

1 3.9 HYDROLOGY AND WATER QUALITY

HYDROLOGY AND WATER QUALITY - Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

1 **3.9.1 Environmental Setting**

2 3.9.1.1 Surface Waters

3 The Project site lies approximately 6 miles upstream from the confluence of the  
4 northward-flowing San Joaquin River and southward-flowing Sacramento River, which  
5 together form the Sacramento-San Joaquin Delta. The San Francisco Bay estuary lies  
6 west of the site, with Suisun Bay located approximately 15 miles downstream. The  
7 waters of the Sacramento-San Joaquin Delta provide an array of beneficial uses  
8 including, but not necessarily limited to:

- Municipal and Domestic Drinking Water
- Agricultural Water Supply
- Industrial Service/Process Supply
- Groundwater Recharge
- Freshwater Replenishment
- Navigation
- Water Contact Recreation
- Non-Water Contact Recreation
- Commercial and Sport Fishing
- Aquaculture
- Freshwater Habitats
- Biological Habitats

9 Surface water quality within the Sacramento-San Joaquin Delta is affected by multiple  
10 sources including agriculture, silviculture, municipalities and industrial drainage,  
11 stormwater runoff, mineral exploration and extraction, and hazardous and non-  
12 hazardous waste disposal. Under Section 303(d) of the CWA (please refer to Section  
13 3.9.2, Regulatory Setting, for detail), States, territories, and authorized tribes are  
14 required to develop lists of impaired waters that are too polluted or otherwise degraded  
15 to meet water quality standards. The law requires that these jurisdictions establish  
16 priority rankings for waters on the lists and develop a maximum amount of the pollutant  
17 or Total Maximum Daily Load (TMDL) that a waterbody can receive and still safely meet  
18 water quality standards. As shown in Table 3.9-1, the Project is located within an area  
19 listed by the USEPA as “impaired” for the reporting year 2010 under CWA Act Section  
20 303(d) (USEPA 2011).

21 **Methylmercury within the San Joaquin River Delta**

22 As shown in Table 3.9-1 above, the San Joaquin River Delta within the Project area is  
23 listed on the CWA 303(d) list with elevated levels of mercury in fish (SWRCB 2010).  
24 CWA Section 303(d)(1)(A) requires RWQCBs to establish water quality management  
25 strategies for those pollutants causing the impairments to ensure that impaired waters  
26 attain their beneficial uses. Although multiple Programs are in place for reduction of  
27 mercury within the Sacramento River and San Joaquin River Basin, there is currently no  
28 certified TMDL.

**Table 3.9-1. Causes of Water Quality Impairment for Reporting Year 2010**

Cause of Impairment	Cause of Impairment Group	Designated Use(s)	State TMDL Development Status
Chlorpyrifos	Pesticides	Warm Freshwater Habitat	TMDL completed
Conductivity	Salinity/Total Dissolved Solids/Chlorides/Sulfates	Agricultural Supply	TMDL needed
Dichlorodiphenyltrichloroethane (DDT)	Pesticides	Commercial And Sport Fishing	TMDL needed
Diazinon	Pesticides	Warm Freshwater Habitat	TMDL completed
Group A Pesticides	Pesticides	Commercial And Sport Fishing	TMDL needed
Invasive Exotic Species	Nuisance Exotic Species	Warm Freshwater Habitat	TMDL needed
Mercury	Mercury	Commercial And Sport Fishing	TMDL needed
Unknown Toxicity	Total Toxics	Warm Freshwater Habitat	TMDL needed

Source: USEPA 2011

1 The original 303(d) listing was based on a 1971 human health advisory issued for the  
 2 Sacramento and San Joaquin River Delta advising pregnant women and children not to  
 3 eat striped bass due to mercury content (SWRCB 2010). Mercury is a toxicant that can  
 4 have lasting effects on neurological development and the abilities of persons exposed *in*  
 5 *utero* and as children. People exposed to methylmercury through the consumption of  
 6 fish have shown multiple negative effects including, but not limited to: deficits in  
 7 memory, attention, language, fine motor control, and visual-spatial perception and  
 8 lowered intelligence. Monomethylmercury or methylmercury (MeHg) is the predominant  
 9 form of organic mercury present in biological systems and is identified as the most toxic  
 10 form of mercury (SWRCB 2010). Sources of methylmercury in Delta waters include  
 11 tributary inputs from upstream watersheds and within-Delta sources such as  
 12 methylmercury production in wetland and open water habitat sediments, municipal and  
 13 industrial wastewater, agricultural drainage, and urban runoff.

14 **Delta Methylmercury Control Program**

15 In 2010, the SWRCB staff completed recommended amendments to the existing Water  
 16 Quality Control Plan for the Sacramento River and San Joaquin River Basins for the  
 17 control of methylmercury and total mercury in the Delta (SWRCB 2010). These  
 18 proposed Basin Plan amendments comprise the Delta Mercury Control Program. The  
 19 regulatory mechanism to implement the Delta Mercury Control Program for point  
 20 sources is through National Pollutant Discharge Elimination System (NPDES) permits.  
 21 Requirements for NPDES Permitted Urban Runoff Discharges include implementation  
 22 of BMPs to control erosion and sediment discharges consistent with their existing

1 permits and orders with the goal of reducing mercury discharges. Nonpoint sources are  
2 generally regulated through the authority contained in State and Federal laws and  
3 regulations, including State Water Board's Nonpoint Source Implementation and  
4 Enforcement Policy. The proposed Delta Mercury Control Program implementation plan  
5 consists of two phases: 1) studies and pilot projects to develop and evaluate  
6 management practices to control methylmercury (anticipated to culminate in a revised  
7 Delta Mercury Control Program in about 2019), and 2) implementation of management  
8 strategies identified following Phase 1 (anticipated to begin full compliance by 2030).

### 9 **San Joaquin River Bed Morphology and Scour**

10 Within the Project region, San Joaquin River bed has a single channel. Within the  
11 immediate Project area, well-formed, mobile sediment waves and longitudinal bars have  
12 been observed on the river bed (Fugro 2006). According to Fugro (2006), studies on  
13 sediment mobility in the area indicate that although dependent on river flow velocities  
14 and sediment loads, sediment waves of up to 9.8 feet high have been observed and  
15 migration rates of up to 6.5 feet per day were observed indicating that sediment within  
16 the river bed is in motion. Changes in sand wave morphology were observed during  
17 changing river flow and sediment load conditions, including storm events and stronger  
18 tidal influence during periods of lower river discharge, however, the large-scale river bed  
19 morphology has remained fairly constant over at least the last 3 years (Fugro 2006).

#### 20 3.9.1.2 Groundwater

21 The Project is located primarily within the San Joaquin Valley Groundwater Basin (Tracy  
22 Subbasin) within the Diablo Water District, with some overlap into the Sacramento  
23 Valley Groundwater Basin (Solano Subbasin). The Tracy Subbasin includes the  
24 northwestern most portion of the San Joaquin Valley Groundwater Basin around the  
25 Sacramento-San Joaquin Delta and extends south into the central portion of the San  
26 Joaquin Valley. Overall, population density within the subbasin is relatively sparse, with  
27 the major cities being Tracy, Brentwood, and Oakley. Subbasin boundaries are defined  
28 by the Mokelumne and San Joaquin Rivers on the north; the San Joaquin River on the  
29 east; and the San Joaquin-Stanislaus County line on the south. The western subbasin  
30 boundary is defined by the contact between the unconsolidated sedimentary deposits  
31 and the rocks of the Diablo Range (Diablo Water District 2007).

32 According to the Diablo Water District Groundwater Management Plan for AB 3030,  
33 hydrogeologic studies pertaining to the east Contra Costa County area are relatively  
34 limited (Diablo Water District 2007). However, the available studies indicate that the  
35 geologic material in the Tracy Subbasin below 800 feet is dominated by fine-grained  
36 (clay and shale) deposits and some sandy zones with indications of saline or brackish  
37 water present. Within the Project region, there appears to be a lack of aquifer materials  
38 (sand and gravels) below 800 feet considered suitable for potable water. From the

1 above, any sands and gravels that are present at depths below about 500 feet are likely  
 2 brackish to saline. Most groundwater water wells in the area are shallow (less than 100  
 3 feet deep), although there are some wells accessing the “deep” aquifer (at depths  
 4 greater than 200 feet deep). Groundwater quality within this area has generally been  
 5 classified as marginal to poor by the Diablo Water District (2007).

6 **3.9.1.3 Flooding**

7 The northern landing of the pipeline corridor and an onshore valve pit are located on  
 8 Sherman Island. Sherman Island is located within the Federal Emergency Management  
 9 Agency (FEMA) designation of Zone A (100-year flood plain) and protected by a levee  
 10 system built in 1942.

11 **3.9.2 Regulatory Setting**

12 **3.9.2.1 Federal and State**

13 Federal and State laws and regulations pertaining to this issue area and relevant to the  
 14 Project are identified in Table 3.9-2.

**Table 3.9-2. Laws, Regulations, and Policies (Hydrology and Water Quality)**

<b>U.S.</b>	<p>Clean Water Act (CWA) (33 USC 1251 et seq.)</p>	<p>The CWA is comprehensive legislation (it generally includes reference to the Federal Water Pollution Control Act of 1972, its supplementation by the CWA of 1977, and amendments in 1981, 1987, and 1993) that seeks to protect the nation’s water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the U.S. These water quality standards are promulgated by the USEPA and enforced in California by the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). CWA sections include:</p> <ul style="list-style-type: none"> <li>• <u>State Water Quality Certification</u>. Section 401 (33 USC 1341) requires certification from the State or interstate water control agencies that a proposed water resources project is in compliance with established effluent limitations and water quality standards. USACE projects, as well as applicants for Federal permits or licenses are required to obtain this certification.</li> <li>• <u>National Pollution Discharge Elimination System) (NPDES)</u>. Section 402 (33 USC 1342) establishes conditions and permitting for discharges of pollutants under the NPDES.</li> <li>• <u>Ocean Discharges</u>. Section 403 (33 USC 1343) addresses criteria and permits for discharges into the territorial seas, the contiguous zone, and the oceans.</li> <li>• <u>Permits for Dredged or Fill Material</u>. Section 404 (33 USC 1344) authorizes a separate permit program for disposal of dredged or fill material in U.S. waters.</li> <li>• <u>Impaired Water Bodies and TMDLs</u>. Section 303 of the Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop TMDLs for these waters. A Total Maximum Daily Load, or TMDL, is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.</li> </ul>
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**Table 3.9-2. Laws, Regulations, and Policies (Hydrology and Water Quality)**

U.S.	Oil Pollution Act (OPA) (33 USC 2712)	The OPA requires owners and operators of facilities that could cause substantial harm to the environment to prepare and submit plans for responding to worst-case discharges of oil and hazardous substances. The passage of the OPA motivated California to pass a more stringent spill response and recovery regulation and the creation of the Office of Spill Prevention and Response (OSPR) to review and regulate oil spill plans and contracts.
U.S.	Rivers and Harbors Act (33 USC 401)	This Act governs specified activities (e.g., construction of structures and discharge of fill) in “navigable waters” of the U.S. (waters subject to the ebb and flow of the tide or that are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce). Under section 10, excavation or fill within navigable waters requires approval from the USACE, and the building of any wharf, pier, jetty, or other structure is prohibited without Congressional approval.
CA	Porter-Cologne Water Quality Control Act (Cal. Water Code, § 13000 et seq.) (Porter-Cologne)	<p>Porter-Cologne is the principal law governing water quality in California. The Act established the SWRCB and nine RWQCBs who have primary responsibility for protecting State water quality and the beneficial uses of State waters. Porter-Cologne also implements many provisions of the Federal CWA, such as the National Pollutant Discharge Elimination System (NPDES) permitting program. Pursuant to the CWA Section 401, applicants for a Federal license or permit for activities that may result in any discharge to waters of the U. S. must seek a Water Quality Certification (Certification) from the State in which the discharge originates. Such Certification is based on a finding that the discharge would meet water quality standards and other appropriate requirements of State law. In California, RWQCBs issue or deny certification for discharges within their jurisdiction. The SWRCB has this responsibility where projects or activities affect waters in more than one RWQCB’s jurisdiction. If the SWRCB or a RWQCB imposes a condition on its Certification, those conditions must be included in the Federal permit or license.</p> <p>Statewide Water Quality Control Plans include: individual RWQCB Basin Plans; the California Ocean Plan; the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan (Bay-Delta Plan); the Water Quality Control Plan for Enclosed Bays and Estuaries of California; and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). These Plans contain enforceable standards for the various waters they address. For example:</p> <ul style="list-style-type: none"> <li>• <u>Basin Plan</u>. Porter-Cologne (§ 13240) requires each RWQCB to formulate and adopt a Basin Plan for all areas within the Region. Each RWQCB establishes water quality objectives to ensure the reasonable protection of beneficial uses and a program of implementation for achieving water quality objectives within the basin plans. 40 CFR 131 requires each State to adopt water quality standards by designating water uses to be protected and adopting water quality criteria that protect the designated uses. In California, the beneficial uses and water quality objectives are the State’s water quality standards.</li> <li>• The <u>California Ocean Plan</u> establishes water quality objectives for California’s ocean waters and provides the basis for regulation of wastes discharged into the State’s ocean and coastal waters. For example, the Ocean Plan incorporates the State water quality standards that apply to all NPDES permits for discharges to ocean waters.</li> </ul>

**Table 3.9-2. Laws, Regulations, and Policies (Hydrology and Water Quality)**

CA	Other	<ul style="list-style-type: none"> <li>• Under California Code of Regulations, Title 23, the Central Valley Flood Protection Board (CVFPB) regulates specific river, creek, and slough crossings for flood protection: 1) new crossings must maintain hydraulic capacity through such measures as in-line piers, adequate stream bank height (freeboard), and measures to protect against stream bank and channel erosion, and 2) improvements, including crossings, must be constructed in a manner that does not reduce the channel's capacity or functionality, or that of any Federal flood control project.</li> <li>• California Water Code section 8710 requires that a reclamation board permit be obtained prior to the start of any work, including excavation and construction activities, if projects are located within floodways or levee sections. Structures for human habitation are not permitted within designated floodways.</li> </ul>
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1 3.9.2.2 Local

2 **Contra Costa County Watershed Program (CWP)**

3 The Contra Costa CWP is a collaboration between the County, the 19 incorporated  
 4 cities and towns of the County, and the County Flood Control and Water Conservation  
 5 District. The CWP is responsible for ensuring that the County's unincorporated areas  
 6 comply with its municipal stormwater NPDES permits, as authorized by County  
 7 Ordinance 96-21, Title 1014 Stormwater Management and Discharge Control. The  
 8 County currently holds two NPDES permits: the Municipal Regional Permit for  
 9 discharges to the San Francisco Bay and the East Contra Costa County Permit for  
 10 discharges to the Delta. The CWP oversees new development and construction  
 11 projects; provides municipal maintenance, inspection activities, public education, and  
 12 industrial outreach; and implements stormwater/urban run-off monitoring programs,  
 13 pollution prevention programs, and illicit discharge control activities.

14 **Contra Costa County Drainage Ordinance**

15 The Contra Costa County Drain Ordinance 1010 regulates work on watercourses and  
 16 drainage facilities in unincorporated areas of the county. Any work that involves man-  
 17 made drainage facilities or natural watercourses may require a drainage permit from the  
 18 County. Some of the activities covered by this permit requirement include:

- 19 • Construction of creek improvements or bank stabilization;
- 20 • Creek cleanup;
- 21 • Removal / alteration of creek bank-stabilizing vegetation;
- 22 • Construction of improvements within drainage easements or within natural
- 23 watercourses; and
- 24 • Construction / modification.

1 **Contra Costa County**

2 Contra Costa County General Plan 2005-2020 (Contra Costa County 2010) policies  
3 considered in the analysis of the proposed Project include the following:

- 4 • Water Resources Goal 8-T - To conserve, enhance, and manage water  
5 resources, protect their quality, and assure an adequate long-term supply of  
6 water for domestic, fishing, industrial, and agricultural use.
- 7 • Water Resources Goal 8-V - To preserve and restore remaining natural  
8 waterways in the county which have been identified as important and  
9 irreplaceable natural resources.
- 10 • General Water Resources Policy 8-75 - Preserve and enhance the quality of  
11 surface and groundwater resources.
- 12 • Goal 8-F - To encourage the preservation and restoration of the natural  
13 characteristics of the San Francisco Bay/Delta estuary and adjacent lands, and  
14 recognize the role of Bay vegetation and water area in maintaining favorable  
15 climate, and water quality, fisheries and migratory waterfowl.

16 **3.9.3 Impact Analysis**

17 ***a) Violate any water quality standards or waste discharge requirements?***

18 **Less than Significant with Mitigation**

19 Onshore

20 The Project includes the temporary use of standard construction equipment onshore  
21 within the northern pipeline corridor and valve pit equipment laydown area as well as  
22 the southern valve pit located in the Lauritzen Yacht Harbor. Impacts to onshore water  
23 quality could result from the release of potential contaminant within the vaults and  
24 portions of the pipelines to be removed onshore. To reduce potential impacts during  
25 removal activities, PG&E would pig clean pipeline interiors prior to removal in  
26 accordance with SWQCB standards (**MM HAZ-4: Pig/Clean Pipeline Interiors**).

27 In addition, the SWRCB generally requires that construction activity such as clearing,  
28 grading and disturbances to the ground such as stockpiling, or excavation, requires the  
29 development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).  
30 SWPPPs are required for projects that disturb one or more acres of soil or projects that  
31 disturb less than one acre but are part of a larger common plan of development that in  
32 total disturbs one or more acres (SWRCB, 2015). Onshore, the northern landing work  
33 site includes an overall disturbed area of approximately 12,200 square feet or 0.28  
34 acres. With the exception of the marine safety sign removal on the south shoreline,

1 there is no disturbed area at the southern site because no excavation would be  
2 required. Due to the minimal amount of ground disturbance required, the Project would  
3 not be required to develop and implement a Project SWPPP.

4 Staging and use of the construction equipment onsite could also result in an increased  
5 potential of leaks or spills of hydrocarbons such as hydraulic fluid or fuel. Equipment  
6 spills and unanticipated leaks would be reduced through the implementation of industry-  
7 standard BMP measures to reduce surface water pollution (**MM WQ-1: Surface Water**  
8 **Protection**). With the incorporation of **MM HAZ-4** and **MM WQ-1**, impacts to water  
9 quality from onshore Project activities would be less than significant.

10 **MM WQ-1: Surface Water Protection.** Pacific Gas and Electric (PG&E) shall be  
11 required to implement Best Management Practices (BMPs) for reduction of  
12 surface water pollution. At a minimum, the BMPs shall include the following:

- 13 • Clearing of vegetation shall be confined to the minimal area needed for  
14 construction.
- 15 • Erosion and sediment shall be controlled with the application of materials  
16 such as silt fences and straw wattles.
- 17 • Onshore and offshore trash management and litter control procedures  
18 shall be specified, including responsible parties, and implemented to  
19 reduce potential pollution of surface waters.
- 20 • Practical informational materials and/or training shall be provided to  
21 employees to increase their understanding of stormwater quality, sources  
22 of pollutants, and their responsibility for reducing pollutants in stormwater.
- 23 • The contractor shall minimize the potential for spills of chemicals,  
24 hydraulic fluid, fuels, or other hazardous materials during construction and  
25 shall have onsite emergency spill containment kit to contain and remove  
26 any spilled fluids.
- 27 • The potential for spills from Project equipment and machinery shall be  
28 minimized by using drip pans, visqueen, or other suitable secondary  
29 containment during overnight storage within equipment lay-down areas.
- 30 • Vessel fueling shall be required at the staging area or at an approved  
31 docking facility, and no cross-vessel fueling shall be allowed. In addition,  
32 all fuels and lubricants aboard the work vessel(s) shall have a double  
33 containment system. Chemicals used within the Project area and on work  
34 vessels shall be stored using secondary containment.
- 35 • PG&E shall not store fuel or oil at the proposed Project's parking and  
36 staging area upland of the work site. Fuel containment at the contractor's  
37 existing shore base may store quantities of oil and fuel.

1 Offshore

2 The majority of the Project activities would occur offshore, onboard Project vessels. An  
3 impact to offshore water quality could result from either 1) an unanticipated release of  
4 petroleum-based hydrocarbons or hazardous materials from Project vessels or onboard  
5 equipment; or 2) resuspension of riverbed sediment during anchoring and pipeline  
6 removal as further discussed below.

7 *1) Unanticipated release of petroleum-based hydrocarbons or hazardous materials from*  
8 *Project vessels or onboard equipment.*

9 An impact to water quality could result from an unanticipated release of hazardous  
10 materials from Project vessels and onboard equipment. These types of water quality  
11 impacts could occur from:

- 12 • An unanticipated spill during refueling of vessels or equipment;
- 13 • The release of a small amount of hydrocarbon or unanticipated fluid releases  
14 from equipment located onboard Project vessels; or
- 15 • A breach in a Project vessel fuel tank.

16 As discussed within the Project Critical Operations and Curtailment Plan of the PEP  
17 (Section 3.10 of Appendix A), the support vessels and equipment mounted on the deck  
18 of the derrick barge would require periodic refueling. As with any refueling requirement,  
19 the possibility of spillage exists. However, all refueling of support vessels would take  
20 place at approved fueling docks. Refueling of the equipment mounted on the deck of the  
21 derrick barge would likely take place from integral fuel tanks built into the support barge,  
22 or from deck mounted fuel totes. If necessary, USCG-approved fuel totes would be  
23 used and transported to the offshore Project site where they would be placed on the  
24 deck of the derrick barge with the derrick barge crane. No cross-vessel refueling would  
25 occur. In addition, according to PG&E, all work crews would be directed to monitor all  
26 deck equipment for leaks and, if observed, would cease operation of the affected  
27 machinery and correct any leaks. All hydrocarbon-based fluids stored onboard the work  
28 vessels would also be required to have a double containment system.

29 Additionally, potential contaminants could be released during removal of the portions of  
30 the pipelines offshore.

31 The loss of a substantial amount of fuel, lubricating oil, debris or petroleum products  
32 could affect the water column resulting in alteration of the existing water quality.  
33 However, implementation of **MM HAZ-1: Oil Spill Response Plan** and **MM HAZ-4:**  
34 **Pig/Clean Pipeline Interiors** would mitigate impacts to less than significant.

1 *2) Resuspension of riverbed sediment during anchoring and pipeline removal.*

2 The decommissioning work would take place in the San Joaquin River east of the  
3 Antioch Bridge. Water currents are predicted to be as high as 1.1 knots during the  
4 environmental work window of August 1, 2013 to October 31, 2013, rain events  
5 excluded. According to the Desktop Study San Joaquin River Pipeline Crossing  
6 Remediation Project, Sacramento - San Joaquin Delta, California (Fugro 2006), the San  
7 Joaquin River bed is a highly dynamic fluvial environment with river sediments, river  
8 depths and bed morphology subject to daily (tidal) and seasonal variation. Mobile  
9 sediments are clearly indicated by active bed forms (sand waves and bars) and pipeline  
10 removal would be required to take into account the highly mobile river bed sediments  
11 and variable river flow regimes.

12 Required underwater excavation activities are planned using light underwater  
13 excavation tools such as submersible pump excavation, hand jetting, or air lifting.  
14 Surface turbidity would be monitored during underwater excavation work and kept within  
15 allowable thresholds established by the RWQCB for in-water work. The pipelines would  
16 be cut using underwater cutting equipment. Prior to cutting each pipeline a band of  
17 coating would be removed at each cut point to facilitate a clean cut. The coating chips  
18 would be recovered to the extent that the underwater river conditions and water currents  
19 permit.

20 Impacts to marine water quality could result from the resuspension of sediment material  
21 during Project anchoring as well as the cutting, removal and lifting of buried pipeline  
22 segments from the riverbed onto the barge. The resuspension of sediment material into  
23 the water column may increase turbidity, increase concentrations of nutrients or other  
24 settled materials (including methylmercury), lower dissolved oxygen content, lower  
25 visibility and temporarily modify the pH within the waters located within the immediate  
26 Project area. Any impacts to water quality caused by the resuspension of sediment into  
27 the water column may affect marine biota. For further detail regarding the potential for  
28 turbidity to affect marine biota, please refer to Section 3.4, Biological Resources.

29 Impacts would be localized and short-term, as water conditions would be expected to  
30 return to natural conditions following Project completion. However, to further reduce  
31 potential impacts due to increased turbidity, in accordance with **MM HAZ-2: Marine  
32 Safety and Anchoring Plan**, anchor placement would be done in such a manner as to  
33 avoid dragging of anchors on the riverbed. In addition, **MM BIO-4: In-Water Work  
34 Windows and Protections** would help address impacts resulting from increased water  
35 turbidity. With the inclusion of these measures, water quality issues that could result  
36 from the Project would be less than significant with mitigation.

37 ***b) Substantially deplete groundwater supplies or interfere substantially with***  
38 ***groundwater recharge such that there would be a net deficit in aquifer volume or***

1 ***a lowering of the local groundwater table level (e.g., the production rate of pre-***  
2 ***existing nearby wells would drop to a level which would not support existing land***  
3 ***uses or planned uses for which permits have been granted)?***

4 **No Impact.** The Project would not require the use of groundwater nor would it create  
5 new impermeable surfaces that would interfere with groundwater recharge. No impact  
6 would result.

7 ***c) Substantially alter the existing drainage pattern of the site or area, including***  
8 ***through the alteration of the course of a stream or river, in a manner which would***  
9 ***result in substantial erosion or siltation on- or off-site?***

10 **No Impact.** The Project does not include the installation of or construction of any  
11 structures that would alter the existing drainage patterns on site. Removal of the  
12 pipelines within the San Joaquin River would have no permanent effect on local  
13 currents. Project activities would be temporary and onshore areas affected by trenching  
14 would be returned to pre-Project conditions. No impact would result.

15 ***d) Substantially alter the existing drainage pattern of the site or area, including***  
16 ***through the alteration of the course of a stream or river, or substantially increase***  
17 ***the rate or amount of surface runoff in a manner which would result in flooding***  
18 ***on- or off-site?***

19 **No Impact.** The Project does not include the installation of or construction of any  
20 structures that would alter the existing drainage patterns on site. The Project would not  
21 create new impermeable surfaces. Removal of the pipelines within the San Joaquin  
22 River would have no permanent effect on local currents. Project activities would be  
23 temporary and onshore areas affected by trenching would be returned to pre-Project  
24 conditions. No impact would result.

25 ***e) Create or contribute runoff water which would exceed the capacity of existing***  
26 ***or planned stormwater drainage systems or provide substantial additional***  
27 ***sources of polluted runoff?***

28 **Less than Significant with Mitigation.** Pipeline removal activities would not create any  
29 new or permanent impermeable surfaces that could create additional stormwater run-  
30 off. However, the use of construction equipment within the onshore and offshore Project  
31 areas, even temporarily, would cause an increase in the potential for hazardous  
32 materials, contaminated hydrocarbons or other pollution associated with construction  
33 activities or equipment to leak or spill. To mitigate this risk, PG&E would implement **MM**  
34 **WQ-1** for industry-standard BMPs. Implementation of this measure would reduce  
35 potential risks from stormwater runoff to less than significant.

36 ***f) Otherwise substantially degrade water quality?***

1 **Less than Significant with Mitigation.** As discussed above in the response to part a),  
2 the resuspension of sediment material into the water column may increase  
3 concentrations of settled methylmercury within the waters located within the immediate  
4 Project area. Resuspension of sediment in association with this disturbance would  
5 increase the amount of the neurotoxin within the water column and would cause a  
6 temporary decrease in water quality until gradual resettlement downstream could occur.  
7 Impacts would be localized and short-term, as water conditions would be expected to  
8 return to natural conditions following Project completion. Although this impact would  
9 increase the amount of methylmercury in the immediate water column during Project  
10 activities, it would not increase the total amount of methylmercury in the Delta. It is  
11 anticipated that due to the existing scour and currents (as evidenced within the Desktop  
12 Study San Joaquin River Pipeline Crossing Remediation Project, Sacramento - San  
13 Joaquin Delta, California, [Fugro, 2006]), the temporary increase in sediment movement  
14 along the river bottom would be similar to other high scour events such as storms or  
15 other seasonal fluctuations.

16 As detailed in the Delta Mercury Control Program discussion (Section 3.9.1), studies  
17 and pilot projects are underway to develop and evaluate BMPs and strategies to control  
18 methylmercury. However, these recommendations are not anticipated to be completed  
19 until 2019. As such, no guidelines currently exist regarding temporary resuspension of  
20 riverbed sediments during temporary pipeline removal activities. However, to reduce the  
21 potential for water quality impacts during the decommissioning Project work, an  
22 environmental monitor (or up to three environmental monitors depending on Project  
23 activities) would be present at each work site (**MM BIO-2: Biological Compliance  
24 Monitoring Program**) Project environmental monitors would be required to conduct  
25 daily water quality sampling and would have the authority to issue stop work orders, if  
26 required, to ensure, in conjunction with the decommissioning contractor and PG&E staff,  
27 that non-compliance remedies are fully implemented. Implementation of these MMs  
28 would reduce potential impacts to water quality from resuspension of riverbed  
29 sediments including potential methylmercury to less than significant.

30 ***g) Place housing within a 100-year flood hazard area as mapped on a Federal  
31 Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard  
32 delineation map?***

33 **No Impact.** The Project does not include the construction of any structures. No housing  
34 is proposed. No impact would result.

35 ***h) Place within a 100-year flood hazard area structures which would impede or  
36 redirect flood flows?***

37 **No Impact.** The Project includes the removal of existing pipeline structures within the  
38 100-year flood plain located on Sherman Island in Sacramento County. Following the

1 removal of pipelines, the area would be backfilled and restored to pre-Project  
2 conditions. No redirection of flows would occur. The Project does not include the  
3 construction or operation of any new structures or facilities. Furthermore, no housing or  
4 human-occupied structures are located within the area. No impact would result.

5 ***i) Expose people or structures to a significant risk of loss, injury or death***  
6 ***involving flooding, including flooding as a result of the failure of a levee or dam?***

7 **Less than Significant Impact.** The Project is not located within an area subject to  
8 mudflows or tsunamis. The Project includes the removal of an existing pipeline which  
9 crosses the Sherman Island East Levee Road. The Sherman Island East Levee Road  
10 protects the area within the 100-year flood plain. Project activities within the northern  
11 landing vault area would require trenching through the existing levee. Following the  
12 removal of pipelines, the area would be backfilled and restored to pre-Project  
13 conditions. Due to the temporary nature of onshore Project activities (approximately 35  
14 days), impacts would be temporary. Furthermore, no housing or human-occupied  
15 structures are located within the area. Impacts would be less than significant.

16 ***j) Inundation by seiche, tsunami, or mudflow?***

17 **No Impact.** The Project is not located within an area subject to mudflows or tsunamis.  
18 The Project includes the removal of existing pipeline which crosses the Sherman Island  
19 East Levee Road. According to the Sacramento County General Plan, “Delta levees are  
20 subject to overtopping and subsequent failure” from seiches generated by earthquakes.  
21 Project activities within the northern landing vault area would require trenching through  
22 the existing levee. However, following the removal of pipelines, the area would be  
23 backfilled and restored to pre-Project conditions. Pipeline removal activities would be  
24 localized and last only as long as necessary to remove all pipeline segments and  
25 appurtenant facilities (approximately 35 days). Due to the temporary nature of levee  
26 trenching activities, impacts associated within earthquake generated seiches would be  
27 minimal. No impact would result.

### 28 **3.9.4 Mitigation Summary**

29 Implementation of the following MMs would reduce the potential for Project-related  
30 impacts to hydrology and water quality to less than significant.

- 31 • MM WQ-1: Surface Water Protection.
- 32 • MM HAZ-1: Oil Spill Response Plan.
- 33 • MM HAZ-2: Marine Safety and Anchoring Plan.
- 34 • MM HAZ-3: Pre- and Post-Decommissioning Surveys.
- 35 • MM HAZ-4: Pig/Clean Pipeline Interiors.
- 36 • MM BIO-2: Biological Compliance Monitoring Program.