

1 **3.10 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 checked="" type="checkbox"/> | <input 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 type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

1 **3.10.1 Environmental Setting**

2 3.10.1.1 Onshore

3 The onshore portion of the Project would be located within the developed portion of the
 4 lower LFCPF. Components of the LFCPF are positioned both upstream and
 5 downstream of the confluence of Las Flores Creek and Corral Creek from immediately
 6 north of Calle Real (located immediately north of U.S. 101, approximately 500 feet north
 7 of the Pacific Ocean), upstream to approximately 1.3 miles (2 km) north of the Pacific
 8 Ocean. Las Flores Creek originates from the northwest portion of the watershed, and
 9 Corral Creek originates from the northeast, where they meet at their confluence
 10 approximately 1.0 mile (1.6 km) north of the Pacific Ocean. The main stem of Corral
 11 Creek then continues south towards the ocean, where it is channeled into a concave
 12 bottom and arched-top concrete culvert measuring approximately 9-feet (2.7 m) across
 13 and 10-feet (3-m) tall. This culvert is located at the southwestern corner of the LFCPF,
 14 and heads beneath Calle Real and U.S. 101 for a distance of approximately 400 feet
 15 (122 m), where it discharges storm flows directly to the Pacific Ocean. Both Creeks are
 16 intermittent in most years, exhibiting flashy storm flows in late fall and winter, and
 17 residual pools during the remainders of most years.

18 Water quality in Corral Creek is monitored regularly by ExxonMobil in accordance with
 19 their existing Central Coast Regional Water Quality Control Board (CCRWQCB)-
 20 required SWPPP and SBC-required Surface Water Quality Monitoring Program. Water
 21 used at the facility is obtained from onsite groundwater wells (Arthur D. Little 1986).

22 3.10.1.2 Offshore

23 The commonly measured chemical oceanographic parameters and their ranges are
 24 given in Table 3.10-1.

Table 3.10-1. Key Water Quality Parameters, Units of Measure, and Characteristics

| Parameter (Units) | Characteristics |
|--------------------------------------|--|
| Temperature (°C) | Ocean surface temperatures minimums of 12-13 °C in April and maximums of 15-19 °C in July-October |
| Salinity (%- parts per thousand) | 33.2-34.3 % |
| Dissolved oxygen (DO) (mg/L or ml/L) | 5-6 ml/l at the surface, decreasing with depth to about 2 ml/l near 200 m to as low as 1 ml/l below 350 m. |
| pH (unitless) | 7.8 to 8.1. |
| Nutrients (µg-atoms/l) | Nutrients and micronutrients include nitrogen, phosphorus, and silicon iron (Fe), manganese (Mn), Zinc (Zn), Cu, cobalt (Co), molybdenum (Mo), vanadium (V), vitamin B12, thiamin and biotin. Concentrations show depletion near the surface, increasing with depth. |

| Parameter (Units) | Characteristics |
|--------------------------|---|
| Turbidity (mg/L) | Concentrations average near 1 mg/L, but range from 0.93 - 1.5 mg/L in the nearshore, surface waters. Levels near the sea floor average 0.4 mg/L and range from 0.1 to 1.4 mg/L; offshore regions average 0.15 mg/L and range from 0.07 - 0.32 mg/L. Periods of highest turbidity correspond to periods of highest upwelling, highest primary production, river runoff, and nearshore current and wave action. |
| Organic materials (µg/l) | Naturally-occurring organic materials include a variety of molecules ranging from hydrocarbons to biogenic-based substances. |

1 Sources of marine pollution in the Santa Barbara Channel include publicly owned
 2 treatment works (municipal sewage), power plant discharges, and river runoff (MMS
 3 2001). Very few industrial or power plant outfalls exist in the area. The nearest
 4 municipal discharge to the Project area is from the Goleta Municipal Wastewater
 5 Treatment Plant located more than 12 miles (19.3 km) east.

6 River runoff may also contribute various natural and man-made pollutants ranging from
 7 suspended sediments to pesticides. River runoff is difficult to quantify and is seasonally
 8 variable. Nevertheless, material from the Santa Ynez River sometimes flows eastward
 9 around Point Conception and provides sediment to the Project area, particularly during
 10 periods of high flow. In addition, the numerous small, intermittent creeks which drain
 11 into coastal waters near the SYU area, may also provide a sizeable amount of sediment
 12 during periods of high flow.

13 **3.10.2 Regulatory Setting**

14 3.10.2.1 Federal and State

15 Federal and State laws and regulations pertaining to this issue area and relevant to the
 16 Project are identified in Table 3.10-2.

Table 3.10-2. Laws, Regulations, and Policies (Hydrology and Water Quality)

| | | |
|------|---|--|
| U.S. | Clean Water Act (CWA) (33 USC 1251 et seq.) | <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"> • <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. • <u>National Pollution Discharge Elimination System)(NPDES)</u>. Section 402 (33 USC 1342) establishes conditions and permitting for discharges of pollutants under the NPDES. • <u>Ocean Discharges</u>. Section 403 (33 USC 1343) addresses criteria and permits |
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|------|---|---|
| | | <p>for discharges into the territorial seas, the contiguous zone, and the oceans.</p> <ul style="list-style-type: none"> • <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. |
| 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 CWA, such as the National Pollutant Discharge Elimination System (NPDES) permitting program. Pursuant to the CWA § 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 will 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. 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"> • Basin Plan. 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. • The California Ocean Plan 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. |
| CA | Coastal Act Chapter 3 policies (see also Table 1-3) | <p>Coastal Act policies applicable to this issue area are:</p> <ul style="list-style-type: none"> • Section 30231 states The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, |

| | | |
|--|--|--|
| | | <p>minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.</p> <ul style="list-style-type: none"> • See also: Section 30233 (Diking, filling or dredging; continued movement of sediment and nutrients); and Section 30235 (Construction altering natural shoreline), which states in part ...Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible. |
|--|--|--|

1 3.10.2.2 Local

2 Local goals, policies, and/or regulations applicable to this issue area are discussed
 3 below.

4 The SBC has adopted policies in regards to water quality within the Project area which
 5 include siting criteria for new structures including avoidance of geological hazards and
 6 locations overlying regional groundwater basins. These regulations generally prevent
 7 the development of floodplain areas which would result in the flooding of developed
 8 areas.

9 There are two main regulatory programs under which the SBC directly or indirectly
 10 addresses the quality of surface water. These are the NPDES, and Total Maximum
 11 Daily Loads (TMDLs). Under the Clean Water Act both of these programs are enforced
 12 through regulations promulgated by the USEPA, and both programs have been
 13 delegated to the State Water Resources Control Board (SWRCB) and the RWQCBs.

14 **3.10.3 Impact Analysis**

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

16 **Less than Significant with Mitigation.** Onshore work at LFCPF would be limited
 17 mainly to the lower Canyon parking area, which will be used during construction for
 18 equipment and vehicle parking, and during retrieval of onshore portions of the old
 19 cables, pulling the new cables onshore, and splicing the cables. Excavation and
 20 trenching activities would be limited to completely developed or disturbed areas. The
 21 cable tunnel's southern manhole will be accessed from the bike path above El Capitan
 22 SB to bring in equipment to facilitate cable removal, conduit cleaning, conduit gauging,
 23 conduit flushing, and video of operations. Any freshwater that has collected in the south
 24 end of the tunnel from natural seepage will be pumped to the concrete trapezoidal ditch
 25 adjacent to the north tunnel manhole, and allowed to discharge to Corral Creek. Impacts
 26 to ground and surface water quality could result from accidental spills of materials such
 27 as oil, fuels, grease, or debris from Project equipment during construction. **MM WQ-1:**
 28 **Conduit Flushing**, and **MM WQ-2: Stormwater Pollution Prevention Plan (SWPPP)**
 29 will reduce these impacts to less than significant.

1 **MM WQ-1: Conduit Flushing.** Prior to conduit flushing, ExxonMobil shall obtain
2 permission, if required, from the Central Coast Regional Water Quality Control
3 Board (CCRWQCB) to discharge any accumulated material within the conduit.
4 This may require submitting samples and a Report of Waste Discharge to the
5 CCRWQCB.

6 **MM WQ-2: Stormwater Pollution Prevention Plan (SWPPP).** ExxonMobil shall
7 prepare a site-specific SWPPP for use during construction work and submit to
8 Santa Barbara County and the Central Coast Regional Water Quality Control
9 Board for review and approval. The plan shall be designed to control erosion
10 from the construction area that could conceivably reach Corral Creek and cause
11 a temporary increase in sediment loading and shall include best management
12 practices to prevent unauthorized releases during construction.

13 Offshore work within State waters of the Pacific Ocean includes the following:

- 14 • Water jetting to expose the ends of the conduit and the cables at the POPCO
15 crossing nearshore and the locations where the cables would be cut and
16 removed offshore;
- 17 • Anchoring of support vessels;
- 18 • Removal and cleaning of short segments of cable in conduits in preparation for
19 installation of the replacement cables;
- 20 • Installation of the replacement cables; and
- 21 • Retrieval of the out-of-service cables from nearshore to the State-Federal
22 Boundary.

23 Potential impacts to water quality from these activities would be limited to the
24 resuspension of sediment material and potential discharges of hydrocarbons from
25 Project vessels or equipment.

26 In addition, potential contaminants could be released into the water column during
27 flushing and pigging (if necessary) of the conduits and J-tubes at the Project platforms
28 and retrieval of the out-of-service cables adjacent to the Project platforms in Federal
29 waters, which would be regulated under a general NPDES permit – General Permit No.
30 CAG280000 (USEPA 2013).

31 Localized seafloor sediments and compounds within the sediments would be
32 temporarily disturbed during water jetting, anchoring, and the retrieval and installation of
33 cables resulting in increased turbidity within the immediate Projects work area.
34 Increases in turbidity can result in physical effects that adversely affect water quality.
35 However, suspension of sediment is expected to be minimal and sediments are
36 expected to settle to the bottom and not disperse into the water column. Impacts would

1 be localized and short-term, as water conditions would be expected to return to natural
2 conditions following Project completion. As previously stated, anchoring will be limited to
3 support vessels. In addition, in accordance with **MM MBIO-1b: Anchoring Plan**, anchor
4 placement will be done vertically in order to avoid dragging of anchors on the seafloor.
5 As such, impacts resulting from increased water turbidity, nutrient concentrations and
6 associated water quality issues that could result from the Project are less than
7 significant with mitigation.

8 An impact to water quality could result from an unanticipated release of hazardous
9 materials from Project vessels and onboard equipment. The loss of a substantial
10 amount of fuel, lubricating oil, debris or petroleum products could affect the water
11 column resulting in alteration of the existing water quality. Implementation of **WQ-2**
12 (above), and **MM HAZ-7: Oil Spill Response Plan (OSRP)** would mitigate these
13 impacts to less than significant.

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

19 **Less than Significant Impact.** Water used at the LFCPF is obtained from onsite
20 groundwater wells. Temporary water use will be limited to dust control at the onshore
21 construction site. However, the area of disturbance is relatively small and would only be
22 as large as required to access the buried cables and tunnel entrance. As such, fugitive
23 dust during Project activities will be minor and will not require a significant amount of
24 water to control.

25 The Project is a replacement of an existing cable system within an existing pipeline and
26 cable corridor. Therefore, no additional water usage would be required for operation of
27 the installed facilities. The Project would not deplete groundwater supplies or interfere
28 substantially with groundwater recharge.

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

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

1 **c) and d). No impact.** No changes to existing site topography, streambeds or drainage
2 are proposed. As such no risk of flooding erosion will occur. No changes to existing
3 impervious surface are proposed. As such, no impact would result.

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

7 **Less than Significant with Mitigation.** As discussed in Section 3.4, Biological
8 Resources (Terrestrial), if freshwater seepage is encountered inside the cable tunnel,
9 collection and discharge of that water will occur into the concrete trapezoidal ditch (and
10 eventually Corral Creek, which drains to the Pacific Ocean). Per the County a permit is
11 not required for the discharge of the accumulated seepage, as it is considered routine
12 maintenance under the County's existing permit and included within the operating
13 procedures manual, which is regularly reviewed by the County (Louie pers. comm.,
14 2014). Other potential discharges associated with Project construction would require an
15 NPDES permit, which will be secured through the CCRWQCB (Region 3). The NPDES
16 permit will require a SWPPP containing appropriate sampling, treatment and reporting
17 measures to ensure the beneficial uses of regulated waterways are not affected.
18 Therefore, **MM WQ-2** would reduce this impact to less than significant.

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

20 **Less than Significant with Mitigation.** As discussed above, onshore work at LFCPF
21 would be limited mainly to the lower Canyon parking area, which will be used as an area
22 for equipment and vehicle parking during construction efforts, and will also be used
23 during retrieval of onshore portions of the old cables, pulling the new cables onshore,
24 and splicing the cables. Excavation and trenching activities would be limited to
25 completely developed or disturbed areas. The cable tunnel's southern manhole will be
26 accessed from the bike path above El Capitan SB to bring in equipment to facilitate
27 cable removal, conduit cleaning, conduit gauging, conduit flushing, and video of
28 operations. Any freshwater that has collected in the south end of the tunnel from natural
29 seepage will be pumped to the concrete trapezoidal ditch adjacent to the north tunnel
30 manhole, and allowed to discharge to Corral Creek. Impacts to ground and surface
31 water quality could result from accidental spills of materials such as oil, fuels, grease, or
32 debris from Project equipment during construction. **MM WQ-1** and **MM WQ-2** will reduce
33 these impacts to less than significant.

34 Offshore, potential impacts to water quality would be limited to 1) the resuspension of
35 sediment material and 2) potential discharges of hydrocarbons from Project vessels or
36 equipment. As discussed in the response to a) above, implementation of **MM WQ-2** and
37 **MM HAZ-7** would mitigate these impacts to less than significant. No additional water
38 quality impacts would result.

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

4 **No Impact.** The Project would not involve the placement of any housing within a 100-
5 year flood hazard area. The Project is a replacement of an existing cable system within
6 an existing pipeline and cable corridor.

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

9 **No Impact.** The Project would not involve the placement of any structures within a 100-
10 year flood hazard area. The Project is a replacement of an existing cable system within
11 an existing pipeline and cable corridor.

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

14 **No Impact.** The Project is a replacement of an existing cable system within an existing
15 pipeline and cable corridor and would not expose people or structures to a significant
16 risk of loss, injury or death involving flooding.

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

18 **No Impact.** The Project is a replacement of an existing cable system within an existing
19 pipeline and cable corridor and would not result in inundation by seiche, tsunami, or
20 mudflow.

21 **3.10.4 Mitigation Summary**

22 Implementation of the following measures will reduce Project-related impacts to less
23 than significant.

- 24 • MM WQ-1: Conduit Flushing.
- 25 • MM WQ-2: Stormwater Pollution Prevention Plan (SWPPP).
- 26 • MM HAZ-7: Oil Spill Response Plan (OSRP).
- 27 • MM MBIO-1b: Anchoring Plan (see Section 3.5.3).