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March 13, 2006

Norman Shopay
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Geology and Corrective Action Branch
700 Heinz Avenue
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Subject: Pore Water and Seepage Study Report
PG&E Topock Compressor Station, Needles, California

Dear Mr. Shopay:

Enclosed is the *Pore Water and Seepage Study Report* for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station. This report documents work performed and results obtained according to the *Revised Pore Water and Seepage Study Work Plan* dated October 31, 2005, the *Sampling and Analysis Plan for Evaluating Reducing Geochemical Conditions in River Sediment* dated November 14, 2005, and the *Addendum to the Revised Pore Water and Seepage Study Work Plan* dated December 28, 2005.

Please contact me at (805) 546-5243 if you have any questions or if you need additional information.

Sincerely,

Julie Eakins for Yvonne Meeks

Enclosure

cc: Kate Burger, DTSC
Karen Baker, DTSC
Aaron Yue, DTSC

Report

Pore Water and Seepage Study Report

PG&E Topock Compressor Station
Needles, California

Prepared for

California Department of Toxic Substances Control

On behalf of

Pacific Gas and Electric Company

March 13, 2006

CH2MHILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

Pore Water and Seepage Study Report

PG&E Topock Compressor Station
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This Report was prepared under the supervision
of a California-certified Engineering Geologist

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Project Hydrogeologist

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Acronyms and Abbreviations

µS	microSiemens
AVS	acid volatile sulfides
Ca	calcium
CASLC	California State Lands Commission
Cr	chromium
Cr(III)	trivalent chromium
Cr(T)	total dissolved chromium
Cr(VI)	hexavalent chromium
cm	centimeter
CWG	Consultative Workgroup
DOC	dissolved organic carbon
DTSC	California Department of Toxic Substances Control
Fe	Iron
GMP	Groundwater Monitoring Program
gpm	gallons per minute
GPS	global positioning system
HNWR	Havasu National Wildlife Refuge
IW	injection well
K	potassium
Mg	manganese
MS	matrix spike
mV	millivolts
Na	sodium
NEPA	National Environmental Policy Act
ORP	oxidation-reduction potential
PG&E	Pacific Gas and Electric Company
PVC	polyvinyl chloride

PWSS	Pore Water and Seepage Study
QAPP	Quality Assurance Project Plan
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
TOC	total organic carbon
TWG	Technical Working Group
USFWS	United States Fish and Wildlife Service

1.0 Introduction and Background

Pacific Gas and Electric Company (PG&E) is addressing chromium in groundwater at the Topock Compressor Station in Needles, California, under the oversight of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). On June 9, 2005, DTSC issued a letter entitled "Requirement for Submittal of Pore Water and Seepage Workplan, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California (EPA ID No. CAT080011729)" to PG&E (DTSC 2005a). In that letter, DTSC required that PG&E begin planning for pore water sampling and seepage measurements in the Colorado River.

Figure 1-1 shows the location of the Topock Compressor Station, site features, and the approximate study area for the Pore Water and Seepage Study (PWSS).

1.1 Investigation Background

Per DTSC's June 9, 2005 letter, PG&E submitted a technical memorandum entitled *Conceptual Approach for a Pore Water Sampling and Seepage Study* on June 27, 2005 (CH2M HILL 2005a). The technical memorandum presented an approach and focused on a set of pore water sampling methods considered applicable to the site. In a letter dated June 30, 2005, DTSC provided comments and further recommendations for the PWSS (DTSC 2005b).

PG&E submitted a *Pore Water and Seepage Study Overview* (CH2M HILL 2005b) on July 13, 2005 in compliance with DTSC's letters of June 9, 2005 and June 30, 2005 and following consultation with DTSC during conference calls on June 29 and July 6, 2005. DTSC summarized comments and input by the Technical Working Group (TWG) and proposed a draft table of contents for a PWSS Workplan in an August 9, 2005 memorandum (DTSC 2005c). The *Pore Water and Seepage Study Work Plan* (CH2M HILL 2005c) was submitted on September 30, 2005 in accordance with DTSC's September 6, 2005 letter (DTSC 2005d); DTSC's August 9, 2005 memorandum (DTSC 2005c); discussions during the TWG meeting on July 20, 2005; and subsequent conference calls.

A TWG meeting on October 18, 2005 discussed technical issues and modifications to the PWSS scope that was described in the September 30 Work Plan (CH2M HILL 2005c). A DTSC letter dated October 20, 2005 provided comments and directives for the PWSS, which included eliminating the seepage quantification portion of the study (DTSC 2005e). A *Revised Pore Water and Seepage Study Work Plan* (CH2M HILL 2005d) was submitted on October 31, 2005 in response to the October 20 letter. DTSC approved the revised work plan on November 14, 2005 (DTSC 2005f). A *Sampling and Analysis Plan for Evaluating Reducing Geochemical Conditions in River Sediment* (CH2M HILL 2005e) was submitted on November 14, 2005. This Sampling and Analysis Plan (SAP) refined the sampling and analyses for the river sediment and pore water sampling, and supplemented the work approach presented in the revised Work Plan.

Permission to conduct the PWSS activities as described in the revised Work Plan was received from the California State Lands Commission (CASLC) on November 23, 2005 (CASLC 2005) and from the U.S. Fish and Wildlife Service (USFWS) on November 15, 2005 (USFWS 2005).

On December 28, 2005, PG&E submitted an *Addendum to the Revised Pore Water and Seepage Study Work Plan* (CH2M HILL 2005f). The addendum described river water sampling to be conducted as part of the PWSS, using procedures currently in place for the Groundwater Monitoring Program (GMP) (CH2M HILL 2005g). DTSC provided verbal approval during a Consultative Workgroup (CWG) conference call on December 29, 2005.

In accordance with the revised work plan (CH2M HILL 2005d) and the sediment sampling memo (CH2M HILL 2005e), Phase I Operations were performed between December 5 and December 13, 2005. These activities included installation and retrieval of TidbiT® temperature sensors, testing of pore water sampling techniques, and river bottom sediment sampling. Phase I activities are described in Section 2 of this report. In accordance with the revised work plan (CH2M HILL 2005d) and the addendum to the work plan (CH2M HILL 2005f), pore water and surface water sampling operations were performed on January 3 through January 7, 2006. These activities are described in Section 3.

1.2 Primary Study Objectives

The primary objectives of this study, as outlined in the revised Work Plan (CH2M HILL 2005d), were to:

1. Assess chromium concentrations in pore water at multiple locations within the zone that has been historically downgradient of the chromium plume observed in the floodplain, during the next seasonal low river stand.
2. Assess chromium concentrations in pore water at multiple locations that are historically upgradient of Bat Cave Wash, during the next seasonal low river stand.
3. Assess whether geochemical conditions in shallow sediments below the Colorado River favor chromium reduction.

1.3 Secondary Study Objectives

The secondary objectives of this study, as outlined in the revised Work Plan, were to:

1. Conduct a pilot study to assist in selecting certain sampling design elements of the Pore Water and Seepage Study. The pilot study should determine the following:
    a. Depth of influence from diurnal river level fluctuation. The results were used to select pore water sampling depths, with DTSC consultation.
    b. Real-time exchange parameters that could be used to identify zones of groundwater-surface water exchange. The results were used to determine whether a full scale seepage study was conducted.

c. Expected penetration depth capabilities of selected seepage and pore water sampling method(s) in the Colorado River sediments. The results were used to select the appropriate sampling method.

2. Collect data that allowed estimates of the mixing ratio between surface water and groundwater within the zone of this investigation.

The secondary objectives 1b and 2 are no longer applicable due to DTSC's elimination of the seepage quantification portion of the study in their October 21 letter (DTSC 2005e).

2.0 Phase I Work

The Phase I field effort included three tasks: pore water temperature logging, sediment coring, and testing of various pore water sampling techniques.

2.1 Temperature Survey

Small, self-contained, temperature recording devices (Stowaway TidbiT® manufactured by Onset Computing) were buried in the river bottom to record the temperature in the pore water over a period of approximately a week. Temperature fluctuations were expected to be a sensitive indicator of groundwater/surface water interchange, because of the large temperature contrast between groundwater and river water at the Topock site.

2.1.1 TidbiT® Installation and Retrieval

TidbiT® strings were installed at ten locations (three upgradient and seven downgradient locations), shown on Figure 1-1. The TidbiTs® were programmed to log temperature every 15 minutes, starting on December 5, 2005 at approximately 10 a.m. Prior to placement in the river sediments, the TidbiTs® were all placed in an ice bath to provide a common temperature calibration point.

The TidbiTs® were installed by jetting a 1.5-inch diameter aluminum pipe into the river. Jetting involved pumping water at relatively high velocity through a pipe as the pipe was inserted into the river bottom. The high velocity stream liquefied the sediment ahead of and along the sides of the pipe, and allowed the pipe to be pushed into the river bottom. A MultiQuip Model QP205SH pump was used to supply water for jetting. The flow rate of the water supplied during jetting was not measured. Based on the manufacturer's pump curve, the QP205SH is capable of supplying 80 gallons per minute (gpm) at a total dynamic head of 100 feet. The aluminum pipe was jetted to a depth of at least seven feet into the sediment. The jetting operation had to be accomplished in one continuous push, without stopping the flow of water. If the water flow were cut off, the sand settled around the pipe and there was insufficient pressure for jetting to be restarted.

The TidbiT® strings were assembled using ¼-inch nylon rope and a 1-pound anchor positioned 1 foot below the bottom (or deepest) TidbiT®. TidbiTs® were positioned at depths of 6, 3, 1 and 0 feet below the river bottom. A length of zinc-plated chain was attached to the top of the TidbiT® string to serve as an anchor on the river bottom. A loop of floating, high-visibility polypropylene rope was tied to the chain so it could be caught with a boat hook to retrieve the TidbiT® string. Once the pipe was jetted to approximately 7 feet below the river bottom, the total open depth was measured using a tape measure inside the pipe. The TidbiT® string was lowered into the pipe until the bottom was tagged with the anchor at the end of the string. While the TidbiT® string was held in place, the pipe was lifted up and down in 6-inch increments to ensure that the sand settled around the TidbiTs®. Once the pipe was pulled from the sediment, the chain and polypropylene rope were dropped through the pipe. The pipe was removed and the excess rope was pulled to the surface. The TidbiT® string, which had purposely been installed about a foot deeper than the target

depth, was pulled upward into place until the uppermost TidbiT® was observed emerging from the sand on the river bottom. This procedure ensured that the TidbiT® string was stretched tightly, and all the Tidbits® were positioned at their target depths below the river bottom.

The TidbiT® strings were installed on December 6-7, 2005, and retrieved on December 12, 2005. The 6-foot deep TidbiT® at location PS-9B was slightly damaged, and the data were unrecoverable. All of the other TidbiTs® were recovered undamaged, and the data were downloaded on December 13, 2005.

Temperature data collected from various depths at and below the river bottom indicated that a sample depth of six feet below the river bottom was sufficient to sample pore water that is not influenced by diurnal fluctuations from the Colorado River. *SOP-A15 TidbiT® Deployment and Retrieval* was developed from the Phase I field effort, and is included in Appendix C. Technical information on TidbiTs® is presented in the specification sheet provided in Appendix A.

2.1.2 TidbiT® Data Interpretation

The temperature data collected from TidbiT® string locations are shown on Figures 2-2 to 2-11. Also shown on these graphs is the river level as measured at the I-3 gauging station. The graphs are numbered from upstream to downstream, with Figure 2-2 being the furthest upstream location and Figure 2-11 being the furthest downstream. Temperature was plotted on an inverted axis to allow the temperature plots from different depths to be oriented from top to bottom on the page as the recorders were when buried in the sediments.

On all graphs, the TidbiT® at the river bottom showed the most variation in temperature. There was a general trend of falling temperature over the duration of the test that corresponds with a general trend of rising river levels. All of the TidbiTs® placed at the river bottom were buried by shifting sand during the course of their deployment, some by more than a foot. The shallowest TidbiTs® appear to have recorded diurnal fluctuations that generally correlate with changes in river stage.

The TidbiTs® installed at 1- and 3-foot depths generally recorded a falling trend in temperature over the period of deployment, but did not record diurnal fluctuations. The deepest TidbiTs®, installed six feet below the river bottom, showed the least change in temperature after their initial equilibration period. At some locations, temperature equilibration after installation was rapid. At other locations (Figures 2-2, 2-3, 2-4, 2-5, 2-8, and 2-9), equilibration took up to two days. The delay in temperature equilibration is a result of the cold river water that was introduced into the river bottom sediments during the jetting operation to emplace the TidbiTs®.

The temperature survey indicated that at a depth of six feet below the river bottom, the diurnal temperature fluctuations were effectively damped out to magnitudes below the resolution of the TidbiTs®. At shallower depths, there was some indication of diurnal fluctuations at some locations. From these results, it was recommended that the pore water samples be collected from depths of six feet below the river bottom, below the depth of significant diurnal changes in the flow regime.

2.2 Testing of Pore Water Sampling Techniques

Three pore water sampling techniques were evaluated on December 10, 2005: a pushpoint Harpoon™ sampler, a drive-point piezometer, and a modified Geoprobe® sampler. Below are descriptions of each sampler.

Harpoon™ Sampler - This sampler consists of a ¼-inch diameter stainless steel drive point that is 22 inches long. It is attached to a $^{7}/_{8}$-inch diameter coupler connected to ½-inch diameter metal tubing, which extends to the surface. The sampler is advanced by hand up to 22 inches deep into sediment. Pore water is pumped to the surface with a peristaltic pump, through $^{3}/_{8}$-inch diameter polyethylene or Tygon® tubing inside the sampler piping.

Solinst® Drive-Point Piezometer - This sampler consists of a ¾-inch to 1.5-inch diameter stainless steel drive point attached to steel pipe of smaller diameter. It can be advanced by hand or with a manual or vibrating power hammer. The screened interval from which the sample is drawn is approximately 6 inches in length. Similar to the Harpoon™ sampler, water is pumped to the surface through polyethylene or Tygon® tubing for sampling. The sampler is designed so that the drive point tip detaches from the drive pipe when the pipe is pulled back and is left behind in the sediments when the pipe is removed.

Modified Geoprobe® Sampler - This sampler consists of 1.25-inch outside diameter Geoprobe® rod, which is screened over the bottom six inches. O-rings around the sample tubing prevent water from entering the screened area from above. The sample tubing is installed prior to driving the sampler to the desired depth. The tubing is inserted into a polypropylene cap that is secured to the Geoprobe® tip. Once the sampler is driven to depth, the tubing is pulled back 1-2 inches to expose it to the water in the screened portion of the Geoprobe® rod. Table 1 lists the advantages and disadvantages of each sampler.

The modified Geoprobe® sampler was found to provide the most robust and reliable sampling method, because it could reach greater depths, provided the most reliable seal, and was easily decontaminated between sample locations. The Harpoon™ Sampler could not reach the target depth, and was therefore not recommended. The Solinst® drive point sampler could reach the target depth, but because the work plan and regulatory approvals specified that nothing would be left in the river bottom, the sampler would have required modification so the tip was not left behind. The Solinst® drive point sampler was also more difficult to retrieve and decontaminate than the Geoprobe® sampler.

Based on the limited testing, the modified Geoprobe® sampler was determined to be the most efficient and reliable pore water sampling tool at the target depth of six feet below the river bottom, and was used to collect the pore water samples. *SOP-A14 Pore Water Sampling* was developed from the Phase I field effort and is included in Appendix C.

2.3 Sediment Sampling

The objective of river bottom sediment sampling was to assess the geochemical conditions in shallow sediments below the Colorado River, primarily to determine whether aerobic or anaerobic conditions are present in the shallow river sediments.

Sediment cores were collected from mid-stream locations on 10 of the 16 pore water sampling transects. These samples were analyzed for a variety of geochemical indicators that distinguish aerobic zones from anaerobic zones. A multiple lines-of-evidence approach, using results of sediment sampling in conjunction with the results from the pore water sampling, was used to evaluate the encountered sediment conditions.

2.3.1 Field Procedures

River sediment sampling and analysis was performed in accordance with the *Sampling and Analysis Plan for Evaluating Reducing Geochemical Conditions in River Sediment, Pore Water and Seepage Study* (CH2M HILL 2005e). Sediment coring was performed on December 8, 2005, during Phase I field work.

Figure 2-1 presents the sediment sampling locations. The samples were collected from the approximate location of 10 of the 16 pore water sampling transects. GPS (global positioning system) coordinates were recorded for each sediment sampling location on the river.

Sediment cores were collected using the GeoProbe® Macro-Core® drive point system. The Macro-Core® consists of a 1½-inch diameter piston-operated sampler with a PVC liner, which was advanced with a manual hammer. An O-ring on the tip ensured that the sampler remained sealed until the desired sampling depth was reached. Once the top of the sampling interval was reached, the stop-pin and piston rod were pulled up and the sampler was driven to collect the sediment sample at the desired interval.

Two-foot-long sediment cores were collected from approximately 6 inches to 30 inches below the river bottom. The exact depth of penetration of the Macro-Core® depended upon the grain size and degree of consolidation of river bottom material.

The 2-foot-long PVC core liners were removed from the Macro-Core® sampler and immediately capped with plastic tube caps. Any head space within the liners was purged with nitrogen prior to capping. The cores were then sealed using "Protecore" (plastic/aluminum laminate) sleeves. The Protecore sleeves were purged with nitrogen during sealing to remove any oxygen. The Protecore sleeves were then labeled and placed in an ice chest. All 10 cores were submitted under proper chain-of-custody documentation to Columbia Analytical Services Inc., a California-certified laboratory in Redding, CA. As per the sediment technical memorandum (CH2M HILL 2005e), the 10 sediment cores were analyzed for particle size distribution, hydrometer (clay and silt) analyses, total organic carbon, and acid volatile sulfides (AVS).

2.3.2 Sediment and Pore Water Sample Results

2.3.2.1 Analytical Results

Table 2-1 presents the sediment analytical results. The sediment samples were collected from 0.5 feet to 2.0 or 2.5 feet below the river bottom. Results of the particle size distribution analysis show that eight of the sediment samples were composed of well-sorted sand. The sediment sample from PS-09B was composed of well-sorted sand with gravel. The northernmost sediment sample from PS-03B was composed of well-sorted sand and well-sorted gravel. There were negligible amounts of silt and clay (< 2percent each) in all ten sediment samples. There were no detections of total organic carbon (TOC) or AVS at

concentrations above the reporting limit in any of the sediment samples. Sediment sampling forms and chain-of-custody forms are provided in Appendix B.

Table 2-2 presents the pore water extended suite analytical results. Details regarding the pore water sampling and results for hexavalent chromium (Cr[VI]), total dissolved chromium (Cr[T]), pH, and specific conductance are presented in Section 3.0. In the pore water samples analyzed for the extended suite, there were detections of dissolved organic carbon, dissolved ammonia as nitrogen, total phosphorus, sulfate, dissolved iron, dissolved manganese, dissolved oxygen, calcium, magnesium, potassium, sodium, chloride, fluoride, and alkalinity as bicarbonate. Discussion of these pore water extended suite results follows in Section 2.3.3.

2.3.2.2 Analytical Data Quality Review

The laboratory analytical data generated from the sediment sampling were independently reviewed by project chemists, to assess data quality and identify deviations from analytical requirements. A detailed discussion of data quality for the sediment sampling data is presented in the data validation reports, which are kept in the project file and are available upon request.

As discussed below, the completeness objectives were met for all method and analyte combinations. No significant analytical deficiencies were identified in the sediment sampling data. The analyses and data quality met the laboratory method quality control acceptance criteria. Overall, the analytical data for the sediment sampling were considered acceptable for the purposes of the study.

The analytical data quality review for the 10 pore water samples collected for the extended suite analyses are covered in Section 3.2.2.

Quantitation and Sensitivity: All method and analyte combinations met the project reporting limit objectives.

Holding Time Data Qualification: All method holding time requirements were met.

Calibration: All initial and continuing instrument calibration criteria were met.

Chain of Custody: Each sample was documented in a completed chain of custody, and was received at the laboratory in good condition. All discrepancies identified in laboratory custody were promptly resolved.

2.3.3 Analysis of Results/Geochemical Conditions

The sediment samples were analyzed for geochemical parameters and particle-size distribution to assess the geochemical and physical conditions of the Colorado River sediments in the PWSS area. Grain size analyses indicate samples were consistently dominated by sand-sized material, with occasionally significant amounts of gravel (Table 2-1). This grain size distribution indicates the effects of upstream dams, which retain most of the fine materials, and the swift current of the Colorado River, which carries the fines that are present away from this area.

Samples were analyzed for AVS and TOC to gather additional evidence for reducing conditions in and beneath the riverbed. Neither of these analytes was detected, although the

laboratory detection limits were higher than anticipated (Table 2-1). Detections above these limits would indicate a very strongly reducing environment (more typical of marsh areas) – stronger than that required for Cr(VI) reduction.

Pore water samples from locations 3B and 5B show higher sulfate concentrations than the others, reflecting the less reducing conditions of the upstream locations. In the more strongly reducing conditions downstream, it is likely that some of the sulfate has become reduced to sulfide, which is mostly precipitated out of solution. Unfortunately, the AVS detection limit was too high to detect sulfate in the sediment samples. Other geochemical indicators for reducing conditions are the presence of reduced aquatic species, including iron, manganese, and ammonia. Conditions that favor the existence of these species also favor the reduction of Cr(VI). As shown on Table 2-2, all three of these species were found in nearly all 10 of the pore water samples that were analyzed for the extended suite parameters. Dissolved organic carbon (DOC), which could potentially be metabolized by microorganisms that catalyze reduction reactions, was detected in all 10 of the pore water samples.

The results of the sediment sampling and extended suite pore water sampling addressed the third primary objective of the PWSS: assess whether geochemical conditions in shallow sediments below the Colorado River favor chromium reduction. Shallow sediments in the section of the river included in this study show geochemical indicators that favor the reduction of Cr(VI).

3.0 Pore Water and Surface Water Sampling

3.1 Field Work Review

Pore water samples were collected from 64 locations along 16 transects in the Colorado River (Figure 3-1). Each location was accessed by motor boat. The boat was held in position using an upstream anchor and two 15-foot-long aluminum pylons that extended from the boat deck down to the river bottom to prevent lateral motion. If the river was too deep to allow the use of pylons, the position of the boat was maintained using the anchor and the boat motor. Each location was logged using a resource grade Trimble GPS unit. Due to overhead interference (railroad trestle, highway bridge, etc.) some locations were not logged accurately by the GPS unit. These locations are indicated on Figure 3-1.

Pore water samples were collected in accordance with *SOP-A14: Pore Water Sampling* (Appendix C). At each location, a modified Geoprobe® sampler was driven by slide hammer to a depth of approximately 6 feet below the river bottom. Once the sampling depth was reached, pore water was pumped to the surface through a $^{3}/_{8}$-inch diameter polyethylene tube. Pumped water was diverted to a flow-through cell that measured basic water quality parameters (temperature, specific conductance, dissolved oxygen, salinity, oxidation-reduction potential [ORP], etc.). Approximately three sampler volumes were pumped to purge the drive-point sampler, and a water sample was collected. Samples for Cr(VI) and Cr(T) were filtered and preserved in accordance with the Quality Assurance Program Plan (CH2M HILL 2005g).

Surface water samples were collected in accordance with *SOP A12 Modified: Depth Specific River Water Sampling* (Appendix C) (CH2M HILL 2005h). The samples were collected using a dedicated length of polyethylene tubing attached to a weighted rope. The rope and tubing were lowered so the tube intake was approximately 1 foot above the river bottom. Water was pulled to the surface by a variable-speed peristaltic pump. Pumped water was diverted to a flow-through cell that measured basic water quality parameters (temperature, specific conductance, dissolved oxygen, salinity, ORP, etc.). Water was purged until the temperature reading remained stable for 30 seconds. Surface water sampling was performed prior to the deployment of the pore water sampling apparatus, to avoid disturbing the river bottom and impacting the surface water results.

3.2 Pore Water and Surface Water Results

3.2.1 Analytical Results and Field Parameters

All pore water and surface water samples were analyzed for Cr(VI), Cr(T), specific conductance, and pH. In addition, samples from 10 locations were analyzed for an extended suite including dissolved metals (Cr, Fe, Mn, Ca, Mg, K, and Na), DOC, alkalinity, anions (chloride, sulfate, fluoride, and nitrate), ammonia, and sulfide. The extended suite results are included in Section 2.3.2.1.

3.2.1.1 Pore Water Results

Analytical results for pore water samples are presented in Table 3-1. There were no detected concentrations of Cr(VI) or Cr(T) in any of the pore water samples. Detection limits for these analyses were 0.2 and 1.0 µg/L, respectively. Analytical results for pH ranged from 7.10 to 8.00. Specific conductance ranged from 726 to 7610 microSiemens per centimeter (µS/cm). ORP was measured as a field parameter during sampling. ORP values ranged from -89 to -217 mV.

3.2.1.2 Surface Water Results

Analytical results for surface water samples are presented in Table 3-2. There were no detected concentrations of Cr(VI) or Cr(T) in any of the surface water samples. Detection limits for these analyses were 0.2 and 1.0 µg/L, respectively. Analytical results for pH ranged from 7.79 to 8.20. Specific conductance ranged from 995 to 1010 µS/cm. ORP was measured as a field parameter during sampling. ORP values ranged from -115 to 192 millivolts (mV). In general, the negative ORP readings were from locations in transects 5 through 9. In addition location, SW-16B (farther downriver location) had a negative ORP reading.

3.2.2 Analytical Data Quality Review

The laboratory analytical data generated from the pore water and surface water sampling were independently reviewed by project chemists, to assess data quality and identify deviations from analytical requirements. A detailed discussion of data quality for the pore water and surface water sampling data is presented in the data validation reports, which are kept in the project file and are available upon request.

As discussed below, the completeness objectives were met for all method and analyte combinations. Laboratory accuracy and precision were generally acceptable; the exceptions are the pore water samples PW-09A-002 and PW-09C-002 hexavalent chromium analysis. The lab analyzed the PW-09A-002 sample both un-diluted and at a five-fold dilution, but only analyzed the matrix spike (MS) at the five-fold dilution. The PW-09C-002 sample had a MS recovery that was just below the lower control. Overall, the analytical data for the sediment sampling are considered acceptable for the purposes of the study.

Quantitation and Sensitivity: All method and analyte combinations met the project reporting limit objectives.

Holding Time Data Qualification: All method holding time requirements were met.

Calibration: All initial and continuing instrument calibration criteria were met.

Chain of Custody: Each sample was documented in a completed chain of custody and received at the laboratory in good condition. All discrepancies identified in laboratory custody were promptly resolved.

3.3 Analysis of Results

The results of the pore water sampling address the first two primary objectives of this study:

- Assess chromium concentrations in pore water at multiple river locations within the zone that has been historically downgradient of the chromium plume observed in the floodplain.
- Assess chromium concentration in pore water at multiple river locations that are historically upgradient of Bat Cave Wash.

Locations in transects 9 through 16 are downgradient of the chromium plume located in the floodplain (Figure 3-1). All of these results were non-detect for both Cr(VI) and Cr(T). Samples from locations in transects 1 through 7, which are located upgradient of the Bat Cave Wash, were also non-detect for Cr(VI) and Cr(T). In addition, all locations had negative ORP readings, indicating an environment conducive to the reduction of Cr(VI) to trivalent chromium (Cr[III]). This study supports the conclusion that pore water in the section of the river included in this study does not contain chromium.

4.0 Conclusions and Recommendations

4.1 Assessment of Primary Study Objectives

The Pore Water and Seepage Study collected pore water samples at 64 locations, both downgradient and upgradient of the chromium plume during the low seasonal river stand. All 64 pore water samples had no detections of Cr(VI) or Cr(T) above the analytical reporting limit of 0.2 and 1.0 µg/L, respectively. These results fulfill primary objectives 1 and 2 (see Section 1.2).

Pore water geochemical parameters, presented in Tables 2-2 and 3-1, demonstrate geochemical conditions that readily reduce Cr(VI) to Cr(III), which is removed from solution by precipitation and adsorption reactions. ORP (Table 3-1) in the pore water is consistently strongly negative, with average transect values ranging between -127 and -203 mV and all samples averaging -162 mV. Historical data from site monitoring wells show that ORP values below (i.e., more negative than) -90 mV are indicative of geochemical conditions in which Cr(VI) is not present. These reducing conditions probably exist in large part due to the presence of microbial communities, which are supported by the organic carbon in the sediments and create the reducing conditions. The fact that significant DOC is found in all samples demonstrates that there are sufficient nutrients present to support microbes. Stronger reducing conditions appear to be more prevalent downstream of the intersection with Park Moabi Slough (Transect Location 7 onward). Organic material is likely more abundant here than in the upstream areas (Transect Locations 3 and 5), due to inputs from the slough and the marshy area at the mouth of Bat Cave Wash. Collectively, geochemical data strongly support primary objective 3.

4.2 Assessment of Secondary Study Objectives

A pilot study was conducted in early December 2005 to fulfill the secondary study objectives (see Section 1.3). The depth of pore water sampling was chosen from the results of the TidbiT® temperature survey at 6 feet below the river bottom. Temperature plots showed that at a depth of 6 feet, the pore water temperature was minimally influenced by diurnal river fluctuations. The pilot study also tested the depth penetration capabilities of the different proposed methods of pore water sampling. It was determined from the pilot that the drive point piezometers would be the best sampling mechanism.

4.3 Conclusions

The lack of any detections of chromium in any of the pore water and surface water samples, combined with the ubiquitous presence of reducing conditions below the river bottom, provide compelling evidence for the presence of a naturally occurring geochemical barrier that would prevent any Cr(VI) in groundwater from entering the river. Based on the results of this study, any Cr(VI) present in pore water would be reduced to Cr(III) and removed from solution by mineral precipitation and adsorption reactions.

5.0 References

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_____. 2005g. *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program.* Revision 1. March 31.

_____. 2005h. *Revised Sampling Plan and Standard Operating Procedure for Depth-Specific Surface Water Sampling, PG&E Topock Program.* July 13.

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Tables

TABLE 2-1
Sediment Analytical Resuts, December 2005
Pore Water and Seepage Study
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Sample Depth Below River Bottom (ft)	Total Organic Carbon (mg/kg)	Acid Volatile Sulfides (mg/kg)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
PS-03B	12/8/2005	0.5 - 2.5	ND (250)	ND (24)	40.7	59.0	0.6	0.1
PS-05B	12/8/2005	0.5 - 2.5	ND (250)	ND (24)	5.1	94.3	1.0	0.2
PS-07B	12/8/2005	0.5 - 2.0	ND (250)	ND (24)	10.8	88.8	0.9	0.2
PS-08B	12/8/2005	0.5 - 2.5	ND (250)	ND (24)	7.3	92.2	0.0	0.0
PS-09B	12/9/2005	0.5 - 2.5	ND (250)	ND (24)	12.6	87.0	1.6	0.2
PS-11B	12/9/2005	0.5 - 2.5	ND (250)	ND (24)	0.8	98.8	0.0	1.2
PS-12B	12/9/2005	0.5 - 2.5	ND (250)	ND (24)	4.0	95.7	0.8	1.2
PS-13B	12/9/2005	0.5 - 2.5	ND (250)	ND (24)	0.6	99.0	0.8	1.2
PS-14B	12/9/2005	0.5 - 2.5	ND (250)	ND (24)	0.5	99.1	0.8	1.2
PS-15B	12/9/2005	0.5 - 2.5	ND (250)	ND (24)	0.3	99.1	0.8	1.2

NOTES:

mg/kg = milligrams per kilogram
ND = not detected at the listed method detection limit

Total organic carbon method: Walkley-Black 1947
Acid volatile sulfides method: E821/R-91-100
Particle size distribution method: D421-85

TABLE 2-2
Pore Water Extended Suite Analytical Results, January 2006
Pore Water and Seepage Study
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Dissolved Organic Carbon (mg/L)	Nitrate (mg/L)	Dissolved Ammonia-Nitrogen (mg/L)	Total Phosphorus (mg/L)	Sulfide (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)	Dissolved Oxygen (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Alkalinity, Bicarbonate as CaCO3 (mg/L)
PW-03B	1/5/2006	2.60	ND (0.5)	1.40	ND (0.1)	ND (2.0)	230	0.727	1.18	4.22	90.6	25.8	5.23	62.6	80.5	ND (0.5)	142
PW-05B	1/6/2006	2.29	ND (0.5)	2.60	0.181	ND (2.0)	216	0.549	ND (0.5)	2.37	92.8	31.7	7.05	62.7	79.7	ND (0.5)	180
PW-07B	1/6/2006	5.15	ND (0.5)	3.58	0.192	ND (2.0)	ND (0.5)	3.10	1.03	3.10	101	39.4	8.22	61.4	68.7	ND (0.5)	479
PW-08B	1/7/2006	5.88	ND (0.5)	16.5	1.21	ND (2.0)	ND (0.5)	16.8	1.38	2.48	141	48.0	14.6	167	262	0.511	564
PW-09B	1/4/2006	3.29	ND (0.5)	3.35	0.12	ND (2.0)	2.24	4.04	1.11	3.13	101	35.9	7.44	72.5	81.3	ND (0.5)	508
PW-11B	1/5/2006	4.41	ND (0.5)	3.79	0.256	ND (2.0)	7.14	1.56	ND (0.5)	5.50	122	37.0	6.53	77.3	96.6	0.544	486
PW-12B	1/6/2006	5.43	ND (0.5)	4.88	ND (0.1)	ND (2.0)	31.0	3.25	2.44	3.71	94.4	34.9	11.3	65.3	82.2	0.613	422
PW-13B	1/6/2006	3.45	ND (0.5)	4.27	ND (0.1)	ND (2.0)	1.51	2.18	0.626	3.82	81.2	26.5	6.70	75.9	292	ND (0.5)	583
PW-14B	1/7/2006	3.67	ND (0.5)	6.22	0.168	ND (2.0)	19.6	2.18	0.56	3.25	99.5	29.8	7.96	68.8	87.9	ND (0.5)	391
PW-15B	1/7/2006	3.87	ND (0.5)	5.45	0.296	ND (2.0)	1.64	1.74	ND (0.5)	3.62	111	35.0	8.46	69.3	78.0	ND (0.5)	496

NOTES:

PW = pore water
mg/L = milligrams per liter
ND = not detected at the listed reporting limit
Only primary sample results are shown.

TABLE 3-1
Pore Water Analytical Results, January 2006
Pore Water and Seepage Study
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	ORP (mV)	Specific Conductance (µS/cm)	pH (pH units)
PW-01A	1/4/2006	ND (0.2)	ND (1.0)	-193	976	8.00
PW-01B	1/4/2006	ND (0.2)	ND (1.0)	-169	991	7.87
PW-01C	1/4/2006	ND (0.2)	ND (1.0)	-184	997	7.75
PW-01D	1/4/2006	ND (0.2)	ND (1.0)	-165	1000	7.61
PW-02A	1/4/2006	ND (0.2)	ND (1.0)	-142	1000	7.62
PW-02B	1/4/2006	ND (0.2)	ND (1.0)	-188	988	7.78
PW-02C	1/5/2006	ND (0.2)	ND (1.0)	-158	726	7.15
PW-02D	1/5/2006	ND (0.2)	ND (1.0)	-166	983	7.64
PW-03A	1/5/2006	ND (0.2)	ND (1.0)	-46	1010	7.47
PW-03B	1/5/2006	ND (0.2)	ND (1.0)	-168	981	7.65
PW-03C	1/5/2006	ND (0.2)	ND (1.0)	-178	1000	7.64
PW-03D	1/5/2006	ND (0.2)	ND (1.0)	-202	980	7.81
PW-04A	1/5/2006	ND (0.2)	ND (1.0)	-89	1000	7.49
PW-04B	1/5/2006	ND (0.2)	ND (1.0)	-172	975	7.56
PW-04C	1/5/2006	ND (0.2)	ND (1.0)	-173	947	7.50
PW-04D	1/5/2006	ND (0.2)	ND (1.0)	-170	982	7.56
PW-05A	1/6/2006	ND (0.2)	ND (1.0)	-176	974	7.42
PW-05B	1/6/2006	ND (0.2)	ND (1.0)	-231	987	7.88
PW-05C	1/6/2006	ND (0.2)	ND (1.0)	-215	843	7.83
PW-05D	1/6/2006	ND (0.2)	ND (1.0)	-188	947	7.36
PW-06A	1/6/2006	ND (0.2)	ND (1.0)	-201	2020	7.57
PW-06B	1/6/2006	ND (0.2)	ND (1.0)	-170	1170	7.14
PW-06C	1/6/2006	ND (0.2)	ND (1.0)	-182	1070	7.49
PW-06D	1/6/2006	ND (0.2)	ND (1.0)	-175	957	7.57
PW-07A	1/6/2006	ND (0.2)	ND (1.0)	-167	1740	7.44
PW-07B	1/6/2006	ND (0.2)	ND (1.0)	-173	1080	7.52
PW-07C	1/6/2006	ND (0.2)	ND (1.0)	-163	918	7.37
PW-07D	1/6/2006	ND (0.2)	ND (1.0)	-179	863	7.59
PW-08A	1/7/2006	ND (0.2)	ND (1.0)	-153	5310	7.32
PW-08B	1/7/2006	ND (0.2)	ND (1.0)	-190	1870	7.11

TABLE 3-1
Pore Water Analytical Results, January 2006
Pore Water and Seepage Study
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	ORP (mV)	Specific Conductance (µS/cm)	pH (pH units)
PW-08C	1/7/2006	ND (0.2)	ND (1.0)	-159	1310	7.10
PW-08D	1/7/2006	ND (0.2)	ND (1.0)	-173	1180	7.46
PW-09A	1/4/2006	ND (0.2) J	ND (1.0)	-88	2070	8.96
PW-09B	1/4/2006	ND (0.2)	ND (1.0)	-178	1010	7.48
PW-09C	1/4/2006	ND (0.2) J	ND (1.0)	-121	2360	6.70
PW-09D	1/4/2006	ND (0.2)	ND (1.0)	-215	7610	7.97
PW-10A	1/5/2006	ND (0.2)	ND (1.0)	-176	1020	7.48
PW-10B	1/5/2006	ND (0.2)	ND (1.0)	-161	999	7.66
PW-10C	1/4/2006	ND (0.2)	ND (1.0)	-159	2400	7.35
PW-10D	1/4/2006	ND (0.2)	ND (1.0)	-152	1580	7.47
PW-11A	1/6/2006	ND (0.2)	ND (1.0)	-114	1810	6.88
PW-11B	1/5/2006	ND (0.2)	ND (1.0)	-89	1170	7.13
PW-11C	1/5/2006	ND (0.2)	ND (1.0)	-173	1020	7.67
PW-11D	1/5/2006	ND (0.2)	ND (1.0)	-130	3960	7.14
PW-12A	1/6/2006	ND (0.2)	ND (1.0)	-167	1380	7.15
PW-12B	1/6/2006	ND (0.2)	ND (1.0)	-140	1060	7.32
PW-12C	1/6/2006	ND (0.2)	ND (1.0)	-158	1160	7.43
PW-12D	1/6/2006	ND (0.2)	ND (1.0)	-157	2560	7.13
PW-13A	1/6/2006	ND (0.2)	ND (1.0)	-164	1450	7.53
PW-13B	1/6/2006	ND (0.2)	ND (1.0)	-170	1680	7.53
PW-13C	1/6/2006	ND (0.2)	ND (1.0)	-134	1680	6.95
PW-13D	1/6/2006	ND (0.2)	ND (1.0)	-160	2840	7.27
PW-14A	1/7/2006	ND (0.2)	ND (1.0)	-170	1120	7.81
PW-14B	1/7/2006	ND (0.2)	ND (1.0)	-161	1010	7.56
PW-14C	1/7/2006	ND (0.2)	ND (1.0)	-152	1540	6.99
PW-14D	1/7/2006	ND (0.2)	ND (1.0)	-151	5050	7.45
PW-15A	1/7/2006	ND (0.2)	ND (1.0)	-112	1380	7.11
PW-15B	1/7/2006	ND (0.2)	ND (1.0)	-164	1080	7.60
PW-15C	1/7/2006	ND (0.2)	ND (1.0)	-168	1620	7.29
PW-15D	1/7/2006	ND (0.2)	ND (1.0)	-161	4860	7.16

TABLE 3-1
Pore Water Analytical Results, January 2006
Pore Water and Seepage Study
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	ORP (mV)	Specific Conductance (µS/cm)	pH (pH units)
PW-16A	1/7/2006	ND (0.2)	ND (1.0)	-180	1100	7.44
PW-16B	1/7/2006	ND (0.2)	ND (1.0)	-172	991	7.58
PW-16C	1/7/2006	ND (0.2)	ND (1.0)	-175	1550	7.10
PW-16D	1/7/2006	ND (0.2)	ND (1.0)	-151	2510	7.22

NOTES:

PW = pore water
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter
mV = millivolts
ORP = oxidation-reduction potential (field measurement)
ND = not detected at the listed reporting limit

J indicates the analyte was not detected; the specified detection limit is estimated as 0.2 µg/L and no greater than 1 µg/L

Only primary sample results are shown.

TABLE 3-2
Surface Water Analytical Results, January 2006
Pore Water and Seepage Study
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	ORP (mV)	Specific Conductance (µS/cm)	pH (pH units)
SW-01B	1/4/2006	ND (0.2)	ND (1.0)	64.0	1000	8.15
SW-02B	1/4/2006	ND (0.2)	ND (1.0)	13.0	999	8.16
SW-03B	1/5/2006	ND (0.2)	ND (1.0)	10.0	980	8.12
SW-04B	1/5/2006	ND (0.2)	ND (1.0)	3.00	1000	8.10
SW-05B	1/6/2006	ND (0.2)	ND (1.0)	-83	994	8.12
SW-06B	1/6/2006	ND (0.2)	ND (1.0)	-111	992	8.11
SW-07B	1/6/2006	ND (0.2)	ND (1.0)	-110	1000	7.96
SW-08B	1/7/2006	ND (0.2)	ND (1.0)	-115	995	8.20
SW-09B	1/4/2006	ND (0.2)	ND (1.0)	-108	1010	8.11
SW-10B	1/5/2006	ND (0.2)	ND (1.0)	192	1000	8.06
SW-11B	1/5/2006	ND (0.2)	ND (1.0)	72.0	1000	8.13
SW-12B	1/6/2006	ND (0.2)	ND (1.0)	66.0	999	8.16
SW-13B	1/6/2006	ND (0.2)	ND (1.0)	69.0	1000	8.09
SW-14B	1/7/2006	ND (0.2)	ND (1.0)	18.0	998	8.16
SW-15B	1/7/2006	ND (0.2)	ND (1.0)	-1.0	1000	8.14
SW-16B	1/7/2006	ND (0.2)	ND (1.0)	-109	1010	7.79

NOTES:

SW = surface water
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter
mV = millivolts
ORP = oxidation-reduction potential (field measurement)
ND = not detected at the listed reporting limit

Only primary sample results are shown.

Figures

N

0 2,000 4,000 Feet

1 inch equals 2,000 feet

Map Source: USGS 7.5 minute quads Topock AZ, and Whale Mountain CA.

Upstream Study Area

Downstream Study Area

PG&E Topock Compressor Station

FIGURE 1-1
SITE LOCATION AND STUDY AREA

PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

N

0 1,200 2,400 Feet

LEGEND

Approximate limits of hexavalent chromium greater than 50 ppb in Alluvial Aquifer, March 2005

PS-03B TidbiT® and Sediment Sampling Locations

PS-3B

PS-5B

PS-7B

PS-8B

PS-9B

PS-11B

PS-12B

PS-13B

PS-14B

PS-15B

Park Moabi

PG&E Parcel No. 650-151-08

Colorado River

Topock Marsh

Topock Marina

50 ppb

MW-34 Cluster

BN & SF RAILROAD

INTERSTATE 40

BAT CAVE WASH

NEW EVAPORATION PONDS

TOPOCK COMPRESSOR STATION

PG&E

FORMER EVAPORATION POND SITE

DEBRIS RAVINE

FIGURE 2-1
TIDBIT® AND RIVER SEDIMENT SAMPLING LOCATIONS
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

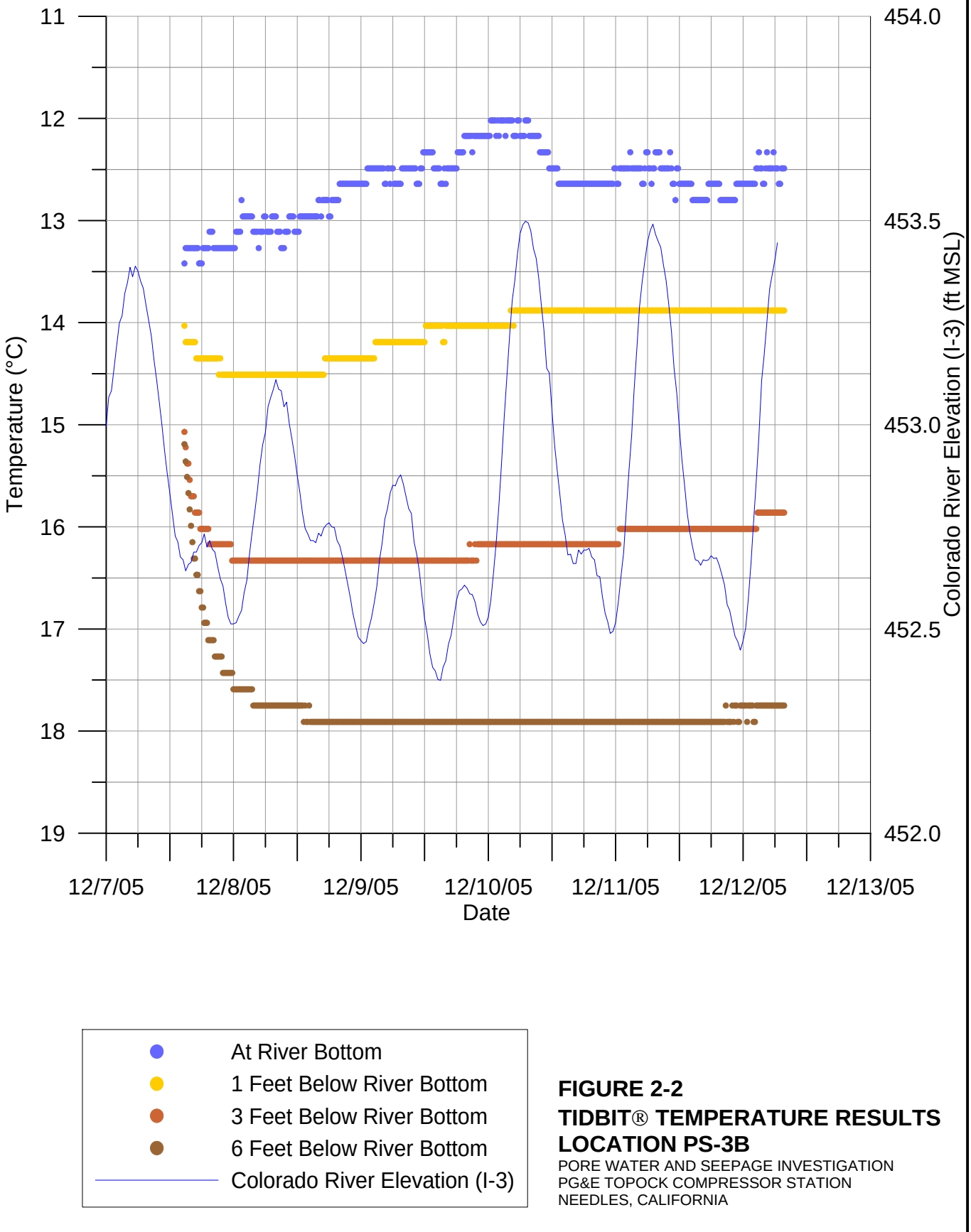


FIGURE 2-2
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-3B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

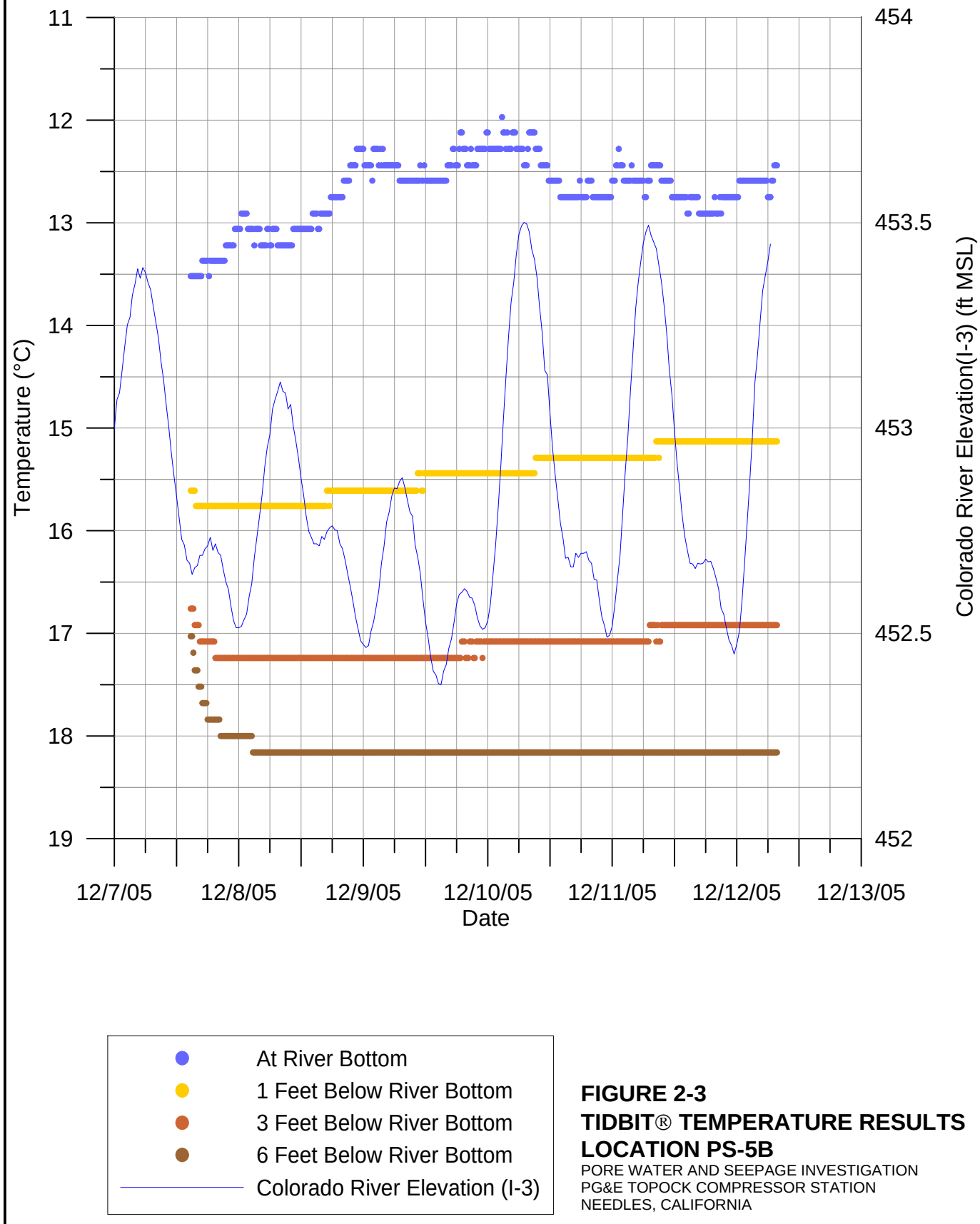


FIGURE 2-3
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-5B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

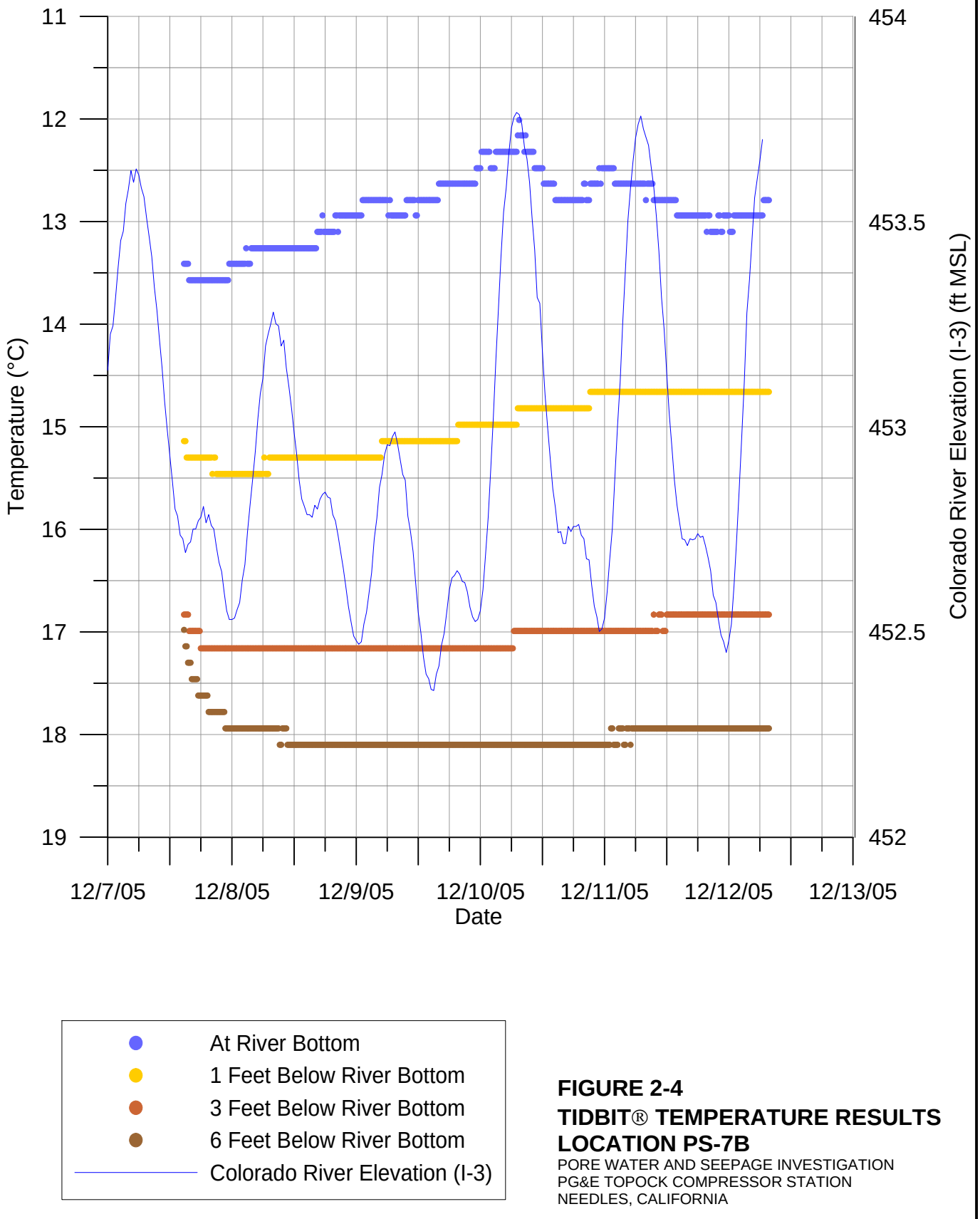


FIGURE 2-4
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-7B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

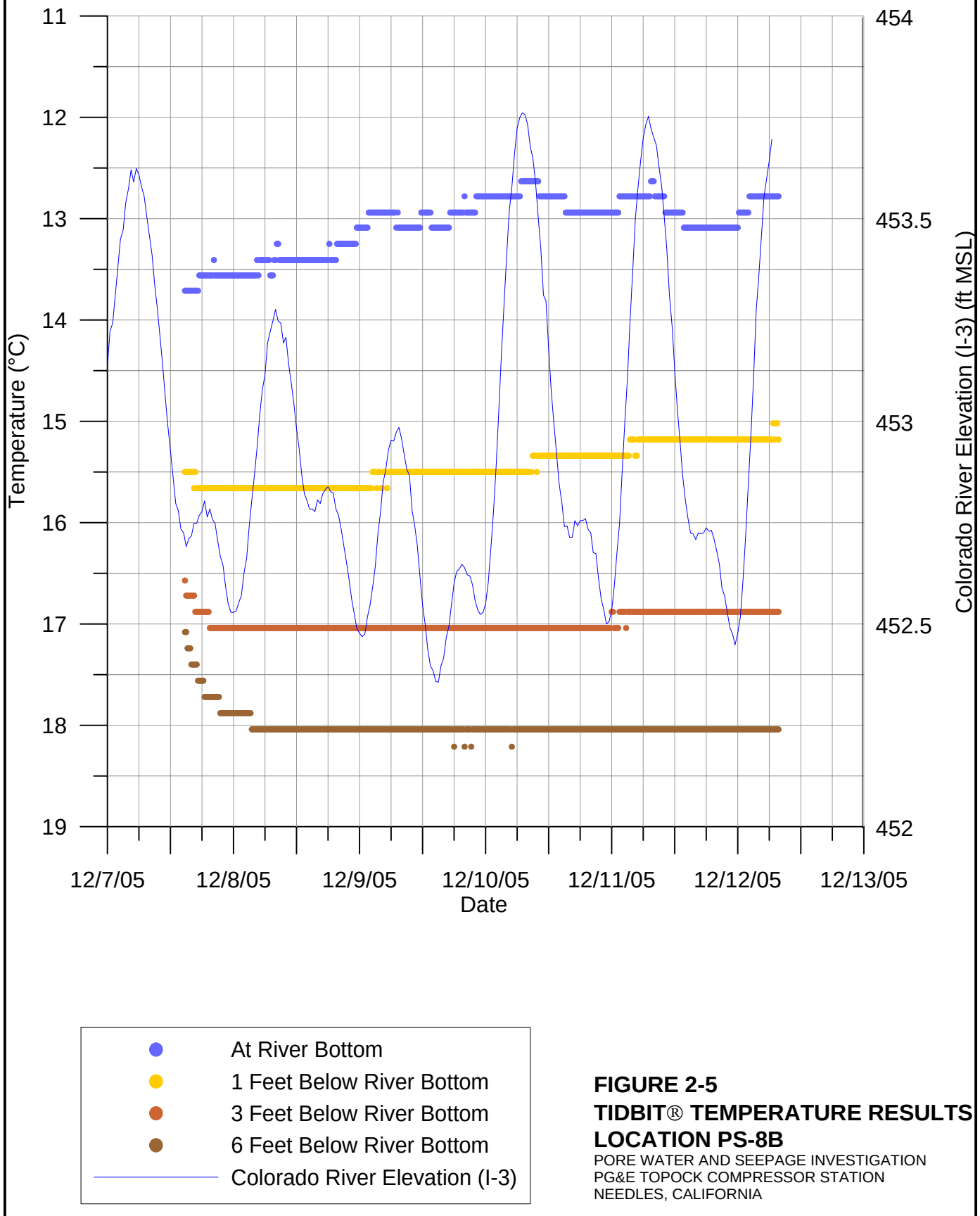
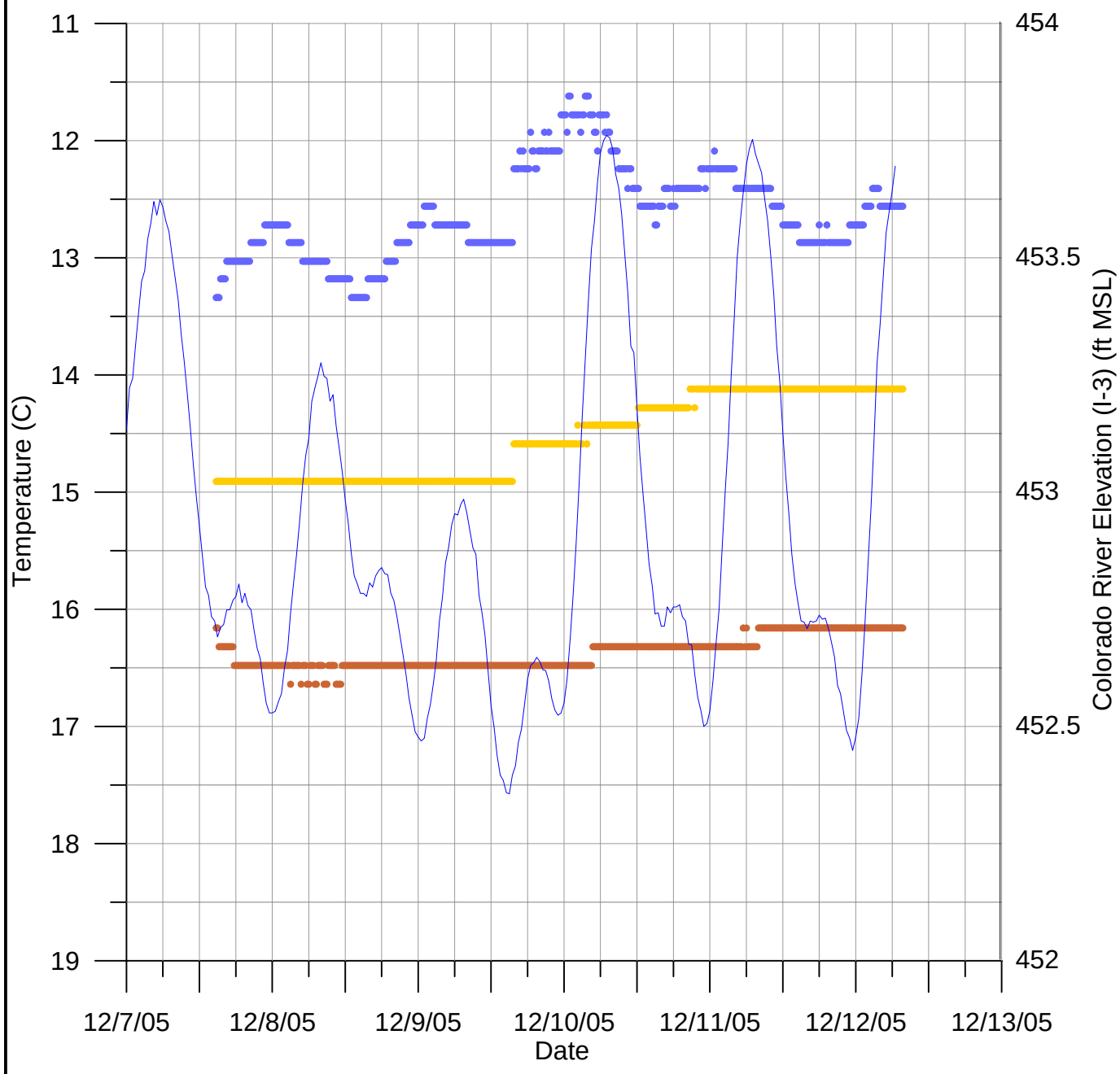


FIGURE 2-5
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-8B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL



Note: PS-9B TidbiT at 6-ft depth was damaged upon retreival.

- At River Bottom
- 1 Feet Below River Bottom
- 3 Feet Below River Bottom
- 6 Feet Below River Bottom
- Colorado River Elevation (I-3)

FIGURE 2-6
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-9B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

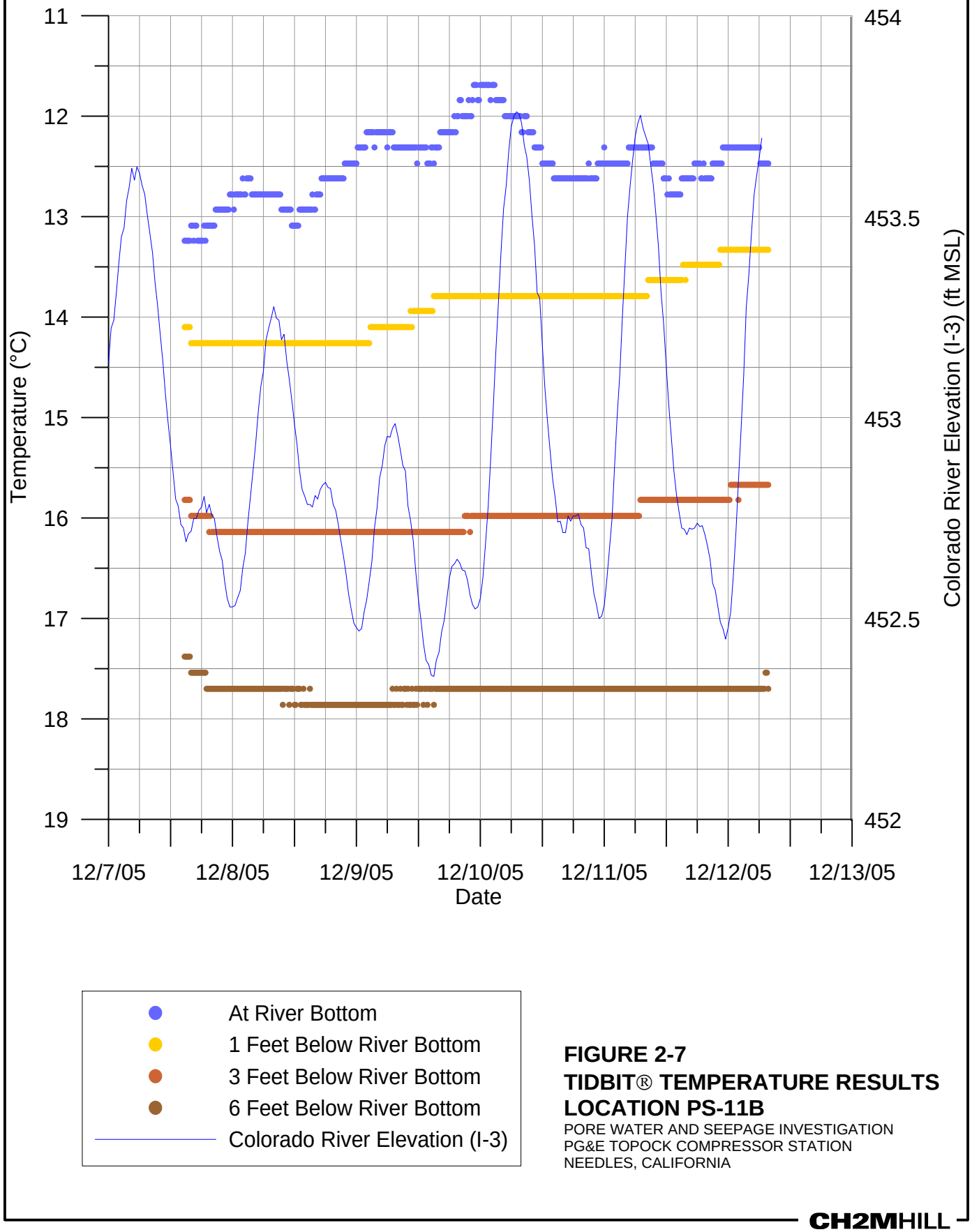


FIGURE 2-7
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-11B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

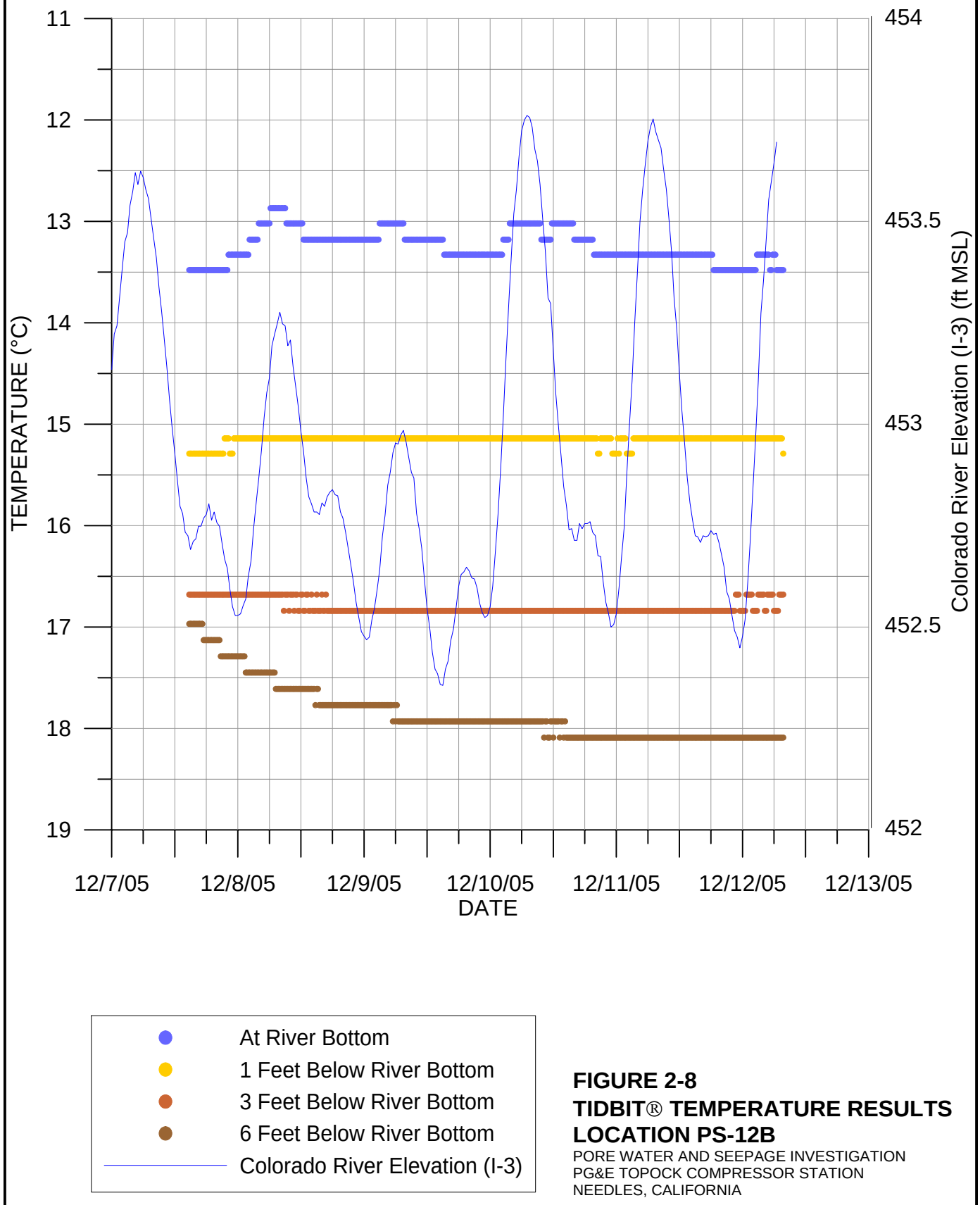


FIGURE 2-8
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-12B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

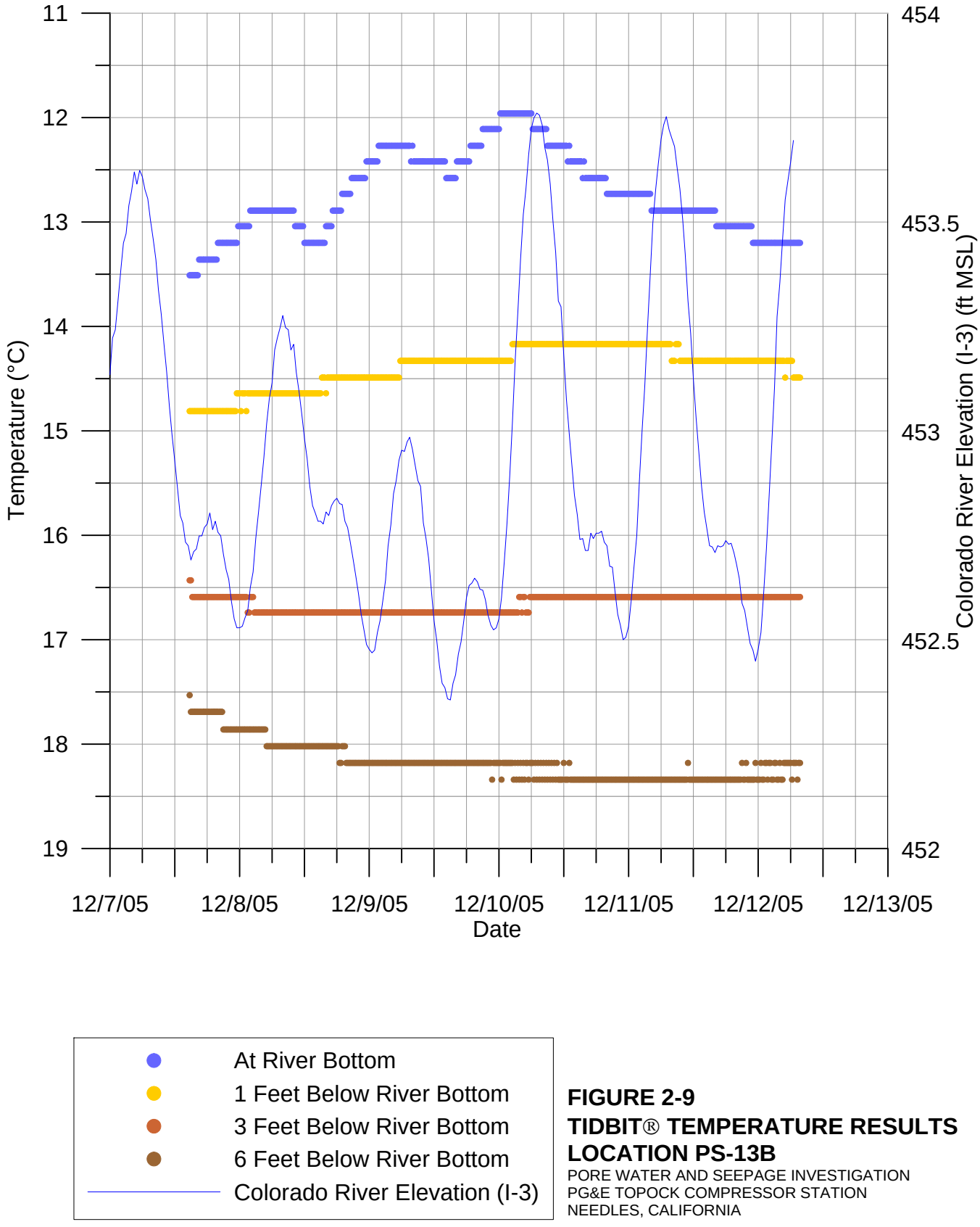


FIGURE 2-9
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-13B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

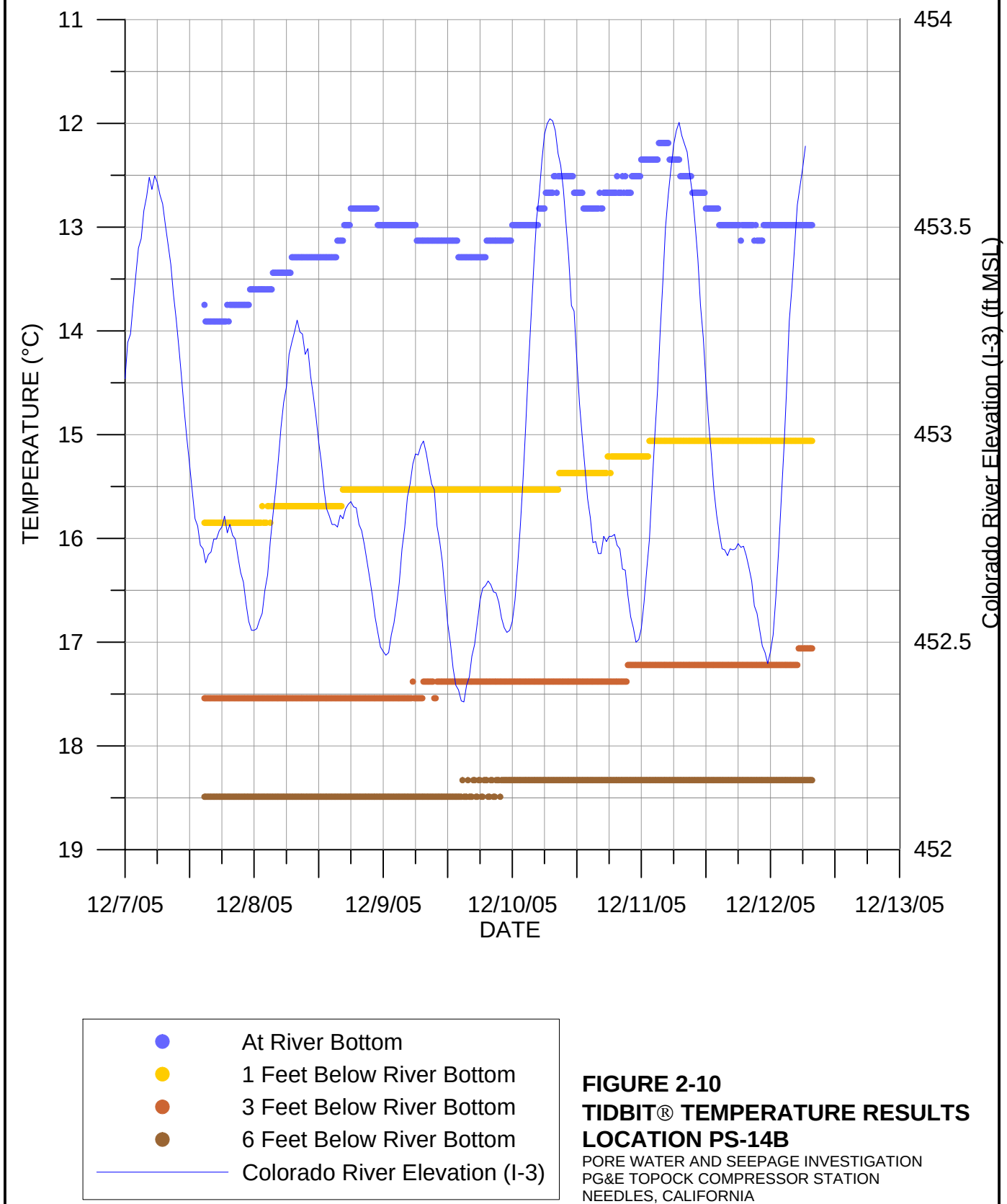


FIGURE 2-10
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-14B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

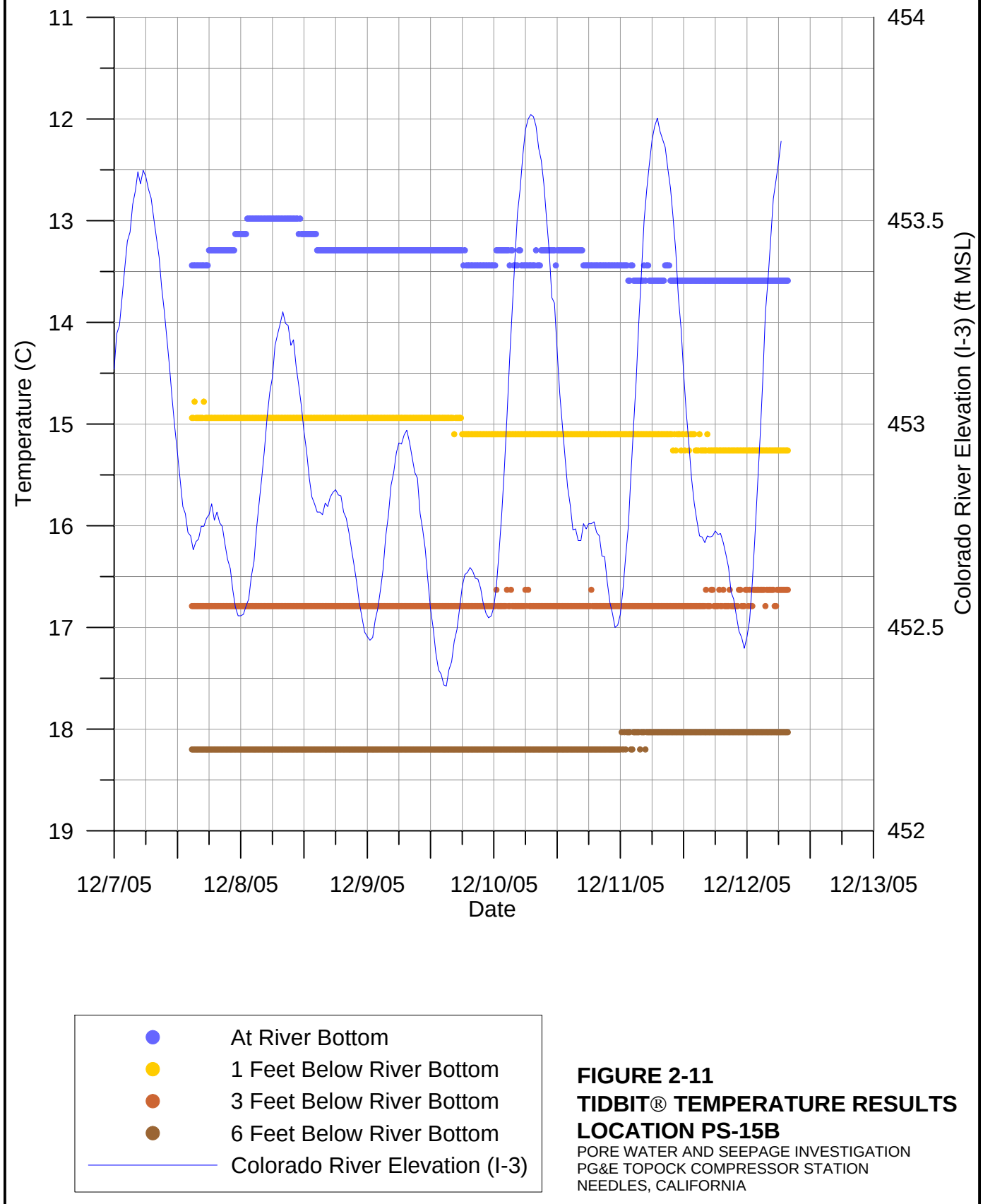


FIGURE 2-11
TIDBIT® TEMPERATURE RESULTS
LOCATION PS-15B
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

N

0 1,200 2,400 Feet

LEGEND

- Approximate limits of hexavalent chromium greater than 50 ppb in Alluvial Aquifer, March 2005
- Pore water sampling transects
- Pore Water & Surface Water Sampling Location
- Pore Water Sampling Location

Notes:
1. The river bottom at locations PW-03A and PW-13A had rocks and debris. Locations were offset.
2. GPS readings along transects PW-10 and PW-11were inaccurate due to interference from bridges.

PW-01
PW-02
PW-03
PW-04
PW-05
PW-06
PW-07
PW-08
PW-09
PW-10
PW-11
PW-12
PW-13
PW-14
PW-15
PW-16

Park - Moabi
PG&E Parcel No. 650-151-08
Colorado River
Topock Marsh
50 ppb
MW-34 Cluster
Topock Marina
BN & SF RAILROAD
INTERSTATE 40
BAT CAVE WASH
NEW EVAPORATION PONDS
TOPOCK COMPRESSOR STATION
PG&E
FORMER EVAPORATION POND SITE
DEBRIS RAVINE

FIGURE 3-1
PORE WATER & SURFACE WATER SAMPLING LOCATION
PORE WATER AND SEEPAGE INVESTIGATION
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

Appendix A
Technical Information on TidbiTs®

StowAway® TidbiT®

$119

Small size: approx.
3.0 x 4.1 x 1.7 cm thick
(1.2 x 1.6 x 0.65"); 23 gm (0.8 oz)

The StowAway TidbiT is Onset's smallest data logger and is widely used for monitoring temperatures in streams, lakes and oceans. Small size, rugged case and alarm indication also make this a popular choice for monitoring conditions during shipment.

Key Specifications

Ideal for underwater applications up to 30° C

StowAway TidbiT: -5°to 37°C model:

Range†: -4° to 37°C (24° to 99°F)
Accuracy: ±0.2° at 20°C (±0.4° at 70°F)
Resolution: 0.16° at 20°C (0.29° at 70°F)

StowAway TidbiT: -20°to 50°C model:

Range†: -20° to 50°C (-4° to 122°F)
Accuracy: ±0.4°at 20°C (±0.8° at 70°F)
Resolution: 0.3°C at 20°C (0.6° at 70°F)

Capacity: 32,520 measurements

† *Specified range is narrower than nominal range due to precision calibration process. Using TidbiT Temp loggers in wet environments (>90% RH) over 86°F (30°C) for extended periods of more than 8 weeks cumulative may lead to premature failure. For applications over 30°C, use the HOBO Water Temp Pro (pg 14).*
Note: For Onset's lowest cost underwater temperature monitoring solutions, use the HOBO H8 Temp (pg. 4) in combination with a waterproof submersible subcase (pg. 20) or see Water Temp Pro (pg. 14)

Features and Specifications

Waterproof to 300 m (1000 feet)
IR communications and Optic Shuttle for readout when wet—even underwater!
Programmable start time/date or triggered start on location with Optic Coupler or magnet
Small Size and Alarm Indication
5-year, non-replaceable battery (typical use*)
NIST-traceable temperature accuracy certificate available
Multiple sampling with minimum, maximum or averaging
Mounting tab
Time accuracy: ±1 minute per week at 20°C (68°F)
Memory modes: Stop when full, Wrap-around when full
Response time in water: 5 minutes (typical to 90%)
Response time in air moving 1m/second: 20 minutes

** 16 three-month deployments in water (35° to 80°F) with 4 minute or longer intervals (no multiple sampling)*

Optic Shuttle™

Size/Weight: 132 x 20 x 25 mm
(5.2 long x 0.8 tall x 1.0" thick)
without coupler; 28.35 g (1 oz)

$199

The pocket-sized Optic Shuttle provides a convenient way to readout and relaunch TidbiT data loggers and bring the data back to your host PC.

Features and Specifications

Waterproof to 15 psi (30 feet)
128K capacity enough for 4 full 32K loggers
Data offload time from logger: 6 minutes typical from 32K logger
Data readout time to PC: 3 minutes typical for complete offload
TidbiT Coupler and Optic Coupler included
Uploads the same data to a PC as if the data were read out directly from the logger
6 year factory-replaceable battery (typical)

Optic Base Station™

$80 to $120

Size/Weight: 132 x 20 x 25 mm
(5.25 long x 0.8 tall x .95" thick)
without coupler; 56.7 g (2 oz)

The Optic Base Station is used to communicate between the host computer** and either a StowAway TidbiT data logger or an Optic Shuttle. An Optic Coupler and TidbiT Coupler for connecting the base station to loggers are also included.

*** A battery-powered version of the Optic Base Station is available (part #DSB) for palmtop and portable computers.*

StowAway TidbiT Ordering

Description	Part No.	Qty. 1-9	10-99	100+
32K StowAway TidbiT				
(-5° to 37°C)	TBI32-05+37	$119	$110	$101
(-20° to 50°C)	TBI32-20+50	$119	$110	$101
Optic Base Station for TidbiT	DSA	$80	$74	$68
Battery-powered Optic Base Station	DSB	$120	$111	$102
Optic Shuttle for TidbiT	DTA128B	$199	$183	$169
Software				
BoxCar Pro 4.3 Starter Kit (Windows)	BCP4.3-ON	$95	$88	$81
BoxCar 3.7 Starter Kit (Windows)	BC3.7-ON	$14	$13	$12

Note: A BoxCar Pro 4.3 or BoxCar 3.7 starter kit and an Optic Base Station are required to operate the TidbiT loggers. Each starter kit includes software, computer interface cable and software manual. The Optic Base Station includes an Optic Base Station, Optic Coupler and TidbiT Coupler. See pages 31-33 for software information. Use with USB port requires USB-Serial Adapter (pg 33) and BoxCar Pro 4.3+.

CE Compliant with all relevant directives in the European Union (EU)

Appendix B
Sediment Sampling Field Forms and Chain of Custody Forms

Topock Sediment Sampling Log

Project Name PG&E Topock Project - Pore Water Study
Job Number 332663.A1.09.01
Field Team Brad Shepard, David Spencer Johnson, Thomas
Field Conditions Sunny, Windy ~55°F
Sampling Event 2005-PWS-001
Date 12/8/05
Page 1 **Of** 1

Sample ID	Sample Location	Sample Tme	GPS Cordinates	Matrix	Sample Type	Sample Method	Sample Depth Below River Bottom		River Water Depth	Comments [1]
							Top	Bottom		
PS-03B-001	PS-03B	15:44	2108462N, 7608250E	Sediment	N	Vibracore tubing	6"	30"	8'	Clean sand (SP)
PS-05B-001	PS-05B	14:38	2107009N, 7611295E	Sediment	N	Vibracore tubing	6"	30"	8'	Some darker material
PS-07B-001	PS-07B	12:58	2105689N, 7614248E	Sediment	N	"	6"	24"	9'	Lost bottom 6"
PS-08B-001	PS-08B	16:28	2104526N, 7615866E	Sediment	N	"	6"	30"	6'	Clean Sand (Lost bottom 6")
PS-09B-001	PS-09B	16:10	2102614N, 7616876E	Sediment	N	"	6"	30"	7'	Clean Sand
PS-11B-001	PS-11B	15:47	2101751N, 7617174E	Sediment	N	"	6"	30"	9'	Clean Sand
PS-12B-001	PS-12B	14:38	2101112N, 7617571E	Sediment	N	"	6"	30"	8'	Clean Sand lost bottom 6"
PS-13B-001	PS-13B	12:55	2100982N, 7618728E	Sediment	N	"	6"	30"	11'	Dark Sand
PS-14B-001	PS-14B	11:55	2101011N, 7619572E	Sediment	N	"	6"	30"	5'	Dark Sand
PS-15B-001	PS-15B	10:45	2100919N, 7620521E	Sediment	N	"	6"	30"	6'	Darker Sand

[1] Comments: sediment name, color, particle size, moisture, density, recovery information
Sediment name: ASTM D2488 Group name with appropriate modifiers. Example: Poorly-graded sand.

Sample Type: N = normal
FD = field duplicate
EB = equipment blank
IDW = investigation derived waste

Date Printed:11/30/2005

Columbia Analytical Services
5090 Caterpillar Rd
Redding, CA 96003
Bryan Jones 530-244-5227

CHAIN OF CUSTODY RECORD

[2005-PWS-001]

COC Number

TURNAROUND TIME 10 Days

DATE 12/13/05 PAGE 1 OF 1

COMPANY CH2M HILL

PROJECT NAME PG&E Topock

PHONE (510) 251-2888 FAX (510) 622-9025

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.09.01

SAMPLERS (SIGNATURE) Brad Shaw

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Particle Size/Hydrometer analysis (ASTM E422)	TOC (Walkley Black)	Acid Volatile Sulfides (AVS)	NUMBER OF CONTAINERS	COMMENTS
PS-07B-001	12/5/05	13:58	Sediment	X	X	X	1	V. Lacore bag
PS-05B-001	"	14:38	Sediment	X	X	X	1	"
PS-03B-001	"	15:44	Sediment	X	X	X	1	"
PS-03B-001	"	16:25	Sediment	X	X	X	1	"
			Sediment					
			Sediment					
			Sediment					
			Sediment					
			Sediment					

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) Brad Shaw	Brad Shaw	CH2M HILL	12/13/05
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

Columbia Analytical Services
5090 Caterpillar Rd
Redding, CA 96003
Bryan Jones 530-244-5227

CHAIN OF CUSTODY RECORD

[2005-PWS-001]

COC Number

TURNAROUND TIME 10 Days

DATE 12/19/05 PAGE 1 OF 1

COMPANY CH2M HILL

PROJECT NAME PG&E Topock

PHONE (510) 251-2888 FAX (510) 622-9025

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.09.01

SAMPLERS (SIGNATURE) Brad Sherman

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Particle Size/Hydrometer analysis (ASTM E422)	TOC (Walkley Black)	Acid Volatile Sulfides (AVS)	NUMBER OF CONTAINERS	COMMENTS
PS-15B-001	12/19/05	10:45	Sediment	X	X	X	1	Vibracore bag
PS-14B-001	"	11:55	Sediment	X	X	X	1	"
PS-13B-001	"	12:55	Sediment	X	X	X	1	"
PS-12B-001	"	14:35	Sediment	X	X	X	1	"
PS-11B-001	"	15:17	Sediment	X	X	X	1	"
PS-09B-001	↓	16:10	Sediment	X	X	X	1	"
			Sediment					
			Sediment					
			Sediment					

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Relinquished	Brad Sherman	Brad Sherman	CH2M Hill	
Received				
Relinquished				
Received				
Relinquished				
Received				

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

Appendix C
Standard Operating Procedures

SOP-A12 Modified

Depth-Specific River Water Sampling
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure (SOP) addresses the procedures and equipment to be used for river channel surface water sampling on the Colorado River at the Topock site.

REQUIRED DOCUMENTS

1) Planned Sample Table (PST).
2) Applicable project work plan or monitoring plan. Refer to Topock Program Sampling, Analysis, and Field Procedures Manual and QAPP (Field Procedures Manual), as required.
3) Topock Program Health and Safety Plan (HSP).
4) Database generated sampling logs and field notebook.

PREPARATION & SETUP

1) Review PST or event-specific field instructions, Field Procedures Manual, and HSP.
2) Initiate field logbook for sampling activity.
3) Inspect all equipment and calibrate field water quality (WQ) meters according to SOP-A9, *Calibration of Field Instruments*.
4) Inventory sample bottles, required analyses, and confirm the lab courier schedule.
5) Field-check and set up sampling equipment: WQ meters, health and safety apparatuses (life vest, rescue rope, life preserver), water depth-finders (provided by boat subcontractor), peristaltic pumps, filters, sufficient tygon and silicone tubing, polypropylene rope, sampling equipment, etc.

SAMPLING PROCEDURES

6) Prepare Topock pore water sampling log (use attached form).
7) The sampling team will travel to each intake sampling location in a motorized boat. A safety inspection of the boat will be performed by the field crew prior to boarding (check for fire extinguisher, etc.). One surface water sample will be collected from each transect.
8) Collect an equipment blank sample prior to sampling by running deionized water through a new segment of tubing. Equipment blanks should be collected at a minimum daily by each team/boat.
9) An industry standard (Trimble or similar) resource grade handheld DGPS unit (GeoXT or similar) will be used with real-time correction (wide area augmentation system) to locate the river channel sampling stations within a 1 meter radius (68% of the time,

commonly referred to 1 sigma accuracy). If the boat has an obstruction (such as a metal roof), install an antennae to receive a good signal from the satellites.

10) At each location, the 10 foot spuds on the sides of the Boston Whaler should be lowered to anchor the boat in place. If unable to set spuds due to deep water conditions, the boat operator should keep the vessel stationary with the engine while sampling. Record the GPS coordinates on the sampling log. In the event a sampling location is too shallow to safely approach by boat, the next closest location with adequate depth will be sampled and a remark noted on the sampling log with the new GPS coordinates.

11) Record the depth of the river at each sampling location using the depth-finder or a weighted tape. If a weighted tape is used, read the tape at the river water surface when the weight touches the river floor. Record river depth on the sample log.

12) Samples will be collected from the location and concurrent with the pore water sample (see SOP for pore water sampling). Record the sampled depth on the sample log.

13) Samples are to be collected using a variable-speed peristaltic pump with ¾-inch tygon tubing attached to a weighted polypropylene rope (Attachment A) and a segment of silicone tubing for use in the peristaltic pump. Dedicated tubing will be used at each sample location. For each sampling location, pre-cut the piece of tygon tubing and attach it to the rope so that the intake is at the proper sampling depth. Lower the weighted rope and tubing until the weight touches the river bottom and the tubing intake is at the correct depth. Confirm river depth using the depth-finder or weighted tape.

14) Attach the discharge end of the sample tubing to the flow cell of the water quality meter. Start the peristaltic pump and allow the flow cell to fill and the water to equilibrate for approximately 3 minutes, or until the temperature readings remain stable for 30 seconds (+/- 1 °C).

15) Record the time, pH, conductivity, turbidity, dissolved oxygen, temperature, salinity, TDS, and ORP on the sample log. Note and provide qualifying remarks if parameter readings are anomalous or unstable due to an instrument problem.

16) Turn off the peristaltic pump, remove tubing from the flow cell, and restart the pump. Attach a 0.45 micron filter when sampling for Cr(T) by USEPA Method 6010B or for Cr(VI) by USEPA Method 7199. Refer to SOP-A6 in the Field Procedures Manual for filtration procedures. Pump approximately 500 ml through the system and begin filling the applicable sample bottles. Preserve the samples according to their methods. Ensure that the samples do not contact any source of metal. Place the samples on ice immediately after collection. Record all sample information on the field log.

17) Collect remaining samples for analyses according to the PST. Use a new piece of tygon tubing and change out the flexible silicone tubing in the peristaltic pump for each sample location.

18) Follow the Field Procedures Manual for sample handling and management, equipment decontamination, and investigation-derived waste (IDW) management.

Project Name PG&E Topock Project **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 **Date**

Field Team 1 Field Conditions Page Of

Flow Cell : Y / N Horiba Meter Serial No. Turbidity Meter Serial No.

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. ºC	Salinity %	TDS g/L	Eh/ORP mv	Comments
SW-01B-002													
SW-01B-002													
SW-01B-002													
SW-01B-002													
SW-01B-002													
SW-01B GPS Coordinates:													
SW-02B-002													
SW-02B-002													
SW-02B-002													
SW-02B-002													
SW-02B-002													
SW-02B GPS Coordinates:													
SW-03B-002													
SW-03B-002													
SW-03B-002													
SW-03B-002													
SW-03B-002													
SW-03B GPS Coordinates:													
SW-04B-002													
SW-04B-002													
SW-04B-002													
SW-04B-002													
SW-04B-002													
SW-04B GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

SOP-A14

Pore Water Sampling
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure (SOP) addresses the procedures and equipment to be used for pore water sampling at the Topock site. This SOP should be used for pore water sampling stations on the Colorado River.

REQUIRED DOCUMENTS

1) Event-specific sampling and analysis plan (SAP).
2) Pore Water and Seepage Study Work Plan. Refer to Topock Program Sampling, Analysis, and Field Procedures Manual and QAPP (Field Procedures Manual), as required.
3) Topock Program Health and Safety Plan (HSP).
4) Blank sampling logs and field notebook.

PREPARATION & SETUP

1) Review event-specific SAP or event-specific field instructions, Work Plan, and HSP.
2) Initiate field logbook for sampling activity.
3) Inspect all equipment and calibrate field water quality (WQ) meters according to SOP-A9, *Calibration of Field Instruments*.
4) Inventory sample bottles, required analyses, and confirm the lab courier schedule.
5) Field-check and set up sampling equipment: drive point sampler, WQ meters, health and safety apparatuses (life vest, rescue rope, life preserver), water depth meter or depth-finder, weighted tape, peristaltic pump, filters, sufficient tygon and silicone tubing, sampling equipment, etc.
6) Conduct tailgate meeting to discuss health and safety issues and event objectives.

SAMPLING PROCEDURES

1) Prepare pore water sampling log (use attached form).
2) The sampling team will travel to each pore water sampling station in a motorized boat. A safety inspection of the boat will be performed by the field crew prior to boarding (check for fire extinguisher, etc.). Samples will be collected from selected stations along transects across the river.
3) An industry standard (Trimble or similar) resource grade handheld DGPS unit (GeoXT or similar) will be used with real-time correction (wide area augmentation system) to locate the sampling stations within a 1 meter radius (68% of the time, commonly referred to 1 sigma accuracy). At each location, two anchors should be positioned upstream at

least 10 feet from each other (refer to SOP A-12 Attachment A). Record the GPS coordinates on the sampling log. In the event a sampling station is too shallow to safely approach by boat, the next closest location with adequate depth will be sampled and a remark noted on the sampling log with the new GPS coordinates.

4) Record the depth of the river at each sampling station using the depth-finder or a weighted tape. If a weighted tape is used, read the tape at the river water surface when the weight touches the river floor. Record river depth on the sample log.

5) Samples will be collected at a depth below the river bottom determined from the pilot study.

6) Samples are to be collected using a drive point sampler and variable-speed peristaltic pump with ¾-inch tygon tubing. Dedicated tubing will be used for each sample. Once the sampling depths have been calculated for each station, pre-cut two pieces of tygon tubing and attach them to the drive point sampler. Lower the sampler and tubing until the tip of the sampler touches the river bottom. Then hand-drive the sampler into the river sediment until desired depth is achieved. Attach the discharge end of the sample tubing to the flow cell of the water quality meter. Start the peristaltic pump and purge 3 sampler volumes. Record the time, pH, conductivity, turbidity, dissolved oxygen, temperature, salinity, TDS, and ORP on the field log. Note and provide qualifying remarks if parameter readings are anomalous or unstable due to an instrument problem. Turn off the peristaltic pump, remove tubing from the flow cell, and restart the pump. Attach a 0.45 micron filter when sampling for Cr(T) by USEPA Method 6010B or for Cr(VI) by USEPA Method 7199. Refer to SOP-A6 in the Field Procedures Manual for filtration procedures. Pump approximately 500 ml through the system and begin filling the applicable sample bottles. Remove the filter prior to filling sample bottles for the other analyses, which do not require filtration. Record all sample information on the field log.

7) Collect remaining samples for analyses according to the event-specific SAP. Use a new piece of tygon tubing and change out the flexible silicone tubing in the peristaltic pump at each location.

8) Follow the Field Procedures Manual for sample handling and management, equipment decontamination, and investigation-derived waste (IDW) management.

9) Decontaminate the sampling apparatus after each sample is collected. The decontamination will be a triple rinse with 5-gallon buckets containing soapy water, potable water, and deionized (DI) water, respectively. First, the apparatus will be placed in the soapy water and the outside scrubbed. Then pump approximately 3 sampler volumes through the apparatus using the peristaltic pump and dedicated tubing used. Re-circulate the water back into the 5-gallon bucket. Repeat the rinse with the potable and deionized water.

10) Collect an equipment rinse blank after the first decontamination of the day. Collect the sample by attaching the decontaminated sampling apparatus to a length of clean peristaltic tubing. Run deionized water through the sampler and collect a sample to be shipped to the analytic laboratory for hexavalent chromium analysis.

Project Name PG&E Topock Project **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 **Date**

Field Team 1 Field Conditions Page Of

Flow Cell : Y / N Horiba Meter Serial No. Turbidity Meter Serial No.

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. ºC	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-01A-002													
PW-01A-002													
PW-01A-002													
PW-01A-002													
PW-01A-002													
PW-01A GPS Coordinates:													
PW-01B-002													
PW-01B-002													
PW-01B-002													
PW-01B-002													
PW-01B-002													
PW-01B GPS Coordinates:													
PW-01C-002													
PW-01C-002													
PW-01C-002													
PW-01C-002													
PW-01C-002													
PW-01C GPS Coordinates:													
PW-01D-002													
PW-01D-002													
PW-01D-002													
PW-01D-002													
PW-01D-002													
PW-01D GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

SOP-A15

TidbiT® Deployment and Retrieval
Standard Operating Procedures for PG&E Topock Program

This standard operating procedure (SOP) addresses the procedures and equipment to be used for TidbiT® deployment and retrieval at the Topock site. This SOP should be used for TidbiT® deployment and retrieval on the Colorado River.

REQUIRED DOCUMENTS

1) Pore Water and Seepage Study Work Plan.
2) Topock Program Health and Safety Plan (HSP).
3) Field notebook.

PREPARATION & SETUP

1) Review event-specific SAP or event-specific field instructions, Work Plan, and HSP.
2) Initiate field logbook for field activity.
3) Inspect all equipment.
4) Field-check and set up sampling equipment: trash pump, TidbiT® sensors and retrieval cable, health and safety apparatuses (life vest, rescue rope, life preserver), water depth meter or depth-finder, weighted tape, 20 feet of 1.5" PVC pipe, etc.
5) Conduct tailgate meeting to discuss health and safety issues and event objectives.

DEPLOYMENT PROCEDURES

1) The team will travel to each TidbiT® station in a motorized boat. A safety inspection of the boat will be performed by the field crew prior to boarding (check for fire extinguisher, etc.). TidbiT® sensors will be deployed at five locations at depths of 1, 3 and 6 feet below the river bottom.
2) An industry standard (Trimble or similar) resource grade handheld DGPS unit (GeoXT or similar) will be used with real-time correction (wide area augmentation system) to locate the TidBiT® stations within a 1 meter radius (68% of the time, commonly referred to 1 sigma accuracy). At each location, two anchors should be positioned upstream at least 10 feet from each other to ensure the boat remains stationary (refer to SOP A-12 Attachment A). Record the GPS coordinates in the log book.
3) Record the depth of the river at each sampling station using the depth-finder or a weighted tape. If a weighted tape is used, read the tape at the river water surface when the weight touches the river floor. Record river depth on the sample log.
4) At each location TidbiT® devices will be deployed at a depth of 1, 3 and 6 feet below the river bottom. String three TidbiT® sensors together with 2' of cable in between each

sensor. Attach 3′ of cable with a 1′ looped end at the top sensor to a small floatation piece that will be at the surface of the river bottom after deployment.

5) Connect appropriate length of PVC pipe to trash pump hose (depth of river + 6′ deployment depth). Leave enough length above river surface to manipulate pipe.

6) Lower pipe end to river bottom at designated location for TidbiT® deployment. Turn on trash pump. Slowly jet and lower the pipe into river bottom to the desired depth. Surging pipe up and down may be required to achieve desired depth.

7) Confirm depth with a weighted tape down the pipe.

8) When appropriate depth is achieved, lower the TidbiT® sensors and retrieval cable down the pipe.

9) Extract the pipe by pulling back to the surface. Additional water jetting may be required to loosen sediments around the pipe.

RETRIEVAL PROCEDURES

1) Navigate to TidbiT® location using a GPS unit.

2) Use a 15′ hooked-end pole to catch the looped end for the TidbiT® string. Several passes maybe required.

3) Once the loop has been hooked, pull the TidbiT® string out of the river bottom. An onboard pulley maybe required to extract the TidbiTs®. If the TidbiT® string cannot be pulled to the surface, it may be necessary to jet a pipe along the string to the required depth to facilitate removal.

4) Label the TidbiTs® with location and depth upon bringing onboard. Return to the office trailer and download the data from TidbiTs® onto the computer.

Appendix D
Pore Water Sampling Field Forms and Chain of Custody Forms

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 1
Field Conditions SUNNY, WINDY

Sampling Event 2006-PWS-002
Date 1/4/2006
Page _____ Of _____

Flow Cell (Y) / N
Horiba Meter Serial No. C100876
Turbidity Meter Serial No. PGE 2005-018

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-01A-002	1/4/06	1113	6'	0	8.19	1.24	999	7.10	15.28	0.05	0.7	-194	
PW-01A-002	1/4/06	1114	6'	0.5L	8.45	1.16	217	4.97	16.09	0.05	0.7	-196	
PW-01A-002	1/4/06	1115	6'	1.0L	8.53	1.16	134	4.63	15.97	0.05	0.7	-196	
PW-01A-002	1/4/06	1116	6'	1.5L	8.57	1.16	45.9	4.80	15.92	0.05	0.7	-195	
PW-01A-002	1/4/06	1117	6'	2.0L	8.58	1.17	26.2	4.52	15.82	0.05	0.7	-193	
PW-01A GPS Coordinates: N 2109460 E 7607010													
PW-01B-002	1232 grab	1/4/06	6'	0.7L	8.68	0.939	24.5	6.50	16.37	0.04	0.60	-173	
PW-01B-002	1234	1/4/06	6'	1.7L	8.70	0.925	9.6	6.31	16.22	0.05	0.70	-171	
PW-01B-002	1/4/06	1236	6'	2.7L	8.69	0.936	6.3	5.38	16.19	0.04	0.60	-170	
PW-01B-002	1/4/06	1238	6'	3.7L	8.69	0.934	3.3	4.89	16.12	0.04	0.58	-175	
PW-01B-002	1/4/06	1240	6'	4.7L	8.68	0.938	4.2	5.25	16.11	0.04	0.60	-169	
PW-01B GPS Coordinates: N 2109530 E 7607065													
PW-01C-002	1/4/06	1422	6'	0	8.53	0.947	5.0	~~4.06~~ ~~32.7~~	~~16.01~~ ~~4.22~~	0.04	0.61	-181	
PW-01C-002	1/4/06	1424	6'	2L	8.52	0.947	3.0	3.77	15.94	0.04	0.61	-183	
PW-01C-002	1/4/06	1426	6'	4L	8.51	0.947	1.99	3.50	15.90	0.04	0.61	-184	
PW-01C-002													
PW-01C-002													
PW-01C GPS Coordinates: N 2109595 E 7607153													
PW-01D-002	1503	1/4/06	6'	1L	8.41	0.955	165	4.35	17.39	0.04	0.61	-165	
PW-01D-002	1/4/06	1505	6'	2L	8.38	0.956	46.5	4.22	17.36	0.04	0.61	-164	
PW-01D-002	1/4/06	1507	6'	4L	8.37	0.957	19.8	3.78	17.32	0.04	0.61	-164	
PW-01D-002	1/4/06	1508	6'	5L	8.37	0.956	9.52	3.80	17.31	0.04	0.61	-165	
PW-01D-002	1/4/06	1509	6'	6L	8.37	0.957	4.90	3.74	17.30	0.04	0.61	-165	
PW-01D GPS Coordinates: N 2109689 E 7607242													

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 1
Field Conditions Sunny, windy

Sampling Event 2006-PWS-002
Date 1/4/06 - 1/5/06
Page _____ Of _____

Flow Cell (Y) N
Horiba Meter Serial No. C600876
Turbidity Meter Serial No. PGE 2005-01 B

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-02A-002	1/4/06	1546	6'	7L	8.35	0.940	150	3.74	16.64	0.04	0.60	-137	Sample was extremely turbid initially
PW-02A-002	1/4/06	1548	6'	4L	8.34	0.940	18.1	3.21	16.64	0.04	0.60	-138	
PW-02A-002	1/4/06	1549	6'	5L	8.33	0.941	6.4	2.97	16.60	0.04	0.60	-139	
PW-02A-002	1/4/06	1551	6'	7L	8.33	0.939	2.9	2.81	16.55	0.04	0.60	-141	
PW-02A-002	1/4/06	1553	6'	9L	8.33	0.954	2.78	2.75	16.56	0.04	0.61	-142	
PW-02A GPS Coordinates:			N 2108786		E 7607601								
PW-02B-002	1/4/06	1624	6'	1L	8.56	0.932		3.08	15.93	0.04	0.60	-173	
PW-02B-002	1/4/06	1626	6'	3L	8.57	0.932	7.45	2.85	15.92	0.04	0.60	-178	
PW-02B-002	1/4/06	1628	6'	5L	8.57	0.932	2.7	2.69	15.90	0.04	0.60	-182	
PW-02B-002	1/4/06	1629	6'	6L	8.58	0.931	1.6	2.57	15.87	0.04	0.60	-185	
PW-02B-002	1/4/06	1630	6'	7L	8.58	0.931	1.2	2.50	15.85	0.04	0.60	-188	
PW-02B GPS Coordinates:			N2108847		E7607684								
PW-02C-002	848	1/5/06	6'	1.2L	7.28	0.731		5.02	15.72	0.03	0.46	-151	
PW-02C-002	850	1/5/06	6'	2.4	7.37	0.711	3.88	4.47	15.67	0.03	0.46	-157	
PW-02C-002	852	1/5/06	6'	3.6	7.48	0.712	2.15	4.34	15.63	0.03	0.46	-158	
PW-02C-002	853	1/5/06	6'	4.88	7.54	0.713	1.46	4.38	15.61	0.03	0.46	-158	
PW-02C-002													
PW-02C GPS Coordinates:			N 2108934		E 7607761								dLC
PW-02D-002	1/5/06	~~824~~ 824	6'	1L	7.99	0.941	~~3.4~~ NR	4.48	16.62	0.04	0.60	-145	
PW-02D-002	1/5/06	~~826~~ 826	6'	3L	8.07	0.943	3.4	3.73	16.54	0.04	0.60	-158	
PW-02D-002	1/5/06	~~828~~ 828	6'	5L	8.12	0.941	2.8	3.56	16.51	0.04	0.60	-164	
PW-02D-002	1/5/06	~~830~~ 830	6'	7L	8.15	0.938	2.15	3.50	16.49	0.04	0.60	-166	
PW-02D-002	1/5/06	~~831~~ 831	6'	8L	8.15	0.933	~~3.70~~ 1.77 dLC	~~3.70~~ 3.70	16.45	0.04	0.59	-166	
PW-02D GPS Coordinates:			N 2109011		E 7607853								

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/5/06

Field Team 1 — Field Conditions Very Windy, Sunny — Page _____ Of _____

Flow Cell : Y / N — Horiba Meter Serial No. C100876 — Turbidity Meter Serial No. PGE 2005-01B

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-03A-002	1029	1/5/06	6'	0.45 L	7.89	0.553		6.61	15.59	0.02	0.25	99	Excessive Turbidity Orange Brown
PW-03A-002	1031	1/5/06	6'	0.90L	7.86	0.377	71000	6.48	15.49	0.02	0.7	105	
PW-03A-002	1034	1/5/06	6'	1.35L	7.87	0.660	71000	6.80	15.35	0.02	0.36	100	
PW-03A-002	1036	1/5/06	6'	1.8 L	7.85	0.851		5.48	15.55	0.04	0.55	12	
PW-03A-002	1040	1/5/06	6'	2.6 L	7.90	0.954		5.14	15.67	0.04	0.60	-28	Started to clear up
PW-03A GPS Coordinates: ~~N 2108351 E 7608117~~ Moved to N 2108381 E 7608011													
PW-03B-002	1/5/06	1125	6'	1L	8.16	0.941	30	4.29	15.85	0.04	0.60	-164	Smells like rotten eggs
PW-03B-002	1/5/06	1127	6'	3L	8.17	0.941	3.13	3.82	15.78	0.04	0.60	-168	
PW-03B-002	1/5/06	1129	6'	5L	8.18	0.941	2.7	4.27	15.74	0.05	0.7	-168	
PW-03B-002													
PW-03B-002													
PW-03B GPS Coordinates: N 2108443 E 7608189													
PW-03C-002	1340	1/5/06	6'	1L	8.28	0.952	1.21	4.65	16.23	0.04	0.61	-169	
PW-03C-002	1342	1/5/06	6'	3L	8.27	0.951	3.0	4.00	16.19	0.04	0.61	-174	
PW-03C-002	1344	1/5/06	6'	5L	8.26	0.951		3.67	16.17	0.04	0.61	-177	
PW-03C-002	1345	1/5/06	6'	6L	8.25	0.951	1.62	3.53	16.17	0.04	0.61	-178	
PW-03C-002													
PW-03C GPS Coordinates: N 2108545 E 7608261													
PW-03D-002	1/5/06	1410	6'	1L	8.48	0.930		5.45	16.05	0.04	0.58	-181	
PW-03D-002	1/5/06	1412	6'	3L	8.47	0.924	2.73	5.14	16.04	0.04	0.58	-181	
PW-03D-002	1/5/06	1414	6'	5L	8.43	0.929	1.36	3.81	15.99	0.04	0.60	-192	
PW-03D-002	1/5/06	1416	6'	7L	8.46	0.930	4.0	3.11	16.00	0.04	0.60	-198	
PW-03D-002	1/5/06	1418	6'	9L	8.46	0.930	1.24	2.82	15.99	0.04	0.59	-202	
PW-03D GPS Coordinates: N 2108622 E 7608324													

Color: clear, grey, yellow, brown, black, cloudy, green — **Odor:** none, sulphur, organic, other — **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

dLC

PW-034	DATE	TIME	Depth below river bottom	Vol Purged	PH	Conductd.	Turb	DO	Temp	Sal	TDS	EH/ORP
	1/5/06	1042	6'	~~2.25~~ 3	7.93	0.950		5.19	15.68	0.04	0.61	-38
	1/5/06	1044	6'	~~2.70~~ 4	7.92	0.95[illegible]	82	5.74	15.69	0.04	0.60	-41
	1/5/06	1046	6'	~~3.70~~ 5	7.92	0.952	3.8	5.97	15.63	0.04	0.60	-44
	1/5/06	1048	6'	5.8	7.96	0.954	1.55	6.03	15.68	0.04	0.61	-46
	1/5/06	1050	6'	6.6	7.98	0.957		6.05	15.71	0.04	0.62	-46

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 1
Field Conditions WINDY; SUNNY

Sampling Event 2006-PWS-002
Date 1/5/06
Page _____ Of _____

Flow Cell : Y / N
Horiba Meter Serial No. C100876
Turbidity Meter Serial No. PGE 2005-013

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-04A-002	1/5/06	1448	6'	0.8L	7.95	0.946		4.32	15.52	0.04	0.61	-80	
PW-04A-002	1/5/06	1450	6'	2.4	7.89	0.941	8.71	3.44	15.54	0.04	0.60	-84	
PW-04A-002	1/5/06	1452	6'	4.0	7.86	0.943	2.38	~~2.81~~ 3.47	15.60	0.04	0.60	-85	
PW-04A-002	1/5/06	1454	6'	5.6	7.84	0.926	2.00	3.35	15.54	0.04	0.60	-86	
PW-04A-002	1/5/06	1455	6'		7.83	0.940		3.11	15.50	0.04	0.60	-89	
PW-04A GPS Coordinates: N 2107474 E 7609524								3.28	16.04	0.04			
PW-04B-002	1/5/06	1526	6'	1L	8.14	0.926	~~3.28~~	~~16.04~~	~~0.04~~	~~0.59~~	0.59	-159	
PW-04B-002	1/5/06	1528	6'	3L	8.12	0.931	4.68	2.93	16.01	0.04	0.60	-164	
PW-04B-002	1/5/06	1530	6'	5L	8.13	0.925	4.5	2.92	15.99	0.04	0.60	-167	
PW-04B-002	1/5/06	1532	6'	7L	8.13	0.920	1.02	2.75	15.97	0.04	0.59	-170	
PW-04B-002	1/5/06	1534	6'	9L	8.14	0.915		2.71	15.93	0.04	0.59	-172	
PW-04B GPS Coordinates: N 2107562 E 7609608													
PW-04C-002	1/5/06	1618	6'	1L	8.13	1.10		3.30	15.54	0.05	0.7	-163	
PW-04C-002	1/5/06	1620	6'	3L	8.11	1.11	1.93	~~4.4~~ 3.08	15.53	0.05	0.7	-167	
PW-04C-002	1/5/06	1622	6'	5L	8.11	1.10	0.85	2.93	15.52	0.05	0.7	-171	
PW-04C-002	1/5/06	1624	6'	7L	8.12	1.10	0.74	2.89	15.49	0.05	0.7	-173	
PW-04C-002													
PW-04C GPS Coordinates: N 2107685 E 7609688													
PW-04D-002	1/5/06	1643	6'	1L	8.18	0.908		3.54	16.26	0.04	0.58	-143	
PW-04D-002	1/5/06	1645	6'	3L	8.20	0.912	15.8	2.87	16.28	0.04	0.58	-163	
PW-04D-002	1/5/06	1647	6'	5L	8.21	0.900	2.64	2.59	16.27	0.04	0.58	-167	
PW-04D-002	1/5/06	1748	6'	6L	8.21	0.909	3.37	2.58	16.25	0.04	0.59	-170	
PW-04D-002													
PW-04D GPS Coordinates: N 2107803 E 7609770													

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/6/06

Field Team 1 — Field Conditions Sunny, light Breeze — Page _____ Of _____

Flow Cell: (Y) N — Horiba Meter Serial No. _____ — Turbidity Meter Serial No. NONE

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-05A-002	1/6/05	846	6'	0.7L	7.16	1.13		3.62	16.2	0.1	0.7	-136	Turbidity
PW-05A-002	1/6/05	848	6'	2.1	7.31	1.13		2.78	16.1	0.1	0.7	-170	meter was unavailable
PW-05A-002	1/6/05	850	6'	3.5	7.36	1.13		2.67	16.1	0.1	0.7	-176	Samples were visually noted
PW-05A-002	1/6/05	852	6'	4.9	7.46	1.13		2.55	15.9	0.1	0.7	-180	
PW-05A-002	1/6/05	854	6'	6.3	7.45	1.13			16.0	0.1	0.7	-176	
PW-05A GPS Coordinates: N 2106812 E 7611168													
PW-05B-002	1/6/05	924	6'	0.750	7.98	1.15		2.50	15.4	0.1	0.7	-224	Turbidity/Meter
PW-05B-002	1/6/05	926	6'	2.25	8.02	1.15		2.43	15.4	0.1	0.7	-228	was unavailable Samples were
PW-05B-002	1/6/05	928	6'	3.75	~~8.02~~	1.14		2.37	15.3	0.1	0.7	-231	visually noted.
PW-05B-002													Sample was clean at beg.
PW-05B-002													
PW-05B GPS Coordinates: N 2106924 E 7611236													
PW-05C-002	1/6/06	1020	6'	0.750	8.07	0.98		4.07	15.8	0.0	0.6	-188	Turbidity/Meter was unavailable
PW-05C-002	1/6/06	1022	6'	2.25	8.05	0.98		3.04	15.8	0.0	0.6	-198	Samples were visually
PW-05C-002	1/6/06	1026	6'	3.75	8.04	0.98		2.65	15.7	0.0	0.6	-205	Noted
PW-05C-002	1/6/06	1028	6'	5.25	8.05	0.98		2.48	15.7	0.0	0.6	-210	
PW-05C-002	1/6/06	1030	6'	6.75	8.05	0.98		2.45	15.6	0.0	0.6	-215	
PW-05C GPS Coordinates: N 2107048 E 7611323													
PW-05D-002	1/6/06	1056	6'	~~7.77~~ 1L	7.72	1.09		2.72	15.5	0.0	0.7	-185	Turbidity Meter was
PW-05D-002	1/6/06	1058	6'	3L	7.65	1.08		2.67	15.5	0.0	0.7	-186	unavailable. Turbidity
PW-05D-002	1/6/06	~~1059~~ 1100	6'	5L	7.62	1.08		2.61	15.5	0.0	0.7	-187	was visually noted for
PW-05D-002	1/6/06	1101	6'	6L	7.62	1.08		2.56	15.5	0.0	0.7	-188	Samples
PW-05D-002													
PW-05D GPS Coordinates: N 2107137 E 7611405													

Color: clear, grey, yellow, brown, black, cloudy, green — **Odor:** none, sulphur, organic, other — **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/6/06

Field Team 1 — Field Conditions Sunny — Page _____ Of _____

Flow Cell (Y)/ N — Horiba Meter Serial No. _____ — Turbidity Meter Serial No. NONE

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-06A-002	1/6/06	1124	6'	1L	7.61	2.18		2.44	16.2	0.1	1.4	-199	
PW-06A-002	1/6/06	1125	6'	2L	7.68	2.20		2.40	16.1	0.1	1.4	-200	
PW-06A-002	1/6/06	1126	6'	3L	7.69	2.21		2.39	16.1	0.1	1.5	-200	
PW-06A-002	1/6/06	1127	6'	4L	7.71	2.27		2.38	16.1	0.1	1.5	-201	
PW-06A-002													
PW-06A GPS Coordinates: N 2106074 E 7612993													Turbidity meter was unavailable. Turbidity visually noted for sample
PW-06B-002	1/6/06	1247	6'	1L	7.76	1.38		7.46	16.2	0.1	0.9	-151	
PW-06B-002	1/6/06	1249	6'	3L	7.56	1.36		4.90	16.1	0.1	0.8	-160	
PW-06B-002	1/6/06	1250	6'	4L	7.51	1.36		4.00	16.0	0.1	0.9	-164	
PW-06B-002	1/6/06	1252	6'	6L	7.45	1.34		3.39	16.0	0.1	0.9	-168	
PW-06B-002	1/6/06	1254	6'	8L	7.43	1.32		3.15	15.9	0.1	0.9	-170	
PW-06B GPS Coordinates: N 2106169 E 7613052													Turbidity meter was unavailable. Turbidity visually noted for sample
PW-06C-002	1/6/06	1333	6'	1L	7.83	1.27		5.14	16.2	0.1	0.8	-158	
PW-06C-002	1/6/06	1335	6'	3L	7.78	1.27		4.20	16.0	0.1	0.8	-169	
PW-06C-002	1/6/06	1337	6'	5L	7.79	1.26		3.13	15.9	0.1	0.8	-174	
PW-06C-002	1/6/06	1339	6'	7L	7.78	1.24		2.75	15.8	0.1	0.8	-179	
PW-06C-002	1/6/06	1340	6'	8L	7.77	1.23		2.66	15.9	0.1	0.8	-182	
PW-06C GPS Coordinates: N 2106284 E 7613116													Turbidity meter was unavailable. Turbidity visually noted for sample
PW-06D-002	1/6/06	1401	6'	1L	7.71	1.11		3.33	16.0	0.0	0.7	-179	
PW-06D-002	1/6/06	1403	6'	3L	7.74	1.11		3.29	15.9	0.0	0.7	-176	
PW-06D-002	1/6/06	1404	6'	4L	7.75	1.11		3.22	15.9	0.0	0.7	-176	
PW-06D-002	1/6/06	1405	6'	5L	7.75	1.10		3.20	15.9	0.0	0.7	-175	
PW-06D-002													
PW-06D GPS Coordinates: N 2106371 E 7613207													Turbidity meter was unavailable. Turbidity visually noted for sample

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/6/06

Field Team 1 — Field Conditions SUNNY — Page _____ Of _____

Flow Cell: (Y)/N — Horiba Meter Serial No. _____ — Turbidity Meter Serial No. NONE

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-07A-002	1/6/06	1437	6'	1L	7.57	1.95		2.53	15.8	0.1	1.3	-161	
PW-07A-002	1/6/06	1439	6'	3L	7.57	1.94		2.45	15.8	0.1	1.3	-164	
PW-07A-002	1/6/06	1440	6'	4L	7.57	1.97		2.41	15.8	0.1	1.3	-166	
PW-07A-002	1/6/06	1441	6'	5L	7.57	1.94		2.39	15.8	0.1	1.3	-167	
PW-07A-002													
PW-07A GPS Coordinates: N2105547 E7614097								Turbidity Meter UNavailable. Turbidity Visually Noted for Samples					
PW-07B-002	1/6/06	1504	6'	1L	7.71	1.23		3.03	15.8	0.1	0.8	-174	
PW-07B-002	1/6/06	1505	6'	2L	7.71	1.24		3.08	15.8	0.1	0.8	-174	
PW-07B-002	1/6/06	1506	6'	3L	7.71	1.24		3.06	15.8	0.1	0.8	-173	
PW-07B-002	1/6/06	1507	6'	4L	7.70	1.23		3.10	15.8	0.1	0.8	-173	
PW-07B-002													
PW-07B GPS Coordinates: N 2105647 E 7614199													
PW-07C-002	1/6/06	1550	6'	1L	7.78	1.06		6.45	15.6	0.0	0.7	-139	
PW-07C-002	1/6/06	1552	6'	3L	7.71	1.06		4.64	15.6	0.0	0.7	-161	
PW-07C-002	1/6/06	1554	6'	5L	7.68	1.06		4.42	15.5	0.0	0.7	-166	
PW-07C-002	1/6/06	1555	6'	6L	7.66	1.05		4.41	15.5	0.0	0.7	-164	
PW-07C-002	1/6/06	1556	6'	7L	7.66	1.05		4.67	15.4	0.0	0.7	-163	
PW-07C GPS Coordinates: N2105736 E7614263								Turbidity Meter UNavailable. Turbidity visually noted for Samples					
PW-07D-002	1/6/06	1620	6'	1L	7.86	0.98		2.47	16.0	0.0	0.6	-172	
PW-07D-002	1/6/06	1622	6'	3L	7.87	0.99		2.31	16.0	0.0	0.6	-176	
PW-07D-002	1/6/06	1623	6'	4L	7.87	0.98		2.30	16.0	0.0	0.6	-177	
PW-07D-002	1/6/06	1624	6'	5L	7.87	0.99		2.27	16.0	0.0	0.6	-179	
PW-07D-002													
PW-07D GPS Coordinates: N2105982. E7615180								Turbidity Meter UNavailable. Turbidity Visually Noted for Samples					

Color: clear, grey, yellow, brown, black, cloudy, green — **Odor:** none, sulphur, organic, other — **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 11/7/06

Field Team 1 — Field Conditions SUNNY — Page _____ Of _____

Flow Cell: Y / N — Horiba Meter Serial No. PGE — Turbidity Meter Serial No. PGE-700513

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-08A-002	828	11/7/06	6'	1.5L	7.06	6.43	4.69	3.22	16.5	0.3	4.2	-92	
PW-08A-002	830	11/7/06	6'	3L	7.14	6.63	1.96	2.36	16.6	0.4	4.3	-138	
PW-08A-002	831	11/7/06	6'	3.75	7.16	6.66	0.90	2.30	16.6	0.4	4.3	-147	
PW-08A-002	833	11/7/06	6'	5.25	7.18	6.70	0.63	2.27	16.6	0.4	4.4	-151	
PW-08A-002	835	11/7/06	6'	6.75	7.18	6.72	0.58	2.26	16.6	0.4	4.4	-153	
PW-08A GPS Coordinates: N2104393 E7615623													
PW-08B-002	11/7/06	905	6'	1L	7.22	2.56	7.91	2.46	15.9	0.1	1.7	-188	
PW-08B-002	11/7/06	907	6'	3L	7.14	2.49	2.02	2.54	15.9	0.1	1.6	-186	
PW-08B-002	11/7/06	909	6'	5L	7.12	2.46	~~2.50~~	2.50	15.9	0.1	1.6	-188	
PW-08B-002	11/7/06	911	6'	7L	7.11	2.45	0.66	2.49	15.9	0.1	1.6	-189	
PW-08B-002	11/7/06	913	6'	9L	7.11	2.49		2.48	15.9	0.1	1.6	-190	
PW-08B GPS Coordinates: N2104460 E7615782													
PW-08C-002	~~11/7/06~~	~~905~~	~~6'~~	~~1L~~	~~7.22~~	~~2.56~~		~~2.46~~	+		1.1		
PW-08C-002	11/7/06	1000	6'	0.5L	7.16	1.75	~~3.57~~	~~15.8~~ 3.57	~~0.1~~ 15.8	~~1.1~~ 0.1	~~152~~	-152	
PW-08C-002	11/7/06	1002	6'	1L	7.13	1.74	6.30	3.24	15.7	0.1	1.1	-156	
PW-08C-002	11/7/06	1004	6'	2.5L	7.12	1.74	4.66	3.13	15.7	0.1	1.1	-158	
PW-08C-002	11/7/06	1006	6'	3.5L	7.12	1.74	4.15	3.08	15.6	0.1	1.1	-159	
PW-08C GPS Coordinates: N2104538 E7615883													
PW-08D-002	11/7/06	1032	6'	1L	7.47	1.53	4.15	2.41	15.8	0.1	1.0	-167	
PW-08D-002	11/7/06	1034	6'	3L	7.48	1.51	1.90	2.34	15.7	0.1	1.0	-169	
PW-08D-002	11/7/06	1036	6'	5L	7.48	1.50	0.63	2.37	15.7	0.1	1.0	-171	
PW-08D-002	11/7/06	1038	3'	7L	7.48	1.49	0.71	2.37	15.7	0.1	1.0	-173	
PW-08D-002	~~11/7/06~~	~~1040~~	~~3'~~	~~9L~~									
PW-08D GPS Coordinates: N2104623 E7616012													

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 2
Field Conditions Sunny, Warm

Sampling Event 2006-PWS-002
Date 1/4/06
Page 1 Of 1

Flow Cell : Y / N
Horiba Meter Serial No. PGE
Turbidity Meter Serial No. 2005-01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-09A-002	1/4/06	1105	6'	1.5	6.36	1.32	9.97	5.45	16.4	0.1	0.9	-87	
PW-09A-002	1/4/06	1107	6'	2.5	6.44	1.32	4.46	5.10	16.5	0.1	0.9	-88	
PW-09A-002	1/4/06	1109	6'	4.0	6.49	1.31	4.93	5.88	16.6	0.1	0.9	-88	
PW-09A-002	1/4/06												
PW-09A-002	1/4/06	1115	Sample	time									
PW-09A GPS Coordinates:			2102542.17 N		7616608.07 E								
PW-09B-002	1/4/06	1236	6'	1.0	7.31	1.13	525	6.87	16.1	0.1	0.7	-168	
PW-09B-002	1/4/06	1238	6'	2.0	7.34	1.13	63.7	4.00	16.0	0.1	0.7	-174	
PW-09B-002	1/4/06	1240	6'	3.0	7.35	1.13	35.8	3.41	16.0	0.1	0.7	-175	
PW-09B-002	1/4/06	1242	6'	3.5	7.35	1.14	19.6	3.13	16.0	0.1	0.7	-178	
PW-09B-002	1/4/06	1245	6'										
PW-09B GPS Coordinates:			2102598.05 N		7616765.27 E								
PW-09C-002	1/4/06	1355	6'	0.75	6.89	2.86	336.0	7.80	15.5	0.1	1.7	-112	
PW-09C-002	1/4/06	1357	6'	1.0	6.75	2.66	143.0	5.16	15.4	0.1	1.7	-116	
PW-09C-002	1/4/06	1359	6'	1.25	6.66	2.68	77.3	3.85	15.4	0.1	1.7	-120	
PW-09C-002	1/4/06	1401	6'	1.5	6.62	2.67	61.2	3.49	15.4	0.1	1.7	-121	
PW-09C-002	1/4/06	1405	Sample	time									
PW-09C GPS Coordinates:			2102642.98		7616887.60								
PW-09D-002	1/4/06	1442		1.0	7.75	8.20	385	8.09	17.2	0.5	5.4	-197	
PW-09D-002		1444		3.0	7.79	8.52	19.8	4.09	17.1	0.5	5.5	-204	
PW-09D-002		1446		4.0	7.80	8.53	11.6	3.33	17.1	0.5	5.5	-212	
PW-09D-002		1448		5.0	7.82	8.55	31.4	3.03	17.1	0.5	5.6	-215	
PW-09D-002		1450	Sample	time									
PW-09D GPS Coordinates:			2102735.91		7617098.94								

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date**

Field Team 2 — Field Conditions — Page ____ Of ____

Flow Cell : Y / N — Horiba Meter Serial No. PGE — Turbidity Meter Serial No. 2005.01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-10A-002	1/4	1531	6'	0.5	7.90	1.81	14.2	6.65	15.9	0.1	1.2	-134	
PW-10A-002	1/4/06	1533	6'	1.0	7.65	1.78	6.69	3.82	15.8	0.1	1.2	-143	
PW-10A-002	1/4/06	1535	6'	1.5	7.59	1.77	4.37	3.33	15.8	0.1	1.2	-148	
PW-10A-002	1/4/06	1537	6'	2.0	7.53	1.77	2.80	3.00	15.8	0.1	1.2	-152	
PW-10A-002		1540	Sample time										
PW-10AD GPS Coordinates:													
PW-10B-002	1/4	1618	6'	0.5	7.61	2.63	57.8	6.94	15.9	0.1	1.7	-140	
PW-10B-002		1620	6'	0.75	7.46	2.63	16.1	4.00	15.9	0.1	1.7	-149	
PW-10B-002	1622	~~1622~~ 1626	6'	1.0	7.40	2.63	14.5	3.24	15.9	0.1	1.7	-156	
PW-10B-002	1624	~~1624~~ 1629	6'	1.5	7.36	2.64	10.8	2.93	15.9	0.1	1.7	-159	
PW-10B-002		1630	Sample time										
PW-10BC GPS Coordinates:													
PW-10C-002	1/5	929	6'	0.25	7.22	0.905	17.2	6.33	15.2	0.0	0.58	-150	
PW-10C-002	1/5	931	6'	1.0	7.24	0.914	16.2	5.19	15.2	0.0	0.60	-156	
PW-10C-002	1/5	933	6'	1.25	7.26	1.00	14.2	5.05	15.2	0.0	0.7	-158	
PW-10C-002	1/5	935	6'	1.5	7.27	0.99	13.7	5.10	15.2	0.0	0.7	-161	
PW-10C-002	1/5	940	Sample time										
PW-10CB GPS Coordinates:													
PW-10D-002	1/5	1050	6'	0.5	7.38	1.10	44.5	10.11	16.5	0.0	0.7	-142	
PW-10D-002	1/5	~~1053~~	6'	1.0	7.29	1.10	6.13	3.87	16.5	0.0	0.7	-167	
PW-10D-002	1/5	1056	6'	1.5	7.28	1.09	3.95	3.26	16.4	0.0	0.7	-173	
PW-10D-002	1/5	1059	6'	2.0	7.26	1.08		2.98	16.5	0.0	0.7	-176	
PW-10D-002	1/5	1105	Sample time										
PW-10DA GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green — **Odor:** none, sulphur, organic, other — **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 2 Field Conditions

Sampling Event 2006-PWS-002
Date 1/5/06
Page 1 Of 1

Flow Cell : Y / N Horiba Meter Serial No. PGE Turbidity Meter Serial No. 2005-01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-11A-002	1/5/06	1257	6'	1.0	6.92	4.40	4.7	6.42	16.2	0.2	2.9	-120	
PW-11A-002	1/5/06	1300	6'	1.75	6.84	4.44	14.5	4.12	16.1	0.2	2.9	-125	
PW-11A-002	1/5/06	1303	6'	2.5	6.81	4.31	6.18	3.91	16.0	0.2	2.8	-130	
PW-11A-002	1/5/06	1306	6'	3.0	6.79	4.32	3.25	3.55	16.0	0.2	2.8	-130	
PW-11A-002		1310	Sample time										
PW-11A GPS Coordinates:													
PW-11B-002	1/5/06	1339	6'	1.0	7.52	1.06	18.7	6.74	16.5	0.0	0.7	-170	
PW-11B-002	1/5/06	1342	6'	1.5	7.46	1.13	6.22	5.54	16.5	0.1	0.7	-173	
PW-11B-002	1/5/06	1345	6'	2.0	7.44	1.13	3.44	4.81	16.5	0.1	0.7	-175	
PW-11B-002	1/5/06	1348	6'	2.5	7.44	1.13	3.02	4.89	16.5	0.0	0.7	-173	
PW-11B-002		1355	Sample Time										
PW-11B C GPS Coordinates:													
PW-11C-002	1/5/06	1531	6'	0.75	7.08	1.28	26.3	7.74	15.5	0.1	0.8	-80	
PW-11C-002	1/5/06	1533	6'	1.5	6.94	1.27	10.2	5.90	15.4	0.1	0.8	-83	
PW-11C-002	1/5/06	1535	6'	2.25	6.88	1.28	6.4	5.50	15.4	0.1	0.8	-86	
PW-11C-002	1/5/06	1537	6'	3.0	6.85	1.27	12.2	5.50	15.4	0.1	0.8	-89	
PW-11C-002		1540	Sample time										
PW-11B GPS Coordinates:													
PW-11D-002	1/5/06	1618	6'	0.75	6.71	2.04	706	7.25	16.0	0.1	1.4	-113	
PW-11D-002		1620	6'	1.5	6.59	1.99	—	5.84	15.9	0.1	1.3	-117	too high to read meter
PW-11D-002		1622	6'	2.25	6.54	2.03	99.8	5.64	15.9	0.1	1.3	-119	
PW-11D-002		1624	6'	3.0	6.51	2.04	78.6	5.12	15.9	0.1	1.3	-116	
PW-11D-002		1630	Sample time										
PW-11A GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/6/05

Field Team 2 — Field Conditions Sunny Warm — Page 1 Of 1

Flow Cell : Y / N — Horiba Meter Serial No. C100876 — Turbidity Meter Serial No. 2005-014

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-12A-002	1/6/05	1236	6'	1.0	7.71	1.45	9.28	6.60	16.57	0.07	0.9	-157	ST=1255
PW-12A-002	1/6/05	1239	6'	1.75	7.70	1.42	6.96	5.09	16.34	0.06	0.9	-160	
PW-12A-002	1/6/05	1242	6'	2.5	7.65	1.39	3.12	4.44	16.24	0.06	0.9	-163	
PW-12A-002	1/6/05	1245	6'	3.25	7.65	1.39	5.51	4.05	16.20	0.06	0.9	-165	
PW-12A-002	1/6/05	1248	6'	4.5	7.64	1.33	3.56	3.83	16.20	0.06	0.9	-167	~~DUP~~
PW-12A GPS Coordinates:													
PW-12B-002	1/6/05	1105	6'	1.0	8.03	1.22	2.86	5.14	16.21	0.06	0.8	-114	ST = 1120
PW-12B-002	1/6/05	1108	6'	2.0	7.98	1.22	1.46	4.10	16.23	0.06	0.8	-128	
PW-12B-002	1/6/05	1112	6'	3.0	7.98	1.24	0.84	4.07	16.22	0.06	0.8	-138	
PW-12B-002	1/6/05	1115	6'	4.0	7.98	1.20	0.72	4.05	16.23	0.05	0.8	-138	
PW-12B-002	1/6/05	1118	6'	5.0	8.00	1.17	0.78	3.71	16.24	0.05	0.7	-140	
PW-12B GPS Coordinates:													
PW-12C-002	1/6/05	951	6'	0.5	8.01	1.34	38.5	6.14	15.91	0.06	0.9	-130	ST = 1005
PW-12C-002	1/6/05	953	6'	1.5	8.07	1.34	15.2	4.54	15.68	0.06	0.9	-142	
PW-12C-002	1/6/05	956	6'	2.5	8.07	1.35	7.13	3.94	15.60	0.06	0.9	-151	
PW-12C-002	1/6/05	959	6'	3.5	8.14	1.33	5.57	3.59	15.54	0.06	0.9	-156	
PW-12C-002	1/6/05	1002	6'	4.5	8.09	1.30	4.82	3.51	15.53	0.06	0.8	-158	
PW-12C GPS Coordinates:				ST. 1005		DUP @ 1200							
PW-12D-002	1/6/05	903	6'	0.5	7.32	2.78	28.1	5.64	15.59	0.14	1.8	-118	ST = 920
PW-12D-002	1/6/05	906	6'	1.5	7.56	2.70	18.6	4.51	15.42	0.13	1.7	-141	
PW-12D-002	1/6/05	909	6'	2.0	7.67	2.73	9.62	4.31	15.27	0.13	1.8	-149	
PW-12D-002	1/6/05	912	6'	3.5	7.73	2.55	4.83	4.09	15.17	0.13	1.6	-158	
PW-12D-002	1/6/05	915	6'	5.0	7.75	2.63	3.84	3.69	15.14	0.12	1.7	-157	
PW-12D GPS Coordinates:						WL ~5'			ST 920				

Color: clear, grey, yellow, brown, black, cloudy, green — **Odor:** none, sulphur, organic, other — **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 2 Field Conditions Sunny, Warm

Sampling Event 2006-PWS-002
Date 1-6
Page 1 Of 1

Flow Cell : Y / N Horiba Meter Serial No. C100876 Turbidity Meter Serial No. 2005.01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-13A-002	1/6	1349	6'	1.0	8.26	1.60	24.2	6.64	16.06	~~0.6~~ 0.07	~~0.07~~ 1.0	-150	WL = 15.4'
PW-13A-002	1/6	1351	6'		8.24	1.59	6.99	5.42	15.87	0.07	1.0	-156	moved for equip from racks
PW-13A-002	1/6	1353	6'	2.5	8.20	1.60	6.43	4.68	15.79	0.07	1.0	-163	
PW-13A-002	1/6	1355	6'	3.0	8.18	1.61	4.60	4.25	15.79	0.07	1.0	-164	
PW-13A-002	1/6	1400	Sample	time									
PW-13A GPS Coordinates:													
PW-13B-002	1/6	1500	6'	0.25	8.41	1.91	6.40	8.06	16.04	0.09	1.2	-151	
PW-13B-002	1/6	1503	6'	1.0	8.22	1.93	3.23	5.01	15.91	0.09	1.2	-159	
PW-13B-002	1/6	1506	6'	2.0	8.23	1.93	2.48	4.13	15.67	0.09	1.2	-165	
PW-13B-002	1/6	1509	6'	3.0	8.23	1.94	2.9	3.82	15.69	0.09	1.2	-170	
PW-13B-002	1/6	1510	Sample	Time									
PW-13B GPS Coordinates:													
PW-13C-002	1/6	1552	6'	0.75	7.59	1.87	6.42	5.88	15.26	0.09	1.2	-114	
PW-13C-002	1/6	1554	6'	1.5	7.58	1.79	4.38	4.88	15.17	0.08	1.1	-122	
PW-13C-002	1/6	1556	6'	2.0	7.55	1.64	5.23	4.15	15.08	0.07	1.1	-129	
PW-13C-002	1/6	1558	6'	3.0	7.55	1.56	2.73	3.85	15.05	0.07	1.0	-134	
PW-13C-002	1/6	1600	Sample	time									
PW-13C GPS Coordinates:													
PW-13D-002	1/6	1626	6'	0.25	7.97	2.81	26.2	7.40	16.56	0.16	1.9	-138	ST = 1635
PW-13D-002	1/6	1628	6'	1.5	7.98	2.96	25.9	5.74	16.36	0.16	2.0	-154	
PW-13D-002	1/6	1630	6'	2.0	7.98	3.18	10.4	5.18	16.32	0.15	1.9	-158	
PW-13D-002	1/6	1632	6'	2.5	8.00	3.12	6.2	5.24	~~16.20~~ 16.20	0.15	1.9	-160	
PW-13D-002	1/6	1634	6'	3.0	7.99	3.20	7.4	5.17	16.19	0.14	1.9	-160	
PW-13D GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 2 Field Conditions

Sampling Event 2006-PWS-002
Date 1/7/06
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Flow Cell : Y / N Horiba Meter Serial No. PGE Turbidity Meter Serial No. 2005-01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-14A-002	1/7/06	1125	6'	0.5	8.24	1.44	5.81	4.96	16.34	0.07	0.9	-137	DTB = 8'
PW-14A-002	1/7/06	1127	6'	1.5	8.26	1.44	3.22	4.18	16.03	0.07	0.9	-151	ST = 1135
PW-14A-002	1/7/06	1129	6'	2.0	8.29	1.43	1.28	3.92	15.99	0.07	0.9	-160	
PW-14A-002	1/7/06	1131	6'	2.5	8.32	1.42	6.25	3.72	15.93	0.07	0.9	-166	
PW-14A-002	1/7/06	1133	6'	3.0	8.33	1.42	9.71	3.60	15.98	0.06	0.9	-170	
PW-14A GPS Coordinates:													
PW-14B-002	1/7/06	1030	6'	1.6	8.12	1.32	7.36	3.61	15.41	0.06	0.8	-114	DTB = 8'
PW-14B-002	1/7/06	1033	6'	2.0	8.12	1.33	5.29	3.36	15.97	0.06	0.8	-148	ST = 1040
PW-14B-002	1/7/06	1036	6'	3.0	8.11	1.33	3.23	3.30	15.88	0.06	0.9	-157	
PW-14B-002	1/7/06	1039	6'	4.0	8.10	1.33	3.25	3.25	15.87	0.06	0.9	-161	
PW-14B-002	1/7/06												
PW-14B GPS Coordinates:													
PW-14C-002	1/7/06	920	6'	0.5	7.48	2.05	2.67	5.89	16.17	0.10	1.3	-121	DTB = 6'
PW-14C-002	1/7/06	922	6'	1.0	7.44	2.02	1.38	4.47	15.97	0.10	1.3	-135	ST = 930
PW-14C-002	1/7/06	924	6'	1.75	7.44	2.02	0.92	4.09	15.90	0.10	1.3	-143	DUP @ 1200
PW-14C-002	1/7/06	926	6'	2.5	7.75	1.96	1.11	3.85	15.85	0.09	1.3	-148	
PW-14C-002	1/7/06	928	6'	3.0	7.46	1.93	1.43	3.69	15.84	0.09	1.2	-152	
PW-14C GPS Coordinates:													
PW-14D-002	1/7/06	8.33	6'		Water laden w/ very fine sand filled flow cell so reading								DTB = 7'
PW-14D-002	1/7/06				were not possible. Purge goal of ~~5~~ indicated by previous								
PW-14D-002	1/7/06				locations, and sampled.								
PW-14D-002	1/7/06	8.43			7.88	6.44	9.23	5.69	16.40	0.34	4.1	-137	ST. 850
PW-14D-002	1/7/06	8.45		4.C	8.00	6.50	3.20	4.08	16.24	0.34	4.1	-151	
PW-14D GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 2 Field Conditions

Sampling Event 2006-PWS-002
Date 1/7/06
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Flow Cell : Y / N Horiba Meter Serial No. ~~PGE~~ M2 C100876 Turbidity Meter Serial No. 2005-01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-15A-002	1/7/06	1305	6'	1.0	7.58	1.74	4.40	6.07	16.74	0.08	1.1	-86	water under
PW-15A-002	1/7/06	1309	6'	1.5	7.54	1.70	2.71	4.34	16.49	0.08	1.1	-103	pressure.
PW-15A-002	1/7/06	1312	6'	2.0	7.52	1.71	2.94	3.98	16.63	0.08	1.1	-107	Air in line
PW-15A-002	1/7/06	1314	6'	2.5	7.51	1.71	3.21	3.79	16.67	0.08	1.1	-110	~~from~~ ~~PGE~~
PW-15A-002	1/7/06	1316	6'	3.0	7.51	1.69	2.89	3.78	16.69	0.08	1.1	-112	lifted water
PW-15A GPS Coordinates:									ST = 1320				31" above TOW
PW-15B-002	1/7/06	1417	~~6'~~ 5'9"	1.0	8.22	1.43	65.2	5.07	16.37	0.07	0.9	-89	
PW-15B-002	1/7/06	1416	5'9"	1.5	~~8.02~~ 8.20	1.37	19.9	4.00	16.42	0.06	0.9	-147	ST = 1425
PW-15B-002	1/7/06	1418	5'9"	2.0	8.19	1.33	12.7	3.82	16.42	0.06	0.9	-156	
PW-15B-002	1/7/06	1420	5'9"	2.5	8.20	1.31	12.2	3.67	16.40	0.06	0.8	-161	
PW-15B-002		1422	5'9"	3.0	8.19	1.33	11.8	3.62	16.45	0.06	0.8	-164	
PW-15B GPS Coordinates:													
PW-15C-002	1/7/06	1456	6'	1.0	7.81	2.10	14.2	4.89	15.74	0.10	1.3	-131	ST 1505
PW-15C-002	1/7/06	1458	6'	2.0	7.79	2.07	5.48	4.09	15.78	0.10	1.3	-149	
PW-15C-002	1/7/06	1500	6'	3.0	7.80	2.04	8.08	3.75	15.75	0.10	1.3	-161	
PW-15C-002	1/7/06	1502	6'	3.5	7.80	2.01	5.94	3.59	15.74	0.10	1.3	-165	
PW-15C-002	1/7/06	1504	6'	4.0	7.81	1.99	11.82	3.50	15.74	0.09	1.3	-168	
PW-15C GPS Coordinates:													
PW-15D-002	1/7/06	1532	6'	1.0	7.51	8.39	103	5.38	15.80	0.34	4.1	-145	ST 1540
PW-15D-002	1/7/06	1534	6'	1.5	7.80	6.38	57.9	4.52	15.64	0.34	4.0	-152	
PW-15D-002	1/7/06	1536	6'	2.0	7.80	6.33	4.8	4.02	15.56	0.33	4.0	-157	
PW-15D-002	1/7/06	1538	6'	2.5	7.79	6.29	4.6	3.78	15.56	0.33	3.9	-161	
PW-15D-002	1/7/06		6'										
PW-15D GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 2 Field Conditions SUNNY

Sampling Event 2006-PWS-002
Date 1/7/06
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Flow Cell : Y / N Horiba Meter Serial No. PGE Turbidity Meter Serial No. PGE 20C93

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
PW-16A-002	1/7/06	1122	6'	2L	7.44	1.55	0.71	2.83	15.4	0.1	1.0	-165	
PW-16A-002	1/7/06	1124	6'	4L	7.45	1.51	4.32	2.57	15.5	0.1	1.0	-172	
PW-16A-002	1/7/06	1126	6'	6L	7.44	1.48	2.49	2.43	15.4	0.1	1.0	-176	
PW-16A-002	1/7/06	1128	6'	8L	7.44	1.47	1.40	2.41	15.4	0.1	1.0	-179	
PW-16A-002	1/7/06	1130	6'	10L	7.44	1.48	0.94	2.39	15.4	0.1	1.0	-180	
PW-16A GPS Coordinates: N 34° 42' 17.695" E W 114° 28' 25.9291"													
PW-16B-002	1/7/06	1302	6'	1L	7.66	1.29		4.07	16.1	0.1	0.8	-114	
PW-16B-002	1/7/06	1304	6'	3L	7.62	1.29	13.3	3.57	16.1	0.1	0.8	-141	
PW-16B-002	1/7/06	1306	6'	5L	7.59	1.29	4.39	2.93	16.0	0.1	0.8	-157	
PW-16B-002	1/7/06	1308	6'	7L	7.57	1.29	3.26	2.70	16.0	0.1	0.8	-165	
PW-16B-002	1/7/06	1310	6'	9L	7.57	1.29	1.53	2.57	16.0	0.1	0.8	-170	
PW-16B GPS Coordinates: 2100667" N 7.56 E 7621179		1/7/06 1312	6'			1.29		2.56	16.0	0.1	0.8	-172	
PW-16C-002	1/7/06	1355	6'	1L	7.29	2.04	22.5	5.30	15.4	0.1	1.3	-150	
PW-16C-002	1/7/06	1357	6'	3L	7.22	~~4.08~~ 1.92	4.0	3.39	15.4	0.1	1.3	-160	
PW-16C-002	1/7/06	1359	6'	5L	7.19	2.02	1.43	2.95	15.4	0.1	1.3	-172	
PW-16C-002	1/7/06	1401	6'	7L	7.18	2.02		2.78	15.4	0.1	1.2	-174	
PW-16C-002	1/7/06	1402	6'	8L	7.18	2.03	3.2	2.82	15.4	0.1	1.3	-175	
PW-16C GPS Coordinates: N 2100800 E 7621264													
PW-16D-002	1/7/06	1434	6'	1L	7.03	0.011		5.94	15.9	0.0	0.01	-148	
PW-16D-002	1/7/06	1436	6'	3L	7.06	3.09	6.36	8.92	15.7	0.2	2.0	-145	
PW-16D-002	1/7/06	1438	6'	5L	7.07	3.17	3.81	5.32	15.7	0.2	2.1	-145	
PW-16D-002	1/7/06	1440	6'	7L	7.09	3.27	2.58	2.97	15.7	0.2	2.1	-149	
PW-16D-002	1/7/06	1442	6'	9L	7.09	3.27	~~2.7~~ 2.04	2.72	15.7	0.2	2.1	-151	
PW-16D GPS Coordinates: N 2100966 E 7621344													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/4/06

Field Team 1 — Field Conditions Sunny, windy — Page _____ Of _____

Flow Cell : Y / N — Horiba Meter Serial No. C100876 — Turbidity Meter Serial No. PGE 2005-018

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
SW-01B-002	1/4/06	1313			8.84	0.922		10.41	13.70	0.04	0.47	21	
SW-01B-002	1/4/06	1315			8.85	0.933		10.13	13.91	0.03	0.48	30	
SW-01B-002	1/4/06	1317			8.82	0.938	3.12	9.57	14.65	0.04	0.58	38	Flow stopped enamgel Tubing
SW-01B-002	1/4/06	1319/1325			8.79	0.854	1.6	9.64	13.72	0.02	0.60	58	Restricted pump @ 1323
SW-01B-002	1/4/06	1325			8.79	0.881	2.7	9.61	13.13	0.04	0.447	64	
SW-01B GPS Coordinates: N 2109530 E 7607065													
SW-02B-002	1/4/06	1638		0.7 L	8.94	0.899	5.0	9.13	12.95	0.03	0.40	-91	
SW-02B-002	1/4/06	1640		1.4 L	8.96	0.933	3.0	9.20	12.65	0.03	0.47	-46	
SW-02B-002	1/4/06	1642		2.8 L	8.95	0.913	1.7	9.13	12.61	0.03	0.47	-27	
SW-02B-002	1/4/06	1644		4.2 L	8.94	0.825	1.04	9.14	12.60	0.04	0.31	-5	
SW-02B-002	1/4/06	1646		5.6 L	8.94	0.684	0.8	9.01	12.56	0.03	0.46	13	
SW-02B GPS Coordinates: N 2108847 E 7607684													
SW-03B-002	1/5/06	1150		0.8 L	8.67	0.955		10.23	12.55	0.04	0.61	-96	
SW-03B-002	1/5/06	1153		3.2 L	8.78	0.954	1.05	9.86	12.47	0.04	0.61	-49	
SW-03B-002	1/5/06	1156		5.6 L	8.80	0.954	1.21	9.78	12.47	0.04	0.61	-21	
SW-03B-002	1/5/06	1159		7.0 L	8.80	0.953		9.65	12.49	0.04	0.61	-1	
SW-03B-002	1/5/06	1202		9.4 L	8.80	0.954	1.2	9.62	12.51	0.04	0.61	10	
SW-03B GPS Coordinates: ~~N 2108545 E 7608261~~													
SW-04B-002	1/5/06	1542		0.8 L	8.70	0.953	1.04	9.93	12.55	0.04	0.61	-104	
SW-04B-002	1/5/06	1545		3.2 L	8.71	0.952	0.99	9.67	12.47	0.04	0.61	-64	
SW-04B-002	1/5/06	1548		5.6 L	8.70	0.952	0.94	9.68	12.48	0.04	0.61	-31	
SW-04B-002	1/5/06	1551		8.0 L	8.70	0.953		9.62	12.44	0.04	0.61	-11	
SW-04B-002	1/5/06	1554		10.4 L	8.70	0.952	1.23	9.66	12.46	0.04	0.61	3	
SW-04B GPS Coordinates: N 2107562 E 7609608													

Color: clear, grey, yellow, brown, black, cloudy, green — **Odor:** none, sulphur, organic, other — **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/6/06

Field Team 1 — Field Conditions SUNNY — Page _____ Of _____

Flow Cell : Y / N — Horiba Meter Serial No. _____ — Turbidity Meter Serial No. NONE

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
SW-05B-002	1/6/06	953		0.750	8.24	1.19	At	8.37	12.3	0.1	0.8	-151	Turbidity Meter
SW-05B-002	1/6/06	955		2.25	8.26	1.17	↓	9.60	12.3	0.1	0.8	-128	UNavailable. Turbidity was
SW-05B-002	1/6/06	957		3.75	8.28	1.17	↓	9.77	12.3	0.1	0.8	-98	visually determined
SW-05B-002	1/6/06	959		5.25	8.29	1.17	↓	9.72	12.3	0.1	0.8	-83	EH did NOT stabilize
SW-05B-002													
SW-05B GPS Coordinates:								Turbidity Meter UNavailable. Turbidity visually noted for samples					
SW-06B-002	1/6/06	1303		0.75 L	7.97	1.20		9.86	12.8	0.1	0.8	-163	
SW-06B-002	1/6/06	1304		1.5 L	8.08	1.19		10.47	12.8	0.1	0.8	-142	
SW-06B-002	1/6/06	1305		2.25 L	8.12	1.19		10.70	12.8	0.1	0.8	-133	
SW-06B-002	1/6/06	1306		3.0 L	8.14	1.19		10.82	12.8	0.1	0.8	-121	
SW-06B-002	1/6/06	1307		3.75 L	8.18	1.18		10.86	12.8	0.1	0.8	-111	
SW-06B GPS Coordinates:								Turbidity Meter UNavailable. Turbidity Noted visibly for Samples					
SW-07B-002	1/6/06	1521		1 L	8.07	1.20		8.59	12.9	0.1	0.8	-156	
SW-07B-002	1/6/06	1523		3 L	8.14	1.16		9.66	12.8	0.1	0.8	-140	
SW-07B-002	1/6/06	1525		5 L	8.18	1.14		10.07	12.7	0.1	0.7	-125	
SW-07B-002	1/6/06	1526		6 L	8.19	1.14		10.19	12.7	0.1	0.7	-120	
SW-07B-002	1/6/06	1527		7 L	8.21	1.14		10.30	12.7	0.1	0.7	-110	
SW-07B GPS Coordinates:								Turbidity Meter UNAVAILABLE. Turbidity was noted visibly for samples					
SW-08B-002	1/7/06	925		1 L	7.88	1.32	0.89	11.50	12.3	0.1	0.9	-154	
SW-08B-002	1/7/06	927		3 L	7.97	1.32	0.68	11.04	12.2	0.1	0.9	-143	
SW-08B-002	1/7/06	929		5 L	7.99	1.32	0.57	10.98	12.2	0.1	0.9	-127	
SW-08B-002	1/7/06	931		7 L	8.00	1.32	0.54	10.97	12.2	0.1	0.9	-115	
SW-08B-002													
SW-08B GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green — **Odor:** none, sulphur, organic, other — **Solids:** Trace, Small Qu, Med Qu, Large Qu, *Particulate*, Silt, Sand

Project Name PG&E Topock Project — **Sampling Event** 2006-PWS-002

Job Number 332663.A1.10.01 — **Date** 1/4/06 –

Field Team 2 — Field Conditions _____ — Page _____ Of _____

Flow Cell (Y)/N — Horiba Meter Serial No. PGE — Turbidity Meter Serial No. 2005-01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity m/µS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
SW-09B-002	1/4/06	1215		1.0	7.55	1.15	1.11	13.04	13.4	0.1	0.7	-149	
SW-09B-002	1/4/06	1216		1.5	7.73	1.14	1.81	12.77	13.2	0.1	0.7	-134	
SW-09B-002	1/4/06	1217			7.85	1.14	1.94	11.90	13.2	0.1	0.7	-120	
SW-09B-002	1/4/06	1218		2.0	7.89	1.14	0.83	11.65	13.2	0.1	0.7	-108	
SW-09B-002		(1220)	Sample time										
SW-09B GPS Coordinates:													
SW-10B-002	1/5/06	846		25	7.03	1.23	0.0	11.38	12.4	0.1	0.8	198	
SW-10B-002	1/5/06	848		.50	7.12	1.21	0.0	11.08	12.4	0.1	0.8	196	
SW-10B-002	1/5/06	850		1.0	7.25	1.17	0.0	10.75	12.4	0.1	0.8	194	
SW-10B-002	1/5/06	852		1.5	7.34	1.15	0.0	10.64	12.4	0.1	0.7	192	
SW-10B-002		(855)	Sample time										
SW-10B GPS Coordinates:													
SW-11B-002	1/5/06	1505		1.0	7.74	1.13	0.0	12.95	13.3	0.0	0.7	71	
SW-11B-002	1/5/06	1507		2.0	7.82	1.11	0.42	12.62	12.9	0.0	0.7	71	
SW-11B-002	1/5/06	1509		3.0	7.85	1.10	0.67	12.08	12.7	0.0	0.7	72	Dup @ 1525
SW-11B-002	1/5/06	(1513)	Sample	Time									
SW-11B-002													
SW-11B GPS Coordinates:													
SW-12B-002	1/6/06	1040			8.77	0.944	4.66	12.84	12.50	0.04	0.61	60	
SW-12B-002	1/6/06	1042		2.0	8.77	0.948	1.49	12.01	12.40	0.04	0.61	62	
SW-12B-002	1/6/06	1044		3.0	8.77	0.946	1.55	11.58	12.38	0.04	0.60	64	
SW-12B-002	1/6/06	1046		4.0	8.78	0.942	1.03	11.21	12.37	0.04	0.60	66	
SW-12B-002		1050	Sample	time									
SW-12B GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock Project
Job Number 332663.A1.10.01
Field Team 2 Field Conditions

Sampling Event 2006-PWS-002
Date 1/6/05
Page ____ Of ____

Flow Cell : Y / N Horiba Meter Serial No. C100576 Turbidity Meter Serial No. 2005-01A

Sample ID	Sample Date	Sample Time	Depth Below River Bottom	Vol. Purged gallons/liters	pH pH units	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments
SW-13B-002	1/6/06	1435	0	0.25	8.90	0.954	2.73	13.24	13.33	0.04	0.61	57	
SW-13B-002	1/6/06	1437		0.75	8.85	0.963	1.27	11.85	13.04	0.04	0.61	60	
SW-13B-002	1/6/06	1439		1.00	8.81	0.951	1.04	11.33	12.96	0.04	0.61	65	
SW-13B-002	1/6/06	1441			8.80	0.953		10.93	~~10.93~~ M	0.04	0.61	69	
SW-13B-002	1/6/06	1445	Sample time						12.91				
SW-13B GPS Coordinates:													
SW-14B-002	1/7/06	1006		0.5	8.62	1.33	1.8	12.68	12.86	0.06	0.9	9	ST = 1015
SW-14B-002	1/7/06	1008		1.0	8.66	1.33	1.2	11.70	12.43	0.06	0.9	13	
SW-14B-002	1/7/06	1010		1.25	8.69	1.33	0.7	11.44	12.34	0.06	0.9	16	
SW-14B-002	1/7/06	1012		1.5	8.71	1.33	0.7	11.32	12.30	0.06	0.9	18	
SW-14B-002													
SW-14B GPS Coordinates:													
SW-15B-002	1/7/06	1347		0.5	8.84	1.30	2.93	14.21	13.80	0.06	0.8	-10	1355
SW-15B-002	1/7/06	1348		1.0	8.71	1.31	2.73	12.69	13.08	0.06	0.8	-9	
SW-15B-002	1/7/06	1350		1.5	8.73	1.31	0.85	12.34	12.90	0.06	0.8	-7	
SW-15B-002	1/7/06	1352		2.0	8.76	1.31	1.32	12.01	12.80	0.06	0.8	-4	
SW-15B-002		1354			8.78	1.32	1.07	11.88	12.75	0.06	0.8	-1	
SW-15B GPS Coordinates:													
SW-16B-002	1/7/06	1321		1L	7.94	1.31		5.34	12.8	0.1	0.8	-167	
SW-16B-002		1323		3L	7.98	1.30	1.53	9.17	12.7	0.1	0.8	-147	
SW-16B-002		1325		5L	8.03	1.30	1.21	9.93	12.7	0.1	0.8	-127	
SW-16B-002		1326		6L	8.05	1.30	0.95	10.05	12.7	0.1	0.8	-118	
SW-16B-002		1327		7L	8.06	1.30	0.89	10.13	12.7	0.1	0.8	-109	
SW-16B GPS Coordinates:													

Color: clear, grey, yellow, brown, black, cloudy, green **Odor:** none, sulphur, organic, other **Solids:** Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

950443 [2006-PWS-002]

COC Number

TURNAROUND TIME 10 Days

DATE 1/4/06 PAGE ___ OF ___

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	Jennifer Claghorn

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered Chromium	Diss Metals (6010B) Field Filtered Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	CR6 (7199) *** Lab Filtered	Diss Metals (6010B) Chromium *** Lab Filtered	Diss Metals (6010B) Cr,Fe,Mn,Ca,Mg,K,Na *** Lab Filtered	NUMBER OF CONTAINERS	COMMENTS
1	PW-01A-002	1/4/06	1123	Water				X	X	X	X	X	2	
2	PW-01B-002	1/4/06	1242	Water	X	X	X	X	X				3	
3	SW01B-002	1/4/06	1327	Water	X	X	X	X	X				3	
4	PW-01C-002	1/4/06	1428	Water	X	X	X	X	X				3	
5	PW-01D-002	1/4/06	1513	Water	X	X	X	X	X				3	
6	PW-02A-002	1/4/06	1558	Water	X	X	X	X	X				3	
7	PW-02B-002	1/4/06	1632	Water	X	X	X	X	X					
8	SW-02B-002	1/4/06	1650	Water	X	X	X	X	X					
				Water										

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) Jennifer Claghorn	Jennifer Claghorn	CH2M	1/4/06 1712
Signature (Received)	SPANOS	EXECUTIVE COURIER	1-4-06 1745
Signature (Relinquished)	SPANOS	EXECUTIVE COURIER	1-4-06 2200
Signature (Received) L. Shabunina	L. Shabunina	TLI	1/4/06 22:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

*** needs to be lab Filtered

TRUESDAIL LABORATORIES, INC.
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CHAIN OF CUSTODY RECORD

950443 [2006-PWS-002]

COC Number

TURNAROUND TIME 10 Days

DATE 1/4/06 PAGE 1 OF 1

COMPANY CH2M HILL

PROJECT NAME PG&E Topock

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered	DISS Metals (6010B) Field Filtered Chromium	Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
9	PW-09A-002	1/4/06	1115	Water	X	X		X	X		3	
10	PW-09B-002	1/4/06	1245	Water	X		X	X	X		3	
11	PW-09C-002	1/4/06	1405	Water	X	X		X	X		3	
12	PW-09D-002	1/4/06	1456	Water	X	X		X	X		3	
13	SW-09B-002	1/4/06	1220	Water	X	X		X	X		3	
14	PW-10D-002	1/4/06	1540	Water	X	X		X	X		3	
15	PW-10C-002	1/4/06	1630	Water	X	X		X	X		3	
				Water								
				Water								

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Ringler	CH2M Hill	1/4/06 1700
Signature (Received)	[illegible]	Executive Courier	1-4-06 1745
Signature (Relinquished)	[illegible]	Executive Courier	1-4-06 2200
Signature (Received)	L. Shabunina	RL	1/4/06 22:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

E3

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

0601015

COC Number

TURNAROUND TIME 12 Days

DATE 1/4/06 PAGE 1 OF 1

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock GWM
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)	NUMBER OF CONTAINERS	COMMENTS
1 PW-09B-007	1/4/06	1245		X	X	X	X	X	X		

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Matt Ring	Company/ Agency CH2M HILL	Date/ Time 1/4/06 1700
Signature (Received) Spencer	Printed Name SPARROW	Company/ Agency EXECUTIVE COURIER	Date/ Time 1-4-06 1745
Signature (Relinquished) Sparrow	Printed Name SPARROW	Company/ Agency EXECUTIVE COURIER	Date/ Time 1-4-06 2200
Signature (Received) L. Shaburnina	Printed Name L. Shaburnina	Company/ Agency TLI	Date/ Time 1/4/06/2210
Signature (Relinquished) J. Brown	Printed Name J Brown	Company/ Agency TLI	Date/ Time 1/5/06 14:23
Signature (Received) Phil Hatley	Printed Name Phil Hatley	Company/ Agency EMAX	Date/ Time 1.5.06 1423

Phil Hatley 15:30 1/5/06 1506

1530

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

T= 3.4°C

MILM

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[2006-PWS-002]

950501

COC Number

TURNAROUND TIME 10 Days

DATE 1/5/06 PAGE 1 OF 1

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	

ALERT!! Level III QC

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered Chromium	Diss Metals (6010B) Field Filtered Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
JW-10B-002	1/5/06	855	Water	X	X		X	X		pH=2
PW-10B-002	1/5/06	940	Water	X	X		X	X		pH=2
PW-10A-002	1/5/06	1105	Water	X	X		X	X		pH=2
PW-12A-002	1/5/06	1200	Water	X	X		X	X		pH=2
			Water							
			Water							
			Water							
			Water							
			Water							

For Sample Conditions See Chain Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Minjares	CH2M Hill	1/5/06 12:30
Signature (Received)	Miguel Laguna	EXECUTIVE	1/5/06 1:15
Signature (Relinquished)	Miguel L.	EXECUTIVE	1/5/06 5:35
Signature (Received)	J Brown	TLI	1-5-06 17:35
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
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CHAIN OF CUSTODY RECORD

950501

[2006-PWS-002]

COC Number

TURNAROUND TIME 10 Days

DATE 1/5/06 PAGE ___ OF ___

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	Jennifer Claghorn

SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered Chromium	Diss Metals (6010B) Field Filtered Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
PW-02C-002	1/5/06	855	Water	X	X	X	X	X	3	pH<2
PW-02D-002	1/5/06	934	Water	X	X	X	X	X	3	pH<2
PW-03A-002	1/5/06	1055	Water	X	X	X	X	X	3	pH<2
PW-03B-002	1/5/06	1131	Water	X	X	X	X	X	3	pH<2
PW-103B-002	1/5/06	1131	Water	X	X	X	X	X	3	pH<2
PW-03B-002	1/5/06	1202	Water	X	X	X	X	X		
			Water							
			Water							
			Water							

For Sample Conditions See Form Attached

Alpha Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) Jennifer Claghorn	Jennifer Claghorn	CH2M	1/5/06 1205
Signature (Received)	M. Laguna	EXECUTIVE	1/5/06 1:15
Signature (Relinquished)	Miguel L.	EXECUTIVE	1/5/06 5:35
Signature (Received) J Brown	J Brown	TLI	1-5-06 17:35
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

MILL 950502

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 10 Days

DATE 1/5/06 PAGE ___ OF ___

COMPANY CH2M HILL

PROJECT NAME PG&E Topock

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE) Jennifer Clayborn

SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered Chromium	Diss Metals (6010B) Field Filtered Ca,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
PW-03C-002	1/5/06	1347	Water	X	X	X	X	X	3	pH=2
PW-03D-002	1/5/06	1420	Water	X	X	X	X	X	3	pH=2
PW-04A-002	1/5/06	1457	Water	X	X	X	X	X	3	pH=2
PW-04B-002	1/5/06	1535	Water	X	X	X	X	X	3	pH=2
SW-04B-002	1/5/06	1556	Water	X	X	X	X	X	3	pH=2
PW-04C-002	1/5/06	1626	Water	X	X	X	X	X	3	pH=2
PW-04D-002	1/5/06	1650	Water	X	X	X	X	X	3	pH=2
			Water							
			Water							

Rec'd 01/05/06
950502

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) Jennifer Clayborn	Jennifer Clayborn	CH2M	1/5/06 1705
Signature (Received)			
Signature (Relinquished) Fed Ex Ground	FED EX	FEX	1-5-06
Signature (Received) J. Brown	J BROWN	TLI	1-5-06 21:15
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

950502

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 10 Days

DATE 1/5/06 PAGE 1 OF 2

COMPANY CH2M HILL

PROJECT NAME PG&E Topock

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (60108) Field Filtered Chromium	Diss Metals (6010B) Field Filtered Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
8	PW-11D-002	1/5/06	1310	Water	X	X		X	X		pH 2
9	PW-11C-002	1/5/06	1355	Water	X	X		X	X		pH 2
10	PW-11B-002	1/5/06	1540	Water	X		X	X	X		pH 2
11	SW-11B-002	1/5/06	1512	Water	X	X		X	X		pH 2
12	SW-11B-002	1/5/06	1525	Water	X	X		X	X		pH 2
	PW-11A-002	1/5/06	1130	Water	X			X	X		missing Last Site is missing
				Water							
				Water							
				Water							

ALERT!! Level I COC

16 lbs f/ice

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Kline	CH2M Hill	
Signature (Received)			
Signature (Relinquished)	Todd Dutcher	EXE	1-5-06 9:15
Signature (Received)	J Brown	TLI	1-5-06 21:15
Signature (Relinquished)			
Signature (Received)			

CONDITIONS

WARM ☐ °F

NO ☐

SPECIAL REQUIREMENTS:

J10

06A024

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 12 Days

DATE 1/5/06 PAGE ___ OF ___

COMPANY CH2M HILL

PROJECT NAME PG&E Topock GWM

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE Jennifer Claghorn

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)	NUMBER OF CONTAINERS	COMMENTS
1	PW-03B-002	1/5/06	1131	WATER	X	X	X	X	X	X	4	
2	PW-103B-002	1/5/06	1131	WATER	X	X	X	X	X	X	4	

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) Jennifer Claghorn	Jennifer Claghorn	CH2M	1/5/06 1705
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name FRED DOUGLAS	Company/ Agency EXE	Date/ Time 1-5-00 915
Signature (Received) J Brown	Printed Name J Brown	Company/ Agency TCI	Date/ Time 1-5-06 21:15
Signature (Relinquished) J Brown	Printed Name J Brown	Company/ Agency TCI	Date/ Time 1/6/06 13:15
Signature (Received) Phil Hatcher	Printed Name Phil Hatcher	Company/ Agency EMAX	Date/ Time 1.6.06 1500

Phil Hatcher 1.6.06 1500

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS: T= 3.2°C

J10

06A024

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 12 Days

DATE 1/5/06 PAGE ___ OF ___

COMPANY CH2M HILL

PROJECT NAME PG&E Topock GWM

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)										NUMBER OF CONTAINERS	COMMENTS
3 PW-11B-002	1/6/06	1310 1540		X	X	X	X	X	X											

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Rigi	CH2M Hill	1/5/06 1700
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name FRED DOUGLAS	Company/ Agency EXE	Date/ Time 1-5-05 PM 9:15
Signature (Received)	Printed Name J Brown	Company/ Agency TLI	Date/ Time 1-5-06 21:15
Signature (Relinquished)	Printed Name J Brown	Company/ Agency TLI	Date/ Time 1/6/06 1318
Signature (Received)	Printed Name Phil Hatten	Company/ Agency EMAX	Date/ Time 1/6/06 1318

Phil Hatten 1-6-06 1500

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

950548

COC Number

TURNAROUND TIME 10 Days

DATE 1/6/06 PAGE ___ OF ___

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	Jennifer Claghorn

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered	Diss Metals (6010B) Field Filtered Chromium	Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
1	PW-05A-002	1/6/06	850	Water	X	X	X	X	X	X	3	Rush T
2	PW-05B-002	1/6/06	934	Water	X	X	X	X	X	X	3	
3	PW-03B-002	1/6/06	1002	Water	X	X	X	X	X	X	3	
4	PW-10SB-002	1/6/06	1002	Water	X	X	X	X	X	X	3	
5	PW-05C-002	1/6/06	1031	Water	X	X	X	X	X	X	3	
6	PW-05D-002	1/6/06	1102	Water	X	X	X	X	X	X	3	
7	PW-10SD-002	1/6/06	1102	Water	X	X	X	X	X	X	3	
8	PW-06A-002	1/6/06	1130	Water	X	X	X	X	X	X	3	
				Water								

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) Jennifer Claghorn	Jennifer Claghorn	CH2M	Date 1/6/06 Time 1200
Signature (Received)	N. Lagunas	EXECUTIVE	Date 1/6/06 Time 12:20
Signature (Relinquished)	Miguel L.	EXECUTIVE	Date 1/6/06 Time 16:50
Signature (Received) L. Stukenberg	L. Stukenberg	TEI	Date 1/6/06 Time 16:50
Signature (Relinquished)			Date Time
Signature (Received)			Date Time

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[2006-PWS-002]

950548

COC Number

TURNAROUND TIME 10 Days

DATE 1/6/06 PAGE 1 OF 1

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered Chromium	Diss Metals (6010B) Field Filtered Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
PW-11B-002	1/6/06	900	Water	X	X		X	X	2	lab filter! ND<0.2
PW-12D-002	1/6/06	920	Water	X	X		X	X	3	ND<0.2
PW-12C-002	1/6/06	1005	Water	X	X	X	X	X	3	yellow ppt lab filter ND<0.2
PW-12B-002	1/6/06	1120	Water	X		X	X	X	3	yellow ppt lab filter ND<0.2
SW-12B-002	1/6/06	1050	Water	X	X		X	X	3	ND<0.2
PW-11C-002	1/6/06	1200	Water	X	X		X	X	3	ND<0.2
—	—	—	Water							
—	—	—	Water							
—	—	—	Water						17	

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Ringer	CH2M Hill	1/6/06 1200
Signature (Received)	Miguel L.	EXECUTIVE	1/6/06 12:20
Signature (Relinquished)	M. Lagunas	EXEC.	1/6/06 14:50
Signature (Received)	L. Stabenfeldt	TLI	1/6/06 16:50
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

George

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[2006-PWS-002] 950549

SDG Number

TURNAROUND TIME 10 Days

DATE 1/6/06 PAGE ___ OF ___

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	Jennifer Claghorn

Rec'd 01/06/06
950549

SAMPLE I.D.	DATE	TIME		DESCRIPTION	CR6 (7199) Fld Filtered	Diss Metals (60108) Field Filtered Chromium	DSS Metals (6010B) Field Filtered Ca,Fe,Mg,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
PW-06B-002	1/6/06	1256	2	Water	X	X		X	X	3	pH = 7
PW-06B-002	1/6/06	1309	3	Water	X	X		X	X	3	pH = 2
PW-06C-002	1/6/06	1341	4	Water	X	X		X	X	3	pH = 7
PW-06D-002	1/6/06	1406	6	Water	X	X		X	X	3	pH = 2
~~PW-06B-002~~ PW-07A-002	1/6/06	1446	8	Water	X	X		X	X	3	pH = 7
PW-07B-002	1/6/06	1509	9	Water	X		X	X	X	3	
PW-07B-002	1/6/06	1529	11	Water	X	X		X	X	3	pH = 2
PW-07C-002	1/6/06	1558	13	Water	X	X		X	X	3	
PW-07D-002	1/6/06	1626		Water	X	X		X	X		

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Jennifer Claghorn	Jennifer Claghorn	CH2M	1/6/06 1705
Signature (Received)	Rafael Davila	Rafael Davila	T-L-T	1-6-06 9:15
Signature (Relinquished)		Printed Name	Company/ Agency	Date/ Time
Signature (Received)		Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		Printed Name	Company/ Agency	Date/ Time
Signature (Received)		Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[2006-PWS-002] 950549

COC Number

TURNAROUND TIME 10 Days

DATE 1/6/06 PAGE 1 OF

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	

	SAMPLE I.D.	DATE	TIME		DESCRIPTION	Cr6 (7199) Field Filtered	Diss Metals (60108) Field Filtered	Diss Metals (6010B) Field Filtered Chromium Cl,F,Br,NO3,PO4,SO4	Specific Conductance (120.1)	pH (150.1)									NUMBER OF CONTAINERS	COMMENTS
10	PW-13A-002	1/6/06	1440	5	Water	X	X		X	X										3	pH=2
11	PW-13B-002	1/6/06	1510	10	Water	X		X	X	X										3	
12	PW-13-C-002	1/6/06	1600		Water	X	X		X	X										3	pH=7
3	PW-13D-002	1/6/06	1635		Water	X	X		X	X										3	
4	SW-13B-002	1/6/06	1445	7	Water	X	X		X	X										3	pH=2
5	PW-12A-002	1/6/06	1255	1	Water	X	X		X	X										3	
					Water																
					Water																
					Water															18	

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	M H Bigjir	CH2M Hill	1/6/06 1700
Signature (Received)	Rafael Davila	T.E.I	1-6-06 9:15
Signature (Relinquished)			
Signature (Received)			
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

I13

06A028

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 12 Days

DATE 1/6/06 PAGE ___ OF ___

COMPANY CH2M HILL

PROJECT NAME PG&E Topock GWM

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE Jennifer Claghorn

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)	NUMBER OF CONTAINERS	COMMENTS
1	PW-05B-002	1/6/06	934	WATER	X	X	X	X	X	X	4	
2	PW-07B-002	1/6/06	1509	WATER	X	X	X	X	X	X	4	

CHAIN OF CUSTODY SIGNATURE RECORD

		Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Jennifer Claghorn	Jennifer Claghorn	CH2M	Date 1/6/06 Time 1700
Signature (Received)	Rafael Davila	Rafael Davila	T.A.I.	Date 1-6-06 Time 9:15
Signature (Relinquished)		Printed Name	Company/ Agency	Date/ Time
Signature (Received)		Printed Name JON LUNA	Company/ Agency EMAX	Date 1-6-06 Time 0920
Signature (Relinquished)		Printed Name JON LUNA	Company/ Agency EMAX	Date 1-6-06 Time 0915
Signature (Received)		Printed Name ANTHONY PUNONGBAYAN	Company/ Agency EMAX	Date 1-7-06 Time 0915

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.2 °C/F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

I,3

06A028

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 12 Days

DATE 1/1/06 PAGE 1 OF 1

COMPANY CH2M HILL

PROJECT NAME PG&E Topock GWM

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)	NUMBER OF CONTAINERS	COMMENTS
3 PW-12B-002	1/6/06	1120		X	X	X	X	X	X	4	
4 PW-13B-002	1/6/06	1510		X	X	X	X	X	X	4	
										8	

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Matt Rhiger	Company/ Agency CH2M HILL	Date/ Time 1/6/06 1700
Signature (Received) Rafael Davila	Printed Name Rafael Davila	Company/ Agency T.E.T	Date/ Time 1-6-06 9:15
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name JONLUNA	Company/ Agency EMAX	Date/ Time 1-6-06 0920
Signature (Relinquished)	Printed Name JONLUNA	Company/ Agency EMAX	Date/ Time 1-7-06 0915
Signature (Received)	Printed Name ANTHONY FUSCONE	Company/ Agency EMAX	Date/ Time 1/7/06 0915

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.2 °C/F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

1003

TRUESDAIL LABORATORIES, INC.
14401 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[2006 PWS-002]

950551

COC Number

TURNAROUND TIME 10 Days

DATE 1/7/06 PAGE ___ OF ___

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	Jennifer Clapham

ALERT!! Level III QC

Rec'd S 01/08/06 950551

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (7199) Field Filtered	Diss Metals (60108) Field Filtered Chromium	Diss Metals (60108) Field Filtered Ca,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CON	COMMENTS
PW-08A-002	1/7/06	837	Water	X	X		X	X	3	NO<0.2
PW-10A-002	1/7/06	837	Water	X	X		X	X	3	NO<0.2
PW-08B-002	1/7/06	913	Water	X		X	X	X	3	NO<0.2 Yellow pH lab 1.14
PW-08C-002	1/7/06	1006	Water	X	X		X	X	3	NO<0.2 Yellow pH lab 1.12
PW-08D-002	1/7/06	1042	Water	X	X		X	X	3	NO<0.2
PW-16A-002	1/7/06	1133	Water	X	X		X	X	3	NO<0.2
			Water							
			Water							
			Water							

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
1	Signature (Relinquished) Jennifer Clapham	Printed Name JENNIFER Clapham	Company/ Agency CH2M	Date/ Time 1/7/06 1155
2	Signature (Received)	Printed Name Miguel L.	Company/ Agency EXECUTIVE	Date/ Time 1/07/06 12:00
3	Signature (Relinquished)	Printed Name M. Lagunas	Company/ Agency EXEC.	Date/ Time 1/07/06 16:25
4	Signature (Received) J Brown	Printed Name J Brown	Company/ Agency TZI	Date/ Time 1/7/06 16:25
5	Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
6	Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

(SUN) JAN 8 2006 13:52/ST. 13:50/No. 6828828282 P 3

FROM TRUESDAIL LABS 714 730 6462

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

950551

[2006-TWS-002]

COC Number
TURNAROUND TIME 10 Days
DATE 1/7/06 PAGE 1 OF 1

COMPANY CH2M HILL
PROJECT NAME PG&E Topock
PHONE (510) 251-2888 FAX (510) 622-7086
ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612
P.O. NUMBER 332663.A1.10.01
SAMPLERS (SIGNATURE [signature]

Rec'd 01/07/06
S 950551

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (6010B) Field Filtered Chromium	Diss Metals (6010B) Field Filtered Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
7	PW-14D-002	1/7/06	850	Water	X	X		X	X		ND<0.2
8	PW-14C-002	1/7/06	930	Water	X	X		X	X		ND<0.2
9	PW-114C-002	1/7/06	1200	Water	X	X		X	X		ND<0.2
10	SW-14B-002	1/7/06	1015	Water	X	X		X	X		ND<0.2
11	PW-14B-002	1/7/06	1040	Water	X	X	X	X	X		ND<0.2
12	PW-14A-002	1/7/06	1135	Water	X	X		X	X		
13	SW-08B-002	1/7/06	9:34	Water	X	X		X	X		
				Water							
				Water							

ALL Level III QC — yellow pd filtered

CHAIN OF CUSTODY SIGNATURE RECORD

Signature	Printed Name	Company/Agency	Date/Time
Signature (Relinquished) [signature]	Matt Riggs	CH2M Hill	1/7/06 1200
Signature (Received) [signature]	M. Laguna	EXECUTIVE	1/07/06 12:00
Signature (Relinquished) [signature]	Miguel L.	EXECUTIVE	1/07/06 13:05
Signature (Received) J Broom	J Broom	TLI	1/7/06 16:25
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
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CHAIN OF CUSTODY RECORD

[2006-PWS-002]

950552

COC Number

TURNAROUND TIME 10 Days

DATE 1/7/06 PAGE 1 OF

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	Matt Rigi

SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (60108) Field Filtered	Diss Metals (6010B) Field Filtered Cr,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAINERS	COMMENTS
PW-15A-002	1/7/06	1320	2 Water	X	X		X	X		pH=2 ND<0.2
PW-15B-002	1/7/06	1425	6 Water	X		X	X	X		pH=2 ND<0.2
PW-15C-002	1/7/06	1505	3 Water	X	X		X	X		pH=2 ND<0.2
PW-15D-002	1/7/06	1540	9 Water	X	X		X	X		pH=2 ND<0.2
SW-16B-002	1/7/06	1355	4 Water	X	X		X	X		pH=2 ND<0.2
			Water							
			Water							
			Water							
			Water							

Rec'd 01/07/06
S 950552

ALERT!! Level III QC

For Sample Conditions See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Rigi	CH2M HILL	1/7/06 1700
Signature (Received)	Ana L Brown		1/7/06 20:40
Signature (Relinquished)	FRED DUCKER	EXE	1/8/06 8:30 AM
Signature (Received)			
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[2006-PWS-002]

950552

COC Number

TURNAROUND TIME 10 Days

DATE 1/7/06 PAGE ___ OF ___

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	332663.A1.10.01
SAMPLERS (SIGNATURE	Jennifer Claghorn

ALERT!! Level III QC

Rec'd 01/07/06
S 950552

SAMPLE I.D.	DATE	TIME		DESCRIPTION	CR6 (7199) Field Filtered	Diss Metals (60108) Field Filtered Chromium	Diss Metals (60108) Field Filtered Ca,Fe,Mn,Ca,Mg,K,Na	Specific Conductance (120.1)	pH (150.1)	NUMBER OF CONTAIN	COMMENTS
PW-16B-002	1/7/06	1314		Water	X	X		X	X	3	pH=2 ND<0.2
PW-16B-002	1/7/06	1329	3	Water	X	X		X	X	3	pH=2 ND<0.2
PW-16C-002	1/7/06	1403	5	Water	X	X		X	X	3	pH=2 ND<0.2
PW-16D-002	1/7/06	1444	7	Water	X	X		X	X	3	pH=2 ND<0.2
				Water							
				Water							
				Water							
				Water							
				Water							

For Comments Conditions
See Form Marked

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) Jennifer Claghorn	Jennifer Claghorn	CH2M	1/7/06 1700
Signature (Received) Ana L. Brown	Ana L Brown		Date/ Time 1/7/06 20:40
Signature (Relinquished) Ana L. Brown	Ana L Brown	EXE	Date/ Time 1/7/06 8:30 PM
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

06A031

G4

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 12 Days

DATE 1/7/06 PAGE ___ OF ___

COMPANY CH2M HILL

PROJECT NAME PG&E Topock GWM

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE Jennifer Claghorn

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)	NUMBER OF CONTAINERS	COMMENTS
PW-08B-002	1/7/06	913	WATER	X	X	X	X	X	X	4	

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) Jennifer Claghorn	Printed Name Jennifer Claghorn	Company/ Agency CH2M	Date/ Time 1/7/06 1700
Signature (Received) Ana L. Brown	Printed Name Ana L Brown	Company/ Agency	Date/ Time 1/7/06 20:40
Signature (Relinquished) [illegible]	Printed Name FED DOUGLAS	Company/ Agency EXE	Date/ Time 1-7-06 [illegible]
Signature (Received) [illegible]	Printed Name JON LUNA	Company/ Agency EMAX	Date/ Time 1/7/06 0620
Signature (Relinquished) [illegible]	Printed Name J Brown	Company/ Agency TU	Date/ Time 1-7-06 21:20
Signature (Received) [illegible]	Printed Name	Company/ Agency	Date/ Time

1/8/06
0945

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☒ 3.6°C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

06A031

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

G4

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 12 Days

DATE 1/7/06 PAGE 1 OF 1

COMPANY CH2M HILL

PROJECT NAME PG&E Topock GWM

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE)

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)	NUMBER OF CONTAINERS	COMMENTS
1 PW-14B-002	1/7/06	1040		X	X	X	X	X	X	4	

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Rinjin	CH2M Hill	Date 1/7/06 Time 1200
Signature (Received)	M. Lagunas	EXECUTIVE	Date 1/07/06 Time 12:00
Signature (Relinquished)	Miguel L.	EXECUTIVE	Date 1/07/06 Time 16:25
Signature (Received)	J Brown	TLI	Date 1/7/06 Time 16:25
Signature (Relinquished)	J Brown	TLI	Date 1-7-06 Time 21-20
Signature (Received)	JONLUNA	emax	Date 1/7/06 Time 0920
			1/8/06 0915

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

06A031

G4

EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

CHAIN OF CUSTODY RECORD

[2006-PWS-002]

COC Number

TURNAROUND TIME 12 Days

DATE 1/7/06 PAGE ___ OF ___

COMPANY CH2M HILL

PROJECT NAME PG&E Topock GWM

PHONE (510) 251-2888 FAX (510) 622-7086

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 332663.A1.10.01

SAMPLERS (SIGNATURE) Matt Hagi

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Organic Carbon (415.2) Field Filtered	Alkalinity (310.1)	Anions (300) Cl,SO4,F,NO3	Phosphorus (365.2)	Ammonia (350.2) Dissolved ammonia, nitrogen	Sulfide (376.2)	NUMBER OF CONTAINERS	COMMENTS
3 PW-15B-002	1/7/06	1425		X	X	X	X	X	X		

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Matt Hagi	CH2M Hill	1/7/06 1700
Signature (Received)	Ana L. Brown	Company/ Agency	Date/ Time 1/7/06 20:40
Signature (Relinquished)	~~Fred Douglas~~	Company/ Agency EXE	Date/ Time 1/7/06 2030
Signature (Received)	JIM LUNA	Company/ Agency emax	Date/ Time 1/8/06 0320
Signature (Relinquished)	J Brown	Company/ Agency TTI	Date/ Time 1-7-06 21-00
Signature (Received)		Company/ Agency	Date/ Time

1/8/06 0945

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS: