Final Environmental Impact Report
Volume 2
for the
Topock Compressor Station
Groundwater Remediation Project

California Department of Toxic Substances Control

SCH #2008051003

Prepared for:

California Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814

January 2011

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1001 I Street
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Contact:
Aaron Yue
Project Manager
5796 Corporate Avenue
Cypress, CA 90630
Ayue@dtsc.ca.gov

Prepared by:

AECOM
2020 L Street, Suite 400
Sacramento, CA 95811

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AECOM

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ACRONYMS AND ABBREVIATIONS

µg/l	micrograms per liter
A.R.S.	Arizona Revised Statutes
AB	Assembly Bill
ACEC	Area of Critical Environmental Concern
ACM	asbestos-containing material
Act	Lower Colorado Water Supply Act of 1986
ADEQ	Arizona Department of Environmental Quality
ADOA	Arizona Department of Administration
ADOT	Arizona Department of Transportation
ADT	average daily traffic
afa	acre-feet annually
AJCW	auxiliary jacket cooling-water
ANSI	American National Standards Institute
AOC	areas of concern
AOCs	areas of concern
APCO	Air Pollution Control Officer
APE	Area of Potential Effect
APS	Alternative Planning Strategy
AQAP	Air Quality Attainment Plan
ARARs	relevant and appropriate requirements
ARB	California Air Resource Board
AST	aboveground storage tank
B.P.	Before Present
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology
BDOs	Boards, Departments and Offices
BLM	U.S. Bureau of Land Management
BLM's	Bureau of Land Management's
BMPs	best management practices
BNSF	Burlington Northern and Santa Fe
BSC	California Building Standards Commission
BWh	dry-hot desert climate
BWhh	very-hot desert
CAA	federal Clean Air Act
CAAA	federal Clean Air Act Amendments of 1990
CAAQS	California ambient air quality standards
CACA	Corrective Action Consent Agreement
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CALVENO	California Vehicle Noise Emission
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERT	Community Emergency Response Team
CESA	California Endangered Species Act

CFR	Code of Federal Regulations
CH_4	methane
CHHSL	California Human Health Screening Levels
CHSC	California Health and Safety Code
CIMP	Cultural Impact Mitigation Program
CISN	California Integrated Seismic Network
City	City of Needles
CLUP	comprehensive land use plan
CMI Workplan	Corrective Measures Implementation Workplan
CMP	comprehensive management plan
CMS/FSs	Corrective measures study/feasibility studies
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
COCs	chemicals of concern
CNEL	Community Noise Equivalent Level
COPCs	chemicals of potential concern
County	San Bernardino County
County's	San Bernardino County's
CPUC	California Public Utilities Commission
Cr III	trivalent chromium
Cr T	total chromium
Cr VI	hexavalent chromium
CRHR	California Register of Historical Resources
CRIT	Colorado River Indian Tribes
CRMP	cultural resources management plan
CUPA	Certified Unified Program Agency
CVWD	Coachella Valley Water District
CWA	Clean Water Act
L_{dn}/DNL	Day-Night Noise Level
dB	decibel
dB/DD	dB per doubling of distance
dBA	A-weighted decibels
dBA	A-weighted sound levels
DEIR	draft environmental impact report
DEQ	Department of Environmental Quality
DFG	California Department of Fish and Game
DOI	Department of Interior
DOT	U.S. Department of Transportation
DTSC	California Department of Toxic Substances Control
E&E	Ecology and Environment
EDR	Environmental Data Resources, Inc.
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	federal Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act

FMIT	Fort Mojave Indian Tribe
FTA	Federal Transit Administration
GANDA	Garcia and Associates
GHG	greenhouse gas
GIS	Geographic Information System
gpd	gallons per day
gpm	gallons per minute
GWP	global warming potential
GWRA	Ground Water Human Health and Ecological Risk Assessment
HAPs	hazardous air pollutants
HDPE	high-density polyethylene
HFC	hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HMD	Hazardous Materials Division
HNWR	Havasu National Wildlife Refuge
HOV	High Occupancy Vehicle
HSWA	Hazardous and Solid Waste Amendments
I-15	Interstate 15
I-40	Interstate 40
IID	Imperial Irrigation District
IM	Interim Measures
IN	institutional
in/sec	inches per second
IRZ	in situ reactive zone
ITS	intelligent transportation systems
JCW	jacket cooling-water
LACM	Vertebrate Paleontology Division of the Natural History Museum of Los Angeles County
LCR MSCP	Lower Colorado River Multi-Species Conservation Program
LCWSP	Lower Colorado Water Supply Project
LDL	Larson Davis Laboratories
L_{eq}	Equivalent Noise Level
L_{eq}	energy-equivalent noise level
L_{max}	Maximum Noise Level
L_{min}	Minimum Noise Level
L_n	Statistical Descriptor
LOS	level of service
LSCWSP	Lower Colorado Water Supply Project
LUP	linear underground/overhead project
LUST	leaking underground storage tank
maf/yr	million acre-feet per year
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
mg/l	milligrams per liter
MHP	Mobile Home Park
MLD	most likely descendent
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
Mo	molybdenum
mph	mile per hour
MPO	Metropolitan Planning Organizations

MRZs	Mineral Resource Zones
MSCP	Multi-Species Conservation Program
msl	mean sea level
MT	metric tons
MWD	Metropolitan Water District of Southern California
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NACP	Native American Communication Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
NESHAP	national emissions standards for HAPs
NHPA	National Historic Preservation Act
NO	nitric oxide
NO_2	nitrogen dioxide
NOI	notice of intent
NOP	notice of preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	Register of Historic Places
OPR	Office of Planning and Research
OS	open space
OSHA's	U.S. Occupational Safety and Health Administration's
OWS	oil/water separator
PAH	polycyclic aromatic hydrocarbons
PAHs	polynuclear aromatic hydrocarbons
PBA	Programmatic Biological Agreement
PCB	polychlorinated biphenyls
PCBs	polychlorinated biphenyls
PCE	passenger car equivalency
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric
PG&E's	Pacific Gas and Electric Company's
PM_{10}	10 micrometers or less
$PM_{2.5}$	2.5 micrometers or less
ppb	parts per billion
ppm	part per million
PPV	peak particle velocity
PRPA	Paleontological Resources Preservation Act
PVC	polyvinyl chloride
RAO	Remedial Action Objectives
RAOs	remedial action objectives
RC	resource conservation
RCRA	Resource Conservation and Recovery Act
RFA	RCRA facility assessment
RFI/RI	facility investigation/remedial investigation
RFQ	Request for Qualifications

RMA	risk management analysis
RMP	Resource Management Plan
RMS	root mean square
ROG	reactive organic gases
ROI	Region of Influence
ROWs	rights-of-way
RTP	regional transportation plan
RWQCB	regional water quality control board
RWQCBs	regional water quality control boards
SANBAG	San Bernardino Associated Governments
SB	Senate Bill
SBCM	Paleontology Division of Geological Sciences Museum of San Bernardino County
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
scfd	standard cubic feet per day
SCRMA	Special Cultural Resource Management Area
SCS	Sustainable Communities Strategy
Se	selenium
SERC	State Emergency Response Commission
SF	sulfur hexafluoride
SHPO	State Historic Preservation Office
SENEL	Single Event Noise Exposure Level
SIP	State Implementation Plan
SLM	sound level meters
SMARTS	Storm Water Multi-Application Reporting and Tracking System
SO_2	sulfur dioxide
SOP	standard operating procedure
SEL	Sound Exposure Level
SO_X	oxides of sulfur
sq. ft.	square feet
STC	Sound Transmission Class
SVOC	semi-volatile organic compounds
SWMU	Solid Waste Management Unit
SWMUs	solid waste management units
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
T-BACT	best available control technology for TACs
TBCs	To Be Considered
TCP	traditional cultural properties
TDS	total dissolved solids
TMCs	traffic management centers
TMP	transportation management plan
TOCs	traffic operation centers
TPH	total petroleum hydrocarbons
TPY	tons per year
TRC	Technical Review Committee
TRIS	Toxic Release Inventory System
U.S. 95	U.S. Highway 95
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers
USC	U.S. Code

USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	vibration decibels
VOC	volatile organic compounds
VOCs	volatile organic compounds
WDID	Waste Discharge Identification
WDR	Waste Discharge Requirements
µg/L	micrograms per liter
µg/m	micrograms per cubic meter

1 SUMMARY

1 SUMMARY

1.1 INTRODUCTION

This summary provides an overview of the Topock Compressor Station Groundwater Remediation Project (proposed project) and the environmental analyses that are contained within this draft environmental impact report (DEIR) as required by the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq. and California Code of Regulations Title 14 Section 15000 et seq. [CEQA Guidelines]) This DEIR has been revised in response to comments received and to include additional specific information regarding the proposed project that has since been discovered through, for example, preparation of the Addendum to the 2008 Revised Work Plan for the East Ravine Groundwater Investigation (ERGI/TCS Addendum Work Plan). (See Appendix ER). The revisions and clarifications are provided herein in underline/ ~~strikethrough~~ format and the document has been reprinted in its entirety to provide context to the reader (rather than including the revisions as part of a "Clarifications and Corrections" Section of the Final EIR, Vol. I, which is more common). This DEIR, as revised, and Vol. I make up the Final EIR.

Past activities at the Pacific Gas and Electric Company's (PG&E's) Topock Compressor Station (compressor station) have resulted in contamination of groundwater with total chromium [Cr(T)] and hexavalent chromium [Cr(VI)], as well as other contaminants including molybdenum, selenium, and nitrates, which, under certain exposure conditions, are harmful to human health. Corrective actions developed under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, which are designed to evaluate the nature and extent of releases of hazardous substances and then implement appropriate protective measures, are needed to ensure the long-term health of humans and the environment. Thus, the proposed project is to implement a final corrective action remedy to address groundwater contamination in the project area.

The long-term cleanup options for contamination in groundwater at the compressor station have been evaluated and are summarized in the *Final Groundwater Corrective Measures Study/Feasibility Study Report for Solid Waste Management Unit* (*SWMU) 1/Area of Concern (AOC) 1 and AOC 10, PG&E Topock Compressor Station, Needles, California* (Final CMS/FS), which was completed in December 2009 (CH2M Hill 2009, included in Appendix CMS of this EIR). The Final CMS/FS was developed under the RCRA and CERCLA process and involved extensive evaluation and comment by stakeholders, agencies, tribal governments, and the public. The Final CMS/FS identifies and 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, the California Department of Toxic Substances Control (DTSC) has reviewed the alternatives considered in the Final CMS/FS and has determined that Alternative E—In Situ with Freshwater Flushing is the remedy that best achieves the project goals within a reasonable time frame and is therefore carried forward in the statement of basis issued under the RCRA. The activities identified as Alternative E—In Situ with Freshwater Flushing and those identified in the ERGI/TCS Addendum Work Plan are included to provide greater specificity in this EIR.

1.2 SUMMARY OF THE PROPOSED PROJECT

DTSC is the lead agency under CEQA for the preparation of this EIR, which addresses the potential environmental effects of actions associated with cleanup of groundwater contamination at the compressor station. Groundwater near the compressor station has been contaminated by chemicals associated with historical releases in areas known as Bat Cave Wash and East Ravine. The main contaminant of concern in groundwater is Cr(VI), which was used in the past as an additive to the cooling water at the compressor station, and is harmful to human health and ecological receptors in the environment. Other chemicals present in the groundwater include Cr(T), molybdenum, selenium, and nitrates. Although currently not being used as a drinking water source, the affected groundwater has the potential to come into contact with drinking water wells and the Colorado River. Cleanup of

the contaminated groundwater plume is being designed to protect all identified potential receptors and maintain groundwater as a resource.

1.2.1 PROJECT LOCATION

The compressor station is located in eastern San Bernardino County, California in the Mojave Desert, approximately 12 miles southeast of the City of Needles, California, and 1 mile southeast of the Moabi Regional Park in California (see Exhibit 3-1 in Chapter 3 of this document). The compressor station is one-half mile west of the community of Topock, Arizona, which is situated directly across the Colorado River from the compressor station, and is 5 miles south of Golden Shores, Arizona. The compressor station is approximately 1,500 feet west of the Colorado River (California shoreline) and less than 1 mile south of Interstate 40 (I-40). It is located on 66.8 acres of land owned by PG&E. The groundwater plume subject to planned remediation efforts extends from the compressor station to the north, as depicted in Exhibit 3-2. This exhibit also shows the area within which remediation activities are expected to occur. This "project area" encompasses the area where potential environmental impacts associated with the proposed project are mostly likely to occur, although some impacts, such as air quality or transportation, could have effects outside of this area as described in the resource areas. The total project area in which potential remediation and monitoring facilities could be located is approximately 779.2 acres.

1.2.2 PROJECT OBJECTIVES

The objectives of the proposed project are defined based on the conclusions of the Ground Water Human Health and Ecological Risk Assessment (GWRA) and applicable or relevant and appropriate requirements (ARARs) identification, which were developed in the Final CMS/FS (PG&E 2009). 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 contaminant(s) of concern, 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, which is included in Appendix CMS of this EIR). Protective measures can be achieved by limiting or eliminating the exposure pathway, reducing or eliminating chemical concentrations, or both. Similarly, RCRA corrective action guidance 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). 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 consistent with all applicable regulatory requirements, and within a reasonable period of time when compared with other viable alternatives. These objectives establish specific cleanup goals for Cr(VI) and Cr(T), and address the other identified chemicals of potential concern (COPCs) (molybdenum, selenium, and nitrates) through monitoring and institutional controls. The RAOs for groundwater and project objectives 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),
- 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, 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 does not permanently expand following completion of the remedial action.

1.2.3 DESCRIPTION OF THE PROPOSED PROJECT

The proposed project involves flushing the contaminated groundwater plume through an in situ reactive zone (IRZ) of extraction and injections wells 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 three project phases is 3 years, 29 years (could be up to 110 years), 10 years, and 2 years, respectively. Table 1-1 presents a summary of project features.

The ultimate number and specific locations of the elements that make up the proposed project (e.g., remediation wells, monitoring wells, pipelines, freshwater intake locations, and associated infrastructure) have generally not been determined at this time because the locations are dependent on the final remediation system design. However, for purposes of completeness, this EIR includes additional information regarding the monitoring wells that are proposed to be installed at the compressor station and in the East Ravine area. The actual number, location, and configuration of the extraction, treatment, and injection systems and/or changes to the type, method, and configuration of the treatment delivery systems may occur to enhance performance of the remedy to attain the cleanup goals and to respond to site conditions and performance issues. Locations of remedial structures would be determined through communication and discussions with the landowners and/or other entities with rights-of-way. Remedial structure locations also would be determined in consideration of treatment efficiency, accessibility for construction and operation and maintenance, topography, sensitive cultural and biological resources, and existing infrastructure. For these reasons, the environmental analysis of the proposed project is based on the maximum area that is expected to be affected by the construction, operation, maintenance, and decommissioning of the proposed project.

1.2.3.1 REMEDIATION FACILITIES

The proposed project would involve the in situ treatment of contaminated groundwater. In situ treatment of groundwater refers to the reduction in mass, toxicity, mobility, volume, and/or concentration of chemicals of concern in groundwater, such as Cr(VI), using treatment technologies that treat groundwater in place, as opposed to pumping and circulating water through a separate treatment plant. In situ treatment would be performed by manipulating the subsurface environment by placing a degradable chemical compound (termed a “reductant”) to create reducing conditions to convert Cr(VI) in groundwater to the relatively insoluble trivalent chromium [Cr(III)]. The reduced chromium would precipitate or become adsorbed onto aquifer solids.

The in situ treatment system would include installing remediation wells that would generally consist of extraction and injection wells and an IRZ that would comprise both. The remediation would include a maximum of 110 new remediation wells, and wells could be replaced throughout the operation and maintenance phase, if necessary.

The IRZ portion of the proposed project would create a treatment zone where groundwater would be extracted and injected, and would therefore include both injection and extraction wells. The IRZ would be constructed using a series of wells that could be used either as injection or extraction wells to circulate groundwater and distribute the reductant. The water with the reductant would be injected under pressure into the aquifer using a

Table 1-1
Summary of Project Features

Structure Type	Quantity	Size	Location[1]
Extraction Wells	Up to 110[2]	6 feet long by 8 feet wide by 8 feet deep	Likely near the Colorado River and the compressor station
Injection Wells			West and north of plume, and near the compressor station
In Situ Reactive Zone Wells		6 feet long by 8 feet wide by 5 feet deep	Likely between the National Trails Hwy and Colorado River
		6 feet long by 8 feet wide by 8 feet deep	
Reductant Storage Facilities Aboveground tanks	Total tank storage capacity of up to 100,000 gallons; number of tanks to be determined during design phase	35,000 sq. ft. maximum footprint[3] 25,000 gallon capacity/tank 12 feet wide, 24 feet long, and up to 15 feet tall	Within defined project area, likely near injection wells, at the compressor station, at MW-20 bench, or at the IM-3 Facility
Freshwater Supply Wells OR Freshwater Intake Structure and Treatment System	Undetermined number of wells, 6 feet long by 8 feet wide by 8 feet deep OR 1 intake structure	Typical freshwater well size OR 40,000 sq. ft. maximum footprint to include 10,000 sq. ft. maximum building size/25 feet tall	Wells would either be in Arizona or California but within defined project area OR On Colorado River
Monitoring Wells	Up to 60, not including replacement wells	4 sq. ft. flush-mounted concrete pad with manhole-type cover or aboveground completion consisting of steel protective casing[4]	In and around the perimeter of the plume
Water Conveyance (pipelines)	Up to 50,000 linear feet	Trenches up to 5 feet wide, 3 to 4 feet deep	Above and belowground Exact locations TBD (intent to locate main infrastructure corridors with existing utility corridors)
Utilities (~~electrical and~~ / conduit cable)	Up to 50,000 linear feet		
Roadways[5]	Up to 6,000 linear feet	Roadway size/width dependant on location and not available	Within the defined project area

Note: sq. ft. = square feet; TBD = to be determined.

[1] Refer to Project Description Exhibit 3-4 for conceptual facilities locations

[2] Includes all remediation wells – extraction, injection (including freshwater injection) and IRZ wells, but does not include replacement wells Replacement wells were estimated to be 10% of the wells per year (see Final CMS/FS Appendix B Table D-6)

[3] This total maximum area may consist of facilities (tanks, control buildings and associated equipment) at multiple locations. Reductant storage/delivery area(s) would have lighting for safety and security purposes.

[4] Refer to Project Description Exhibit 3-7.

[5] Roads would be either paved with asphalt or gravel, or left unpaved depending on location and use. All new roads would be removed following determination that the remedial or monitoring structure is no longer needed. As such, no permanent roads are proposed.

Other Ancillary Structures – protective bollards around, for example, structures, electrical boxes, and solar panels. These structures would be located throughout the defined project area.

Source: Data compiled by AECOM in 2010

network of wells to form the treatment zone. The IRZ is expected to be located along a portion of National Trails Highway. IRZ well vaults would be approximately 6 feet long by 8 feet wide. Well vault would extend approximately 8 feet below the surface, and would be constructed flush with the ground surface to the extent feasible.

It is anticipated that approximately 50% of remediation wells would be located in what is known as the floodplain area (along the Colorado River, or eastern part of the project area), with the remaining wells located within the upland areas (western part of project area), and bedrock areas (southern part of project area). Extraction wells would likely be located near the Colorado River to provide hydraulic control to prevent contaminated groundwater from reaching the river. Extraction near the river would also help to draw carbon-amended water a portion of the way across the floodplain to treat the existing Cr(VI) in the alluvial zone of the floodplain aquifer east of National Trails Highway. Investigative boreholes and monitoring wells will be located in an area known as the East Ravine, which is in the southeast portion of the project area. (See Figure 2 of the ERGI/TCS Work Plan Addendum). Results from implementation of the ERGI/TCS Work Plan Addendum will further refine the final remedy design to determine the location of extraction wells in this bedrock area as described in the December 2009 CMS/FS. The extracted water would be amended with carbon substrate or other reductants and reinjected in the western portion of the plume, where it would help induce a hydraulic gradient to accelerate the movement of the groundwater through the IRZ, where it would be treated. To further accelerate the movement of the contaminated groundwater toward reducing zones and to enhance the distribution of the reductants, additional injection wells would likely be constructed in areas to the west and north of the plume and within the southern part of the plume.

The reductant for the in situ portion of the proposed project would be stored in aboveground tanks. 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 within the defined project area [e.g., at the compressor station, the IM-3 Facility, or near the monitoring well 20 bench (MW-20 bench) area].

1.2.3.2 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 and would contribute to flushing groundwater through the IRZ. The injection of freshwater at an assumed rate of approximately 500 gpm would induce a hydraulic gradient to accelerate the movement of the site 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 IRZ and extraction wells.

Freshwater injection would involve piping water in from an off-site source. 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. Freshwater would be transported by pipeline to injection wells located north, west, and/or south of the plume. The source of freshwater may change during the operation and maintenance phase 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 phase. 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.

Depending on the source of water used for flushing, minor pH adjustment might be required to make the water chemically compatible with the aquifer where it would be injected and to prevent scaling in the injection wells.

If needed, this pH adjustment would require a small system with equipment such as a chemical storage tank(s), secondary containment, a feed pump, and a security enclosure such as a building or fence. If surface water from the Colorado River is used, a surface water intake would typically consist of belowground perforated or solid pipes or rectangular channels extending into the river, or an alternative approach is to install pumps below the river surface with riser pipes extending to a concrete and steel platform. If surface water from the Colorado River is the source of water for flushing, filtration may be needed to remove sediment and bacteria (for injection well maintenance). Water treatment facilities that would be needed for this purpose would likely be housed in one or two buildings. Freshwater treatment systems, such as tanks and buildings, would be a maximum of 10,000 square feet and 25 feet tall, with an overall footprint of up to 40,000 square feet.

1.2.3.3 MONITORING WELLS

Groundwater monitoring wells would be installed as part of the proposed project to evaluate site conditions and contaminant levels and to assess the performance of the remediation system over time. Monitoring wells would be strategically placed to assess contaminant levels of groundwater and progress of in situ treatment and freshwater flushing. Monitoring would include the collection, management, and reporting of groundwater quality, surface water quality, and operational data from the remedial system. In addition to using existing and future wells, monitoring would continue to include periodic sampling and analysis of surface water or pore water in the Colorado River. Monitoring would be required during the operation and maintenance phase and for an estimated 10 years following completion of the remedy.

A maximum of 60 new monitoring wells are anticipated as part of the proposed project. In addition, monitoring wells could be replaced throughout the operation and monitoring phase, as necessary. Monitoring wells are typically between 4 and 8 inches in diameter and are finished at the ground surface with a concrete pad (typically 4 square feet) and include a manhole-type cover provide access to the well. Where a ground surface completion is not feasible, monitoring wells may be installed with aboveground completion with steel protective casing. Monitoring wells would be situated in areas that provide relevant data on groundwater hydraulics and chemistry. In the interior of the plume, monitoring wells would provide data on the operation of the in situ remediation systems. These wells would monitor the changes in water levels and water quality in the active part of the remediation system. Around the perimeter of the plume, monitoring wells are usually installed for compliance monitoring or as “sentry” wells just outside of the contaminated area. Monitoring wells would be sited with consideration of available access, existing infrastructures including transportation and pipeline corridors, sensitive areas, and property owners.

1.2.3.4 WATER CONVEYANCE, UTILITIES, AND ROADWAYS

The proposed project would require pipelines to transfer freshwater, treated water, and reductant-amended water throughout the project area. It would also require other utility connections such as electrical power, signal communications, small solar panels, diesel fuel, and natural gas. An estimated maximum of 50,000 linear feet of pipeline may be required to serve the proposed project. Electric conduit and cable would be installed to supply communication and power to pumps and instrumentation and would typically be installed underground in the same location as piping. As with pipelines, an estimated maximum of 50,000 linear feet of electrical and signal communications is expected to be required for project implementation. Wireless transmitters and receivers, like cellular or radio devices, may be used to communicate to remote areas that have little power demand, thereby reducing the amount of trenching required to install communications-related equipment. Small solar panels may be installed to provide supplemental power, or as a primary power source for a lower power demand, such as for instrumentation and communication systems. Other potential sources of electricity for the project may include supplemental power from the compressor station and/or include an additional dedicated portable generator using diesel fuel or natural gas (approximately 320 kW) of similar size and model to the existing emergency backup generator used for IM-3 (Isuzu Model 6WG1X) that will be rented by PG&E. These sources of electricity may be

used either individually or in combination to meet the electrical demands of the project, particularly during peak demand periods when the City's electrical supply is interrupted by storm events or is at maximum capacity.

A road network for accessing the existing network of monitoring wells runs throughout the project area. This road network would be used where feasible for construction and operation of the proposed project; however, additional roads would be required. A maximum of 6,000 linear feet of new roads could be needed throughout the project area, for both construction and long-term operation and maintenance of the proposed project. An access road would be required to provide service to each well. Following determination that the remedial or monitoring structure is no longer needed, the road would be closed and restored to pre-project conditions. As such, no permanent roads are proposed under any of the alternatives.

1.2.3.5 INSTITUTIONAL CONTROLS

Institutional controls are non-engineering mechanisms, such as legal or contractual restrictions on property use, which are used to help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy. Institutional controls work by limiting land or resource use and/or by providing information that helps modify or guide human behavior at a site. Some common examples of institutional controls include zoning restrictions, building or excavation permits, prohibitions on well drilling, and easements and covenants. Institutional controls are determined based on the specific conditions at a site and may be temporary or permanent. Institutional controls would likely consist of restrictions against development of the groundwater as a potable water supply during the cleanup period and restrictions against removal of or damage to remedial structures (e.g., wells, pipelines, tanks) during the cleanup period. Maintaining institutional controls would not require any physical disturbance in the project area.

1.2.4 DECOMMISSIONING OF THE PROPOSED PROJECT

Following completion of the remedial action, when it is determined through monitoring that cleanup of contaminated groundwater plume to background levels or 32 µg/l of Cr(VI), and/or following the determination that the remedial structures are no longer needed, the remedial facilities (e.g., in situ reductant storage and delivery systems, foundation material, process controls/instrumentation systems, and the Interim Measure 3 Groundwater Extraction and Treatment Facility [IM-3 Facility]) would be decommissioned. 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. The decommissioning of monitoring wells would occur approximately 10 years after the decommissioning of remediation wells. It is estimated that the length of time required to decommission all elements of the proposed project would be up to 2 years in total.

1.3 SUMMARY OF PROJECT ALTERNATIVES

The Final CMS/FS presents the identification and evaluation of various remedial alternatives to address the remedial action goals for groundwater contamination associated with the historic discharges to Bat Cave Wash (SWMU 1/AOC 1) and within AOC 10 (East Ravine) at the compressor station. The Final CMS/FS examined a total of nine remedy alternatives (Alternatives A through I). As described above, the proposed project is based largely on what is defined as Alternative E—In Situ Treatment with Freshwater Flushing. The following provides a summary of each of the alternatives that are considered in this EIR. For a full discussion of the alternatives and an evaluation of their potential environmental effects, refer to Chapter 8, "Alternatives to the Proposed Project."

1.3.1 ALTERNATIVE B—MONITORED NATURAL ATTENUATION

Under Alternative B, no active treatment to reduce Cr(VI) concentrations in groundwater would occur. This alternative would rely only on the naturally reducing conditions to remove Cr(VI) from groundwater in the project area's shallow floodplain. These reducing conditions are derived from naturally occurring organic carbon in the

fluvial deposits associated with the Colorado River. Wherever the natural reducing capacity of the fluvial material is present, Cr(VI) is converted to its stable and less toxic form of Cr(III), which is essentially immobile. The reducing conditions in the fluvial sediments provide a natural geochemical zone that limits or prevents the movement of Cr(VI) through the fluvial sediments adjacent to and beneath the Colorado River. Under Alternative B, up to 60 additional monitoring wells could be installed, not including replacement wells. No remediation wells or associated facilities (i.e., pipelines, roads, and utility connections) are proposed. While it is likely that Alternative B would have the least amount of initial ground disturbing activity because of the absence of remediation facilities, Alternative B has the longest estimated time to clean up (from 220 to 2,200 years) and resulting ground disturbance from replacement of monitoring wells over this cleanup period.

1.3.2 ALTERNATIVE C—HIGH VOLUME IN SITU TREATMENT

Alternative C would involve active in situ groundwater treatment by distributing an organic carbon substrate across the entire plume through high-volume pumping of wells installed primarily in previously disturbed areas. Under Alternative C up to 310 new wells could be installed, of which 240 would be remediation wells (including extraction, injection, and IRZ wells) and 70 would be monitoring wells. Of the 240 remediation wells, an estimated 50% would be upland remediation wells, 40% would be floodplain remediation wells, and 10% would be bedrock remediation wells (PG&E 2010, PG&E 2009:Table D-19B). This alternative would have the largest amount of remediation wells and infrastructure, and therefore the largest amount of associated ground disturbance.

Alternative C would locate injection wells within the center of the plume and extraction wells at the plume margin. An organic carbon substrate would be injected to create geochemically reduced conditions and convert the harmful and soluble Cr(VI) to the insoluble form of chromium, Cr(III). Since the reduced chromium would be deposited in the soil formation instead of dissolved in groundwater, Cr(VI) would be removed from groundwater. Under Alternative C, groundwater would be extracted along National Trails Highway and along the western margin of the plume, amended with a carbon substrate, and injected into the injection wells within the center of the plume. The extraction/injection well lines would form a recirculation system to induce a hydraulic gradient to distribute the carbon substrate throughout the plume. The implementation of this alternative would consist of two phases: floodplain cleanup and interior plume cleanup. Estimated time to clean up under Alternative C is from 10 to 60 years.

1.3.3 ALTERNATIVE D—SEQUENTIAL IN SITU TREATMENT

Under Alternative D, treatment of Cr(VI) would occur by injecting an organic carbon substrate throughout the plume to create geochemically reduced conditions to convert Cr(VI) to insoluble Cr(III). Since the reduced chromium would be deposited in the soil formation instead of groundwater, Cr(VI) would be removed from groundwater in a manner similar to Alternative C. Approximately 10 treatment zones consisting of lines of injection and extraction wells would be constructed and operated in phases to distribute an organic carbon substrate over the entire plume. Wells would be switched from extraction to injection as the implementation progress through different phases of treatment. Lines of wells would be constructed with piping and power to allow each line to be operated in either an injection or extraction mode. Water would be pumped from one line of wells and injected into the adjacent line of wells. Carbon substrate would be added to extracted water prior to injection. The carbon would be distributed throughout the aquifer in the area between the active injection and extraction well lines. Under Alternative D, up to 280 new wells could be installed, of which 200 would be remediation wells (including extraction, injection, and IRZ wells) and 80 would be monitoring wells. Of the 200 remediation wells, an estimated 70% would be upland remediation wells, 10% would be floodplain remediation wells, and 20% would be bedrock remediation wells (PG&E 2010, PG&E 2009:Table D-19B).

The floodplain would be treated in the initial phase by pumping from wells near the Colorado River and injecting into wells near National Trails Highway. Once carbon distribution is complete and Cr(VI) is below cleanup goals

in the floodplain, the line of wells along National Trails Highway would be converted to extraction wells and injection would be moved to the adjacent line of wells west of National Trails Highway. This "leapfrog" pattern of moving the injection and extraction after each segment of the plume was treated would be repeated throughout all the lines of wells until the entire plume had been treated. Estimated time to clean up under Alternative D is from 10 to 20 years.

1.3.4 ALTERNATIVE F—PUMP AND TREAT

Alternative F would involve pumping groundwater, ex situ treatment in an aboveground treatment plant to remove chromium from the groundwater, and reinjection of the treated water back to the aquifer (known as pump and treat). The pump and treat process would include chemical reduction by addition of ferrous iron; oxidation, pH adjustment, and settling in a clarifier; and final filtration for a process that is essentially similar to the ex situ treatment processes at the current IM-3 Facility, with the exception that it would not include reverse osmosis, as it is assumed salinity removal would not be needed.

Alternative F would include a 1,280 gpm treatment plant to remove Cr(VI) from groundwater prior to injection into injection wells. The treatment plant would be considerably larger than the existing IM-3 Facility. For the purposes of this analysis, it is assumed the treatment plant would be 90,000 square feet and 45 feet high. An additional 100,000 square feet would be needed to accommodate parking and storage for equipment and materials. Location of the treatment plant would most likely be within the lower yard of the compressor station; however an alternate location could be the site of the current IM-3 treatment plant. The current IM-3 would be decommissioned and demolished under this alternative. In addition to the treatment plant, up to 120 new wells could be installed, of which 70 would be remediation wells (including extraction, injection and IRZ wells) and 50 would be monitoring wells. Of the 70 remediation wells, an estimated 60 %would be upland remediation wells and 40 % would be bedrock remediation wells. No floodplain remediation wells are proposed under this alternative (PG&E 2010, PG&E 2009:Table D-19B). Extraction wells would be placed in the plume and East Ravine area to extract groundwater. Extracted groundwater would be transported via piping to the treatment plant for treatment. Treated groundwater would be delivered to injection wells at approximately three locations to the west of the plume and three locations in the southern portion of the plume near the mountain front. Chromium removed from the groundwater via ex situ treatment would be collected in the sludge from the clarifier and filtration systems and would be transported off-site by truck to an appropriately licensed disposal facility. Estimated time to cleanup under Alternative F is from 15 to 150 years.

1.3.5 ALTERNATIVE G—COMBINED FLOODPLAIN IN SITU/PUMP AND TREAT

Alternative G would combine floodplain cleanup by in situ treatment with treatment of the upland portion of the plume by extraction and reinjection with ex situ treatment. The floodplain cleanup would involve construction of IRZ lines at National Trails Highway and between National Trails Highway and the Colorado River, as described in the initial phase of Alternative C. Chromium in the upland portions of the project area would be addressed by pumping groundwater, ex situ treatment to remove chromium from the groundwater, and reinjection of the treated water back to the aquifer.

Concurrent with the floodplain cleanup, treatment of the plume in the upland portions of the site would be by an ex situ process similar to the treatment processes at the current IM-3 treatment plant: chemical reduction by addition of ferrous iron; oxidation, pH adjustment, and settling in a clarifier; and final filtration. Alternative G would include a treatment plant of the same dimensions and at the same potential locations as defined under Alternative F. In addition, up to 200 new wells could be installed, of which 140 would be remediation wells (including extraction, injection and IRZ wells) and 60 would be monitoring wells. Of the 140 remediation wells, an estimated 30 %would be upland remediation wells, 50 % would be floodplain remediation wells, and 20 % would be bedrock remediation wells (PG&E 2010, PG&E 2009:Table D-19B). Extraction wells would be placed in the central portions of the plume and the East Ravine area to extract groundwater. Extracted groundwater

would be transported via piping to a treatment plant for treatment and treated groundwater would be piped to injection wells. The assumed combined flow rate is approximately 1,230 gpm. Treated groundwater would be delivered to injection wells at approximately three locations to the west and north of the plume and three locations in the southern portion of the plume near the mountain front. Chromium removed from the groundwater via ex situ treatment would be collected in the sludge from the clarifier and filtration systems and would be transported off-site by truck to an appropriately licensed disposal facility. Estimated time to cleanup under Alternative G is from 10 to 90 years.

1.3.6 ALTERNATIVE H—COMBINED UPLAND IN SITU/PUMP AND TREAT

Alternative H would combine in situ treatment in the upland portions of the plume with pump-and-treat technology in the floodplain. While both Alternative G and Alternative H include a combination of in situ treatment and pump and treat, this alternative differs from Alternative G by relying on in situ to be the dominant feature of the cleanup rather than pump and treat. The upland in situ cleanup would involve construction of several IRZ lines across the length and width of the plume. Organic carbon would be injected in the IRZ lines to treat the existing Cr(VI) in the alluvial zone of the aquifer. IRZ lines would be constructed by recirculating between adjacent wells within each line or by use of vertical circulation wells.

The ex situ process would be similar to the treatment processes at the existing IM-3 Facility: chemical reduction by addition of ferrous iron; oxidation, pH adjustment, and settling in a clarifier; and final filtration. Following ex situ treatment, treated groundwater would be transported via pipeline to injection wells. Treated groundwater would be reinjected into injection wells at approximately four locations within and outside the plume boundary. Chromium removed from the groundwater via ex situ treatment would be collected in the sludge from the clarifier and filtration systems and would be transported off-site by truck to an appropriately licensed disposal facility. While Alternative H would include a treatment plant, it would be considerably smaller than that proposed for Alternatives F and G. The treatment plant under Alternative H would be a 200–300 gpm facility with a 120,000 square foot overall facility footprint, including the 55,000 square foot treatment facility. As with the other alternatives, the current IM-3 would be decommissioned and demolished.

In addition, up to 210 new wells could be installed under Alternative H, of which 140 would be remediation wells (including extraction, injection and IRZ wells) and 70 would be monitoring wells. Of the 140 remediation wells, an estimated 70 % would be upland remediation wells, 20% would be floodplain remediation wells, and 10% would be bedrock remediation wells (PG&E 2010, PG&E 2009:Table D-19B).

Under Alternative H, approximately one-half the extracted groundwater would be transported to the ex situ treatment process described above. The remaining approximately one-half of the extracted water being transported to the western edge of the plume, amended with carbon, and reinjected at approximately four locations near the western edge of the plume. The primary purpose of this reinjection is to increase the flushing efficiency by providing additional “push” to move the plume through the IRZ lines. Sufficient carbon would be added to this water to reduce the Cr(VI) in the injected water, thereby providing treatment of this water concurrent with reinjection. The flows would be balanced so that the treated water injection provides containment of all the flow lines emanating from the amended water injection wells, thus limiting the spread of the amended water and forcing it to flow back through the IRZ lines toward the extraction wells. Estimated time to cleanup under Alternative H is from 10 to 70 years.

1.3.7 ALTERNATIVE I—NO PROJECT ALTERNATIVE/CONTINUED OPERATION OF INTERIM MEASURE

As described in the Final CMS/FS, Alternative I would involve continued operation of the IM-3 Facility as the final remedial action at the site. The IM-3 system would operate with the existing equipment with existing procedures using the existing process at the existing flow rate until cleanup goals are attained. As a continuation

of existing operations with no new remediation facilities, this alternative is considered as the No Project Alternative in this EIR.

1.4 SUMMARY OF KNOWN CONTROVERSIAL ISSUES

CEQA Guidelines require that the summary of an EIR include a synopsis of known issues of controversy that have been raised by agencies and the public (CEQA Guidelines, Section 15123). A notice of preparation (NOP) for the project was released on May 2, 2008 (Appendix NOP). The NOP and the scoping process are described in Chapter 2 of this EIR. Agency and public scoping meetings were held from May 27 to June 5, 2008, to receive oral comments on the scope and content of the EIR. The following is a summary of the most controversial issues that were received during the NOP comment period:

- **Issue:** Concerns regarding contamination in the project area and the types, duration, and effectiveness of cleanup methods being considered (i.e., whether the cleanup methods would be effective; how much time would be required to clean up the contamination; whether residual contamination would remain after cleanup activities are completed).

    - **Where Addressed in EIR:** The extent of groundwater contamination is described in detail in Sections 4.5, "Geology and Soils," 4.6, "Hazardous Materials," and 4.7, "Hydrology and Water Quality." The effectiveness of the remedy that has been selected as the proposed project that is analyzed in this EIR is described in detail in the Final CMS/FS that was prepared to evaluate the remedial alternatives and their effectiveness under RCRA and CERCLA. Chapter 8, "Alternatives to the Proposed Project," provides a summary of the elements of each of the alternatives as compared with the proposed project. The duration of the cleanup process is described in Chapter 3, "Project Description." The analysis of the indirect impacts related to hazardous materials associated with implementation of the proposed project is discussed in Section 4.7, "Hydrology and Water Quality."

- **Issue:** Potential impact to the environment of the investigation and cleanup process, particularly the impact to Native American cultural and archaeological resources in the immediate vicinity of the compressor station and the surrounding landscape.

    - **Where Addressed in EIR:** The purpose of this EIR is to evaluate the potential environmental effects associated with implementation of the proposed project (the remediation efforts) to all environmental resources that could be affected. It considers the potential environmental impacts associated with construction, operation and maintenance, and decommissioning of the proposed project. In particular, this document includes Section 4.4, "Cultural Resources," which focuses on the evaluation of potential effects to Native American cultural and archaeological resources. Table 4.4-2 includes a summary of specific comments that were received regarding cultural resource concerns. In addition, Chapter 6 provides a discussion of cumulative impacts to cultural resources. Finally, Chapter 8 provides a discussion of the potential impacts to cultural resources associated with each of the alternatives.

- **Issue:** Potential impact to human health from exposure to contaminants of concern in the project area, as a result of exposure either to contaminated surface water (i.e., the Colorado River) and/or contaminated ground water (via drinking water wells).

    - **Where Addressed in the EIR:** The extent of groundwater contamination is described in detail in Sections 4.5, "Geology and Soils," 4.6, "Hazardous Materials," and 4.7, "Hydrology and Water Quality." The effectiveness of the ongoing interim measure implemented at the compressor station and that of the proposed remedy that has been selected as the proposed project that is analyzed in this EIR are described in detail in the Final CMS/FS that was prepared to evaluate the remedial alternatives and their effectiveness.

- **Issue:** Range of environmental issues that should be addressed in the EIR (i.e., whether all of the appropriate cleanup methods will be properly/fully addressed in the EIR, as opposed to limiting the analysis of technologies to those that are less expensive or shorter in duration).

    - **Where Addressed in the EIR:** The purpose of this EIR is to evaluate the potential environmental effects associated with implementation of the proposed project as defined in the statement of basis to all environmental resources that could be affected. Section 1.6 provides a list of those issue areas that are analyzed in this EIR and ~~Chapter~~ Section 5.3 provides rationale for those few areas that were not evaluated in detail. It considers the potential environmental impacts associated with construction, operation, and decommissioning of the proposed project, and also provides a comparative analysis of the alternatives to the proposed project. The process of identifying remedial technologies is not the focus of this document. Detail regarding the available technologies and effectiveness of each is presented in the Final CMS/FS.

1.5 ISSUES TO BE RESOLVED

DTSC has prepared this EIR and corresponding statement of basis using the review of available technical information regarding potential alternatives to the remediation of the contaminated groundwater plume. As required by CEQA, DTSC must evaluate the material in this EIR, including the identified mitigation measures and potentially feasible alternatives, before deciding whether to approve the project or an alternative to the project. Aside from those basic decisions, at this time, there are no issues to be resolved regarding the selection of alternatives or regarding implementation of the proposed project.

DTSC acknowledges that the proposed project area is located within the Topock Cultural Area, which is considered a historical resource as defined at Section 15064.5 of the CEQA Guidelines. The nature of this resource, and the expressed interests and concerns of the Fort Mojave Indian Tribe and certain other Yuman-speaking peoples indicate that the remediation activities required under RCRA and CERCLA would create further impacts on this resource that cannot be mitigated to a less-than-significant level.

Investigation regarding the extent of soil contamination associated with current and historical operation at the compressor station is ongoing. Soil investigations that will determine the extent of contamination are likely to be completed in 2013. Following the completion of these investigations, remedial alternatives designed specifically for soil contamination will be prepared through a separate process and additional environmental review will be required. As explained elsewhere in Section 2.2.5, “Ongoing Evaluation of Soils Contamination,” DTSC had initially planned for the soils remediation project to be considered simultaneously with the proposed groundwater remediation project evaluated in this EIR. The development of the two projects, however, could not be maintained on the same timeline because of technical and legal constraints on the development of data to support the need for and the design of soil remediation. DTSC determined that substantial delays in approving a groundwater remediation project simply for administrative convenience of parallel evaluation was not justified and the two projects are now being evaluated on separate timelines.

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.

1.6 SUMMARY OF IMPACTS AND MITIGATION

Information in Table 1-2, "Summary of Impacts and Mitigation," has been organized to correspond with the environmental issues discussed in Chapter 4, "Approach to the Environmental Analysis."

1.7 SUMMARY OF CUMULATIVE IMPACTS

The extent of the geographic area that may be affected by implementation of the proposed project varies depending on the resource under consideration. As discussed in Chapter 6, "Cumulative Impacts," of this document, in addition to the proposed project, ~~22~~ 33 other projects have been completed, are under construction, ~~or~~ are proposed for future development, or are reasonably foreseeable in the vicinity of the project. In addition, activities located in the project area related to the future investigation of soil contamination and remediation is considered in this chapter.

1.8 SUMMARY OF THE SETTLEMENT AGREEMENT REQUIREMENTS

Chapter 7 provides the analysis required by the stipulation and settlement agreement entered into on December 18, 2006, in *Fort Mojave Indian Tribe v. Department of Toxic Substances Control et al.* (Superior Court of the State of California, Sacramento County [Case No. 05CS00437]), referred to in this chapter as the "Settlement Agreement." Among other things, the Settlement Agreement requires that, if the proposed final remedy involves locating or retaining any equipment or installation on the IM-3 site, DTSC, in exercising its discretion regarding any such equipment or installation, is to evaluate significant environmental effects on cultural and biological resources on the site based on the environmental setting (e.g., conditions) at the site as of January 2004 (before development of the IM-3 Facility). Chapter 7 specifically considers the potentially significant environmental impacts on biological and cultural resources of locating or retaining any equipment or installation on the IM-3 site as part of the potential final remedies, consistent with the Settlement Agreement.

The project area for remediation facilities, monitoring wells, and infrastructure associated with the proposed project does include the location of the IM-3 site. The project facilities that could occur within the IM-3 site are limited to freshwater injection wells, injection wells for carbon-amended water, monitoring wells, and associated utility and pipeline trenches. In addition, as part of the proposed project, IM-3 would be decommissioned when it is determined by DTSC and the U.S. Department of the Interior that the facility is no longer needed. More detail on the physical attributes of these facilities and the proposed construction and decommissioning activities is provided in Chapter 3.

Based on a review of the Settlement Agreement, relevant case law, and relevant sections of the CEQA statute and CEQA Guidelines, DTSC determined that the requirements of the Settlement Agreement should be addressed in a stand-alone chapter of the EIR (Chapter 7). This approach allows the environmental analysis provided in Chapter 4 to establish a consistent approach to the baseline generally required by CEQA, with Chapter 7 providing the additional information stipulated in the Settlement Agreement.

The analysis contained in Chapter 7 is at an equal level of detail when compared to the biology and cultural resource impact analyses contained in Chapter 4. The following is a summary of the conclusions of the analysis contained in Chapter 7.

1.8.1 BIOLOGICAL RESOURCES

Biological resource impacts and mitigation measures would remain unchanged when comparing the environmental analysis using a 2004 baseline (as reflected in Chapter 7) and a 2008 baseline (as reflected in Chapter 4). The extent of (e.g., acreage) of potential impacts on waters of the United States, wetlands, riparian habitats, and aquatic species and habitat would not differ because the construction of the IM-3 Facility did not

affect these habitats. With regards to potential impacts to avian species, impacts and recommended mitigation measures would not differ between the 2004 and 2008 baseline. Under both, impacts on special-status bird species (e.g., crissal thrasher [*Toxostoma crissale*]) could occur. These potential impacts would not differ when comparing an analysis using a 2004 baseline to an analysis using the baseline at the time the NOP was issued (May 2008) because the construction of the IM-3 Facility did not affect these habitats. It should be noted that habitat for several of the bird species addressed in Chapter 4 are not present on the IM-3 site (i.e., southwestern willow flycatcher [*Empidonax traillii extimus*], and Yuma clapper rail [*Rallus longirostris yumanensis*]).

With regard to upland habitats and species, impacts on creosote scrub habitat could occur as a result of the installation of new wells and associated infrastructure, as well as the decommissioning of IM-3 (when considering the 2004 baseline, which assumes that the existing IM-3 is not present). Significant impacts to terrestrial species would not occur because of the minimal acreage affected in the upland habitat and its marginal quality. As with consideration under the May 2008 baseline, impacts on desert tortoise could occur because there is some evidence of historical use, although the quality of the present creosote scrub habitat is poor, typically lacking of annual vegetation for forage and burrows for shelter (CH2M Hill 2007a:5-11 through 5-12, included in Appendix BIO of this EIR). Decommissioning of the IM-3 Facility and loss of marginal desert tortoise habitat could occur but these impacts would be relatively minor (although the number of acres would be greater when considering a 2004 baseline as compared to a May 2008 baseline).

1.8.2 CULTURAL RESOURCES

With a January 2004 baseline, impacts and recommended mitigation measures would be very similar to those identified using the 2008 baseline. Sixty-four of the 155 archaeological resources (sites and isolated finds) identified in Section 4.4, "Cultural Resources," are within the boundaries of the IM-3 site. The potential would remain for loss or damage of known cultural resources sites associated with construction and operations/ maintenance activities. In addition, undiscovered cultural resources or Native American burials could be discovered. These resources would have the potential to be affected by any proposed project facilities within the IM-3 site, regardless of the date of the baseline.

Impacts to the historical resources, unique archaeological resources, paleontological resources, Native American burials, and the Topock Cultural Area, as well as the recommended mitigation measures for those impacts, would remain relatively unchanged. The impacts and mitigation measures (CUL-1a, CUL-1b, CUL-1c, CUL-2, and CUL-4) regarding potential loss or damage to historical resources and/or burials would remain applicable. In January 2004, a protective cap was placed on a portion of site CA-SBR-2910H as a mitigation measure for the IM-3 Facility to protect the site from project-related truck traffic. Presuming that the cap did not exist, additional measures would need to be implemented to protect site CA-SBR-2910H. These measures would involve either implementing mitigation similar to the cap, or rerouting site access and other project facilities to avoid sites that are eligible for the California Register of Historical Resources.

The effects of decommissioning under either baseline scenario would be similar to those of construction activities, with a potential for the loss or damage of known cultural resources sites near decommissioning activities. Information gathered as part of this EIR through the Native American Communication Plan and other sources suggests that some tribal stakeholders would consider the decommissioning activities associated with the proposed project would create a temporary, adverse change to the Topock Cultural Area, but that ultimate removal of all proposed project facilities would serve to largely restore the sanctity of the area.

Table 1-2
Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4.1 Aesthetics			
Construction and decommissioning activities are dynamic and would have a limited effect on existing form, lines of sight, and textural pattern. Construction and decommissioning activities would be spread throughout the large project area and views of construction activity would be of short duration. From key views 1, 2, 4, 5, 9, 11, and 13 of the project area, the overall degree of contrast does not meet the threshold of significance for visual quality and character impacts	Less than Significant	No mitigation is required.	Less than Significant
From key views 4, 6, and 10, the overall degree of contrast does not meet the threshold of significance.	Less than Significant	No mitigation is required.	Less than Significant
Impact AES-1: Views from Topock Maze Locus B toward the floodplain, Colorado River and "Needles" rock formation, a Scenic Vista (represented by key view 5) could be adversely affected by the proposed project through removal of floodplain vegetation, introduction of reagent storage tanks and control building, grading operations, and overall alteration of the foreground elements of a scenic vista.	Potentially Significant	**Mitigation Measure AES-1:** The proposed project shall be designed and implemented to adhere to the design criteria presented below. ► Existing mature plant specimens shall be protected in place during construction, operation, and decommissioning phases. The identification of plant specimens that are determined to be mature and retained shall occur as part of the design phase and mapped/identified by a qualified plant ecologist or biologist and integrated into the final design and project implementation. ► Revegetation of disturbed areas within the riparian vegetation along the Colorado River shall occur concurrently with construction operations. Plans and specifications for revegetation shall be developed by a qualified plant ecologist or biologist before any riparian vegetation is disturbed. The revegetation plan shall include specification of maintenance and monitoring requirements, which shall be implemented for a period of 5 years after project construction or after the vegetation has successfully established, as determined by a qualified plant ecologist or biologist. ► Plant material shall be consistent with surrounding native vegetation.	Less than Significant

Table 1-2
Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		► The color of the wells, pipelines, reagent storage tanks, control structures, and utilities shall consist of muted, earth-tone colors that are consistent with the surrounding natural color palette. Matte finishes shall be used to prevent reflectivity along the view corridor. Integral color concrete should be used in place of standard gray concrete. ► The final revegetation plans and specifications shall be reviewed and approved by an architect, landscape architect, or allied design professional licensed in the State of California to ensure that the design objectives and criteria are being met. Planting associated with biological mitigation may contribute to, but may not fully satisfy, visual mitigation.	
From key views 1, 2, 10, and 13, the overall degree of contrast does not meet the threshold of significance.	Less than Significant	No mitigation is required.	Less than Significant
Impact AES-2: Views from the Colorado River, a scenic resources corridor (represented by key view 11) could be adversely affected by the proposed project through removal of floodplain vegetation, grading operations, and overall alteration of a scenic view corridor.	Potentially Significant	**Mitigation Measure AES-2:** The proposed project shall be designed and implemented to adhere to the design criteria presented below. ► A minimum setback requirement of 20 feet from the water (ordinary high water mark) shall be enforced, except with regard to any required river intake facilities, to prevent substantial vegetation removal along the riverbank. ► Existing mature plant specimens shall be protected in place during construction, operation, and decommissioning phases. The identification of plant specimens that are determined to be mature and retained shall occur as part of the design phase and mapped/identified by a qualified plant ecologist or biologist and integrated into the final design and project implementation. ► Revegetation of disturbed areas within the riparian vegetation along the Colorado River shall occur concurrently with construction operations. Plans and specifications for revegetation shall be developed by a qualified plant ecologist or biologist before any riparian vegetation is disturbed. The revegetation plan shall include specification of maintenance and monitoring requirements, which shall be implemented for	Less than Significant

Table 1-2
Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		a period of 5 years after project construction or after the vegetation has successfully established, as determined by a qualified plant ecologist or biologist. ► Plant material shall be consistent with surrounding native vegetation. ► The color of the wells, pipelines, and utilities shall consist of muted, earth-tone colors that are consistent with the surrounding natural color palette. Matte finishes shall be used to prevent reflectivity along the view corridor. Integral color concrete should be used in place of standard gray concrete. ► The final revegetation plans and specifications shall be reviewed and approved by an architect, landscape architect, or allied design professional licensed in the State of California to ensure that the design objectives and criteria are being met. Planting associated with biological mitigation may contribute to, but may not fully satisfy, visual mitigation.	
From key views 1, 2, 4, 5, 9, and 13 of the project area, the overall degree of contrast does not meet the threshold of significance for visual quality and character impacts.	Less than Significant	No mitigation is required.	Less than Significant
Impact AES-3: The visual quality and character along the Colorado River could be altered through the removal of floodplain vegetation and grading operations (key view 11).	Potentially Significant	**Mitigation Measure AES-3:** Mitigation Measure AES-1 shall be implemented. Implementation of Mitigation Measures AES-1 would reduce the overall change to the visual character of the view corridor along the Colorado River. Although the proposed project would still be visible, incorporating a facilities design that is aesthetically sensitive and preserving the vegetation would blend the proposed project into their visual setting within the floodplain and would reduce the overall contrast of the proposed project	Less than Significant
Views of lighting and nighttime construction activity would be of short duration and would not include features that would create glare.	Less than Significant	No mitigation is required.	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4.2 Air Quality			
Impact AIR-1: Construction of the proposed project would result in emissions that do not exceed MDAQMD's thresholds for ROG, NO_X , and $PM_{2.5}$, but that do exceed MDAQMD's threshold of significance for PM_{10} (82 lb/day).	Significant	**Mitigation Measure AIR-1:** PG&E shall implement the fugitive dust control measures below for any construction and/or demolition activities: ► Use periodic watering for short-term stabilization of disturbed surface area to minimize visible fugitive dust emissions during dust episodes. Use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient; ► Cover loaded haul vehicles while operating on publicly maintained paved surfaces; ► Stabilize (using soil binders or establish vegetative cover) graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 30 days, except when such delay is caused by precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions; ► Cleanup project-related track out or spills on publicly maintained paved surfaces within twenty-four hours; and ► Curtail nonessential earth-moving activity under high wind conditions (greater than 25 miles per hour) or develop a plan to control dust during high wind conditions. For purposes of this rule, a reduction in earth-moving activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.	Less than Significant
To receive a permit, stationary sources must meet applicable standards. Mobile sources would be well below applicable standards. Therefore, mobile and stationary operation-related activities would not result in project-generated emissions of criteria pollutants and ozone precursors that exceed the applicable thresholds.	Less than Significant	No mitigation is required.	Less than Significant
Operations of the proposed project would not generate greenhouse gas emissions above the California mandatory reporting limit, nor would project related emissions	Less than Significant	No mitigation is required.	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
conflict with an applicable plan, policy or regulation adopted for purposes of reducing GHG emissions **.** Therefore, mobile and stationary operation-related activities would not result in project-generated emissions of greenhouse gases that exceed the applicable thresholds of significance.			
At this time no ambient CO monitoring data is available for the project area, however it is expected that the 1-hour ppm of CO in the project area would be less than 3 ppm/1-hr, based on typical concentrations in outlying areas (SMAQMD 2004). The anticipated 1-hour and 8-hour CO concentrations would be less than CAAQS and NAAQS.	Less than Significant	No mitigation is required.	Less than Significant
The project construction period of approximately 3 years would be much less than the 70-year period used for risk determination, and the equipment would be located at distances greater than 1,000 feet from the sensitive receptors as recommended by MDAQMD for significance determination. This would be less than significant**.** During the permitting process MDAQMD would analyze such sources (e.g., by preparing a health risk assessment) based on their potential to emit TACs. If it is determined that the sources would emit TACs in excess of MDAQMD's applicable significance threshold, MACT or T-BACT would be implemented in order to reduce emissions. If the implementation of MACT or T-BACT would not reduce the risk below the applicable threshold, the MDAQMD would deny the operating permit.	Less than Significant	No mitigation is required.	Less than Significant
The proposed project would not introduce new, permanent odor-generating facilities close to existing or planned sensitive receptors. Short-term odors sources would be intermittent and would dissipate rapidly from the source.	Less than Significant	No mitigation is required.	Less than Significant
4.3 Biological Resources			
Impact BIO-1: Implementation of the proposed project could result in fill of wetlands and other waters of the United States under U.S. Army Corps of Engineers	Potentially Significant	**Mitigation Measure BIO-1:** Areas of sensitive habitat in the project area have been identified during project surveys. These areas include floodplain and riparian areas, wetlands, and waters	Less than Significant

Table 1-2
Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
(USACE) and California Department of Fish and Game (DFG) jurisdiction, as well as potential disturbance or removal of riparian vegetation along the Colorado River.		of the United States. Habitats designated by DFG as sensitive, including desert washes and desert riparian, are also included. To the extent feasible, elements of the project shall be designed to avoid direct effects on these sensitive areas. During the design process and before ground disturbing activities, a qualified biologist shall coordinate with PG&E to ensure that the footprints of construction zones, drill pads, staging areas, and access routes are designed to avoid disturbance of sensitive habitats to the extent feasible. DTSC shall be responsible for enforcing compliance with design and all preconstruction measures. If during the design process it is shown that complete avoidance of habitats under USACE jurisdiction is not feasible, the Section 404 permitting process shall be completed, or the substantive equivalent per CERCLA Section 121(e)(1). In either event, the acreage of affected jurisdictional habitat shall be replaced and/or rehabilitated to ensure "no-net-loss." Before any ground-disturbing project activities begin in areas that contain potentially jurisdictional wetlands, the wetland delineation findings shall be documented in a detailed report and submitted to USACE for verification as part of the formal Section 404 wetland delineation process and to DTSC. For all jurisdictional areas that cannot be avoided as described above, authorization for fill of wetlands and alteration of waters of the United States shall be secured from USACE through the Section 404 permitting process before project implementation. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by feasible methods agreeable to USACE and consistent with applicable county and agency policies and codes. Minimization and compensation measures adopted through any applicable permitting processes shall be implemented. Alternately, if USACE declines to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, the substantive equivalent of the Section 404 permitting process shall be complied with by ensuring that the acreage of jurisdictional wetland affected is be replaced on a "no-net-loss" basis in accordance with the substantive provisions of USACE regulations. Habitat restoration, rehabilitation, and/or replacement	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		shall be at a location and by feasible methods consistent with USACE methods, and consistent with the purpose and intent of applicable county and agency policies and codes. Minimization and compensation measures adopted through any applicable permitting processes shall be implemented. In any event, a report shall be submitted to DTSC to document compliance with these mandates. If during the design process it is shown that complete avoidance of habitats under DFG jurisdiction (such as changes to the natural flow and/or bed and bank of a waterway) is infeasible, a Section 1602 streambed alteration agreement shall be obtained from DFG and affected habitats shall be replaced and/or rehabilitated. If complete avoidance of identified riparian habitat is not feasible, the acreage of riparian habitat that would be removed shall be replaced or rehabilitated on a no-net-loss basis in accordance with DFG regulations and, if applicable, as specified in the streambed alteration agreement, if needed. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to DFG and consistent with the purpose and intent of applicable county policies and codes, as well as those policies outlined under the respective federal agency guidance documents. Minimization and compensation measures adopted through the permitting process shall also be implemented. Restoration of any disturbed areas shall include measures to achieve “no-net-loss” of habitat functions and values existing before project implementation. These measures shall be achieved by developing and implementing a habitat restoration plan submitted to DFG, U.S. Bureau of Land Management (BLM), and U.S. Fish and Wildlife Service (USFWS) that is agreeable to these agencies, or, alternately, through the implementation of a habitat restoration plan consistent with the substantive policies of DFG, BLM, and USFWS. The plan shall include a revegetation seed mix or plantings design, a site grading concept plan, success criteria for restoration, a monitoring plan for achieving no net loss of habitat values and functions, and an adaptive management plan. Alternately, if DFG declines to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, and during	

Table 1-2
Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the design process it is shown that complete avoidance of habitats under DFG jurisdiction (such as changes to the natural flow and/or bed and bank of a waterway) is infeasible, the substantive mandates of a streambed alteration agreement shall be implemented, and affected habitats shall be replaced and/or rehabilitated. If complete avoidance of identified riparian habitat is not feasible, the acreage of riparian habitat that would be removed shall be replaced or rehabilitated on a "no-net-loss" basis in accordance with DFG regulations and, if applicable. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to DFG and consistent with the purpose and intent of applicable county policies and codes, as well as those policies outlined under the respective federal agency guidance documents. Minimization and compensation measures adopted through the permitting process shall also be implemented. Restoration of any disturbed areas shall include measures to achieve "no-net-loss" of habitat functions and values existing before project implementation. These measures shall be achieved by developing and implementing a habitat restoration plan developed consistent with the substantive policies of DFG, BLM and USFWS. The plan shall include a revegetation seed mix or plantings design, a site grading concept plan, success criteria for restoration, a monitoring plan for achieving no net loss of habitat values and functions, and an adaptive management plan.	
Impact BIO-2a: Implementation of the proposed project could affect avian and terrestrial species, specifically special-status birds and desert tortoise, either directly or through habitat modifications.	Potentially Significant for special-status birds	**Mitigation Measure BIO-2a:** To the extent feasible, the project implementation plans shall be designed to minimize removal of habitat for special-status birds. During the design process and before ground disturbing activities, a qualified biologist shall coordinate with PG&E to ensure that the footprints of project elements and construction zones, staging areas, and access routes are designed to avoid direct or indirect effects on habitat and nesting habitat for other special-status species, to the extent feasible. DTSC ~~shall guarantee~~ will ensure compliance with all preconstruction and construction phase avoidance measures identified during this process and included in any design plans. Vegetation removal and other activities shall be timed to avoid the nesting season for special-status bird species that may	Less than significant

Table 1-2
Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		be present. The nesting cycle for most birds in this region spans March 15 through September 30. ***Preconstruction Measures*** Preconstruction breeding season surveys shall be conducted during the general nesting period, which encompasses the period from March 15 through September 30, if the final design of the project could result in disturbance or loss of active nests of special-status bird species. If vegetation removal or other disturbance related to project implementation is required during the nesting season, focused surveys for active nests of special-status birds shall be conducted before such activities begin. A qualified biologist shall conduct preconstruction surveys to identify active nests that could be affected. The appropriate area to be surveyed and the timing of the survey may vary depending on the activity and species that could be affected. For the Yuma clapper rail, the preconstruction surveys shall specifically identify habitat within 300 feet of construction areas, in accordance with substantive policies of USFWS. ***Construction Measures*** Before the initiation of project elements that could result in disturbance of active nests or nesting pairs of other special-status birds, a qualified biologist shall be consulted to identify appropriate measures to minimize adverse impacts during the construction phase of the project. If deemed appropriate for the final project design because of the potential for impacts, minimization measures will include focusing construction activities that must be conducted during the nesting season to less-sensitive periods in the nesting cycle, implementing buffers around active nests of special-status birds to the extent practical and feasible to limit visual and noise disturbance, conducting worker awareness training, and conducting biological monitoring (including noise monitoring to determine if construction noise at the edge of suitable nesting habitat is elevated above 60 dBA L_{eq} or ambient levels). An avoidance and minimization plan for special status bird species, as defined in Table 4.3-3 and those species protected	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		under the federal Migratory Bird Treaty Act, including the Yuma clapper rail, shall be developed and implemented in consultation with USFWS, and agreed upon by DTSC. Avoidance and impact minimization measures, such as prohibiting construction near or in sensitive bird habitat, limiting construction during breeding seasons, and requiring an on-site biological monitor, shall be included in the design plan and implemented to the extent necessary to avoid significant impacts on sensitive bird species.	
Impact BIO-2b: Implementation of the proposed project could affect avian and terrestrial species, including the desert tortoise, either directly or through habitat modifications.	Potentially Significant for desert tortoise	**Mitigation Measure BIO-2b:** ***Preconstruction Measures*** In areas where impacts to potential desert tortoise habitat are unavoidable, measures outlined in the Programmatic Biological Agreement (PBA) and in the USFWS letter concurring with the PBA, shall be implemented, as described below. To the extent feasible, project construction shall be designed to minimize removal of habitat for the desert tortoise. Before any ground-disturbing project activities begin, a USFWS-authorized desert tortoise biologist shall identify potential desert tortoise habitat in areas that could be affected by the final project design. Through coordination with the authorized biologist, PG&E shall ensure that the footprints of project elements and construction zones, staging areas, and access routes are designed to avoid direct or indirect effects on potential desert tortoise habitat to the extent feasible. These measures include the presence of a USFWS-authorized desert tortoise biologist on-site who will examine work areas and vehicles for the presence of desert tortoises, and who will conduct preconstruction desert tortoise surveys in areas where unavoidable impacts to tortoise habitat would occur. If feasible, the preconstruction desert tortoise surveys would coincide with one of the two peak periods of desert tortoise activity (i.e., if feasible, the surveys should be conducted in either the period from April through May, or from September through October). The preconstruction surveys shall be in full accordance with the substantive requirements of USFWS protocols. ***Construction Measures*** Before the initiation of project elements that could result in	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		disturbance of desert tortoises or desert tortoise habitat, a USFWS-authorized desert tortoise biologist shall be consulted to identify appropriate measures to minimize adverse impacts. Minimization measures are likely to include micro-siting structures, pipelines, and access roads in previously disturbed areas or in areas with sparse scrub vegetation, conducting worker awareness training, and conducting biological monitoring.	
Impact BIO-2c: Implementation of the proposed project could affect avian and terrestrial species, specifically special-status birds and desert tortoise, either directly or through habitat modifications.	Potentially Significant for Disturbance of Special-Status Species and Loss of Habitat Caused by Decommissioning	**Mitigation Measure BIO-2c:** To avoid impacts on special-status species that may occur within the project area as a result of decommissioning activities, an avoidance and minimization plan shall be developed and implemented through consultation with DFG, BLM, and USFWS. These measures shall be based on surveys conducted prior to decommissioning, and during the breeding season (as previously defined in this EIR for each species or suite of species). Restoration of any disturbed areas shall include measures to achieve no net loss of habitat functions and values existing before project implementation. These measures shall be achieved by developing and implementing a habitat restoration plan submitted to DFG, BLM, and USFWS that is agreeable to these agencies. The plan shall include a revegetation seed mix or plantings design, a site grading concept plan, success criteria for restoration, a monitoring plan for achieving no net loss of habitat values and functions, and an adaptive management plan.	Less than Significant
Impact BIO-3: If selected as part of the final remedy, construction of the freshwater intake structure element of the proposed project could prevent fish from accessing spawning habitat or interfere with preferred habitat. In addition, operation of the water intake structure within the Colorado River could cause mortality to fish, including special-status species. Increased sedimentation and turbidity, the release of contaminants, and standing during construction activities could also adversely affect fish habitat and movement in the Colorado River.	Potentially Significant	**Mitigation Measure BIO-3a:** Hydrology & Water Quality Mitigation Measure HYDRO-1 shall be implemented in order to reduce water quality impacts related to erosion and pollutant runoff through implementation of Best Management Practices (BMPs). In addition, installing the cofferdam and dewatering a portion of the proposed intake structure site during fish screen construction may result in fish stranding. PG&E and its contractor shall coordinate with a qualified fisheries biologist to develop and implement a fish rescue plan. The fish rescue effort would be implemented during the dewatering of the area behind the cofferdam and would involve capturing those fish and returning them to suitable habitat within the river.	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		The fish rescue plan shall identify and describe the following items: collection permits needed, fish capture zones, staffing, staging areas, fish collection and transport methods, species prioritization, resource agency contacts, fish handling protocols, fish relocation zones, site layout and progression of dewatering and fish rescue, and records and data. To ensure compliance, a fisheries biologist shall be present on-site during initial pumping (dewatering) activities and to oversee the fish rescue operation. **Mitigation Measure BIO-3b:** To restore, replace, or rehabilitate habitat impacted by the intake structure, PG&E shall implement the measures described below. Unless as provided below, PG&E shall confer with DFG regarding potential disturbance to fish habitat and shall obtain a streambed alteration agreement, pursuant to Section 1602 of the California Fish and Game Code, for construction work associated with intake structure construction; PG&E shall also confer with DFG pursuant to the California Endangered Species Act (CESA) regarding potential impacts related to the loss of habitat or other operational impacts on state-listed fish species, respectively. PG&E shall comply with all requirements of the streambed alteration agreement and any CESA permits to protect fish or fish habitat or to restore, replace, or rehabilitate any important habitat on a "no-net-loss" basis. Alternatively, if DFG declines to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, the project proponent shall consult with DFG regarding potential disturbance to fish habitat and shall meet the substantive policies of a streambed alteration agreement and of the CESA for construction work associated with intake structure construction and operations. PG&E shall comply with all substantive requirements of the streambed alteration agreement and CESA to protect fish and fish habitat or to restore, replace, or rehabilitate any important habitat on a "no-net-loss" basis and to operate the facility in accordance with CESA to ensure no net loss of habitat function. Additionally, PG&E shall consult with USACE regarding the need to obtain permits under section 404 of the CWA and section	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		10 of the Rivers and Harbors Act. In conjunction with these permitting activities, the USACE must initiate consultation with USFWS under Section 7 of the Federal ESA regarding potential impacts of the proposed project on federally listed fish species due to the loss of habitat on federally listed fish species. PG&E shall implement any additional measures developed through the ESA Section 7 processes, or its equivalent, to ensure "no-net-loss" of habitat function. Alternatively, if USACE and/or USFWS decline to assert jurisdiction because it determines that CERCLA Section 121(e)(1) applies, PG&E shall confer with USFWS regarding potential disturbance to federally listed fish species and federally listed fish species habitat and shall meet the substantive mandates under Section 7 of the Federal ESA regarding potential impacts to fish or to habitat of federally listed fish species. PG&E shall implement any additional measures developed through that processes, including compliance with the substantive requirements of all of what would be permit conditions if not exempt pursuant to CERCLA, and to ensure "no-net-loss" of habitat function. Because the type and extent of habitat potentially affected is unknown, PG&E shall have an instream, habitat typing survey conducted in the area potentially affected by the intake construction. Further, cooperation with USFWS and other fisheries biologists shall determine suitable and acceptable location(s) for the intake structure(s) to avoid the spawning habitat of special-status fish species. PG&E shall avoid habitat modifications, especially to habitat that is preferred by native fishes for spawning or rearing including side channels, cobble or gravel bars, and shallow backwaters. If these habitat types cannot be avoided, any disturbed habitat will be restored or replaced to achieve "no-net-loss" of habitat types and values as described above. **Mitigation Measure BIO-3c:** Both screened and unscreened diversions can entrain larval life stages of fish. For example, adverse effects to early life stages of fish could occur if diversions	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		coincide with planktonic larval life stages that occur during summer months, a period of high entrainment vulnerability. Prior to operation of the intake structure, PG&E shall consult with USFWS and DFG to determine the most vulnerable time of the year for entrainment or impingement of razorback sucker and bonytail chub eggs or larvae. PG&E shall install a state-of-the-art positive-barrier fish screen that would minimize fish entrainment and impingement at the intake structure. The fish screen shall be designed in accordance with DFG and the National Marine Fisheries Service criteria, with specific consideration given to minimizing harm to fish eggs and other early life stages. To ensure that the fish screen operates as intended and reduce the risk of impacts, long-term monitoring of the operations and maintenance of the positive-barrier screen shall be conducted. Monitoring at the onset of diversions through the intake shall include approach velocity measurements immediately after the positive-barrier screen operations begin, with fine-tuning of velocity control baffles or other modifications as necessary, to achieve uniform velocities in conformance with the screen criteria established by regulatory agencies.	
Implementation of the proposed project would not have substantial adverse effects on the viability of populations of species covered in the LCR MSCP, the effectiveness of the LCR MSCP's conservation strategy, and attainment of the goals and objectives of the LCR MSCP. Additionally, the project would not conflict with resource management goals of USFWS, BLM or DOI.	Less than Significant	No mitigation is required.	Less than Significant
Implementation of the proposed project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than Significant	No mitigation is required	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4.4 Cultural Resources			
Impact CUL-1: Cause Substantial Adverse Change in the Significance of a Historical Resource as Defined in CEQA Guidelines Section 15064.5. Construction, operation and maintenance, and decommissioning activities of the proposed project could result in substantial adverse changes to historical resources in the project area, including the (1) Topock Cultural Area, (2) other historical resources listed in Table 4.4-3, ~~(3) historical resources that have yet to be identified in unsurveyed areas,~~ and (~~4~~3) historical resources that could be identified during construction. Impacts could occur through ground disturbance and other project-related activities or through the introduction of out-of character visual or auditory intrusions to historical resources that gain their significance in part because historical associations or aesthetic values. This impact would be potentially significant.	Significant and Unavoidable for CUL-1a and Potentially Significant for CUL-1b and CUL-1c	**Mitigation Measure CUL-1a:** ***During Design, Construction, O&M, and Decommissioning Implement Measures to Avoid, Minimize, or Mitigate Impacts on Cultural Resources.*** Establishment of a cultural impact mitigation program and a Corrective Measures Implementation Workplan (CMI Workplan), with specific activities stipulated for each phase of the project, will reduce the potential for impacts on historical resources within the project area, and will help preserve the values of and access to the Topock Cultural Area for local tribal users. As detailed below, measures will be implemented to avoid known resources, re-use existing disturbed areas to the extent feasible and consistent with the Final Remedy, allow for tribal input to the final design and maintain access for tribal users during design, construction, operation, and decommissioning activities, as appropriate. During construction, a Worker Education Program and regular archaeological and tribal monitoring will be implemented, and measures intended to reduce the potential for incursion by outside parties will be strengthened. ***Mitigation during the design, construction, O&M, and decommissioning phases includes these specific actions:*** **CUL-1a-1:** During development of the final design and the construction, operation, and decommissioning phases of the project, PG&E shall carry out and require all subcontractors to carry out all investigative, testing, and remediation activities, including all supporting operations and maintenance activities, in ways that avoid, minimize, and mitigate significant adverse effects to historically significant cultural and historic resources, consistent with the CEQA Guidelines, and including the Topock Cultural Area, to the maximum extent feasible as determined by DTSC. **CUL-1a-2:** As part of the CMI Workplan, PG&E shall develop a	Potentially Significant and Unavoidable

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		written access plan to preserve tribal members' access to, and use of, the project area for religious, spiritual, or other cultural purposes. This plan will allow access to the extent PG&E has the authority to facilitate such access, and be consistent with existing laws, regulations, and agreements governing property within the project area. The access plan may place restrictions on access into certain areas, such as the Compressor Station and the existing evaporation ponds, subject to DTSC review with regard to health and safety concerns and to ensure noninterference with approved remediation activities. This access plan may be developed in coordination with the federal agencies with land management responsibilities in the project area (e.g., BLM and USFWS) in accordance with the related stipulation (General Principle I.C) contained in the Programmatic Agreement (Appendix PA). PG&E shall demonstrate a good faith effort to coordinate with Interested Tribes[1] by including communication logs as part of the CMI Workplan. **CUL-1a-3:** PG&E shall enhance existing measures to prevent and reduce incursions from recreational and/or other outside users from affecting unique archeological and historically significant resources, including resources within the Topock Cultural Area, by: a. Retaining a Qualified Cultural Resource Consultant to implement the Mitigation Monitoring and Reporting Program (MMRP) and conducting yearly inspections (or less frequently upon approval by DTSC) of	

[1] "Interested Tribes" means, for purposes of this EIR and the mitigation measures contained herein, the six tribes that have substantially participated in the various administrative processes surrounding remediation of the site with DTSC, PG&E, and DOI, including throughout development of the final remedy. Interested tribes include the Chemehuevi Indian Tribe, Cocopah Indian Tribe, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Fort Yuma-Quechan Indian Tribe, and Hualapai Indian Tribe.

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		identified historical resources, including inspections of the Topock Cultural Area, to determine if substantial adverse changes have occurred relative to the condition of the historical resources during the past year or prior to the implementation of the proposed project. PG&E shall offer to retain a tribal monitor at historic rates of compensation or tribal representatives designated by the Tribal Council or chairperson, if so requested, to accompany the Qualified Cultural Resources Consultant during the inspections. The Qualified Cultural Resource Consultant shall be a person who is acceptable to DTSC and who is also a qualified archaeologist with a graduate degree in archaeology, anthropology or closely related field, plus at least 3 years of full-time professional experience in general North American archaeological research and fieldwork, with expertise/experience in the Southwest preferred. b. Developing a site security plan as part of the CMI Workplan. The site security plan shall include, but not be limited to, instructions for PG&E personnel to inspect the project site routinely during construction and report any human-caused disturbance to project facilities and the surrounding environment to DTSC and the appropriate landowner, such as BLM, USFWS, or FMIT, as appropriate, depending on the ownership of the property involved in the incursion. Notification shall be within a specified period, as established in the site security plan for the event, and shall also be summarized as part of the periodic implementation status report, as approved by DTSC for remedy implementation. This	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		measure does not impose any obligation on PG&E to perform law-enforcement duties on federal or private lands, but is intended to provide increased observation of potential intrusions into the project area during construction and operation of the final remedy that may impact significant cultural resources. PG&E staff, or assigned agents, should be instructed to report any outside disturbance to the environment personally observed over the course of the working day. Information shall be reported within a specific period, as established in the site security plan, to DTSC and the appropriate landowners, such as BLM, USFWS, or FMIT, depending on the ownership of the property intruded upon. The site security plan may also include the use of PG&E security cameras at major ingress/egress gates into the project site. Finally, if requested by the FMIT the plan may include the use of private security personnel to patrol the FMIT-owned parcel within the project area to prevent outside incursions. c. Coordinating with BLM and San Bernardino County to facilitate an outreach effort to the staff at Moabi Regional Park, requesting that they communicate to visitors the parts of the project area that are off limits to off-road vehicle usage because of health and safety concerns, public lands management plans, or landowner requests. PG&E shall make a good faith effort to involve the surrounding tribes in this outreach effort, providing Interested Tribes with the opportunity to comment on outreach materials or provide a tribal cultural resources specialist the opportunity to participate in the outreach activities. As part of this outreach	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		effort, PG&E shall work with Park Moabi and offer to design, develop, and fund the installation of an informational kiosk within Park Moabi that informs visitors of the work being done at the project site. PG&E shall involve the tribes to the maximum extent feasible, as determined by DTSC, in the design and development of the informational kiosk. d. Posting signage to indicate those parts of the project area that are off limits to off-road vehicle usage due to possible health and safety concerns and to reduce potential damage to environmental resources. If agreed to by land owners and/or local, state, or federal management entities within the project area, PG&E shall work with the relevant land owner or land management entity to develop, design, and fund the installation of easily visible and clear signage. This may include coordination with BLM to install signage noting the designation of the area as an Area of Critical Environmental Concern owing to its biological and cultural resources, while ensuring that signs are placed in a way that does not draw unwanted attention to specific resources. **CUL-1a-4:** PG&E shall work with representative members of the Interested Tribes to convene and retain a multidisciplinary panel of independent scientific and engineering experts as part of a Technical Review Committee (TRC). The TRC shall be made up of not more than five multidisciplinary experts who will be on call to review project-related documents, participate in project-related meetings, and advise interested tribal members on technical matters relating to the final design and remedy. The TRC shall include only persons with technical expertise, including but not limited to geology, hydrology,	

Table 1-2
Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		water quality, engineering, paleontology, toxicology, chemistry, biology, or botany. Before July 1, 2011, PG&E shall post an open grant or Request for Qualifications (RFQ) and retain members of the TRC at rates comparable to those paid historically to tribal experts by PG&E for the remediation project. TRC members shall be selected by majority vote of one representative from each participating Interested Tribe. PG&E shall provide Interested Tribes at least 30-days notice of the meeting to select TRC members and to review TRC candidate qualifications. For the purposes of contracting, the grant may be awarded to one tribal government to manage or, alternatively, PG&E may reimburse the tribe or TRC members directly. The entirety of the monies shall be used to fund the scientific and engineering team exclusively, and shall not be used to fund other tribal government expenses or used to support legal counsel. A stipulation of the open grant shall be that the scientific and engineering team shall provide all deliverables and results to all involved tribes, despite a possible contract agreement with only one tribe or with PG&E. Upon conclusion of the construction phase of the project, the necessity and dollar value of the TRC shall be assessed by PG&E and, with the approval of DTSC, shall either be extended, reduced, or terminated under the operations and maintenance phase. An annual activity report shall be sent to DTSC for review and to ensure PG&E is in compliance. **CUL-1a-5:** Should any indigenous plants of traditional cultural significance and listed in Appendix PLA of this FEIR be identified within the project area, PG&E shall avoid, protect, and encourage the natural regeneration of the identified plants when developing the remediation design, final restoration plan, and IM-3 decommission plan. In the event that	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		impacts on the identified plants cannot be avoided and such plants will be displaced, PG&E shall retain a qualified botanist who shall prepare a plant transplantation/monitoring plan which can be included as part of the Cultural Impact Mitigation Program (CIMP) referenced in CUL-1a-8 either by (1) transplanting such indigenous plants to an on-site location, or (2) providing a 2:1 ratio replacement to another location decided upon between PG&E and members of the Interested Tribes. Plans to transplant or replace such plants shall be approved by DTSC. In coordination with the qualified botanist, PG&E shall monitor all replanted and replacement plants for at least 3 years, and shall ensure at least a 75 percent survivorship during that time. This mitigation measure is not meant to replace or subsume any actions required by state or federal entities with regard to the protection of species listed as rare, threatened, or endangered. **CUL-1a-6:** All additional phone calls and alarms associated with remediation activities or facilities shall not be routed through PG&E's existing alarm system utilized at the compressor station. The notification system for remediation-related alerts and/or phone calls shall not introduce additional noise to the project area, to the maximum extent feasible, provided there is ongoing compliance with applicable safety regulations or standards of the Federal Energy Regulatory Commission, Occupational Safety and Health Administration, and other agencies. (See Mitigation Measure NOISE-3 for additional mitigation related to the Topock Cultural Area). **CUL-1a-7:** Nighttime construction-related activities shall be limited to work that cannot be disrupted or suspended until the following day, such as, but not limited to, well drilling and development or	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		decommissioning activities. Lighting considerations, including the potential use of solar power for some lighting, shall be included as part of the remedial design plan to be developed with involvement of Interested Tribes and the U.S. Department of the Interior. To minimize construction and operations-related lighting impacts, the lighting in the remedial design plan shall include, at a minimum: (1) shrouding/shielding for portable lights needed during construction and operational activities; (2) installation of portable lights at the lowest allowable height and in the smallest number feasible to maintain adequate night lighting for safety; (3) shielding and orientation of lights such that off-site visibility of light sources, glare, and light from construction activities is minimized to the extent feasible. No additional permanent poles shall be installed for lighting. This mitigation measure is not meant to replace or subsume any actions required by the County or state or federal entities with regard to lighting required for minimum security and safety purposes. **CUL-1a-8:** Prior to commencement of construction, PG&E shall submit as part of the final Remedial Design, a CIMP developed in coordination with Interested Tribes for DTSC's review and approval. The CIMP may be developed in coordination with the federal agencies with land management responsibilities in the project area (e.g., BLM and USFWS) in accordance with the Programmatic Agreement (Appendix PA). The CIMP shall include, at a minimum and to DTSC's satisfaction, the following: a. Protocols for continued communication. Consistent with past practice and the communication processes previously entered into by PG&E with Interested Tribes, the company shall continue to communicate with	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Interested Tribes during the design, construction, operation, and decommissioning of the project. Prior to implementation of construction, PG&E shall communicate with Interested Tribes that place cultural significance on the Topock Cultural Area. Outreach efforts between the Tribes and PG&E shall be communicated by PG&E to DTSC quarterly during the design and construction phase for review and input, and annually during project operations. b. Protocols for the appropriate treatment of archaeological materials that may be disturbed or discovered during implementation of the final remedy, including protocols for the repatriation of significant items of cultural patrimony that may be recovered during the project, and protocols for the curation of cultural materials recovered during the project. Treatment of archaeological sites may include data recovery or capping. If data recovery is proposed, a Research Design following California Office of Historic Preservation guidelines or federal guidelines, as applicable, shall be prepared and reviewed and approved by DTSC. c. Protocols for the review of cultural resource-related documents throughout the design, construction, and operational phases. d. Protocols for the review of project design documents before the beginning of construction, including reviews of project design documents throughout the design process (e.g., Preliminary [approximately 30% completed], Intermediate [approximately 60% completed] and Pre-final design). e. Protocols for the appropriate methods to be used	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		to restore the environment to its preconstruction condition upon decommissioning of individual groundwater remedy facilities. f. A plan for the decommissioning and removal of the IM-3 Facility and proposed restoration of the site (to be an appendix to the CIMP). g. Protocols for the repatriation of clean soil cuttings generated during construction activities and during drilling associated with repair/replacement activities during operations and maintenance phases. The soil cuttings shall be managed in compliance with applicable laws and regulations on site. h. Protocols for the appropriate methods, consistent with Mitigation Measure NOISE-3, to reduce auditory impacts. i. Protocols for the appropriate methods, consistent with Mitigation Measures AES-1 and AES-2, to reduce visual intrusions. j. Protocols for tribal notification in advance of project-related activities that the Interested Tribes may feel have the potential to cause adverse impacts to sensitive cultural resources. k. Protocols to be followed by project personnel to accommodate, if feasible as determined by DTSC, key tribal ceremonies that involve the Topock Cultural Area. l. Provisions affording sufficient tribal monitors to observe ground-disturbing activities and/or other scientific surveying (e.g., biological surveys) that may occur in preparation for construction activities. Ground-disturbing activities include trenching, excavation, grading, well excavation/drilling, decommissioning of the IM-3 Facility and subsurface pipeline, or	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		other construction-related activities. m. Provisions of reasonable compensation for tribal monitors consistent with historic rates. n. Locations requiring specific protective devices, such as temporary fencing, flagging, or other type of demarcation during construction. o. Protocols for the reporting of discoveries of cultural importance consistent with existing statutes and regulations. p. Protocols for the inspection of remediation facilities and/or staging areas throughout the construction phase. ***Mitigation during the design phase includes these specific actions:*** **CUL-1a-9:** During selection of the design and specific locations for physical remediation facilities, PG&E shall, in communication with the Interested Tribes (and subject to their review), and to the maximum extent feasible, as determined by DTSC, give: (1) priority to previously disturbed areas for the placement of new physical improvements; and (2) priority to re-use of existing physical improvements, such as but not limited to wells and pipelines, but not including IM-3 facilities. "Disturbed" areas in this context means those areas outside of documented archaeological site boundaries that have experienced ground disturbance in the last 50 years. PG&E shall produce an aerial map of these disturbed areas to guide project design, and PG&E shall make a good faith effort to provide tribes with an opportunity to review and comment on the information displayed on the map in determining "disturbed" areas. **CUL-1a-10:** PG&E shall consider the location of Loci A, B, and C of the Topock Maze during the design and approval of the physical facilities necessary for the final remedy and is prohibited from creating any	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		direct physical impact on the Topock Maze, as it is manifested archaeologically. Through the design, PG&E shall prevent all indirect (e.g. noise, aesthetics) impacts on the Topock Maze, to the maximum extent feasible as determined by DTSC. ***Mitigation during the design and construction phases includes these specific actions:*** **CUL-1a-11:** PG&E shall provide an open grant for two part-time cultural resource specialist/project manager positions during the design and construction phases of the remediation project. The positions shall be filled by qualified members of an Interested Tribe as nominated by a majority vote of their Tribal Council(s) and appointed by DTSC's project manager if more than two members are nominated. The award of the grants is for continued involvement in review of project documents and participation in project-related meetings, including TRC meetings, at rates of historic compensation. Additionally, in light of FMIT's ownership of land in the project area and historical involvement in the environmental process, additional funding is guaranteed for one full-time FMIT position upon submission of an application by a qualified FMIT member who shall be appointed by the FMIT council, provided such funding is not duplicative of the services and funding provided by PG&E pursuant to the Settlement Agreement between PG&E and the FMIT in *Fort Mojave Indian Tribe v. Dept. of Toxic Substances Control, et al.*, Case No. 05CS00437 for a position with the FMIT's AhaMakav Culture Society. The payment of grant monies shall be timed to the awarded tribes' fiscal cycles so that the tribes are not forced to front funds for long periods of time. These positions shall act as cultural resources contacts and project managers for interactions between the tribes, PG&E, and DTSC to ensure coordination for review and comment of	

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Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		subsequent project and/or environmental documents related to the design and implementation of the groundwater remediation project to avoid, reduce, or otherwise mitigate impacts on historical resources, as defined by CEQA. This funding is separate from provisions for tribal monitor positions and shall not be used for routine tribal business or legal counsel. For review and approval, PG&E shall provide DTSC with the names of the selected grant recipients and an annual report that summarizes activities associated with the grant program. Upon the conclusion of the construction phase of the project, the necessity and dollar value of the grant program shall be assessed by PG&E and, with the approval of DTSC, shall either be extended or terminated under the operations and maintenance phase. ***Mitigation during the construction phase includes these specific actions:*** **CUL-1a-12:** PG&E shall provide reasonable opportunity, as determined by DTSC, for Interested Tribes to conduct a traditional healing/cleansing ceremony (or ceremonies) before and after the construction phase. ***Mitigation during the construction and O&M phases includes these specific actions:*** **CUL-1a-13:** PG&E shall, in communication with Interested Tribes, develop as part of the CMI Workplan, a worker cultural sensitivity education program. The program shall be implemented before commencement of construction and throughout construction and operations as personnel are added. This program may include information provided directly by tribal entities either in written form or on video, in a manner consistent with Appendix C in	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the existing BLM Programmatic Agreement. The worker cultural sensitivity education program shall ensure that every person working on the project as an employee or contractor, before participating in design or outdoor activities at the project site, is informed regarding: ► the cultural significance of the Topock Cultural Area, ► appropriate behavior to use within the Topock Cultural Area, ► activities that are to be avoided in the Topock Cultural Area, and ► consequences in the event of noncompliance. ~~Mitigation Measure CUL-1a: Consider the Location of Historical Resources During Project Design, Avoid Resources to the Extent Feasible, Communicate with Native American Tribes, Ensure Continued Tribal Access to the Topock Cultural Area~~ ► ~~During selection of the final design and location for physical improvements, PG&E shall utilize previously disturbed areas for the placement of new physical improvements to the extent feasible, and shall use previously existing physical improvements, such as wells and other facilities, where appropriate.~~ ► ~~PG&E shall also consider the location of Loci A, B and C of the Topock Maze during the design of the physical improvements necessary for the proposed project and avoid direct impacts to the Topock Maze to the fullest extent feasible.~~ ► ~~Upon selection of the final design and location for physical improvements, PG&E shall consult with Native American Tribes that attach cultural significance to the Topock Maze and the Topock Cultural Area and develop a plan to ensure tribal access to and use of the project area for religious, spiritual or cultural purposes, to the extent PG&E has the~~	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~authority to grant such access, consistent with existing laws, regulations and agreements governing property within the project area. The plan may specify that such access may not interfere with the project or create health and safety concerns. Due to health and safety concerns, PG&E may exclude the Topock Compressor Station and related facilities from the area for which tribal access and use may be provided.~~ ► ~~This mitigation measure shall be implemented in a manner that is consistent with mitigation required through the federal CERCLA process.~~ ► ~~Mitigation measures AES-1, AES-2 and NOISE-3 are also applicable to the Topock Cultural Area. Mitigation measures AES-1 and AES-2 would reduce impacts related to aesthetic qualities of the project area, including those views from the Topock Maze Locus B. Mitigation measure NOISE-3 would serve to reduce noise impacts that could be experienced within the Topock Cultural Area and notify tribal members of project activity that would generate new noise.~~ **Mitigation Measure CUL-1b and CUL-1c:** ***During Design, Construction, O&M, and Decommissioning Consider the Location of Historical Resources and Implement Measures to Avoid Resources to the Extent Feasible.*** The following actions will reduce the potential for impacts on identified historically significant resources (other than the Topock Cultural Area, which is separately addressed in CUL-1a) within the project area. As detailed below, these actions include consideration of the location of historical resources, preparation of a cultural resources study, and preparation of a treatment plan. Monitoring of ground-disturbing activities during project construction will further protect historically significant resources. Protective actions are also described pertaining to the discovery of any previously unidentified potentially significant cultural	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		resources. ***Mitigation during the design phase includes these specific actions:*** **CUL-1b/c-1:** PG&E shall consider the locations of the identified historic resources described above (Table 4.4-3) during the design of the physical improvements necessary for the proposed project and avoid, minimize, or mitigate impacts on historical and archaeological resources to the maximum extent feasible, as determined by DTSC. The final design plans for the project will be submitted to DTSC for review and approval. **CUL-1b/c-2:** During preparation of the final design, and consistent with CUL-1a-3, PG&E shall retain a Qualified Cultural Resources Consultant to prepare a cultural resources study that assesses the potential for the construction, operations, or decommissioning of specific proposed improvements to result in significant impacts on identified historically significant resources described in Impacts CUL-1b and CUL-1c. This may include a geoarchaeological investigation and/or non-destructive remote-sensing surveys of potentially disturbed areas to determine if a potential exists for buried historical and archaeological resources. "Significant impacts" as used here means the potential for construction to demolish or materially alter in an adverse manner those physical characteristics of a resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR. The study will be submitted to DTSC for review and evaluation to determine if existing mitigation measures are appropriate. **CUL-1b/c-3:** If the cultural resources study determines that the construction of physical improvements would result	

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Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		in significant impacts on identified historically significant resources described in Impacts CUL-1b and CUL-1c, and avoidance of the resource is not feasible, PG&E shall prepare a treatment plan that identifies measures to reduce these impacts (see above description of the CIMP) for DTSC's review and approval. The treatment plan shall identify which criteria for listing on the CRHR contribute to the affected resource's significance and which aspects of significance would be materially altered by construction, operations, or decommissioning and shall provide for reasonable efforts to be made to permit the resource to be preserved in place or left in an undisturbed state. Methods of accomplishing this may include capping or covering the resource with a layer of soil. To the extent that a resource cannot feasibly be preserved in place or left in an undisturbed state, excavation as mitigation shall be restricted to those parts of the resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a historically significant resource if the treatment plan determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource. The plan shall require communication with all Interested Tribes with regard to their perspectives and wishes for the treatment of the resources. ***Mitigation during the construction phase includes these specific actions:*** **CUL-1b/c-4:** Consistent with CUL-1a-3a above, PG&E shall retain a Qualified Cultural Resources Consultant to observe ground-disturbing activities and shall be required to request the participation of tribal monitors during those activities, including steps necessary during operations and decommissioning	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		activities to ensure that historically significant resources are avoided to the maximum extent feasible, as determined by DTSC, during actual construction (see the description of the CMI Workplan, above). The Qualified Cultural Resources Consultant shall provide training to construction personnel on the locations of identified resources, values associated with the identified resources, responsibility for reporting suspected historic resources, and procedures for suspension of work in the immediate vicinity of the discovery, and shall use exclusionary fencing, flagging, or other appropriate physical barriers to mark the boundaries of identified resources. The Qualified Cultural Resources Consultant shall invite participation from Interested Tribal members to participate in the training. In the event that previously unidentified potentially significant cultural resources are discovered during ground-disturbing activities, the Qualified Cultural Resources Consultant shall have the authority to divert or temporarily halt ground-disturbing activities in the area of discovery to allow evaluation of the potentially significant cultural resources. If such discoveries occur on land managed by a federal agency, Stipulation IX (Discoveries) of the Programmatic Agreement shall apply and are deemed adequate by DTSC. If a discovery occurs on other lands within the project area, the Qualified Cultural Resources Consultant shall contact the PG&E and DTSC project managers at the time of discovery and, in consultation with DTSC and tribal monitors, shall evaluate the resource before construction activities will be allowed to resume in the affected area. For significant cultural resources, and before construction activities are allowed to resume in the	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		affected area, the resource(s) shall be recovered with coordination of the tribal monitors and DTSC. Recovery may include a Research Design and/or Data Recovery Program submitted to DTSC for review and approval. The Qualified Cultural Resources Consultant (and tribal monitors) shall determine the amount of material to be recovered for an adequate sample for analysis or data recovery. Any concerns or recommendations regarding the ground-disturbing activities or the handling of cultural resources shall be directed to the Qualified Cultural Resources Consultant or PG&E's site supervisor. ~~**Mitigation Measure CUL-1b and CUL-1c:** The following actions will reduce the potential for impacts to identified historical resources (other than the Topock Cultural Area, which is separately addressed in CUL-1a) within the project area. To the extent feasible, these actions shall be implemented in a manner that is consistent with mitigation required through the federal CERCLA process.~~ ~~► PG&E shall consider the locations of the identified historic resources described above during the design of the physical improvements necessary for the proposed project and avoid impacts to historical and archaeological resources to the extent feasible. DTSC shall review the plans for the final design of the project and compare such plans to the location of identified resources to assist in and enforce the avoidance of identified resources to the extent feasible.~~ ~~► Upon selection of the final design and location for physical improvements, PG&E shall retain a qualified cultural resources consultant to prepare a cultural resources study that assesses~~	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~the potential for the construction, operations, or decommissioning of proposed improvements to result in significant impacts on identified historical resources described in Impact CUL-1b and CUL-1c. This will include cultural resources survey and evaluation of unsurveyed areas that could be affected by construction as determined by DTSC in consultation with PG&E and BLM. "Significant impacts" as used here means the potential for construction to demolish or materially alter in an adverse manner those physical characteristics of a resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR. DTSC shall review this study.~~ ► ~~If the study determines that the construction of physical improvements would result in significant impacts on identified historical resources described in Impact CUL-1b and CUL-1c, and avoidance of the resource is not feasible, PG&E shall prepare and DTSC shall review a treatment plan that identifies measures to reduce these impacts. The treatment plan shall identify which criteria for listing on the CRHR contribute to the affected resource's significance and which aspects of significance would be materially altered by construction, operations, or decommissioning. However, if avoidance is not feasible, the Plan shall provide for reasonable efforts to be made to permit the resource to be preserved in place or left in an undisturbed state. Methods of accomplishing this may include capping or covering the resource with a layer of soil. To the extent that resource cannot feasibly be preserved in place or not left in an undisturbed state, excavation as~~	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~mitigation shall be restricted to those parts of resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archaeological resource if the treatment plan determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource. The plan shall require communication and consultation with Native American tribes that attach cultural significance to the Topock Maze and the Topock Cultural Area with regard to their perspectives and wishes for the treatment of the resources.~~ ► ~~PG&E shall retain a qualified cultural resources consultant to observe ground-disturbing activities and shall invite the participation of Native American tribal monitors during those activities, including repairs necessary during operations and decommissioning activities, to ensure that identified historical resources are avoided, to the extent feasible, during actual construction. The cultural resources consultant shall provide training to construction personnel on the locations of identified resources, values associated with the identified resources, responsibility for reporting suspected historic resources, and procedures for suspension of work in the immediate vicinity of the discovery, and shall use exclusionary fencing, flagging, or other appropriate physical barriers to mark the boundaries of identified resources. The cultural resources consultant shall invite Native American tribes to participate in this training.~~ ~~PG&E shall retain a qualified cultural resources consultant and shall invite Native American tribal monitors to conduct yearly inspections (or~~	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~less frequently if agreed upon) identified historical resources and unique archaeological resources to determine if they have been impacted by ongoing operations activity relative to their condition prior to the project. If deterioration caused by ongoing operations is detected, PG&E shall develop and implement a treatment plan to reduce or avoid further degradation.~~	
Impact CUL-2: Cause a Substantial Adverse Change in the Significance of a Unique Archaeological Resource. Many of the cultural resources listed in Table 4.4-3 may meet the CEQA criteria for a unique archaeological resource. Construction, operation and maintenance, and decommissioning activities of the proposed project could result in substantial adverse changes to one or more unique archaeological resource in the project area through ground disturbance and other project-related activities. This impact would be potentially significant.	Potentially Significant	**Mitigation Measure CUL-2:** *During Project Design Consider the Location of Unique Archaeological Resources and Avoid Resources to the Maximum extent Feasible* Cultural resources that qualify as unique archaeological sites in the project area would probably also meet one or more of the criteria for historical resources and would be subject to Mitigation Measures CUL-1b/c-2 and CUL-1b/c-3. The mitigation measures under this identified impact are the same as listed for Impact CUL-1b and CUL-1c. These mitigation measures would reduce the potential for impacts on unique archaeological resources. **Mitigation ~~Measure CUL-2:~~** ~~Cultural resources that qualify as unique archaeological sites in the project area would probably also meet one or more of the criteria for historical resources and would be subject to Mitigation Measures CUL-1b and CUL-1c. The following actions will further reduce the potential for impacts on unique archaeological resources. To the extent feasible, these actions shall be implemented in a manner that is consistent with mitigation required through the federal CERCLA process.~~ • ~~PG&E shall consider the locations of the unique archeological resources described above during the design of the physical improvements necessary for the proposed project and avoid impacts to those resources to the extent feasible. DTSC shall review the plans for the final design of the project and compare such plans to the~~	Potentially Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~location of the resources to assist in and enforce the avoidance of identified resources to the extent feasible.~~ • ~~Upon selection of the final design and location for physical improvements, PG&E shall retain a qualified cultural resources consultant to prepare a cultural resources study that assesses the potential for the construction, operations, or decommissioning of proposed improvements to result in significant impacts on unique archeological resources. "Significant impacts" as used here means the potential for construction to demolish or materially alter in an adverse manner those physical characteristics of a resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR. DTSC shall review this study to ensure avoidance has been implemented to the extent feasible.~~ • ~~If the study determines that the construction of physical improvements would result in significant impacts on unique archeological resources, and avoidance of the resource is not feasible, PG&E shall prepare and DTSC shall review a treatment plan that identifies measures to reduce these impacts. The treatment plan shall identify which criteria for listing on the CRHR contribute to the affected resource's significance and which aspects of significance would be materially altered by construction, operations, or decommissioning. However, if avoidance is not feasible, the Plan shall provide for reasonable efforts to be made to permit the resource to be preserved in place or left in an undisturbed state. Methods of accomplishing this may include capping or covering the resource with a layer of soil. To the extent that resource cannot feasibly be preserved in place or not left in an undisturbed state, excavation as mitigation shall be restricted to those parts of resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archaeological resource if the treatment plan determines~~	

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Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource. The plan shall require communication with Native American tribes that attach cultural significance to the Topock Cultural Area with regard to their perspectives and wishes for the treatment of the resources.~~ • ~~PG&E shall retain a qualified cultural resources consultant and shall invite the participation of Native American tribal monitors to observe ground-disturbing activities and shall invite the participation of Native American tribal monitors, during those activities, including repairs necessary during operations and decommissioning activities, to ensure that identified unique archeological resources are avoided, to the extent feasible, during actual construction. The cultural resources consultant shall provide training to brief construction personnel on the locations of identified resources, values associated with the identified resources, responsibility for reporting suspected unique archeological resources, and procedures for suspension of work in the immediate vicinity of the discovery, and shall use exclusionary fencing, flagging, or other appropriate physical barriers to mark the boundaries of identified resources. The cultural resources consultant shall invite Native American tribes to participate in this training.~~ • ~~PG&E shall retain a qualified cultural resources consultant and shall invite Native American tribal monitors to periodically conduct yearly inspections (or less frequently if agreed upon) identified unique archeological resources to determine if they have been impacted by ongoing operations activity relative to their condition prior to the project. If deterioration caused by ongoing operations is detected, PG&E shall develop and implement a treatment plan to reduce or avoid further~~	

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Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~degradation.~~	
Impact CUL-3: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature. The construction of wells (extraction, injection, and IRZ construction), water conveyance pipelines and other utility pathways, reductant storage facilities, and the grading of access roads throughout the project area may affect paleontological resources through ground disturbance activities. This impact would be potentially significant.	Potentially Significant	**Mitigation Measure CUL-3:** *Conduct Survey and Construction Monitoring.* A paleontological investigation, including a detailed survey of the project area by a qualified paleontologist, shall be conducted to refine the potential impacts on unique paleontological resources within the final design area and determine whether preconstruction recovery of sensitive resources and/or construction monitoring would be warranted. If construction monitoring is determined to be warranted, ground-altering activity would be monitored by a qualified paleontologist to assess, document, and recover unique fossils. Monitoring shall include the inspection of exposed surfaces and microscopic examination of matrix in potential fossil bearing formations. In the event microfossils are discovered, the monitor shall collect matrix for processing. In the event paleontological resources are encountered during earthmoving activities, recovered specimens shall be prepared by the paleontologist to a point of identification and permanent preservation. PG&E shall retain a Qualified Paleontologist to observe ground-disturbing activities where determined necessary based on the results of the paleontological investigation and shall be required to request the participation of tribal monitors during those activities, including steps necessary during operations and decommissioning activities to ensure that historically significant resources are avoided to the maximum extent feasible, as determined by DTSC, during actual construction (see above description of the CMI Workplan). Paleontological resources of scientific value shall be identified and curated into an established, accredited, professional museum repository in the region with permanent retrievable paleontological storage. ~~**Mitigation Measure CUL-3:** A paleontological investigation including a detailed survey of the project area by a qualified paleontologist, shall be conducted to refine the potential impacts to unique paleontological resources within the project area and determine whether preconstruction recovery of sensitive resources~~	Less than Significant

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Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~and/or construction monitoring would be warranted. If construction monitoring is determined to be warranted, ground-altering activity would be monitored by a qualified paleontologist to assess, document, and recover unique fossils. Monitoring shall include the inspection of exposed surfaces and microscopic examination of matrix in potential fossil bearing formations. In the event microfossils are discovered, the monitor shall collect matrix for processing. In the event paleontological resources are encountered during earthmoving activities, recovered specimens shall be prepared by the paleontologist to a point of identification and permanent preservation. The monitor shall be empowered to halt construction activity in the immediate vicinity of the encountered paleontological resources for a sufficient interval to allow recovery of significant unearthed fossil remains. Paleontological resources of scientific value shall be identified and curated into an established, accredited, professional museum repository in the region with permanent retrievable paleontological storage. To the extent feasible, this mitigation measure shall be implemented in a manner that is consistent with mitigation required through the federal CERCLA process.~~	
Impact CUL-4: Disturbance of Human Remains, Including Those Interred Outside of Formal Cemeteries. Ground-disturbing activities required for all project phases may disturb as-yet undiscovered human remains, including Native American burial remains (i.e., human remains and grave goods). This impact would be potentially significant.	Potentially Significant	**Mitigation Measure CUL-4:** ***With Discovery of Human Remains or Burials Suspend Work, Protect Remains, and Comply with Local,*** *State, and Federal Laws Regarding Discoveries During Ground-Disturbing Activities.* Ground-disturbing activities may disturb as-yet undiscovered human remains or Native American burials and associated grave goods. PG&E shall retain a Qualified Cultural Resource Consultant and request designated tribal monitor(s) to train construction personnel in the identification of human remains so that they may aid in the identification of such resources (see above description of the CIMP). A Qualified Cultural Resource Consultant and tribal monitor(s) shall be in place to adequately oversee all ground-disturbing activities. In the event human remains are uncovered over the course of project construction, operation and maintenance, and/or decommissioning activities,	Significant and Unavoidable

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the following procedures shall be followed to ensure compliance with all applicable local, state, and federal laws. ► The construction contractor shall immediately suspend work within the vicinity of the discovery and determine if the remains discovered are human or nonhuman. This determination shall be made by the Qualified Cultural Resources Consultant, a qualified archaeologist and/or physical anthropologist with expert skill in the identification of human osteological (bone) remains. ► The Qualified Cultural Resources Consultant (and tribal monitor), or construction contractor, shall protect discovered human remains and/or burial goods remaining in the ground from additional disturbance. ► The Qualified Cultural Resources Consultant, archaeologist, or construction site supervisor shall contact the San Bernardino County Coroner, and the PG&E and DTSC project managers immediately. In California, all subsequent action shall conform to the protocols established in the Health and Safety Code and regulations. In Arizona, the Qualified Cultural Resources Consultant or PG&E construction site supervisor will follow Arizona laws and the implementing regulations. Human remains found on federal land would require the notification of the BLM Havasu City field office and compliance with applicable federal laws and regulations, including the Native American Graves Protection and Repatriation Act if the remains are determined to be of Native American origin. The Qualified Cultural Resources Consultant shall coordinate the interaction between Interested Tribes, PG&E, the County, and DTSC to determine proper treatment and disposition of any remains. ► The San Bernardino County Coroner will determine if the remains are of recent origin and if an investigation of the cause of death is required (California Health and Safety Code Section 7050.5). If the coroner determines that the human remains are not Native American and not evidence of a crime, project personnel shall coordinate with the Qualified	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Cultural Resources Consultant (s) to develop an appropriate treatment plan. This may include contacting the next-of-kin to solicit input on subsequent disposition of the remains. If there is no next-of-kin, or recommendations by the next-of-kin are considered unacceptable by the landowner, the landowner will reinter the remains with appropriate dignity in a location outside the project area and where they would be unlikely to be disturbed in the future. ► In the event that the San Bernardino County Coroner determines that the human remains are Native American and not evidence of a crime, project personnel shall contact the NAHC so that a most likely descendent (MLD) can be identified as required under California Public Resources Code Section 5097.98. ► The MLD (s) shall inspect the area in which the human remains were found and provide treatment recommendations to the landowner and PG&E site manager in accordance with the provisions of PRC Section 5097.98. The treatment may include reburial, scientific removal of the discovered human remains and relinquishment to the MLD(s), nondestructive analysis of human remains and/or other culturally appropriate treatment. If the MLD(s) so requests, the landowner would reinter the remains with the appropriate dignity in a location outside the area of disturbance in a location unlikely to be disturbed in the future. ► To the maximum extent feasible, Mitigation Measure CUL-4 shall be implemented in a manner that is consistent with mitigation required by local, state, and federal requirements. ~~**Mitigation Measure CUL-4:** Ground disturbance activities may disturb as-yet undiscovered human remains or Native American burials and associated grave goods. PG&E shall retain a qualified cultural resources consultant and invite designated Native American tribal monitor(s) to train construction personnel in the identification of human remains so that they may aid in the identification of such resources. In the unlikely event human~~	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~remains are uncovered over the course of project construction, operation and maintenance, and/or decommissioning activities, the following procedures shall be followed to ensure compliance with all applicable state and federal laws:~~ ► ~~The construction contractor shall immediately suspend work within the vicinity of the discovery and determine if the remains discovered are human or nonhuman. This determination shall be made by a qualified archaeologist with skill in the identification of human osteological (bone) remains.~~ ► ~~The cultural resources monitor or construction contract shall protect discovered human remains and/or burial goods remaining in the ground from additional disturbance.~~ ► ~~The archaeologist or construction contractor shall contact the San Bernardino County Coroner and PG&E project personnel immediately. In Arizona, the archaeologist and construction contractor will follow Arizona laws and implementing regulations. Human remains found on federal land would require the notification of the BLM Havasu City field office and compliance with applicable federal laws and regulations, including the Native American Graves Protection and Repatriation Act.~~ ► ~~The San Bernardino County Coroner will make determine if the remains are of recent origin and if a investigation of the cause of death is required (California Health and Safety Code Section 7050.5). If the coroner determines that the human remains are not Native American and not evidence of a crime, project personnel shall coordinate with a qualified archaeologist(s) to develop an appropriate treatment plan. This may include contacting the next-of-kin to solicit input on subsequent disposition of the remains. If there is no next-of-kin, or recommendations by the next-of-kin are considered unacceptable by the landowner, the landowner will reinter the remains with appropriate dignity in a location outside the project area and where they would be unlikely to be disturbed in the future.~~	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		~~► In the event that the San Bernardino County Coroner determines that the human remains are Native American and not evidence of a crime, project personnel shall contact the NAHC so that a most likely descendent (MLD) can be identified as required under California Public Resources Code Section 5097.98.~~ ~~► The MLDs shall inspect the area in which the human remains were found and provide treatment recommendations to the landowner and project personnel in accordance with the provisions of California Public Resources Code Section 5097.98. The treatment may include reburial, scientific removal of the discovered human remains and relinquishment to the MLD, nondestructive analysis of human remains and/or other culturally appropriate treatment. If the MLD so requests, the landowner would reinter the remains with the appropriate dignity in a location outside the area of disturbance in a location unlikely to be disturbed in the future.~~ ~~To the extent feasible, this mitigation measure shall be implemented in a manner that is consistent with mitigation required through the federal CERCLA process.~~	
4.5 Geology and Soils			
The proposed project would not create risks to people from seismic hazards because the site is not located within an earthquake fault zone. Surface rupture is, therefore, not expected to occur on the project site, and the potential for seismic activity in the area is considered low.	Less than Significant	No mitigation is required.	Less than Significant
The project site is underlain by soils with a very low potential for shrink/swell and subsidence because of very low clay content. Furthermore, portions of the project area that are relatively flat would not be subject to the effects of landslides. Areas with abrupt elevation changes, such as along Bat Cave Wash, may be susceptible to localized rock falls, but not to widespread slope failure or landslides.	Less than Significant	No mitigation is required.	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact GEO-1a: The proposed project could result in ground-disturbing activities that could alter the natural drainage patterns and erosion rates of the area (erosion impact).	Potentially Significant	**Mitigation Measure GEO-1a:** a. A DTSC-approved grading and erosion control plan, prepared by a California Registered Civil Engineer, shall be completed prior to implementation of any grading in areas of the site where there is a potential for substantial erosion or loss of top soils. The plan shall outline specific procedures for controlling erosion or loss of topsoil during construction, operation and maintenance, and decommissioning. b. To ensure soils do not directly or indirectly discharge sediments into surface waters as a result of construction, operation and maintenance, or decommission activities, PG&E shall develop a SWPPP as discussed in mitigation measure HYDRO-1 of the "Hydrology and Water Quality" section of this EIR. The SWPPP shall identify best management practices (BMPs) that would be used to protect stormwater runoff and minimize erosion during construction. PG&E shall prepare plans to control erosion and sediment, prepare preliminary and final grading plans, and shall prepare plans to control urban runoff from the project site during construction, consistent with the substantive requirements of the San Bernardino County Building and Land Use Services Department for erosion control. c. During road preparation activities, loose sediment shall be uniformly compacted consistent with the substantive San Bernardino County Building and Land Use Services Department requirements to aid in reducing wind erosion. Ongoing road maintenance including visual inspection to identify areas of erosion and performing localized road repair and regrading, installation and maintenance of erosion control features such as berms, silt fences, or straw wattles, and grading for road smoothness shall be performed as needed to reduce potential for erosion. d. Regarding the potential for contaminated soils to be eroded and contribute contamination into receiving waters, Mitigation Measures GEO-2 and HAZ-2 shall be implemented. Mitigation Measure GEO-2 provides the	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		provisions for mitigating erosion through BMPs which shall be implemented. Mitigation Measure HAZ-2 provides the provisions for safe work practices and handling of contaminated soils as investigation derived wastes.	
Impact GEO-1b: The proposed project could result in ground-disturbing activities that could alter the natural drainage patterns and erosion rates of the area (drainage patterns impact).	Potentially Significant	**Mitigation Measure GEO-1b:** a. BMPs shall be implemented during construction, operation and maintenance, and decommissioning activities to minimize impacts on the affected areas. Such BMPs could include, but would not be limited to, the following: uniform compaction of roadways created for accessing the project area as per San Bernardino County Building and Land Use Services Department requirements, returning areas adversely affected by differential compaction to preexisting conditions when these areas are no longer needed, and continuing maintenance of access roads, wellhead areas, and the treatment facility areas. b. Work area footprints shall be minimized to the greatest extent feasible to limit the areas exposed to differential compaction. Where possible, existing unpaved access roads and staging/working areas shall be reused and maintained for different stages of the construction. New graded areas for staging or for access roads shall be compacted to a uniform specification, typically on the order of 90 to 95% compaction and consistent with substantive San Bernardino County Building and Land Use Services Department requirements to reduce differential compaction and subsequent erosion of site soils. c. After the completion of the operation and maintenance phase, the disturbed areas which result in increased potential for compaction shall be returned to their respective preexisting condition by regrading consistent with the preconstruction slopes as documented through surveys that may include topographic surveys or photo surveys. The areas will be returned to the surrounding natural surface topography and compacted consistent with unaltered areas near the access roads or staging areas in question. The habitat restoration plan outlined in	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		mitigation measure BIO-1 shall include restoration of native vegetation or other erosion control measures where revegetation would be infeasible or inadequate, for purposes of soil stabilization and erosion control of the project area.	
4.6 Hazardous Materials			
Impact HAZ-1: Operation and maintenance of the proposed project could result in the potential release of chemicals during use or delivery of chemicals as a result of component failure (e.g., valve, flange, or pipe), tank failure, or human error (e.g., tank overfilling).	Potentially Significant	**Mitigation Measure HAZ-1a:** a. PG&E shall store, handle, and transport hazardous material in compliance with applicable local, state, and federal laws. b. All chemical storage and loading areas shall be equipped with proper containment and spill response equipment. BMPs to be implemented may include, but are not limited to, use of secondary containment in mixing and storage areas; availability of spill kits and spill containment booms, and appropriate storage containers for containment of the materials generated during the spill response. c. A project-specific HMBP, chemical standard operating procedure (SOP) protocols and contingency plans shall be developed to ensure that proper response procedures would be implemented in the event of spills or releases. Specifically, the HMBP and SOPs shall describe the procedures for properly storing and handling fuel on-site, the required equipment and procedures for spill containment, required personal protective equipment (PPE), and the measures to be used to reduce the likelihood of releases or spills during fueling or vehicle maintenance activities. BMPs to be implemented may include, but are not limited to, use of secondary containment in mixing and storage areas; availability of spill kits and spill containment booms, and appropriate storage containers for containment of the materials generated during the spill response. The field manager in charge of operations and maintenance activities shall be responsible for ensuring that these procedures are followed at all times.	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Mitigation Measure HAZ-1b: a. Fueling areas and maintenance areas would be supplied with proper secondary containment and spill response equipment. b. PG&E shall develop fueling SOP protocols and a contingency plan that would be implemented at all fueling areas on site. The SOPs shall describe the procedures for properly storing and handling fuel on-site, the required equipment and procedures for spill containment, required PPE, and the measures to be used to reduce the likelihood of releases or spills during fueling or vehicle maintenance activities. Potential measures include but are not limited to, fuel storage in bermed areas, performing vehicle maintenance in paved and bermed areas, and availability of spill kits for containment and cleanup of petroleum releases. The field manager in charge of construction and decommissioning activities shall be responsible for ensuring that these procedures are followed at all times. c. PG&E shall comply with local, state, and federal regulations related to the bulk storage and management of fuels.	
Impact HAZ-2: Construction, operation and maintenance, and decommissioning activities associated with the proposed project could result in the generation of dust and the exposure of construction workers to airborne contaminants [e.g., Cr(VI), total petroleum hydrocarbons, volatile organic carbons, semivolatile organic carbons] determined to be in the soil of the project site or that further investigation may determine to be in the soil	Potentially Significant	**Mitigation Measure HAZ-2:** Before initiating ground-disturbing operations, a health and safety plan shall be developed and implemented by qualified environmental professionals to ensure health and safety precautions are being met. It is not possible to prepare the health and safety plan at this stage of the planning process because final construction plans and other design documents have not been finalized in sufficient detail. However, at a minimum, the health and safety plan shall include procedures to mitigate potential hazards, and such procedures shall include the use of PPE, measures that provide protection from physical hazards, measures that provide protection from chemical hazards that may be present at the site, decontamination procedures, and worker and health and safety monitoring criteria to be implemented during construction. The worker health and safety plan shall include protective measures and PPE that are specific to the conditions of concern and meet the requirements of the U.S. Occupational Safety and Health Administration's	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		(OSHA's) construction safety requirements and Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120). In accordance with OSHA requirements, appropriate training and recordkeeping shall also be a part of the health and safety program. The worker health and safety plan shall be certified by a Certified Industrial Hygienist in accordance with OSHA regulations. The worker health and safety plan shall be explained to the construction workers and all workers shall be required to sign the plan, which will be kept on the construction site at all times. Worker safety training shall occur prior to initiation of ground disturbing activities. Training shall include the review of all health and safety measures and procedures. All workers and engineering inspectors at the site shall provide written acknowledgement that the soils management plan (discussed below), worker health and safety plan, and community health and safety plan were reviewed and training was received prior to commencement of construction activities. The following are specific elements and directives that shall be included in the health and safety plan and implemented by PG&E during construction, operation and maintenance, and decommissioning of this project: a. Vehicles traveling on unpaved roadways or surfaces would be directed to avoid traveling in areas where contaminated soils are known to be present; vehicle speeds shall be controlled (e.g., limited to 15 mph or slower) to limit generation of dust; measures, such as wetting of surfaces, will be employed to prevent dust generation by vehicular traffic or other dust-generating work activities. b. Premobilization planning shall occur during which the likelihood of encountering contaminated soils shall be reviewed along with the HMBP, site-specific health and safety plan, and SOPs so that the procedures are followed and the contingencies for handling contaminated soils are in-place prior to implementing the field operations.	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		c. Should evidence of contaminated soil be identified during ground disturbing activities (e.g., noxious odors, discolored soil), work in this area will immediately cease until soil samples can be collected and analyzed for the presence of contaminants by the site supervisor or the site safety officer. Contaminated soil shall be managed and disposed of in accordance with a project-specific health and safety plan and soil management plan. The health and safety plan and soil management plan shall be approved by DTSC before beginning any ground disturbing activities. While the project is exempt from the requirements of the San Bernardino County Division of Environmental Health, the health and safety plan and soil management plan shall be prepared in general accordance with the substantive requirements of this agency. d. In the event that drilling sites must be located within areas of suspected soil contamination, the appropriate PPE shall be worn by all personnel working in these areas and methods specified in the health and safety plan used to control the generation of dust. When working in these areas, personnel shall be required to follow all guidance presented in the site-specific health and safety plan and soil management plan. The site-specific health and safety plan shall include provisions for site control such as, but not limited to, delineation of the exclusion, contaminant reduction and support zones for each work area, decontamination procedures, and procedures for the handling of contaminated soils and other investigation derived wastes. Soil that is excavated shall be loaded directly into containers such as roll-off bins; dust suppression methods shall be used prior to and during loading of soils into the bins. Suppressed contaminated soils shall be segregated from suspected uncontaminated soils. e. Personnel working at the site shall be trained in Hazardous Waste Operations.	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		f. All soil excavated and placed in roll-off bins or trucks for transportation off-site shall be covered with a tarp or rigid closure before transporting, and personnel working in the area shall be positioned upwind of the loading location.	
4.7 Hydrology and Water Quality			
Impact HYDRO-1: Construction, operation and maintenance, and decommissioning activities associated with the proposed project could result in (i) the exceedance of water quality standards as a result of increased runoff from impervious surfaces and (ii) exceedance of water quality standards due to potential exposure of runoff to significant materials stored, handled, and transported at the site. This would be a **potentially significant** impact.	Potentially Significant	**Mitigation Measure HYDRO-1:** The project shall implement BMPs to meet the substantive criteria of NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order No. 2009-0009-DWQ NPDES No. CAS000002 (General Permit) (SWRCB 2009) as well as all other applicable federal, state, and local permit and regulatory requirements, even if a permit is not required pursuant to CERCLA, for purposes of ensuring the protection of receiving water quality. As such, a BMP plan shall be prepared and implemented for the project prior to construction and decommissioning phase activities. Impacts on water quality from pollutants, including soils from erosion, shall be controlled through use of the following types of BMPs, which shall be incorporated into the appropriate project-specific BMP plan. The General Permit requirements include specific BMPs as well as numeric effluent levels (NELs) and numeric action levels (NALs) to achieve the water quality standards (SWRCB 2009:3). Types of BMPs cited in the General Permit (SWRCB 2009:Attachment A:7) include: ► Scheduling of Activities; ► Prohibitions of Practices; ► Maintenance Procedures; ► Other Management Practices to Prevent or Reduce Discharge of Pollutants to Waters of the United States; ► Treatment Requirements; and ► Operating Procedures and Practice to Control Site Runoff, Spillage or Leaks, Sludge or Waste Disposal, or Drainage from Raw Materials Storage. Visual inspections and monitoring and sampling are required under the General Permit to evaluate the effectiveness of the	Less than Significant

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		BMPs and to determine whether modifying BMPs or implementing additional BMPs is required. The BMP designations cited below are based on those used by the ~~*California Department of Transportation Storm Water Quality Handbooks, Construction Site BMPs Manual* (Caltrans 2000) and the~~ *California Stormwater Quality Association Construction BMP Handbook* (California Stormwater Quality Association ~~2004~~2003) and are consistent with the types of BMPs referenced in the General Permit: ► Scheduling (SS-1): Proper scheduling assists in identifying ways to minimize disturbed areas, which allows for a reduction in the active project area requiring protection and also minimizes the length of time disturbed soils are exposed to erosive processes. ► Preservation of Existing Vegetation (SS-2): Preserving existing vegetation to the maximum extent practicable facilitates protection of surfaces from erosion and can also help to control sediments. Sensitive areas should also be clearly identified and protected. ► Hydraulic Mulch (SS-3), Straw Mulch (SS-6), and Wood Mulching (SS-8): Using various mulches is a method for temporarily stabilizing soil and can be used on surfaces with little or no slope. ► Geotextiles, Plastic Covers, and Erosion Control Blankets/Mats (SS-7): These erosion control methods can be used on flat or, usually, sloped surfaces, channels, and stockpiles. ► Stabilized Construction Entrance/Exit (TC-1): A graveled area or pad located at points where vehicles enter and leave a construction site can be built. This BMP provides a buffer area where vehicles can drop their mud and sediment to avoid transporting it onto public roads, to control erosion from surface runoff, and to help control dust. ► Runoff Control Measures (SS-9, SS-10, and SC-10): These include graded surfaces to redirect sheet flow, diversion dikes or berms that force sheet flow around a protected area, and stormwater conveyances (swales, channels, gutters, drains, sewers) that intercept, collect, and redirect runoff. Diversions can be either temporary or permanent. Temporary diversions	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		include excavation of a channel along with placement of the spoil in a dike on the downgradient side of the channel, and placement of gravel in a ridge below an excavated swale. Permanent diversions are used to divide a site into specific drainage areas, should be sized to capture and carry a specific magnitude of storm event, and should be constructed of more permanent materials. A water bar is a specific kind of runoff diversion that is constructed diagonally at intervals across a linear sloping surface such as a road or right-of-way that is subject to erosion. Water bars are meant to interrupt accumulation of erosive volumes of water through their periodic placement down the slope, and divert the resulting segments of flow into adjacent undisturbed areas for dissipation. ► Silt Fence (SC-1): A temporary sediment barrier consisting of fabric is designed to retain sediment from small disturbed areas by reducing the velocity of sheet flows. ► Gravel Bag Berm (SC-6) and Sand/Gravel Bag Barrier (SC-8): A temporary sediment barrier consisting of gravel-filled fabric bags is designed to retain sediment from small disturbed areas by reducing the velocity of sheet flows. ► Desilting Basin (SC-2) and Sediment Trap (SC-3): Constructing temporary detention structures facilitates the removal of sediment from waters. The devices provide time for sediment particles to settle out of the water before runoff is discharged. Secondary concerns include potential pollutants from inappropriate material storage and handling procedures and nonstormwater discharges. These will be addressed through the following types of BMPs, which shall be incorporated into the stormwater BMP plan: ► Material Delivery and Storage (WM-1): Provide covered storage for materials, especially toxic or hazardous materials, to prevent exposure to stormwater. Store and transfer toxic or hazardous materials on impervious surfaces that will provide secondary containment for spills. Park vehicles and equipment used for material delivery and storage, as well as contractor vehicles, in designated areas.	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		► Spill Prevention and Control (WM-4): Ensure that spills and releases of materials are cleaned up immediately and thoroughly. Ensure that appropriate spill response equipment, preferably spill kits preloaded with absorbents in an overpack drum, is provided at convenient locations throughout the site. Spent absorbent material must be managed and disposed of in accordance with applicable regulations. In particular, absorbents used to clean up spills of hazardous materials or waste must be managed as hazardous waste unless characterized as nonhazardous. ► Solid Waste Management (WM-5): Provide a sufficient number of conveniently located trash and scrap receptacles to promote proper disposal of solid wastes. Ensure that the receptacles are provided with lids or covers to prevent windblown litter. ► Hazardous Waste Management (WM-6): Provide a sufficient number of proper receptacles to promote proper disposal of hazardous wastes. ► Concrete Waste Management (WM-8): Dispose of excess concrete in specific concrete washout facilities. ► Sanitary/Septic Waste Management (WM-9): Locate sanitary and septic waste facilities away from drainage courses and traffic areas. Maintain the facilities regularly. ► Vehicle and Equipment Cleaning (NS-8): Clean vehicles and equipment that regularly enter and leave the construction site. ► Vehicle and Equipment Fueling (NS-9): Fuel vehicles and equipment off-site whenever possible. If off-site fueling is not practical, establish a designated on-site fueling area with proper containment and spill cleanup materials. ► Vehicle and Equipment Maintenance (NS-10): Use off-site maintenance facilities whenever possible. Any on-site maintenance areas must be protected from stormwater runoff and on-site flooding. In addition to BMPs implemented to avoid or reduce impacts from the construction and decommissioning phases, BMPs shall also be implemented to avoid or reduce impacts from the operations and maintenance phases. To address potential violation	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		of water quality standards caused by insufficient treatment, system failure at concentrations in excess of water quality standards, proper design shall include contingency measures such as safeguards to shut down the extraction wells in case of pipeline failure or malfunction. In addition, operation of the proposed project will be governed by and follow an operations and maintenance plan. PG&E will comply with all applicable water quality standards, the General Permit, and any SWRCB or RWQCB resolutions identified as ARAR, as well as a corrective action monitoring program. Under the corrective action monitoring program, data will be collected to measure performance of the remedy, compliance with standards, and progress of the remedial action as a part of the project description. In addition, the project will be operated to continually assess performance issues and to modify the type, method, and configuration of the treatment delivery systems to enhance performance of the remedy to attain the cleanup goals and to respond to site conditions and performance issues as described in the project description. A SWPPP will also be prepared for the proposed project, which will contain BMPs related to industrial activities (industrial SWPPP). The BMPs are designed to reduce pollutants in discharges that may affect receiving water quality during operations and maintenance of the proposed project. As noted above, BMP designations are based on those used by the *California Stormwater Quality Association Construction BMP Handbook* (California Stormwater Quality Association ~~2004~~2003) and those referenced in the General Permit The SWPPP will incorporate BMPs such as the following: ► Good Housekeeping: Maintain facility in a clean manner and train facility personnel to contribute to a safe, clean, and orderly environment by properly disposing of trash in designated containers, storing materials in appropriate locations, and keeping equipment clean and in good working condition.	

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Summary of Impacts and Mitigation

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		► Preventative Maintenance: Prevent or minimize release of pollutants. Develop Standard Operating Procedures for operation and maintenance of facility components and train employees to follow the procedures. ► Non-Stormwater Discharges (SC-10): Ensure that used oil, used antifreeze, and hazardous chemical recycling programs are being implemented. Conduct regular inspections of high priority areas. ► Spill Prevention, Control, and Cleanup (SC-11): Store materials properly to prevent spills from entering the storm drain system or surface waters. Ensure that spill cleanup materials are located on-site and are easily accessible. Clean up leaks and spills immediately using proper absorbent materials. Absorbents used to clean up hazardous materials must be disposed of as hazardous waste. Educate employees about spill prevention and cleanup. ► Vehicle and Equipment Fueling (SC-20): Maintain clean fuel-dispensing areas using dry cleanup methods, such as sweeping or using rags and absorbents for leaks and spills. Cover the fueling area to prevent contact with stormwater. Train personnel in pollution prevention, focusing on containment of spills and leaks. ► Outdoor Loading/Unloading (SC-30): Load and unload chemicals during dry weather, if possible, and load and unload in designated areas. Check equipment regularly for leaks. ► Outdoor Liquid Container Storage (SC-31): Cover the storage area with a roof and provide secondary containment. Inspect storage areas regularly for leaks or spills. ► Outdoor Equipment Operations (SC-32): Perform activities during dry weather, cover the work area with a roof, and use secondary containment. Train employees in proper techniques for spill containment and cleanup. ► Waste Handling and Disposal (SC-34): Cover storage containers with leak-proof lids, check for leaks weekly, and	