH3N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO2N =	nitrite (as N)
B =	boron	NO3N =	nitrate (as N)
BA =	barium	PB =	lead
BE =	beryllium	PH =	pH
CD =	cadmium	SB =	antimony
CO =	cobalt	SC =	specific conductance
CR =	chromium	SE =	selenium
CR6 =	hexavalent chromium	SO4 =	sulfate
CU =	copper	TDS =	total dissolved solids
FE =	iron	TL =	thallium
FL =	fluoride	TLI =	Truesdail Laboratories, Inc.
HG =	mercury	TRB =	turbidity
MN =	manganese	V =	vanadium
MO =	molybdenum	ZN =	zinc

Figures





- NOTES**
1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.
 2. INSTALL AIR RELEASE VALVES AT HIGH POINTS.



RESPONSIBLE ENGINEER:
Kenneth L. Martins
PE # CH4876 Exp. 6-30-05

NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 8	DATE 12/06/05	PRINT DISTRIBUTION
8	12/07/05	REMOVED PE-1 HOLDS	JBW	SDH	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL	—	ELECTRICAL	—
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL	—	INST & CONTROL	—
3	03/16/05	DELETED NOTES. APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL	—	ARCHITECTURAL	—
4	07/20/05	RELIEF VALVE SETTINGS, WELL PE-1 LINE TAGS, HOLDS REMOVED. APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS	—	ENVIRONMENTAL	—
5	09/27/05	FINAL RECORD ISSUE	EFC	AJ	PIPING	SDH	GEN. ARRANG.	—
6	10/06/05	REVISED FINAL RECORD - ADDED TW-3D	EFC	AJ	—	—	—	—
7	10/19/05	REVISED AS NOTED	EFC	AJ	—	—	—	—

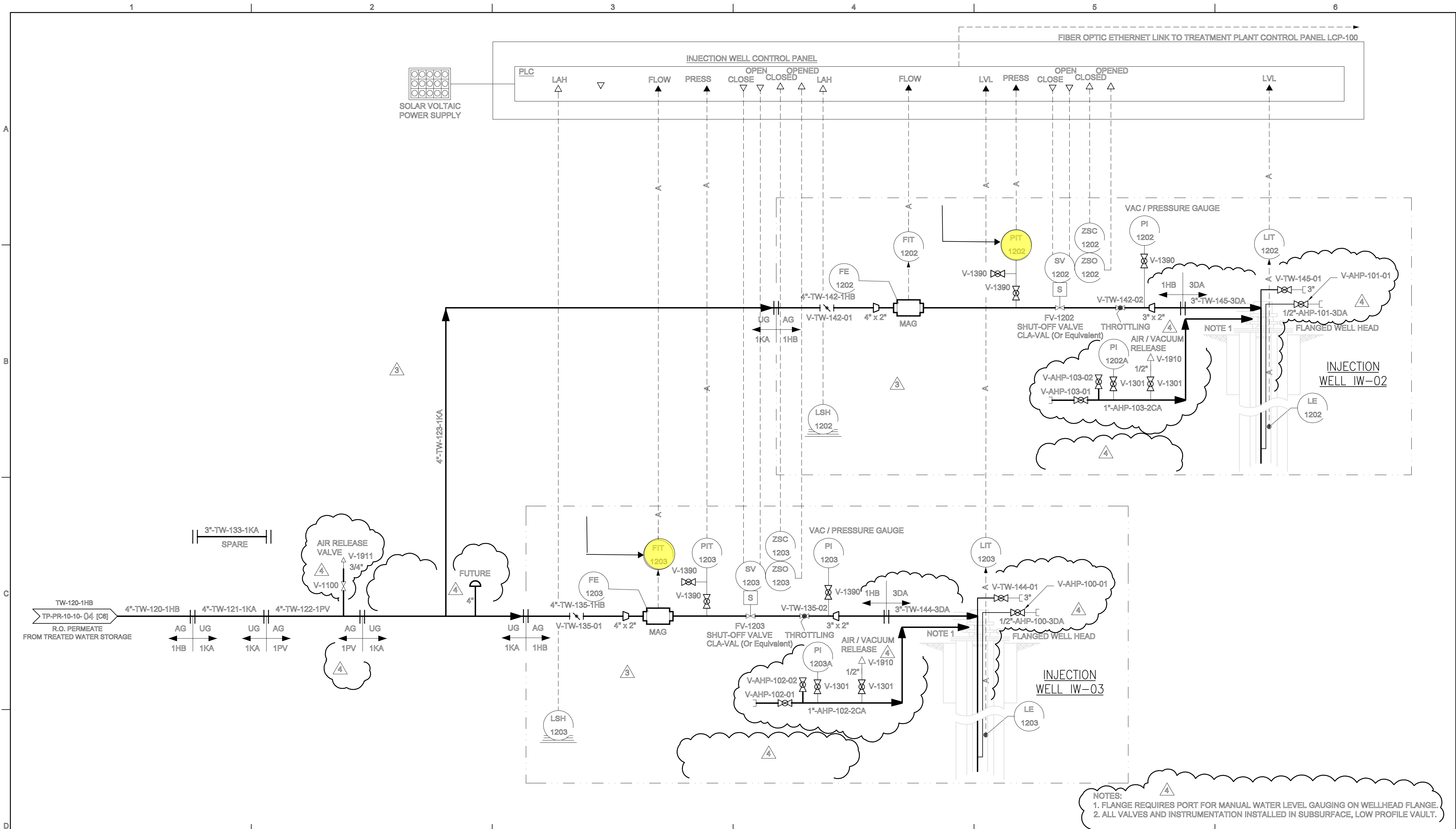
STATUS				
ISSUED	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	7	12/9/05	for KLM	TP

SCALE NONE

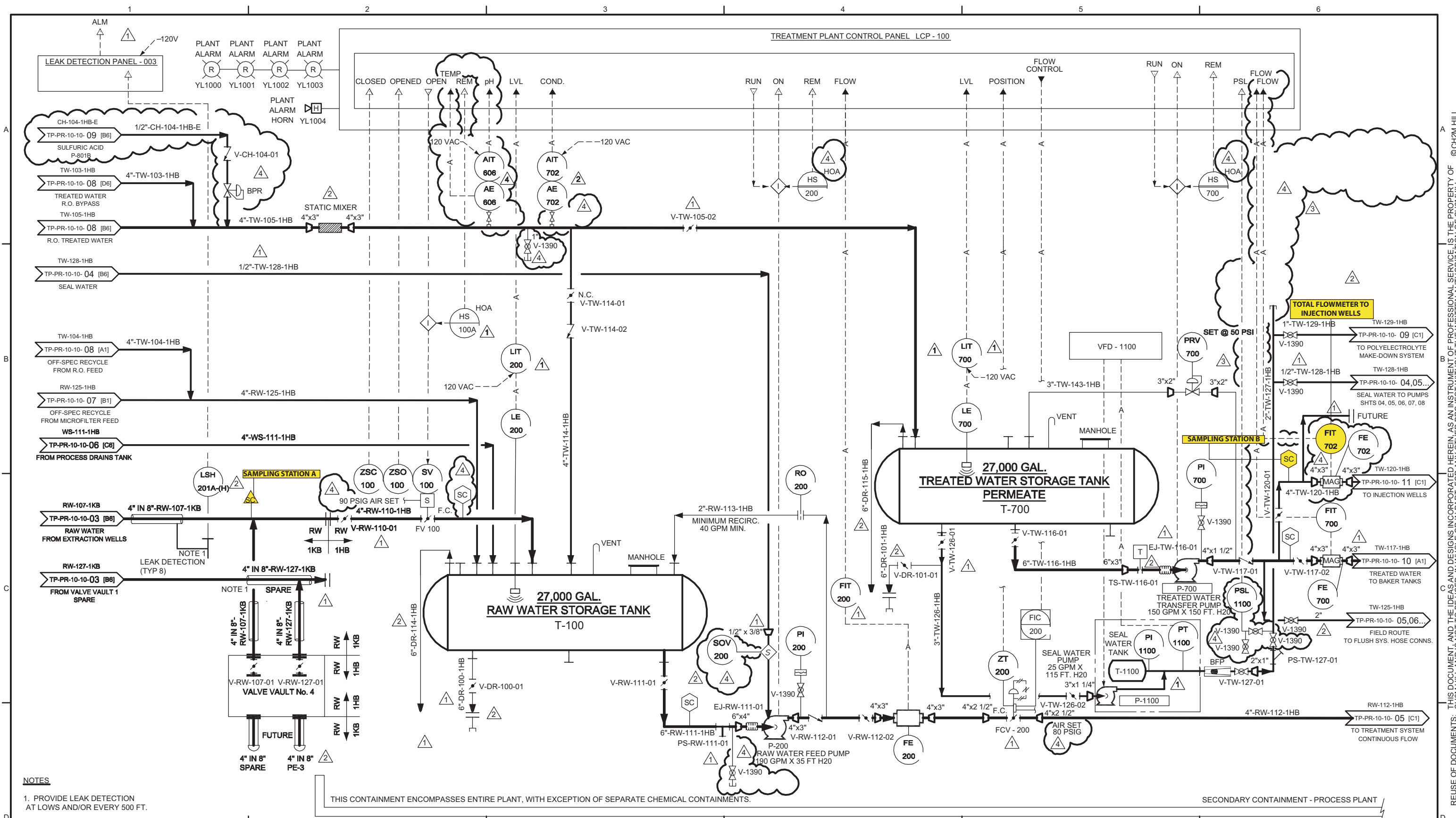
PACIFIC GAS & ELECTRIC CO.
TOPOCK COMPRESSOR STATION
INTERIM MEASURE 3
EXPANDED GROUNDWATER EXTRACTION
AND TREATMENT SYSTEM
PROJ. NO. 315994
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 03
EXTRACTION WELLS
PE-1, TW-2D, TW-2S AND TW-3D
DWG. NO. TP-PR-10-10-03 REV. 8

THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.



RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH4876 Exp. 5-30-05	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 03/10/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 11 INJECTION WELLS	
	A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE	PEM		
	0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS	PRELIMINARY						
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.	FOR REVIEW AND APPROVAL	A	07/28/04				
	2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT	APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP		
	3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD	REVISED & APPROVED FOR CONSTRUCTION	4	/ /				
	4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.						DWG. NO. TP-PR-10-10-11	REV. 4
										SCALE NONE		CH2MHILL					

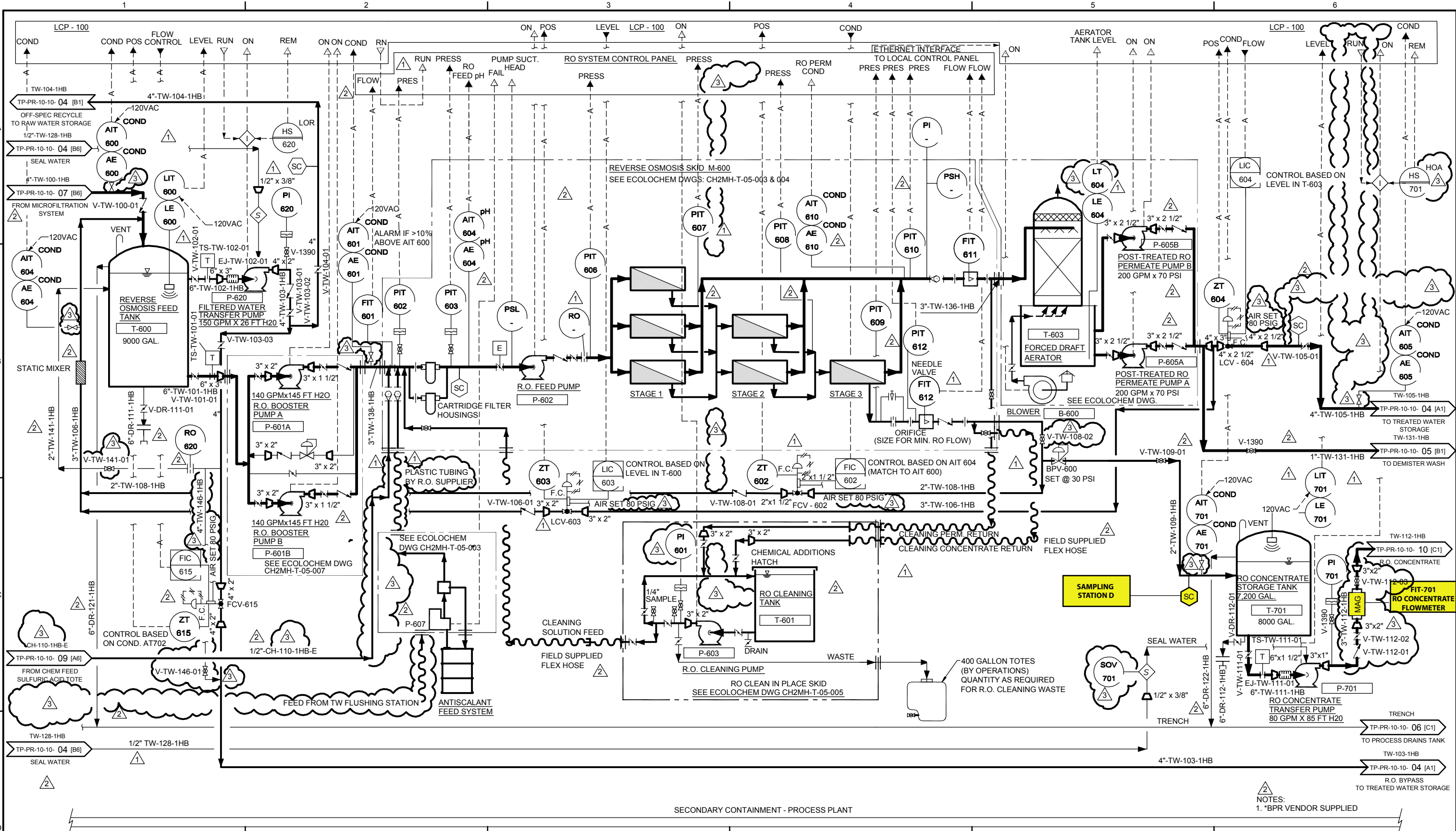


NOTES
1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.

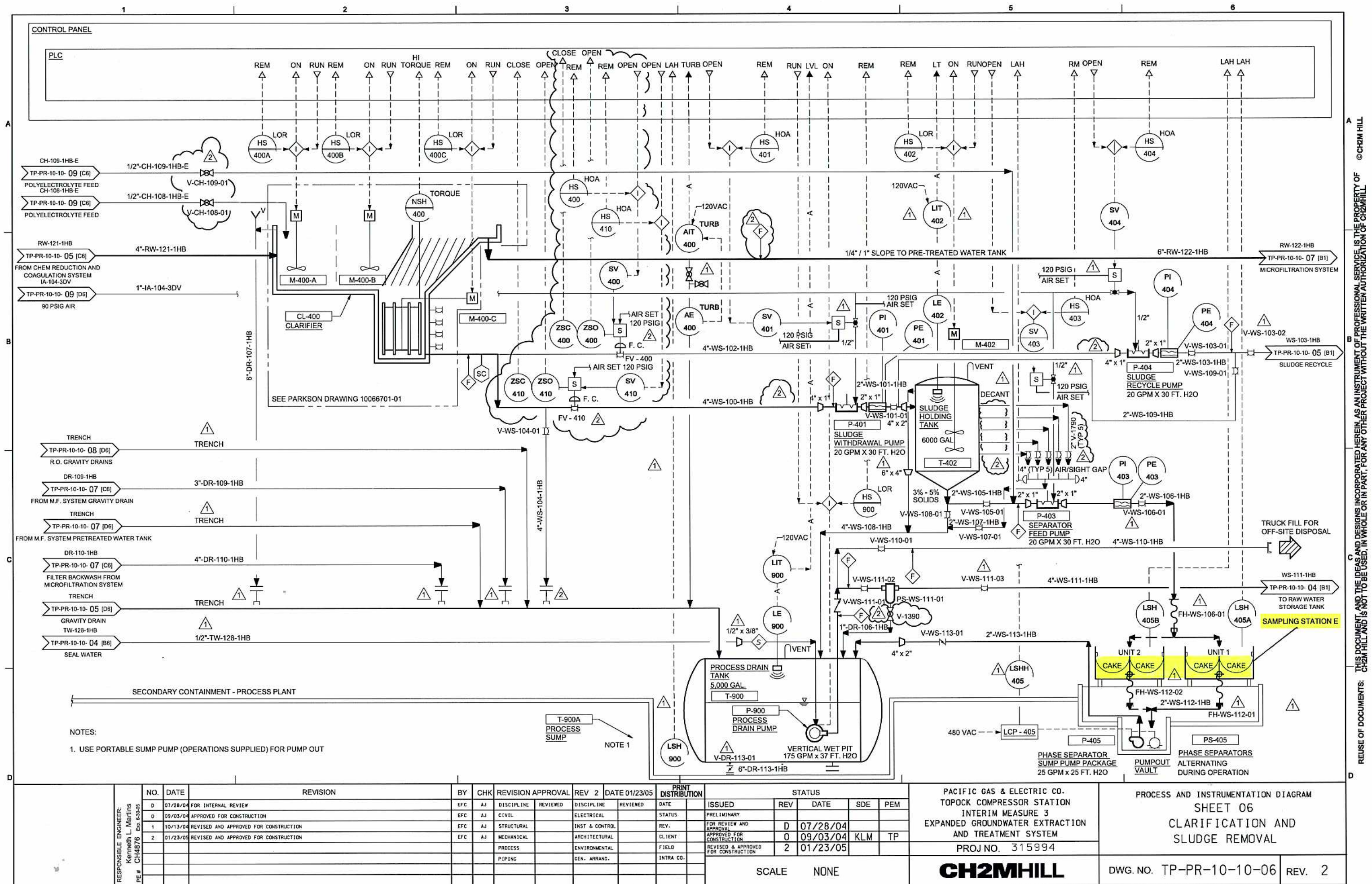
THIS CONTAINMENT ENCOMPASSES ENTIRE PLANT, WITH EXCEPTION OF SEPARATE CHEMICAL CONTAINMENTS.

SECONDARY CONTAINMENT - PROCESS PLANT

NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 04 STORAGE AREA	
									ISSUED	REV	DATE	SDE	PEM			
									PRELIMINARY							
									FOR REVIEW AND APPROVAL	D	07/28/04					
									APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP			
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL			REV.								
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL			CL INT								
3	02/14/05	ADDED RECIRC. LINE AND PRV VALVE TO T-700 - APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS			FIELD								
4	09/21/05	REVISED PER AS-BUILT CONDITIONS	EFC	AJ	PIPING			INTRA CO.								
									SCALE NONE				CH2MHILL			
													DWG. NO. TP-PR-10-10-04			
													REV. 4			



RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH43876 Exp. 6-30-06	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 3	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 08 REVERSE OSMOSIS SYSTEM		
	0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE				PEM
	0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL	REVIEWED	STATUS								
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.	D	07/28/04						
	2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT	0	09/03/04	KLM	TP				
	3	09/21/05	REVISED PER AS-BUILT CONDITIONS	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD	3	/ /						
						PIPING		GEN. ARRANG.		INTRA CO.								
										SCALE NONE					CH2MHILL	DWG. NO. TP-PR-10-10-08	REV. 3	



A	B	C	D

Appendix A

Operations and Maintenance Log

Semiannual Operations and Maintenance Log

Downtime is defined as any periods when all extraction wells are not operating, so that no groundwater is being extracted and piped into IM No. 3 as influent. Periods of planned and unplanned extraction system downtime are summarized here. The times shown are in Pacific Standard Time to be consistent with other data collected at the site.

July 2008

- **July 10, 2008 (unplanned):** The extraction well system was offline from 4:46 p.m. until 4:54 p.m. and from 11:55 p.m. to 12:01 a.m. (on July 11, 2008) when the City of Needles power supply imbalance alarmed and shut down the extraction wells. Extraction system downtime was 14 minutes.
- **July 16, 2008 (planned):** The extraction well system was offline from 2:08 a.m. to 7:20 p.m. to perform scheduled monthly maintenance. Extraction system downtime was 17 hours and 12 minutes.
- **July 20, 2008 (unplanned):** The extraction well system was offline from 7:35 a.m. to 12:41 p.m. when lightning struck the plant causing the extraction well system to shut down. Extraction system downtime was 5 hours and 6 minutes.

August 2008

- **August 5, 2008 (unplanned):** The extraction well system was offline from 6:14 p.m. to 6:16 p.m. and from 6:34 p.m. to 6:40 p.m. when a City of Needles power supply imbalance alarmed and shut down the extraction wells. Extraction system downtime was 8 minutes.
- **August 8, 2008 (unplanned):** The extraction well system was offline from 6:40 p.m. to 6:41 p.m., from 7:03 p.m. to 7:13 p.m., from 7:14 p.m. to 7:15 p.m., and from 7:21 p.m. to 10:43 p.m. when a City of Needles power supply imbalance alarmed and shut down the extraction wells. Extraction system downtime was 3 hours and 34 minutes.
- **August 20-21, 2008 (planned):** The extraction well system was offline from August 20 at 7:33 a.m. to 4:09 p.m. to perform scheduled monthly maintenance. It was also offline from 5:15 p.m. to 8:33 p.m. when the level in the reverse osmosis feed tank was too high, and it was offline from 9:38 p.m. to 10:03 p.m. and from 10:16 to August 21 at 12:04 a.m. when the level in the raw water feed tank was too high. Extraction system downtime was 14 hours and 7 minutes.
- **August 25, 2008 (unplanned):** The extraction well system was offline from 5:01 p.m. to 5:26 p.m. when a City of Needles power supply imbalance alarmed and shut down the extraction wells. Extraction system downtime was 25 minutes.

- **August 26, 2008 (unplanned):** The extraction well system was offline from 7:41 a.m. to 7:44 a.m. when plant power was switched from generator power to City of Needles power. Extraction system downtime was 3 minutes.

September 2008

- **September 3, 2008 (planned):** The extraction well system was offline from 12:41 p.m. to 12:57 p.m. for maintenance. Extraction system downtime was 16 minutes.
- **September 6, 2008 (unplanned):** The extraction well system was offline from 1:11 a.m. to 6:33 a.m. when a low-flow alarm in the chemical loop triggered, shutting down the extraction system. Extraction system downtime was 5 hours and 22 minutes.
- **September 15 -17, 2008 (planned):** The extraction well system was offline from 8:13 a.m. on September 15 to 9:09 a.m. on September 17 to perform scheduled monthly maintenance. Extraction system downtime was 2 days and 56 minutes.
- **September 17, 2008 (unplanned):** The extraction well system was offline from 1:49 p.m. to 3:12 p.m. when a City of Needles power supply imbalance alarmed and shut down the extraction wells. Extraction system downtime was 1 hour and 23 minutes.
- **September 18, 2008 (planned):** The extraction well system was offline from 6:38 a.m. to 6:47 a.m. when the plant was switched from generator power back to City of Needles power supply. Extraction system downtime was 9 minutes.
- **September 23, 2008 (unplanned):** The extraction well system was offline from 8:33 a.m. to 8:34 a.m., from 8:44 a.m. to 9:11 a.m., from 11:32 a.m. to 11:33 a.m., and from 11:35 a.m. to 11:59 a.m. when a City of Needles power supply imbalance alarmed and shut down the extraction wells. Extraction system downtime was 53 minutes.
- **September 30, 2008 (unplanned):** The extraction well system was offline from 8:56 a.m. to 11:02 a.m. when a leak was detected in the microfilter tubing. The tubing was repaired and the plant was brought back online. Extraction system downtime was 2 hours and 6 minutes.

October 2008

- **October 4, 2008 (unplanned):** The extraction well system was offline from 6:19 a.m. to 8:59 a.m. when the high level alarm in T-600 triggered, shutting down the extraction system. Extraction system downtime was 2 hours and 40 minutes.
- **October 12, 2008 (unplanned):** The extraction well system was offline from 9:13 a.m. to 10:19 a.m. when the raw water pump, P-200, shut down, causing the extraction system to shut down. Extraction system downtime was 1 hour and 6 minutes.
- **October 14, 2008 (unplanned):** The extraction well system was offline from 10:55 a.m. to 12:03 a.m. due to a caustic leak during a fitting inspection. The release was controlled, and 10 mL of caustic spilled onto an absorbent pad within the secondary containment of the chemical area. Extraction system downtime was 1 hour and 8 minutes.

- **October 15, 2008 (planned):** The extraction well system was offline from 7:03 a.m. to 2:57 p.m. and from 4:45 p.m. to 9:27 p.m. to perform scheduled monthly maintenance. Extraction system downtime was 12 hours and 36 minutes.
- **October 29, 2008 (planned):** The extraction well system was offline from 7:22 a.m. to 4:16 p.m. for maintenance. Extraction system downtime was 8 hours and 54 minutes.

November 2008

- **November 5, 2008 (planned):** The extraction well system was offline from 12:06 p.m. to 12:07 p.m. when the extraction wells pumps were shut down temporarily to take a static water level measurement. Extraction well downtime was 1 minute.
- **November 9, 2008 (unplanned):** The extraction well system was offline from 9:21 a.m. to 1:45 p.m. when the raw water pump, P-200, shut down, causing the extraction system to shut down. Extraction system downtime was 4 hours and 24 minutes.
- **November 10, 2008 (unplanned):** The extraction well system was offline from 1:34 p.m. to 1:37 p.m. and again from 2:11 p.m. to 2:22 p.m. when the City of Needles power supply imbalance alarm triggered and shut down the extraction wells. Extraction system downtime was 14 minutes.
- **November 13, 2008 (planned):** The extraction well system was offline from 1:04 p.m. to 1:05 p.m., from 1:32 p.m. to 1:33 p.m., and from 2:10 p.m. to 2:11 p.m. when the leak detection system was tested. Extraction system downtime was 3 minutes.
- **November 14, 2008 (unplanned):** The extraction well system was offline from 9:37 a.m. to 10:12 a.m., when maintenance was performed on pump P-404. Extraction system downtime was 35 minutes.
- **November 17, 2008 (planned):** The extraction well system was offline from 2:06 p.m. to 2:24 p.m. and from 2:25 p.m. to 3:44 p.m. to perform maintenance on pump P-400. Extraction system downtime was 1 hour and 37 minutes.
- **November 18, 2008 (planned):** The extraction well system was offline from 9:13 a.m. to 10:43 a.m. when switching the microfilter from the west bank to the east bank. Extraction system downtime was 1 hour and 30 minutes.
- **November 19, 2008 (planned):** The extraction well system was offline from 10:06 a.m. to 4:31 p.m., from 5:19 p.m. to 5:20 p.m., and from 6:17 p.m. to 8:33 p.m. to perform clean in place maintenance on the reverse osmosis unit. Extraction system downtime was 8 hours and 42 minutes.
- **November 29, 2008 (unplanned):** The extraction well system was offline from 9:48 a.m. to 10:03 a.m. when the City of Needles power supply imbalance alarm triggered and shut down the extraction wells. Extraction well system downtime was 15 minutes.

December 2008

- **December 03, 2008 (planned):** The extraction well system was offline from 10:07 a.m. to 10:16 a.m. when the extraction wells pumps were shut down temporarily to perform a voltage test and complete a strainer cleaning event. Extraction well downtime was 9 minutes.
- **December 03, 2008 (planned):** The extraction well system was offline from 11:26 a.m. to 1:59 p.m. when the City of Needles adjusted the taps for the incoming plant voltage. Extraction system downtime was 2 hours and 33 minutes.
- **December 04, 2008 (planned):** The extraction well system was offline from 11:26 a.m. to 11:27 a.m., from 11:35 a.m. to 11:36 a.m., and again from 11:46 a.m. to 11:47 a.m. to check leak detection system in extraction piping. Total extraction system downtime was 3 minutes.
- **December 17 – December 19, 2008 (planned):** The extraction well system was offline from 7:57 a.m. on December 17 to 10:59 a.m. on December 19, 2008, when planned maintenance, including rebuilding of the manifold on the effluent line, was completed. Extraction system downtime was 2 days, 3 hours and 2 minutes.

Appendix B
Daily Volumes of Groundwater Treated

July 2008 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
July	1	2008	--	--	148,684	45,473	194,158	--	191,402	191,402	6,363
July	2	2008	--	--	147,129	45,483	192,612	--	188,537	188,537	6,353
July	3	2008	--	--	148,059	45,225	193,284	--	192,375	192,375	8,152
July	4	2008	--	--	148,742	44,520	193,262	--	188,459	188,459	6,280
July	5	2008	--	--	148,693	44,656	193,349	--	186,479	186,479	6,332
July	6	2008	--	--	148,737	44,654	193,391	--	186,000	186,000	6,294
July	7	2008	--	--	148,710	44,783	193,493	--	190,442	190,442	6,326
July	8	2008	--	--	148,385	45,363	193,749	--	180,720	180,720	6,273
July	9	2008	--	--	148,578	45,221	193,799	--	193,539	193,539	6,333
July	10	2008	--	--	146,883	44,352	191,236	--	190,354	190,354	6,380
July	11	2008	--	--	146,748	45,882	192,631	--	192,676	192,676	6,340
July	12	2008	--	--	147,721	45,277	192,998	--	189,407	189,407	6,365
July	13	2008	--	--	147,793	45,323	193,115	--	188,321	188,321	6,404
July	14	2008	--	--	147,639	45,658	193,297	--	185,463	185,463	6,414
July	15	2008	--	--	147,795	45,509	193,304	--	183,969	183,969	9,728
July	16	2008	--	--	41,300	13,108	54,409	--	56,346	56,346	3,229
July	17	2008	--	--	147,784	45,481	193,265	--	187,777	187,777	6,559
July	18	2008	--	--	147,952	45,225	193,176	--	195,555	195,555	10,026
July	19	2008	--	--	148,137	44,939	193,076	--	192,921	192,921	9,786
July	20	2008	--	--	46,696	14,368	61,064	--	109,192	109,192	3,328
July	21	2008	--	--	149,776	25,052	174,828	--	171,112	171,112	7,146
July	22	2008	--	--	160,200	26,928	187,128	--	173,768	173,768	9,952
July	23	2008	--	--	152,264	41,084	193,348	--	176,128	176,128	12,376
July	24	2008	--	--	150,384	44,444	194,828	--	194,776	194,776	10,237
July	25	2008	--	--	149,760	46,080	195,840	1,000	184,648	185,648	9,258
July	26	2008	--	--	149,760	46,044	195,804	--	184,680	184,680	7,228
July	27	2008	--	--	149,760	46,060	195,820	--	184,320	184,320	10,283
July	28	2008	--	--	151,520	42,600	194,120	--	184,288	184,288	9,379
July	29	2008	--	--	224,468	68,340	292,808	--	279,828	279,828	12,662
July	30	2008	--	--	149,514	44,869	194,383	--	191,734	191,734	6,513
July	31	2008	--	--	149,659	44,768	194,427	--	189,287	189,287	9,708
Total Monthly Volumes (gal)			0	0	4,489,231	1,316,769	5,806,000	1,000	5,684,501	5,685,501	238,004
Average Pump/Injection Rates (gpm)			0.0	0.0	100.6	29.5	130.1	0.0	127.3	127.4	5.3

NOTES: gal: gallons
gpm: gallons per minute
RO: Reverse Osmosis

August 2008 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
August	1	2008	--	--	153,459	38,399	191,858	19	190,469	190,487	9,798
August	2	2008	--	--	150,017	43,963	193,980	21	180,692	180,714	9,461
August	3	2008	--	--	150,016	44,138	194,154	13	183,075	183,088	6,816
August	4	2008	--	--	150,290	44,495	194,786	7	193,361	193,369	9,781
August	5	2008	--	--	147,489	44,471	191,960	18	178,747	178,765	9,783
August	6	2008	--	--	150,684	44,587	195,271	15	189,290	189,305	6,477
August	7	2008	--	--	150,541	44,758	195,299	18	186,601	186,619	9,067
August	8	2008	--	--	127,083	37,569	164,652	13	159,794	159,806	6,578
August	9	2008	--	--	150,276	44,321	194,597	18	192,325	192,343	9,830
August	10	2008	--	--	150,722	43,814	194,536	13	183,862	183,875	9,612
August	11	2008	--	--	153,841	40,673	194,514	17	189,683	189,700	6,500
August	12	2008	--	--	157,295	39,068	196,363	36,246	149,999	186,246	9,776
August	13	2008	--	--	157,135	39,542	196,677	17,527	173,611	191,138	9,835
August	14	2008	--	--	156,379	40,706	197,086	103,764	88,256	192,021	9,879
August	15	2008	--	--	156,795	40,324	197,118	191,718	1,776	193,495	9,837
August	16	2008	--	--	156,497	40,720	197,217	192,342	18	192,360	7,109
August	17	2008	--	--	156,317	40,982	197,299	187,021	794	187,815	9,282
August	18	2008	--	--	156,418	41,038	197,456	187,012	6,168	193,180	9,845
August	19	2008	--	--	156,319	41,233	197,552	184,304	2,885	187,189	9,874
August	20	2008	--	--	63,158	17,534	80,692	65,673	18	65,690	16,416
August	21	2008	--	--	152,502	43,198	195,700	188,811	20	188,831	3,178
August	22	2008	--	--	154,361	42,619	196,980	193,877	14	193,891	9,910
August	23	2008	--	--	154,851	42,255	197,107	196,109	22	196,132	9,994
August	24	2008	--	--	154,658	42,626	197,285	187,116	13	187,129	9,710
August	25	2008	--	--	151,403	42,270	193,673	183,892	17	183,909	4,532
August	26	2008	--	--	153,344	42,347	195,691	190,088	18	190,106	11,568
August	27	2008	--	--	153,622	41,896	195,519	190,639	18	190,657	9,843
August	28	2008	--	--	153,789	41,796	195,585	189,722	14	189,736	9,876
August	29	2008	--	--	154,213	41,392	195,605	189,863	11	189,874	9,834
August	30	2008	--	--	154,484	41,184	195,668	185,236	11	185,246	6,595
August	31	2008	--	--	154,798	41,027	195,825	189,296	11	189,308	9,805
Total Monthly Volumes (gal)			0	0	4,642,757	1,274,947	5,917,704	3,250,430	2,451,592	5,702,022	280,399
Average Pump/Injection Rates (gpm)			0.0	0.0	104.0	28.6	132.6	72.8	54.9	127.7	6.3

NOTES: gal: gallons
gpm: gallons per minute
RO: Reverse Osmosis

September 2008 Operational Data

IM-3 Groundwater Extraction and Treatment System
PG&E Topock Compressor Station, Needles California

Month	Day	Year	Extraction Well System ^a					Injection Well System ^a			RO Brine ^a
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	
September	1	2008	--	20	154,573	41,548	196,142	190,375	16	190,391	6,632
September	2	2008	--	20	154,423	41,991	196,434	193,440	24	193,464	9,811
September	3	2008	--	16	152,211	41,291	193,517	187,183	15	187,197	9,783
September	4	2008	--	15	153,850	41,534	195,398	60,119	127,586	187,705	9,839
September	5	2008	--	20	154,139	41,523	195,682	16	191,178	191,195	9,884
September	6	2008	--	24	119,282	32,234	151,540	18	146,967	146,985	6,519
September	7	2008	--	13	154,251	41,760	196,024	26	191,952	191,978	9,837
September	8	2008	--	21	154,263	42,075	196,359	21	188,241	188,262	6,595
September	9	2008	--	6,232	151,022	39,512	196,766	21,522	169,252	190,774	9,763
September	10	2008	--	17	153,184	42,417	195,618	7,164	157,778	164,942	9,885
September	11	2008	--	19	153,332	42,442	195,793	19,838	168,838	188,675	9,756
September	12	2008	--	16	153,681	42,260	195,956	16	189,628	189,643	9,795
September	13	2008	--	14	153,969	42,173	196,156	20	184,315	184,336	6,561
September	14	2008	--	20	154,214	42,085	196,319	15	180,810	180,825	9,993
September	15	2008	--	22	52,576	14,599	67,197	14	68,086	68,100	3,315
September	16	2008	--	24	17	16	58	16	18	34	4
September	17	2008	--	17	84,203	23,382	107,603	10	114,905	114,914	6,748
September	18	2008	--	18	151,911	41,643	193,572	21	185,315	185,336	6,786
September	19	2008	--	17	154,038	41,264	195,320	23	185,215	185,238	10,258
September	20	2008	--	22	154,266	41,217	195,505	22	187,981	188,004	6,791
September	21	2008	--	21	154,264	41,492	195,778	16	186,878	186,895	10,235
September	22	2008	--	20	154,263	41,672	195,955	18	182,752	182,770	6,728
September	23	2008	--	22	146,619	40,737	187,378	92,322	85,617	177,939	10,235
September	24	2008	--	20	153,363	42,593	195,975	195,317	11,775	207,092	7,112
September	25	2008	--	21	153,835	42,281	196,137	180,546	6,135	186,681	9,820
September	26	2008	--	16	154,321	41,915	196,251	186,141	18	186,158	9,909
September	27	2008	--	18	154,798	41,544	196,360	193,017	13	193,030	7,799
September	28	2008	--	19	154,722	41,796	196,537	192,382	19	192,402	9,816
September	29	2008	--	21	154,709	41,933	196,663	190,169	14	190,184	9,906
September	30	2008	--	23	139,762	38,375		172,533	10		6,535
Total Monthly Volumes (gal)			0	6,788	4,234,061	1,151,305	5,213,993	2,082,339	3,111,352	5,021,148	246,649
Average Pump/Injection Rates (gpm)			0.0	0.2	98.0	26.7	120.7	48.2	72.0	116.2	5.7

NOTES:

--- : Not in operation during reporting period.

gal: gallons

gpm: gallons per minute

RO: Reverse Osmosis

^aFlow Readings tabulated from the date historian at the IM-3 Facility.

October 2008 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles California

Month	Day	Year	Extraction Well System ^a					Injection Well System ^a			RO Brine ^a
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	
October	1	2008	--	21	151,948	41,340	193,309	188,039	824	188,863	9,848
October	2	2008	--	21	154,258	41,127	195,406	183,026	14	183,039	9,807
October	3	2008	--	20,051	121,363	41,178	182,591	193,508	11	193,519	6,507
October	4	2008	--	21	136,041	36,826	172,887	171,207	17	171,224	9,786
October	5	2008	--	19	153,707	41,668	195,395	189,166	17	189,183	6,506
October	6	2008	--	19	153,781	41,721	195,521	190,394	14	190,408	9,923
October	7	2008	--	15	153,971	41,706	195,692	87,831	101,890	189,721	9,875
October	8	2008	--	15	154,120	41,681	195,816	2,870	183,018	185,888	6,435
October	9	2008	--	19	154,332	41,522	195,874	21	193,831	193,852	9,793
October	10	2008	--	19	154,517	41,507	196,043	12	186,707	186,719	9,866
October	11	2008	--	16	154,504	41,818	196,338	9	184,874	184,883	6,517
October	12	2008	--	15	146,390	39,588	185,993	18	182,779	182,796	9,929
October	13	2008	--	21	154,268	41,199	195,488	15	183,688	183,703	9,922
October	14	2008	--	18	146,228	39,662	185,908	10	172,614	172,624	6,563
October	15	2008	--	22	68,775	20,078	88,874	13	83,011	83,024	11,787
October	16	2008	--	17	153,091	42,509	195,617	15	182,025	182,040	9,819
October	17	2008	--	13	153,373	42,274	195,660	13	190,644	190,657	9,979
October	18	2008	--	7	153,595	42,126	195,727	19	186,483	186,502	9,857
October	19	2008	--	5	153,800	41,977	195,782	11	191,261	191,272	6,673
October	20	2008	--	3	153,975	41,915	195,893	6	187,488	187,495	9,969
October	21	2008	--	4	153,905	42,074	195,983	82,290	104,846	187,136	9,913
October	22	2008	--	4	154,034	42,040	196,078	184,633	14	184,647	9,996
October	23	2008	--	5	154,218	42,027	196,250	192,234	14	192,248	9,932
October	24	2008	--	3	154,403	42,064	196,469	189,869	12	189,880	9,952
October	25	2008	--	6	154,758	41,923	196,687	183,826	14	183,840	10,650
October	26	2008	--	5	154,997	41,840	196,842	190,829	11	190,840	10,032
October	27	2008	--	7	155,171	41,665	196,843	188,288	11	188,299	10,037
October	28	2008	--	5	155,301	41,555	196,861	191,413	17	191,430	9,863
October	29	2008	--	4	96,312	26,364	122,680	113,801	2,282	116,083	3,637
October	30	2008	--	3	153,596	41,928	195,527	189,104	12	189,116	12,233
October	31	2008	--	3	153,886	41,783	195,673	182,501	16	182,517	7,544
Total Monthly Volumes (gal)			0	20,404	4,566,617	1,248,684	5,835,704	3,094,988	2,518,459	5,613,447	283,152
Average Pump/Injection Rates (gpm)			0.0	0.5	102.3	28.0	130.7	69.3	56.4	125.7	6.3

NOTES:

--- : Not in operation during reporting period.

gal: gallons

gpm: gallons per minute

RO: Reverse Osmosis

^aFlow Readings tabulated from the date historian at the IM-3 Facility.

November 2008 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles California

Month	Day	Year	Extraction Well System ^a					Injection Well System ^a			RO Brine ^a
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
November	1	2008	0	--	154,150	41,594	195,744	192,098	13	192,111	9,995
November	2	2008	0	--	154,414	41,700	196,114	187,239	18	187,257	9,976
November	3	2008	0	--	154,755	41,704	196,459	188,279	14	188,293	8,839
November	4	2008	0	--	155,023	41,559	196,582	171,621	18,218	189,839	11,286
November	5	2008	0	--	153,838	40,572	194,410	180,395	3,816	184,211	8,037
November	6	2008	0	--	154,465	40,347	194,812	199,895	19	199,914	3,101
November	7	2008	0	--	154,963	40,300	195,262	191,062	19	191,081	3,153
November	8	2008	0	--	155,059	40,487	195,546	189,542	12	189,554	3,036
November	9	2008	0	--	125,755	33,204	158,959	163,634	15	163,648	4,309
November	10	2008	0	--	153,178	40,253	193,431	186,244	19	186,263	6,506
November	11	2008	0	--	154,861	40,770	195,631	80,260	106,223	186,483	10,073
November	12	2008	0	--	154,312	40,523	194,835	15	185,878	185,892	8,604
November	13	2008	0	--	153,597	40,364	193,961	18	181,686	181,704	6,221
November	14	2008	0	--	151,474	38,752	190,226	16	188,590	188,606	7,105
November	15	2008	0	--	155,554	39,764	195,319	17	196,888	196,905	3,235
November	16	2008	0	--	155,800	39,957	195,756	8	196,214	196,222	3,970
November	17	2008	0	--	144,611	37,735	182,346	9	174,031	174,040	3,123
November	18	2008	0	--	110,313	39,200	149,513	20	141,462	141,482	12,611
November	19	2008	0	--	96,615	26,674	123,289	17	104,861	104,877	5,562
November	20	2008	0	--	155,034	41,386	196,420	11	199,398	199,409	6,322
November	21	2008	0	--	155,166	41,499	196,666	7	191,680	191,688	3,538
November	22	2008	0	--	155,382	41,440	196,821	15	192,164	192,179	6,428
November	23	2008	0	--	155,566	41,519	197,084	12	195,416	195,428	3,208
November	24	2008	0	--	155,727	41,460	197,187	14	195,210	195,224	6,381
November	25	2008	0	--	155,705	41,621	197,326	4,687	187,619	192,306	3,204
November	26	2008	0	--	154,592	41,690	196,282	9	200,249	200,258	6,346
November	27	2008	0	--	153,272	41,730	195,003	7	189,519	189,526	3,204
November	28	2008	0	--	153,389	41,628	195,017	10	190,896	190,906	3,215
November	29	2008	0	--	150,088	40,606	190,694	13	176,949	176,962	6,344
November	30	2008	0	--	151,868	41,222	193,090	16	195,826	195,842	3,051
Total Monthly Volumes (gal)			0	0	4,488,525	1,201,260	5,689,785	1,935,188	3,612,922	5,548,109	179,984
Average Pump/Injection Rates (gpm)			0.0	0.0	103.9	27.8	131.7	44.8	83.6	128.4	4.2

NOTES:

--- : Not in operation during reporting period.

gal: gallons

gpm: gallons per minute

RO: Reverse Osmosis

^aFlow Readings tabulated from the date historian at the IM-3 Facility.

December 2008 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles California

Month	Day	Year	Extraction Well System ^a					Injection Well System ^a			RO Brine ^a
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
December	1	2008	--	13	152,080	41,248	193,341	14	191,626	191,640	5,126
December	2	2008	--	13	152,241	41,122	193,377	13	190,011	190,024	3,221
December	3	2008	--	14	133,694	35,471	169,178	69,620	98,678	168,298	6,417
December	4	2008	--	3,526	146,087	39,646	189,259	193,520	13	193,533	3,202
December	5	2008	--	21	154,485	39,635	194,141	187,095	12	187,107	3,038
December	6	2008	--	22	155,637	39,493	195,152	190,966	19	190,985	3,132
December	7	2008	--	13	155,925	39,455	195,393	199,057	14	199,071	3,178
December	8	2008	--	18	156,235	39,441	195,694	190,504	3,307	193,810	3,144
December	9	2008	--	8	156,384	39,530	195,923	187,663	8,863	196,526	6,266
December	10	2008	--	5	156,547	39,485	196,037	202,540	13	202,553	3,136
December	11	2008	--	9	157,220	39,311	196,540	189,412	5,903	195,314	3,119
December	12	2008	--	7	157,528	39,459	196,994	196,921	--	196,921	3,196
December	13	2008	--	7	157,711	39,487	197,206	190,944	--	190,944	3,199
December	14	2008	--	7	157,781	39,454	197,242	198,004	6	198,010	6,329
December	15	2008	--	11	157,965	39,347	197,323	191,769	1,344	193,113	3,061
December	16	2008	--	9	156,811	39,449	196,269	94,164	98,814	192,978	3,112
December	17	2008	--	14	51,008	13,025	64,047	11	64,894	64,906	12
December	18	2008	--	4	10	17	31	13	13	26	15
December	19	2008	--	7	82,894	21,760	104,661	14	108,084	108,098	3,086
December	20	2008	--	8	155,068	39,988	195,064	16	183,836	183,853	3,216
December	21	2008	--	10	155,401	39,900	195,311	11	193,286	193,297	3,201
December	22	2008	--	9	155,491	39,948	195,447	11	194,564	194,575	3,180
December	23	2008	--	9	155,739	39,829	195,577	12	175,979	175,991	6,312
December	24	2008	--	6	153,998	39,758	193,762	16	207,665	207,681	3,131
December	25	2008	--	8	152,815	40,043	192,866	16	192,279	192,295	3,180
December	26	2008	--	12	153,194	39,752	192,959	9	191,579	191,588	3,121
December	27	2008	--	9	153,487	39,590	193,086	14	188,454	188,468	3,269
December	28	2008	--	12	153,748	39,429	193,189	11	188,185	188,196	6,219
December	29	2008	--	7	153,879	39,356	193,243	17	190,060	190,077	3,141
December	30	2008	--	6	153,862	39,404	193,272	61,078	129,868	190,946	3,204
December	31	2008	--	8	153,891	39,477	193,376	191,406	21	191,427	3,060
Total Monthly Volumes (gal)			0	3,833	4,448,815	1,142,311	5,594,959	2,734,861	2,807,391	5,542,252	109,222
Average Pump/Injection Rates (gpm)			0.0	0.1	99.7	25.6	125.3	61.3	62.9	124.2	2.4

NOTES:

--- : Not in operation during reporting period.

gal: gallons

gpm: gallons per minute

RO: Reverse Osmosis

^aFlow Readings tabulated from the date historian at the IM-3 Facility.

Appendix C
Flowmeter Calibration Records

Flow Calibration without Adjustment

30092302-1304705

WWRA-000923-F

Purchase order number

US-19050353-30 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C036F16000

Serial N°

~~FIT-1201~~ FIT-103/PE-1 / installed 1/4/07

Tag N°

FCP-6.F

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9148

Calibration factor

0

Zero point

72.3 °F

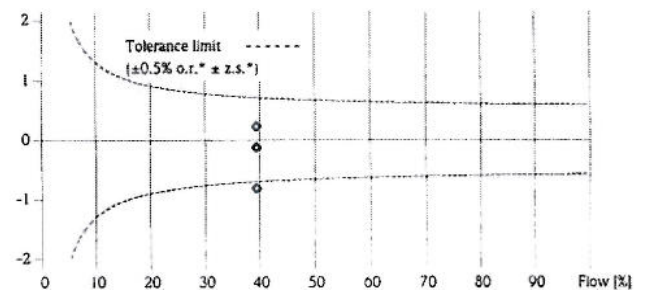
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
39.5	61.5	30.1	30.816	30.002	-2.64	10.15
39.5	61.5	30.1	30.807	30.875	0.22	10.34
39.5	61.5	30.1	30.813	30.772	-0.13	10.31
39.5	61.5	30.1	30.812	30.561	-0.81	10.27
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.
The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Tim Swick

12-04-2006

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30107893-1304706

WWRA-002048-F

Purchase order number

US-19054161-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037016000

Serial N°

~~FIT-1202~~ FIT-102/TW-3D/installed 1/25/08

Tag N°

FCP-6.F

Calibration rig

155.6102 GPM (100%)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9154

Calibration factor

0

Zero point

76.2 °F

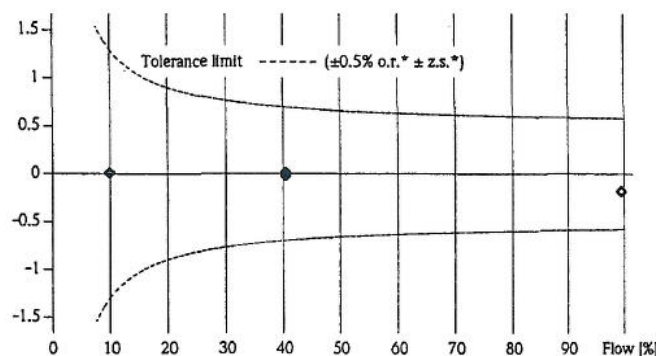
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.5	30.1	7.7531	7.7537	0.01	5.59
40.5	63.0	30.1	31.560	31.554	-0.02	10.47
40.5	63.0	30.1	31.569	31.574	0.01	10.48
99.5	154.8	30.1	77.589	77.448	-0.18	19.89
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA) and Aurangabad (IN).

Tim Swick

09-12-2007

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30057866-1275190

41724888

Purchase Order Number

USA-49310090-40 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order Code

PROMAG 23 P 2"

Transmitter/Sensor

6A021F16000

Serial N°

FIT-100 / TW-20 / installed 7/28/05

Tag N°

FCP-6.C

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9178

Calibration factor

0

Zero point

72.9 °F

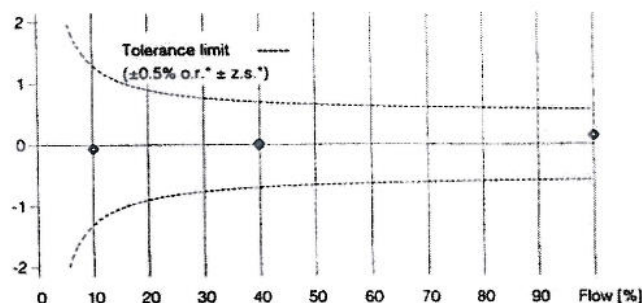
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.5	30.0	7.7502	7.7457	-0.06	5.59
39.9	62.1	30.0	31.071	31.070	0.00	10.38
39.9	62.1	30.0	31.073	31.078	0.02	10.38
100.2	156.0	30.0	78.041	78.156	0.15	20.06
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI)

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

11-29-2004

Date of calibration

Endress+Hauser
2350 Endress Place
Greenwood, IN 46143



Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30057870-1275191

41724888

Purchase Order Number

USA-49310090-40 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order Code

PROMAG 23 P 2"

Transmitter/Sensor

6A022016000

Serial N°

~~FIT-101~~ / TW-25 / installed 7/28/05

Tag N°

FCP-6.C

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9207

Calibration factor

0

Zero point

74.1 °F

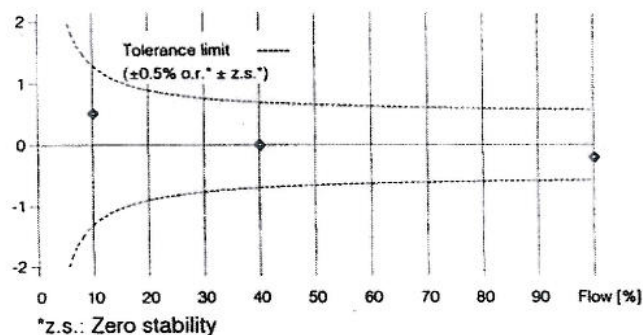
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.6	30.0	7.7910	7.8318	0.52	5.61
40.0	62.3	30.0	31.157	31.160	0.01	10.40
40.1	62.4	30.0	31.229	31.229	0.00	10.42
100.2	155.9	30.0	78.017	77.856	-0.21	20.00
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see technical informations (TI)

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

11-29-2004

Date of calibration

Endress+Hauser
2350 Endress Place
Greenwood, IN 46143



Tim Swick

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration without Adjustment

30094933-1275192

WWRA-001176-F

Purchase order number

US-19051105-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022116000

Serial N°

FIT-102 / IW-02 / installed 02/02/07

Tag N°

FCP-6.F

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9214

Calibration factor

0

Zero point

72.3 °F

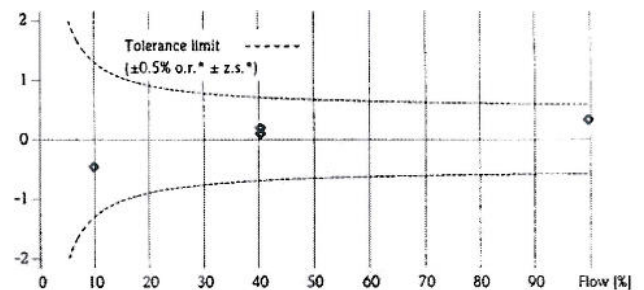
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.5	30.1	7.7413	7.7054	-0.46	5.58
40.5	63.0	30.1	31.575	31.604	0.09	10.48
40.5	63.0	30.1	31.562	31.621	0.19	10.49
99.8	155.3	30.1	77.847	78.099	0.32	20.02
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.
The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Jim Baase

01-23-2007

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Jim Baase

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30116785-1304708

WWRA-002642-F

Purchase order number

US-19056062-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037216000

Serial N°

~~FIT-1204~~ FIT-1203 / IW-03 / installed 4/9/08

Tag N°

FCP-6.F

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9312

Calibration factor

20

Zero point

71.1 °F

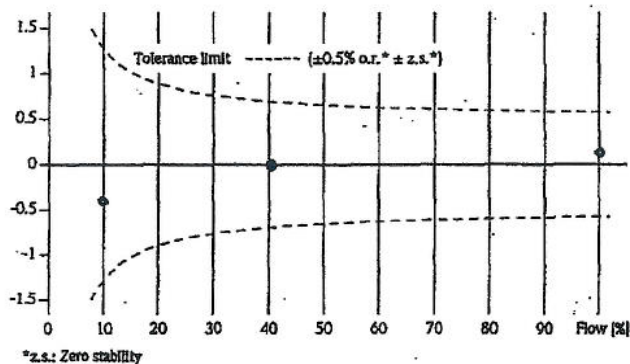
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.5	30.1	7.7698	7.7384	-0.40	5.59
40.5	63.0	30.1	31.589	31.594	0.02	10.48
40.5	63.1	30.1	31.617	31.612	-0.02	10.49
100.3	156.0	30.1	78.191	78.296	0.13	20.06
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see technical Informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA) and Aurangabad (IN).

02-18-2008

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143



Taylor Shepard

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

Flow Calibration with Adjustment

30094930-1385113

WWRA-001176-F

Purchase order number

US-19051105-20 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P80-AL1A1AA022AW

Order code

PROMAG 23 P 3"

Transmitter/Sensor

7700C616000

Serial N°

- FIT-700/Combined Flow to IW-03 & IW-02/
installed 2/13/08

Tag N°

FCP-20 MEDIUM

Calibration rig

398.3621 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

1.1466

Calibration factor

35

Zero point

72.2 °F

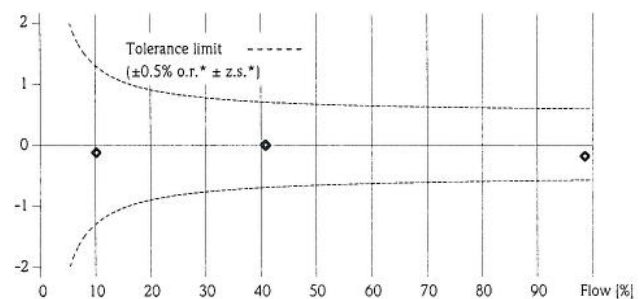
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
10.3	40.8	60.5	41.188	41.136	-0.13	5.64
41.0	163.2	60.4	164.437	164.439	0.00	10.56
41.0	163.4	60.4	164.412	164.396	-0.01	10.56
98.8	393.5	60.8	398.925	398.170	-0.19	19.78
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.
The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.



Morris E. Trueblood Jr.
Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

01-23-2007

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Flow Calibration with Adjustment

30094931-1275193

WWRA-001178-F

Purchase order number

US-19051105-30 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022216000

Serial N°

~~FIT-701~~

~~FIT-103~~

Tag N°

/ R0 Concentrate / installed 02/02/07

FCP-6.F

Calibration rig

155.6102 GPM ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9235

Calibration factor

0

Zero point

72.2 °F

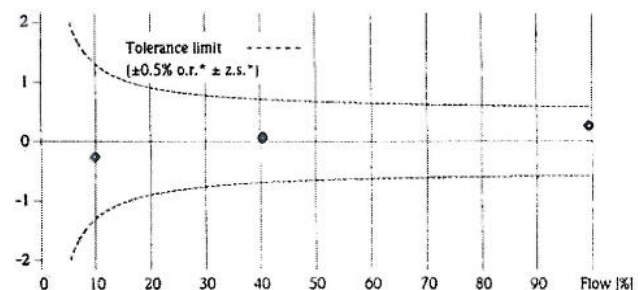
Water temperature

Flow [%]	Flow [GPM]	Duration [sec]	V target [US GAL]	V meas. [US GAL]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.5	30.1	7.7833	7.7628	-0.26	5.59
40.5	63.1	30.1	31.600	31.613	0.04	10.49
40.6	63.1	30.1	31.650	31.674	0.07	10.50
99.7	155.1	30.1	77.720	77.919	0.26	19.98
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.
The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Jim Baase

01-23-2007

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Jim Baase

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2