

1 3.8 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 **3.8.1 Environmental Setting**

2 **3.8.1.1 Regional Hydrologic Setting**

3 The Project area lies within the San Francisco Bay Area Hydrologic Basin. San
4 Francisco Bay is an estuary receiving its major source of freshwater from the
5 Sacramento-San Joaquin drainage basin which discharges into the Bay. Freshwater
6 strongly influences environmental conditions in the San Francisco Bay Estuary. The Bay
7 is also influenced by incoming salt water from the ocean. Because of its highly dynamic
8 and complex environmental conditions, San Francisco Bay supports an extraordinarily
9 diverse and productive ecosystem. San Francisco Bay deepwater channels, tidelands,
10 and marshlands provide a wide variety of habitats that are important to sensitive and
11 endangered plant and animal species.

12 **3.8.1.2 Climate**

13 Western County has a moderate climate with an average annual precipitation of
14 approximately 23 inches per year (ESA 2009). The climate is generally characterized by
15 relatively cool summers and mild winters. In summer, a steady marine wind blows
16 through the Golden Gate and up the Carquinez Strait. This moderating influence is
17 reflected in average July temperatures of 65 degrees Fahrenheit (°F) and average
18 January temperatures of 50°F.

19 **3.8.1.3 Project Setting**

20 The Project area is primarily located offshore within the Bay, but also extends onto land
21 south of Lone Tree Point in the City. The land-based portion of the Project area lies
22 within the Refugio Creek watershed but is not located near any stream or riparian areas.
23 Refugio Creek has a total length of 4-½ miles and flows largely through urban areas
24 before emptying into the Bay.

25 **3.8.1.4 Water Quality**

26 In the San Francisco Bay Basin Plan, the SFBRWQCB (2011) identifies a number of
27 beneficial uses of the Bay that must be protected. The beneficial uses include
28 commercial and sport fishing, estuarine habitat, industrial service supply, fish migration,
29 navigation, contact and non-contact recreation, wildlife habitat, estuarine habitat,
30 preservation of rare and endangered species, fish spawning, shellfish harvesting, and
31 wildlife habitat (SFBRWQCB 2011).

32 As required by the Clean Water Act (CWA), the SFBRWQCB has identified the Bay as
33 an impaired water body (due to non-attainment of water quality standards) for the
34 following contaminants on the CWA Section 303(d) list:

- 1 • Pesticides diazinon, chlordane, DDT, dieldrin;
- 2 • Dioxin compounds;
- 3 • Furan compounds;
- 4 • Exotic species;
- 5 • Polychlorinated biphenyls (PCBs); and
- 6 • Metals mercury, selenium, and nickel (nickel is proposed for delisting).

7 Sources of these pollutants or stressors include: nonpoint sources associated with
8 urban development; atmospheric deposition; ballast water; industrial and municipal
9 point sources; agriculture; natural sources; and exotic species (SFBRWQCB 2007,
10 2010).

11 **3.8.2 Regulatory Setting**

12 Federal and State laws and regulations pertaining to this issue area and relevant to the
13 Project are identified in Table 3-1. Local goals, policies, and/or regulations applicable to
14 this issue area are summarized below.

15 The City includes water quality and hydrology objectives in the Conservation Element of
16 its General Plan. The primary relevant water quality objective is to improve surface
17 water runoff which includes BMPs for new development. The hydrology objective is to
18 reduce flooding in flood prone areas.

19 The County's overall policy is for projects to comply with the requirements of the
20 RWQCB. It also has conservation goals related to water quality (Contra Costa County
21 2005). One of the relevant conservation goals is to preserve and protect the natural
22 resources. In addition, the County also has the goal to:

- 23 • Encourage the preservation and natural resource characteristics of the San
24 Francisco Bay/Delta estuary and adjacent lands, and
- 25 • Recognize the role of Bay vegetation and water area in maintain favorable
26 climates, air, and water quality, and fisheries and migratory waterfowl (Contra
27 Costa County 2005).

28 **3.8.3 Impact Analysis**

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

30 **Less than Significant Impact.** The Project is not expected to conflict with any water
31 quality standards or waste discharge requirements. The Project pipeline was used for
32 wastewater discharge during refinery operations and subsequently for groundwater

1 extraction and treatment as part of the site remediation completed in 2001. It has not
2 been used since 2001 and could potentially contain seawater.

3 Prior to construction, the Applicant is required to obtain permits from or coordinate with
4 the following agencies: SFBRWQCB (401 Water Quality Certification Permit), USFWS;
5 Bay Conservation and Development Commission (BCDC; Permit), NMFS, USACE
6 (Section 10 Permit), and CDFW, as necessary.

7 As mentioned in Section 3.4.3, sediment was characterized for contaminants including
8 mercury, and the concentrations for all analytes were below existing TMDLs. The
9 suspended phase toxicity test results exhibited a lack of toxicity within the elutriate of
10 site sediment and water. In addition, the Project would disturb only a small area
11 underneath the existing riprap where the pipeline would be cut and grouted, and
12 standard erosion control procedures would be implemented.

13 ***b) Substantially deplete groundwater supplies or interfere substantially with***
14 ***groundwater recharge such that there would be a net deficit in aquifer volume or***
15 ***a lowering of the local groundwater table level (e.g., the production rate of pre-***
16 ***existing nearby wells would drop to a level which would not support existing land***
17 ***uses or planned uses for which permits have been granted)?***

18 **No Impact.** The Project would not affect groundwater because no subsurface
19 excavation, use of groundwater supplies, or work would affect groundwater recharge.

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

23 **No Impact.** The Project would not affect any drainage areas because the onshore work
24 would be located outside of any watercourse and the onshore work would be limited to
25 the riprap area.

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

30 **No Impact.** The Project would not affect any drainage patterns. It would not add any
31 impervious surfaces nor would it alter the course of any stream or river.

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

1 **No Impact.** The Project would not contribute to runoff water to stormwater systems and
2 would not generate additional sources of polluted runoff. The Project would not include
3 any elements that would produce substantial runoff directed toward any existing
4 drainage systems.

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

6 **Less than Significant with Mitigation.** Disturbance of the sediment could resuspend
7 contaminants into the water column, but the effect would be highly localized and of short
8 duration, as discussed in Section 3.3, Biological Resources. Sampling and chemical
9 analysis and toxicity testing of sediments along the submerged pipeline corridor was
10 performed by Pacific EcoRisk (2013), on behalf of the Applicant in March 2013. Total
11 PCBs, total DDTs, PAHs, pesticides, and metals were analyzed. Physical and chemical
12 analytical results were compared to San Francisco Bay ambient sediment
13 concentrations. The study concluded that concentrations of contaminants found in
14 sediments along the submerged pipeline route were similar to or below background
15 levels typically found in sediments within San Francisco Bay. Pesticide concentrations
16 were very low (below the detection limits of the test). Cadmium was the only exception,
17 and was detected at concentrations above San Francisco Bay background levels but
18 below the Effects Range-Low (ERL) level for cadmium. The ERL is the concentration of
19 a contaminant below which biological effects are rarely observed or predicted (Pacific
20 EcoRisk 2013). It is not expected that the detected concentrations of cadmium would
21 have a significant negative biological effect. Toxicity testing of the sediments that could
22 be resuspended and affect water quality was also performed, and showed that
23 disturbance of the sediment along the pipeline trench is not expected to have an
24 adverse impact (Pacific EcoRisk 2013).

25 Nonetheless, because increased turbidity and sediment resuspension could result in an
26 adverse impact to water quality, the Applicant has either proposed or agreed to
27 implement MMs to minimize sediment resuspension and otherwise ensure potential
28 impacts to water quality are less than significant. In this case, **MM BIO-1**, which would
29 be implemented to reduce biological resource impacts, would also reduce water quality
30 impacts. It reads:

31 **MM BIO-1: Minimize Sediment Resuspension During Removal Activities.** Divers
32 shall be used to affix straps to the pipeline (no jetting or mechanical disturbance
33 of the sediments shall be used) to minimize sediment resuspension. Spuds shall
34 be used on the barge to minimize anchoring and the pipeline shall be raised
35 slowly to the barge in order to minimize disturbance to the surrounding
36 sediments. For the onshore work, where feasible, personnel and materials shall
37 be transported to the barge by means of a gangway from the shore to limit use of
38 support vessels and minimize disturbance to bottom sediments.

1 Water quality would also be protected from spills by managing fueling operations and
2 handling and use of other hazardous materials as described in Sections 2 and 3.7.

3 ***g) Place housing within a 100-year flood hazard area as mapped on a federal***
4 ***Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard***
5 ***delineation map?***

6 **No Impact.** There is no existing housing, and none is planned from the Project.

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

9 **No Impact.** No structures would be constructed as part of the Project.

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

12 **No Impact.** No levees or dams are located on the Project site, and no new structures
13 are proposed.

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

15 **Less than Significant Impact.** The Project site is primarily located within the Carquinez
16 portion of the Bay. Areas that are susceptible to tsunami inundation tend to be located
17 in low-lying coastal areas and these waves would be substantially muted as they near
18 the Carquinez Strait. Due to the large size of Bay, the hazard from seiche waves is low.
19 The Project site is not located in an area that is susceptible to mudflows. Since the
20 Project is expected to occur over a 3-week period, an impact from a tsunami or seiche
21 would be unlikely.

22 **3.8.4 Mitigation Summary**

23 Implementation of the following mitigation measure would reduce the Project-related
24 impacts to less than significant.

- 25
 - MM BIO-1: Minimize Sediment Resuspension During Removal Activities.