

Draft Environmental Impact Report  
*for the*  
Topock Compressor Station  
Groundwater Remediation Project

California Department of Toxic Substances Control



SCH #2008051003

Prepared for:

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### **2.1.1.1 FUTURE REVIEW OF PROJECT-LEVEL DESIGNS**

When PG&E reduces the proposed final remedy to specific designs associated with a discrete footprint within the project area, DTSC shall review these plans which would include the Corrective Measures Implementation Workplan and subsequent design. DTSC shall determine if the impacts associated with the project-level designs are generally consistent with the significance conclusions of this EIR, after implementation of mitigation. On this basis, DTSC shall determine whether the specific design for the final remedy is within the scope of the program EIR, pursuant to the provisions of Section 15168 of the CEQA Guidelines.

In some cases, site-specific mitigation planning may be necessary when project designs are available. This EIR evaluates these potential consequences to the extent possible and provides program-level mitigation measures and performance criteria to guide mitigation planning; however, site-specific impact or mitigation analyses have not been achievable at this juncture in project development.

## **2.1.2 CONTENTS AND PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT**

In accordance with Section 15125 of the CEQA Guidelines, the EIR must include a description of the physical environmental conditions in the vicinity of the project as they exist at the time of the notice of preparation (NOP), or, if no NOP is published, at the time the environmental analysis begins. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. The environmental analyses contained in Chapter 4 of this DEIR uses the NOP as the baseline for the description of the physical conditions that might be affected by the proposed remedial options. However, based on a 2005 Stipulation and Settlement Agreement between DTSC and the Fort Mojave Indian Tribe regarding an interim remediation system that was constructed at the compressor station in 2004, the EIR must also evaluate potential impacts (on biological and cultural resources solely) using a baseline date of January 2004, the date after which construction of the interim remediation system was initiated. Therefore, this DEIR considers two separate baselines in analysis of potential impacts for biological and cultural resources. The analyses conducted using the January 2004 baseline date are contained in Chapter 7 of this DEIR.

This document has been prepared in sufficient detail to support a decision for approval or rejection of the proposed project. DTSC intends that this EIR be used by other local, regional, and state agencies in the approval process of related permits associated with cleanup efforts within the project area. These agencies are identified in Section 2.5 of this chapter. To the extent that the CEQA streamlining processes described above are available to such agencies, they may choose to rely on them as well.

The purpose of an EIR is not to recommend approval or denial of a proposed project. Rather, an EIR is required to identify the significant adverse environmental effects of a proposed project to the physical environment, and to further identify measures that avoid or mitigate those impacts to the extent feasible. If environmental impacts are identified as significant and unavoidable in the sense that no feasible mitigation measures or alternatives have been identified, DTSC may still approve the project after adopting all feasible mitigation measures and alternatives if, through the adoption of CEQA findings and statement of overriding considerations, it finds that social, economic, legal, technological, or other benefits outweigh these impacts.

## **2.2 BACKGROUND OF THE PROPOSED PROJECT**

### **2.2.1 COMPRESSOR STATION HISTORY AND ACTIVITIES**

The compressor station is owned and operated by PG&E. It began operating in 1951 and is still active today. From 1951 to 1964, the compressor station was located on a 65-acre property that PG&E leased from the U.S. Bureau of Land Management (BLM). In 1964, BLM transferred the property to the State of California and in 1965 PG&E purchased the property from the state. The compressor station is used to compress and cool natural gas for transport through PG&E pipelines to customers in central and northern California. Pipeline pressure must

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/6/2010 4:40:04 PM

**T** Did BLM and the State of California own the land during the time that contamination was discharged to the land by PG&E? Is it possible for BLM to be considered a potential responsible party under RCRA or CERCLA? Is it possible that the State of California and DTSC can be considered a responsible party under RCRA or CERCLA?

If DTSC is able to be considered a potential responsible party under RCRA or CERCLA then are they able to legally act as a reasonable independent lead responsible agency without the perception that they may have a vested interest in minimizing the extent and cost of any remedial activities?

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be increased at regular distances along the pipeline to effectively transport natural gas through the pipelines. As the pressure is increased, the temperature of the gas also increases. Cooling towers located at the compressor station use water to lower the temperature of the gas before reintroducing the gas to the PG&E pipeline system.

The main structures at the facility include the cooling towers (Towers A and B), compressor building, and generator building (Exhibit 2-1). Adjacent to the main buildings are various auxiliary structures including an office, a warehouse, a vehicle garage, maintenance buildings, equipment and chemical storage buildings, and a water softening building. Aboveground tanks used for storage of water, water treatment chemicals, new and waste oil, gasoline and diesel fuel, and wastewater also are located at the facility. Exhibit 2-1 identifies existing infrastructure at the compressor station and vicinity.

When originally constructed, the facility was equipped with six compressors and could process 400 million standard cubic feet per day (scfd) of natural gas. As demand increased, PG&E added new compressors and upgraded existing compressors to increase the volume of gas that the compressor station could process. Most of the upgrades were completed by the mid-1950s. Following the upgrades, the facility is currently capable of processing 1.1 billion scfd of natural gas.

Currently, the compressor station processes between 300 million and 1.1 billion scfd of natural gas, depending on demand. The compressor station operates and is staffed 24 hours per day, 7 days a week. Operations at the compressor station have been relatively unchanged since it opened in 1951. The operations at the compressor station consist of: (1) conditioning the cooling water; (2) compressing the natural gas, (3) cooling the gas and compressor lubricating oil, (4) treating the wastewater that is generated during the cooling process, (5) maintaining the facility and equipment, and (6) miscellaneous operations.

## 2.2.2 CHEMICAL USE AND DISPOSAL AT THE COMPRESSOR STATION

<sup>1</sup> From 1951 through 1985, PG&E added chromium to the water circulating in the cooling towers to inhibit corrosion, minimize scale, and control biological growth that affected the mechanical equipment. Chromium is a chemical found in air, soil, water, and food. There are two common forms of chromium: trivalent chromium [Cr(III)], which is considered an important mineral needed in small amounts for healthy human growth, and hexavalent chromium [Cr(VI)], which is considered harmful to human health at elevated concentrations, because it is carcinogenic if inhaled. While Cr(III) is the less toxic form of chromium for humans, it can have adverse impacts to the environment (e.g., plants, animals).

From 1951 to 1964, untreated wastewater (also known as “blowdown”) containing Cr(VI) was discharged directly to Bat Cave Wash, a natural wash located adjacent to the western boundary of the compressor station. During this period of uncontrolled wastewater discharge, an area of groundwater contaminated with Cr(VI), known as a plume, was formed. Beginning in 1964, <sup>2</sup> PG&E began to treat the wastewater to convert Cr(VI) to Cr(III). Cr(III) is essentially insoluble and tends to bind to soil, so is not as easily transported to groundwater. PG&E also constructed a percolation bed in the wash by creating soil berms that impounded the discharged wastewater and allowed it to percolate into the ground and/or evaporate. In 1969, PG&E began treating the wastewater using a two-step process that converted Cr(VI) to Cr(III) and then removed the Cr(III).

<sup>3</sup> Beginning in May 1970, wastewater discharges to Bat Cave Wash ceased, and treated wastewater was discharged to an injection well located on PG&E property, known as PGE-8. The well facilitated the injection of the treated wastewater into the subsurface at depths in excess of 405 feet below ground surface. In 1973, PG&E discontinued use of injection well PGE-8, and wastewater was discharged exclusively to a set of four, single-lined evaporation ponds located about 1,600 feet west of the compressor station.

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Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/6/2010 4:41:22 PM

**T** This is inconsistent with the Statement of Basis. The Statement of Basis says that PG&E also added biosides. What are biosides and what did they contain?

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Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/6/2010 4:41:29 PM

**T** What concentration was is treated to?

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Sequence number: 3

Author:

Subject: Comment on Text

Date: 7/6/2010 4:40:52 PM

**T** What was the concentration of the water injected? How much water was injected?

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PG&E replaced the Cr(VI)-based cooling water treatment products with nonhazardous phosphate-based products in 1985, at which time PG&E discontinued operation of the wastewater treatment system. Use of the four, single-lined evaporation ponds continued from 1985 to 1989. In 1989, the single-lined ponds were replaced with four new, Class II (double-lined) ponds. The wastewater treatment system and the single-lined ponds were physically removed and closed between 1988 and 1993. The four, Class II double-lined ponds are used currently. The disposal of wastewater from ongoing operations at the compressor station is regulated by the State of California's Colorado River Basin Regional Water Quality Control Board (RWQCB), a department under California's Environmental Protection Agency.

### 2.2.3 GROUNDWATER CONTAMINATION

RCRA corrective action activities at the compressor station were initiated in 1987 with the completion of a RCRA facility assessment (RFA) conducted by the U.S. EPA. The RFA identified areas of possible contamination through records review, data evaluation, interviews, and visual site inspection. The investigation activities conducted at the compressor station are summarized in the RCRA Facility Investigation and the CERCLA Remedial Investigation (RFI/RI) report. This document has been divided into three volumes. Volume 1 contains the site background and history of the compressor station. Volumes 2 and 3 contain information regarding the nature and extent of hazardous waste and constituent releases in groundwater and soil, respectively<sup>1</sup>.

Based on the findings contained in the RFI/RI report, the principal contaminant in groundwater in the project area is Cr(VI). The majority of the Cr(VI) present in groundwater at the compressor station is believed to have been released during the 13-year period (1951–1964) when untreated wastewater was discharged to Bat Cave Wash. From the discharge locations in Bat Cave Wash, the cooling tower “blowdown” water infiltrated into the coarse sand and gravel of the wash bed and percolated downward approximately 75 feet through the unsaturated zone to reach groundwater.

In addition to Cr(VI), elevated concentrations of molybdenum, nitrate, and selenium have been detected within the boundaries of the contaminated groundwater plume. These contaminants are likely released through activities associated with facility operations including compression of natural gas, cooling of the compressed natural gas and compressor lubricating oil, water conditioning, wastewater treatment, and facility and equipment maintenance.<sup>1</sup> However, due to the relatively limited sampling data and lower risks as compared with Cr(VI) at this site, these contaminants would be further addressed through monitoring and institutional controls during implementation of the remedy. Furthermore, it is anticipated that molybdenum, selenium and nitrate would be cleaned up with any of the remedial alternatives proposed by PG&E.

The Cr(VI) groundwater plume has been defined as chromium-bearing groundwater exceeding a regional background (or naturally occurring) value of 32 micrograms per liter (µg/l), or 32 parts per billion (ppb).<sup>2</sup> Based on testing data to date, the majority of the Cr(VI) plume resides predominantly in the more permeable alluvial/fluvial deposits, with the southernmost portion extending into an area of less permeable bedrock known as the East Ravine. The contaminated groundwater plume underlies an area of approximately 175 acres and extends approximately 2,800 feet down-gradient of the former cooling water disposal area in Bat Cave Wash toward the Colorado River, which is adjacent to and east of the contaminated groundwater plume. The thickness of the plume varies from approximately 50 to over 150 feet.<sup>3</sup> Extensive monitoring efforts indicate that the contaminated alluvial groundwater plume has not reached the surface waters of the Colorado River. Based on the results of well installations in the alluvial aquifer on the California and Arizona shores of the Colorado River, the chromium plume has not been detected in Arizona or under the Colorado River just south of I-40 (CH2M Hill 2008:3-2; CH2M Hill 2009; Figure 2-12, included in Appendix CMS of this EIR).<sup>4</sup> The extent of the bedrock plume near the Colorado River is less certain. Cr(VI) concentrations range from less than 0.2 µg/l to 15,700 µg/l

<sup>1</sup> The revised final version of Volume 1 was issued on August 10, 2007. The final version of Volume 2 was issued on February 11, 2009. Volume 3 currently is being completed and is anticipated to be issued in 2011.

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/6/2010 4:43:09 PM

**T** This is inconsistent and contradicts information presented for the proposed remedial alternative presented in the Statement of Basis. This is evidence of pre-selecting or pre-determining a remedy solution. The proposed remedy described in the Statement of Basis does not do anything to cleanup molybdenum, selenium and nitrate.

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Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/6/2010 4:43:00 PM

**T** Is the complete extent of groundwater contamination know? Is the extent of groundwater contamination know in east ravine?

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Sequence number: 3

Author:

Subject: Comment on Text

Date: 7/6/2010 4:45:38 PM

**T** Has the groundwater contamination reached the Colorado River from contamination in the bedrock at east ravine? Is the contaminated groundwater at east ravine in contact with any portion of the Colorado River Water (surface or subsurface)?

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Sequence number: 4

Author:

Subject: Comment on Text

Date: 7/6/2010 4:48:10 PM

**T** This presents evidence that the complete extent of groundwater contamination is not defined. Therefore, an EIR can not evaluate the potential impacts since the extent of the contamination is not completely know, and the project can not be defined. The complete direct and indirect impacts as well as the cumulative impacts are not able to be evaluated, or the complete extent of the project be know.

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within the plume boundaries, with the highest concentrations observed in the area of the MW-20 and MW-24 benches (CH2M Hill 2008:Table 2-4).

A primary route of contaminant migration in the project area is through groundwater transport, given the proximity to the Colorado River. The groundwater gradient in the project area is slight, on the order of 0.0005 vertical feet per horizontal foot, and the hydraulic conductivity of the aquifer along the axis of the plume is moderate, averaging about 30 feet per day. Groundwater is therefore expected to move relatively slowly. The direction of groundwater flow from the source area in Bat Cave Wash generally is toward the north or northeast.

## 2.2.4 CORRECTIVE ACTION HISTORY

RCRA corrective action at the compressor station was initiated in 1987. Investigation and remedial activities have been ongoing since contamination was discovered at the compressor station in 1995. These activities include:

- ▶ groundwater and river water sampling and monitoring;
- ▶ extraction, treatment, and reinjection of groundwater;
- ▶ other environmental investigation activities; and
- ▶ evaluation of long-term cleanup technologies.

Groundwater and river water sampling, or monitoring, began in 1998 as part of initial site investigation activities, and a regular monitoring program is established at the compressor station. Monitoring activities include groundwater sampling from over 100 wells and river water sampling from 18 locations both along the shoreline and from the Colorado River channel (see Chapter 6, “Cumulative Impacts,” regarding past groundwater remediation activities on-site and their corresponding level of CEQA documentation).

A total of 14 solid waste management units (SWMUs), 20 areas of concern (AOCs), and two other undesignated areas have been identified at the compressor station. The SWMUs, AOCs, and other undesignated areas have been identified at different times during the history of the RCRA corrective action process, and therefore, the status of the various sites differs. The status of sites ranges from those where no investigation has yet been performed to sites where remediation and closure have already been completed. For the purpose of developing appropriate conclusions and recommendations, the sites have been divided into three groups, identified below, according to their status within the site investigation, remediation, and closure process:

- ▶ SWMUs and AOCs for which the site investigation and closure process is complete,
- ▶ previously closed SWMUs and AOCs for which further investigation has been requested, and
- ▶ SWMUs, AOCs, and other undesignated areas to be carried forward in the RFI/RI.

Table 2-1 provides a summary of the names, locations, and status of the SWMUs, AOCs, units, and undesignated areas.

### 2.2.4.1 INTERIM MEASURES

As part of the corrective action process, in 2004, DTSC determined that immediate action was necessary at the compressor station, as a precautionary measure, to ensure that chromium-contaminated groundwater does not reach the Colorado River. Interim Measures (IM) were instituted to protect the Colorado River. IMs are cleanup actions that are taken to protect public health and the environment while long-term solutions are being developed and evaluated. There have been three separate but related IMs at the compressor station since 2004 in response to the need to control the groundwater plume. IM-1, IM-2, and most recently IM-3, are collectively referred to as the IM. The IM currently consists of three steps: (1) groundwater extraction from the areas of groundwater containing Cr(VI) for hydraulic control in the Colorado River floodplain, (2) treatment of extracted groundwater in a groundwater treatment plant, and (3) reinjection of the treated groundwater back into the subsurface through injection wells. This treated groundwater meets the standards set by DTSC and the RWQCB.



Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/6/2010 4:51:37 PM

**T**What is the movement of groundwater in fractured bedrock at east ravine? Is it significantly faster? This is an false and misleading statement. What are you defining as the project area for this statement?

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Notices of exemption were prepared pursuant to CEQA for IM-2 (February 2004) and IM-3 (June 2004), which are available for review on the project website at <http://www.dtsc-topock.com/>. It was determined that the notice of exemption was the appropriate level of CEQA review for IM-2 and IM-3 because the project activities were necessary to prevent or mitigate an emergency situation wherein the waters of the Colorado River may be impacted with a hazardous constituent, chromium, and immediate action was necessary to contain and reverse the flow of groundwater toward the Colorado River.

## 2.2.5 ONGOING EVALUATION OF SOILS CONTAMINATION

In addition to groundwater contamination, investigation activities conducted to date within the project area indicate that contaminants have been released to soils through past management practices such as those associated with hazardous materials handling/disposal, waste discharges, spills, and leaks of cooling water and other fluids at the compressor station. Investigation and cleanup of contaminated soils associated with the long-term operation of the compressor station is being conducted under both RCRA and CERCLA. The characterization of soil contamination on and around the compressor station is preliminary and is based on information collected during the RFI/RI data collection process. The nature and extent of hazardous waste and constituent releases in soil in detail, is in the process of development and is expected to be completed in 2013.

To date, the following chemicals have been detected in several soil samples at elevated concentrations: various metals (including chromium and hexavalent chromium), dioxins/furans, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons (TPH). Semi-volatile organic compounds have also been detected, but at lesser frequencies. Many of the highest contaminant concentrations are associated with waste materials within the Debris Ravine area (also known as AOC 4), which is located at the southern end of the compressor station on lands managed by DOI. To address the potential for imminent impacts to the downriver Havasu Wildlife Refuge property, DOI has directed PG&E to remediate portions of the Debris Ravine on an expedited schedule under a time-critical removal action pursuant to DOI's CERCLA authority. Additional soil samples will be collected at various SWMUs, AOCs, and undesignated areas to complete Volume 3 of the RFI/RI. Following completion of the soils investigation, risk assessments will be performed to estimate potential exposure levels, evaluate potential adverse effects of exposures, and estimate potential adverse human health and/or environmental effects based on carcinogenic, noncarcinogenic, and environmental risks. These assessments will determine whether contaminants are present at concentrations that pose unacceptable risk to human health and/or the environment. If it is determined that the presence of these contaminants represents an unacceptable risk, these investigations and assessments will form a basis for determining the geographic locations where risks must be controlled or eliminated through cleanup and/or removal.

DTSC originally planned to combine in a single remedy decision the groundwater and soil investigation and remediation, and to conduct both soil and groundwater evaluation and remediation simultaneously. By June 2007,<sup>1</sup> became apparent to DTSC that legal and technical impediments would delay the soils investigations and the subsequent development of a proposed remedy for any soil contamination.<sup>2</sup> For instance, DTSC learned that certain aspects of the soils remediation project would require compliance with section 106 of the National Historic Preservation Act (NHPA), which is often a time-consuming process. Thus, at that time, DTSC decided that a single remedy decision for the two projects would not be feasible. Nevertheless, DTSC remained hopeful that it would be able to gather sufficient soil information to provide a program-level evaluation of the potential soil remediation along with the groundwater final remedy in a single environmental document under CEQA. For this reason, the May 2, 2008 release of the NOP referenced a single "final remedy" to address both soil and groundwater contamination at the station. However, delays in the soil investigations have continued in the time since DTSC issued the NOP and the lack of a full soil characterization has prevented the preparation of an evaluation of feasible remedies to address the soil contamination. DTSC anticipates that it will be able to begin evaluating a soils remedy in 2014.<sup>3</sup> Because the extent of the soils contamination is not fully known and because feasible remedies have not been identified, inclusion of soils remediation in this EIR would involve a high degree of speculation. Such speculation is neither required under CEQA nor helpful in decision making.

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Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/6/2010 5:01:52 PM

**T** Please explain in detail what are the specific "legal" and "technical" impediments that you reference is the cause for the delay in conducting the soils investigations and the subsequent development of a proposed remedy for any soil contamination? Please list them and identify who was responsible for the delays. You state that certain aspects of the soil remediation project would require compliance with section 106 of the NHPA which is often a time-consuming process. This is for soil remediation. The sentence before you state soils investigations? What is it? Is DTSC responsible for section 106 consultation? Who is?

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Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/6/2010 5:05:02 PM

**T** The reference to delays in the Section 106 process is not a basis or justification to piece-meal the remedy or EIR process. Who was specifically responsible for delaying the Section 106 process? Did PG&E request to delay any portions of the soil investigation? If so, please provide a summary of that PG&E request and the basis PG&E used as justification for that request?

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Sequence number: 3

Author:

Subject: Comment on Text

Date: 7/6/2010 5:02:44 PM

**T** Can any of the soil contamination potentially migrate, leach and/or impact groundwater?  
If the potential to impact groundwater from soil contamination is not know, a complete groundwater remedy can not be determined, nor the magnitude of the project. This is further evidence of piece-mealing the EIR and actions inconsistent with the initial NOP.

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<sup>1</sup> Since the issuance of the NOP, DTSC has publically discussed its efforts to keep the soils and groundwater remediation projects on parallel tracks, and its subsequent decision to separate the analyses of the groundwater remedy from the soils remedy. <sup>2</sup> This information, for instance, was evident in the published project schedules. <sup>3</sup> The decision to select two formally separate remedies for groundwater and soil is reflected in the June 2007 project schedule and was presented at the Topock Consultative Work Group meeting held on June 20, 2007. At that time, DTSC still hoped that the projects would remain on relatively parallel tracks and could be evaluated in a single programmatic EIR. By the summer of 2008, however, the focus to select a final remedy for the restoration of the groundwater resource and protection of the Colorado River was intensified while the schedule for investigation of the soil contamination fell further behind.

In sum, at this time, due to limited soil contamination data, it is impossible to determine the extent of soil contamination at or surrounding the site, and thus even a preliminary determination of potential remediation needs are still undetermined. Therefore, this EIR could not feasibly analyze both the groundwater and soils remediation projects as envisioned during the release of the NOP in May 2008.

<sup>4</sup> DTSC could delay moving forward with the groundwater remediation project, so that the groundwater and soils remediation projects could be analyzed in a single EIR. DTSC has determined, however, that it is not in the public interest to delay the groundwater remediation project until the soils remediation project is developed. The groundwater and soil remediation activities currently are on different schedules and tracks and will be evaluated in separate environmental documents. It is important to note that while it might have been more efficient administratively to pursue the two projects in tandem because of their geographic proximity and because of the commonality of stakeholders, these two projects are not dependent on one another for completion. The soils remediation project is not an expansion of the groundwater remediation project and will not change the nature or scope of the groundwater project. <sup>5</sup> In fact, the two projects involve different contaminants and distinct environmental risks; while Cr(IV) may be present in the soil as well as the groundwater, elevated concentrations of dioxins/furans, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons (TPH), as well as some semi-volatile organic compounds, have also been detected in the soils. Because of the nature of the contamination and contaminated substrate, the two projects would necessarily employ different remediation technologies on different schedules for different durations. Potential soil contamination cleanup activities in the future may prove to be a key component of the overall cleanup efforts at the compressor station, but would represent a separate project from the groundwater remediation project and would have independent utility. If further soils investigations indicate that soils remediation is suggested, future environmental review would be required before initiating any remediation of contaminated soils.

The remedial alternatives evaluated for groundwater are anticipated to be different from the alternatives to be evaluated for soil. The RFI/RI Volume 3 and associated risk assessment will complete the evaluation of soils, and will provide conclusions about remedial objectives, if any, associated with any potential soil contamination that might migrate to groundwater. While this evaluation is not complete, it is not anticipated that this evaluation will redefine the objectives of the groundwater remedy. Thus, this DEIR does not consider future soil remediation activities as part of the proposed project; however, for the purposes of full disclosure soil remediation activities are considered a reasonably foreseeable future project and considered as part of the cumulative impacts analysis in Chapter 6 of this DEIR.

Such division of remedial activities at the Topock site is common at remediation sites. Much emphasis has been placed in recent years on reforming EPA policies for remediation sites to phase site remediation programs to focus resources on the areas or pathways of highest concern (e.g., Corrective Action Advance Notice of Proposed Rulemaking, EPA Results-based Approaches and Tailored Oversight Guidance document (EPA 530-R-03- 012 September 2003)).

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Author:  
Subject: Highlight  
Date: 7/7/2010 4:44:51 PM

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Sequence number: 2  
Author:  
Subject: Comment on Text  
Date: 7/6/2010 5:07:13 PM

T When was the actual decision made to deviate from the information provided in the NOP? Who from DTSC actually made this decision? What was the administrative record document that was approved by DTSC? Who from DOI actually made this decision? Please provide a copy of DOI approval decision document. Once a decision was made why was the NOP not revised and publicly re-noticed?  
Who was responsible for publishing the project schedule? Was it PG&E? Were comments received on the NOP? If so, what were the complete comments and the response to those comments?

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Sequence number: 3  
Author:  
Subject: Highlight  
Date: 7/6/2010 5:18:11 PM

T This is evidence of a significant defect in the NOP and EIR process. DTSC is incorrect when stating that the NOP was publically discussed after being issued. First, please provide documented evidence that the Topock Consultative Work Group is a public meeting that any member of the public may attend? Provide documentation that these meetings were properly noticed by posting agendas at the meeting place 72-hours in advance of the meeting and that the notice of public meeting was placed in the local newspapers and at other locations. 2. Please provide a copy of the agenda that demonstrates that this was a public meeting and where the agenda states that the public was allowed and had the opportunity to comment after each agenda item was presented? The public had an expectation that the NOP accurately described the anticipated extent of the project to be considered in the EIR. This is a bait-and-switch. You told the public one thing in the NOP but when the EIR comes out it is something different. Lead agencies as well as responsible, and trustee agencies relied on information presented in the NOP. This is a defect in the process. The NOP must be re-noticed with the correct information. This bait-and-switch is not good faith effort at full and complete disclosure by DTSC.  
The NOP did not meet its intended function as a procedural device used to initiate interagency dialogue. Was the NOP posted for 30 days in the office of the county clerk of the county or counties in which the project was located? The NOP did not include a consistent description of the project as presented in the EIR. Therefore, the responding agencies were misled as to the extent of the actual project and comments may have been omitted.

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Sequence number: 4  
Author:  
Subject: Comment on Text  
Date: 7/6/2010 5:10:53 PM

T Why is it not in the public interest? Has DTSC and/or DOI determined that there is an immediate threat or danger to the Colorado River? If so please provide the documentation that supports this statement.  
Is groundwater contamination currently entering the Colorado River? If so where and how much? Is the Interim Measures facility not able to maintain a landward groundwater gradient away from the Colorado River? Has PG&E requested a delay to conduct the soil investigation? We do not see any viable stated basis or rationale to bifurcate and piece-meal the groundwater and soil remedy as well as the EIR process. We do not see any rational basis or weight of evidence that supports this piece-meal remedy and EIR approach. A complete groundwater and soil remedy with associated EIR should be conducted together so that we completely understand what the complete project is in order to evaluate all the various impacts as a result of those activities. Also PG&E will be informed as to the complete magnitude and cost associated with the cleanup.

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Sequence number: 5  
Author:  
Subject: Comment on Text  
Date: 7/6/2010 5:11:45 PM

T What is incorrectly being proposed is a groundwater remedy for only one chemical Cr(IV) while other containments exist in groundwater and other containments may leach from the soil into groundwater. The proposed remedy is flawed and the evaluation of impacts in the EIR is defective since a complete groundwater remedy is not known.

This approach is supported by the following legal precedence and directives:

- ▶ <sup>1</sup> “project” under CEQA is defined as the whole of an action which has the potential for resulting in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment (Public Resources Code Section 21065). In this case, the “whole of the action” does not include soils cleanup activities.
- ▶ <sup>2</sup> Currently, meaningful information is not available regarding the soil cleanup activities (*No Oil, Inc. v. City of Los Angeles* [1987] 196 Cal. App. 3d 223), and CEQA does not mandate that agencies engage “rank speculation as to possible future environmental consequences” of actions that may or may not occur in the future (*Laurel Heights Improvement Assn. v. Regents of University of California* [1988] 47 Cal.3d 376, 395 ).
- ▶ <sup>3</sup> Information about the soils contamination and the associated cleanup is not necessary to make an environmentally informed decision whether to proceed with the groundwater contamination cleanup (*No Oil, Inc. v. City of Los Angeles* [1987] 196 Cal. App. 3d 223).
- ▶ <sup>4</sup> The soils project is not a reasonably foreseeable consequence of the groundwater project, nor would the soils project change the scope or nature of the initial project (*Laurel Heights Improvement Assn. v. Regents of the University of California* [1988] 47 Cal.3d 376.) Rather the soils and groundwater projects, while geographically proximal, are separate distinct actions, and DTSC’s decisions on the groundwater project will not affect its decisions on the soils project, and vice versa. Thus, the soils cleanup appears independent of, and not a contemplated future part of the groundwater cleanup efforts (*Christward Ministry v. County of San Diego* [1993] 13 Cal. App. 4th 31; *Del Mar Terrace Conservancy, Inc. v. City Council* [1992] 10 Cal.App.4th 712).
- ▶ <sup>5</sup> CEQA Guidelines section 15165 provides that, “[w]here one project is one of several similar projects of a public agency, but is not deemed a part of a larger undertaking or a larger project, the agency may prepare one EIR for all projects, or one for each project, but shall in either case comment upon the cumulative effect.”
- ▶ <sup>6</sup> The EIR does consider the potential for the soils and groundwater remediation projects to result in cumulative impacts, the potential for such cumulative impacts is disclosed, and appropriate mitigation measures are identified.

## 2.3 AGENCY ROLES AND RESPONSIBILITIES

<sup>7</sup> The CEQA Guidelines identify the lead agency as the public agency with the principal responsibility for carrying out or approving a project (14 California Code of Regulations Section 15367). DTSC is the CEQA lead agency for the proposed project because DTSC has the primary approval authority for the project. In addition to approving the final remedy, DTSC would approve the subsequent Corrective Measures Implementation Workplan, preliminary design, intermediate design (if needed), and final remedial design.

A number of other agencies in addition to DTSC will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Section 15381 and Section 15386, respectively. This DEIR provides environmental information to these and other public agencies, which may be required to grant approvals or otherwise coordinate with DTSC, PG&E, or other agencies as part of project implementation. For the purposes of CEQA, the term “responsible agency” includes all state and local public agencies other than the lead agency that have discretionary approval power over the project (14 California Code of Regulations Section 15381). “Trustee agencies” are state agencies that have jurisdiction by law over natural resources affected by the project and held in trust for the people of the state, such as the California Department of Fish and Game and the State Lands Commission (CEQA Guidelines Section 15386). Future discretionary approvals may include issuance of a permit, if not otherwise exempt as explained below, or other required action. Responsible agencies may consider and use the analysis provided in this DEIR to satisfy their responsibilities under CEQA, as they deem appropriate. Federal

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Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/6/2010 5:20:00 PM

**T** Since the complete extent of the groundwater contamination is not know, the direct physical change to the environment or the reasonably foreseeable physical change as a result of the project is not know. Therefore, this EIR is deficient in its ability to know the defined limits of the project area as well as the potential direct and indirect impacts as well as potential cumulative impacts.

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Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/6/2010 5:20:54 PM

**T** The failure of DTSC/DOI to not direct PG&E to conduct the soil investigation as a result of PG&E's request to delay this investigation is not a legal basis to bifurcate and piece-meal the EIR process.

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Sequence number: 3

Author:

Subject: Comment on Text

Date: 7/6/2010 5:21:51 PM

**T** The administrative record is clear that DTSC previously determined that information about soil contamination is necessary to make an environmentally informed decision. This is evidence by the NOP as well as other DTSC technical documents indicating the concern for leaching of soil contamination to potentially effect groundwater, in addition to directing PG&E to conduct the soil investigation.

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Sequence number: 4

Author:

Subject: Comment on Text

Date: 7/6/2010 5:22:23 PM

**T** The administrative record is clear that the soils project is a reasonably foreseeable consequence of the groundwater project as documented in the administrative record.

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Sequence number: 5

Author:

Subject: Comment on Text

Date: 7/6/2010 6:25:13 PM

**T** Since the complete project is not know it is impossible to evaluate or consider a potential cumulative effect.

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Sequence number: 6

Author:

Subject: Comment on Text

Date: 7/6/2010 6:25:22 PM

**T** How does it actually do what you are stating such that anyone can make an informed decision?

---

Sequence number: 7

Author:

Subject: Comment on Text

Date: 7/6/2010 5:23:08 PM

**T** What is DTSC's CEQA authority in Arizona? How will DTSC enforce mitigation measures in Arizona?  
Is this a joint CEQA/NEPA document? If so were noticing requirements set forth in the NEPA regulations (40 CFR 1500.1 et seq) followed?

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**Lake Havasu City, Arizona:**

Lake Havasu City Aquatic Center  
100 Park Avenue  
Lake Havasu City, AZ 86403  
Wednesday, June 23, 2010  
Open House—5:30 p.m. to 7:00 p.m.  
Public Hearing—7:00p.m. to 8:30 p.m.

**Needles, California**

Needles High School  
1600 Washington Street  
Needles, CA 92363  
Tuesday, June 29, 2010  
Open House—5:00 p.m. to 6:30 p.m.  
Public Hearing—6:30 p.m. to 8:00 p.m.

Please submit your written comments on the DEIR, with the subject line “Topock DEIR Comments,” postmarked or dated (for e-mails) no later than July 19, 2010, to:

Aaron Yue  
Project Manager  
California Department of Toxic Substances Control  
5796 Corporate Avenue  
Cypress, CA 90630  
ayue@dtsc.ca.gov  
Phone: 714-484-5439  
Fax No.: 714-484-5411

## 2.5 SCOPE OF THIS ENVIRONMENTAL IMPACT REPORT

The scope of the analysis contained within this DEIR is focused on the environmental resource areas that could be affected by construction or operation of the proposed project. The DEIR therefore addresses the following environmental issues:

- ▶ aesthetics
- ▶ air quality
- ▶ biological resources
- ▶ cultural resources
- ▶ geology and soils
- ▶ hazardous materials
- ▶ hydrology and water quality
- ▶ land use and planning
- ▶ noise
- ▶ transportation
- ▶ utilities and service systems
- ▶ water supply

<sup>1</sup> was determined that several issue areas would not be affected by implementation of the proposed project based on a review of the NOP, public comments received on the NOP, comments from the public scoping meetings, and review of existing information. These issue areas include agricultural resources, mineral resources, population and housing, public services, and recreation. Section 5.3 of this DEIR provides a summary of those issue areas for which a detailed analysis is not included and the basis for those determinations.

## 2.6 DEIR ORGANIZATION

This DEIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Section 4.2, “Air Quality”).

**Chapter 1, “Summary”:** This chapter presents a summary of the proposed project activities and the potential environmental impacts. It describes mitigation measures that would be implemented and level of significance after mitigation (as fully described in Chapter 4). It also provides a summary of alternatives to the proposed project, a summary of known controversial issues, and issues to be resolved.




Sequence number: 1

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Subject: Comment on Text

Date: 7/6/2010 6:26:17 PM

 Who provided public comments? What were the comments and what were the responses to those comments?

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Park in California (Exhibits 3-1 and 3-2). The compressor station is approximately one-half mile west of the community of Topock, Arizona, which is situated directly across the Colorado River and is 5 miles south of Golden Shores, Arizona. The compressor station is approximately 1,500 feet west of the Colorado River and less than 1 mile south of Interstate 40 (I-40). The compressor station is within a 66.8-acre parcel of land owned by the Pacific Gas and Electric Company (PG&E). The area of the compressor station that is developed is fenced and encompasses approximately 15 acres. As shown in Exhibit 3-2, the area within which corrective action activities would occur (the “project area”) includes 40.3 acres of the 66.8-acre PG&E-owned parcel as well the immediate surrounding area that could be affected by construction, operation, and/or decommissioning activities associated with the proposed project. This project area encompasses 779.2 acres. The lands adjoining the PG&E parcel are owned and/or managed by a number of government agencies and private entities, including the Havasu National Wildlife Refuge, which is managed by the U.S. Fish and Wildlife Service; lands managed by the U.S. Department of Interior, Bureau of Land Management; U.S. Bureau of Reclamation managed by the U.S. Bureau of Land Management; the Burlington Northern Santa Fe Railway (BNSF); California Department of Transportation–leased land; lands owned by the Fort Mojave Indian Tribe; and privately owned lands. Exhibit 3-3 depicts the division of land ownership within the project area and the horizontal limits of the contaminated groundwater plume.

### 3.3 PROJECT PURPOSE

Past activities at the compressor station have resulted in contamination of groundwater with Cr(VI), Cr(T), molybdenum, selenium, and nitrates, which have the potential to affect human health and the environment. Protection of California’s groundwater resources, including the Colorado River, which is adjacent to the contaminated groundwater plume, is one of DTSC’s highest priorities. DTSC has directed PG&E to take actions, which include operation of the existing IM-3 Facility, to control the groundwater gradient in the floodplain area of the site from the compressor station to protect the Colorado River (see Section 2.2.5). This measure has proved successful to date in preventing contaminated groundwater from reaching the Colorado River. However, further actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA) corrective action process, which is a process designed to evaluate the nature and extent of releases of hazardous substances and implement appropriate protective measures, are needed to ensure the long-term effectiveness and protection of human health and the environment. Thus further cleanup actions are needed to treat the contaminated groundwater plume.

The long-term cleanup options are summarized in the Final CMS/FS (CH2M Hill 2009, included in Appendix CMS of this EIR). The Final CMS/FS was evaluated by stakeholders, agencies, and tribal governments interested in the site. The CMS/FS identifies the cleanup objectives, evaluates remedial alternatives, and provides the basis for selecting a recommended alternative to address the defined objectives for the remedial action. As the lead agency under the RCRA, DTSC reviewed the alternatives considered in the Final CMS/FS and agrees with PG&E’s recommendation in the Final CMS/FS that Alternative E—In Situ Treatment with Freshwater Flushing provides the best balance within the regulatory selection criteria framework identified in the Final CMS/FS and the potential site impacts identified within this EIR. The Alternative E—In Situ Treatment with Freshwater Flushing remedy is, therefore, carried forward in the statement of basis under the RCRA corrective action process and for analysis as the proposed project in this EIR.

### 3.4 PROJECT OBJECTIVES

The objectives of this project are defined based on the conclusions of the Ground Water Human Health and Ecological Risk Assessment and identification of applicable or relevant and appropriate requirements (ARARs). The remedial action objectives (RAOs) for the project are intended to provide a general description of the cleanup objectives and to provide the basis for the development of site-specific remediation goals. In accordance with CERCLA guidance, RAOs specify the COPCs, the exposure routes and receptors, and an acceptable contaminant concentration for each exposure pathway (EPA 1988a and 1988b, cited in CH2M Hill 2009:3-7, included in Appendix CMS of this EIR). Protectiveness can be achieved by limiting or eliminating the exposure pathway,

Sequence number: 1

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Subject: Comment on Text

Date: 7/6/2010 6:27:49 PM

**T** Who previously owned this land? When and how did the Fort Mojave Indian Tribe (FMIT) obtain this land from PG&E? Was it a gift of land from PG&E to FMIT? How much did FMIT pay for this land? Was there any agreement with FMIT that in exchange for this land that PG&E would recommend a reduced or lessor cleanup of the contamination in consideration for the land transfer?

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reducing or eliminating chemical concentrations, or both. Guidance from the RCRA corrective action describes goals for final cleanup both in terms of protecting human health and the environment as well as performance standards that must also include controlling future sources of releases (EPA 2004, cited in CH2M Hill 2009:3-7, included in Appendix CMS of this EIR). Further, California State Water Board Resolution 92-49 requires the selection of a remedial alternative that would achieve compliance with RAOs within a reasonable timeframe.

The primary objective of the proposed project is to clean up the groundwater contamination related to the historical release of chemicals into Bat Cave Wash and the East Ravine near the compressor station in a manner that would be consistent with all applicable regulatory requirements and to do so within a reasonable period of time when compared between viable alternatives. These objectives establish specific cleanup goals for Cr(VI) and Cr(T), and address the other identified COPCs (molybdenum, selenium, and nitrates) through monitoring and institutional controls. The proposed project RAOs for groundwater are to:

- ▶ prevent ingestion of groundwater as a potable water source having Cr(VI) in excess of the regional background concentration of 32 micrograms per liter (µg/l) Cr(VI);
- ▶ prevent or minimize migration of Cr(T) and Cr(VI) in groundwater to ensure concentrations in surface waters do not exceed water quality standards that support the designated beneficial uses of the Colorado River [11 µg/l Cr(VI)];
- ▶ reduce the mass of Cr(T) and Cr(VI) in groundwater at the project area to comply with ARARs,<sup>1</sup> which would be achieved through the cleanup goal of 32 µg/l of Cr(VI); and
- ▶ ensure that the geographic location of the target remediation area (contaminated groundwater plume) does not permanently expand following completion of the remedial action.

### 3.5 DESCRIPTION OF THE PROPOSED PROJECT

This section describes the proposed project, or the final remedy, that would be implemented at the compressor station in order to meet the objectives stated above. This project description is consistent with the description contained in the statement of basis and is based largely on information contained within the Final CMS/FS (CH2M Hill 2009, included in Appendix CMS of this EIR). The Final CMS/FS examined nine remedy alternatives. This project description is based on what is identified in the Final CMS/FS as Alternative E—In Situ Treatment with Freshwater Flushing.

<sup>1</sup>Specifically, the proposed project involves flushing the contaminated groundwater plume through an in situ reactive zone (IRZ) and installing extraction wells near the Colorado River to hydraulically control the plume, accelerate cleanup of the groundwater within the floodplain, and flush the groundwater with elevated Cr(VI) through the IRZ. The proposed project consists of five main elements: (1) an IRZ zone along a portion of National Trails Highway, (2) extraction wells near the Colorado River that would pump approximately 640 gallons per minute (gpm) of contaminated groundwater that would be amended with organic carbon before reinjection in the western end of the plume, (3) approximately 500 gpm of freshwater that would be injected west of the plume to accelerate groundwater flow, (4) institutional controls on groundwater use, and (5) monitoring. The project description is divided into sequential phases of project implementation: construction, operations and maintenance, long-term monitoring, and decommissioning. It is estimated that the duration of these phases is 3 years, 29 years (could be up to 110 years), 10 years, and 2 years, respectively.

<sup>1</sup> CERCLA Section 121 requires cleanups to meet “ARARs”: any “legally applicable or relevant and appropriate standard, requirement, criteria or limitation” that has been promulgated under federal or state environmental laws. The ARARs include such things as the federal and state “Safe Drinking Water Act” and the Solid Waste Control Act’s land disposal restrictions.

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Subject: Comment on Text

Date: 7/6/2010 8:00:35 PM

**T** Will this remediation method move any portion of the mass of the groundwater plume closer to the Colorado River? If so how and how much?

Will this method also move other contaminants contained in groundwater closer to the Colorado River? If so what are they and where will they move to? How will this method treat the other contaminants besides CR(6)? Where will these other contaminants end up? Will they eventually enter the Colorado River?

The groundwater gradient is currently away from the Colorado River in order to protect it. What will be the direction of groundwater gradient when this process starts?

When the pumping begins what is the quality of the water pumped? Will it be contaminated? Where will the initial contaminated go. Injecting any contaminated water into the aquifer is not acceptable. Will other contaminants besides CR(VI) be removed from the aquifer? Will these other contaminants be allowed to be injected into the aquifer? How long will it take before clean water reaches the extraction wells and the extraction wells pump clean water?

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of well size would be between 4 and 12 inches in diameter. As discussed for IRZ wells, not all new extraction and injection wells would need to be constructed at the outset of the remedy, but could be constructed as needed during the operation and maintenance period to optimize the cleanup process.

### **Reductant Storage and Associated Facilities**

Up to 240,000 gallons per year of reductant chemicals would be used for the remediation. The reductant for the in situ portion of the proposed project would be stored in aboveground tanks, which would be located within the defined project area shown in Exhibit 3-4, ideally near the injection wells for efficient management of the material. Other likely locations for reductant storage facilities are at the compressor station, existing monitoring well 20 bench (MW-20 bench), which is adjacent to the east side of National Trails Highway in the project area (see Exhibit 1-1), or near the existing IM-3 Facility. The maximum footprint of the area in which the tanks, control buildings, and associated equipment would be located is estimated to be a maximum of 35,000 square feet, which may consist of facilities at multiple locations. Tanks and equipment may be located within a permanent enclosed structure. Alternatively, final design of the project may be based on a mobile delivery system involving a central reductant storage area with one or more concrete or steel tanks built in the project area, ideally at the compressor station within the existing fence line. The tanks would be sized for the demand and are expected to have a storage capacity of up to 100,000 gallons. If multiple tanks are necessary, each tank would be approximately 12 feet wide, 24 feet long, and up to 15 feet tall, with a capacity of 24,000 gallons. The storage or delivery areas would have fencing and lighting for safety and security purposes.

#### **3.5.1.2 FRESHWATER FLUSHING**

Freshwater flushing involves using injection wells to introduce clean water to the aquifer. These injection wells may be located beyond the margin of the plume (but within the defined project area shown in Exhibit 3-4) and would contribute to flushing groundwater through the IRZ. These injection wells may be located in bedrock or along the leading edges of the plume to control movement of groundwater. The injection of freshwater at an assumed rate of approximately 500 gpm would induce a hydraulic gradient to accelerate the movement of the contaminated groundwater through the IRZ, where it would be treated. In addition to the 500 gpm of freshwater, 640 gpm of treated groundwater extracted from the plume would be reinjected. This combined freshwater and treated groundwater injection would also serve to constrain westward movement of the carbon amended water from the IRZ and flush much of this water eastward toward the extraction wells.

<sup>1</sup> Freshwater injection would involve piping water in from an off-site source. Currently, the compressor station receives freshwater from two wells located on the Arizona side of the Colorado River through a Lower Colorado Water Supply Project subcontract with the City of Needles. The water is pumped across the Colorado River through piping mounted on a bridge and then through an aboveground pipeline to two aboveground water tanks located south of the compressor station, where it is stored for use in the operation of the compressor station on an as-needed basis. Freshwater for the flushing portion of the proposed project would come from PG&E's existing Lower Colorado Water Supply Subcontract entitlements and would be pumped either from new or existing Arizona wells, from new wells in California north of the compressor station, or from a new surface water intake at or near the Colorado River (as shown in Exhibit 3-4). Freshwater would be transported by pipeline to injection wells located north, west, and/or south of the plume. Any water pipelines that may be needed to deliver water from freshwater wells and which may extend through or adjacent to the communities of Moabi Regional Park and Topock would be built underground and primarily within existing utility corridors or roadways. The source of freshwater may change during the operation and maintenance period of the remedy; not all freshwater supply structures (wells, intakes, pipelines) would need to be constructed at the outset of the remedy, but could be constructed as needed during the operation and maintenance period. To accommodate the flow volume that would be required for remediation, new pipelines would likely need to be constructed connecting the water supply with the injection wells.

All off-site freshwater delivered to the site may need to be adjusted to match the water quality at the injection point to prevent water fouling. This could require minor pH adjustments to make the water chemically compatible

Sequence number: 1

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Subject: Comment on Text

Date: 7/6/2010 7:47:47 PM

**T**he EIR is defective because it fails to consult and evaluate the impacts with public and private water systems agencies. The EIR fails to identify who will provide water service for the project and ask those suppliers whether water demand associated with the proposed project has been included and accessed. How has this EIR and DTSC addresses water supply issues? How will this pumping impact water quality?

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#### 3.5.4.3 DECOMMISSIONING OF THE FRESHWATER FLUSHING

While most facilities would be expected to be decommissioned following the completion of the remedial action, it is possible that water supply wells or the surface water intake structure may not be decommissioned and that it could be transferred to another use.

#### 3.5.4.4 WATER CONVEYANCE, UTILITIES, AND ROADWAYS

Pipelines would be decontaminated as appropriate. Aboveground piping would be removed and either reused or disposed off-site as scrap material. Subsurface pipelines would likely be abandoned in place following decontamination. Decontamination wash water would be treated on-site or disposed off-site as described above. Electrical utilities would be disconnected from their service points and underground conduit would be left in place. Electrical or piping vaults would be excavated and removed, with the piping or conduit left in place. The excavation would be backfilled. Aboveground conduit would be removed with the piping. Electrical cable would be disposed of or sold for salvage value. Waste materials described above would be disposed of at a permitted off-site disposal facility located within approximately 200 miles of the site.

As wells and other infrastructure are removed and it is determined that access roads are no longer necessary, roads would be decommissioned from further use. The efforts involved in decommissioning would be dependent on the type of road (could be paved with asphalt, covered in gravel, or left unpaved) and the location of road (such as in previously disturbed areas or areas that were in a more natural state prior to the proposed project). Areas that are decommissioned from further use as roads would be restored back to preproject conditions. After deconstruction and decommissioning of the facilities, the areas would be restored using decompaction and grading techniques designed to decrease erosion and accelerate revegetation of native species or as directed.

#### 3.5.4.5 DECOMMISSIONING OF IM-3

<sup>1</sup>IM-3 facilities include extraction wells, injection wells, pipelines, an aboveground treatment plant and brine storage and loading facilities. IM-3 facilities that are not incorporated into the final remedial action are expected to be decommissioned following the determination that the facilities are not needed to meet remedial goals. Methodologies for decommissioning are described below.

The two interim measure injection wells (IW-02 and IW-03) and four extraction wells (PE-1, TW-2D, TW-2S, and TW-3D) would be decommissioned using similar practices as described for well decommissioning as described above. Pipelines would be decontaminated as appropriate. Aboveground piping from the treatment plant to the injection well field would be removed and either reused or disposed off-site as scrap material. Subsurface pipelines from the extraction wells to the treatment plant would likely be abandoned in place following decontamination. Decontamination wash water would be treated on-site or disposed off-site as appropriate. Electrical utilities would be disconnected from their service points and underground conduit left in place. Aboveground conduit would be removed with the piping. Electrical cable would be disposed of or sold for salvage value.

Decommissioning of the existing IM-3 Facility and brine storage and loading facilities would include removing the exterior structure, interior treatment equipment, and associated tanks and facilities from the site. Related process piping, conduit, incandescent lights, electrical trays, concrete, road surfacing, and sunshade metal cladding would be removed and either reused or transported to a local nonhazardous waste landfill. Other components such as the control trailer, sunshade steel supports, tanks, pumps, polymer system, microfilter system, reverse osmosis system, mixers, control panels, switchgears, panels, and generators are expected to be removed and either sold for salvage value or stored at the compressor station as shelf spares.

Similar to well decommissioning, the decommissioning of the treatment plant would generate solid and liquid waste. Waste streams would be identified and evaluated prior to decommissioning. This effort would involve



Sequence number: 1

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Subject: Comment on Text

Date: 7/6/2010 7:54:49 PM

**T**Decommissioning of the IM3 treatment system is premature and should not be considered until such time as a complete remedy (soil and groundwater) is approved and it is determined that the proposed remedy is meeting objectives and the Colorado River can not be potentially impacted.

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hunting-and-gathering lifestyle, and eventually resulting in intensive agriculture with irrigation strategies and substantial dietary shifts. Archaeological evidence of this shift is seen in the establishment of increased use of storage pits, increased population, and domesticated varieties of plants, including corn, becoming more common in the assemblage over time.

Discovery of Patayan sites near the project area have not typically resulted in a clear subsistence history. However, one site identified by Geib and Keller in 2002 (CH2M Hill 2004:3-6), Bighorn Cave, suggests a rich plant-based diet that complemented hunting and gathering expeditions. The earliest components of the Bighorn Cave site include agave parts, cactus stems, screwbean mesquite pods, juniper bark, and goosefoot or pigweed greens. Domesticated corn kernels, squash rinds, and a bean were also found, although in small quantities in the earliest components of the site (CH2M Hill 2004:3-6).

Population increases during the Patayan II and III phases occurred in conjunction with increases in cultural complexity and differentiation, including the adoption of some ceramic decorative styles (recurved rims, stucco finishes) and the abandonment of others (incised decoration). Increased complexity and regional differentiation appears to be related to increases in migration of people from the Lake Cahuilla area sometime near 600 B.P., with ceramic traditions such as Colorado Buff, Palomas Buff, and Parker Buff found at Patayan sites and throughout the region (CH2M Hill 2004:3-6).

### **Ethnographic Setting**

<sup>1</sup> Several culturally distinct Native American groups have long-standing historical and cultural ties to the project area and the surrounding region. The following section contains ethnographic information regarding these cultural groups, including the Mojave, Chemehuevi, Hualapai, Quechan, Cocopah, Halchidoma, Maricopa, Serrano, Cahuilla, Yavapai, and Havasupai peoples.

#### **Mojave**

The Mojave, or Aha Makav, are a Yuman-speaking people whose territory, according to the ethnographic literature, included both riverine and inland areas; their riverine settlement area was mainly north of the Bill Williams River up to the present Nevada border. This main area of Mojave occupation extended on both sides of the lower Colorado River from south of Davis Dam to Topock (Stewart 1983:55). At one time, however, they also occupied Cottonwood Island farther to the north, and the Chemehuevi and Colorado valleys to the south (Stewart 1969:257–276). The historical record indicates that the Mojave were encountered by the Juan de Onate Spanish expedition as far south as the present Colorado River Indian Reservation in 1604 (Stewart 1969:257-276) and that they intermittently controlled areas as far south as Palo Verde valley. Sherer (1965:5) describes their settlement area thusly:

Their river holdings stretched from Black Canyon, where the tall pillars of First House of *Mutavilya* loomed above the river, past *Avi kwame* or Spirit Mountain, the center of spiritual things, to the Quechan Valley, where the lands of the Indians began. Translated into present landmarks, their lands began in the north at Hoover Dam and ended about one hundred miles below Parker Dam. Their tribal name was *Aha macave*, meaning the people who lived along the water (the river).

In addition to the Mojave occupation of the river, there are ethnographic accounts and archaeological evidence that groups of Mojave also occupied interior regions in both California and Arizona for extended periods of time. Habitation patterns and types during the ethnographic past typically consisted of flat-topped shade structures during the summer months and low, rectangular, sand-covered structures during the winter months. The roofs were typically covered with arrowweed thatch, upon which a thick layer of muddy sand was created for insulation (Kroeber 1925:731–735).

Subsistence for the Mojave was dependent partially on agriculture, with crops such as maize, tepary beans, pumpkins, and melons forming the foundation of their diet. Maize was by far the most principal of all the crops,

Sequence number: 1

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Subject: Comment on Text

Date: 7/7/2010 10:49:10 AM

**T**Who conducted and prepared the ethnographic information contained in this section? How does this information relate to the requirements in the IM3 MOU mitigation measures that PG&E was required to prepare an ethnographic study? Did any Tribal entity request to PG&E, DTSC, DOI or any other agency that they be allowed to prepare an ethnographic study for purposes of this EIR in order to present information on their Tribal beliefs? What was the decision regarding any such request? Was PG&E ask by any Tribe to fund such a study? Did PG&E agree to fund such a study? Did DTSC provide any specific direction to PG&E to fund any requested Tribal ethnographic study? Previously the Interim Measures 3 Memorandum of Understanding (MOU) identified mitigation measures that were required of PG&E. What was the effective date of the MOU? What were the required mitigation measures? What has been accomplished related to these required mitigation measures by PG&E? Who was responsible to ensure that these required mitigation measures were enforced? Was an ethnographic study a required mitigation measure? Why has it not been completed? This is documented evidence that demonstrates PG&E's lack of regard for complying with agreement terms and required mitigation measures. Therefore, PG&E can not be trusted to fulfill any future requirements related to mitigation measures or any other requirement. All the requirements of the previous MOU must be completed before the EIR can move forward. To ignore these requirements is a serious and significant deficiency of this EIR.

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along with a list of Native American tribes, communities, groups, organizations, and individuals with historical ties to the area that should be involved in the process. The NAHC replied on October 18, 2007 that a search of the Sacred Lands File failed to indicate the presence of Native American cultural resources in the area. The NAHC also provided a list of 10 tribal contacts that may have knowledge of cultural resources in the project area. This NAHC tribal contact list was expanded to 13 based on prior experience in the region and ongoing existing tribal interest in other compressor station projects.

On February 15, 2008, a letter was mailed to each of the Native American tribal contacts informing them of the proposed project. The letter included a brief project description, project location and vicinity maps, a copy of the NAHC tribal contacts who received the letter, and a response form soliciting feedback. Follow-up calls to each tribal representative were completed by DTSC staff to ensure receipt of the contact letter and to solicit comments directly. In the instances that phone calls were unsuccessful, a follow-up e-mail was sent to the tribal representative.

At the beginning of the Notice of Preparation (NOP) process for this EIR, members of the Native American community were invited to scoping meetings held for purposes of assisting DTSC in determining the scope and content of the environmental document. A series of five scoping meetings were held during which oral and/or written comments were submitted. Written comments to DTSC were also collected throughout the NOP commenting period, including written comments from Native Americans. Table 4.4-2 outlines the tribal concerns, both oral and written, expressed regarding cultural resources that emerged during the NOP process.

Following the NOP process, DTSC and its consultants prepared and implemented a separate Native American Communication Plan (NACP), due in large part to traditional cultural concerns about potential impacts on the Topock Maze (a large geoglyph in the area with substantial cultural significance to some tribal members; see below for full description of this feature), the Colorado River, and the surrounding landscape. The NACP was intended to inform Native American tribal representatives about the EIR process and provide them with adequate opportunity beyond the NOP process to comment. The NACP was also meant to provide a forum to elicit sensitive and confidential information as part of the identification and evaluation of cultural resources for the EIR. Finally, the NACP provided the opportunity for tribal representatives to offer input into the evaluation of potential project impacts, cumulative impacts, and possible mitigation measures. Tribes included in the NACP were those identified early in the EIR process by the NAHC and other nearby tribes that were known historically to have concerns about the Topock region and the Colorado River. Exhibit 4.4-2 shows the various Native American tribes contacted through the NACP in relation to the proposed project area. The following sections briefly describe the communications among DTSC, its subconsultants, and the tribes as part of the NACP process, including a summary of project concerns.

### ***Chemehuevi Indian Tribe***

The chairman of the Chemehuevi Indian Tribe expressed that the tribe does not have any cultural resource concerns in the project area. However, the tribe does have pronounced water-quality concerns in regard to the Colorado River and possible contamination from the groundwater plume. As the Chemehuevi reservation and riverside resort casino are downriver of the project area and contaminated groundwater plume, the tribe believes that an unsuccessful remediation of the groundwater plume may result in socioeconomic and environmental impacts on the tribe.

### ***Cocopah Indian Tribe***

The vice chairman of the Cocopah Indian Tribe expressed that the Colorado River is an important cultural element to all tribes along the river, and the region has been occupied and utilized by Yuman-speaking tribes throughout history. Equal in importance to the river, however, are the cultural resources in the surrounding landscape, which the tribes consider irreplaceable and unique to the region. The tribe has great concern over the destruction of cultural resources in the area and believes that the preservation of a feature known as the Topock

Sequence number: 1  
Author:  
Subject: Comment on Text  
Date: 7/7/2010 10:57:43 AM

**T**A distinction needs to be made that identifies and defines what is considered an actual Tribal government concern for the administrative record. An individual tribal member who may provide a comment is most likely not speaking on behalf of the Tribal government and the Tribal members. Only the Tribal council can provide and present Tribal concerns. This demonstrates the lack of understanding that the author of this DEIR has in relation to the understanding of what is considered an individual concern related to what is considered a Tribal government concern. The author further takes these individual concerns and inappropriately frames them as Tribal concerns when in fact they are not. The author inappropriately attempts to use this limited undocumented and unverified information as a basis to support PG&E's desire to limit the overall extent of the remedial activities. What Tribal document supports the reference to these concerns? If none exists then they need to be documented and treated as general individual stakeholder concerns and not Tribal concerns and should be listed and documented as such.

---

Sequence number: 2  
Author:  
Subject: Comment on Text  
Date: 7/7/2010 10:59:59 AM

**T**Please identify the specific individuals that have expressed this concern and their tribal affiliation. What was the specific cultural significance that was provided by the Tribal Government that documents this significance by the Tribal government and their members?

---

Sequence number: 3  
Author:  
Subject: Comment on Text  
Date: 7/7/2010 10:56:32 AM

**T**How were these Tribal representatives determined to be actually authorized to speak, represent, and provide information on behalf of the Tribal governments. If an individual US citizen states to you that he/she is speaking on behalf of the US Government would you require some documentation and authorization that they actually represent and speak for the US Government? If an individual from a foreign country stated that they represent their country, would you require and confirmation? Were any authorized governmental resolutions presented by any Tribes?

---

Sequence number: 4  
Author:  
Subject: Comment on Text  
Date: 7/7/2010 10:56:24 AM

**T**For Exhibit 4-4-2 Please provide a mileage radius circles originating from the source of the contamination so that we can understand how close each Tribes physical Tribal land is related to the contamination. Please identify what Tribes are upstream? What Tribes are downstream?  
Please provide on the map information on the total number of Tribal members enrolled in each Tribe and currently living on the reservation at the location referenced. Please provide on the map information on the total number of acres of land that each Tribe has.

---

<p align="center"><b>Table 4.4-2</b>  <b>Summary of Cultural Resources Concerns Communicated During the NOP Process</b></p>	
<b>Tribal Entity</b>	<b>Comment</b>
Colorado River Indian Tribes	<p>The tribe is in the process of preparing an ethnographic study and requests updates as to the EIR schedule so that information from the ethnographic study can be incorporated. Additional questions were posed by the tribe through its attorney. <sup>1</sup> See Letter to Aaron Yue, DTSC, from Greg deBie, Deputy Attorney General, CRIT [June 13, 2008].</p>
Fort Mojave Indian Tribe	<p>The Mojave people are affiliated deeply with the land, air, water and all living things within the region. The protection of the Colorado River and sacred land areas are the primary concerns to the tribe. The EIR should recognize the tribe's strong and continuing cultural affiliation to the area.</p> <p><sup>2</sup> The EIR should include a thorough cultural resources technical report and ethnographic study.<sup>2</sup></p> <p>The area of the proposed project is critical to the beliefs, especially those beliefs related to the afterlife, and the area should be treated with respect and acknowledged as sacred despite evident ground disturbance in the area.</p> <p>The EIR should contain an honest assessment of the cumulative past, current, and planned impacts on the sacred area, which is considered to be a cultural and ethnographic landscape by the Tribe.</p> <p>Regulatory agencies are required under federal law and the recent settlement agreement to consult with the tribe.</p> <p>The tribe will be hosting a forum for tribal members to discuss the project. The tribe would like the comments to be incorporated into the NOP process and to inform the EIR.</p> <p>All efforts must be made to avoid and minimize impacts on the cultural and spiritual values the tribe ascribes to the landscape, air, and water subject to effect.</p> <p>Cultural resource management must fully consider the cultural value attributed by the tribe to the entire landscape and its constituent parts, and not focus on the research value of specific sites.</p> <p>Residual data gaps may be acceptable and decisions regarding the need for additional data acquisition should be balanced against further impacts on the sacred area and legal obligations to prevent or minimize such impacts.</p> <p>All efforts must be made to correct the damage that has already been sustained and the tribe must be consulted on such matters.</p> <p>The EIR should be consistent with the settlement agreement in <i>Fort Mojave Indian Tribe v. Department of Toxic Substances Control, et al.</i>, Sacramento Superior Court Case No. 05CS00437.</p> <p>The EIR must include a consideration of the entire Topock area as a traditional cultural property and determine its eligibility for the California Register of Historical Places and the National Register of Historic Places.</p> <p>The project must be consistent with, and the EIR must fully evaluate, Public Resources Code Section 5097.97 on project design and impacts on both state and federal lands.</p> <p>Consultation between DTSC, its consultants, and the tribe should occur regarding each and every alternative prior to the finalization of the EIR, as different alternatives may affect cultural resources differently.</p>
Morongo Band of Mission Indians	<p>If human remains are encountered during grading and other construction excavation, work in the immediate vicinity shall cease and the county coroner shall be contacted pursuant to State Health and Safety Code Section 7050.5.</p> <p>In the event that Native American cultural resources are discovered during the project development/construction, all work in the immediate vicinity of the find shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find.</p> <p>If significant Native American cultural resources are discovered, for which a treatment plan must be prepared, the developer shall contact the Morongo Band of Mission Indians. If requested by the tribe, the developer shall, in good faith, consult on the discovery and its disposition.</p>
<p>Notes: DTSC = California Department of Toxic Substances Control, NOP = notice of preparation.  Source: Data compiled by AECOM in 2009.</p>	

<sup>2</sup> The Fort Mojave Indian Tribe later recommended that an ethnographic study not be conducted (FMIT letter to Arizona SHPO, August 17, 2009).

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 11:03:38 AM

**T**Why are the comments of this Tribe marginalize and the reader is referred to a corresponding reference when the statements from the FMIT are given more weight and detailed presentation and discussion in this section. This is evidence of addressing the concerns of only specific individuals at the FMIT while attempting to reduce the concerns of other Tribes. Why is DTSC and DOI allowing this to occur? All comments related to the NOP should be presented equally, and a determination made if they represents the views of the Tribe or the views of individuals. It is incorrect to assume that statements by individuals represent the views of the Tribe.

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Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/7/2010 11:18:29 AM

**T**Since an ethnographic study would be a significant document that would assist DTSC/DOI in understanding and definition of the complete religious, spiritual, and cultural history of the area, what was the reason that the FMIT did not want to conduct an ethnographic study? Was this a formal request by Tribal Council? or an individual or group that had a vested interests in limiting the preparation of documented factual verifiable information? What was the relation of this request to the FMIT settlement agreement? Was this action before or after the date of the settlement agreement and the proposed gift of land to FMIT?

Is any decision regarding the remedy or the evaluation of potential direct and/or indirect impacts related to Tribal religious or spiritual concerns being considered or evaluated by DTSC and/or DOI in the EIR or decision making process?

What is the basis under CEQA for the evaluation of religious and spiritual concerns?

What is the defined extent of the religious and spiritual area that was identified and is being considered by DTSC and DOI and considered part of the Project area?

By conducting a complete ethnographic study DTSC and DOI would be able to evaluate if in fact the Topock Maze is or is not a religious and spiritual significant relate to historical and current practices of Mohave. To allow a few individuals to invent Mohave cultural traditions would not be appropriate.

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visited and described for purposes of the EIR. The field trip began with a visit to Spirit Mountain and ended with a visit to Locus A of the Topock Maze.

<sup>1</sup>According to Fort Mojave Indian Tribe representatives, the Topock Maze is the area where deceased spirits go to pass on to the next world. The Maze, which is an array of windrows, is not considered to be a true Maze with an entrance and exit, but is represented as a place where a final test of character for a deceased spirit occurs. There is a belief that the remaining parts of the Topock Maze are part of a larger system of cultural sites that once existed that were important areas for rituals and celebrations. For tribal members, the Topock Maze is more than an archaeological site, as it is representative of larger, intangible cultural beliefs.<sup>2</sup> In example given by one tribal member likened the Topock Maze to Arlington National Cemetery, with both areas serving not only as the final resting place of those who have passed on, but also a symbolic image of honor, sacrifice, and shared history.

The Fort Mojave Indian Tribe also expressed a deep cultural connection to the Colorado River and the water in the area. It is widely noted that the Mojave term for themselves, the AhaMaKav, means “People of the Water,” which suggests a strong connection by itself. Tribal representatives also noted that the linguistic part “MaKav” is also used in the term for “diaper” and has a connotation similar to “swaddle,” suggesting that “People Swaddled by Water” could be a more literal translation of AhaMaKav. This is an important distinction because it suggests a more nuanced connection between the Mojave people and the Colorado River. Aside from being a people in close proximity to the river, the Mojave believe that they are protected and secured by the river, as it provides everything for them and is a constant, reliable force in the Mojave culture as a source of water and nourishment.

In addition to the field trip described above, the Fort Mojave Indian Tribe has met and spoken with members of the NACP team on a number of occasions over the course of the CEQA process. During these confidential conversations, as well through comments submitted to DTSC on the CMS/FS, representatives of the Fort Mojave Indian Tribe expressed concerns about cultural resources. Generally, the Fort Mojave Indian Tribe believes that the area surrounding the compressor station, the Topock Maze, and the entire surrounding landscape are of paramount importance to the tribe. The Fort Mojave Indian Tribe notes that the cultural resources of importance to the tribe not only include the artifacts found within the project area and that, “the cultural landscape within which the artifacts are located...has the deepest importance to the tribe, and the desecration of this landscape, not simply the disturbance or destruction of artifacts that needs to be, and must be, acknowledged.” (FMIT 2009a). Due to the strong cultural ties to the area, the Fort Mojave Indian Tribe believes that any remediation activity that requires the construction of additional facilities would be detrimental and continue the historic and contemporary desecration of the area. The tribe believes that the naturally occurring reactive zone in the fluvial sediments of the Colorado River is, “owed to the wisdom of Providence,” and believes that, “this is earth’s natural process of self-healing after an unnatural intrusion.” (FMIT 2009a).

Specific concerns regarding cultural resources identified over the course of the NACP outreach include:

- ▶ The Fort Mojave Indian Tribe has a cultural affiliation with an expansive traditional territory extending from north of Las Vegas, south/southeast to the Phoenix area, east into Kingman, and as far west as Santa Barbara. Representatives state that Mojave have lived within this area since time immemorial and, although tribal lands are now confined to reservations, the Mojave people still have very strong cultural affiliation with the entire traditional territory.
- ▶ The Tribe has concerns about the many areas of cultural and spiritual connection throughout the Colorado River valley. The traditional beliefs about these areas are very important in defining tribal identity and are critical to how the Mojave people continue to exist as a people.
- ▶ The Tribe is affiliated deeply with the land, plants and animals, air, and water of the region. The Tribe feels a responsibility to be stewards of its historical land and the environment. The tribe respects the land and the spirit of the place, and believes they were put there by the Creator for a purpose. They’ve never severed their relationship with the land and the entire environment.



Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 11:21:47 AM

**T** This is inconsistent with actual historical and current Mohave Tribal beliefs as would be evident if an ethnographic study was conducted. Please identify who made these statements and what was their gender and Tribal origin.

---

Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/7/2010 11:23:47 AM

**T** Please identify this person? Was this person Mohave? Is this an individual viewpoint or an authorized position of the Tribal government? This is an example of DTSC's invention of cultural tradition. The final resting place according to Mohave tradition is not the Topock Maze.

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- ▶ The Tribe did not create and had no power to stop the contamination of the Topock area, but now it has to live with the consequences of that, including impacts to its culture, religion, and people.
- ▶ The Tribe's traditional songs are evidence of strong cultural ties to the Topock area and are tied to the land on and surrounding the project site. The songs describe the Tribe's creation, history, and provide guidance about the Creator's commandments about how to live life.
- ▶ Members of the Tribe want to be able to continue to conduct traditional religious activities in the area.
- ▶ The area of the proposed project is critical to tribal cultural beliefs, especially those beliefs related to the afterlife, and the area should be treated with respect and acknowledged as sacred despite previous impacts and desecrations to the area. According to the Fort Mojave Indian Tribe, the Topock area is place where deceased spirits go to pass on to the next world. It is very important to living tribal members that the spirits of the departed can pass properly from this world.
- ▶ <sup>1</sup> The Topock area is also a place for purification after engaging in warfare or other actions.
- ▶ Any approach to cultural resource management must fully consider the cultural value attributed by the Tribe to the entire landscape and its constituent parts (e.g., landforms, water, plants, animals, spiritual relevance), and not focus only on the research value of specific sites that are of interest to archaeologists.
- ▶ The Fort Mojave Indian Tribe asserts that the entire Topock area is a traditional cultural property and deserves protection. The Tribe believes that an area larger than what has already been listed on the NRHP since 1978 is eligible for listing on the NRHP and the California Register of Historical Resources (CRHR). According to the Tribe, the TCP includes essentially the entire area potentially affected by the proposed project. If desecration occurs to the area, the damage cannot be repaired. The BLM has recognized the cultural importance of the Topock area in designating the Beale Slough ACEC and the Topock-Needles Special Cultural Resource Management Area.
- ▶ The protection of the Colorado River is the primary concern to the Tribe, as well as other tribes along the Colorado River, but the remediation process should minimize impacts to religious and cultural resources. In the studies necessary for remediation, residual data gaps may be acceptable to the Tribe, and decisions regarding the need for additional data acquisition (which may involve the construction of test wells or other ground disturbance activities) should be balanced against further impacts to cultural resources and tribal members.
- ▶ The Tribe is concerned about potential visual impacts from viewpoints the general public may have in the area, as well as those viewsheds enjoyed by Tribal members as they look out and toward the Topock Maze area while carrying out spiritual activities. Sensitive viewsheds may also include those that include the river, the mountains, and other features of the landscape.
- ▶ The Tribe is concerned about potential noise impacts to the Topock area and surrounding landscape. The EIR should include an assessment of impacts on existing sensitive receptors, as well as impacts to tribal members who may be in the area engaging in cultural or spiritual activities.
- ▶ Lithic scatters at Topock are important to the Tribe. There is an overwhelming sense of connection there. These sites are markers of what is still there, and what remains of their ancestors. These sites deserve to be protected.
- ▶ The Tribe expects that impacts in the Topock area be as limited as possible. The Tribe believes that some groundwater and soil remediation technologies are more damaging than others and will comment on the alternatives. They have stated that a complete analysis of alternatives must include Tribal views on the relative impacts. Consultation between DTSC, its consultants, and the tribe should occur regarding each and

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 11:24:18 AM

**T** Please define the general Topock Area that this relates to. Is it across the river in Arizona?

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Source: Photograph taken by AECOM in 2009

#### Aerial Photo of the Topock Maze Locus A with Compressor Station in the Distance

Exhibit 4.4-3

only the faintest hint that rows once existed. The evidence suggests, and interviews with the Mojave confirm, that all Topock Maze loci and nearby geoglyphs form a complex suite of an associated cultural complex that has been partially destroyed by the construction of the railroad, interstate, and various other linear features in the area and by off-road vehicle activity. As discussed above, members of the Fort Mojave Indian Tribe assert that the Maze as understood by archaeologists is only part of the Maze as they understand and value it; the tribally valued property includes the disturbed inter-locus areas as well as surrounding lands and is linked conceptually and spiritually to other landforms in the area.

<sup>1</sup>The origin of the Topock Maze has been disputed. Some arguments support a Native American origin, while others have suggested that the Maze is a byproduct of railroad construction, which occurred between 1888 and 1893. On the assumption that the Maze is of Native American origin, there is also little agreement as to its age or how it was created. Those who consider its origin related to the construction of the railroad typically cite a memo from a railroad engineer in 1891 that describes the collection of gravel into windrows by Mojave workers, prior to the gravel being hauled and used to support a bridge caisson. Photographic evidence of the bridge construction, interviews with railroad workers from that time, and statements from Needles residents present at the time of the bridge construction all suggest, however, that the Maze was present prior to bridge construction, even if portions of it were later collected for ballast or support.

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 11:25:35 AM

**T**An ethnographic study would have evaluated this and made a conclusion regarding potential Native American origins.

We request funding and authorization to conduct an ethnographic study.

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Earle's draft report (2005:42–44) notes that some interviews conducted with Mojave tribal members in the early 20th century have been cited to suggest that the Topock Maze did not have a strong cultural affiliation with the Mojave people, and that its origin can be attributed to a tribe that had lived in the area prior to the Mojave, perhaps the Maricopa. Interviews conducted with Fort Mojave Indian Tribe representatives for this EIR as part of the NACP indicate that the Tribe considers it inappropriate for them to discuss who made the Maze; however, interviewees believed that the Maze is of ancient origin and of deep cultural importance to the Mojave people.

Other interviewees suggested that stories or songs telling of its construction were present in the Mojave culture, but these stories are only told in some family lines and are not known by everyone (FMIT, pers. comm., 2008). Other interviews in the 20th Century suggested that the Mojave would use the Maze to purify themselves by running through the Maze or by navigating through the Maze without walking over a windrow, leaving evil spirits or ghosts in the Maze, or that the purpose of the Maze is to help the deceased atone for their life before fully passing to the afterlife.

Taking into account the numerous comments of Native American representatives throughout the EIR process, the Topock Maze and the surrounding area—including many of the other cultural sites and geoglyphs in the vicinity—are an integral part of the worldview of the Fort Mojave and other Yuman tribes. Earle's draft report (2005:50–52) outlines the many other cultural sites in the region, as well as many Mojave song cycles that speak of the Topock area, and concludes that the Topock area is a key location for supernatural events and mythical feats for the Mojave. The Topock Maze is believed by some Tribes to form part of a geoglyph tradition for the lower Colorado River valley that has “its origin in the sacred song and story traditions of the prehistoric and historic Yuman-speaking cultures of the region” (Earle 2005:51). For example, official statements from the Fort Mojave Indian Tribe state the cultural significance of the Topock area: “Archaeologists may view [the Topock Maze] as three archaeologically distinct areas, but as the Tribe has commented many times, the Tribe sees the Maze as a spiritual whole and within the context of the surrounding landscape” (FMIT 2009b).<sup>2</sup> As stated above, the Hualapai, Quechan, and Cocopah tribes have also expressed cultural concerns for the Topock area during the EIR process, and the CRIT has stated that some of its members also view the area as culturally significant.

#### **4.4.1.4 PALEONTOLOGICAL RESOURCES**

A paleontological records check was conducted by Dr. Samuel McLeod, Vertebrate Paleontology Division of the Natural History Museum of Los Angeles County (LACM) on March 2, 2010 and by Eric Scott, Curator of Paleontology Division of Geological Sciences Museum of San Bernardino County (SBCM) on March 8, 2010. The records check from the SBCM indicated that three fossil localities (SBCM 1.39.1, SBCM 1.39.2 and SBCM 1.39.3), lie within the proposed project area. The fossil localities SBCM 1.39.1, SBCM 1.39.2 and SBCM 1.39.3 are located just west and south of the existing PG&E Topock Compressor Station and are associated with the presumed Pleistocene age from the sediments of the Chemehuevi Formation. In addition, the LACM records check indicated that one locality (LACM 4090), has been documented in the general vicinity but is not within the project area itself.

##### **Quaternary Alluvium**

The project site contains within its boundaries, a layer of Quaternary Alluvium of the late Pleistocene and/or Holocene age that is deposited at the surface level in the western and southwestern areas of the proposed project. Quaternary lake sediments in this region have undetermined paleontologic sensitivity; if confirmed to be of Pleistocene age, they likely have high paleontologic sensitivity.

##### **Bouse Formation**

Marine late Miocene Bouse Formation has also been documented in the western and southwestern portions of the proposed project area in slightly elevated terrain. One locality (LACM 4090) is not located within the proposed project boundaries but, shares the same sedimentary deposits of the Bouse Formation and is situated south of the

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 11:27:16 AM

**T** Has the Mohave Tribal elders or the Tribal members provided this information? Or is this the comments of only one or two people?  
What is the defined area that is considered culturally significant? Please identify this area on a map.

---

Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/7/2010 11:26:09 AM

**T** You have omitted the views of the Chemehuevi Tribe. This appears to be a purposeful exclusion. Why?

---

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 9:45:47 PM

**T** How is this relevant to the EIR process? Why is it included? Was this at the request of any one Tribal group? Does a TCP currently exist? What is the conclusion here?

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## Prehistoric and Historic-Era Resources

As described in Section 4.4.1, “Existing Setting,” above, 193 prehistoric and historic resources were documented within the 1,815-acre survey area and by subsequent surveys conducted by PG&E, with approximately 80 of these resources located within the proposed project area (see Table 4.4-3). A formal determination of eligibility for inclusion in the CRHR has not been performed for most of the individual prehistoric and historic-era sites within the project area. However, several resources have been evaluated and recommended or determined eligible for listing on the NRHP, and thus are historical resources for the purposes of CEQA. Thus, documented sites analyzed for this project fall into two main categories: those sites that have been determined eligible for inclusion in the NRHP (which makes them historical resources subject to CEQA) and those sites for which a determination of eligibility has not yet been made.

NRHP-eligible and listed sites within or immediately adjacent to the project area include CA-SBR-219 (Topock Maze Loci A–C, which is adjacent to the project footprint), historic-era resources such as CA-SBR-2910H (Historic Route 66 and portions of the National Old Trails Road), CA-SBR-6693H (Atlantic and Pacific Railroad Company rail line, which is adjacent to the planned project activities), and CA-SBR-11701, which consists of numerous lithic artifacts, stone tools, and features such as an aboriginal trail.

The remaining resources documented within the project area have not been formally evaluated for eligibility for listing on the NRHP or CRHR as formal eligibility evaluations are not required by CEQA. Historic-era resources that have not been evaluated may be significant for a number of reasons, for example, for their association with important historical themes such as transportation and westward migration along historic highways such as Route 66. Such resources may also be significant because they contain information about these historic themes that would be of importance in historic research. If such resources are significant for these reasons, or meet other criteria for listing on the NRHP or CRHR and have sufficient integrity to convey this significance, they would qualify as historical resources under CEQA.

Also, many of the archaeological resources in the group of unevaluated resources may be significant under CEQA because of their association with the Topock Maze. A high probability also exists that some of these resources are significant because they contain information that is important in prehistoric research.

### Topock Cultural Area

<sup>1</sup>In addition to the cultural resources recorded by these previous surveys, DTSC has determined, based on the weight of the evidence, that the Topock Maze and the surrounding area appear to qualify as a historical resource under CEQA as an area that is significant in the social and cultural annals of California. This section explains DTSC’s determination that the Topock Cultural Area is a historical resource for purposes of impact evaluation under CEQA.

As noted above, PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) establish three analytical categories for use in determining whether a historical resource exists for purposes of CEQA. These are (1) mandatory historical resources; (2) presumptive historical resources; and (3) discretionary historical resources. A mandatory historical resource is one that has been listed on or determined eligible for listing on the CRHR. Only an official determination by the State Historical Resources Commission triggers this mandatory determination. A presumptive historical resource is one that has been listed on a local register or included in a local survey that meets specified criteria, unless the preponderance of evidence demonstrates otherwise.

A discretionary historical resource is a resource that does not fit within the mandatory or presumptive categories, but that is determined to be a historical resource in the exercise of the lead agency’s discretion. Under CEQA case law, a lead agency evaluating potential project impacts under CEQA has broad discretion to determine whether a particular resource that may be affected by a proposed project is a historical resource for purposes of CEQA, provided the lead agency determination is supported by substantial evidence. When such a determination is made, the criteria to be applied include the criteria for listing on the CRHR.

Sequence number: 1

Author:

Subject: Highlight

Date: 7/7/2010 11:42:34 AM

**T**DTSC has incorrectly concluded using a significantly bias and narrow weight of evidence based on limited information (without appropriately requiring an ethnographic study) obtained from a minority fringe Tribal group that possibly may be considered an outlier to basic traditional tribal values and beliefs. DTSC is assisting and enabling this to continue without fully investigating, verifying, and requiring substantiated factual and documented evidence. This supports our continued concern that DTSC is contributing to only what may be called as the "Invention of Mohave Cultural Tradition" and not "Mohave Cultural Preservation". Mohave Elders are a formal standing committee of the Tribal Council for some Tribes. The Tribal Council has delegated authority to the Mohave Elders to consider and act on: All cultural issues affecting Mohave people; Protection and retention of the natural resources of the reservation. Genealogies of Mohave people. The purpose of this committee is to promote and protect the interests and needs of the Mohave people in a responsible and respectful manner by actively participating in the affairs of tribal government. What has DTSC done to communicate with this group, engage and use this process? speak to Elders? and obtain documented information that represents a Tribal view of cultural issues?

DTSC has neither the skills, expertise or authority to make such a determination.

The administrative record further documents how DTSC has restricted and limited the preparation and submission of information that would dispute any such evaluation of this determination by not allowing the preparation of or directing PG&E to fund the preparation of ethnographic studies by anyone who wanted to prepare and provided this information.

By DTSC not directing PG&E to fund these efforts and by PG&E not funding these efforts to groups who do not have the ability or resources to fund such a study by themselves, DTSC and PG&E supporting a pre-determined outcome and decision by limiting input as desired by DTSC in order to provide support to a pre-determined decision.

DTSC further incorrectly makes a concluding determination based on limited comments from a few select individuals that do not represent the views of the majority of Tribal members.

DTSC is further hobbled, bound, and is being influenced by terms and fear related to a previous DTSC settlement agreement in addition to the PG&E settlement agreement is not allowing DTSC to evaluate and make decisions in the best interest on behalf of the people of the State of California and Arizona.

Please provide a detailed summary of how this determination was made, the verifiable facts, including, names and documented information that was used to lead to this determination. Who at DTSC was the person that made this determination? What consultation occurred with Tribes before making this decision? What consultation occurred with Arizona and California SHPO before making this decision? What were their responses? What consultation occurred with the DOI and BLM before making this decision?

Please identify on a map what DTSC has determined to be the entire extent of the "Topock Cultural Area". How far does this area extend? Does it extend into Arizona? Does DTSC have the legal authority to make a determination that the Topock Cultural Area is a historical resource for areas in Arizona?

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Therefore, DTSC has looked beyond the specific cultural resources recorded by previous archaeological surveys, and has determined, based on the weight of the evidence, that the Topock Maze and the surrounding area within the project area appears to qualify as a historical resource under CEQA as an area that is significant in the social and cultural annals of California. The historical resource consisting of the project area depicted in Exhibit 3-2 and the Topock Maze is referred to in this EIR as the “Topock Cultural Area.”

In making its discretionary determination under CEQA, DTSC has carefully weighed the evidence, including (1) the testimony of Native American tribal representatives received during the confidential NACP tribal consultation process, (2) the ethnographic and historical literature and the archaeological record, and (3) California and federal regulations and guidelines. DTSC has also consulted the federal government’s guidance regarding TCPs provided in National Register Bulletin 38 (NPS 1998). The Topock Cultural Area is of cultural significance to several different Native American tribes as described above. In accordance with federal guidelines, the significance of a TCP is derived from the “role the property plays in a community’s historically rooted beliefs, customs, and practices” (NPS 1998:1). The consultations during the NACP process identified various aspects of the significance of the Topock Cultural Area.<sup>[1]</sup> For example, the Fort Mojave Indian Tribe indicated that the Topock area has symbolic value akin to the Arlington National Cemetery. Acknowledged representatives of this tribe stated during the EIR process that the Topock area is critical to tribal cultural beliefs, especially those beliefs related to the afterlife. They also stated that conducting cultural practices, including religious practices, within the Topock area is very important to the continuation of tribal traditions.

The Fort Mojave Indian Tribe attributes high cultural value to the entire area in which the project is located including the constituent parts of that area (landforms, water, plants, and animals), although for purposes of this analysis, it is not necessary to make any findings with respect to historical resources under CEQA beyond the area that may be affected by the proposed project (that area being the Topock Cultural Area as defined in this EIR).<sup>[2]</sup> Any ground-disturbing activity or impact to the plants, wildlife, visual characteristics, or setting of the Topock Cultural Area is considered by the Fort Mojave Indian Tribe to be a desecration of their religious and cultural beliefs. These kinds of impacts are experienced as a loss and sorrow akin to the passing of a loved one or family member.<sup>[3]</sup> As noted above in Section 4.4.1.3, other Colorado River tribes, including the Hualapai, Cocopah, and Fort Yuma-Quechan, also expressed strong cultural concerns for Topock, and the Colorado River Indian Tribes indicated that some tribal members have cultural concerns for the Topock area.

Although the Topock Cultural Area has sustained some damage, the cultural significance ascribed to the resource by these Native American tribes appears to demonstrate that the Topock Cultural Area generally has sufficient integrity of relationship and condition to these communities. Tribal representatives have repeatedly stated that, despite existing impacts from highway, railroad, pipeline, and recreational developments, the resource continues to be important in their culture.<sup>[4]</sup> Based upon the Native American testimony it appears that the Topock Cultural Area can still function for traditional cultural purposes despite the modern intrusions.

Certain tribes have repeatedly stated that the cultural significance of the Topock Cultural Area goes beyond the bounds of the Maze itself. For example, the Fort Mojave Indian Tribe stated, “the cultural landscape within which the artifacts are located...has the deepest importance to the tribe,” (FMIT 2009a).<sup>[5]</sup> This tribe also stated that the Topock Cultural Area includes the entire project area. Native American representatives have stated that the Topock Cultural Area is tied in with the larger regional landscape that includes the Colorado River corridor and that within that larger landscape, the Topock Cultural Area has distinctive importance because of the traditional cultural values at Topock itself. However, it is beyond the scope of this EIR to define whether there may be an additional historical resource area for purposes of the CRHR or the NRHP beyond the project boundaries, or to address areas that are not affected by the proposed project. As discussed above, a lead agency’s evaluation under CEQA as to whether there is a discretionary historical resource on a project site is not a formal eligibility determination for the CRHR or NRHP, and CEQA does not require a formal eligibility determination. As such, in compliance with CEQA,<sup>[6]</sup> DTSC has only referenced the federal TCP guidelines in weighing the balance of the evidence in order to determine if the proposed project would adversely impact the physical characteristics of the Topock Cultural Area that convey its historical significance as a historical resource under CEQA. DTSC has not

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Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 11:42:52 AM

**T** Was this a documented position of the Fort Mojave Tribal Government or a comment from one individual Tribal member?

Please provide the information and documentation that supports this statement.

What is meant by the "Topock Area" please describe this area and identify it on a map.

Further clarification is needed here since the "Topock Area" is a small portion of the wider area related to cultural beliefs. To characterize or suggest that it is the center most important or most critical is not consistent with basic Mohave beliefs related to the afterlife. When someone says Topock Area there needs to be a defined reference of what specific area they are talking about.

What cultural practices including religious practices are conducted and where are they conducted that is consistent with both current and historical traditional cultural values of the Mohave or any other tribal entity?

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Sequence number: 2

Author:

Subject: Comment on Text

Date: 7/7/2010 11:45:00 AM

**T** What are the defined limits of the Topock Cultural Area? Please identify this area on a map

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Sequence number: 3

Author:

Subject: Comment on Text

Date: 7/7/2010 11:44:19 AM

**T** What were the specific cultural concerns that were expressed? by who? Was this an individual concern or a documented concern expressed by the majority of Tribal members that represented a Tribal government position?

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Sequence number: 4

Author:

Subject: Comment on Text

Date: 7/7/2010 11:45:15 AM

**T** What testimony? Please provide copies of this testimony.

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Sequence number: 5

Author:

Subject: Comment on Text

Date: 7/7/2010 11:46:05 AM

**T** What did the Tribe define on a map as the Topock Cultural Area? Please provide this information

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Sequence number: 6

Author:

Subject: Comment on Text

Date: 7/7/2010 11:44:45 AM

**T** Please describe this specific analysis and procedures used in weighing the balance of evidence as stated? Please state who made this decision and their technical qualification. what is the definition of "Physical Characteristics"

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## 1 Surface Faulting

The approximate locations of major faults in the southern California region and their geographic relationships to the project site are shown in Exhibit 4.5-5. Table 4.5-3 summarizes pertinent information regarding major active fault zones in the region.

<b>Table 4.5-3 Major Regional Active Faults</b>					
<b>Fault Name</b>	<b>Moment Magnitude (Minimum–Maximum)</b>	<b>Fault Type</b>	<b>Approximate Slip Rate (mm/yr)</b>	<b>Peak Ground Acceleration (g)</b>	<b>Approximate Distance from the Site in Miles</b>
Pinto Mountain Fault Zone	6.5–7.5	Sinistral	1.0	0.011	93.5
Pisgah-Bullion Fault Zone	6.0–7.1	Dextral	0.8	0.011	94.6
Mesquite Lake Fault	6.0–7.0	Dextral	Not Reported	0.011	94.6
Camp Rock–Emerson– Copper Mountain Fault Zone	6.0–7.3	Dextral	0.5	0.008	103.3
Calico-Hidalgo Fault Zone	6.4–7.1	Dextral	0.5–2.6	0.010	103.5
Lavic Lake Fault	7.1	Dextral	Not Reported	0.003	106.3
Landers Fault	4.8–5.3	Dextral	0.5	0.010	113.3
Homestead Fault	6.0–7.0	Dextral	0.5	0.010	114.2
Johnson Valley Fault Zone	6.5–7.3	Dextral	0.5	0.006	114.3
Eureka Peak Fault	5.5–6.8	Dextral	0.6	0.004	115.1
San Andreas Fault Zone (Coachella Section)	6.8–8.0	Dextral	20–35	0.008	115.6
Burnt Mountain Fault	6.0–6.5	Dextral	0.5	0.004	116.1
Brawley Seismic Zone	<5.0–6.5	Dextral	20	0.004	116.9
North Frontal Fault Zone	6.0–7.1	Thrust	1.0	0.005	119.6
San Andreas Fault Zone (San Bernardino Section)	6.8–8.0	Dextral	20–35	0.007	130.9
Imperial Fault	6.0–6.7	Dextral	15–20	0.009	139.1
San Jacinto Fault Zone (Superstition Section)	6.5–7.5	Dextral	7–17	0.008	140.1
San Jacinto Fault Zone (Borrego Section)	6.5–7.5	Dextral	7–17	0.008	144.0
Lenwood-Lockhart Fault Zone (Lenwood Section)	6.5–7.4	Dextral	0.8	0.003	148.2
<b>Notes:</b> g = local acceleration attributable to gravity; mm/yr = millimeters per year Sources: USGS 2008, SCEC 2009					

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 9:40:05 PM

**T** The map should include the Topock area as well as portions of Arizona rather than indicating it is off the map by 66 miles. DO any faults exists in Arizona?

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(DTSC) has approved additional investigations (DTSC 2008) that include both soil and groundwater characterization because of the detection of highly elevated chromium in AOC 10 soil and groundwater (MW-23). The scope of the groundwater investigation was presented in *Revised Work Plan for East Ravine Groundwater Investigation: PG&E Topock Compressor Station, Needles California* (CH2M Hill 2008a). The findings of the East Ravine investigation are provided as Appendix A in the Final CMS/FS (CH2M Hill 2009a). Results of the East Ravine investigation have detected significant hexavalent chromium (e.g., 660 µg/l) in shallow bedrock groundwater wells (CH2M Hill, 2009d:A3-5).

### **SWMU 1 and AOC 1 (Percolation Bed and Bat Cave Wash)**

Wastewater was discharged to Bat Cave Wash between 1951 and 1970. This wastewater consisted primarily of cooling tower blowdown (approximately 95%) and a minor volume of effluent from an oil/water separator (OWS) and other facility maintenance operations (approximately 5%) (CH2M Hill 2007:4-3). Chemicals present within this wastewater discharge include chromium [Cr(III) and Cr(VI)]; the COPCs are summarized below. The earliest available information from 1968 indicates an average of approximately 48,500 gallons per day (gpd) of cooling tower blowdown was discharged to Bat Cave Wash, with a high of approximately 64,300 gpd in July and a low of approximately 25,600 gpd in February (PG&E 1968, referenced in CH2MHill 2007: 4-3).

From 1951 until 1964, untreated cooling tower blowdown containing hexavalent chromium was released to the Bat Cave Wash. From 1964 to 1969, the cooling tower blowdown was treated at the project site with a one-step system to reduce Cr(VI) in the wastewater to Cr(III) before discharge to the percolation bed (SWMU 1), which was installed in the wash in approximately 1964 (CH2M Hill 2007:3-18). Although the process converted Cr(VI) to Cr(III), the concentration of total chromium [Cr(T)] was not affected. Beginning in late 1969, cooling tower blowdown was treated at the project site with a two-step system to reduce Cr(VI) to Cr(III) and then to remove Cr(III) from the wastewater before discharge to Bat Cave Wash (CH2M Hill 2007:4-3). The continuous discharge of wastewater to Bat Cave Wash ceased in May 1970 when injection well PGE-08 (SWMU 2) was brought online and the treated wastewater was injected into groundwater. PGE-08 had a very deep screen interval of 405–554 feet bgs.

SWMU 1 and AOC 1 have been identified as sources of groundwater contamination. Soil sampling data to be collected during RFI/RI activities for the Bat Cave Wash area are still pending. COPCs for soil and groundwater associated with SWMU 1 and AOC 1 consist of the following: Cr(T), Cr(VI), copper, lead, nickel, zinc, electrical conductivity, pH, Title 22 metals, volatile organic compounds, polycyclic aromatic hydrocarbons, semivolatile organic compounds, and total petroleum hydrocarbons. Dioxins and furans may be added to this list due to recent detections in soil at AOC 4 (Debris Ravine) which discharges to Bat Cave Wash above SWMU 1 and AOC 1.

### **AOC 10 (East Ravine)**

East Ravine is a small ravine located on the southeast side of the compressor station. The ravine is approximately 1,600 feet long and runs eastward into the Colorado River. Portions of the East Ravine are on PG&E property outside the compressor station's fence line, and other portions of the ravine are located on property owned by HNR. The East Ravine was designated as an AOC in a 2001 letter report from DTSC (2001).

The East Ravine contains two human-made impoundments of unknown origin and construction date. The largest impoundment is formed by a constructed earthen dam. A smaller impoundment is formed by a dirt road embankment that was built across the drainage channel in the lower portion of the East Ravine. Because of the impoundments, surface water flowing from most of the length of this ravine (west of the lower dirt road) currently does not appear to reach the Colorado River. The drainage for this ravine includes runoff from the compressor station's access road, runoff from the mountains to the south, and runoff from the compressor station itself.

Three subareas (Subareas 10b, 10c, and 10d) where water and soil collect, either within low-gradient areas along the ravine course or behind impoundments, have been identified within the East Ravine. Subarea 10b, a natural drainage depression, is located in a flat area in the upper portion of the ravine. The middle drainage depression

Sequence number: 1

Author:

Subject: Comment on Text

Date: 7/7/2010 12:04:48 PM

**T** Has DTSC or DOI technical staff indicated that additional groundwater monitoring wells are needed in this area? If so what were the recommendations? Has DTSC formally requested that PG&E install additional wells in this area? Has PG&E delayed or requested to delay the installation of wells in this area?

Is the extent of groundwater contamination known in this area?

What is the groundwater gradient in bedrock? What is the direction of groundwater flow? Is the contaminated groundwater in contact with the surface or subsurface water of the Colorado River? What is the delay in installing additional wells in this area and determining the extent of groundwater contamination? Is the bedrock fractured in this area? Is there any faults in this area?

What was the source of the contamination in this area?

Was it the result of PG&E injecting contaminated groundwater into the aquifer?

Is this contaminated groundwater entering the Colorado River?

Are there any other areas that may potentially have additional groundwater contamination?

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