CHAPTER 6
MPWSP Variant

Tables

6.1 Overview

As described in Chapter 3, Project Description, California American Water Company's (CalAm) Application A.12-04-019 for the Monterey Peninsula Water Supply Project (MPWSP or proposed project[1]) also includes a variation of the MPWSP (MPWSP Variant or project variant) that would meet all of the project objectives by combining a reduced-capacity desalination plant (6.4-million gallons per day [mgd] instead of the 9.6 mgd desalination plant proposed under the proposed project) with a water purchase agreement for 3,500 acre-feet per year (afy) of product water from the Pure Water Monterey Groundwater Replenishment (GWR) project, a joint project proposed by the Monterey Regional Water Pollution Control Agency (MRWPCA) and the Monterey Peninsula Water Management District (MPWMD). The MPWSP Variant does not qualify as an alternative to the proposed project because the MPWSP Variant was not specifically designed for the purpose of lessening or avoiding the environmental impacts of the proposed project, but is indeed a variation of the proposed project. When compared to the proposed project, the project variant would further diversify the water supply portfolio for CalAm's Monterey District service

1 The *MPWSP* or *proposed project* is the project described in Chapter 3, Project Description.

area (Monterey District) and would increase the percentage of the project that would be owned and operated by local public agencies (as opposed to CalAm, an investor-owned utility company, having primary ownership of all local water supply facilities and infrastructure for the Monterey District). In addition to providing 9,752 afy of potable water supplies for the Monterey District, the MPWSP Variant would also provide approximately 4,750 afy of recycled water supplies for irrigation in the northern Salinas Valley. Although the provision of recycled water supplies for irrigation is not an objective of CalAm's proposed project, it is a secondary objective of the GWR project that would be realized if the MPWSP Variant were ultimately approved.

In April 2012, CalAm, MRWPCA, and MPWMD entered into a memorandum of understanding (MOU) to enable planning and environmental evaluation of the GWR project; the MOU is included as Appendix A of CalAm's Certificate of Public Convenience and Necessity Application (Application A.12-04-019) to the California Public Utilities Commission (CPUC) for the proposed MPWSP. The GWR project is undergoing separate CEQA environmental review, with MRWPCA as the CEQA Lead Agency. The *Draft EIR for the Pure Water Groundwater Replenishment Project* (GWR Draft EIR) (State Clearinghouse No. 2013051094) was published in April 2015; certification of the Final EIR for the GWR project is anticipated in winter 2015.

This chapter describes the MPWSP Variant, including the facilities that would be constructed, owned, and operated by CalAm or MRWPCA, and analyzes the potential environmental effects of the project variant as a whole. The description and analysis of the GWR project presented in this chapter are based on the project description in the GWR Draft EIR and preliminary impact analyses provided by MRWPCA. The GWR Draft EIR project description and figures are included in **Appendix H**[2] of this document; refer to **Appendix H** for more detailed information on the proposed GWR facilities. If the GWR project is approved by the agencies considering it, they are expected to apply the GWR EIR to their actions. The CPUC would have no direct approval authority over the GWR project, but may consider a water purchase agreement for CalAm to secure water from the GWR project. Thus, the CPUC may be in a position to choose between the MPWSP proposed project (the 9.6 mgd desalination plant and associated facilities only) and the MPWSP Variant (the 6.4 mgd desalination plant and water from the GWR project). The CPUC would take into account numerous factors and considerations in reaching such a decision, including policy, cost, etc. By this EIR providing a full analysis of each option, the CPUC will have available comparative data on the environmental effects of each option, and such data can inform the CPUC's ultimate decision. In addition, while it would not meet the basic objectives of the project in terms of quantity of water supplied, the CPUC could consider approving a water purchase agreement for CalAm to secure water from the GWR project even if the CPUC elected not to approve the MPWSP desalination plant component. This would require that delivery pipeline systems also be constructed by CalAm. The effects of constructing only the GWR project (including the CalAm pipeline for water delivery) have been addressed as the

[2] **Appendix H** is comprised of Chapter 2, Project Description, from the Draft EIR for the Pure Water Monterey Groundwater Replenishment Project (MRWPCA, 2015). With the exception of the Monterey Pipeline and Transfer Pipeline, which would be constructed by CalAm as part of the CalAm facilities of the MPWSP Variant, all other facilities described in **Appendix H** represent the GWR facilities of the MPWSP Variant.

project in the GWR Draft EIR, and are also set forth in this document as a subset of the MPWSP Variant.

6.2 Description of the MPWSP Variant

Figure 6-1 presents an overview of the CalAm and GWR facilities of the MPWSP Variant. The primary objectives of the MPWSP Variant are the same as those presented for the proposed project in Chapter 3, Project Description, Section 3.3.2. In order to provide 9,752 afy of additional water supplies to meet the estimated total annual demand in the Monterey District of 15,296 afy, the MPWSP Variant would provide 6,260 afy with a reduced sized desalination plant (6.4 mgd) and the remaining 3,500 afy would be provided through a water purchase agreement with the GWR project sponsors (in addition to existing Carmel River diversions, Aquifer Storage and Recovery [ASR], the Seaside Groundwater Basin and the Sand City Coastal Desalination Plant). **Table 6-1** summarizes the future supplies for the Monterey District with implementation of the MPWSP Variant.

TABLE 6-1
FUTURE WATER SUPPLIES FOR THE MONTEREY DISTRICT WITH IMPLEMENTATION OF THE MPWSP VARIANT

Source	Average Annual Yield (afy)[a]
MPWSP Desalination Plant (Proposed)	6,260
GWR Project Water	3,500[b]
Carmel River Diversions (Existing)	3,376
ASR Project (Existing)	1,300
Seaside Groundwater Basin (Existing)	770[c]
Sand City Coastal Desalination Plant (Existing)	94
Total	**15,296**

a Average annual yields are rounded to the closest whole number.
b CalAm would enter into a water purchase agreement with MPWMD for 3,500 afy of GWR project supply.
c After CalAm has fulfilled its replenishment obligations to the Seaside Groundwater Basin (assumed to take 25 years at a replenishment rate of 700 afy), CalAm would increase pumping to its adjudicated right of 1,474 afy.

SOURCE: RBF Consulting, 201a.

As stated above in Section 6.1, in addition to providing 9,752 afy of potable supplies to serve the Monterey District, the MPWSP Variant would also provide 4,750 afy of recycled supplies for agricultural irrigation in the northern Salinas Valley.

6.2.1 CalAm Facilities

The CalAm facilities of the MPWSP Variant are summarized below; **Table 6-2**, below, provides a more detailed list of the CalAm facilities of the project variant.

- A Seawater Intake System, which would consist of seven subsurface slant wells (five active and two on standby) extending offshore into Monterey Bay, and a Source Water Pipeline A 6.4 mgd desalination plant and appurtenant facilities, including source water receiving tanks; pretreatment, reverse osmosis (RO), and post-treatment systems; chemical feed and storage facilities; brine storage and facilities; and other associated non-process facilities

- Desalinated water conveyance facilities, including pipelines, pump stations, clearwells, and a Terminal Reservoir

- Two injection wells for Salinas Valley return flows located at either the MPWSP Desalination Plant site on Charles Benson Road or at the CEMEX Sand Mining Facility

- An expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), a new ASR Pump Station, two parallel ASR Conveyance Pipelines to convey water to and from the ASR-5 and ASR-6 Wells, and an ASR Pump-to-Waste System

The primary differences in the CalAm facilities between the MPWSP Variant and the proposed project are:

- the reduced number of subsurface slant wells (7 slant wells for the project variant versus 10 slant wells for the proposed project);
- the desalination plant capacity (6.4 mgd for the MPWSP Variant versus 9.6 mgd for the proposed project); and
- the Salinas Valley return flows would be injected into the groundwater basin via new injection wells located at either the CEMEX Sand Mining Facility or the MPWSP Desalination Plant site on Charles Benson Road for the project variant, instead of being conveyed to the 80-acre Castroville Seawater Intrusion Project (CSIP) pond at the MRWPCA for distribution to irrigators (see also Section 7.10, Alternative Salinas Valley Return Options). Alternatively, CalAm could return the water to overlying Salinas Valley Groundwater Basin (SVGB) users or to municipal agencies, so long as the water provided were verifiably used in lieu of current pumping from the basin.[3] There would not be any capacity in CSIP to accept the Salinas Valley return water since the GWR Project would provide water directly to CSIP. If the return flows are injected at the CEMEX Sand Mining Facility, the Salinas Valley Return Pipeline would be a 2.2-mile-long pipeline extending between the MPWSP Desalination Plant and the CEMEX Sand Mining Facility. If the return flows are injected at the MPWSP Desalination Site, a short pipeline would also be required. Unless otherwise indicated, all other CalAm facilities would be designed, constructed, and operated as described for the proposed project in Chapter 3, Project Description.

[3] CalAm has not proposed any such particular return mechanism, so none is analyzed in this EIR. If such a direct return mechanism were contemplated at some point, further environmental review of such option may be required.

TABLE 6-2
CALAM FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
Seawater Intake System		
Subsurface Slant Wells	• Seven slant wells (*vs. ten slant wells under the proposed project*) extending offshore beneath the Monterey Bay (the conversion of an existing test slant well into a permanent well plus six new wells), with up to five wells (*vs. eight wells under the proposed project*) operating at any given time and two wells maintained on standby • The slant wells would be grouped into two well clusters (*vs. three well clusters under the proposed project*), one with four wells and the other with three wells • Each slant well would be equipped with a submersible well pump • Each well would be approximately 700 to 800 feet long and extend offshore to a depth of approximately 200 to 220 feet below mean sea level (msl) • The wells would be screened in the Dune Sands Aquifer and the 180-Foot-Equivalent Aquifer of the Salinas Valley Groundwater Basin	These wells would draw approximately 15.5 mgd of seawater (*vs. 24.1 mgd under the proposed project*) from beneath the ocean floor for use as source water for the MPWSP Desalination Plant.
Source Water Pipeline	• 2.7-mile-long 42-inch-diameter pipeline	This pipeline would convey the combined source water from the slant well clusters to the MPWSP Desalination Plant.
Desalination Facilities		
Pretreatment System	• Pressure filters or multimedia gravity filters would be housed within a 6,000-square-foot pretreatment building • Two 300,000-gallon backwash supply and filtered water equalization tanks • Two 0.25-acre, 6-foot-deep lined backwash settling basins with decanting system	The pretreatment system would treat source water to remove suspended and dissolved contaminants that could damage the RO system, and thus increase the efficiency and lifespan of the RO system.
Reverse Osmosis (RO) System	• Dual-pass RO system consisting of four active modules and one standby module, with each module producing 1.6 mgd of "permeate" (the purified water produced through the RO membrane) • UV disinfection system (if required) • The RO and post-treatment systems and chemical storage tanks would be housed within a 30,000-square-foot process and electrical building	The RO system would remove salts and other minerals from pretreated source water. If required by the California Department of Public Health, the UV Disinfection system would provide additional primary disinfection
Post-treatment System	• Chemical feed lines and injection stations (for carbon dioxide, lime, sodium hydroxide, phosphate-based corrosion inhibitor, and sodium hypochlorite)	The post-treatment system would adjust the hardness, pH, and alkalinity of the desalinated product water and disinfect the water in accordance with drinking water requirements.
Chemical Storage	• Chemical storage tanks with secondary containment • Sumps and sump pumps	This facility would provide for chemical storage. The capacity of the chemical storage tanks would range from less than 5,000 gallons to 20,000 gallons, depending on the treatment chemical.
Administrative Building	• 4,000- to 6,000-square-foot building	This building would house restrooms, locker rooms, break rooms, conference rooms, electrical controls, laboratory facilities, equipment storage and maintenance, and electrical service equipment.

TABLE 6-2 (Continued)
CALAM FACILITIES OF THE MPWSP VARIANT

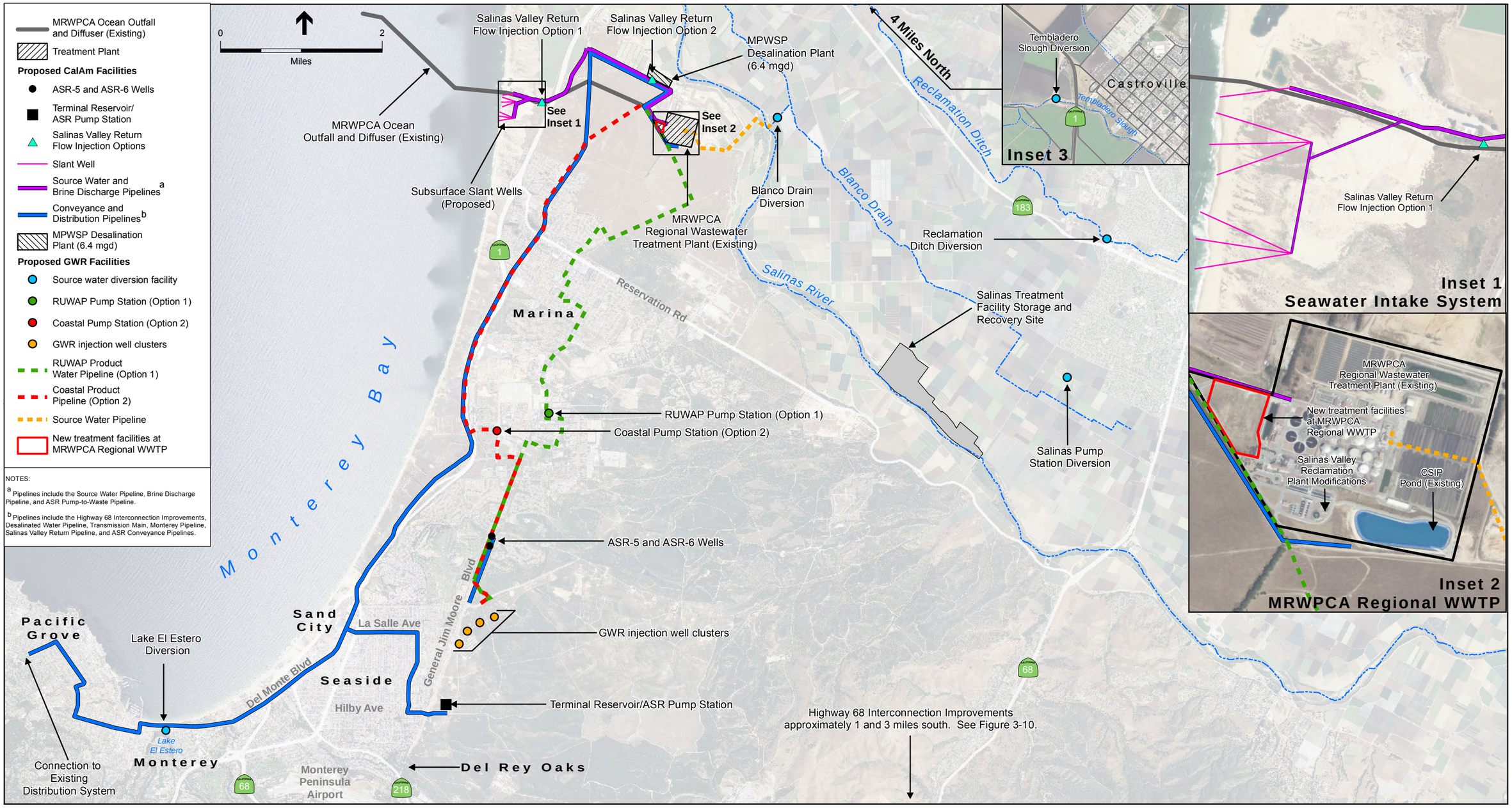
Facility	Description	Purpose
Brine Storage and Disposal Facilities		
Brine Storage and Disposal	• 3-million-gallon brine storage basin • 1-mile-long, 30-inch-diameter Brine Discharge Pipeline	Approximately 8.99 mgd of brine (*vs. 13.98 mgd of brine under the proposed project*) would be generated by the RO process. Brine concentrate produced during the RO process would be conveyed to the brine storage basin located at the MPWSP Desalination Plant. The Brine Discharge Pipeline would convey decanted effluent from the pretreatment filtration backwash cycle and RO concentrate produced by the RO system to an existing ocean outfall.
MRWPCA Ocean Outfall Pipeline and Diffuser (existing)	• 2.3-mile long, 60-inch-diameter pipe (onshore portion) • 2.1-mile-long, 60-inch-diameter pipe • 1,100-foot-long diffuser with 172 ports (120 ports are open and 52 are closed), each 2 inches in diameter and spaced 8 feet apart	Brine and pretreatment backwash effluent from the desalination plant would be conveyed to the existing ocean outfall pipeline. The outfall would terminate at a diffuser located offshore that would discharge the concentrate to Monterey Bay.
Desalinated Water Conveyance and Storage Facilities		
Clearwells (Water Storage Tanks) and Clearwell Pump Station	• 6.4 mgd capacity, 120-horsepower pump • Two 85-foot-diameter, 750,000-gallon aboveground storage tanks (providing a total combined storage volume of 1.5 million gallons)	The clearwell pump station would pump water from the post-treatment process to the clearwells. The clearwells would serve as holding tanks from which water would be pumped to either the CalAm water system or the injection wells for the Salinas Valley return flows.
Desalinated Water Pump Station	• 6.4 mgd capacity, 800-horsepower pump to pump water through the Desalinated Water Pipeline to the CalAm water system • 1.4 mgd, 20-horsepower pump to pump water through the Salinas Valley Return Pipeline to the Salinas Valley Return Flows Injection Wells	This facility would pump desalinated product water from the MPWSP Desalination Plant to the CalAm water system and the injection wells for the Salinas Valley return flows.
Salinas Valley Return Flows Injection Wells (Located at either CEMEX Sand Mining Facility or MPWSP Desalination Plant site)	• Two 350-foot depth injection wells • 10- to 20-horsepower pump at each well • Security fencing around 200-square-foot area at each well site • 800-square-foot backflush settling basin (if located at MPWSP Desalination Plant site) • Backflush storage tanks (if located at CEMEX site) • 8-inch-diameter pipeline between injection wells and backflush system	The wells would inject from 1.1 mgd to 1.6 mgd to replenish the aquifers from which seawater is extracted at the intakes. During operations, Salinas Valley Return Water would be injected back into the Dune Sand Aquifer and 180-Foot Equivalent Aquifer between May and October of each year.
Salinas Valley Return Pipeline (only needed if Salinas Valley return flows are injected into injection wells at CEMEX Sand Mining Facility)	• 2.2-mile-long, 12-inch-diameter pipeline	This pipeline would convey desalinated product water from the MPWSP Desalination Plant to the Salinas Valley Return Flows Injection Wells at the CEMEX Sand Mining Facility.
Desalinated Water Pipeline	• 3.25-mile-long, 36-inch-diameter pipeline	This pipeline would convey desalinated product water from the clearwells at the MPWSP Desalination Plant to the Transmission Main at Reservation Road.

TABLE 6-2 (Continued)
CALAM FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
Transmission Main	• 6-mile-long, 36-inch-diameter force main	This pipeline would convey desalinated product water between the Desalinated Water Pipeline at Reservation Road to the Monterey Pipeline and Transfer Pipeline at the intersection of Del Monte Boulevard/La Salle Avenue.
Transfer Pipeline	• 2.4-mile-long, 36-inch-diameter pipeline (could be operated in both directions)	This pipeline would convey desalinated product water or water that is extracted from the ASR injection/extraction wells (including GWR product water) to the Terminal Reservoir for storage; water extracted from ASR directly to the CalAm distribution system; and water stored in Terminal Reservoir to the CalAm distribution system.
Monterey Pipeline	• 5.4-mile-long, 36-inch-diameter pipeline (could be operated in both directions)	This pipeline would convey CalAm water supplies (including desalinated product water, ASR product water, and GWR product water) between Seaside and the Monterey Peninsula.
Interconnection Improvements for State Route 68 Satellite Systems a) Ryan Ranch–Bishop Interconnection b) Main System–Hidden Hills Interconnection	a) 1.1-mile-long, 8-inch-diameter pipeline b) 1,200-foot-long, 6-inch-diameter pipeline	These interconnection pipelines and associated improvements would allow MPWSP supplies to be conveyed to the Ryan Ranch, Bishop, and Hidden Hills water systems.
Terminal Reservoir	• Two 3-million-gallon storage tanks	These tanks would store desalinated product water and ASR product water.
Valley Greens Pump Station	• 3 mgd, 100-horsepower pump station	This 600-square-foot facility would provide the additional water pressure needed to pump water up the Carmel Valley or through the existing Segunda Pipeline into Segunda Reservoir.
ASR System		
Six ASR Injection/Extraction Wells (four existing wells and two proposed): a) ASR-1, ASR-2, ASR-3, and ASR-4 Wells (existing) b) ASR-5 and ASR-6 Wells (proposed)	• Two proposed 1,000-foot-deep injection/extraction wells (Wells ASR-5 and ASR-6) with a combined injection capacity of 2.2 mgd and extraction capacity of 4.3 mgd • Four existing injection/extraction wells (Phase I and II wells)	The existing and proposed ASR injection/extraction wells would be used to inject Carmel River supplies and desalinated product water into the Seaside Groundwater Basin for storage. During periods of peak demand, the wells would be used to extract water that is stored in the Seaside Groundwater Basin (including Carmel River supplies, desalinated product water, and GWR product water) for subsequent delivery to customers.
ASR Pump Station	• 8.4 mgd, 300-horsepower pump station	This pump station would be used to pump water to and from the ASR injection/extraction wells through existing and proposed pipelines.

TABLE 6-2 (Continued)
CALAM FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
ASR Conveyance Pipelines	• Two parallel 0.9-mile-long, 30-inch-diameter pipelines	One of these pipelines would be used to convey water from existing conveyance facilities at the corner of Coe Avenue and General Jim Moore Boulevard to the new ASR-5 and ASR-6 Wells for injection; the other pipeline would be used to convey extracted ASR supplies to the same existing facilities.
ASR Pump-to-Waste System	• 0.9-mile-long, 16-inch-diameter pipeline • 4,800-square-foot, 12-foot-deep settling basin	The ASR Pump-to-Waste System would flush sediment and other suspended solids out of the two proposed ASR injection/extraction wells and convey it to a new settling basin (the proposed ASR Settling Basin) at the same site, or to the existing settling basin for the ASR-1 and ASR-2 Wells located approximately 2 miles to the south. The ASR Pump-to-Waste Pipeline would connect to existing pump-to-waste pipelines located at the intersection of General Jim Moore Boulevard and Coe Avenue.



SOURCE: ESA, 2014

205335.01 Monterey Peninsula Water Supply Project

Figure 6-1

MPWSP Variant – Overview of Proposed Facilities

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6.2.2 GWR Project

6.2.2.1 Overview of GWR Project

Under the MPWSP Variant, the GWR facilities would collect a variety of source waters from several locations in Monterey County and convey that water to the MRWPCA Regional Wastewater Treatment Plant for treatment and distribution. The GWR facilities would provide 3,500 afy of purified water for injection into the Seaside Groundwater Basin and an average of 4,750 afy of recycled water for agricultural irrigation in northern Monterey County.

The MRWPCA would purify 3,500 afy of water at a new Advanced Water Treatment Plant located at the existing wastewater treatment plant site, and convey and then inject the purified water into the Seaside Groundwater Basin. In accordance with a water purchase agreement between CalAm and GWR Project proponents, CalAm would later extract the 3,500 afy from the Seaside Groundwater Basin and deliver it to its customers in the Monterey District. CalAm would utilize the existing and proposed ASR Wells, as well as its existing production wells, to extract the purified water provided by MRWPCA.

In order to secure the necessary rights and agreements to use the source waters needed to produce the purified water for CalAm, MRWPCA would increase the amount of recycled water that is produced for agricultural irrigation. With implementation of the MPWSP Variant, an additional 4,750 afy of recycled water would be produced at the existing water recycling facility (called the Salinas Valley Reclamation Plant) at the wastewater treatment plant site, increasing the amount of tertiary treated recycled water produced during normal and wet years from the existing 8,250 afy to 13,000 afy.

In addition, the GWR project includes a drought reserve system that would allow for an increase in the amount of recycled water provided to CSIP from 4,750 afy during normal and wet years to 5,290 afy during certain dry years. The MRWPCA would accomplish this by injecting an extra 200 afy of purified water into the Seaside Groundwater Basin during normal and wet years for up to five consecutive years, for a maximum “banked” drought reserve of 1,000 afy. During drought periods, MRWPCA would reduce the amount of purified water that is injected into the Seaside Groundwater Basin by up to the amount that has been banked in the drought reserve. CalAm would extract the banked water such that its extractions and deliveries would not fall below 3,500 afy. The source waters that are not sent to the Advanced Treatment Facility during drought years would be sent to the Salinas Valley Reclamation Plant to increase tertiary treated supplies for the CSIP agricultural users.

6.2.2.2 GWR Facilities

The GWR facilities would be located in northern Monterey County within unincorporated areas of the Salinas Valley and the cities of Salinas, Marina, and Seaside. The GWR portion of the project variant would require modifications to existing facilities and construction of new physical facilities; these are summarized below and described in more detail in **Table 6-3**. A complete description of the GWR facilities is provided in **Appendix H**.

- Source water diversion and conveyance facilities, including pipelines and pump stations to convey source waters to the MRWPCA's Regional Wastewater Treatment Plant

- New treatment facilities at the MRWPCA Regional Wastewater Treatment Plant, including new pre-treatment facilities, an Advanced Water Treatment Plant, stabilization facilities, a product water pump station, and concentrate disposal facilities

- New injection well facilities, including deep and shallow (vadose zone) injection wells, backflush facilities, pipelines, power distribution facilities, and an electrical/motor control building

- Product water conveyance facilities, including new pipelines, a booster pump station, and appurtenant facilities to convey purified water to the MRWPCA's new injection wells in the Seaside Groundwater Basin

6.2.2.3 GWR Source Waters

The GWR Project would recycle and reuse water from the following sources:

Municipal Wastewater Collection and Treatment System.

MRWPCA collects municipal wastewater from communities in northern Monterey County and treats it at its Regional Wastewater Treatment Plant. Currently, a portion of that wastewater is recycled at the Salinas Valley Reclamation Plant and delivered to the CSIP for crop irrigation. The wastewater that is not recycled for crop irrigation is discharged to the ocean through MRWPCA's existing ocean outfall. With implementation of the MPWSP Variant, improvements would be made to the wastewater collection and treatment system to allow for more of the municipal wastewater to be recycled than is possible today. With these improvements, less municipal wastewater would be discharged through the MRWPCA's existing ocean outfall.

TABLE 6-3
GWR FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
New Source Water Diversion and Storage Facilities		
Diversion facilities for Unused Treated Wastewater from MRWPCA Regional Wastewater Treatment Plant	New diversion structure on the existing secondary effluent pipeline to capture unused secondary-treated effluent.	To capture unused secondary-treated effluent that currently is discharged through the MRWPCA ocean outfall and divert it to the Advanced Water Treatment facility to be treated for injection into the Seaside Groundwater Basin.
Salinas Pump Station Diversion (for Agricultural Wash Water and Salinas Urban Runoff to Salinas River)	Salinas Pump Station Diversion Structure and Pipelines: - Underground junction structure constructed over the existing 48-inch sanitary sewer line, to mix sanitary, agricultural wash waster and stormwater flows. This structure would also receive agricultural wash water and stormwater return flow from the Salinas Treatment Facility's Pond 3. - Modifications to the existing agricultural wash water underground diversion structure and the addition of 42-inch diameter 150-foot long underground pipeline and metering structure. - Underground stormwater diversion structure and underground pipeline between this structure and the existing 33-inch agricultural wash water line. - Underground stormwater diversion structure and underground pipeline to divert to divert stormwater flow to the Salinas Pump Station through an existing 30-inch abandoned pipeline. - Meters, valves, electrical and control systems, and fencing around the diversion structures	Water would be diverted to the existing Salinas Pump Station using a new diversion structure and new short pipelines connecting the existing agricultural wash water pipeline to the existing municipal wastewater system. The agricultural wash water would then mix with the municipal wastewater and be conveyed through the existing 36-inch diameter Salinas interceptor to the Regional Wastewater Treatment Plant.
	Salinas Treatment Facility Storage and Recovery Improvements: - Return pump station including valve, mater vault, and two variable frequency drive pumps - 18-inch return pipeline connecting the pump station to the Salinas Diversion site - Pipeline connecting Pond 3 to the new return pump station - Pump station near the lower end of Pond 3 - Pipeline to convey treated wastewater from the aeration basin to the pipeline that returns waster from Pond 3 or directly to the return pump station.	City of Salinas urban runoff and stormwater would be diverted to the Regional Wastewater Treatment Plant rather than discharged to the Salinas River.
Reclamation Ditch Diversion at Davis Road	• Diversion structure consisting of a intake structure connecting to a wet well (manhole) via a gravity pipeline • Two submersible pumps installed within the wet well, controlled by variable frequency drives • Valve and meter vaults • Weatherproof cabinet enclosing electrical controls and drives • Two short force mains approximately 50 feet long, discharging to an existing manhole on the City of Salinas 54-inch sewer main • Modification to existing sanitary manhole and a short pipeline from the existing manhole to the pump station	To divert and convey source waters from the Reclamation Ditch watershed to the Regional Wastewater Treatment Plant.

TABLE 6-3 (Continued)
GWR FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
Tembladero Slough Diversion at Castroville	• Intake structure connecting to a new lift station wet well (manhole) via a gravity pipeline • Modifications to the existing Castroville Pump Station • Two submersible pumps installed within the wet well, controlled by variable frequency drives • Weatherproof cabinet enclosing electrical controls and drives • Short force main approximately 100 feet long discharging to the existing wet well at the MRWPCA Castroville Pump Station • Underground valve vault, isolation valves and flow meter	To divert and convey source waters from the Reclamation Ditch watershed to the Regional Wastewater Treatment Plant.
Blanco Drain Diversion Pump Station and Pipeline	• Intake structure connecting to a wet well (manhole) via a gravity pipeline • Two submersible pumps installed within the wet well, controlled by variable frequency drives • Weatherproof cabinet enclosing electrical controls and drives • The pump station would discharge through a18-inch force main and a 30-inch gravity main, running from the pump station to the headworks for the Regional Wastewater Treatment Plant • Underground valve vault, isolation valves and flow meter • Surge tank	To divert and convey source water from the Blanco Drain watershed to the Regional Wastewater Treatment Plant.
El Estero Lake Diversion	El Estero Lake Source Water Diversion System Option 1: - Pumping system consisting of a new column pump installed in the wet well of the existing lake management pump station - Upgrades to the existing electric panel - 30-foot-long, 12-inch diameter discharge pipeline El Estero Lake Source Water Diversion System Option 2: - Gravity system consisting headwall and screen intake pipe - 40-foot-long, 12-inch diameter discharge pipeline - Isolation valve (controlled and motorized)	The El Estero Lake Source Water Diversion System would allow for the diversion of source water from El Estero Lake and the conveyance of that water to the Regional Wastewater Treatment Plant via existing pipelines.
New Treatment Facilities and Modifications at the MRWPCA Regional Wastewater Treatment Plant		
Inlet Raw Water Diversion Structure and Pump Station	• Diversion structure installed on an existing secondary effluent pipeline at the Regional Treatment Plan • Influent pump station (subgrade wet well and pumps)	The diversion structure would divert and convey secondary effluent source water to the proposed Advanced Water Treatment Facility. The influent pump station would accept and equalize the Regional Wastewater Treatment Plant secondary effluent flow.

TABLE 6-3 (Continued)
GWR FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
Raw Water Pretreatment	Chloramination - Sodium hypochlorite storage - Chemical feed pumps - Inline injection and mixing system Ozonation - Liquid oxygen storage and vaporizers or onsite oxygen generator - Nitrogen boost system - Ozone generator and power supply unit - Cooling water system - Side-stream injection system - Ozone contactor - Ozone destruct units Biologically active filtration (if required) - Gravity-feed filter basins with approximately 12 feet of granular media, and an underdrain/media support system - Ancillary systems Alkalinity addition system for pH control, backwash water basin, backwash pumps, air compressor and a supply system for an air scour system, air compressor and a supply system for process air, and a wash water basin to facilitate filter backwashing	Before membrane filtration, the secondary effluent would be pretreated using these pre-screening methods in up to three separate subsystems. Chloramines would be used to reduce biofouling of the membrane systems. Ozone treatment would provide a chemical/pathogen destruction barrier and reduce the membrane fouling. Biologically active filtration (if required) would be used downstream of ozone treatment to reduce the concentration of residual organic matter present in the ozone effluent and to reduce the solids loading on the membrane filtration process.
Microfiltration/Ultrafiltration Membrane Treatment System	Membrane filtration system - Hollow fiber membrane modules - Valve manifolds to direct the flow of feed, filtrate, cleaning solutions, backwash supply, backwash waste, and compressed air to the corresponding module connecting piping. - Feed pumps	The membrane filtration system would remove suspended and colloidal solids, including bacteria and protozoa through hollow fiber membrane modules.
Reverse Osmosis Membrane Treatment System	Individual process trains housing the process membranes in pressure vessels along with connecting piping and valve manifolds for feed, permeate, concentrate, cleaning and flush supplies.	The reverse osmosis process that employs semi-permeable membranes is proposed to remove dissolved salts, inorganic and organic constituents, and pathogens from the membrane filtration treated water.
Advanced Oxidation Process System	Chemical feed to add hydrogen peroxide and reactors housing arrays of ultraviolet lamps along with ballasts to power the ultraviolet system.	The advanced oxidation system would provide a final polishing step for pathogen disinfection and would provide an additional chemical destruction barrier for the reverse osmosis permeate.
Post-Treatment System	Post-treatment stabilization system	Post-treatment stabilization of the product water would prevent corrosion of pipe materials in the product water conveyance system. Stabilization would also be used to reduce the potential for product water to leach minerals and other chemicals from the soils within the Seaside Groundwater Basin upon injection.

TABLE 6-3 (Continued)
GWR FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
Advanced Water Treatment Pump Station	• Pump station constructed on a new concrete pad • Split-faced block building approximately 30 feet by 70 feet and up to 25 feet tall. - Pump motors - Discharge piping - Electrical power equipment - HVAC - Instrumentation and control equipment • Electrical supply transformer • Pressurized surge tank • Standby pumping units for pump stations	The Advanced Water Treatment Pump Station would pump the product water into the product water conveyance pipeline.
Brine Mixing Facility	• Two cast-in-place concrete vaults on the existing outfall • A cast-in-place concrete mixing structure with a 60-inch static mixer in a fiberglass mixing pipe and air release valve • Pipelines and valves • Flow meters • Sampling port • Two sluice gates • Air release valve • Lab and control building	The Brine Mixing Facility would thoroughly mixed osmosis reject or concentrate water (or brine) to prevent stratification of MRWPCA's ocean outfall that may lead to complicated corrosion potential to the outfall pipe and to optimize the mixing with sea water in the bay.
Power Supply	• Utility service • Transformers • Switchgear	The Advanced Water Treatment Facility power would be supplied through a new PG&E utility connection.
Salinas Valley Reclamation Plant Modifications	• Sluice gates • A new pipeline between the existing inlet and outlet structures with the storage pond • Chlorination basin upgrades	Modifications would enable the plant to produce more continuous flows in the winter when demand by the CSIP users decreases to as low as 0.5 mgd.
GWR Product Water Conveyance Facilities		
RUWAP Alignment (Option 1) or Coastal Alignment (Option 2)	• 24-inch-diameter pipeline • In-line isolation valves on the pipeline approximately every 2,000 feet	Conveys the advanced treated product water from the proposed Advanced Water Treatment Facility to the Seaside Groundwater Basin for injection. The Product Water Conveyance system would be designed to convey a total of up to 3,700 afy of product water to the proposed new injection wells.

TABLE 6-3 (Continued)
GWR FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
Booster Pump Station	• 2,100-square-foot, up to 25-foot-tall booster pump station building • Split-faced block building - Pump motors - Discharge piping - Electrical power equipment - HVAC - Instrumentation and control equipment • Electrical supply transformer • Pressurized surge tank • Standby pumping units for pump stations	The Booster Pump Station would provide adequate pressure to convey the Advanced Water Treatment product water to the proposed new GWR injection Well Facilities for injection.
GWR Injection Well Facilities		
Injection Well Clusters	• Four deep injection wells (DIW-1, DIW-2, DIW-3, and DIW-4) with a combined injection capacity of 4.6 mgd, and four vadose zone well (VZW-1, VZW-2, VZW-3, and VZW-4) with a combined injection capacity of 2.88 mgd. Each well cluster would include one of each type of well and the following: - Backflushing pump and motors - Above and below grade injection and backflush wash pipelines - Values and flow meters - Small building (approximately 16 feet by 24 feet) for electrical and control equipment • Wells would be constructed in close proximity to each other to share electrical, motor control, pumps, and site building pad infrastructure.	The proposed injection wells would be used to inject product water into the Seaside Groundwater Basin.
Backflush Facilities	• 2,000 gallons per minute (gpm) backflush well pump, flow meter, electrical cabinet and 400 hp motor attached to the injection well • Pipeline to convey the backflushed water to the percolation basin • 240,000-gallon, 50-foot-wide, 180-foot-long, and 3-foot-deep percolation basin	The backflush facilities would flush or cleans out organic material or bacterial growth, which would otherwise result in the lost pumping capacity of the injection wells. Backflushed water would be conveyed to the percolation basin for storage.
Monitoring Wells	• Six Paso Robles Aquifer monitoring wells • Six Santa Margarita Aquifer monitoring wells	Monitoring wells would be used to monitor project performance and compliance with State Board Division of Drinking Water regulations. The monitoring wells would also be used to satisfy regulatory requirements for monitoring of subsurface travel time, tracer testing, and other requirements for a groundwater replenishment project.

TABLE 6-3 (Continued)
GWR FACILITIES OF THE MPWSP VARIANT

Facility	Description	Purpose
Electrical Power Supply and Instrumentation for GWR Injection Wells	• Electrical equipment • Electrical control building (for backflush pumps) housing SCADA, electrical controls, pump drive, and adjacent transformer • 400-square-foot electrical control building housing the motor control center • External electrical control cabinets • Wiring • Connections of electrical power and instrumentation and control facilities	Injection wells would require a permanent power supply to the site.

SOURCE: MRWPCA, 2015.

Salinas Agricultural Wash Water System.

Water from Salinas agricultural industries, 80 to 90 percent of which is water used for washing produce, is currently conveyed to ponds at the Salinas Industrial Wastewater Treatment Facility for treatment (aeration) and disposal by evaporation and percolation. The MPWSP Variant would include improvements that would enable the agricultural wash water to be conveyed to the Regional Wastewater Treatment Plant to be recycled. The project variant would make improvements to the Salinas Industrial Wastewater Treatment Facility to allow for the storage of agricultural wash water and stormwater from the southern portion of the city of Salinas in the winter and recovery of that water for recycling in the spring, summer, and fall.

Salinas Stormwater Collection System.

Currently, stormwater from urban areas in southern portions of the city of Salinas is discharged to the Salinas River. The MPWSP Variant would include improvements that would enable Salinas stormwater to be conveyed to the Regional Wastewater Treatment Plant to be recycled.

Reclamation Ditch / Tembladero Slough.

The Reclamation Ditch is a network of excavated earthen channels used to drain natural, urban, and agricultural runoff and agricultural tile drainage. With implementation of the project variant, two new diversion facilities would enable water from the Reclamation Ditch watershed to be diverted and conveyed to the Regional Wastewater Treatment Plant to be recycled.

Blanco Drain.

Improvements that would be implemented under the MPWSP Variant would enable water in the Blanco Drain, which collects water from approximately 6,400 acres of agricultural lands near Salinas, to be diverted and conveyed to the Regional Wastewater Treatment Plant to be recycled.

El Estero Lake.

Currently, the city of Monterey actively manages the water level in El Estero Lake to provide storage capacity for large storm events. Prior to a storm event, the lake level is lowered by pumping or gravity flow for discharge to Del Monte Beach. Improvements that would be implemented under the MPWSP Variant would enable water in El Estero Lake that would otherwise be discharged to the beach to instead be conveyed to the Regional Wastewater Treatment Plant to be recycled.

6.2.3 Construction of the MPWSP Variant

6.2.3.1 Construction Assumptions

Construction of the CalAm facilities of the MPWSP Variant is described in Section 3.5 of Chapter 3, Project Description, and summarized in **Table 3-4**. Construction assumptions for the GWR facilities of the MPWSP Variant are summarized in **Table 6-4**, below.

TABLE 6-4
CONSTRUCTION ASSUMPTIONS FOR GWR FACILITIES

GWR Component(s)	Total Excess Spoils and Construction Debris (cubic yards)	Construction Equipment	Construction Work Hours
Source Water Diversion and Storage Sites			
Salinas Pump Station Diversion 1) wet well/diversion structures (up to 4) 2) pipelines totaling 100 linear feet 3) electrical/SCADA box	100	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers	Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday; some workers may have to be on-site at night to ensure continual operations of the wastewater conveyance facilities.
Salinas Treatment Facility Storage and Recovery Recovery Pump Station, flow meter and valves, electrical/SCADA cabinet, approximately 7,700 linear feet of pipeline from the site to Salinas Pump Station site, inlet pump station at Pond 3, approximately 6,000 linear feet of pipeline from Pond 3 to recovery pump station, approximately 50 linear feet of gravity pipeline from aeration basin to connect with pipeline from Pond 3 to recovery pump station	1,200	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, skip loader, pavers and rollers, directional drilling equipment	Two daytime shifts: Shift from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday
Reclamation Ditch Diversion 1) wet well/diversion structure 2) flow meter, valves and approximately 60 linear feet of pipelines 3) electrical/SCADA cabinet 4) concrete lining of channel banks and invert at intake	20	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers	One daytime shift from 7 AM -6 PM Monday through Saturday
Tembladero Slough Diversion 1) wet well/diversion structure 2) flow meter, valves and approximately 100 linear feet of pipelines 3) electrical/SCADA cabinet 4) concrete lining of channel banks and invert at intake	20	Same as above, plus crane and vibratory driver for cofferdam to work within the tidal portion of the Tembladero Slough	One daytime shift from 7 AM to 6 PM Monday through Saturday
Blanco Drain Diversion 1) wet well/diversion structure 2) flow meter, valves and on-site surge tank 3) electrical/SCADA cabinet 4) concrete lining of channel banks and invert at intake 5) approximately 8,500 linear feet of force main and gravity pipeline from the site to the Regional Treatment Plant	1,500	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers, directional drilling equipment	One daytime shift: from 7 AM to 6 PM Monday through Saturday).
Lake El Estero Diversion pipeline, valves, flow meters, and new pumps in existing pump station at the northwest corner of lake and,	10	Flatbed trucks, backhoes, excavators, pipe cutting and welding equipment, haul trucks for spoils transport, trucks for materials delivery, compaction equipment, baker tank(s), pickup trucks, arc welding machine, generators, air compressors, 80-ton crane, skip loader, pavers and rollers	Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday.

TABLE 6-4 (Continued)
CONSTRUCTION ASSUMPTIONS FOR GWR FACILITIES

GWR Component(s)	Total Excess Spoils and Construction Debris (cubic yards)	Construction Equipment	Construction Work Hours
Treatment Facilities at the Regional Treatment Plant			
Advanced Water Treatment Facility Inlet source water diversion structure and influent pump station to bring secondary effluent Advanced Water Treatment Facility, prescreening, ozonation, upflow biologically active filtration (optional), chemical addition, membrane filtration treatment, booster pumping of the membrane filtration filtrate (potentially with intermediate storage), cartridge filtration (optional), chemical addition, reverse osmosis membrane treatment, advanced oxidation using ultraviolet light and hydrogen peroxide (advanced oxidation), decarbonation (optional), product-water stabilization with calcium, alkalinity and pH adjustment, product water pump station (Advanced Water Treatment Pump Station), brine mixing facilities.	510	Excavators, backhoes, air compressors, loaders, boom trucks, cranes, pavers and rollers, concrete transport trucks, concrete pump trucks, flatbed trucks, generators, pickup trucks, trucks for materials delivery	Up to four (4) shifts with construction occurring 24-hours per day, 7 days per week
Salinas Valley Reclamation Plant Modifications New sluice gates, chlorination basin upgrades, a new platform in the 80AF pond and a pipeline connecting the existing inlet and outlet structures in the 80 AF pond.	150	Flatbed trucks; backhoes; pipe cutting and welding equipment; trucks for materials delivery; compaction equipment; pickup trucks; arc welding machine; generators; air compressors; skip loader, specialty equipment for cutting and seaming the pond liner	One daytime shift from 7 AM to 6 PM Monday through Saturday). Pipeline installation would occur during the winter months when the 80 AF pond is dewatered.
GWR Product Water Conveyance Options			
RUWAP Pipeline Alignment (Option 1)		Flatbed trucks ; backhoes; excavators; pipe cutting and welding equipment; haul trucks for spoils transport; trucks for materials delivery; compaction equipment; baker tank(s); pickup trucks; arc welding machine; generators; air compressors; 80-ton crane; skip loader; pavers and rollers	**RUWAP Pipeline Alignment**
Regional Treatment Plant to Booster Pump Station	5,090		Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday
Booster Pump Station to Injection Well Facilities	3,580		
Coastal Pipeline Alignment (Option 2)			**Coastal Pipeline Alignment**
Regional Treatment Plant to Booster Pump Station	5,290		Two daytime shifts: Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday
Booster Pump Station to Injection Well Facilities	2,890		
Booster Pump Station (applies to either Coastal or RUWAP alignment option location)	180	Excavator, backhoe, air compressor, boom truck or small crane, generator, concrete pump truck, paving equipment, flatbed truck, pavers and rollers, welding equipment, baker tank	Two daytime shifts, Shift 1 from 7 AM to 3 PM and Shift 2 from 12 PM to 8 PM Monday through Saturday

TABLE 6-4 (Continued)
CONSTRUCTION ASSUMPTIONS FOR GWR FACILITIES

GWR Component(s)	Total Excess Spoils and Construction Debris (cubic yards)	Construction Equipment	Construction Work Hours
Injection Well Facilities			
1) Deep Injection Wells (4) 2) Vadose Zone Wells (4) 3) Monitoring Wells (12)	600 320 320	Loader backhoe, bucket auger drill rig, reverse rotary rig, forklift (reverse rotary support), truck-mounted pump rig, generator, concrete delivery and pumper trucks	Up to four shifts because construction would occur for up to 24-hour/day, 7 days/week
Backflush Water Pipeline and Basin	4,000	Tractor/loader/backhoe, excavators, dumper trucks, rubber tired dozers	
Roadways, pipelines, and electrical conduit	3,500		
Total Excess Construction Spoils for GWR Facilities	21,080		**Overall Construction Schedule: July 1, 2016 through Dec. 31, 2017, plus 3 months of testing/start-up**

SOURCE: MRWPCA, 2015.

6.2.3.2 Construction Schedule for MPWSP Variant

As under the proposed project, the CalAm facilities of the MPWSP Variant would be constructed over approximately 30 months, from October 2016 through March 2019. Construction of the GWR facilities is anticipated to require approximately 18 months and commence in 2016.

6.2.4 MPWSP Variant Operations

Typical monthly operations for the MPWSP Variant are presented in **Table 6-5**, below.

6.2.4.1 MPWSP Variant – Operation of CalAm Facilities

Unless otherwise indicated below, the CalAm facilities of the MPWSP Variant would be operated in the same manner as for the proposed project (refer to Section 3.6 in Chapter 3, Project Description, for information regarding operation of all CalAm facilities not discussed below).

Subsurface Slant Wells

Up to five subsurface slant wells (vs. eight under the proposed project) would be operated at any given time, producing a combined total of up to 15.5 mgd (vs. 24.1 mgd under the proposed project) of source water for the MPWSP Desalination Plant. Two wells would be maintained on standby.

6.4 mgd MPWSP Desalination Plant

The MPWSP Desalination Plant would utilize the 15.5 mgd of filtered source water to produce 6.1 mgd of desalinated product water and approximately 8.99 mgd of RO concentrate and decanted waste effluent. The 8.99 mgd (versus 13.98 mgd under the proposed project) of brine RO concentrate and decanted waste effluent would be discharged out of the existing MRWPCA ocean outfall and diffuser. As described in more detail in Section 6.3, below, the brine would be discharged alone, or blended with secondary treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant, and waste effluent from the Salinas Valley Reclamation Facility and the new Advanced Water Treatment Facility prior to discharge. When compared to the proposed project, the availability of secondary treated wastewater effluent for blending with the desalination brine would be reduced under the MPWSP Variant, and additional waste effluent would be generated by the Salinas Valley Reclamation Facility due to the increase in the amount of recycled water that would be produced.

Salinas Valley Return Flow Injection Wells

As described in Section 6.2, above, under the MPWSP Variant, the Salinas Valley return flows would be injected into the Salinas Valley Groundwater Basin via two new injection wells located at either the CEMEX Sand Mining Facility or the MPWSP Desalination Plant. Return flows would be injected into the Dune Sand Aquifer and the 180-foot Equivalent Aquifer between May and October of each year. An average of 400 gallons per minute (gpm) would be injected via the two wells, though the wells would have a total capacity of 1,200 gpm per well that could be used if conditions were to require this rate of injection. Actual injection rates may vary seasonably and with changes in climactic conditions.

Facility operators would regularly backflush accumulated sediment and turbid water from the injection wells. The duration of backflushing would range from a few minutes to 4 hours. An 8-inch-diameter injection pump-to-waste pipeline extending between the new wells would be required at either potential well location. Backflushing effluent containing elevated levels of sediment and turbidity would be conveyed through the proposed injection pump-to-waste pipeline to either an 800-square-foot backflush settling basin at the desalination plant site, if the wells are located there, or to temporary storage using baker tanks at the CEMEX site, if located there. If the desalination plant site is used, water discharged to the backflush settling basin would infiltrate into the ground. The sediment in the settling basin would periodically need to be removed and disposed of at an appropriate disposal site. If the CEMEX site is used, sediment-laden water from the initial backflush would be collected and appropriately disposed of using a vacuum truck at the CEMEX site to allow settling to occur before water is discharge into the MRWPCA outfall.

Seaside Groundwater Basin ASR System

Under the MPWSP Variant, the Seaside Groundwater Basin ASR system would be operated in a similar manner as under the proposed project except that, in addition to CalAm's existing groundwater production wells, CalAm would also use the existing and proposed ASR injection/extraction wells to extract the 3,500 afy of water that is injected into the Seaside Groundwater Basin by the MRWPCA. Otherwise, the operation of the ASR system would be as described in Sections 3.2.2.3 and 3.4.4 in Chapter 3, Project Description.

6.2.4.2 MPWSP Variant – Operation of GWR Facilities

The GWR facilities would operate with annual and seasonal variations based on the amount of available runoff, the water year type, the varying irrigation demand for recycled water, and the amount of water stored in the Seaside Groundwater Basin as a drought reserve each year.

Advanced Water Treatment Facility

The new Advanced Water Treatment Facility would produce from 1.3 mgd (900 gpm) to 4.0 mgd (2,700 gpm) of purified water. During a wet or normal year, the Advanced Water Treatment Facility (AWTF) would operate at an average rate of 3.5 mgd during the summer months (April to September). If the drought reserve is full (1,000 af additional have been "deposited" in the Seaside Groundwater Basin), the winter production rate would remain 3.5 mgd. If the drought reserve is not full, the winter production rate would be increased to 4.0 mgd to allow the production of an additional 200 afy. During certain dry years, the AWTF production rate would be decreased in the summer months, to rates as low as 1.3 mgd, depending upon the amount of water "deposited" in the drought reserve and the demands of the CSIP irrigators. The AWTF would produce enough advanced treated water in each year so that the amount of injected water plus the amount of "withdrawn" drought reserve would equal the 3,500 afy extracted by CalAm. Water supplies not used for the AWTF would be used by the Salinas Valley Reclamation Plant to produce additional recycled water for the CSIP.

Salinas Valley Reclamation Facility

Under the MPWSP Variant, the Salinas Valley Reclamation Facility would be operated and maintained similar to the way it is currently operated except that recycled water production during normal and wet years would increase from the existing 8,250 afy to 13,000 afy.

GWR Injection Wells

The GWR Injection Wells would be used year-round to inject between 3,500 to 3,700 afy of purified water into the Seaside Groundwater Basin. Maintenance of the GWR Injection Wells would be similar to the maintenance required for the ASR-5 and ASR-6 Wells and would require routine backflushing to remove accumulated sediment from the well screens.

Monitoring wells would be used to monitor performance and compliance with the State Water Resources Control Board (SWRCB) Drinking Water Division regulations. Because the GWR Injection Wells would recharge both the Paso Robles and Santa Margarita aquifers, monitoring wells would be sampled to satisfy regulatory requirements for subsurface travel time, tracer testing, and other requirements.

TABLE 6-5
TYPICAL OPERATIONS BASED ON AVERAGE MONTHLY FLOWS – MPWSP VARIANT

	Average Monthly Flow (mgd)												TOTAL (AFY)
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Demand													
Average Demand	10.3	10.5	11.4	12.8	15.5	16.6	17.3	17.1	16.8	13.3	11.8	10.3	15,296
Water Returned to Salinas Valley	0.0	0.0	0.0	0.0	0.9	1.2	1.1	1.1	1.1	0.4	0.0	0.0	549
System Supplies													
Carmel River to Distribution System	5.7	5.7	5.7	5.2	2.2	1.0	1.0	1.0	1.0	1.0	1.0	5.7	3,376
Seaside GW Production Wells to Distribution System	0.0	0.0	0.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	0.5	0.0	770
Sand City Desalinated Supplies to Distribution System	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	94
Supplies Extracted from Seaside Groundwater Basin ASR System	0.0	0.0	0.0	0.9	6.8	9.6	10.4	10.2	9.5	5.9	4.1	0.0	5,390
MPWSP Desalinated Supplies to Distribution System	4.5	4.7	5.6	5.6	5.3	4.8	4.6	4.7	5.1	5.3	6.2	4.5	5,671
Total Supplies to Distribution System	**10.3**	**10.5**	**11.4**	**12.8**	**15.5**	**16.6**	**17.3**	**17.1**	**16.8**	**13.3**	**11.8**	**10.3**	**15,296**
MPWSP Desalination Plant Operations													
Desalinated Supplies for Distribution System	4.5	4.7	5.6	5.6	5.3	4.8	4.6	4.7	5.1	5.3	6.2	4.5	5,671
Desalinated Supplies for ASR Injection	1.7	1.5	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.7	590
Desalinated Supplies for Salinas Valley	0.0	0.0	0.0	0.0	0.9	1.2	1.1	1.1	1.1	0.4	0.0	0.0	549
Total Desalinated Supplies	**6.14**	**6.18**	**6.16**	**6.15**	**6.22**	**5.92**	**5.78**	**5.78**	**6.18**	**6.15**	**6.18**	**6.16**	**6,809**

TABLE 6-5 (Continued)
TYPICAL OPERATIONS BASED ON AVERAGE MONTHLY FLOWS – MPWSP VARIANT

	Average Monthly Flow (mgd)												TOTAL (AFY)
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Supplies Extracted from Seaside Groundwater Basin ASR System													
Highly Treated Wastewater from MRWPCA Regional WWTP	0.0	0.0	0.0	0.6	4.4	6.2	6.8	6.6	6.2	3.8	2.6	0.0	3,500
Carmel River	0.0	0.0	0.0	0.2	1.6	2.3	2.5	2.5	2.3	1.4	1.0	0.0	1,300
Desalinated Supplies	0.0	0.0	0.0	0.1	0.7	1.1	1.1	1.1	1.0	0.6	0.4	0.0	590
Total Extraction	**0.0**	**0.0**	**0.0**	**0.9**	**6.8**	**9.6**	**10.4**	**10.2**	**9.5**	**5.9**	**4.1**	**0.0**	**5,390**
GWR Additional Recycled Water for Agricultural Irrigation													
Total	**4.7**	**2.3**	**3.2**	**4.8**	**3.4**	**6.6**	**5.0**	**5.3**	**3.3**	**0.8**	**2.5**	**3.7**	**4,750**

6.2.4.3 Energy Demand

Total net increase in energy demand associated with operation of the CalAm and GWR facilities of the MPWSP Variant is estimated to be 35,800 megawatt-hours per year (MWh/yr). This value includes the power demand associated with producing the additional 4,750 afy of recycled water supplies for agricultural irrigation.

The relative energy demands associated with producing each water flow under the project variant are presented below:

- Desalinated water for distribution to CalAm customers: 4.47 MWh/yr per acre-foot (CalAm, 2014)
- GWR highly treated water for injection into Seaside Groundwater Basin: 3.05 MWh/yr per acre-foot (DDA, 2015)
- GWR recycled water for agricultural irrigation: 0.07 MWh/yr per acre-foot (DDA, 2015)

6.2.5 MPWSP Variant Permits and Approvals

The CalAm facilities of the MPWSP Variant would require all of the same permits and approvals as the CalAm facilities under the proposed project. See **Table 3-8** in Chapter 3, Project Description, for the complete list. The anticipated permits and approvals that would be required for the GWR facilities of the MPWSP Variant are presented in **Table 6-6**, below.

TABLE 6-6
ANTICIPATED PERMITS AND APPROVALS – GWR FACILITIES

Agency	Permit or Approval	Discussion
Federal Agencies		
U.S. Environmental Protection Agency (USEPA)	Class V Underground Injection Control Program (Part C, Safe Drinking Water Act) Registration	The USEPA Underground Injection Control program requires, at a minimum, that the disposed fluid will not endanger the groundwater and that the operator submit the proper inventory information to the permitting authority.
Monterey Bay National Marine Sanctuary (MBNMS)	Review and coordination of all Regional Water Quality Control Board (RWQCB) Section 404, Section 10, and National Pollutant Discharge Elimination System permits	Authorization by the Monterey Bay National Marine Sanctuary's superintendent is required for any permit, lease, license, approval, or other authorization issued or granted by a federal, state, or local agency for activities within the sanctuary. This authorization indicates that the Monterey Bay National Marine Sanctuary Advisory Council does not object to issuance of the permit or other authorization, including the terms and conditions deemed necessary to protect sanctuary resources and qualities.
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act (ESA) compliance Section 7 consultation	MRWPCA may be required to consult with the USFWS to determine whether the proposed action is likely to adversely affect a federally listed terrestrial or freshwater animal or plant species under USFWS jurisdiction, or the designated critical habitat for such species; jeopardize the continued existence of such species that are proposed for listing under ESA; or adversely modify proposed critical habitat. To make this determination, the project applicant prepares a Biological Assessment, the outcome of which determines whether the USFWS will conduct "formal consultation" and issue a Biological Opinion concerning the effects of the project. If the USFWS finds that the project may jeopardize the species or destroy or modify critical habitat, reasonable and prudent alternatives to the action must be considered.
	Fish and Wildlife Coordination Act (16 USC 661-667e; Act of March 10, 1934; ch. 55; 48 stat. 401)	Under Fish and Wildlife Coordination Act, a proposed water resource development project that receives federal funds or permits and that may impact to fish and wildlife is required to consult with National Oceanic and Atmospheric Administration (NOAA) Fisheries and USFWS.
National Oceanic and Atmospheric Administration (NMFS)	Endangered Species Act compliance Section 7 consultation	The need for a federal permit requires the project applicant to consult with NMFS to determine whether the proposed action is likely to adversely affect a federally listed marine species or designated critical habitat for such species, jeopardize the continued existence of such species that are proposed for listing under ESA, or adversely modify proposed critical habitat. To make this determination, the project applicant prepares a Biological Assessment, the outcome of which determines whether NMFS will conduct "formal consultation" with the agency and issue a Biological Opinion concerning the effects of the proposed action. If NMFS finds that the action may cause jeopardy or critical habitat destruction or modification, it will propose reasonable and prudent alternatives to the action. Alternatively, if no jeopardy is found, then the action can proceed.
Army Corps of Engineers (USACE)	Nationwide or Individual Section 404 Permit (Clean Water Act, 33 USC 1341)	Projects that would discharge dredged or fill material into waters of the United States, including wetlands, require a USACE permit under Clean Water Act Section 404.
	Section 10, Rivers and Harbors Act Permit (33 USC 403)	Any obstruction or alteration of any navigable water requires a Section 10 permit. This includes work that affects the course, location or condition of the water body.
Federal Aviation Administration (FAA)	Form SF 7460-1 Notice of Proposed Construction & Alteration for Airport Airspace Aeronautical	14 CFR Part 77.9 requires that a project proponent submit notification of proposed construction at least 45 days prior notification of construction or alteration within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.

TABLE 6-6 (Continued)
ANTICIPATED PERMITS AND APPROVALS – GWR FACILITIES

Agency	Permit or Approval	Discussion
State Agencies		
California Public Utilities Commission (CPUC)	Monterey Peninsula Water Supply Project (MPWSP) Certificate of Public Convenience and Necessity (Application No. 12-04-019)	The CPUC has the authority to issue a Water Purchase Agreement to CalAm for purchase of water produced by the GWR facilities.
State Water Resources Control Board (SWRCB), Regional Water Quality Control Board (RWQCB)	National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (99-08-DWQ)	Any discharge of stormwater to surface waters of the United States from a construction project that encompasses one (1) acre or more of soil disturbance requires compliance with the General Permit: Development and implementation of a stormwater pollution prevention plan that specifies best management practices to prevent construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving offsite into receiving waters; Elimination or reduction of non-stormwater discharges to storm sewer systems and other waters of the U.S. and inspection of all best management practices.
	Water rights permit for development of new surface water diversions	A water right permit is an authorization to develop a water diversion and use project.
	Waste Discharge Requirements (Water Code Section 13000 et seq.)	Any activity that results or may result in a discharge of waste that directly or indirectly impacts the quality of waters of the state (including groundwater or surface water) or the beneficial uses of those waters is subject to waste discharge requirements.
	401 Water Quality Certification (Clean Water Act Section 401)	Under Section 401 of the Clean Water Act, the RWQCB must certify that actions receiving authorization under Section 404 of the Clean Water Act also meet state water quality standards. Any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into navigable waters, must provide the licensing or permitting agency a certification that the activity meets state water quality standards.
	National Pollutant Discharge Elimination System (NPDES) Permit (Clean Water Act Section 402)	Discharges of effluent into surface waters of the United States, including wetlands and MBNMS, requires NPDES permit approval. It is assumed that the MRWPCA Waste Discharge Requirements Order No. R3-2008-0008 NPDES Permit No. CA0048551 would be revised to include the GWR reverse osmosis reject water (concentrate or brine).
State Water Resources Control Board – Division of Drinking Water	Permit to Operate a Public Water System (California Health and Safety Code Section 116525)	The State Board has permitting authority over the operation of a public water system and provides oversight with respect to the quality of the product water produced.
	Approval for Recharge of Highly Treated Water	Approval of Engineering Report
California State Lands Commission	Right-of-Way Permit (Land Use Lease) (Public Resource Code Section 1900); Lease amendment	Issuance of a grant of right-of-way across state lands allows the permittee to conduct work or construction on public lands.
California Department of Fish and Wildlife (CDFW)	Incidental Take Permits (California Endangered Species Act Title 14, Section 783.2 (potential)	The take of any endangered, threatened, or candidate species may be allowed by permit if it is incidental to an otherwise lawful activity and if the impacts of the authorized take are minimized and fully mitigated. No permit may be issued if the activity would jeopardize the continued existence of the species.
	Streambed Alteration Agreement (California Fish and Wildlife Code Section 1602) (potential)	In order to substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources, or to use any material from the streambeds, the CDFW must first be notified of the proposed activity.
California Coastal Commission (CCC)	Coastal Development Permit (Public Resources Code 30000 et seq.)	Development proposed within the Coastal Zone requires a Coastal Development Permit from the CCC, except where the local jurisdiction has an approved Local Coastal Program (LCP) in place.

TABLE 6-6 (Continued)
ANTICIPATED PERMITS AND APPROVALS – GWR FACILITIES

Agency	Permit or Approval	Discussion
		If an approved LCP is in place, primary responsibility for issuing permits in coastal areas shifts from the CCC to the local government, although the CCC will hear appeals on certain local government coastal development decisions. Regardless of whether a Coastal Development Permit must be obtained from a local agency in accordance with an approved Local Coastal Program, the CCC retains coastal development permit authority over new development proposed on the immediate shoreline, including intake and outfall structures on tidelands, submerged lands, and certain public trust lands, and over any development that constitutes a "major public works project." (Public Resources Code Sections 30601, 30600[b][2]).
California Department of Transportation (Caltrans)	Encroachment Permit (Streets and Highway Code Section 660)	Caltrans has permitting authority over encroachments in, under, or over any portion of a state highway right-of-way.
California State Historic Preservation Officer (SHPO)	National Historic Preservation Act (NHPA) Section 106 Consultation (16 USC 470)	The NHPA requires federal permitting agencies to consider the effects of proposed federal undertakings on historic properties. Federal agencies are required to initiate consultation with the SHPO and give the Advisory Council on Historic Preservation a reasonable opportunity to comment as part of the Section 106 review process.
California State University Monterey Bay (CSUMB)	Right of Way Agreements and/or Easements	A right-of-way agreement with the State of California for access across state lands around CSUMB.
Regional/Local Agencies		
Cities of Seaside and Marina, Sand City, Salinas	Use Permits, encroachment/easement permits, grading permits and erosion control permits may be required pursuant to local city/county codes.	The Cities of Seaside, Marina, Sand City, and Salinas may require discretionary planning and administrative planning and zoning permits from the planning department and/or public works for encroachment, tree removal or trimming, building permits, or variances. Excavations greater than 10 cubic yards within an Ordinance Remediation District, in the Former Fort Ord areas, require a permit in compliance with Chapter 15.34, Digging and Excavation, on the Former Fort Ord Ordinance ("Seaside's Ordinance"). Permit approval is subject to requirements placed on the property by an agreement executed between the city, the city's redevelopment agency, Fort Ord Reuse Authority, and California Department of Toxic Substances Control.
Fort Ord Reuse Authority	Coordination with Fort Ord Reuse Authority for right of entry	In order to access specific sites during construction and operations, MRWPCA will be required to coordinate with Fort Ord Reuse Authority.
Marina Coast Water District	Ownership/easements of RUWAP pipeline and its alignment and recycled water rights per Third Amendment to the 1992 Agreement between Monterey County Water Resources Agency, MRWPCA, and Marina Coast Water District	Possible lease agreement for use of RUWAP pipeline or easement and possible agreement to utilize a portion of secondary effluent for which Marina Coast Water District has rights
Monterey Bay Unified Air Pollution Control District	Authority To Construct (Local district rules, per Health and Safety Code 42300 et seq.) and Permit To Operate (local district rules)	An authorization to construct permit is required for projects that propose to build, erect, alter, or replace any article, machine, equipment, or other contrivance that may emit air contaminants from a stationary source or may be used to eliminate, reduce, or control air contaminant emissions. Applicable to gas-powered generators.
Monterey County Health Department, Environmental Health Division	Well Construction Permit (Monterey County Code, Title 15 Chapter 15.08, Water Wells)	Construction of new water supply / monitoring wells requires written permit approval from Monterey County's health officer, whose decisions may be appealed to the Board of Supervisors.
	Hazardous Materials Business Response Plan (Health and Safety Code Chapter 6.95)	Hazardous Materials Management Services is designated as the local Certified Unified Program Agency in Monterey County and is responsible for inspecting facilities in the county to verify

TABLE 6-6 (Continued)
ANTICIPATED PERMITS AND APPROVALS – GWR FACILITIES

Agency	Permit or Approval	Discussion
		proper storage, handling and disposal of hazardous materials and hazardous wastes. A Materials Business Response Plan is required during specific types of construction.
	Hazardous Materials Inventory (Health and Safety Code Chapter 6.95)	A Hazardous Materials Inventory and Certification form will have to be submitted to the Monterey County Environmental Health Division.
	Review/approval of Injection Well Operations/Discharges	MRWPCA may need to submit an application to the Monterey County Environmental Health Department for review of Waste Discharge Requirements and/or Injection Well Facilities operations.
	Variance from Monterey County Noise Ordinance (MCC 10.60.030)	Noise ordinance permit if operation or equipment noise levels exceed 85dBA at 50 feet.
Monterey County Public Works Department	Encroachment Permit (Monterey County Code (MCC) Title 14 Chapter 14.040)	Designated activities within the right-of-way of a county highway require encroachment permit approval by the director of the Public Works Department.
Monterey County Resource Management Agency	Use Permit (MCC Chapter 21.74 Title 21) may be required pursuant to County codes.	A Use Permit is either issued by the zoning department of the Planning Commission, depending on the specific zoning and intended use; this permit would be needed for the Product Water Conveyance Pipeline (both options) between the Regional Treatment Plant and the City of Marina.
	Coastal Development Permit. (Public Resources Code 30000 et seq.)	A Coastal Development Permit is a document required by the California Coastal Act to permit construction of certain uses in a designated Coastal Zone. Any project in the Coastal Zone, which requires discretionary approval, will require a Coastal Permit.
	Grading Permit (Grading and Erosion Control Ordinance, Monterey County Code 16.08 – 16.12)	Grading, subject to certain exceptions, requires a permit from the Monterey County Planning and Building Inspection Department.
	Erosion Control Permit (Grading and Erosion Control Ordinance, Monterey County Code 16.08 – 16.12)	An Erosion Control Permit from the Director of Building Inspection is required for any project development and construction activities (such as site cleaning, grading, and soil removal or placement) that is causing or is likely to cause accelerated erosion.
Monterey County Water Resources Agency	Ownership of flood control waterways and SWRCB water rights application for diversions from surface water bodies	Coordination/agreements for GWR components within Monterey County Water Resources Agency-controlled waterways, including agreements to assign/transfer water rights to allow diversion, and involving the Castroville Seawater Intrusion Project and Salinas Valley Reclamation Project.
Monterey Peninsula Water Management District	Water System Expansion Permit (Monterey Peninsula Water Management District Board of Directors Ordinance 96)	A permit is required for any project activity that would expand the water delivery system within the Monterey Peninsula Water Management District jurisdiction.
	Water purchase agreement	Water purchase agreement that describes the arrangement between MRWPCA, Monterey Peninsula Water Management District, and CalAm for the purchase of GWR product water or the rights to pump it from the Seaside Groundwater Basin.
Monterey Regional Waste Management District	Electric Power Purchase Agreement	A power purchase agreement between Monterey Peninsula Water Management District and MRWPCA and PG&E for a specific amount of time and cost.
Seaside Basin Watermaster	Permit for Injection/Extraction/Storage	Injection/extraction/storage activities that would affect the Seaside Groundwater Basin require approval of the Seaside Groundwater Basin Watermaster.
Transportation Agency of Monterey County	Easement/ encroachment permit	An encroachment permit is necessary to conduct investigations and to install a conveyance pipeline across this agency's property.

TABLE 6-6 (Continued)
ANTICIPATED PERMITS AND APPROVALS – GWR FACILITIES

Agency	Permit or Approval	Discussion
Monterey Peninsula Airport District/Airport Land Use Commission	Consistency determination	Lake El Estero Diversion site is within Monterey Airport Influence Area; requires a Consistency Determination by the Airport Land Use Commission
Private Entities		
Landowners	Land lease/sale; easements and encroachment agreements	Construction that may occur on private lands may require lease agreements and easements for access.
California American Water Company (CalAm)	Water purchase agreement	A water purchase agreement that describes the arrangement between MRWPCA, Monterey Peninsula Water Management District, and CalAm would be required for the purchase of GWR product water or the rights to pump it from the Seaside Groundwater Basin.
Pacific Gas and Electric	Electric Power Will-Serve Letter/Purchase Agreement	New construction and/or commercial additions will need an “ability to serve” letter stating that Pacific Gas and Electric can serve power from existing (or if necessary, upgraded) infrastructure.

SOURCE: MRWPCA, 2015.

6.3 MPWSP Variant Impact Analysis

This section presents the impact analysis for the MPWSP Variant. The impact analysis for the MPWSP Variant follows the same methodology and is organized in the same order as the topical sections in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this EIR. **Table 6-7** provides a summary of each impact. The discussion below expands on the information provided in **Table 6-7** for those impacts that warrant more detailed discussion. **Table 6-8** presents the analysis of the MPWSP Variant's consistency with relevant plans and policies. With the exception of the expanded impact discussions presented in the text below, the analysis of the CalAm facilities of the MPWSP Variant is based largely on the analysis of the proposed project presented in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this EIR; the analysis of the GWR facilities is based on information developed during ongoing coordination efforts between the CPUC and the MRWPCA during preparation of this EIR, as well as the analysis of the GWR project presented in the *Draft EIR for the Pure Water Monterey Groundwater Replenishment Project* (MRWPCA, 2015).

See **Table 6-7** for all analysis of MPWSP Variant impacts related to: geology, soils, and seismicity; terrestrial biological resources; hazards and hazardous materials; land use, land use planning, and recreation; traffic and transportation; noise and vibration; public services and utilities; aesthetic resources; cultural and paleontological resources; agriculture and forestry resources; mineral resources; energy conservation; and population and housing. More detailed analysis and supplementary information for impacts related to surface water hydrology and water quality, groundwater resources, marine biological resources, air quality, and greenhouse gases is provided below in Sections 6.3.1 through 6.3.5.

TABLE 6-7
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.2 Geology, Soils, and Seismicity				
Impact 4.2-1: Increased soil erosion or loss of topsoil during construction.	**LSM** Ground disturbance activities (i.e., vegetation removal, grading, excavation, etc.) during construction could result in increased soil erosion or loss of topsoil. All construction activities would be required to comply with the National Pollution Discharge Elimination System (NPDES) Construction General Permit. The permit would require that a Stormwater Pollution Prevention Program (SWPPP) be prepared that includes Best Management Practices (BMPs) to manage runoff and prevent soil erosion during construction. Construction activities would also be required to comply with the Monterey County Grading Ordinance and Monterey County Erosion Control Ordinance. Compliance with these requirements would ensure the impact from construction-related soil erosion is less than significant. The MPWSP Desalination Plant and Valley Greens Pump Station (both site options) are not located in areas with well-developed soil horizons and, therefore, no impact related t loss of topsoil would occur at these sites. Based on the project description information available at the time of this analysis, all other proposed project facilities could require ground-disturbing activities in areas with sensitive natural communities and/or on agricultural lands. The impact related to loss of topsoil would be significant for these sites. However, the impact would be reduced to a less-than-significant level for all sites with implementation of the prescribed mitigation measures.	**MM 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities.** **MM 4.16-3: Measures to Minimize Indirect Effects on Agricultural Lands.**	**LSM** The MPSWP Variant would have a similar potential for construction-related soil erosion and loss of topsoil impacts as the proposed project. While fewer CalAm facilities would be constructed, the addition of GWR facilities would result in an overall increase in the amount of soil that would be disturbed, and therefore would increase the potential to result in soil erosion and loss of topsoil. The combined impact would be mitigated to a less-than-significant level. *CalAm Facilities:* Temporary construction-related soil erosion and loss of topsoil impacts at the CEMEX sand mining facility would be slightly decreased when compared to the proposed project because there would be less ground disturbance associated with implementation of the subsurface slant wells (seven slant wells would be constructed compared to ten under the proposed project). The impact from construction of all other CalAm facilities would be identical to the proposed project. Overall, the impact of the CalAm facilities under the MPWSP Variant would essentially be the same as those of the proposed project. *GWR Facilities:* Construction could result in soil erosion or loss of topsoil due to ground disturbance and construction at all project sites; however construction would not result in substantial soil erosion or the loss of topsoil due to local requirements for preparation and implementation of erosion control plans and state requirements for implementation of a SWPPP. Impacts related to soil erosion or loss of topsoil would be less than significant.	None required.
Impact 4.2-2: Exposure of people or structures to substantial adverse effects related to fault rupture.	**LS** The proposed project would not alter the seismic environment or increase the risk of fault rupture. None of the proposed facilities are located within an Alquist-Priolo Earthquake Fault Zone (i.e., on a State-recognized active fault trace). There is evidence of Holocene displacement along faults that traverse the Monterey Pipeline, Transmission Main, the Valley Greens Pump Station (site Option 1), and the Ryan Ranch-Bishop Interconnection Improvements, indicating that these faults may indeed be active. However, because these segments are concealed beneath sediments where they cross the proposed project facilities and the Holocene displacement is located a sufficient distance from these facilities, the potential for these facilities to be damaged by surface fault rupture is considered low. The impact is less than significant. None of the other project facilities are traversed by fault traces. Therefore, no impact would result.	None required.	**LS** Under the MPWSP Variant, impacts from fault rupture would be identical to those of the proposed project. The GWR facilities would not add impacts from exposure to fault rupture because no GWR facilities would be located on any fault traces. The combined impact would be less than significant. *CalAm Facilities:* The potential for the CalAm facilities under the MPWSP Variant to be damaged by surface fault rupture would be identical to the proposed project. Same as the proposed project, the Monterey Pipeline, Transmission Main, the Valley Greens Pump Station (site Option 1), and the Ryan Ranch-Bishop Interconnection Improvements would result in a less than significant impact related to fault rupture and no impact would result from implementation of all other CalAm facilities. *GWR Facilities:* None of the GWR facilities of the MPWSP Variant would be located on any fault traces and would not be subject to potential fault rupture. No impact would result from implementation of GWR facilities of the MPWSP Variant.	None required.
Impact 4.2-3: Exposure of people or structures to substantial adverse effects related to seismically-induced groundshaking.	**LS** It is likely that the structural elements of the MPWSP would be subjected to a moderate to strong earthquake at least once during its operational life. Damage from an earthquake could result in temporary water service disruptions. However, completion of a comprehensive design-level geotechnical investigation, adherence to the current California Building Code, and local ordinances laws regulating construction and the application of proven seismic design criteria as standard engineering practice, would ensure that project facilities are designed to withstand seismic events without sustaining substantial damage or collapsing.	None required.	**LS** The MPWSP Variant would result in less than significant impacts related to exposure of people or structures to seismically-induced groundshaking. None of the facilities would result in a substantial risk of loss, injury or death. The combined impact would be less than significant. *CalAm Facilities:* The impact of the CalAm facilities related to exposure of people or structures to seismically-induced groundshaking would be the same as that of the proposed project. Same as the proposed project, completion of a comprehensive design-level geotechnical investigation, adherence to the current California Building Code, and local ordinances laws regulating construction and the application of proven seismic design criteria as standard engineering practice, would ensure that project facilities are designed to withstand seismic events without sustaining substantial damage or collapsing.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.2 Geology, Soils, and Seismicity (cont.)				
Impact 4.2-3 (cont.)			*GWR Facilities:* Upon completion of construction, all of the GWR facilities of the MPWSP Variant would subject to seismic shaking during an earthquake. Completion of a design-level geotechnical investigation, adherence to the current California Building Code, and local ordinances laws regulating construction and the application of proven seismic design criteria as standard engineering practice, would ensure that the facilities would be designed and built to minimize risk and degree of damage. Damage due to seismic shaking could result in temporary cessation of project operations until repairs are completed, but the effects of seismic groundshaking would not result in a substantial risk of loss, injury, or death or result in a significant impact.	
Impact 4.2-4: Exposure of people or structures to substantial adverse effects related to liquefaction and lateral spreading.	**LS** The proposed subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, and Valley Greens Pump Station (both site options) would be located on soils with a moderate or high potential for liquefaction. All other project facilities are located in areas with a low liquefaction potential. Geotechnical investigations are being prepared for all project facilities and final facility design would incorporate any geotechnical recommendations for liquefaction hazards. Compliance with Monterey County requirements for geotechnical studies, adherence with standard engineering practices and construction methods, and implementation of the geotechnical design recommendations would ensure the impact is less than significant.	None required.	**LS** The MPSWP Variant would have a similar potential to expose people or structures to substantial adverse effects related to liquefaction and lateral spreading as the proposed project. While fewer CalAm facilities would be constructed, the addition of GWR facilities would result in an overall increase in the number of sites that would be subject to liquefaction. Damage from an earthquake could result in temporary cessation of project operations until repairs are completed, but the effects of seismic liquefaction would not result in a substantial risk of loss, injury, or death or result in a significant impact. *CalAm Facilities:* The potential for the CalAm-owned facilities of the MPWSP Variant to expose people or structures to substantial adverse effects related to liquefaction and lateral spreading would be slightly lower than the proposed project because fewer slant wells (seven slant wells versus ten slant wells under the proposed project) would be constructed. The impact from construction of all other CalAm facilities would be identical to the proposed project. Overall, the impact of the CalAm facilities under the MPWSP Variant would essentially be the same as those of the proposed project. *GWR Facilities:* Upon completion of construction, all the source water diversion sites, except for Lake El Estero Diversion, could be subject to liquefaction. Completion of a design-level geotechnical investigation, adherence to the current California Building Code, and local ordinances laws regulating construction and the application of proven seismic design criteria as standard engineering practice, would ensure that the facilities would be designed and built to minimize risk and degree of damage due to liquefaction. Damage from an earthquake could result in temporary cessation of project operations until repairs are completed, but the effects of seismic liquefaction would not result in a substantial risk of loss, injury, or death or result in a significant impact.	None required.
Impact 4.2-5: Exposure of people or structures to substantial adverse effects related to landslides.	**LS** Only the Main System-Hidden Hills Interconnection Improvements would be located in an area with a moderate to high susceptibility to landslides. However, there are no existing active landslides in the area and these improvements would not exacerbate an otherwise unstable slope condition. Furthermore, this area would be evaluated during the project geotechnical evaluation and, if potentially unstable slope conditions exist, the geotechnical recommendations from the evaluation would be incorporated into final design. As a result, the impact is less than significant. All other project components would be located in relatively flat to gently-sloping topography and would therefore have a low to no susceptibility to landslides. No impact would result from implementation of all other project components.	None required.	**LS** Under the MPWSP Variant, impacts from exposure of people or structures to substantial adverse effects related to landslides would be identical to those of the proposed project. The GWR facilities would not add impacts from exposure of people or structures to substantial adverse effects related to landslides because GWR facilities would be located in relatively flat to gentle sloping topography. The combined impact would be less than significant. *CalAm Facilities:* The potential for the CalAm-owned facilities of the MPWSP Variant to expose people or structures to substantial adverse effects related to landslides would be identical to the proposed project. Like the proposed project, implementation of the geotechnical recommendations from the geotechnical evaluation would ensure landslide impacts associated with the Main System-Hidden Hills Interconnection Improvements are less than significant and no impact would result from implementation of all other CalAm facilities because all other CalAm facilities would be sited in areas with low or no susceptibility to landslides.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.2 Geology, Soils, and Seismicity (cont.)				
Impact 4.2-5 (cont.)			*GWR Facilities:* All proposed GWR facilities of the MPWSP Variant would be located in relatively flat to gently-sloping topography, and all sites have been mapped as having a low susceptibility to landslides. No impact would result from implementation of any GWR facilities.	
Impact 4.2-6: Exposure of people or structures to substantial adverse effects related to coastal erosion and bluff retreat caused by sea level rise.	**LSM** Coastal erosion modeling conducted for the subsurface slant wells and Monterey Pipeline indicates these facility components could be subject to coastal erosion hazards. The well casings and concrete wellhead vault for the northernmost subsurface slant well cluster could become exposed by the year 2040 and contribute to accelerated and/or exacerbated natural rates of coastal erosion, scour, and dune retreat that could alter the natural coastal environment. The impact for the northernmost well cluster would be significant but would be reduced to a less-than-significant level with implementation of the prescribed mitigation. The other eight slant wells (i.e., the other two slant well clusters) would not become exposed during their operational life. Therefore, the impact would be less than significant for the remaining slant wells. The modeling results also indicate there is a potential for the Monterey Pipeline to become undermined and exposed sometime around 2060. However, this significant impact would be reduced to a less-than-significant level with implementation of the prescribed mitigation. None of the other project components are close enough to the coast to be vulnerable to coastal retreat. Therefore, there would be no impact.	**MM 4.2-6a: Slant Well Abandonment Plan** **MM 4.2-6b: Monterey Pipeline Deepening**	**LSM** Under the MPWSP Variant, impacts from exposure of people or structures to substantial adverse effects related to coastal retreat would be reduced compared to those of the proposed project because fewer CalAm facilities would be constructed in locations subject to coastal retreat. The GWR facilities would not add impacts from exposure of people or structures to substantial adverse effects related to coastal retreat because GWR facilities would not be constructed in locations subject to coastal retreat. The combined impact would be less than significant with mitigation. *CalAm Facilities:* Under the MPWSP Variant, the potential for the CalAm facilities to expose people or structures to substantial adverse effects related to coastal retreat would be reduced when compared to the proposed project because the northernmost slant well cluster would only include one slant well (as opposed to two slant wells under the proposed project). Like the proposed project, with implementation of the prescribed mitigation, the impact at the northernmost well cluster would be reduced to a less-than-significant level. Same as the proposed project, the other two slant well clusters would be set back and would not become exposed during the operational life of the slant wells. Therefore, the impact would be less than significant for the remaining slant wells. The potential for the Monterey Pipeline to become undermined and exposed in the future would be identical to the proposed project. Overall, the impact of the CalAm facilities would be lower when compared to the proposed project, but the significance determination would remain less than significant with mitigation. *GWR Facilities:* None of the proposed GWR facilities of the MPWSP Variant would be located close enough to the coast such that they would be vulnerable to coastal retreat or erosion before approximately the year 2100. For more information, see the report titled "Analysis of Historic and Future Coastal Erosion with Sea Level Rise" (ESA, 2014). The GWR facilities would have no impact related to coastal retreat caused by sea level rise.	None required.
Impact 4.2-7: Exposure of people or structures to substantial adverse effects related to land subsidence.	**LS** Because the subsurface slant wells would draw water from coastal aquifers, seawater would replace the water pumped from the slant wells. The continuous replacement of water would keep the pore spaces between the grains filled with water and prevent land subsidence. Therefore, no impact would result. The ASR-5 and ASR-6 Wells would be screened in the Santa Margarita Formation, which is made of sandstone that would be expected to support the granular structure during groundwater pumping. Water injected into the Seaside Groundwater Basin would be extracted in the same year, so ASR operations would not result in a net lowering of groundwater levels. Further, as a result of the adjudication of the Seaside Groundwater Basin, CalAm must provide 700 af of in-lieu recharge to the Seaside Groundwater Basin for the first 25 years of the proposed project, which would result in an overall increase in groundwater elevations in the Seaside Groundwater Basin. The subsidence impact would be less than significant.	None required.	**LS** The MPWSP Variant would result in less-than-significant impacts related to land subsidence like the proposed project. No impact would result from operation of the subsurface slant wells and none of the other facilities would result in a net lowering of groundwater levels. The combined impact would be less than significant *CalAm Facilities:* Under the MPWSP Variant, the potential for the CalAm facilities to result in substantial adverse effects related to land subsidence would be similar to the proposed project. Regardless of the number of subsurface slant wells, no impact would result from operation of the subsurface slant wells. Although the Seaside Groundwater Basin ASR system would be operated differently to accommodate extraction of water from the GWR project, like the proposed project, the potential subsidence impact related to operation of the ASR-5 and ASR-6 Wells and ASR operations as a whole would not result in a net lowering of groundwater levels. Therefore, like the proposed project, the subsidence impact would be less than significant.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.2 Geology, Soils, and Seismicity (cont.)				
Impact 4.2-7 (cont.)			*GWR Facilities:* Adverse effects of land subsidence due to the proposed GWR facilities of the MPWSP Variant would be less than significant because the amount of groundwater stored in the Seaside Groundwater Basin would not change on an annual average basis. Specifically, the net new extractions would not exceed the net new injections under the proposed GWR facilities of the MPWSP Variant on an annual average basis. In 2011, the Seaside Basin Watermaster contracted with Central Coast Surveyors to conduct an analysis of existing land subsidence in the Seaside Groundwater Basin and they found no land subsidence appears to have occurred (Central Coast Surveyors, Position Data For Wells in the Seaside Basin, July 2011)	
Impact 4.2-8: Exposure of people or structures to substantial adverse effects related to expansive soils.	**LS** The Valley Greens Pump Station (both site options), Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch–Bishop Interconnection Improvements would be constructed on soils with a moderate to high expansion or linear extensibility potential. However, preparation of a geotechnical investigation and implementation of the geotechnical recommendations, as well as California Building Code and American Water Works Association (AWWA) standards for pipelines would ensure the impact is less than significant. No impact related to expansive soils would result from implementation of all other project components because the facilities would be sited in soils with a low linear extensibility potential.	None required.	**LS** The MPSWP Variant would have a similar potential impact related to expansive soils as the proposed project. While the same CalAm facilities would be constructed in areas with expansive soils, the addition of GWR facilities would result in an overall increase in the number of sites with expansive soils. Implementation of recommendations in the geotechnical studies would result in less-than-significant impacts at all sites and the combined impact for the MPSWP Variant would be less than significant. *CalAm Facilities:* The impact of the CalAm facilities related to expansive soils would be identical to the proposed project. Same as the proposed project, preparation of a geotechnical investigation and implementation of the geotechnical recommendations, as well as California Building Code and AWWA standards for pipelines would ensure the impact is less than significant for the Valley Greens Pump Station (both site options), Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch–Bishop Interconnection Improvements. No impact would result from all other CalAm facilities. *GWR Facilities:* There is the potential for soil types at the project sites to exhibit expansive soil properties in areas with soils containing clays, including the Salinas River area and alluvial areas. Site-specific geotechnical engineering studies, including subsurface exploration and laboratory testing, would be performed during project design to further assess site soils in accordance with state and local requirements. These studies would provide design details for facility plans in response to soils conditions present. Implementation of recommendations in the geotechnical studies, which is applicable to all GWR facility components, would result in less-than-significant impacts.	None required.
Impact 4.2-9: Exposure of structures to substantial adverse effects related to corrosive soils.	**LS** Project components that would be located on or in soils with moderate to high concrete and unprotected steel corrosion potential include the MPWSP Desalination Plant, Terminal Reservoir, ASR Pump Station, ASR-5 and ASR-6 Wells, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, and Ryan Ranch–Bishop Interconnection Improvements. The final geotechnical investigation would evaluate the presence of corrosive soils and, if needed, would provide recommendations that would be incorporated into final project design. This process would ensure the impact is less than significant. No impact related to corrosive soils would result from implementation of all other project components because the facilities would be located in sandy soils with a low corrosivity potential.	None required.	**LS** The MPSWP Variant would have a similar potential impact related to corrosive soils as the proposed project. While the same CalAm facilities would be constructed in areas with corrosive soils, the addition of GWR facilities would result in an overall increase in the number of sites with corrosive soils. Implementation of recommendations in the geotechnical studies would result in less-than-significant impacts at all sites and the combined impact for the MPSWP Variant would be less than significant. *CalAm Facilities:* The impact of the CalAm facilities related to corrosive soils would be identical to the proposed project. Same as the proposed project, implementation of the geotechnical recommendations from the final geotechnical investigation would address the corrosion potential at the MPWSP Desalination Plant, Terminal Reservoir, ASR Pump Station, ASR-5 and ASR-6 Wells, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, and Ryan Ranch–Bishop Interconnection Improvements. No impact related to corrosive soils would result from implementation of all other CalAm facilities.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.2 Geology, Soils, and Seismicity (cont.)				
Impact 4.2-9 (cont.)			*GWR Facilities:* Proposed GWR facilities of the MPWSP Variant would be located on or in soils that have moderate to high corrosivity. The final geotechnical investigation would evaluate the presence of corrosive soils and, if needed, would provide recommendations that would be incorporated into final project design. This process would ensure the impact is less than significant.	
Impact GS-6: Hydro-collapse of soils from well injection. *[Applies to GWR facilities only]*	Not applicable to the MPWSP because the proposed project does not include vadose zone (shallow) injection wells.	None required.	**LS** *CalAm Facilities:* Not applicable to the CalAm facilities under the MPWPS Variant because the CalAm facilities would not include vadose zone (shallow) injection wells. *GWR Facilities:* Collapsible soil is broadly defined as loose and cemented soil with low moisture content that is susceptible to a large and sudden reduction in volume upon wetting, with no increase in vertical stress. The process of soil collapse upon wetting is referred to as hydro-collapse. Another type of collapse can occur in saturated soil bearing soluble minerals when subjected to continuous leaching. The eolian deposits that underlie the proposed location for the Injection Well Facilities could be susceptible to hydro-collapse if large quantities of water are injected into the ground in the surficial soils at the site. Based on the depth to groundwater and minor groundwater mounding, the risk of hydro-collapse of soils due to injection of water into the Seaside Groundwater Basin would be less than significant based on the findings of the preliminary geotechnical report (Ninyo & Moore, 2014).	None required
4.3 Surface Water Hydrology and Water Quality				
Impact 4.3-1: Degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals during general construction activities.	**LS** Earthmoving activities associated with project construction could result in soil erosion and the migration of eroded soil and sediment via stormwater runoff to downgradient water bodies and storm drains. This could degrade water quality in the receiving water bodies, including the Salinas River and Monterey Bay. Construction activities could also result in the inadvertent release of hazardous construction chemicals such as adhesives, solvents, fuels, and petroleum lubricants that, if not managed appropriately, could adhere to soil particles, become mobilized by rain or runoff, and degrade water quality in downstream water bodies. Project construction activities would disturb more than one acre of soil, and therefore would be subject to the NPDES Construction General Permit requirements. In accordance with the NPDES Construction General Permit, the construction contractor(s) would implement measures to control soil erosion, manage runoff, and protect water quality. As a result, the impact would be less than significant for all project components.	None required.	**LS** When compared to the proposed project, implementation of the MPWSP Variant would result in a substantial increase in construction-related ground disturbance. However, mandatory compliance with the NPDES Construction General Permit would protect water quality during construction of the CalAm and GWR facilities. Thus, the impact would be less than significant for the MPWSP Variant. *CalAm Facilities:* The potential for construction of the CalAm facilities to degrade water quality from increased soil erosion and inadvertent releases of toxic chemicals would be similar to the proposed project, but slightly reduced because there would be less ground disturbance and construction activities associated with implementation of the subsurface slant wells (only seven slant wells would be constructed under the MPWSP Variant compared to ten under the proposed project). The impact from construction of all other CalAm facilities would be identical to the proposed project. Although the overall impact would be slightly reduced for the CalAm facilities under the MPWSP Variant, like the proposed project, adherence to the NPDES Construction General Permit requirements would ensure the impact is less than significant. *GWR Facilities:* Construction of the GWR facilities would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality including marine water quality, due to earthmoving, drainage system alterations, and use of hazardous chemicals.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.3 Surface Water Hydrology and Water Quality (cont.)				
Impact 4.3-2: Degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development.	**LSM** Water produced during drilling and development of the subsurface slant wells and ASR-5 and ASR-6 Wells would be routed to portable holding tanks to allow sediment to settle out, and then percolated into the ground in accordance with the General Waiver of WDRs for Specific Types of Discharges (General Waiver). For the subsurface slant wells, these discharges would be percolated into the ground at the CEMEX active mining area. Water extracted during drilling and development of the ASR-5 and ASR-6 Wells would be percolated into the ground at a 1.4-acre natural depression located east of the intersection between San Pablo Avenue and General Jim Moore Boulevard. The conditions of the General Waiver would ensure the impact is less than significant. Construction of all other proposed project components could require dewatering of open excavations. In particular, open-cut trenching, jack-and-bore, and microtunneling for the installation of pipelines could intercept shallow or perched groundwater and require temporary localized dewatering to facilitate construction. Most of the dewatering effluent produced during construction and excavation is considered a low threat and can be discharged to the land or local receiving water provided it complies with the General WDRs for Discharges with a Low Threat to Water Quality (General WDRs). The construction contractor(s) would be required to control, test, and treat the extracted water as needed to minimize or avoid water quality degradation, erosion, and sedimentation in the receiving waters. In certain cases, suspended sediment and/or trace amounts of construction-related chemicals could be present in the dewatering effluent. Discharges of contaminated dewatering effluent to vegetated upland areas or the local storm drain system would result in a significant impact. However, the impact would be reduced to a less-than-significant level with implementation of the prescribed mitigation.	**MM 4.7-2b: Soil and Groundwater Management Plan.**	**LSM** When compared to the proposed project, implementation of the MPWSP Variant would involve the drilling and development of additional wells (i.e., the GWR injection wells and the injection wells for the Salinas Valley return flows). Water produced during well drilling and development would be disposed of in accordance with the General Waiver and would prevent significant impacts to water quality. Implementation of the MPWSP Variant would also result in an increase in excavations, increasing the potential to encounter contaminated soil and groundwater. The potential for discharges of contaminated dewatering effluent would be greater under the MPWSP Variant when compared to the proposed project. However, as for the proposed project, with implementation of the prescribed mitigation measure, the impact could be reduced to a less-than-significant level. *CalAm Facilities:* Under the MPWSP Variant, the potential for discharges of water produced during slant well drilling and development to degrade water quality would be reduced when compared to the proposed project because fewer slant wells (seven slant wells versus ten slant wells under the proposed project) would be constructed. Like the proposed project, adherence to the conditions of the General Waiver would ensure the impact is less than significant. The potential for discharges of water produced during drilling and development of the ASR-5 and ASR-6 Wells, and discharges of dewatering effluent from open excavations associated with all other CalAm facilities to degrade water quality would be identical to the proposed project because the facilities would be exactly the same. Like the proposed project, the overall impact would be less than significant with mitigation. *GWR Facilities:* Construction activities for the GWR facilities involving well drilling and development, and dewatering of shallow groundwater from open excavations would generate water requiring disposal. Water produced during well drilling and development would be disposed of in accordance with the General Waiver. General construction dewatering effluent would be disposed of in accordance with the General WDRs. Because all discharges of water produced during GWR well drilling and development, and dewatering of shallow groundwater during construction of GWR facilities would occur in compliance with these regulatory requirements, the overall impact of the GWR facilities would be less than significant.	None required.
Impact 4.3-3: Degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction.	**LS** Newly installed pipelines (all proposed pipelines, including and the new pipelines associated the Ryan Ranch-Bishop Interconnection Improvements and Main System-Hidden Hills Interconnection Improvements) would also be disinfected before being put into service. Prior to constructing the connections between existing and new pipelines, segments of existing pipelines would also need to be drained and later disinfected prior to being returned to service. The treated water generated from the draining of existing pipelines and the effluent generated from disinfection of newly installed pipelines would be discharged to the local storm drainage system in accordance with the General WDRs. Compliance with the General WDRs and the conditions therein would protect water quality in receiving water bodies. The impact would be less than significant for all proposed pipelines, the Ryan Ranch-Bishop Interconnection Improvements, and the Main System-Hidden Hills Interconnection Improvements. The subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Terminal Reservoir/ASR Pump Station, and Valley Greens Pump Station (both site options) are not anticipated to require flushing and generate disinfection effluent prior to being brought online. No impact would result.	None required.	**LS** Compliance with the General WDRs during discharges of treated water drained from existing pipelines and effluent produced during disinfection of pipelines would protect water quality in receiving waters. The overall impact to water quality would be less than significant for the MPWSP Variant. *CalAm Facilities:* The potential for degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines would be identical for the CalAm facilities under the MPWSP Variant because all of the same pipelines would be constructed. This impact would be identical to the proposed project (less than significant). *GWR Facilities:* Like the pipelines that would be installed by CalAm, treated water generated from the draining of existing pipelines and the effluent generated from disinfection of newly installed pipelines for the GWR facilities would be discharged to the local storm drainage system in accordance with the General WDRs. Compliance with the General WDRs and the conditions therein would protect water quality in receiving water bodies. The impact would be less than significant for all GWR pipelines.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.3 Surface Water Hydrology and Water Quality (cont.)				
Impact 4.3-4: Violate water quality standards or waste discharge requirements, or degrade water quality as a result of brine discharge from the operation of the MPWSP Desalination Plant.	**LSM** Potential water quality impacts resulting from the discharges associated with MPWSP Desalination Plant operations considered two scenarios: (1) brine-only discharges during the dry weather or summer months, and (2) combined discharges of brine combined with treated wastewater flows from the MRWPCA Regional Wastewater Treatment Plant. In general, the availability of treated wastewater effluent for blending with the brine would fluctuate seasonally (higher flows during the wet weather or winter months and low flows during the dry weather) and may not be available for extended periods of the year. The impact was determined based on the Ocean Plan water quality objectives as the significance threshold. The water quality analysis used the best available information and the impact conclusion was based on detected constituents in the discharge streams and water quality data collected from Monterey Bay under CCLEAN to represent source water entering the MPWSP Desalination Plant. Based on the analyses, both the brine-only discharge and combined discharge (with low [0.25 mgd] wastewater flow) were found to result in an exceedance over the water quality objectives for polychlorinated biphenyls (PCBs) and ammonia defined in the Ocean Plan at the edge of the ZID, a significant impact. However, with implementation of the prescribed mitigation the impact would be minimized to a less-than-significant level. Potential secondary impacts that could result from implementation of **Mitigation Measure 4.3-4** are discussed in Impact 4.3-4 following the description of the mitigation measure.	**MM 4.3-4: Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the ZID.** *[See Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, for a discussion of the potential secondary impacts of this mitigation measure.]*	**LSM** The water quality impact was studied for the six discharge scenarios resulting from the operation of the MPWSP Variant. Similar to the proposed project, the brine-only and brine-and-low wastewater discharges would result in exceedences in Ocean Plan water quality objectives for PCBs and ammonia. Discharges associated with brine, treated wastewater and GWR-effluent would also exceed Ocean Plan water quality objectives for chlordane, toxaphene, DDT and TCDD Equivalents. **Mitigation Measure 4.3-4** would reduce the water quality impact associated with exceedances of the Ocean Plan water quality objectives to less-than-significant. No additional mitigation would be required as a result of the change in operations under the MPWSP Variant. See Section 6.3.1 for more detailed discussion.	None required.
Impact 4.3-5: Violate water quality standards or waste discharge requirements for salinity, or degrade water quality from increased salinity as a result of brine discharge from the operation of the MPWSP Desalination Plant.	**LS** This impact analysis focuses on whether the brine and the combined discharges (introduced in Impact 4.3-4 above) would exceed the significance threshold for salinity, i.e., result in salinity greater than 2 ppt over ambient salinity levels. The salinity levels are analyzed in the near field (within the ZID) and in the far field (beyond the outer edge of the ZID). The near-field analysis was specifically developed to address the amendment to the Ocean Plan (2014; 2015) that proposes a new salinity standard of not increasing the salinity levels to greater than 2 ppt over ambient salinity. The far-field analysis was developed to address comments received during the proposed project scoping period on the fate and travel path of the brine plume beyond the near field. The brine and combined discharges (discussed in Impact 4.3-4) would result in salinity levels that would be less than 2 ppt greater than ambient salinity. Therefore the impact would be less than significant.	None required.	**LS** The near-field analysis of salinity levels under the MPWSP Variant indicates that the brine and combined discharges would result in salinity less than 2 ppt above ambient salinity. The project variant would therefore not exceed or violate the salinity standards or degrade water quality in terms of salinity. The impact would be less than significant. The far-field analysis indicated that the plume of the brine-only and blended discharges travels away from the point of discharge with time. Although there were no significance thresholds for salinity beyond the ZID, the salinity of the plumes was estimated to progressively reduce with time and distance from the point of discharge, approaching background salinity levels through dispersion and dilution with the ocean currents. Therefore, the impact of the MPWSP Variant would be less than significant and no mitigation is required. See Section 6.3.1 for more detailed discussion.	None required.
Impact 4.3-6: Degradation of water quality due to discharges associated with maintenance of the subsurface slant intake and the ASR injection/extraction wells.	**LS** The subsurface slant wells would require periodic maintenance every 5 years. Maintenance would require excavation of the wellhead vaults for access. Mechanical brushes would be lowered into the vaults to clean the well screens using environmentally inert products. It is assumed maintenance of the 10 slant wells would result in an approximately 10 acres of total ground disturbance and would be subject to the NPDES Construction General Permit, including preparation and implementation of a SWPPP. In accordance with the NPDES Construction General Permit, the construction contractor(s) would implement measures to control soil erosion, manage runoff, and protect water quality. The impact would be less than significant for the subsurface slant wells. Water produced during routine (weekly) backflushing of the ASR-5 and ASR-6 Wells would be conveyed to the proposed ASR Settling Basin or the existing Phase I ASR Pump-to-Waste System located at the intersection of General Jim Moore Boulevard and Coe Avenue and percolated into the ground. These discharges would be conducted in accordance with the General Waiver.	None required.	**LS** Periodic maintenance of the subsurface slant wells would be conducted in accordance with the NPDES Construction General Permit. Routine backflushing of the ASR-5 and ASR-6 Wells, injection wells for the Salinas Valley return flows, and GWR injection wells would be conducted in accordance with the General Waiver. Mandatory compliance with regulatory requirements would ensure well maintenance activities do not adversely affect water quality. The impact is less than significant for the MPWSP Variant. *CalAm Facilities:* The potential for discharges associated with maintenance of the subsurface slant wells to degrade water quality would be reduced under the MPWSP Variant when compared to the proposed project because fewer slant wells (seven slant wells versus ten slant wells under the proposed project) would be constructed. Like the proposed project, adherence NPDES Construction General Permit requirements would ensure the impact is less than significant. Water quality impacts associated with discharges of water produced during routine backflushing of the ASR-5 and ASR-6 Wells would be identical to the proposed project.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.3 Surface Water Hydrology and Water Quality (cont.)				
Impact 4.3-6 (cont.)	Mandatory compliance with regulatory requirements would ensure periodic maintenance of the slant wells and routine maintenance of the ASR injection/extraction wells would have a less than significant water quality impact.		Overall, the CalAm facilities under the MPWSP Variant would result in reduced impacts when compared to the proposed project. However, the significance determination would be the same (less than significant). *GWR Facilities:* Operation of the GWR injection wells would not violate any water quality standards or waste discharge requirements, would not cause substantial erosion or siltation, and would not otherwise substantially degrade surface water quality due to well maintenance discharges.	
Impact 4.3-7: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff.	**LS** Implementation of the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, and Terminal Reservoir/ASR Pump Station would create new impervious surfaces that could increase peak stormwater flows, cause erosion, and increase nonpoint-source pollution in downstream water bodies. However, in accordance with the NPDES municipal stormwater permit, these facilities would be subject to post-construction stormwater management requirements. CalAm would be required to implement post-construction stormwater BMPs into the final site designs, including measures to treat and detain the runoff. Adherence to the municipal permit requirements would ensure the impact related to changes in drainage patterns, increased soil erosion, and siltation would be less than significant impact. Implementation of the Valley Greens Pump Station and subsurface slant wells would result in a negligible increase in impervious surfaces and would not alter drainage patterns, significantly increase erosion or siltation, or increase surface runoff. The impact for these facilities would also be less than significant. The proposed pipelines would be constructed below ground and would not increase impervious surfaces or alter drainage patterns. No impact would result from implementation of the proposed pipelines.	None required.	**LSM** New impervious surfaces associated with aboveground CalAm and GWR facilities would be subject to post-construction stormwater management requirements of the municipal stormwater permit. As a result, the impact would less than significant. However, rapid water fluctuations may induce erosion and sedimentation within the downstream affected reach of the Reclamation Ditch and Tembladero Slough. This is a significant impact that would be reduced to a less-than-significant with the implementation of mitigation. *CalAm Facilities:* The total increase in impervious surface area that would result from implementation of the CalAm facilities under the MPWSP Variant would be the same as the proposed project. Therefore, the potential for alteration of drainage patterns and associated increases in soil erosion, siltation, or the rate or amount of surface runoff would be identical to the proposed project. (Note: the reduced number of subsurface slant wells would not affect impervious surface areas because the wellhead vaults would be buried under the sand. The electrical control panel and electrical control building for the subsurface slant wells would be the same size under the MPWSP Variant and the proposed project.) Same as the proposed project, the overall impact is less than significant. *GWR Facilities:* Implementation of the GWR facilities would alter existing drainage patterns by increasing impervious surface areas but would not substantially increase the rate or amount of runoff such that it would cause erosion or siltation on- or off-site. During the dry seasons (typically, June through October) proposed diversions of surface water from the Reclamation Ditch would be as much as 80 percent of the flow in that drainage channel and thus rapid water fluctuations may induce erosion and sedimentation within the downstream affected reach of the Reclamation Ditch and Tembladero Slough (except west of the Highway 1 crossing where the tidal backwater effect dominates water level changes and would suppresses these imposed water level changes). This is a significant impact that would be reduced to a less-than-significant with implementation of **Mitigation Measure HS-4**.	**Mitigation Measure HS-4: Management of Surface Water Diversion Operations.**
Impact 4.3-8: Alteration of drainage patterns such that there is an increase in flooding on- or offsite or the capacity of the stormwater drainage system is exceeded.	**LS** New impervious surfaces associated with the proposed aboveground project facilities could increase the amount of surface water runoff from the facility sites and increase peak flows in the stormwater conveyance system. The MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, and Terminal Reservoir/ASR Pump Station would be subject to the post-construction stormwater management requirements of the municipal stormwater permit and would be required to implement post-construction BMPs into final site designs. With adherence to the post-construction requirements, implementation of these facilities would result in a less than significant impact related to changes in drainage patterns, increased flooding, and exceedance of downstream stormwater drainage system capacity. Implementation of the Valley Greens Pump Station and subsurface slant wells would result in a less than significant impact. No impact would result from implementation of the proposed pipelines.	None required.	**LS** New impervious surfaces associated with aboveground CalAm and GWR facilities would be subject to post-construction stormwater management requirements of the municipal stormwater permit. As a result, the impact would less than significant for the MPWSP Variant as a whole. *CalAm Facilities:* The total increase in impervious surface area that would result from implementation of the CalAm facilities under the MPWSP Variant would be the same as the proposed project. (Note: the reduced number of subsurface slant wells would not affect impervious surface areas because the wellhead vaults would be buried under the sand. The electrical control panel and electrical control building for the subsurface slant wells would be the same size under the MPWSP Variant and the proposed project.) Therefore, the potential for alteration of drainage patterns, associated increases in flooding, and flows in excess of the capacity of the stormwater drainage system would be identical to the proposed project. Same as the proposed project, the overall impact is less than significant.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.3 Surface Water Hydrology and Water Quality (cont.)				
Impact 4.3-8 (cont.)			*GWR Facilities:* Implementation of the GWR facilities would alter existing drainage patterns by increasing impervious surface areas but would not substantially increase the rate or amount of runoff such that it would cause flooding on- or offsite, or exceed the existing storm drainage system capacity	
Impact 4.3-9: Impedance or redirection of flood flows due to the siting of project facilities in a 100-year flood hazard area.	**LS** The subsurface slant wells and portions of the Source Water Pipeline and Monterey Pipeline would be constructed in a 100-year flood hazard area. However, these facilities would be placed underground and would not impede or redirect flood flows. The impact would be less than significant for the subsurface slant wells, Source Water Pipeline, and Monterey Pipeline. No impact would result from implementation of all other proposed project facilities because none of the other project components are located within a 100-year flood hazard area.	None required.	**LS** All CalAm and GWR facilities located in a 100-year flood hazard zone would be located underground and would not impede or redirect flood flows. Therefore, the impact would be less than significant for the MPWSP Variant. *CalAm Facilities:* The impact related to impedance or redirection of flood flows due to siting of the CalAm facilities in a 100-year flood hazard zone would be the same as the proposed project. Like the proposed project, all CalAm facilities located in a 100-year flood hazard area would be constructed underground and would not impede or redirect flood flows. Same as the proposed project, the overall impact is less than significant. *GWR Facilities:* Portions of the GWR facilities would be located within a 100-year flood hazard area but would be located below ground and therefore would not impede or redirect flood flows.	None required.
Impact 4.3-10: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami.	**LS** The subsurface slant wells in Marina and portions of the Monterey Pipeline in Monterey and Seaside would be located within a tsunami inundation zone. However, because these facilities would be constructed underground and designed to withstand inundation, they would not be subject to a significant risk of damage from flooding in the event of a tsunami. Because both facilities would, for the most part, be operated remotely, facility operators would not be exposed to significant tsunami hazards. The impact would be less than significant for the subsurface slant wells and Monterey Pipeline. No impact would result from implementation of all other proposed project facilities because none of the other project components are located within a tsunami inundation zone.	None required.	**LS** The potential to expose people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami would be the same as for the proposed project. *CalAm Facilities:* The impact of the CalAm facilities under the MPWSP Variant related to significant risk of loss, injury, or death from flooding due to a tsunami would be the same as the proposed project. Like the proposed project, all CalAm facilities located within a tsunami inundation zone would be constructed underground and designed to withstand inundation. Further, because these facilities would, for the most part, be operated remotely, facility operators would not be exposed to significant tsunami hazards. Same as the proposed project, the overall impact is less than significant. *GWR Facilities:* Implementation of the GWR facilities would not expose people or structures to substantial risk from flooding due to a tsunami.	None required.
Impact 4.3-11: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise.	**LS** The proposed project could expose project facilities to flooding from sea level rise. The subsurface slant wells, the northernmost portion of the MPWSP Desalination Plant site, Source Water Pipeline, and Monterey Pipeline would be located in areas that could be subject to sea level rise. However, the subsurface slant wells and two pipelines would be constructed underground and designed to withstand inundation. The proposed aboveground facilities at the 40-acre MPWSP Desalination Plant site would be constructed on the upper terrace of the site and at elevations higher than the predicted 2100 sea level elevation. Therefore, the MPWSP Desalination Plant, Source Water Pipeline, and Monterey Pipeline would not be subject to a significant risk of damage from flooding due to sea level rise and the impact would be less than significant for these facilities. None of the other proposed facilities would be subject to flooding from sea level rise. No impact would result.	None required.	**LS** The potential to expose people or structures to significant risk of loss, injury, or flooding from sea level rise would be the same as for the proposed project. *CalAm Facilities:* The potential for implementation of the CalAm facilities to expose people or structures to significant risk of loss, injury, or flooding from sea level rise would be the same as the proposed project. Like the proposed project, all CalAm facilities located in areas that could be subject to sea level rise would either be constructed underground or designed to withstand inundation. The proposed aboveground facilities at the MPWSP Desalination Plant site would be constructed at elevations higher than the predicted 2100 sea level elevation. Like the proposed project, the overall impact is less than significant. *GWR Facilities:* Some GWR facilities may be exposed to flooding due to sea level rise but this exposure would not pose a substantial nor significant risk of loss, injury, or death.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.4 Groundwater Resources				
Impact 4.4-1: 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 during construction.	**LS** Providing water to the slant well drilling could be a significant impact if the water was drawn from local groundwater wells and that withdrawal caused local groundwater levels to decrease, thereby damaging or decreasing the well yields in neighboring groundwater supply wells. For the proposed project, water would be purchased by an outside water purveyor and delivered to the drill site when needed by truck; water would not be extracted from local groundwater sources. Water needed for dust suppression, concrete wash-outs, tire washing, and general site maintenance would be purchased from a local water purveyor and delivered to the individual construction site by truck. Construction of these facilities would not require quantities of water over what is typically necessary for construction and groundwater pumping would not be necessary. This impact is less than significant because water needed for construction of wells would not deplete local groundwater supplies. Impacts related to the decrease in recharge are considered in this EIR as operational impacts of the proposed project and are discussed in Impact 4.4-3.	None required.	**LS** Under the MPWSP Variant, construction impacts would be similar to those of the proposed project. The number of slant wells would be reduced, but additional injection wells would be constructed in support of the GWR facilities. TIf well drilling water in large quantities is necessary, it would be purchased by an outside water purveyor and delivered to the drill site when needed by truck; water would not extracted from local groundwater sources. This impact is less than significant because water needed for construction of wells would not deplete local groundwater supplies. *CalAm Facilities* The construction of CalAm facilities for the MPWSP Variant would be similar to the proposed project. Fewer slant wells would be installed, reducing the need for slant well drilling water. The ASR well configuration is the same when compared to the proposed project. Construction water would be required for dust suppression, concrete wash-outs, tire washing, and general site maintenance. Water needed for these operations would be purchased from a local water purveyor and delivered to the individual construction site by truck. Construction of these facilities would not require quantities of water over what is typically necessary for construction and groundwater pumping would not be necessary. Therefore, construction of the CalAm facilities would not adversely impact groundwater supplies and this impact is less than significant. Impacts related to the decrease in recharge are considered in this EIR as operational impacts of the CalAm facilities and are discussed in Impact 4.4-3. *GWR Facilities:* Impacts associated with groundwater depletion, levels and recharge during the construction of the GWR facilities would be less than significant. During construction, the GWR facilities would use water for soil compaction and dust control. The amount of water use would be small in relation to overall water resources. At some component sites, there would be new impervious surfaces constructed that may potentially change local recharge characteristics at each site. Along pipelines route, groundwater recharge characteristics would not change because the existing site surfaces would be restored to pre-construction conditions and there would be no increases in the quantity of impervious surfaces and no loss of recharge ability. Where components are located on existing paved areas, no change in impervious surface area and no change in recharge would result. For sites proposing new impervious surfaces, all rainfall runoff would be retained on site and allowed to percolate to the groundwater basin underlying the site. Therefore, for the GWR facilities, the potential construction impacts would be less than significant.	None required.
Impact 4.4-2: Violate any water quality standards or otherwise degrade groundwater quality during construction.	**LS** The proposed slant wells would be constructed using a dual rotary drill rig that would not use drilling fluids. Instead, the dual rotary method uses air, the water already in the geologic materials, and when necessary, additional potable water to circulate the drill cuttings. If potable water were added, the quality of that water would be better than the underlying brackish water, and therefore, would not result in groundwater degradation. Considering the drilling method and the use of only air and water to assist in drilling, there is no potential for groundwater degradation and the impact would be less than significant. The ASR injection/extraction wells would be drilled without the use of drilling muds. However, when necessary and depending on the formation material encountered, certain commercially available additives could be combined with the drilling water to increase fluid viscosity and stabilize the walls of the boring to prevent reactive shale and clay from swelling and caving into the hole. Therefore, while the use of bentonite muds would be necessary during the drilling of the ASR injection/extraction wells, the potential for degradation to groundwater is low and the impact is less than significant.	None required.	**LS** *CalAm Facilities:* The seven slant wells would be constructed at depths that would extend through the Dune Sand Aquifer and the 180-Foot Equivalent Aquifer. The water quality concerns for the construction of the slant wells proposed under the project variant are similar to those for the proposed project. The drilling method and materials used in the well construction would also be similar. If potable water were added, the quality of that water would be better than the underlying brackish water, and therefore, would not result in groundwater degradation. Considering the drilling method and the use of only air and water to assist in drilling, impacts related to groundwater degradation would be less than significant. The water quality impacts associated with construction of the ASR injection/extraction wells under the project variant would be the same as those identified for proposed project. Under the construction protocols for the project variant, commercially available additives could be combined with the drilling water to increase fluid viscosity and stabilize the walls of the boring to prevent reactive shale and clay from swelling and caving into the hole. Other products would be used to enhance the drilling performance and help reduce the build-up of solids, decrease friction, and aid	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.4 Groundwater Resources (cont.)				
Impact 4.4-2 (cont.)			in reducing solids suspension. Therefore, while the use of bentonite muds would be necessary during the drilling of the ASR injection/extraction wells, the potential for degradation to groundwater is low and the impact would be less than significant. The CalAm pipelines and aboveground facilities would be similar to the proposed project, they would require only shallow excavations and would not require construction activities that would intercept groundwater bearing zones and thus, would have a low potential of degrading groundwater quality. While pipeline trenches may encounter shallow groundwater, the construction operation of laying a pipeline and backfilling would not release contaminants into the shallow groundwater zone. This impact would be less than significant. *GWR Facilities:* Although discharges of pollutants to groundwater during well drilling activities for the GWR facilities has the potential to occur, impacts to groundwater quality during the construction of the Injection Well Facilities would be less than significant based on the GWR facilities' compliance with regulatory requirements that require best management practices, including preventative and emergency measures for potential spills. For all other components, there would be a less-than-significant impact based on the compliance with regulatory requirements that ensure that there would be a lack of substantial pollutants released or disposed at the sites, and the low amount of flow that would carry any pollutants such that no contamination of groundwater resources would occur. Therefore the potential construction impacts would be less than significant.	
Impact 4.4-3: 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 during operations so as to expose well screens and pumps.	**LS** The impact analysis of the Seawater Intake System was based primarily on the North Marina Groundwater Model (NMGWM) model simulations and the response of monitoring wells to the 5-day constant-discharge pumping test (March 2015). None of the wells located in the area of influence would be adversely impacted by the drawdown caused by project pumping and the impact of the project on neighboring, local groundwater wells is less than significant. Since the proposed project would return what small percentage of groundwater that is extracted from the SVGB pumping at the slant wells would not deplete groundwater resources in the SVGB and the impact would be less than significant. Management of the ASR injection and extraction would ensure that operation of the proposed ASR injection/extraction wells would remain constant and therefore would not cause groundwater mounding, change groundwater gradients, or lower groundwater levels. Impacts associated with ASR Operation are considered less than significant. Operation of the monitoring wells, the MPWSP Desalination Plant, the Terminal Reservoir, the pipelines, or the pump stations would not interfere with, extract from, or inject into the groundwater aquifers in the SVGB or SGB. Consequently, there would be no impact associated with these facilities. Recognizing the long term nature of the proposed project and the need to provide continued verification that the project would not contribute to lower groundwater levels in neighboring wells or to seawater intrusion within the SVGB, the project applicant has proposed as part of the project to expand the existing regional groundwater monitoring program to include the area where groundwater elevations are anticipated to decrease by one or more feet in the Dune Sand Aquifer and the 180-Foot Equivalent Aquifer (see **Figures 4.4-12** and **4.4-13**). Implementation of **Applicant Proposed Mitigation Measure 4.4-3 (Groundwater Monitoring and Avoidance of Well Damage)** would ensure that a groundwater monitoring program is in place before and during groundwater pumping operations in the affected area to verify that the seawater intake system performs as expected. The monitoring program proposed under **Applicant Proposed Mitigation Measure 4.4-3** would detect changes to local groundwater elevations and quality, and evaluate whether those changes could damage neighboring active wells. Implementation of	**Applicant Proposed MM 4.4-3: Groundwater Monitoring and Avoidance of Well Damage.**	**LS** The NMGWM was used to simulate aquifer response (as groundwater level change) of the MPWSP Variant in the Dune Sands Aquifer and the deeper 180-Foot Equivalent Aquifer. The model simulations of the project variant scenarios (5n, 5ncb, and 5nc) show that the combined effect of groundwater extraction at the proposed slant wells and the increased supply of treated water from the Regional Wastewater Plant would have a reduced area of pumping influence, and therefore a smaller cone of depression, when compared to the response of the proposed project. This dampened response in the Dune Sands Aquifer and the 180-Equivalent aquifer occurs because under the project variant, less water is extracted from the slant wells, and more water is provided to CSIP from the Regional Wastewater Treatment Plant for use by agricultural users. The impact of the project variant on the groundwater supply in the SVGB is less than significant because only a small fraction of groundwater, smaller than that extracted by the proposed project, would be drawn to the slant wells. The inland groundwater drawn to the slant wells under the project variant would be from an area previously impacted by seawater intrusion and that fraction of water would ultimately be returned to the basin as Salinas Valley return flows. The NMGWM estimates that the average annual decrease of surface water loss to the underlying aquifer, as a result of the project variant, would be about 65 afy (Geoscience, 2015). Implementation of the MPWSP Variant would improve overall groundwater conditions of the SVGB by reducing extractions of groundwater in the CSIP area. In addition to the well pumping reduction benefits, treating and delivering a portion of surface stream diversions as recycled water to growers in the CSIP area would add to the surface application of water over a large area of the study area (i.e., the Crop Irrigation component of the Proposed Project). Thus, any reduction in recharge due to source water diversions from surface water bodies (Reclamation Ditch, Tembladero Slough and Blanco Drain) to the aquifers underlying the water bodies would only slightly reduce the benefit to groundwater in the Salinas Valley Groundwater Basin. Because the GWR component of the project variant would provide additional water for downgradient groundwater extraction, it would result in both higher and lower water levels in existing basin wells over time depending on the timing of extraction and the buildup of storage in the basin. HydroMetrics examined potential changes in water levels for eight key production wells for a 33-year simulation period (including 25 years of project variant operations). The results of the	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.4 Groundwater Resources (cont.)				
Impact 4.4-3 (cont.)	**Applicant Proposed Mitigation Measure 4.4-3** is not necessary to address any significant project effect, but instead further bolsters the conclusion that the impact of the proposed project on nearby active wells would be less than significant.		groundwater modeling by HydroMetrics were that simulated water levels sometimes would be lower under the project variant scenario because of increased pumping at existing extraction wells. However, simulated water levels would be lowered only about ten feet or less and would be lowered for a relatively short duration, typically for a few months. In addition, simulated water levels would be generally higher than pre-project levels. See Section 6.3.2 for more detailed discussion.	
Impact 4.4-4: Violate any water quality standards or otherwise degrade groundwater quality during operations.	**LSM** The pumping of the slant wells would migrate the seawater/freshwater interface back toward the ocean, which would be considered a less than significant impact. For the slant wells, the potential impact of interference with existing remediation systems would be less than significant impact with the possible exception of the OU1 TCE A-Aquifer Plume and two of the OUCTP plumes at the former Fort Ord. The impact would be reduced to less than significant with the implementation of **Applicant Proposed Mitigation Measure 4.4-3** and **Mitigation Measure 4.4-4**. For the ASR injection/extraction wells, the net addition of water would be considered a less than significant impact. For the ASR injection/extraction wells, the potential impact of interference with existing remediation systems would be less than significant. The operation of all other project facilities would have no impact to groundwater quality. Therefore, for the proposed project as a whole, the potential operations impacts would be less than significant with mitigation	**MM 4.4-4: Groundwater Monitoring and Avoidance of Impacts to Groundwater Remediation Plumes**	**LS** Similar to the proposed project, pumping at the slant wells would reduce the inland migration rate of the seawater/freshwater interface. The injection of Salinas Valley return flows, and increased deliveries to CSIP would facilitate the reduction of seawater intrusion and the impact would, therefore, be considered less than significant. The cone of depression and the resultant area of influence of the MPWSP Variant slant wells were considerably less extensive than those of the MPWSP. Because of this, the pumping influence from the slant well pumping under the project variant would not intersect the plumes and this impact is less than significant. See Section 6.3.2 for more detailed discussion.	None required.
4.5 Marine Biological Resources				
Impact 4.5-1: Result in substantial adverse effects on candidate, sensitive, or special-status marine species during construction.	**LS** The drilling of the subsurface slant wells for the Seawater Intake System is the only construction activity proposed within the boundaries of the Marine Resources Study Area. The drill rig insertion point would be located onshore above the maximum high-tide elevation and would extend offshore into the surf zone roughly 200 to 220 feet below msl (190 to 210 feet below the seafloor). Since all surface disturbance associated with slant well construction activities would occur on the back (inland) side of the dunes, it is unlikely that any beach sands displaced by these activities would be suspended into nearshore waters and adversely affect water quality. However, the directional drilling of the 30-inch-diameter slant wells can be expected to generate some subterranean noise that would transmit into seafloor sediments. Even under the worst-case scenario, based on the scientific literature, the subterranean noise level generated during slant well drilling would not result in acute physical damage or mortality to fish. Any noise from the slant well drilling equipment that might reach the seafloor surface would be at or below the ambient noise levels set by the surf over the slant well terminus locations. Consequently, any of the drilling noise reaching overlying ocean waters is expected to be below background noise levels and have no effect on special-status species. Based on the expected subsurface noise levels generated by the slant well drilling at the seafloor surface, potential background noise levels, and the noise levels required to cause acute or chronic harm to either special status fish species or marine mammals, the potential for impacts to candidate, sensitive or special-status species due to undersea noise caused during construction of the subsurface slant wells would be less than significant and no mitigation is required.	None required.	**LS** *CalAm Facilities:* The impact associated with construction of the MPWSP Variant would be reduced when compared to the proposed project because fewer slant wells (seven slant wells versus ten slant wells under the proposed project) would be constructed. However, the significance determination would be the same (less than significant). *GWR Facilities:* Not applicable. None of the GWR facilities would involve construction within the nearshore waters (within 5 miles of shore) of Monterey Bay.	None required.
Impact 4.5-2: Result in substantial interference with the movement of any native resident or migratory fish or wildlife species during construction.	**NI** The terminus points for the slant wells are located approximately 200 to 220 feet below msl and would not directly impede the movement of marine species. Moreover, any noise transmitted into the water from the slant well drilling equipment is estimated to be below ambient background levels in the surf zone and, therefore, would not be detectable. Therefore, no impact to the movement of any native resident or migratory fish or wildlife species would result.	None required.	**NI** *CalAm Facilities:* The construction impact of the MPWSP Variant would be the same as that of the proposed project. No impact to the movement of migration of marine species would result.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.5 Marine Biological Resources (cont.)				
Impact 4.5-2 (cont.)			<u>*GWR Facilities:*</u> Not applicable. None of the GWR facilities would involve construction within the nearshore waters (within 5 miles of shore) of Monterey Bay.	
Impact 4.5-3: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations.	**LSM** Operation of the MPWSP Desalination Plant would involve pumping up to 24.1 mgd of water from subsurface slant wells that terminate 200 to 220 feet below msl under the surf zone. The analysis of potential adverse effects on special-status species during project operations considered the potential for impingement of marine organisms from operation of the subsurface slant wells. Based on comparison of the vertical infiltration rate associated with the slant wells and published swimming speeds for plankton, larval invertebrates and larval fish, it is highly unlikely that these small organisms would be impinged against the seafloor by vertical infiltration of seawater pumped into the MPWSP Desalination Plant. The possibility that fine organic matter could be impinged against the seafloor causing a build up of organic matter and change the normal distribution of sediment grain size was also considered; it was determined that fine-grained material would not settle to the seafloor over the subsurface slant wells. The proposed discharges brine via the MRWPCA ocean outfall would result in increases in ambient salinity levels in the Marine Resources Study Area of less than 2 ppt. Studies have not indicated adverse effects on survival, growth, or behavior at these levels. Since the proposed discharges of brine from the MPWSP Desalination Plant would be below these thresholds, the impact would be less than significant. The analysis also considered adverse effects to marine resources associated with other contaminants in the brine discharge. It was assumed that the entire mass of contaminants in ocean water delivered to the MPWSP Desalination Plant through the subsurface slant wells would be present, and therefore concentrated, in the brine discharge. Concentrations of PCBs and ammonia in the brine discharges could occasionally exceed Ocean Plan objectives, which have been set with appropriate safety margins to ensure they do not accumulate to unhealthy concentrations in biota that may be eaten by humans. Although the PCB and ammonia concentrations in the brine discharge would not be acutely toxic, the potential exceedance of the Ocean Plan objective is considered a significant impact. However, with implementation of the prescribed mitigation measure, which would be incorporated into the Amended MRWPCA NPDES Permit, the impact would be reduced to a less-than-significant level. oncern has been expressed that the jet velocities associated with desalination brine discharges could cause damage to marine organisms caused by experimentally induced shear stress. Studies that indicate that at the maximum discharge velocity modeled for the brine discharges from the MPWSP Desalination Plant, the shear stress caused by the diffusers would be relatively small and transit times through this region relatively short. The impact to special-status species would be less than significant.	**MM 4.3-4: Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the ZID.** *[See Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, for a discussion of the potential secondary impacts of this mitigation measure.]*	**LSM** Because of its reduced number of wells and rate of intake compared to the proposed project, the MPWSP Variant would result in a peak vertical infiltration rate equal to or less than that of the proposed project, and so similarly would have a less-than-significant impact with respect to impingement of marine organisms. Under the MPWSP Variant, the greatest increases over ambient salinity would occur as a result of brine-only discharges, and these increases would be less than 2 ppt (1.6 and 1.7 ppt). Therefore, the MPWSP Variant would have a less-than-significant impact on special-status species as a result of elevated salinity. Brine-only and some brine-with-wastewater and combined discharges would result in a potential exceedance in PCBs over the Ocean Plan water quality objectives. Brine-with-wastewater, blended discharge ammonia would be present in MPWSP Variant discharge, and combined discharges would result in exceedances for ammonia. Although chlordane, DDT, TCDD, and toxaphene in MPWSP Variant discharges would not approach the concentrations or exposure durations shown to be acutely toxic, potential exceedance of their respective Ocean Plan objectives could lead to significant impacts on marine resources, which would be minimized to less-than-significant levels through implementation of **Mitigation Measure 4.3-4**. No additional mitigation would be required as a result of the different operation under the MPWSP Variant. Potential shear stress-related impacts would be the same as those described for the proposed project (less than significant). See Section 6.3.3 for more detailed discussion.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.5 Marine Biological Resources (cont.)				
Impact 4.5-4: Result in substantial interference with the movement of any native resident or migratory fish or wildlife species during project operations.	**LSM** As discussed under Impact 4.5-3, impingement of organisms or fine organic matter against the seafloor due to operation of the subsurface slant wells is highly unlikely. Therefore, operation of the subsurface slant wells would not interfere with the movement of any native resident or migratory fish or wildlife species. Because the recommended salinity thresholds consider salinity effects on survival, growth, and behavior, and the discharge of brine from the MPWSP Desalination Plant would be below the thresholds, any secondary effects on migration and movement would be less than significant. Although under no discharge scenario would the proposed project degrade the existing water quality of Monterey Bay as measured by PCB or ammonia concentration, this analysis considers occasional exceedances of the Ocean Plan water quality objectives for PCBs and ammonia a potentially significant impact. However, the impact would be reduced to a less-than-significant level with implementation of the mitigation.	**MM 4.3-4: Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the ZID.** *[See Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, for a discussion of the potential secondary impacts of this mitigation measure.]*	**LSM** Same as the proposed project, as discussed under Impact 4.5-3, impingement of organisms or fine organic matter against the seafloor due to operation of the subsurface slant wells is highly unlikely. Therefore, operation of the subsurface slant wells would not interfere with the movement of any native resident or migratory fish or wildlife species. Because the recommended salinity thresholds consider salinity effects on survival, growth, and behavior, and the discharge of brine from the MPWSP Variant Desalination Plant would be below the thresholds, any secondary effects on migration and movement would be less than significant. As discussed under Impact 4.5-3, potential exceedances of Ocean Plan water quality objectives for any constituent in project variant discharges would be reduced to less than significant with implementation of **Mitigation Measure 4.3-4.** See Section 6.3.3 for more detailed discussion.	None required.
Impact 4.5-5: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	**LS** The only construction activities that could have any effect on an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan within the Marine Resources Study Area is the drilling of the subsurface slant wells. As discussed under Impact 4.5-1, no adverse effects are anticipated. Because the increase in ambient salinities at the edge of the ZID from the proposed brine discharges would be less than 2 ppt, the impact related to conflicts with adopted conservation plans would be less than significant.	None required.	**LS** *CalAm Facilities:* The construction and operational impact of the MPWSP Variant would be the same as or reduced compared to those of the proposed project with respect to subsurface slant wells and salinity concentrations. No impact to the movement of migration of marine species would result. Therefore, conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional or state habitat conservation plan, including the California Coastal Act, essential fish habitat and the small area of kelp in the southern part of the study area, would be less than significant and no mitigation is required. *GWR Facilities:* There are no adopted Habitat Conservation Plans or Natural Conservation Community Plans within the area of the GWR facilities that address marine biological resources.	None required.
4.6 Terrestrial Biological Resources				
Impact 4.6-1: Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification, during construction.	**LSM** Construction activities could result in direct impacts to special-status plants through mortality of individuals during earthwork and loss of habitat. Indirect impacts to plants can result from population fragmentation, introduction of non-native weeds, and interference with plant metabolic processes from construction effects such as fugitive dust and sedimentation. Construction activities can result in direct impacts on wildlife by direct trampling or entrapment of individuals and habitat removal. Indirect impacts to wildlife can occur from harassment, behavior disruption, increased predation, and degradation of habitat. Significant impacts to special-status plant and animal species could occur during construction at all of the proposed MPWSP facility sites; however, all impacts could be reduced to a less-than-significant level with implementation of mitigation. (Refer to Table 4.6-4 in Section 4.6, Terrestrial Biological Resources, for the specific plant and wildlife species that could be adversely affected by construction at each proposed facility site.)	**MM 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.** **MM 4.6-1b: Construction Worker Environmental Awareness Training and Education Program.** **MM 4.6-1c: General Avoidance and Minimization Measures.** **MM 4.6-1d: Protective Measures for Western Snowy Plover.** **MM 4.6-1e: Avoidance and Minimization Measures for Special-status Plants.** **MM 4.6-1f: Avoidance and Minimization Measures for Smith's Blue Butterfly.** **MM 4.6-1g: Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard.**	**LSM** Construction-related impacts of the MPWSP Variant would be similar to those of the proposed project, with the exception of some additional species potentially affected as a result of the construction of GWR facilities within different habitat types (listed under "GWR facilities"). All impacts would be reduced to less than significant with implementation of mitigation. *CalAm Facilities:* With the exception of the subsurface slant wells, the CalAm facilities under the MPWSP Variant would result in the same impacts to special-status plants and wildlife species as the proposed project. At the subsurface slant well site, due to the fewer slant wells that would be constructed (seven wells vs. ten wells under the proposed project), the total disturbance area would be reduced and there would be a corresponding reduction in impacts to special-status plant species, Smith's blue butterfly, western snowy plover, black legless lizard, silvery legless lizard, and coast horned lizard. Because the footprint of the MPWSP Desalination Plant would be the same under the MPWSP Variant as under the proposed project, there would be no change in impacts at the desalination plant site. *GWR Facilities:* Construction of GWR facilities may adversely affect, either directly or through habitat modification, special-status plant and wildlife species and their habitat. Significant impacts to special-status plant and animal species could occur during construction at all of the proposed GWR facility sites,	**Mitigation Measure BT-1a: Implement Construction Best Management Practices.** **Mitigation Measure BT-1b: Implement Construction-Phase Monitoring.** **Mitigation Measure BT-1c: Implement Non-Native, Invasive Species Controls.** **Mitigation Measure BT-1d: Conduct Pre-Construction Surveys for California Legless Lizard.** **Mitigation Measure BT-1e: Prepare and Implement Rare Plant Restoration Plan to Mitigate Impacts to Sandmat Manzanita, Monterey Ceanothus, Monterey Spineflower, Eastwood's**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.6 Terrestrial Biological Resources (cont.)				
Impact 4.6-1 (cont.)		**MM 4.6-1h: Avoidance and Minimization Measures for Western Burrowing Owl.** **MM 4.6-1i: Avoidance and Minimization Measures for Nesting Birds.** **MM 4.6-1j: Avoidance and Minimization Measures for American Badger.** **MM 4.6-1k: Avoidance and Minimization Measures for Monterey Dusky-Footed Woodrat.** **MM 4.6-1l: Avoidance and Minimization Measures for Pallid Bat.** **MM 4.6-1m: Avoidance and Minimization Measures for Native Stands of Monterey Pine.** **MM 4.6-1n: Habitat Mitigation and Monitoring Plan.** **MM 4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander.** **MM 4.12-1b: General Noise Controls for Construction Equipment.** **MM 4.14-2: Site-Specific Construction Lighting Measures.**	including impacts to: sandmat manzanita, Monterey ceanothus, Monterey spineflower, Eastwood's goldenbush, and Kellogg's horkelia; roosting special-status bat species and nesting raptors, migratory birds, tricolored blackbird, western burrowing owl, California horned lark, white-tailed kite, or other protected avian species; Smith's blue butterfly; California red-legged frog; western pond turtle; Coast Range newt; two-striped garter snake; California legless lizard; coast horned lizard; Monterey dusky-footed woodrat; Salinas harvest mouse; Monterey ornate shrew; and American badger. All impacts could be reduced to a less-than-significant level with implementation of mitigation.	**Goldenbush, Coast Wallflower, and Kellogg's Horkelia.** **Mitigation Measure BT-1f: Conduct Pre-Construction Protocol-Level Botanical Surveys within the Product Water Conveyance: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch; and the remaining portion of the Project Study Area within the Injection Well Facilities site.** **Mitigation Measure BT-1g: Conduct Pre-Construction Surveys for Special-Status Bats.** **Mitigation Measure BT-1h: Implementation of Mitigation Measures BT-1a and BT-1b to Mitigate Impacts to the Monterey Ornate Shrew, Coast Horned Lizard, Coast Range Newt, Two-Striped Garter Snake, and Salinas Harvest Mouse.** **Mitigation Measure BT-1j: Conduct Pre-Construction Surveys for American Badger.** **Mitigation Measure BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark.** **Mitigation Measure BT-1l: Conduct Pre-Construction Surveys for Burrowing Owl.** **Mitigation Measure BT-1m: Minimize effects of nighttime construction lighting.** **Mitigation Measure BT-1n: Mitigate Impacts to Smith's blue butterfly.** **Mitigation Measure BT-1p: Avoid and Minimize Impacts to Western Pond Turtle.** **Mitigation Measure BT-1q: Avoid and Minimize Impacts to California Red-Legged Frog**.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.6 Terrestrial Biological Resources (cont.)				
Impact 4.6-2: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction.	**LSM** Project construction could result in significant impacts to sensitive natural communities (including riparian habitat) and critical habitat. Construction of the subsurface slant wells and Source Water Pipeline would result in significant impacts to critical habitat for western snowy plover, and construction of the Transmission Main would result in significant impacts to critical habitat for Monterey Spineflower. None of the other project facilities would result in significant impacts to critical habitat. The subsurface slant wells, Source Water Pipeline, and Transmission Main would also result in significant impacts to central dune scrub; the Desalinated Water Pipeline would result in significant impacts to central dune scrub and riparian woodland and scrub; the Transfer Pipeline would result in significant impacts to central maritime chaparral; the Monterey Pipeline would significantly impact central dune scrub, coast live oak woodland, and riparian woodland and scrub; the ASR-5 and ASR-6 Wells, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, and ASR Settling Basin would result in significant impacts to oak woodland, coast sage scrub, and central maritime chaparral; and the ASR Pump Station and Terminal Reservoir would significantly impact central maritime chaparral. All impacts to sensitive natural communities and critical habitat would be reduced to a less-than-significant level with implementation of the prescribed mitigation measures. No impacts to sensitive natural communities or critical habitat would result from construction of the MPWSP Desalination Plant, Salinas Valley Return Pipeline, Brine Discharge Pipeline, Valley Greens Pump Station, Ryan Ranch–Bishop Interconnection Improvements, or Main System-Hidden Hills Interconnection Improvements.	**MM 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.** **MM 4.6-1b: Construction Worker Environmental Awareness Training and Education Program.** **MM 4.6-1c: General Avoidance and Minimization Measures.** **MM 4.6-1d: Protective Measures for Western Snowy Plover.** **MM 4.6-1e: Avoidance and Minimization Measures for Special-status Plants.** **MM 4.6-1n: Habitat Mitigation and Monitoring Plan.** **MM 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas.** **MM 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities.**	**LSM** The MPWSP Variant would result in similar types of impacts to those of the proposed project. All impacts would be reduced to less than significant with implementation of mitigation. *CalAm Facilities:* With the exception of the subsurface slant well site, the CalAm facilities under the MPWSP Variant would result in the same impacts to sensitive natural communities and critical habitat as the proposed project. At the subsurface slant well site, due to the fewer slant wells that would be constructed (seven wells vs. ten wells under the proposed project), the total disturbance area would be reduced, which would result in a corresponding reduction in impacts to central dune scrub and critical habitat for western snowy plover. However, the overall significance determination would not change. *GWR Facilities:* Construction of GWR facilities may adversely affect sensitive habitats including riparian, wetlands, and/or other sensitive natural communities. Construction of the Salinas Pump Station, Salinas Treatment Facility, Lake El Estero Diversion, Treatment Facilities at Regional Treatment Plant would not result in impacts to sensitive habitat. Construction of the Blanco Drain Diversion and Coastal Alignment Option would affect riparian habitat. Construction of the RUWAP Alignment Option and Injection Well Facilities would affect central maritime chaparral. All impacts could be reduced to a less-than-significant level with implementation of mitigation.	**Mitigation Measure BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats.** **Mitigation Measure BT-2c: Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River.**
Impact 4.6-3: Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the State during construction.	**LSM** Direct impacts to wetlands include removal of vegetation, soil, or structures and/or the placement of fill in the wetland, or hydrological modifications (i.e. altering the flow of water in or out of the wetland or water). Indirect impacts could occur from construction activities or construction worker foot traffic that inadvertently extend beyond the designated construction work area and into waters or wetland features, trash and debris left in the features following construction, sedimentation of the feature as a result of increased soil erosion from construction work areas, and degradation of water quality from pollutants (e.g., oil, hydraulic fluid) that are conveyed by surface runoff from the construction site to offsite waters. With respect to sedimentation and degradation of water quality from construction pollutants, for all proposed project components, implementation of the BMPs in the project-specific SWPPP would require measures to manage soil erosion and protect water quality in receiving waterbodies. Construction of the Desalinated Water Pipeline, Monterey Pipeline, Terminal Reservoir/ASR Pump Station, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and ASR-5 and ASR-6 Wells would result in direct impacts to potential waters of the U.S. and/or waters of the State. Construction of the subsurface slant wells, Source Water Pipeline, Salinas Valley Return Pipeline, and Brine Discharge Pipeline could result in significant indirect impacts to wetlands/waters if construction activities or construction worker foot traffic were to extend beyond the designated construction work area. All significant direct and indirect impacts would be reduced to a less-than-significant level with implementation of the prescribed mitigation measures.	**MM 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.** **MM 4.6-1b: Construction Worker Environmental Awareness Training and Education Program.** **MM 4.6-1c: General Avoidance and Minimization Measures.** **MM 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands.**	**LSM** The MPWSP Variant would result in similar types of impacts to those of the proposed project. All impacts would be reduced to less than significant with implementation of mitigation. *CalAm Facilities:* With the exception of the subsurface slant well site, the CalAm facilities under the MPWSP Variant would result in the same impacts to potential waters of the U.S. and of the State as the proposed project. Due to the decreased disturbance area at the subsurface slant well site, potential impacts to the adjacent CEMEX settling ponds would also be reduced. However, the overall significance determination would not change. *GWR Facilities:* Construction of the Reclamation Ditch Diversion, Tembladero Slough Diversion, Blanco Drain Diversion would impact **O**ther waters of the U.S. All impacts could be reduced to a less-than-significant level with implementation of mitigation.	**Mitigation Measure BT-1a: Implement Construction Best Management Practices.** **Mitigation Measure BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats.** **Mitigation Measure BT-2c: Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River.**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.6 Terrestrial Biological Resources (cont.)				
Impact 4.6-3 (cont.)	The impact associated with construction of the MPWSP Desalination Plant, Transfer Pipeline, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, ASR Settling Basin, and Valley Greens Pump Station would be less than significant.			
Impact 4.6-4: Conflict with local tree ordinances.	**LSM** With the exception of the subsurface slant wells and Valley Greens Pump Station (site option 2), all other proposed project facilities have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree.	**MM 4.6-4: Compliance with Local Tree Ordinances.**	**LSM** The MPWSP Variant could conflict with local tree ordinances, and would have a less-than-significant impact after implementation of mitigation. *CalAm Facilities:* The potential for the CalAm facilities under the MPWSP Variant to conflict with local tree ordinances would be identical to the proposed project. *GWR Facilities:* Construction of the GWR facilities may result in tree trimming and/or removal, although the exact number of trees will not be known until final engineering is completed. Prior to construction, the GWR facilities would be required to comply with the tree trimming/removal ordinances outlined in the relevant city and county codes (including City of Seaside Municipal Code Chapter 8.54 and City of Marina Municipal Code Chapter 12.04). Therefore, the impacts associated with potential conflict with tree removal and other biological resources policies and ordinances would be less than significant.	None required.
Impact 4.6-5: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations.	**LSM** Routine maintenance of the subsurface slant wells would be conducted every 5 years and would require excavation of the slant well vaults in order to access the wellheads. Mechanical brushes would be lowered into the wells to clean the well screens. Because the estimated disturbance area associated with this routine maintenance is similar to the disturbance area associated with slant well construction (roughly 10 acres), routine maintenance of the slant wells could result in significant impacts to special-status plant and wildlife species that are similar to the impacts of slant well construction. However, with implementation of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level. The 3-million-gallon brine storage basin at the MPWSP Desalination Plant could attract waterfowl. Migratory waterfowl could become sick or die from use of the brine storage basin, a significant impact. However, with implementation of mitigation, the impact would be reduced to a less-than-significant level. Safety lighting at the ASR Pump Station/Terminal Reservoir site could adversely affect migratory birds or bats by causing them to abandon their nests or roosts. However, this significant impact would be reduced to a less-than-significant level with mitigation. Maintenance and operations of all other proposed facilities would not result in substantial noise increases, new permanent sources of glare or light, or foreseeable surface disturbance in undeveloped areas. Therefore, no impact to special-status species would result from implementation of all other facilities.	**MM 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.** **MM 4.6-1b: Construction Worker Environmental Awareness Training and Education Program.** **MM 4.6-1c: General Avoidance and Minimization Measures.** **MM 4.6-1d: Protective Measures for Western Snowy Plover.** **MM 4.6-1e: Avoidance and Minimization Measures for Special-status Plants.** **MM 4.6-1f: Avoidance and Minimization Measures for Smith's Blue Butterfly.** **MM 4.6-1g: Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard.** **MM 4.6-1i: Avoidance and Minimization Measures for Nesting Birds.** **MM 4.6-1n: Habitat Mitigation and Monitoring Plan.** **MM 4.12-1b: General Noise Controls for Construction Equipment.** **MM 4.14-2: Site-Specific Construction Lighting Measures.** **MM 4.6-5: Installation and Monitoring of Bird Deterrents at the Brine Storage Basin.**	**LSM** With the exception of impacts to western snowy plover, which would be reduced under the MPWSP Variant compared to the proposed project, the MPWSP Variant's impacts would be similar to those of the proposed project with respect to candidate, sensitive, and special-status species. All impacts on such species would be reduced to less than significant through the implementation of mitigation measures (applicable to the CalAm facilities). *CalAm Facilities:* With the exception of the subsurface slant well site, the CalAm facilities under the MPWSP Variant would result in the same impacts to candidate, sensitive, or special-status species during project operations as the proposed project. Due to the decreased disturbance area at the subsurface slant well site, potential impacts to species would also be reduced. However, the overall significance determination would not change. *GWR Facilities:* General operations and maintenance activities associated with GWR pipelines would include annual inspections, testing and servicing of valves, vegetation maintenance along rights-of-way, and repairs of minor leaks in buried pipeline joints or segments. In addition, it is anticipated that each of the injection wells would be back-flushed for about 4 hours weekly, requiring discharge of the back-flush water to a percolation pond or back-flush basin. These discharges of groundwater would be intermittent, and would temporarily inundate a small area prior to percolating to the groundwater basin. In addition, the area would be disked occasionally to maintain the percolation characteristics of the basin. General operations and maintenance activities associated with other GWR facilities (e.g., Salinas Pump Station, Salinas Treatment Facility, Lake El Estero, the Reclamation Ditch Diversion site, Tembladero Ditch Diversion site, Blanco Drain Diversion site, and Product Water Conveyance Booster Pump Station) would include staff oversight, monitoring and inspections, repairs, and servicing. These activities would not significantly impact any special-status species, if present, as the disturbance would be minimal and intermittent. Therefore, operations and maintenance impacts would be less than significant.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.6 Terrestrial Biological Resources (cont.)				
Impact 4.6-6: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during project operations.	**LSM** Routine maintenance of the subsurface slant wells would require approximately 10 acres of surface disturbance and, like construction of the subsurface slant wells, would result in significant impacts to sensitive natural communities and critical habitat for western snowy plover. However, with implementation of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level. Maintenance and operations of all other proposed facilities would not result in foreseeable surface disturbance in undeveloped areas. Therefore, no impact to sensitive natural communities or critical habitat from operations and maintenance would result. No mitigation is required.	**MM 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.** **MM 4.6-1b: Construction Worker Environmental Awareness Training and Education Program.** **MM 4.6-1c: General Avoidance and Minimization Measures.** **MM 4.6-1d: Protective Measures for Western Snowy Plover.** **MM 4.6-1n: Habitat Mitigation and Monitoring Plan.** **MM 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas.** **MM 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities.**	**LSM** The MPWSP Variant would result in similar types of impacts to those of the proposed project during operations, though with some reduction in impacts on central dune scrub and critical habitat for western snowy plover, and additional impacts on riparian habitats associated with the Salinas River. Overall, impacts would be less than significant after implementation of mitigation. *CalAm Facilities:* With the exception of the subsurface slant well site, the CalAm facilities under the MPWSP Variant would result in the same impacts to sensitive natural communities and critical habitat as the proposed project. At the subsurface slant well site, due to the fewer slant wells (seven wells vs. ten wells under the proposed project), the total disturbance area associated with routine maintenance of the slant wells would be reduced, which would result in a corresponding reduction in impacts to central dune scrub and critical habitat for western snowy plover. However, the overall significance determination would not change. *GWR Facilities:* The combined operation of the Salinas Pump Station Diversion, Salinas Treatment Facility, and the Blanco Drain Diversion components of the Proposed Project would affect the hydrology of the Salinas River with a potential reduction of up to 2 percent of the average annual flow (up to 1 percent of the average annual flow with the operation of the Salinas Pump Station Diversion and the Salinas Treatment Facility, combined with up to 1 percent of the average annual flow with the operation of the Blanco Drain Diversion). The reduction of up to 2 percent of the average annual flow in the Salinas River by the coexistent operation of the Salinas Pump Station Diversion, Salinas Treatment Facility, and the Blanco Drain Diversion components of the Proposed Project is not substantial in relation to total flows. Thus, this diversion would result in a less-than-significant impact on Salinas River flows, and, therefore, a less-than-significant impact on the riparian habitats associated with the river.	None required.
Impact 4.6-7: Result in substantial adverse effects on federal wetlands, federal other waters, and waters of the State during project operations.	**LSM** Periodic maintenance of the subsurface slant wells could adversely affect the CEMEX settling ponds, a significant impact. However, with implementation of some of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level. No impact to waters of the U.S./waters of the State would result from maintenance and operation of all other CalAm facilities. No mitigation is required.	**MM 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.** **MM 4.6-1b: Construction Worker Environmental Awareness Training and Education Program.** **MM 4.6-1c: General Avoidance and Minimization Measures.**	**LSM** The MPWSP Variant would result in similar types of impacts to those of the proposed project during operations. Overall, impacts would be less than significant after implementation of mitigation. *CalAm Facilities:* With the exception of the subsurface slant well site, the CalAm facilities under the MPWSP Variant would result in the same impacts to potential waters of the U.S. and of the State during operations as the proposed project. Due to the decreased disturbance area at the subsurface slant well site, potential impacts to the adjacent CEMEX settling ponds would also be reduced. However, the overall significance determination would not change. *GWR Facilities:* The combined operation of the Salinas Pump Station Diversion, Salinas Treatment Facility, and the Blanco Drain Diversion components of the Proposed Project would affect the hydrology of the Salinas River with a potential reduction of up to 2 percent of the average annual flow (up to 1 percent of the average annual flow with the operation of the Salinas Pump Station Diversion and the Salinas Treatment Facility, combined with up to 1 percent of the average annual flow with the operation of the Blanco Drain Diversion). The reduction of up to 2 percent of the average annual flow in the Salinas River by the coexistent operation of the Salinas Pump Station Diversion, Salinas Treatment Facility, and the Blanco Drain Diversion components of the Proposed Project is not substantial in relation to total flows. Thus, this diversion would result in a less-than-significant impact on Salinas River flows, and, therefore, a less-than-significant impact on the wetlands associated with the river	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.6 Terrestrial Biological Resources (cont.)				
Impact 4.6-8: Conflict with the provisions of an adopted Habitat Conservation Plans, natural community conservation plans or other approved local, regional, or state habitat conservation plan.	**LSM** The Transfer Pipeline, Terminal Reservoir, and ASR Pump Station could conflict with the *1997 Installation-Wide Multispecies Habitat Management Plan* for the former Fort Ord area, which is considered a significant impact. Implementation of the prescribed mitigation measure would reduce the impact to a less-than-significant level. None of the other project components are located within an approved HMP area. Therefore, no impact would result.	**MM 4.6-8: Management Requirements within Borderland Development Areas along Natural Resource Management Area Interface.**	**LSM** The MPWSP Variant would result in similar types of impacts to those of the proposed project during operations, though with some additional sites where impacts could occur associated with the GWR facilities. Overall, impacts would be less than significant after implementation of mitigation. *CalAm Facilities:* The potential for the CalAm facilities under the MPWSP Variant to conflict with an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan would be identical to the proposed project. *GWR Facilities:* There is potential for inconsistency with the local requirements for the Habitat Conservation Plan plant species for components located within the boundaries of former Fort Ord. This impact would be less than significant with implementation of mitigation measures.	**Mitigation Measure BT-4. HMP Plant Species Salvage.**
Impact BF-1: Habitat Modification Due to Construction of Diversion Facilities. *[Applies to GWR facilities only]*	Not applicable to proposed project because proposed project would not modify steelhead fish habitat.	None required.	**LSM** *CalAm Facilities:* Not applicable to CalAm facilities of the MPWSP Variant because the CalAm facilities would not modify steelhead fish habitat. *GWR Facilities:* Construction of the proposed Reclamation Ditch and Tembladero Slough diversions could indirectly result in habitat modifications for endangered or threatened fish species as a result of construction activities and dewatering the construction sites. This impact would be less than significant with implementation of mitigation measures.	**Mitigation Measure BF-1a: Construction during Low Flow Season.** **Mitigation Measure BF-1b: Relocation of Aquatic Species during Construction.** [*Apply to Reclamation Ditch and Tembladero Slough Diversions only*.]
Impact BF-2: Interference with Fish Migration. *[Applies to GWR facilities only]*	Not applicable to proposed project because proposed project would not affect stream flows in the Salinas River or Reclamation Ditch.	None required.	**LSM** *CalAm Facilities:* Not applicable to CalAm facilities of the MPWSP Variant because the CalAm facilities would not affect stream flows in the Salinas River or Reclamation Ditch. *GWR Facilities:* Operation of the Proposed Project would result in changes in stream flows that may interfere with fish migration in the Salinas River and Reclamation Ditch. This impact would be less than significant with implementation of mitigation measures.	**Mitigation Measure BF-2a: Maintain Migration Flows.** **Mitigation Measure Alternate BF-2a: Modify San Jon Weir.** **[*Apply to the Reclamation Ditch Diversion only*.]**
Impact BF-3: Reduction in Fish Habitat or Fish Populations Due to Project Operations. *[Applies to GWR facilities only]*	Not applicable to proposed project because proposed project would not affect stream flows in the Salinas River or Reclamation Ditch.	None required.	**LS** *CalAm Facilities:* Not applicable to CalAm facilities of the MPWSP Variant because the CalAm facilities would not affect stream flows in the Salinas River or Reclamation Ditch. *GWR Facilities:* Operation of the Proposed Project diversions would not reduce the habitat of a fish species or substantially affect fish populations. This impact would be less than significant.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.7 Hazards and Hazardous Materials				
Impact 4.7-1: Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials during construction.	**LS** Reasonably foreseeable upset and accident conditions associated with the routine transport, use, and disposal of petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents during construction could result in inadvertent releases of small quantities of these materials to the environment. However, compliance with numerous hazardous materials and stormwater regulations would ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner. Compliance with the regulations would ensure that hazardous construction materials are stored in appropriate containers, with secondary containment to contain a potential release and disposed of appropriately. A SWPPP for construction activities prepared as required by the NPDES General Construction Permit would identify the hazardous materials proposed to be used and describe spill prevention measures, equipment inspection requirements, equipment and fuel storage, and spill response protocols. With compliance with applicable regulations, the impact would be less than significant.	None required.	**LS** The MPSWP Variant would have a similar potential create a significant impact through the routine transport, use, and disposal of construction materials as the proposed project. While slightly less construction would occur for the CalAm facilities, the addition of the GWR facilities would result in an overall increase in the number of sites upon which hazardous materials would be used during construction. Compliance with existing and future hazardous materials laws and regulations would prevent a significant impact from occurring at all sites, and the combined impact for the MPSWP Variant would be less than significant. *CalAm Facilities:* Potential impacts associated with the routine transport, use, and disposal of hazardous materials during construction of the MPWSP Variant would be essentially the same as for the proposed project, although slightly less because fewer subsurface slant wells would be constructed. The impact would be less than significant. *GWR Facilities:* All contractors involved in construction of the GWR facilities would be required to comply with existing and future hazardous materials laws and regulations for transport, use, and disposal of hazardous materials and NPDES permitting requirements, including implementation of SWPPP and best management practices for protection of the public and environment due to accidental spills. Construction of the GWR facilities of the MPWSP Variant would result in a less-than-significant impact due to the routine transport, use, or disposal of hazardous materials during construction.	None required.
Impact 4.7-2: Reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during construction.	**LSM** There are typically two types of releases that could occur during construction: (1) the accidental release of hazardous materials that are routinely used during construction activities (addressed above under Impact 4.7-1); and (2) the potential for construction activities to encounter and excavate contaminated soil or groundwater that are already present at the construction site and thus release it to expose new receptors to the hazard which is addressed herein. Contaminated soil and/or groundwater could be encountered during construction of all proposed project components. The potential for contaminated soil and groundwater to be released into the environment during project construction is therefore considered a significant impact for all project components. However, implementation of the identified mitigation measure and compliance with applicable hazardous materials laws and regulations would reduce the impact to a less-than-significant level.	**MM 4.7-2a: Health and Safety Plan** **MM 4.7-2b: Soil and Groundwater Management Plan**	**LSM** The MPSWP Variant would have a similar potential to result in accidental release of hazardous materials into the environment during construction as the proposed project. While slightly less construction would occur for the CalAm facilities, the addition of the GWR facilities would result in an overall increase in the number sites upon which construction would occur. The combined impact from construction of all MPSWP Variant facilities would be less than significant with mitigation. *CalAm Facilities:* Impacts involving the accidental release of hazardous materials into the environment during construction of the MPWSP Variant would be essentially the same as those of the proposed project, although slightly less because fewer subsurface slant wells would be constructed. As under the MPWSP, the impact would be less than significant with mitigation. *GWR Facilities:* Hazardous materials that could be used during construction activities include fuels, lubricants, paints, and solvents. Through compliance with applicable hazardous materials storage and stormwater permitting regulations, the use of hazardous materials impacts potential releases of hazardous materials or petroleum products during construction would be less than significant for all project components. The Envirostor database identified existing hazardous materials release sites within ¼-mile of the GWR facilities sites. Encountering unanticipated soil or groundwater contamination could result in exposures to construction workers, the public, or the environment, resulting in a potentially significant impact at the following sites proposed for GWR facilities: The impact is considered significant for the following components: the Lake El Estero Diversion, Product Water Conveyance Systems (both options), and the Injection Well Facilities. Implementation of Mitigation Measures would reduce the impact to a less-than-significant level.	**Mitigation Measure HH-2a: Health and Safety Plan (similar to the 4.7-2a for the MPWSP)** **Mitigation Measure HH-2b: Contractor HAZWOPER Training)** **Mitigation Measure HH-2c: Materials Disposal Plan (similar to 4.7-2b for the MPWSP)**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.7 Hazards and Hazardous Materials (cont.)				
Impact 4.7-3: Project facilities would be located on a known hazardous materials site.	**LS** The proposed Terminal Reservoir, ASR Pump Station, and portions of the Transfer Pipeline, ASR Conveyance Pipelines, and ASR Pump-to-Waste Pipeline would be located within known hazardous materials sites, including the Seaside Munitions Response Area and several specific Munitions Response Sites. However, prior to any construction in these areas, the applicant or its contractor would need to obtain a Right of Entry agreement from the Fort Ord Reuse Authority (FORA) (or the future property owner) and obtain a permit for digging and excavation from the City of Seaside. Compliance with permit application requirements, specific regulations that apply to any ground-disturbing activities within these areas, including the City of Seaside's Ordnance Remediation District regulations and the environmental protection provisions of the Findings of Suitability for Early Transfer agreement would ensure the impact is less than significant. None of the other proposed project facilities are located within a known hazardous materials sites.	None required.	**LS** The MPSWP Variant would have a similar potential impact from locating facilities on known hazardous materials sites as the proposed project. While slightly less construction would occur for the CalAm facilities, the addition of the GWR facilities would result in an overall increase in the number of known contaminated sites upon which construction would occur. Compliance with existing regulations would prevent a significant impact from occurring at all sites, and the combined impact from construction of all MPSWP Variant facilities would be less than significant. *CalAm Facilities:* Impacts associated with locating CalAm facilities within a known hazardous materials site under the MPWSP Variant would be identical to that under the proposed project because the MPWSP Variant would include the same components—the Terminal Reservoir, ASR Pump Station, and portions of the Transfer Pipeline, ASR Conveyance Pipelines, and ASR Pump-to-Waste Pipeline—that would be located in known hazardous materials sites. As under the MPWSP the impact would be less than significant. *GWR Facilities:* The GWR facilities of the MPWSP variant would be located on known hazardous materials sites. Compliance with existing regulations for construction work at the former Fort Ord would reduce the potential impact of encountering unexploded ordnance by construction workers at the Injection Well Facilities and Transfer Pipeline sites to less than significant. Some project components (both alignments of the Product Water Conveyance Pipelines) are proposed to be located above identified contaminated groundwater. However, these contaminated groundwater plumes are located hundreds of feet below ground surface and construction activities will only occur no lower than the top 30 feet of soil. Therefore, no impact associated with the siting of these facilities on known groundwater contamination sites at the former Fort Ord would occur. None of the other project components would be located on designated known hazardous materials sites pursuant to Government Code Section 65962.5. Therefore, the proposed rroject would have a less than significant impact associated with the siting of these facilities on a known hazardous materials site and no mitigation measures would be required.	None required.
Impact 4.7-4: Handle hazardous materials or emit hazardous emissions within 0.25 mile of schools during construction.	**LS** Construction activities associated with the Desalinated Water Pipeline, Transmission Main, Transfer Pipeline, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, Monterey Pipeline, and Valley Greens Pump Station (site Option 2) would require that hazardous materials be handled within 0.25 mile of schools during construction. However, compliance with all relevant hazardous materials storage and stormwater permitting requirements would prevent significant adverse effects. Construction of these facilities would also result in short-term emissions of diesel particulate matter (DPM), a toxic air contaminant, within 0.25 mile of schools. However, as discussed in Section 4.10, Air Quality, DPM emissions would be less than the Monterey Bay Unified Air Pollution Control District's increased cancer risk threshold. Therefore, the impact related to the handling of hazardous materials or generation of hazardous emissions within 0.25 mile of a school during construction of the Desalinated Water Pipeline, Transmission Main, Transfer Pipeline, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, Monterey Pipeline, and Valley Greens Pump Station (site Option 2) would be less than significant. None of the other proposed project components are located within 0.25-mile of a school. No impact would result.	None required.	**LS** The MPSWP Variant would have a similar potential impact from constructing facilities within 0.25 miles of a school as the proposed project. While the same potential impact would occur due to construction of CalAm facilities, the addition of the GWR facilities would result in an overall increase in the number of construction sites located within 0.25 miles of a school. Compliance with existing regulations would prevent a significant impact from occurring at all sites, and the combined impact from construction of all MPSWP Variant facilities would be less than significant. *CalAm Facilities:* Impacts associated with the construction of the MPWSP Variant would be identical to those of the proposed project because the Variant would include the same components that would be located near schools. As under the MPWSP the impact would be less than significant. *GWR Facilities:* The proponent of the GWR facilities of the MPWSP Variant and its contractors would be required to comply with existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials, therefore the potential impact on schools related to the use of hazardous materials at these sites that are within 0.25-mile would be less than significant and no mitigation measures are necessary.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.7 Hazards and Hazardous Materials (cont.)				
Impact 4.7-5: Increase risk of wildland fires during construction.	**LS** The project facilities that would be located in or near areas classified by CAL FIRE as High or Very High Fire Hazard Severity Zones are the Main System-Hidden Hills Interconnection Improvements, the Ryan Ranch-Bishop Interconnection Improvements, and the Valley Greens Pump Station (both site options). Compliance with California regulations governing the use of construction equipment in fire-prone areas, the California Fire Code's general construction fire safety requirements, and any additional requirements imposed by CAL FIRE or the local fire protection departments would ensure that the risk of wildland fires during construction in these areas would be less than significant. None of the other proposed project facilities are located within or near an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone; however, construction activities could temporarily increase fire risk. Compliance with California fire code regulations for construction would also ensure that the potential impact associated with an increased risk of fire during construction of the other project components would be less than significant.	None required.	**LS** The MPSWP Variant would have a similar potential impact from increased risk of fire due to project construction as the proposed project. While the same CalAm Facilities would be located within high or very high hazard zones, the addition of the GWR facilities would result in an overall increase in the number of construction sites within high or very high hazard zones. Compliance with existing regulations would prevent a significant impact from occurring at all sites, and the combined impact from construction of all MPSWP Variant facilities would be less than significant. *CalAm Facilities:* Impacts associated with an increased risk of fire during construction of the MPWSP Variant would be identical to that of the proposed project because the project variant would include the same components that would be located in high or very high hazard zones. Although construction in other areas also could increase the risk of fire and three fewer slant wells would be constructed under the MPWS Variant, the risk of wildland fire from slant well construction would be negligible since they would be located in a beach environment with little or no vegetation. Therefore there would be no difference in the risk of wildland fire during construction of the CalAm facilities under the MPWSP Variant and, as under the proposed project, the impact would be less than significant. *GWR Facilities:* Some GWR facilities of the MPWSP Variant are located in or near areas that are designated by CAL FIRE and the Local Responsibility Areas as High or Very High Fire Hazard areas. Regulations governing the use of construction equipment in fire prone areas are designed to minimize the risk of wildland fires during construction activity. These regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided onsite for various types of work in fire prone areas. The construction contractor must comply with the Public Resources Code and any additional requirements imposed by CAL FIRE, and the local fire protection departments; therefore, potential impacts related to wildland fires due to construction activities of the GWR facilities would be less than significant.	None required.
Impact 4.7-6: Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials during project operations.	**LS** Operations and maintenance activities associated with the MPWSP would involve storage and use of hazardous materials and the transport of hazardous wastes generated during operations to disposal sites. Periodic (every five years or so) maintenance of the subsurface slant wells would be permitted similar to construction of the subsurface slant wells and would require preparation of a SWPPP in accordance with the NPDES General Construction Permit. The SWPPP would identify the hazardous materials to be used during slant well maintenance and would describe spill prevention measures, equipment inspection requirements, equipment and fuel storage, and spill response protocols. Compliance with applicable laws and regulations regarding the safe transport, use, and storage of hazardous materials and the transport and disposal of hazardous and nonhazardous wastes generated by maintenance activities would ensure this impact is less than significant.	None required.	**LS** The MPSWP Variant would have a similar potential impact from transport, use and disposal of hazardous materials during project operations as the proposed project. While slightly less hazardous materials would be used at the CalAm facilities, the addition of the GWR facilities would result in an overall increase in the number of sites at which hazardous materials would be used during project operation. Compliance with existing regulations would prevent a significant impact from occurring at all sites, and the combined impact from operation of all MPSWP Variant facilities would be less than significant. *CalAm Facilities:* Impacts associated with the operation of the MPWSP Variant would be essentially the same as those of the proposed project, although slightly less because chemical usage associated with operation of a 6.4 mgd desalination plant and periodic maintenance of the subsurface slant wells would be reduced relative to the proposed project. As under the MPWSP, with compliance with hazardous materials regulations potential environmental impacts resulting from an accidental release of hazardous materials would be less than significant. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be in compliance with existing state and federal regulations regarding hazardous materials storage and management. The routine transport, use, or disposal of hazardous materials associated with the GWR facilities would not create a significant hazard to the public or the environment. This is a less than significant impact and no mitigation measures would be required.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.7 Hazards and Hazardous Materials (cont.)				
Impact 4.7-7: Handle hazardous materials or emit hazardous emissions within 0.25 mile of a school during project operations.	**LS** Of the proposed project components that would be located within 0.25 mile of a school (see **Table 4.7-2**), only the Valley Greens Pump Station (site Option 2) would handle hazardous materials and generate hazardous emissions. The storage and intermittent use diesel fuel for routine testing and emergency use of the generator would not result in hazardous materials releases or emissions that would cause harmful exposures to individuals at nearby schools. Therefore, the impact would be less than significant for the Valley Greens Pump Station (site Option 2). All other proposed project facilities are located at distances greater than 0.25 mile from existing schools and/or would not involve the routine handling of hazardous materials or generation of hazardous materials during operations and maintenance. Therefore, no impact would result from operation and maintenance of all other project facilities.	None required.	**LS** The MPSWP Variant would have a similar potential impact from handling hazardous materials within 0.25 mile of a school during project operations as the proposed project. While the same CalAm facilities would be located within 0.25 mile of a school, the addition of the GWR facilities would result in an overall increase in the number of sites within 0.25 mile of a school upon which hazardous materials are used during project operations. However, compliance with existing regulations would prevent a significant impact from occurring at all sites, and the combined impact from operation of all MPSWP Variant facilities would be less than significant. *CalAm Facilities:* The impact associated with handing hazardous materials or emitting hazardous emissions during operation of the MPWSP Variant would be the same as that of the proposed project because the project variant would include the same facilities located within 0.25 mile of schools. Same as the proposed project, the impact would be less than significant for Valley Greens Pump Station (site Option 2) and no impact would result from implementation of the other project facilities. *GWR Facilities:* Operation of the GWR facilities of the MPWSP Variant would not result in an impact related to hazardous emissions within 0.25 miles of an existing or proposed school. Only one school would be located within 0.25 of any facility where project operations may involve handling hazardous or acutely hazardous materials, substances, or waste. Specifically, CSUMB is located adjacent to and within the project areas of the sites proposed for the Booster Pump Station. All GWR facilities would be in compliance existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials, during operation. The only routine use of hazardous materials would be the use of lubricants at the Booster Pump Station site (both the Coastal and RUWAP options). Periodic use of lubricants at the Booster Pump Station site would not result in a hazardous materials impact on students, faculty, visitors, or staff of CSUMB.	None required.
Impact 4.7-8: Project facilities are located within an airport land use plan area, presenting a potential safety hazard for people residing or working in the project area.	**LS** The following MPWSP components are located within or near an airport planning area: The MPWSP Desalination Plant, Desalinated Water Pipeline, Brine Discharge Pipeline, and Salinas Valley Return Pipeline would be located at the edge of the Marina Municipal Airport's planning area boundary; however, no proposed facilities are within the airport traffic pattern zone or approach protection zone defined in the Comprehensive Land Use Plan for the Marina Municipal Airport. The Transmission Main, Transfer Pipeline, Monterey Pipeline, and Ryan Ranch-Bishop Interconnection Improvements would be located within the Monterey Peninsula Airport planning area but none of the proposed facilities would be located within the runway safety area. Further, because these improvements would be underground, they would not create any obstruction of open space areas or potential safety hazard for people residing or working in the project area. No other project facilities are located within an airport land use plan area.	None required.	**LS** The MPSWP Variant would have a similar potential impact from locating facilities within an airport land use plan area as the proposed project. None of the CalAm facilities or GWR facilities would result in a significant safety hazard, and the combined impact of construction and operation of all MPWSP Variant facilities would be less than significant. *CalAm Facilities:* Impacts associated with the construction of the MPWSP Variant would be identical to those of the proposed project because the MPWSP Variant would include the same CalAm facilities that would be located in the vicinity of the Marina Municipal Airport and Monterey Peninsula Airport. As under the MPWSP, the impact would be less than significant. *GWR Facilities:* The Monterey Regional Airport is within two miles of the Injection Well Facilities, Lake El Estero Source Water Diversion Site, and the CalAm Water Distribution System: Monterey and Transfer Pipelines. The airport's land use plan shows the boundary for its Approach Protection Zone and Runway Protection Zone, both of which do not coincide with any of the aforementioned facilities. The Lake El Estero Source Water Diversion site is within the Monterey Airport Influence Area (AIA). All of the proposed upgrades at the Lake El Estero Diversion site will be entirely underground and will not have an effect on the AIA. Therefore, the construction and operation of the Injection Well Facilities, Lake El Estero Source Water Diversion Site, and the Cal-Am Water Distribution System: Monterey and Transfer Pipelines will not interfere with Monterey Regional Airport, nor will any of the facilities be subject to any development limitations (Monterey Peninsula Airport Land Use Plan, 1987). The Marina Municipal Airport lies within 2 miles of the Proposed Project Advanced Water Treatment Facility. The airport adopted a Comprehensive	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.7 Hazards and Hazardous Materials (cont.)				
Impact 4.7-8 (cont.)			Land Use Plan in 1996 to ensure that surrounding land use development is compatible and does not cause a hazard to aircraft in flight. In addition, the plan includes an Approach Protection Zone and a Runway Protection Zone, which limit development to low density land uses. An approximately 2,000-foot long portion of the Product Water Conveyance Pipeline is within the Approach Protection Zone and an approximately 50-foot long portion is within the Runway Protection Zone (Monterey County Airport Land Use Commission, 1996). No proposed buildings or structures are located within these zones, and therefore Project construction and operation would not result in a safety hazard for people working in the project area due to its proximity to the Marina Municipal Airport. Therefore this impact would be less than significant.	
4.8 Land Use, Land Use Planning, and Recreation				
Impact 4.8-1: Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect.	**LS** The plans, policies, and regulations related to land use and recreation in **Table 4.8-2** reflect the long-term visions of the respective jurisdictions with respect to land use and development and are not directly relevant to construction activities. Further, any construction-related effects on adjacent land uses and recreation would be temporary; no long-term disruptions would occur. None of the proposed project components would conflict with plans, policies, and regulations related to land use compatibility and protection of land use values, development clustering, protection of public access and recreational opportunities, and coastal-dependency and priority land uses in the coastal zone. Overall, the proposed project would have a less-than-significant effect with respect to land use and recreational policy conflicts.	None required.	**LS** *CalAm Facilities:* The consistency of the proposed CalAm facilities of the MPWSP Variant with applicable plans and policies pertaining to land use and recreation would be identical to the proposed project (less than significant). *GWR Facilities:* As indicates in **Table 6-8**, the GWR facilities would be consistent with all plans, policies, and regulations pertaining to land use, land use planning, and recreation.	See **Table 6-8.**
4.9 Traffic and Transportation				
Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips.	**LSM** Project-related construction activities would result in a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas. Although the estimated maximum increase in traffic along regional roadways would remain within the carrying capacities of the regional roadways and would not substantially affect traffic flow, construction-related traffic increases along local and neighborhood (residential) streets could result in adverse traffic conditions. This impact would be less than significant for all project components located north of Reservation Road and the Valley Greens Pump Station. This impact would be potentially significant for the Transmission Main, Transfer Pipeline, ASR Pump Station, Terminal Reservoir, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, ASR-5 and ASR-6 Wells, Monterey Pipeline, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements. The impact would be reduced to a less-than-significant level with implementation of the identified mitigation measure.	**MM 4.9-1: Traffic Control and Safety Assurance Plan.**	**LSM** The MPSWP Variant would have a similarly less-than-significant effect on local roadways due to construction trips compared to the proposed project. While there would be fewer overall construction-related trips from the CalAm facilities than under the proposed project, the potential maximum daily traffic associated with construction of the CalAm facilities would be the same as for the proposed project. The addition of GWR facilities would result in an overall increase in construction-related trips on local roadways compared to the proposed project. Construction of the GWR facilities would overlap with construction of the CalAm facilities for almost two years. Assuming a worse-case scenario of overlapping construction at all GWR and CalAm facilities along Highway 1, the combined temporary traffic from construction of both CalAm and GWR facilities would result in an increase in average daily trips on the highway of 417 total one-way trips north of Reservation Road, 461 total one-way trips south of Reservation Road, and 228 total one-way trips north of Fremont Boulevard. This represents an increase of one percent or less. This temporary increase would be within daily traffic fluctuations along the highway and would not cause a substantial increase in traffic relative to existing conditions and roadway capacity, or contribute substantial volumes of traffic during peak hours at all of the GWR facilities sites. The combined impact would be mitigated to a less-than-significant level. *CalAm Facilities*: Although the overall number of temporary construction-related trips would be reduced compared to the proposed project because three fewer wells would be constructed, with a commensurate reduction in slant well worker vehicle trips and truck trips, the potential maximum daily traffic increases on Highway 1 would be the same as for the proposed project: 326 total one-way trips north of Reservation Road, 163 total one-way trips south of Reservation Road, and 228 total one-way trips north of Fremont Blvd. Therefore, the impacts on temporary traffic increases on Highway 1 associated with the CalAm facilities would be similar to those under the proposed project (less than significant for the same components and potentially significant and mitigable to less than significant for the others).	None Required

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.9 Traffic and Transportation (cont.)				
Impact 4.9-1 (cont.)			*GWR Facilities*: Construction of the GWR facilities of the MPWSP Variant would result in a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas. The potential maximum daily traffic increases on Highway 1 would be: 91 total one-way trips north of Reservation Road and 298 total one-way trips south of Reservation Road. Given the anticipated split of worker shifts, most of the daily traffic would be outside of the peak traffic periods, except for construction worker traffic in the morning. Temporary construction traffic would not cause a substantial increase in traffic relative to existing conditions and roadway capacity, or contribute substantial volumes of traffic during peak hours at all of the GWR facilities sites. The impact is less than significant and no mitigation measures are required.	
Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction.	**LSM** Traffic delays resulting from temporary lane closures and detours would be a potentially significant but mitigable impact for all of the proposed pipelines; the impact would be reduced to a less-than-significant level with implementation of the identified mitigation measure. For all other proposed facilities, the impact would be less than significant because none of the non-linear facilities are expected to require temporary lane closures or detours.	**MM 4.9-1: Traffic Control and Safety Assurance Plan.**	**LSM** Temporary effects on roadway capacity and delays resulting from construction would be similar under the MPSWP Variant as under the proposed project. The GWR facilities would add some additional locations where temporary lane closures would occur. However, the combined impact would be mitigated to a less than significant level. *CalAm Facilities:* Traffic delays resulting from temporary reduction in roadway capacity during construction would be the same as under the proposed because the MPWSP Variant would include construction of the same pipelines as the proposed project. However, like the proposed project, the significant impact could be reduced to a less-than-significant level with implementation of the identified mitigation measure. *GWR Facilities:* Traffic delays resulting from temporary lane closures and detours could result in delays to motorists and would be a potentially significant impact, but the effects would be short-term in duration for any one location. The construction of the GWR facilities of the MPWSP Variant could have temporary and intermittent effects on traffic flow and may cause delays for Monterey- Salinas Transit bus service on some segments of roadway. Delays and interruptions would be temporary and would be dependent on the type of roads and area where the segment is being constructed. However, with implementation of **Mitigation Measure TR-2 (Traffic Control and Safety Assurance Plan)**, which includes measures to minimize the adverse effects of roadway construction and detours, these impacts would be reduced to a less-than-significant level.	**MM TR-2: Traffic Control and Safety Assurance Plan.**
Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction.	**LSM** Potential increases in traffic safety hazards during construction would result in a significant impact for all project facilities due to (1) conflicts between haul trucks and other large construction vehicles and automobiles, bicyclists, and pedestrians using the roadways; (2) conflicts related to the movement of traffic on travel lanes adjacent to construction work areas, particularly at entry and egress points where construction-related vehicles would access public roadways; and (3) confusion on the part of bicyclists and pedestrians due to temporary changes in bicycle and pedestrian circulation along the Monterey Peninsula Recreational Trail, designated bicycle routes, and other sidewalks and public pathways. Implementation of the identified MM would reduce the impact to a less-than-significant level.	**MM 4.9-1: Traffic Control and Safety Assurance Plan.**	**LSM** Temporary effects on roadway safety due to construction activities would be similar under the MPSWP Variant as under the proposed project. The GWR facilities would add some additional locations where temporary safety effects could occur. However, the combined impact would be mitigated to a less than significant level. *CalAm Facilities:* With the exception of a negligible reduction in daily construction worker vehicle trips and truck trips associated with construction of seven slant wells rather than 10 slant wells, the temporary impact associated with increases in traffic safety hazards for vehicles, bicyclists, and pedestrians during construction of the CalAm facilities would be identical to those under the proposed project. Like the proposed project, the significant impact associated with temporary increases in traffic safety hazards during construction of the CalAm facilities would be reduced to a less-than-significant level with implementation of the prescribed mitigation measure). *GWR Facilities:* Safety hazards due to conflicts between large construction related vehicles and automobiles, bicyclists, and pedestrians may occur as a result of the construction of the GWR facilities of the MPWSP Variant. Safety Hazards may also occur due to the movement of traffic on travel lanes adjacent to construction work areas, particularly at entry and egress points where construction-	**MM TR-2: Traffic Control and Safety Assurance Plan.**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.9 Traffic and Transportation (cont.)				
Impact 4.9-3 (cont.)			related vehicles would access public roadways. However, with implementation of **Mitigation Measure TR-2 (Traffic Control and Safety Assurance Plan)**, which includes measures to minimize the adverse effects of roadway construction and detours, these impacts would be reduced to a less-than-significant level.	
Impact 4.9-4: Impaired emergency access during construction.	**LSM** Temporary reductions in travel lanes and roadway capacity during construction of pipelines within travel lanes and road shoulders could result in delays for emergency vehicles. Trenching and paving along roadways during pipeline construction could also disrupt emergency vehicle access to adjacent land uses. Impaired emergency access during construction is considered a significant impact for all proposed pipelines; implementation of the identified MM would reduce the impact to less than significant. Construction of the other proposed facilities would result in a less-than-significant impact related to impeded emergency access because the associated construction activities and staging areas are not expected to be located in roadways or road shoulders and therefore would not obstruct emergency vehicle access to adjacent land uses.	**MM 4.9-1: Traffic Control and Safety Assurance Plan.**	**LSM** Temporary effects on emergency access due to construction activities would be similar under the MPSWP Variant as under the proposed project. The GWR facilities would add some additional locations where temporary effects on emergency access could occur. However, the combined impact would be mitigated to a less than significant level. *CalAm Facilities:* Impaired emergency access during pipeline construction would be the same as under the proposed project (potentially significant and mitigable to less than significant) because the MPWSP Variant would involve construction of the same pipelines. Construction of the other proposed CalAm facilities would also be the same as under the proposed project: construction of the other facilities would be less than significant because they would not be located within roadways or road shoulders. *GWR Facilities:* Construction of the GWR facilities of the MPWSP Variant would result in temporary reductions in travel lanes and the roadway capacities to accommodate work areas could result in delays for emergency vehicles. Trenching and paving along roadways during pipeline installation could also disrupt emergency vehicle access to adjacent land uses. However, with implementation of **Mitigation Measure TR-2 (Traffic Control and Safety Assurance Plan)**, which includes measures to minimize the adverse effects of roadway construction and detours, these impacts would be reduced to a less-than-significant level.	**MM TR-2: Traffic Control and Safety Assurance Plan.**
Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction.	**LSM** Pipeline construction activities could temporarily affect public transportation and bicycle and pedestrian travel along affected roadways and recreational trails in the project area, including Del Monte Boulevard, the Monterey Peninsula Recreational Trail, and the TAMC right-of-way. Pipeline construction in vehicle travel lanes could disrupt access to bus stops operated by Monterey-Salinas Transit, require that bus stops be temporarily relocated, and conflict with bicycle traffic along roads with designated bike lanes. Pipeline construction within or adjacent to the Monterey Peninsula Recreational Trail and TAMC right-of-way could conflict with bicycle and pedestrian traffic along these trails. The impact associated with temporary disruptions to public transportation, bicycle, and pedestrian facilities during pipeline construction would be potentially significant, but would be reduced to a less-than-significant level with implementation of the identified mitigation measure. Construction of all other project components (subsurface slant wells, MPWSP Desalination Plant, ASR injection/extraction wells, Terminal Reservoir, ASR Pump Station, and Valley Greens Pump Station) would occur in off-road areas and would not impede vehicular, bicycle, or pedestrian traffic flow or disrupt public transportation; therefore, the impact of construction of these facilities on public transportation and bicycle and pedestrian facilities would be less than significant.	**MM 4.9-1: Traffic Control and Safety Assurance Plan.**	**LSM** Temporary effects on public transportation and bicycle and pedestrian facilities due to construction activities would be similar under the MPWWSP Variant as under the proposed project. The GWR facilities would add some additional locations where temporary effects on public transportation and bicycle and pedestrian facilities could occur. However, the combined impact would be mitigated to a less than significant level. *CalAm Facilities:* Temporary construction-related disruptions to public transportation and bicycle and pedestrian facilities from pipeline construction would be the same as those under the proposed project (potentially significant and mitigable to less than significant) because the MPWSP Variant would involve construction of the same pipelines. As under the proposed project, construction of the other proposed facilities would be less than significant because construction of these other facilities would occur in off-road areas and would not impede the flow of vehicular, bicycle, or pedestrian traffic or disrupt public transportation. *GWR Facilities:* Construction of the GWR facilities of the MPWSP Variant would result in temporary disruptions due to lane closures and detours. During construction, bicyclists and pedestrians could be required to enter the adjacent road shoulder or use other temporary detours to circumvent construction work areas. However, with implementation of **Mitigation Measure TR-2 (Traffic Control and Safety Assurance Plan)**, which includes measures to minimize the adverse effects of roadway construction and detours, these impacts would be reduced to a less-than-significant level.	**MM TR-2: Traffic Control and Safety Assurance Plan.**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.9 Traffic and Transportation (cont.)				
Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles.	**LSM** The use of trucks to transport equipment and material to and from the construction work areas could increase the rate of road wear on the designated haul routes. The degree to which this impact would occur depends on the roadway design (pavement type and thickness) and the existing condition of the road. Because freeways and major arterials are designed to handle a mix of vehicle types, including heavy trucks, the impact of project-related construction traffic on those roads is expected to be negligible. However, project-related construction truck-trips could cause excessive wear-and-tear on some of the smaller roadways and residential streets that may not have been constructed to support use by heavy construction trucks and vehicles. This would be a significant impact for all project components but would be reduced to a less-than-significant level with implementation of the identified mitigation measure.	**MM 4.9-6: Roadway Rehabilitation Program.**	**LSM** The MPSWP Variant would have a similar effect on road wear due to construction-related traffic as the proposed project. While there would be fewer construction-related trips from the CalAm Facilities than under the proposed project, the addition of GWR facilities would result in an overall increase in construction-related trips on local roadways compared to the proposed project. The combined impact would be mitigated to a less-than-significant level. *CalAm Facilities:* Road wear from temporary construction-related traffic increases would be the same as under the proposed project, with one exception: there would be fewer construction-related vehicle trips associated with slant well construction because three fewer slant wells would be constructed. Because this decrease in vehicle trips represents a very small part of total construction traffic for the proposed CalAm facilities, the impact associated with the CalAm facilities overall would be very similar to the impact under the proposed project (less than significant with implementation of mitigation measures). *GWR Facilities:* The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. The degree to which this impact would occur depends on the roadway design and the existing condition of the road. Construction of the GWR facilities of the MPWSP Variant could adversely affect road conditions on local roadways. However, with implementation of **Mitigation Measure TR-3 (Roadway Rehabilitation Program)**, this impact would be reduced to a less-than-significant level.	**MM TR-3: Roadway Rehabilitation Program.**
Impact 4.9-7: Parking interference during construction.	**LSM** Installation of the proposed Monterey Pipeline through mixed-use commercial areas and residential neighborhoods in downtown Monterey would displace parking spaces along the affected roadways that have on-street parking, and could adversely affect parking conditions. In addition, construction worker parking demand associated with these construction activities could further limit parking in the downtown area. Parking interference impacts during installation of the Monterey Pipeline within road rights-of-way in downtown Monterey (i.e., within the city of Monterey) would be significant. However, implementation of the identified MM would reduce the impact to a less-than-significant level. Construction of all other proposed pipelines, the proposed improvements to the ASR system, Terminal Reservoir, Valley Greens Pump Station, and the Highway 68 satellite system interconnection improvements would result in a less-than-significant parking impact because ample parking is available in these areas to accommodate the temporary increase in parking demand. Construction of the subsurface slant wells and MPWSP Desalination Plant would have no impact on parking because construction worker parking would be accommodated within the construction work areas.	**MM 4.9-7: Construction Worker Parking Requirements.**	**LSM** Temporary effects on parking due to construction activities would be similar under the MPSWP Variant as under the proposed project. The GWR facilities would add some additional locations where temporary effects on parking could occur. However, the combined impact would be mitigated to a less than significant level. *CalAm Facilities:* Temporary parking impacts during construction of the CalAm facilities would be identical to those of the proposed project. *GWR Facilities:* Construction activities associated with some of the components of the GWR facilities of the MPWSP Variant could result in potentially significant parking impacts due to temporary increases in parking demand and the displacement of on-street parking along pipeline alignment corridors. Implementation of **Mitigation Measure TR-4 (Construction Worker Parking Requirements)** would reduce this impact to a less-than-significant level.	**MM TR-4: Construction Parking Requirements.**
Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance.	**LS** Long-term traffic increases associated with ongoing operations and maintenance of the MPWSP Desalination Plant would be less than significant because the number of daily vehicle trips associated with worker commutes and truck deliveries would be negligible relative to existing conditions. All other proposed facilities would be operated remotely using Supervisory Control and Data Acquisition (SCADA) systems, with periodic visits by CalAm personnel for operations review and maintenance. Vehicle trips generated by these periodic site visits would be similar in number to those required for existing CalAm operations in the Monterey District service area and would not constitute a significant increase in new vehicle trips on area roadways. Therefore, this impact is less than significant for all proposed project facilities.	None required.	**LS** Long-term traffic increases on area roadways would be similar under the MPSWP Variant as under the proposed project. The GWR facilities would add 18 daily trips, six of which would be in a location served by the same access road as the proposed desalination plant. The combined trips on area roadways would not affect road operations or performance, and would result in a less than significant impact. *CalAm Facilities:* Long-term traffic increases associated with operation and maintenance of the CalAm facilities would be identical to those of the proposed project because the operation and maintenance activities would be the same.	None Required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.9 Traffic and Transportation (cont.)				
Impact 4.9-7 (cont.)			*GWR Facilities:* A total of nine potential new employees would result in an increase of approximately 18 daily trips spread out throughout the vicinity of the GWR facilities. Approximately half of the trips would be to the treatment plant site north of the city of Marina. The number of daily vehicle trips associated with worker commutes, deliveries, and activities associated with the operation and maintenance of all GWR facilities would be small relative to existing conditions. Operation and routine maintenance of the GWR facilities of the MPWSP Variant would not substantially increase traffic volumes on local or regional roadways and the impact would be less than significant and no mitigation measures are required.	
4.10 Air Quality				
Impact 4.10-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction.	**LSM** Project construction would involve the use of a variety of off-road diesel-fueled equipment, including graders, backhoes, and excavators, that would generate emissions of criteria air pollutants at the construction sites. Delivery trucks, construction vehicles, and workers' vehicles would generate exhaust emissions along the local and regional road network. Fugitive dust would be generated by vegetation removal, grading, and other earthwork activities, as well as by the movement of heavy construction trucks on unpaved access roads. Short-term emissions associated with construction of the MPWSP could contribute to an exceedance of a state and/or federal standard for PM_{10} based on the estimated maximum daily mass emissions level of 234 pounds, which would exceed the MBUAPCD significance threshold of 82 pounds per day for PM_{10}. However, with implementation of the identified mitigation, these emissions would be reduced to 63 pounds per day, which would reduce the impact to a less-than-significant level. Short-term construction emissions associated with other criteria pollutants, including ozone precursors (i.e., ROG and NO_x), would not be expected to contribute to an exceedance of an ambient air quality standard and the associated impact for all other criteria pollutants would be less than significant.	**MM 4.10-1a: Construction Fugitive Dust Control Plan.** **MM 4.10-1b: Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road.** **MM 4.10-1c: Idling Restrictions.**	**SUM** See **Table 6-17** in Section 6.3.4. The impact associated the short-term emissions of criteria air pollutants during construction of the CalAm facilities under the MPWSP Variant would be similar to that under the MPWSP. The CalAm facilities under the MPWSP Variant (without the Monterey and Transfer Pipelines) would result in a maximum daily mass emissions level of 230 pounds PM_{10}. Maximum daily on-site construction PM_{10} emissions from all GWR facilities (and the Monterey and Transfer Pipelines) were estimated to be 145 pounds. Assuming the maximum day emissions for construction of the CalAm facilities and the GWR facilitates occur on the same day, total combined maximum day emissions of the MPWSP Variant would be approximately 375 pounds, which would exceed the MBUAPCD significance threshold of 82 pounds per day for PM_{10}. With implementation of the identified mitigation, these emissions would be reduced to 124 pounds per day, which would continue to exceed the significance threshold. Therefore, total combined maximum day emissions of the MPWSP Variant would result in a significant unavoidable impact even with mitigation. Also like the MPWSP, short-term emissions under the MPWSP Variant associated with other criteria pollutants, including ozone precursors, during construction would be less than significant.	**MM AQ-1: Construction Fugitive Dust Control Plan.**
Impact 4.10-2: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during construction.	**LS** MPWSP construction activities would result in the short-term generation of DPM emissions (in the form of PM2.5) and objectionable odors from the use of off-road diesel equipment and from on-road heavy-duty trucks. These emissions could result in the short-term exposure of local sensitive receptors to TACs and objectionable odors. The highest DPM emissions would be generated during construction of the MPWSP Desalination Plant and the subsurface slant wells; however, these facilities would be constructed at sufficient distances (i.e., over 2,000 feet) from the closest sensitive receptors and would not expose sensitive receptors to substantial pollutant concentrations. For all other proposed facilities (the closest of which are located within 50 to 100 feet of sensitive receptors), the duration of exposure for any individual receptor would range from several days (for pipelines) to 18 months (for the ASR improvements). Because the duration of exposure would be limited to a small fraction of the 70-year exposure period used in health risk assessments, the emissions generated during construction of all other MPWSP facilities would also result in a less-than-significant impact to nearby sensitive receptors. Construction of the MPWSP would not expose a substantial number of people to objectionable odors because The only odors resulting from construction activities would be from the use of diesel-fueled equipment. Because these odors would be temporary and would dissipate quickly, it is unlikely that they would affect a substantial number of people. The impact would be less than significant for all MPWSP facilities.	None required.	**LS** Exposure of sensitive receptors to substantial pollutant concentrations or objectionable odors would be the same under the MPWSP Variant as under the MPWSP for the same reasons (the distance from and/or duration of exposure to pollutant concentrations and the limited and transient nature of odors that would be created). As under the proposed MPWSP, the impact would be less than significant. Construction of the GWR facilities would expose sensitive receptors to temporary emissions of toxic air contaminants while construction takes place in the vicinity of sensitive receptors. Sensitive receptors that would experience continuous exposures are not located within typical screening distances (tables developed for evaluating TAC impacts from construction projects by other California air districts), and construction activities are not anticipated to result in significant exposures of TACs to sensitive receptors. There may be intermittent odors from construction associated with diesel exhaust that could be noticeable at times to residences in close proximity to the GWR facilities. However, given the distance (minimum of 450 feet) of receptors from most construction sites and the limited construction duration at any one location for pipeline installation, potential odors from construction equipment are not anticipated to result in odor complaints and would not affect a substantial number of people. Odor impacts during construction would be less than significant and no mitigation measures would be required. Because the emissions associated with construction of the CalAm facilities and the GWR facilities of the MPWSP Variant would be generated in different locations, emissions exposure to sensitive receptors would not be incrementally increased, the impact would be less than significant and mitigation would not be required.	None Required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.10 Air Quality (cont.)				
Impact 4.10-3: Long-term increase of criteria pollutant emissions that could affect regional air quality during project operations.	**LS** Direct emission sources associated with facility operations would include emergency standby generators at the MPWSP Desalination Plant, Valley Greens Pump Station, and Terminal Reservoir/ASR Pump Station. Securing permits from the MBUAPCD for the emergency generators would ensure less-than-significant operational impacts related to the use of such generators through adherence to MBUAPCD Rule 1010. Mobile emission sources would include the daily commute trips of up to 30 facility operators and support personnel and three daily delivery truck trips that would be required to operate the desalination facilities. The combined emissions associated with the direct and mobile emissions sources would not exceed any MBUAPCD CEQA significance thresholds for criteria pollutants (e.g., maximum day NOx emissions would be 46 pounds, which would be less than the 137 pound/day threshold). Therefore, the operational emissions of the MPWSP would not adversely affect regional air quality and the impact would be less than significant.	None required.	**LS** The impact of long term criteria pollutant emissions from operation of the CalAm facilities of the MPWSP Variant would be the similar to that of the MPWSP, although maximum daily emissions would be slightly lower (e.g., 39 pounds/day NO_x) because the required emergency standby generator would have a smaller engine size (approximately 800 horsepower [hp] compared to approximately 1,000 hp under the MPWSP). Mobile source emissions associated with the CalAm facilities would be the same as for the proposed project because the same facilities and operation and maintenance activities would be involved. Operation of the GWR facilities would rely upon electricity supplied by the Pacific Gas and Electric Company's existing regional power grid and would generate small amounts of traffic. GWR facilities would not require emergency back-up generators because the new facilities can be shut down during temporary power outages. GWR facilities would not result in any new stationary sources of air pollutant emissions. Accordingly, operation of the GWR facilities would be expected to result in fewer daily emissions than the CalAm facilities, and the combined emissions of the MPWSP Variant would be substantially less than the significance thresholds. The impact would be less than significant.	None Required.
Impact 4.10-4: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.	**LS** The only DPM emissions sources associated with MPWSP operations would be the emergency standby generators at the MPWSP Desalination Plant, ASR Pump Station, and the Valley Greens Pump Station. Routine testing and operation of the emergency generators would generate a negligible amount of DPM emissions. The generator emissions would not exceed the MBUAPCD TAC significance threshold for increased health risks. Therefore, the impact would be less than significant for the MPWSP Desalination Plant, ASR Pump Station, and the Valley Greens Pump Station. None of the other project facilities would include on-site DPM emissions sources. Therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result from operation of all other MPWSP facilities. Long term operations associated with the MPWSP would not create objectionable odors that could affect a substantial number of people because the MPWSP Desalination Plant would be designed with odor control features and operational controls to limit and contain odors. Further, the MPWSP Desalination Plant site is located at least 2,000 feet away from the closest residences and in an industrial area with existing sources of objectionable odors. Therefore, operational impacts related to the creation of objectionable odors affecting a substantial number of people would be less than significant.	None required.	**LS** Neither the CalAm facilities nor the GWR facilities would result in a significant impact from exposure of sensitive receptors to substantial pollutant contributions or odors from project operation. Further, the CalAm facilities and GWR facilities are not located close enough to one another to result in significant combined impact from exposure of sensitive receptors to substantial pollutant contributions or odors from project operation. The combined impact of the MPSWP Variant would be less than significant. The GWR facilities of the MPWSP Variant would include a new AWTF at the existing Regional Treatment Plant and modifications to the existing Salinas Valley Reclamation Plant where treatment-related odors are already produced. However, the AWTF processes are not anticipated to result in generation of any additional odors. The existing odors at the Regional Treatment Plant occur primarily in the head works and the initial part of the secondary treatment facilities. The AWTF process begins after the full secondary treatment when odors should not be present. One of the first treatment processes of the Advanced Water Treatment—ozonation—would be expected to eliminate any remaining wastewater constituents with odors, if they should occur. Currently, treatment chemicals are added to the wastewater stream at the Salinas Pump Station to reduce sulfides, thereby reducing the odor. The addition of this new stream of wastewater from agricultural/produce washing uses and would not contain strong odors comparable to municipal wastewater. In addition, the closest receptors to the pump station are 1,400 feet or further. No other new sources waters would produce objectionable odors. Frequent objectionable odors are not anticipated from any GWR facilities and this is a less than significant impact. No mitigation measures would be required.	None Required.
4.11 Greenhouse Gas Emissions				
Impact 4.11-1: Incremental contribution to climate change from GHG emissions generated by the proposed project.	**SUM** Implementation of the MPWSP would result in short-term construction and long-term operational emissions of GHGs. The sum of GHG emissions generated by MPWSP construction amortized over the 40-year project lifetime and the net annual emissions generated by project operation would total approximately 6,181 metric tons CO_2e per year. These emissions would exceed the 2,000 metric tons per year significance threshold; therefore, a significant impact would occur. Implementation of the identified mitigation would ensure construction activities are conducted in a fuel-efficient manner and would reduce the overall carbon footprint of the MPWSP. Although implementation of the identified mitigation would reduce the overall carbon footprint of the MPWSP, the CPUC cannot substantiate that the mitigated GHG	**MM 4.11-1: GHG Emissions Reduction.** **MM 4.18-1: Construction Equipment Efficiency Plan.**	**SUM** See Table 6-18 in Section 6.3.5. The sum of GHG emissions generated by the CalAm facilities of the MPWSP Variant construction amortized over the 40-year project lifetime plus the net annual emissions generated by CalAm facilities of MPWSP Variant operation would total approximately 4,084 metric tons CO_2e per year. The sum of GHG emissions generated by the GWR facilities of the MPWSP Variant (without the Monterey and Transfer Pipelines) construction activities amortized over the 30-year project lifetime plus the net emissions generated by operation of the GWR facilities would total approximately 1,844 metric tons CO_2e per year. Therefore, the combined MPWSP Variant emissions would total approximately 5,928 metric tons CO_2e per year. These emissions would exceed the 2,000 metric tons per year significance threshold; therefore, a significant impact would occur and the identified mitigation would be required. Although	None proposed.

TABLE 6-7 (Continued)
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4.11 Greenhouse Gas Emissions (cont.)				
Impact 4.11-1 (cont.)	emissions would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.		implementation of the identified mitigation would reduce the overall carbon footprint of the Project Variant, the CPUC cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.	
Impact 4.11-2: Conflict with Executive Order S-3-05 and AB 32 Emissions Reduction Goals.	**SUM** GHG emissions associated with the MPWSP would exceed the emissions significance threshold, which indicates that implementation of the project may not be consistent with the GHG emission reduction goals for year 2020 identified in Executive Order S-3-05 and AB 32. Therefore, it is concluded that the MPWSP would conflict with Executive Order S-3-05 and AB 32, and would result in a potentially significant impact. Implementation of the identified mitigation would ensure construction activities are conducted in a fuel-efficient manner and would reduce the overall carbon footprint of the project. Although implementation of the identified mitigation would reduce the overall carbon footprint of the project, the CPUC cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.	**MM 4.11-1: GHG Emissions Reduction Plan.** **MM 4.18-1: Construction Equipment Efficiency Plan.**	**SUM** Implementation of the MPWSP Variant CalAm facilities combined with the GWR facilities would result in the same potential conflicts with Executive Order S-3-05 and AB 32 as described for the MPWSP, which would be a significant impact. As under the MPWSP, this impact would not be reduced to a less-than-significant level with implementation of the identified mitigation measures. Therefore, this impact for the MPWSP Variant is considered to be significant and unavoidable, even with implementation of mitigation.	None proposed.
Impact 4.11-3: Conflict with the AB 32 Climate Change Scoping Plan.	**SUM** The MPWSP Desalination Plant designs include state of the art energy recovery and energy efficient features in place of standard energy saving systems; although there may be additional feasible energy reducing features available to further reduce the electrical consumption associated with the project. CARB has set a 20 percent electricity use reduction target for AB 32 Climate Change Scoping Plan Measure W-3; therefore, a 20 percent reduction in electricity use associated with the proposed project's energy recovery and energy saving features would indicate a less-than-significant impact associated with the proposed project's consistency with this measure. Although the identified mitigation would ensure that the proposed project is operated in an energy-efficient manner to the extent feasible, the CPUC cannot substantiate that the proposed project's electricity use would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.	**MM 4.11-1: GHG Emissions Reduction Plan.**	**SUM** The GWR facilities would not conflict with the AB 32 Climate Change Scoping Plan. Same as for the proposed project, the identified mitigation would ensure that the CalAm facilities under the MPWSP Variant are operated in an energy-efficient manner to the extent feasible, but the CPUC cannot substantiate that the MPWSP Variant's electricity use would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.	None required.
4.12 Noise and Vibration				
Impact 4.12-1: Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction.	**SUM** The operation of trucks, backhoes, bulldozers, excavators, front-end loaders, compactors, scrapers, and other heavy-duty construction equipment would generate high noise levels. Temporarily noise increases during project construction activities could result in substantial adverse effects on daytime and evening activities at nearby noise-sensitive receptors by exceeding speech and sleep interference thresholds. The potential for project construction activities to significantly affect daytime and evening activities at noise-sensitive receptors was determined based on the anticipated construction work hours for each project component, ambient noise levels at sensitive receptors, and the estimated noise levels generated by the loudest pieces of equipment expected to be used during project construction. Construction of the subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, Salinas Valley Return Pipeline, and Brine Discharge Pipeline would result in less-than-significant daytime and nighttime noise impacts. Construction of the Transfer Pipeline, Terminal Reservoir, ASR Pump Station, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch-Bishop Interconnection Improvements would result in a less-than-significant impact related to temporary increases in daytime noise levels and no impact related to nighttime noise.	**MM 4.12-1a: Neighborhood Notice** **MM 4.12-1b: General Noise Controls for Construction Equipment** **MM 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction** **MM 4.12-1d: Additional Noise Controls for ASR-5 and ASR-6 Wells** **MM 4.12-1e: Offsite Accommodations for Substantially Affected Receptors.**	**SUM** Like the MPWSP, nighttime noise impacts of the MPWSP Variant would remain significant and unavoidable even with implementation of mitigation. Nighttime construction would occur at additional locations associated with GWR facilities; however, because impacts at those locations could be mitigated to a less-than-significant level, they would not contribute to the overall significant and unavoidable impact of the MPWSP Variant. *CalAm Facilities:* Construction noise levels generated during construction of the CalAm facilities would be identical to those of the proposed project except that the duration of slant well drilling noise would be reduced because three fewer slant wells would be constructed. As under the MPWSP, with the exception of nighttime noise impacts associated with the Monterey Pipeline and ASR-5 and ASR-6 Wells, which would remain significant and unavoidable, implementation of the prescribed mitigation measures would reduce all other construction-related nighttime noise impacts to a less-than-significant level.	**Mitigation Measure NV-1a: Drilling Contractor Noise Measures.** **Mitigation Measure NV-1c: Neighborhood Notice.**

TABLE 6-7 (Continued)
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Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.12 Noise and Vibration				
Impact 4.12-1 (cont.)	Significant impacts related to temporary increases in daytime noise levels would result during construction of the ASR-5 and ASR-6 Wells, ASR Settling Basin, and the Valley Greens Pump Station (both site options), but these impacts could be reduced to less than significant levels with implementation of the prescribed mitigation measures. Significant nighttime noise impacts would result during construction of the Desalinated Water Pipeline, Transmission Main, Monterey Pipeline, and the ASR-5 and ASR-6 Wells. With the exception of nighttime noise impacts associated with the Monterey Pipeline and ASR-5 and ASR-6 Wells, implementation of the prescribed mitigation measures would reduce all other construction-related nighttime noise impacts to a less-than-significant level. Nighttime noise impacts from the installation of the Monterey Pipeline and drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable, even with implementation of mitigation.		*GWR Facilities:* Construction activities would result in temporary increases in noise that would not be substantial at GWR facilities construction sites, except for nighttime construction at the Injection Well Facilities site. Construction noise at all other GWR facilities sites would be less than significant because construction noise levels at the nearest sensitive receptors would be below the significance threshold for speech interference during the day (70 dBA Leq) or would result in exposure for less than two weeks. For the Injection Well Facilities site, construction noise would not exceed daytime thresholds, but would exceed nighttime thresholds, resulting in a significant construction noise impact. Implementation of Mitigation Measure NV-1a would reduce nighttime construction noise levels to less than that 60 dBA Leq at the nearest residence, which would reduce the impact to a less-than-significant level.	
Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.	**LSM** No impact related to the generation of construction noise levels in excess of local construction noise level standards would result during construction of the Transfer Pipeline, Monterey Pipeline, ASR-5 and ASR-6 Wells, and ASR Settling Basin because there no established construction noise level standards that would apply to these facilities. Construction of the subsurface slant wells, Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, MPWSP Desalination Plant, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Valley Greens Pump Station would result in less-than-significant impacts with regard to the generation of construction noise levels in excess of local noise level standards. Construction of the remaining project components (Desalinated Water Pipeline, Transmission Main, Terminal Reservoir/ASR Pump Station, ASR Conveyance Pipelines, and ASR Pump-to-Waste Pipeline) would generate noise levels in excess of local noise level standards. The Desalinated Water Pipeline and Transmission Main would exceed the City of Marina's 60-dBA noise level standard for construction noise, a significant impact. In the absence of project-specific information regarding noise-reduction measures that would be implemented during project construction, it is conservatively assumed that noise resulting from construction of the Terminal Reservoir, ASR Pump Station, ASR Conveyance Pipelines, and ASR Pump-to-Waste Pipeline would violate Noise Policy B-9 of the Fort Ord Reuse Plan, a significant impact. Implementation of the prescribed mitigation measures would reduce these impacts to a less-than-significant level.	**MM 4.12-1b: General Noise Controls for Construction Equipment** **MM 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction**	**SUM** Same as for the proposed project, the exposure of people to or the generation of noise levels in excess of established standards would be less than significant with mitigation, except for impacts associated with the Tembladero Slough Diversion site, which could conflict with County Code Section 10.60.030, even with mitigation. *CalAm Facilities:* Impacts related to the generation of construction noise levels in excess of local construction noise level standards would be the very similar to those of the proposed project except the duration of slant well drilling noise would be reduced because three fewer slant wells would be constructed. Same as the proposed project, all significant impacts would be reduced to a less-than-significant level with implementation of the prescribed mitigation measures. *GWR Facilities:* Monterey County: Construction at the Reclamation Ditch, Tembladero Slough and Blanco Drain Diversion sites could conflict with County Code Section 10.60.030 as some construction equipment could result in noise levels at or above 85 dBA at 50 feet and construction would occur within 2,500 feet of residences within the unincorporated area of the county. Mitigation Measure NV-2a requires that construction equipment have properly operating mufflers and stationary noise equipment be located as far as possible from sensitive receptors, consistent with County General Plan Policy S-7.10. Implementation of this measure would reduce noise levels to below 85 dBA at 50 feet, except potentially for the Tembladero Slough Diversion site where impacts would remain significant and unavoidable. City of Marina: Construction of segments of the RUWAP and Coastal Alignment Product Water Conveyance Pipelines and the RUWAP Booster Pump Station could violate Municipal Code Section 15.04.055 as construction activities could exceed 60 dBA for 25 percent of an hour and construction would occur after 7 PM. Mitigation Measure NV-2a would reduce construction noise and ensure compliance with City of Marina noise standards. Mitigation Measure NV-2b would limit evening construction times to those specified by the Marina City Code.	**Mitigation Measure NV-2a: Construction Equipment.** **Mitigation Measure NV-2b: Construction Hours.**
Impact 4.12-3: Exposure of people to or generation of excessive groundborne vibration during construction.	**LSM** Construction of the subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Ryan Ranch-Bishop Interconnection Improvements, Valley Greens Pump Station (both site options), and Main System-Hidden Hills Interconnection Improvements would result in less-than-significant vibration impacts with regard to both structural damage and human annoyance. There would be significant vibration impacts with regard to both structural damage and human annoyance from construction of the Desalinated Water Pipeline, Transmission Main, Transfer Pipeline, Monterey Pipeline, and Source Water	**MM 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District** **MM 4.12-3: Vibration Reduction Measures**	**LSM** The MPWSP Variant would have similar impacts to those of the MPWSP with respect to groundborne vibration. *CalAm Facilities:* Vibration impacts related to structural damage and human annoyance would be very similar to those of the proposed project except that vibration impacts related to the subsurface slant wells would be slightly reduced because three fewer slant wells would be constructed. Same as the proposed project, all significant impacts would be reduced to a less-than-significant level with implementation of the prescribed mitigation measures.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
Impact 4.12-3 (cont.)	Pipeline. Implementation of the prescribed mitigation measures would reduce these impacts to a less-than-significant level.		*GWR Facilities:* The GWR facilities would not result in excessive construction-related vibration at any of the sites, resulting in a less-than-significant impact, and no mitigation measures would be required.	
Impact 4.12-4: Consistency with the construction time limits established by the local jurisdictions.	**LSM** Several of the proposed project facilities could require nighttime construction. Construction of the subsurface slant wells and Source Water Pipeline would not be subject to the city of Marina's construction time limits, which only apply to outdoor construction activities adjacent to residential land uses. Construction of the Desalinated Water Pipeline and Transmission Main would be potentially inconsistent with construction time limits because the City of Marina noise ordinance does not allow project construction to occur during nighttime hours. Because the proposed project would comply with the current noise ordinance, and would not result in nighttime construction, the impact would be less than significant with mitigation. The Monterey Pipeline and the ASR-5 and ASR-6 Wells would also require nighttime construction outside of the noise ordinance construction time limits but all nighttime work would be conducted only with prior approval from the local jurisdictions. The Cities of Seaside and Monterey grant variances to the time limits under certain circumstances. The impact would be less than significant for the Monterey Pipeline and the ASR-5 and ASR-6 Wells. The MPWSP Desalination Plant, Salinas Valley Return Pipeline, and Brine Discharge Pipeline could require nighttime construction but there are no local construction time limits that would apply to these facilities so no impact would result. None of the remaining facilities would require nighttime construction and it is anticipated that construction of the remaining facilities would be consistent with applicable construction time limits. No impact would result during construction of the remaining facilities.	**MM 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction**	**LSM** The MPWSP Variant would have similar impacts to those of the MPWSP with respect to consistency with construction time limits. *CalAm Facilities:* Under the MPWSP Variant, all of the same CalAm facilities could require nighttime construction and would be potentially inconsistent with construction time limits established by local jurisdictions. Nighttime construction associated with the subsurface slant wells and MPWSP Desalination Plant could be slightly reduced as a result of the three fewer slant wells and the reduced capacity of the desalination plant. However, same as the proposed project, CalAm would obtain prior approval before conducting any construction activities outside the local construction time limits or would not engage in construction activities outside of the allowable time limits. Therefore, the impact would be less than significant. *GWR Facilities:* For the Injection Well Facilities site, nighttime construction and would be potentially inconsistent with construction time limits established by local jurisdictions. Implementation of Mitigation Measure NV-1a would include submitting a "Well Construction Noise Control Plan" to the Seaside Building Official to obtain authorization for nighttime work, which would reduce the impact to a less-than-significant level.	**Mitigation Measure NV-1a: Drilling Contractor Noise Measures.**
Impact 4.12-5: Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project during operations**.**	**LSM** Operation of the subsurface slant wells, MPWSP Desalination Plant, Terminal Reservoir, ASR Pump Station, Ryan Ranch-Bishop Interconnection Improvements, and Valley Greens Pump Station would result in less-than-significant noise impacts with regard to permanent operational noise increases. Significant noise impacts would result from operation of the ASR-5 and ASR-6 Wells and the booster stations that would be upgraded by the Main System-Hidden Hills Interconnection Improvements; however, implementation of the prescribed MM would reduce all significant operational noise impacts to a less-than-significant level. No impact would result from operation of the proposed pipelines because the pipelines would not involve the installation of stationary noise sources.	**MM 4.12-5: Stationary Source Noise Controls**	**LSM** The MPWSP Variant would have similar impacts to those of the MPWSP with respect to ambient noise levels during operation. *CalAm Facilities:* Operational noise level increases associated with the CalAm facilities under the MPWSP Variant would be similar to those of the proposed project except that operational noise levels associated with the subsurface slant wells and MPWSP Desalination Plant could be slightly reduced as a result of the three fewer slant wells and the reduced capacity of the desalination plant. *GWR Facilities:* Operation at the Salinas Pump Station Source Water Diversion and the Product Water Conveyance Pipelines would not result in operational noise impacts as no new permanent noise-generating equipment is proposed at these locations. Operation at the remaining sites would generate operational noise levels at less-than-significant levels, and no mitigation measures are required.	None required.
4.13 Public Services and Utilities				
Impact 4.13-1: Disrupt or relocate regional or local utilities during construction.	**LSM** Project construction activities have the potential to disrupt or relocate regional or local utilities. This impact would be potentially significant for all project components but would be reduced to a less-than-significant level with implementation of identified mitigation measures.	**MM 4.13-1a: Locate and Confirm Utility Lines** **MM 4.13-1b: Coordinate Final Construction Plans with Affected Utilities** **MM 4.13-1c: Safeguard Employees from Potential Accidents Related to Underground Utilities** **MM 4.13-1d: Emergency Response Plan**	**LSM** The MPWSP Variant would have similar impacts to those of the MPWSP with respect to disruption or relocation of utilities. *CalAm Facilities:* The potential for construction of the CalAm facilities under the MPWSP Variant to disrupt or relocate utilities would be similar to that of the proposed project. Although the project variant would construct three fewer slant wells than the proposed project, because the orientation of the slant well clusters under the project variant would be very similar to the slant well clusters under the proposed project, the three slant well clusters containing the seven slant wells would have the same potential to conflict with underground utilities (namely, the MRWPCA outfall). If the Salinas	The mitigation strategies embodied in the mitigation measures applied to the CalAm Facilities would be expected to be employed for the GWR facilities

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.13 Public Services and Utilities (cont.)				
Impact 4.13-1 (cont.)		**MM 4.13-1e: Notify Local Fire Departments** **MM 4.13-1f: Ensure Prompt Reconnection of Utilities**	Valley return flows are injected via new injection wells at the CEMEX active mining area, then a 2.2-mile-long pipeline extending between the MPWSP Desalination Plant and the CEMEX site would be constructed. The 2.2-mile-long pipeline would be aligned parallel to the proposed Source Water Pipeline; thus, the potential for conflicts with other underground utilities would be similar to the Source Water Pipeline. Like the proposed project, the potential for the CalAm facilities under the MPWSP Variant to conflict with underground utilities is considered a significant impact. However, implementation of the prescribed mitigation measures would reduce the impact to a less-than-significant level. *GWR Facilities:* The GWR facilities, in particular the pipelines proposed as part of the GWR facilities, would have a similar potential to disrupt or relocate utilities to that of the CalAm facilities.	
Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction.	**LSM** Even under the worst-case scenario that assumes all of the proposed project's excess spoils and construction debris would be disposed of at the Monterey Peninsula Landfill, the total amount of excess spoils and construction debris generated by the project would be well below the landfill's permitted daily acceptance rate and represents approximately 0.07 percent of the landfill's remaining capacity. Therefore, the amount of waste generated during project construction would not exceed or substantially deplete the landfill capacity. However, failing to divert a substantial portion of the waste generated during project construction from the landfill could conflict with state (i.e., to reduce, reuse, or compost at least 50 percent of waste) and county diversion goals and policies (i.e., to recycle and/or salvage at least 50 percent of nonhazardous construction and demolition waste and reuse and/or recycle 100 percent of trees, stumps, rocks, and vegetation) and could adversely affect the jurisdictions' waste diversion rates. Potential conflicts with state and county diversion goals would be a significant impact, but the impact would be mitigated to a less than significant level with implementation of the identified mitigation measure**.**	**MM 4.13-2: Construction Waste Reduction and Recycling Plan**	**LSM** If the Salinas Valley return flows are injected via new injection wells at the CEMEX active mining area and the 2.2-mile-long pipeline extending between the MPWSP Desalination Plant and the CEMEX Sand Mining Facility is constructed, the total volume of excess spoils generated by the MPWSP Variant is estimated to be 56,805 cubic yards. If the Salinas Valley return flows are injected via new injection wells at the MPWSP Desalination Plant site, then the total volume of excess spoils generated by the MPWSP Variant is estimated to be 56,305 cubic yards. Under both scenarios, the total volume of excess spoils generated during construction of the CalAm facilities and GWR facilities represent approximately 0.12 percent of the landfill's remaining capacity. Therefore, the amount of waste generated during construction would not substantially deplete the landfill capacity. Based on the assumption that excess spoils and construction debris would be hauled to the landfill Monday through Friday, with spoils generated during construction of GWR facilities spread out over an 18-month period, and spoils generated during construction of the CalAm facilities spread out over a 30-month period, if construction of the CalAm facilities were to overlap with construction of the GWR facilities, approximately 120 cubic yards (or 180 tons) of excess spoils could be hauled to the landfill for disposal each day. This daily disposal rate would still be well within the landfill's average daily acceptance rate (1,000 tons) and permitted daily acceptance rate (3,500 tons). However, as for the proposed project, failure to divert a portion of the waste generated during project construction from the landfill could conflict with state and county diversion goals and policies. This would be a significant impact but implementation of the identified mitigation measure would reduce the impact to less than significant. *CalAm Facilities:* As described in **Table 3-4** and Section 3.5.1 of Chapter 3, Project Description, drilling spoils generated during slant well construction would be spread within the construction disturbance area and are not expected to require offsite disposal. Therefore, the reduction in the total number of slant wells that would be constructed under the MPWSP Variant would not affect the volume of excess spoils generated during construction. Because the reduced capacity 6.4-mgd MPWSP Desalination Plant under the MPWSP Variant would have the same footprint as the 9.6-mgd MPWSP Desalination Plant under the proposed project and no excess spoils requiring offsite disposal would be generated during construction of the desalination plant, the reduction in desalination capacity would also have no effect on excess spoils. Although the MPWSP Variant would not include construction of the 1.2-mile Salinas Valley Return Pipeline, if the Salinas Valley return flows are injected via new injection wells at the CEMEX Sand Mining Facility, then an additional 2.2-mile-long pipeline extending between the MPWSP Desalination Plant and the CEMEX site would be constructed, resulting in roughly 500 cubic yards of excess spoils requiring offsite disposal. If the Salinas Valley return flows are injected via new injection wells at the Charles Benson Road site, no additional excess spoils requiring offsite disposal are anticipated.	**MM PS-3: Construction Waste Reduction and Recycling Plan**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.13 Public Services and Utilities (cont.)				
Impact 4.13-2 (cont.)			Even with an additional 500 cubic yards of excess spoils, the total volume in excess spoils generated by the CalAm facilities of the MPWSP Variant would be similar to those of the proposed project. The excess spoils would be within the landfill's permitted daily acceptance rate and would not exceed or substantially deplete the landfill capacity. However, as for the proposed project, failure to divert a portion of the waste generated during project construction from the landfill could conflict with state and county diversion goals and policies. This would be a significant impact but implementation of the identified mitigation measure would reduce the impact to less than significant. *GWR Facilities:* Construction of the GWR facilities would generate a total of 21,080 cubic yards of excess spoils. Spread out over the 18-month construction period for the GWR facilities, this equates to roughly 60 cubic yards (90 tons) of excess spoils requiring offsite disposal each day Monday through Friday of each week. Construction-generated solid waste disposal at a landfill may be out of compliance with State and local waste diversion policies and goals, resulting in a significant impact. Implementation of Mitigation Measure PS-3 would reduce the potentially significant solid waste impact to a less-than-significant level.	
Impact 4.13-3: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations.	**LS** MPWSP Desalination Plant operations would generate residual solid waste, for which there are no known opportunities for reuse or recycling, that would be disposed of at the Monterey Peninsula Landfill. Operation of the ASR Pump-to-Waste System would generate sediment materials that would be taken to the Waste Management District's materials recovery facility for reuse or recycling; operation of the ASR Pump-to-Waste System would have no effect on landfill capacity and solid waste disposal. All other proposed facilities would have very limited potential to generate waste during operations or maintenance. The total solid waste generated by the proposed project, which would be generated during MPWSP Desalination Plant operations, represents approximately 0.88 percent of the average daily volume of waste received and 0.25 percent of the total permitted daily acceptance rate. The landfill could accept the waste without exceeding its permitted daily tonnage or substantially depleting long-term capacity. Therefore, impacts related to solid waste disposal and landfill capacity during operations and maintenance would be less than significant.	None Required.	**LS** The MPWSP Variant would have similar impacts to those of the MPWSP with respect to solid waste during operation. Although the reduced capacity of the CalAm facilities would result in reduced solid waste disposal needs, the GWR facilities would have additional solid waste disposal needs and would dispose of waste at the same landfill as the CalAm facilities, resulting in an overall similar impact. *CalAm Facilities:* The potential for operation of the CalAm facilities to adversely impact landfill capacity would be somewhat less than that of the proposed project. While the same components would be involved in operation of the CalAm facilities, because the MPWSP Desalination plant would be somewhat smaller (involving four active reverse osmosis modules compared to the proposed project's six), a reduced amount of residual solids requiring landfill disposal would be produced. As under the project, the impact of waste produced during operation of the CalAm facilities on the landfill's daily tonnage limit and long-term capacity would be less than significant. Because there would be less desalination plant product water to convey to the ASR system, there would be slightly less sediment produced from maintenance of the ASR wells associated with the desalination plant. As under the project, the sediment would be taken to the Waste Management District's materials recovery facility for reuse or recycling. The potential impact of the other CalAm facilities related to landfill capacity and compliance with applicable solid waste laws and regulations during operations would be the same as that of the proposed project. *GWR Facilities:* The Treatment Facilities at the Regional Treatment Plant would generate some additional solid waste that would be routinely disposed at the Monterey Peninsula Landfill in addition to solids generated from the existing wastewater treatment facilities. The landfill could accept the waste without exceeding its permitted daily tonnage or substantially depleting long-term capacity. All other proposed facilities would have a very limited potential to generate waste during operations or maintenance. Impacts related to solid waste disposal and landfill capacity during operations and maintenance would be less-than-significant, and no mitigation measures are required.	None Required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.13 Public Services and Utilities (cont.)				
Impact 4.13-4: Result in effects from construction of new wastewater treatment or conveyance facilities or the expansion of existing facilities, exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project	**LSM** As described in Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, both the "brine only" discharges and the combined discharges would comply with Ocean Plan water quality objectives for all assessed constituents except PCBs and ammonia. **Mitigation Measure 4.3-4** would reduce the water quality impact associated with exceedances of the Ocean Plan water quality objective for PCBs and ammonia to a less-than-significant level by providing a menu of design features and operational protocols to be employed, individually or in combination, to reduce the concentration of PCBs to below the Ocean Plan water quality objectives at the edge of the Zone of Initial Dilution (ZID). The effects of construction associated with new wastewater treatment facilities that may be required to avoid exceedences of Ocean Plan constituents are described in Section 4.3, following the description of the mitigation measure in Impact 4.3-4. Given the small number of CalAm employees that would be staffed at the MPWSP Desalination Plant (25 to 30 employees), the volume of wastewater generated at this facility would be de minimus. None of the other proposed project facilities would generate wastewater during operations that would require treatment at the MRWPCA Regional Wastewater Treatment Plant. Maximum instantaneous flows measured in the outfall between 1998 and 2012 (MRWPCA, 2013b) ranged from 40.4 mgd to 59.9 mgd indicating that even during peak storm events, there would be sufficient capacity in the outfall to accept the brine generated by the MPWSP Desalination Plant year-round. The operations of the proposed project would not result in inadequate capacity at the existing wastewater treatment plant or the existing outfall and the impact would be less than significant.	**MM 4.3-4 (Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the ZID)**	**LSM** Similar to the proposed project, the "brine only" discharges and the discharges combined with treated wastewater would comply with Ocean Plan water quality objectives for all assessed constituents except PCBs and ammonia. Discharges associated with brine, treated wastewater and GWR-effluent would also exceed Ocean Plan water quality objectives for chlordane, toxaphene, DDT and TCDD Equivalents. **Mitigation Measure 4.3-4** would reduce the water quality impact associated with exceedances of the Ocean Plan water quality objectives to a less-than-significant. The effects of construction associated with new wastewater treatment facilities that may be required to avoid exceedences of Ocean Plan constituents are described in Section 4.3, following the description of the mitigation measure in Impact 4.3-4. The operations of the project variant would not result in inadequate capacity at the existing wastewater treatment plant or the existing outfall and the impact would be less than significant. *CalAm Facilities*: Wastewater generated during operation of the CalAm facilities would be similar to the proposed project. Given the small number of CalAm employees that would be staffed at the MPWSP Variant Desalination Plant, the volume of wastewater generated at this facility would be de minimus. *GWR Facilities:* Operation of GWR facilities would result in a minimal increased wastewater treatment demand due to employment of nine new permanent workers and the GWR facilities. Operations could be served by the existing capacity at the Regional Treatment Plant, taking into account MRWPCA's service commitments, resulting in a less-than-significant impact on wastewater treatment services. No mitigation measures are required.	None required.
Impact 4.13-5: Increased corrosion of the MRWPCA outfall and diffuser as a result brine discharge associated with project operations.	**LSM** The salinity content of the MPWSP brine stream that would be discharged through the MRWPCA outfall has the potential to increase scaling and corrosion of the outfall and diffuser, a potentially significant impact. Implementation of the identified MM would reduce the impact to less than significant.	**MM 4.13-5: Routine Inspections and As-Needed Repairs to MRWPCA Outfall and Diffuser**	**LSM** *CalAm Facilities:* The impact of scaling and corrosion on the MPWPCA's outfall from the brine discharge the desalination plant under the MPWSP Variant would be similar to and slightly less than that of the proposed project since less brine would be generated by the smaller plant. As under the project the impact would be less than significant *GWR Facilities:* Not applicable to the GWR facilities since the effluent would not cause corrosion of the outfall pipeline.	None required.
4.14 Aesthetic Resources				
Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	**LS** Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of many project components would be temporarily visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and could disrupt the visual character of the surrounding areas. Some of these construction activities would be visible from Highways 1 and 68, which are eligible for designation and officially designated as State Scenic Highways, respectively. Due to the temporary nature of these impacts, and because construction work areas would be restored after construction, construction-related impacts to scenic resources would be less than significant. Although mitigation is not required, this EIR recommends implementation of Improvement Measure 4.14-1 (Maintain Clean and Orderly Construction Sites).	**Improvement Measure 4.14-1: Maintain Clean and Orderly Construction Sites**	**LS** Under the Project Variant, construction would take place at the same locations as the proposed project, and construction also would occur at the locations of the GWR Facilities. No substantial effect on scenic resources or the visual character of the site and its surroundings would occur at any of the sites, and the overall impact would be less than significant. *CalAm Facilities:* Impacts on scenic resources or the visual character of the project area and its surroundings during construction of the CalAm-owned facilities would be the same as the proposed project with one minor exception: because up to three fewer slant wells (seven vs. ten under the proposed project) would be constructed, the total ground disturbance along the coast (specifically, in the CEMEX active mining area) would decrease by approximately 3 acres (6 acres vs. 9 acres under the proposed project).	None Required

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.14 Aesthetic Resources (cont.)				
Impact 4.14-1 (cont.)			*GWR Facilities:* The GWR Facilities construction would result in less than significant impacts to scenic views or scenic resources. Construction activities would be temporarily visible from multiple public vantage points to varying degrees at all construction sites, except for the Salinas Treatment Facility Storage and Recovery, the Blanco Drain Diversion, and the Regional Treatment Plant sites as these sites are not visible from any public viewpoints. Construction at GWR Facilities sites would include equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth. Although some areas would be intermittently visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents, these construction activities would be temporary and would not significantly change or disrupt the visual character of the surrounding areas, and therefore, construction-related impacts related to degradation of the visual character of surrounding areas would be less than significant. No mitigation measures are required.	
Impact 4.14-2: Temporary sources of substantial light or glare during construction.	**LSM** Nighttime construction activities would require temporary construction lighting, which could introduce substantial, albeit temporary, light or glare into the project area. Due to the proximity to roadways and/or residential receptors this impact would be significant for the subsurface slant wells, Source Water Pipeline, the Brine Discharge Pipeline, Desalinated Water Pipeline, Transmission Main, Monterey Pipeline, Salinas Valley Return Pipeline, and the ASR-5 and ASR-6 Wells. However, the impact would be reduced to a less-than-significant level with implementation of the identified mitigation measure. The other proposed facilities are expected to be constructed in daytime hours and therefore would have no impacts from construction-related light and glare.	**MM 4.14-2: Site-Specific Construction Lighting Measures**	**LSM** The Project Variant would have the same potential to result in significant impacts from construction-related light and glare as the proposed project, albeit in additional locations associated with the GWR Project Facilities. The proposed project mitigation measure, and the similar measure that has been developed for the GWR Project Facilities, would reduce the impact to a less than significant level. *CalAm Facilities:* The temporary impact from construction-related sources of substantial light and glare during construction of the CalAm-owned facilities would be the same as the proposed project with one minor exception: because up to three fewer slant wells would be constructed, the intensity and/or overall duration of light and glare impacts associated with construction of the subsurface slant wells could be lower. *GWR Facilities:* For GWR Facilities sites where nighttime construction could occur, nighttime lighting would result in less-than-significant impacts at the Salinas Pump Station Diversion, the Lake El Estero Diversion, and the Regional Treatment Plant sites. Nighttime lighting could result in potentially significant light impacts at the Injection Wells Facilities site. However, with implementation of **Mitigation Measure AE-2 (Minimize Nighttime Lighting),** this impact would be reduced to a less-than-significant level.	**Mitigation Measure AE-2: Minimize Construction Nighttime Lighting**
Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	**LSM** The two 3-million-gallon tanks at the Terminal Reservoir/ASR Pump Station site could have an adverse impact on scenic resources and the existing visual character of the project area in the vicinity of an undeveloped area of the former Fort Ord Military Base on the east side of General Jim Moore Boulevard. This impact would be significant but would be reduced to a less-than-significant level with implementation of the identified mitigation measures. The scale and appearance of the proposed MPWSP Desalination Plant facilities would be consistent with the character of the existing industrial facilities at the adjacent Monterey Regional Environmental Park and MRWPCA Regional Wastewater Treatment Plant. The pump houses for the ASR-5 and ASR-6 Wells would be visible from General Jim Moore Boulevard and nearby residences; however, these aboveground facilities would be small relative to existing structures and buildings in the area and would not block any views of scenic resources. The Valley Greens Pump Station would be comparable in scale with surrounding development. For these reasons, the impact would be less than significant for the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, and Valley Greens Pump Station.	**MM 4.14-3a: Facility Design** **MM 4.14-3b: Facility Screening**	**LSM** The Project Variant would have the same permanent impacts on scenic resources or the visual character of the project area as the proposed project. The GWR Facilities would not add any significant permanent effects on scenic resources or the visual character of the project area. *CalAm Facilities:* Permanent impacts on scenic resources or the visual character of the project area for the CalAm-owned facilities would be identical to those under the proposed project. *GWR Facilities:* Upon completion of construction, the proposed pipeline components of the GWR Facilities would not be visible, and structural aboveground development at the other GWR Facilities sites would not have a significant adverse effect on scenic resources or substantially degrade the visual character or quality of the surrounding area, resulting in a less-than-significant impact. No mitigation measures are required to reduce this impact; however, site design measures for GWR facilities are included as mitigation measures to ensure they are implemented appropriately, in accordance with the City of Seaside's concerns about the aesthetic quality of the proposed facilities for future land uses that are planned in Seaside.	**Mitigation Measure AE-3: Provide Aesthetic Screening for New Above-Ground Structures.**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.14 Aesthetic Resources (cont.)				
Impact 4.14-3 (cont.)	The subsurface slant wells would be buried below the beach surface and would not be visible after construction. The electrical control panel and electrical control building for these wells would be aboveground but would not be visible from offsite locations. Therefore, the impact would be less than significant. All other project facilities would be constructed underground and would not be visible after construction. No impact would result.			
Impact 4.14-4: Permanent new sources of light or glare.	**LSM** Lighting proposed at the MPWSP Desalination Plant site would be similar to existing light sources in the vicinity and would not be out of character with lighting at the adjacent Monterey Regional Environmental Park and MRWPCA Regional Wastewater Treatment Plant. Security lighting at the proposed Terminal Reservoir and ASR Pump Station site would be visible at a distance from General Jim Moore Boulevard but there are no roads or residences in the immediate vicinity of the site that would be adversely affected by this lighting. The impact associated with permanent new sources of light and glare from implementation of the MPWSP Desalination Plant, Terminal Reservoir, and ASR Pump Station would be less than significant. Light and glare impacts from new nighttime lighting at the proposed ASR-5 and ASR-6 Wells and Valley Greens Pump Station (Option 1) would be a significant impact as these facilities would be located in close proximity to residences and roadways and in areas with limited nighttime lighting. Implementation of the identified MM would reduce the impact to a less-than-significant level.	**MM 4.14-4: Outdoor and Security Lighting**	**LSM** The MPWSP Variant would include additional sites where nighttime lighting would be needed compared to the MPWSP; however, the significance of the overall impact would not change. *CalAm Facilities:* The impact related to permanent new sources of light and glare associated with the CalAm-owned facilities would be identical as that of the proposed project. *GWR Facilities:* Upon completion of construction, the proposed pipeline components of the GWR facilities would be underground, and many other facilities would not have exterior permanent lighting. The only GWR facilities that would result in development of new structures/facilities with exterior lighting are: the Treatment Facilities at the Regional Treatment Plant; the Product Water Conveyance Booster Pump Station (either RUWAP or Coastal option), and the Injection Well Facilities. Permanent exterior lighting for the Treatment Facilities at the Regional Treatment Plant would not result in a substantial new source of offsite lighting or glare. Impacts due to operational nighttime lighting at these facilities would be less than significant. The Booster Pump Stations (both options) and the Injection Well Facilities may create a new source of light or glare that could adversely affect nighttime views in the area and the impact would be considered significant. Implementation of **Mitigation Measure AE-4 (Exterior Lighting Minimization)** would reduce the impact to a less-than-significant level.	**Mitigation Measure AE-4: Exterior Lighting Minimization.**
4.15 Cultural and Paleontological Resources				
Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.	**LSM** Installation of the Monterey Pipeline and Source Water Pipeline could result in direct (i.e., historic resources exist within the estimated construction disturbance area) and indirect (i.e., from construction-related vibration) impacts to contributing elements to the Presidio of Monterey Historic District and Lapis Sand Mining Plant Historic District, respectively. In addition, installation of the Monterey Pipeline could result in indirect impacts to other historical resources located along W. Franklin Street in downtown Monterey. Any physical alteration and/or inadvertent damage to these historical resources would result in a significant impact. However, the impact would be reduced to a less-than-significant level with implementation of the prescribed mitigation measures. No impact would result from implementation of all other proposed project facilities because there are no historical resources within the respective direct and indirect APEs.	**MM 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District** **MM 4.15-1b: Special Construction Techniques to Preserve Lapis Siding**	**LSM** Under the MPSWP Variant, impacts to historic resources would be identical as those of the proposed project. The GWR facilities would not add impacts to historic resources. The combined impact would be mitigated to a less-than-significant level. *CalAm Facilities:* Impacts to historic resources associated with construction of the CalAm facilities would be identical to those of the proposed project because the Monterey Pipeline and Source Water Pipeline are included in the MPWSP Variant. As under the MPWSP, implementation of the identified mitigation measures would reduce this impact to a less-than-significant level. *GWR Facilities:* There are no potential historic resources within the APE of the GWR facilities and construction of the GWR facilities would not have an effect on known historic resources.	None Required
Impact 4.15-2: Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5 of the CEQA Guidelines during construction.	**LSM** Impacts to archaeological resources could occur during installation of the proposed Monterey Pipeline in downtown Monterey along W. Franklin Street between High Street and Figueroa Street, and within 100 feet of Presidio #2 in the Presidio of Monterey. Installation of the Source Water Pipeline within 100 feet of buildings and structures that are contributing elements of the Lapis Sand Mining Plant Historic District could also result in impacts to archaeological resources. In addition, excavation activities associated with the	**MM 4.15-2a: Establish Archaeologically Sensitive Areas** **MM 4.15-2b: Inadvertent Discovery of Cultural Resources**	**LSM** The MPSWP Variant would have a similar potential to affect unknown archeological resources as the proposed project. While fewer CalAm facilities would be constructed, the addition of GWR facilities would result in an overall increase in the amount of land that would be disturbed, and therefore would increase the potential to affect unknown archaeological resources. The combined impact would be mitigated to a less-than-significant level.	**MM CR-2b: Discovery of Archaeological Resources or Human Remains**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.15 Cultural and Paleontological Resources (cont.)				
Impact 4.15-2 (cont.)	Monterey Pipeline and Valley Greens Pump Station (both site options) occurring within Archaeologically Sensitive Areas could result in a significant impact to archaeological resources. However, these impacts would be reduced to a less-than-significant level with implementation of the identified mitigation measures. In addition, the possibility of uncovering unknown archaeological resources in the direct APEs of all other proposed project components cannot be entirely discounted. Inadvertent discovery of archaeological resources would be a significant impact but would be reduced to a less-than-significant level with implementation of the identified mitigation measure.		*CalAm Facilities:* Construction of the CalAm facilities would result in the same impacts to known and unknown prehistoric and historic-era archaeological resources as the proposed project because the Source Water Pipeline, Monterey Pipeline, and Valley Greens Pump Station are included in the MPWSP Variant. The impact related to the inadvertent discovery of unknown archaeological resources during construction of the other CalAm facilities components would be slightly reduced when compared to the proposed project due to the reduced disturbance area associated with construction of seven subsurface slant wells (versus the ten slant wells under the proposed project). Like the proposed project, the potential to adversely affect archaeological resources is considered a significant impact. However, the impact would be reduced to a less-than-significant level with implementation of the identified mitigation measures. *GWR Facilities:* The GWR facilities are entirely outside of known prehistoric and historic-era archaeological resources sites. Construction of the GWR facilities could result in potentially significant impacts to unknown archaeological resources and/or human remains that may be uncovered during construction at any of the GWR facilities of the MPWSP Variant sites, particularly in the vicinity of Lake El Estero Diversion. This is considered potentially significant impacts. Implementation of **Mitigation Measure CR-2b (Discovery of Archeological Resources or Human Remains)** would reduce the impact to a less-than-significant level.	
Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature during construction.	**LS** Construction of the proposed project components would require excavation through three geologic units that have the potential to contain paleontological resources, particularly vertebrate fossils. Of these three geologic units, only the Monterey Formation is known to contain vertebrate fossils that would qualify as a unique paleontological resource. However, because construction would occur in a limited area of the Monterey Formation and within previously-disturbed rights-of way of existing roads, potential impacts to unique paleontological resources would be less than significant.	None required.	**LS** The MPWSP Variant would result in less-than-significant impacts to paleontological resources. Neither the CalAm facilities nor the GWR facilities would be located in areas with a high potential to yield significant paleontological resources. *CalAm Facilities:* The potential impact of construction of the CalAm facilities on significant paleontological resources would be the same as under the proposed project because the MPWSP variant would involve construction of the same components and to the same extent in the Monterey Formation. The impact of the MPWSP Variant on paleontological resources would, like the project, be less than significant. *GWR Facilities:* GWR facilities would be constructed within a limited extent of the Monterey Formation within previously-disturbed rights-of-way. As such, much of the surficial and shallow materials that the GWR facilities of the MPWSP Variant would be placed on or within are fill materials or previously-disturbed native materials that have a low paleontological potential. In addition, the diatoms and benthic foraminifera that comprise much of the formation are not considered a significant paleontological resource. Thus, the construction of the GWR facilities would result in a less than significant impact to paleontological resources, and no mitigation measures are required.	None required.
Impact 4.15-4: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction.	**LSM** While no known human remains have been documented within the MPWSP direct APE, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains is considered a significant impact. However, the impact would be reduced to a less-than-significant level with implementation of the prescribed mitigation measure.	**MM 4.15-4: Inadvertent Discovery of Human Remains**	**LSM** The MPSWP Variant would have a similar potential to affect unknown human remains as the proposed project. While fewer CalAm facilities would be constructed, the addition of GWR facilities would result in an overall increase in the amount of land that would be disturbed, and therefore would increase the potential to affect unknown human remains. The combined impact would be mitigated to a less-than-significant level. *CalAm Facilities:* The potential for excavation of CalAm facilities under the MPWSP Variant to disturb human remains would be the same as under the proposed project because excavation would occur in the same areas and to the same extent as the proposed project (except that three fewer slant wells	**MM CR-2b: Discovery of Archaeological Resources or Human Remains** **Mitigation Measure CR-2c: Native American Notification.**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.15 Cultural and Paleontological Resources (cont.)				
Impact 4.15-4 (cont.)			would be excavated). As under the MPWSP, this significant impact would be reduced to a less-than-significant impact with implementation of the identified mitigation measure. *GWR Facilities:* Construction of the GWR facilities could result in potentially significant impacts to unknown human remains that may be uncovered during construction at any of the GWR facilities of the MPWSP Variant sites. This is considered potentially significant impacts. Implementation of **Mitigation Measures CR-2b (Discovery of Archeological Resources or Human Remains) and CR-2c (Native American Notification)** would reduce the impact to a less-than-significant level.	
4.16 Agriculture and Forestry Resources				
Impact 4.16-1: Permanently or temporarily convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.	**LSM** None of the other proposed project facilities would result in the permanent conversion of agricultural land to non-agricultural uses. However, the Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, and Desalinated Water Pipeline alignments are located within or adjacent to lands designated as Prime Farmland or Farmland of Statewide Importance and the installation of these pipelines could temporarily disrupt agricultural land uses as a result of trenching and excavations, construction staging, and construction vehicle access. Temporary disruption of agricultural uses is considered a significant impact but would be reduced to a less-than-significant level with implementation of the identified mitigation measure. Agricultural production on land used for the cultivation of row crops could resume after construction has been completed. None of the other proposed project facilities are anticipated to result in temporary disruption of agricultural uses.	**MM 4.16-1: Minimize Disturbance to Farmland**	**LSM** Temporary effects on agricultural uses in designated important farmland would be similar under the MPSWP Variant as under the proposed project. The GWR facilities would add some additional locations where temporary effects on agricultural uses would occur. However, the combined impact would be mitigated to a less-than-significant level. *CalAm Facilities:* The potential for the CalAm facilities under the MPWSP Variant to result in the conversion of farmland to non-agricultural use would be identical to the proposed project because the Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, and Desalinated Water Pipeline alignments would be the same. Like the proposed project, with implementation of the prescribed mitigation, the impact would be reduced to a less-than-significant level. *GWR Facilities:* Construction of the Salinas Treatment Facility (specifically, slip-lining of the existing 33-inch industrial wastewater pipeline) and a portion of the Blanco Drain Diversion pipeline could temporarily disrupt agricultural uses in designated important farmland areas, a potentially significant impact. However, implementation of **Mitigation Measure LU-1 (Minimize Disturbance to Farmland)** would reduce the impact to a less-than-significant level.	**MM LU-1: Minimize Disturbance to Farmland**
Impact 4.16-2: Conflicts with existing zoning for agricultural uses or with Williamson Act contracts.	**LSM** Construction of the Source Water Pipeline and the Desalinated Water Pipeline could result in temporary conflicts with Williamson Act contracts. Construction of the Brine Discharge Pipeline and the Salinas Valley Return Pipeline could result in temporarily conflicts with agricultural lands zoned for grazing. These conflicts would constitute a significant impact, but would be reduced to a less-than-significant level with implementation of the identified mitigation. None of the other proposed facilities would result in conflicts Williamson Act contracts or land zoned for agricultural uses.	**MM 4.16-1: Minimize Disturbance to Farmland**	**LSM** Under the MPSWP Variant, the same temporary conflict with Williamson Act contracts would occur as under the proposed project; the GWR facilities would not add any conflicts with Williamson Act contracts. No MPSWP Variant components would conflict with agricultural zoning. The combined impact from conflicts with Williamson Act contracts and agricultural zoning would be mitigated to a less-than-significant level. *CalAm Facilities:* The potential for the CalAm facilities of the MPWSP Variant to result in conflicts with existing zoning for agricultural use or Williamson Act contracts would be identical to the proposed project because the Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, and Desalinated Water Pipeline alignments would be the same. Like the proposed project, with implementation of the prescribed mitigation, the impact would be reduced to a less-than-significant level.	None Required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.16 Agriculture and Forestry Resources (cont.)				
Impact 4.16-2 (cont.)			*GWR Facilities:* There are no properties under a Williamson Act contract within or adjacent to any of the GWR facilities. Several proposed project facilities are located within land zoned for agriculture. The northernmost portions of the Product Water Conveyance System Options would be located in open space areas between the Regional Treatment Plant and the city of Marina northern border that are zoned for Permanent Grazing[4]. The 33-inch pipeline slip-lining portion of the Salinas Treatment Facility project component, the Reclamation Ditch Diversion site, and a portion of the Banco Drain Diversion pipeline alignment are located on land zoned for agriculture (Farmlands 40 acre minimum (F/40)). Water and wastewater infrastructure are an allowable use in both the permanent grazing and F/40 zoning districts and the GWR facilities of the MPWSP Variant would not conflict with the County's zoning code. Implementation of the GWR facilities would not prevent continued use of the land for agricultural production and would not require rezoning or a zoning amendment. While the installation of underground project facilities such as pipelines could temporarily disrupt or displace farmland during the construction period, the GWR facilities would restore the construction sites to per-construction condition and agricultural uses would resume after construction has been completed. This impact is less than significant and no mitigation measures are required.	
Impact **4.16**-3: Otherwise change the existing environment such that farmland is converted to non-agricultural use.	**LSM** Construction of Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, and Desalinated Water Pipeline could result in inadvertent changes to the existing environment that could result in the conversion of farmland to non-agricultural uses (i.e., adversely affect soil conditions in farmland areas or result in inadvertent damage to agricultural irrigation systems). This is considered a significant impact. Implementation of the identified MM would reduce this impact to a less-than-significant level.	**MM 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land**	**LSM** Under the MPSWP Variant, the potential for a change to the existing environment to result in conversion of agricultural land to non-agricultural uses would occur as under the proposed project; the GWR facilities would not add any changes to the existing environment that could result in conversion of agricultural land to non-agricultural uses. The combined impact would be mitigated to a less-than-significant level. *CalAm Facilities:* The potential for the CalAm-owned facilities to result in other changes in the existing environment that could result in the conversion of farmland to non agricultural use would be identical as that of the proposed project because the Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, and Desalinated Water Pipeline alignments would be the same. Like the proposed project, with implementation of the prescribed mitigation, the impact would be reduced to a less-than-significant level. *GWR Facilities:* Conversion of farmland to non-farmland uses would not occur due to indirect changes to the existing environment resulting from implementation of the proposed GWR facilities. The GWR facilities would not adversely affect soil conditions in farmland areas or result in inadvertent damage to agricultural irrigation systems. The GWR facilities would increase water quantity for irrigation of farmland in Salinas Valley. Although the salinity of recycled water may increase intermittently in some hydrologic years due to the GWR facilities of the MPWSP Variant, (for example, during late summer and fall seasons during some low rainfall/drought years) they would not result in conversion of farmland to non-farmland uses. Based on these factors, the GWR facilities would have a less-than-significant indirect impact related to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance land to non-agricultural uses.	None Required.

[4] Specifically, a similar RUWAP pipeline was proposed by Marina Coast Water District and received a conditional use permit from Monterey County in 2009 and in that permit they explicitly stated that the proposed pipeline would not conflict with the site zoning (Monterey County Zoning Administrator, 2009)

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

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4.17 Mineral Resources				
Impact 4.17-1: Loss of availability of known mineral resources or locally important mineral resource recovery sites.	**LS** The subsurface slant wells for the Seawater Intake System are proposed within the CEMEX active mining area. Although mining operations could experience minor disruptions during project construction, mining operations would continue throughout project construction. Assuming that the current methods of sand extraction at the CEMEX sand mining facility would continue during future project operations, the siting of the subsurface slant wells and Source Water Pipeline in the CEMEX active mining area would not interfere with sand mining activities or adversely affect the availability of mineral resources for future recovery. Therefore, impacts on mineral resources at the CEMEX sand mining facility would be less than significant. All other proposed project components located north of Highway 68 would be located in mineral resource zone 2 (MRZ-2) areas—that is, areas where adequate information indicates that significant mineral deposits (in this case, sand for use as aggregate) are either present or are likely to be present. Because the MPWSP Desalination Plant, the ASR-5 and ASR-6 Wells, ASR Pump Station, Terminal Reservoir, and ASR Settling Basin would have a limited footprint and would not be constructed across any active mining areas, they would not result in a significant reduction in the availability of mineral resources (primarily sand dunes) and the impact would be less than significant. Similarly, all pipelines would be installed along the Monterey Peninsula Recreational Trail, the Transportation Agency of Monterey County (TAMC) right-of-way, or existing road rights-of-way, thereby minimizing disturbance to nearby MRZ-2 land. Pipelines would not be constructed across any active mining areas. Therefore, the impact is less than significant.	None required.	**LS** The MPSWP Variant would have a similar effect on mineral resources as the proposed project. No facilities would significantly affect the availability of known mineral resources for recovery or substantially interfere with active mining operations. The combined impact would be less than significant. *CalAm Facilities:* The impacts of the CalAm-owned facilities related to loss of availability of known mineral resources or locally important mineral resource recovery sites would be similar to the impacts of the proposed project. Although up to three fewer subsurface slant wells would be constructed (seven vs. ten under the proposed project) in the CEMEX active mining area, like the proposed project, the subsurface slant wells under the MPWSP Variant would not significantly affect the availability of known mineral resources for future recovery or substantially interfere with active mining operations. Same as the proposed project, the impact would be less than significant. *GWR Facilities:* The siting of the GWR facilities would not result in a loss in the availability of the known mineral resources in the MRZ-2 zoned area either directly (because the work would not consume large amounts of aggregate resources) or indirectly (precluding access to such resources). No aggregate extraction currently is occurring, and future extraction would not be precluded, significantly obstructed, or otherwise affected by the GWR facilities of the MPWSP Variant. The construction of the GWR facilities would not result in the loss of availability of known mineral resources; therefore, the project would have a less than significant impact on mineral resources.	None Required.
4.18 Energy Conservation				
Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during project construction.	**LSM** Construction of the proposed project would require the use of fuels for operation of heavy construction equipment (e.g., dozers, excavators, and trenchers), construction vehicles (e.g., dump and delivery trucks), and construction worker vehicles. Operation of some construction equipment (e.g., welding machines and electric power tools) would require the use of electricity. Project construction would also result in indirect energy use associated with the extraction, manufacturing, and transportation of raw materials to make construction materials. Construction activities could result in wasteful or inefficient use of energy if construction equipment is not well maintained, if equipment is left to idle when not in use, or if haul trips are not planned efficiently. The potential for project construction to use large amounts of fuel or energy in a wasteful manner is considered a significant impact. However, implementation of the identified mitigation measures would reduce the impact to a less-than-significant level.	**MM 4.18-1: Construction Equipment Efficiency Plan** **MM 4.10-1c: Idling Restrictions**	**LSM** Under the MPSWP Variant, impacts from use of energy for project construction would be similar to those of the proposed project. Neither the CalAm facilities nor the GWR facilities would result in wasteful or inefficient energy use during project construction, and the combined impact would be less than significant with mitigation. *CalAm Facilities:* The impact associated with wasteful or inefficient use of fuel or electricity during construction of the CalAm facilities would be essentially the same as that of the proposed project, although slightly reduced because three fewer slant wells would be constructed. As under the MPWSP, the impact resulting from the wasteful or inefficient use of fuel or electricity during construction of the MPWSP would be reduced to a less-than-significant level with implementation of the identified mitigation measures. *GWR Facilities:* Construction of the GWR facilities would not result in a significant impact on the existing energy resources and systems or conflict with energy conservation standards. Construction of the GWR facilities would be required to comply with existing codes and standards for efficiency and conservation, included idling restrictions in Final Regulation Order Regulation For In-Use Off-Road Diesel-Fueled Fleets (California Code of Regulations in Title 13, article 4.8, chapter 9, section 2449, subsection (d)), and Title 24 CalGreen, which requires energy efficiency and conservation. However, construction activities could result in wasteful or inefficient use of energy if construction equipment is not well maintained or if haul trips are not planned efficiently. The potential for project construction to use large amounts of fuel or energy in a wasteful or inefficient manner is considered a significant impact. However, with implementation of Mitigation Measures EN-1 (Construction Equipment Efficiency Plan), which would ensure construction activities are conducted in a fuel-efficient manner, the impact would be reduced to a less-than-significant level.	**MM EN-1: Construction Equipment Efficiency Plan**

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.18 Energy Conservation (cont.)				
Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during project operations.	**LS** Operation of the proposed project would result in the consumption of fuel for CalAm staff commute trips to and from the MPWSP Desalination Plant, and vehicle trips associated with routine maintenance and operations. Project operations would also result in the consumption of electricity to operate the MPWSP Desalination Plant (i.e., reverse osmosis [RO] modules, pumps, lighting, process controls, heating, ventilation, and air conditioning [HVAC] systems) and other proposed facilities (i.e., ASR Pump Station, Valley Greens Pump Station, etc). Although implementation of the proposed project would result in a substantial increase in electrical power demand (48,200 MWh/year minus a baseline energy use of 7,700 MWh/year equals a net increase of 40,500 MWh/year), the use of energy for operation of the MPWSP Desalination Plant is necessary because it would provide a reliable supply of water to meet existing demand for the Monterey District. Therefore, electricity consumed as a result of project operations would not be wasteful or inefficient and the impact related to the use of fuel and energy during project operations would be less than significant.	None Required.	**LS** The MPWSP Variant would use 4,700 MWh/year less energy than the proposed project (35,800 MWh/year net increase in energy use for the MPWSP Variant vs. 40,500 MWh/year net increase for the proposed project). The facilities would not result in wasteful or inefficient use of fuel or energy, and the combined impact to energy resources would be less than significant. *CalAm Facilities:* The impact associated with wasteful or inefficient use of fuel or electricity during operation of the CalAm facilities of the MPWSP Variant would be reduced when compared to the proposed project because the smaller desalination plant would consume less energy. As under the MPWSP, energy would not be used in a wasteful or inefficient manner and the impact would be less than significant. *GWR Facilities:* The existing Treatment Facilities at the Regional Treatment Plant are partially powered by solar energy and cogeneration of biogas, thus minimizing the need for new electricity generation using fossil fuels. The other GWR facilities would be designed to be energy efficient and not waste energy because the new pumps and electrical facilities would be energy efficient due to the use of variable frequency drives as is the current professional standard for new pumps, and LED lighting as required by CalGreen. Energy would not be used in a wasteful or inefficient manner and the impact would be less than significant	None required.
Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during project operations.	**LS** Implementation of the proposed project would increase CalAm's total electrical demand by an amount that would represent approximately 1.5 percent of the County's electricity usage in 2012. The preliminary review of the proposed project's annual and maximum electrical demand by the electricity provider, PG&E, has indicated that PG&E has adequate capacity and infrastructure to support the proposed project. Therefore, this impact would be less than significant.	None required.	**LS** As noted above, the combined components of the MPWSP Variant would use 4,700 MWH/year less energy than the proposed project. The combined operation of the CalAm facilities and GWR facilities of the MPWSP Variant would not result in a significant impact due to constraints on local or regional energy supplies. *CalAm Facilities:* Impact on local or regional energy supplies associated with operation of the MPWSP Variant would be less than that of the proposed project because the MPWSP Variant involve operation of a smaller desalination plant, with corresponding reduced energy demands, and operation of three fewer slant wells. As under the MPWSP, the impact would be less than significant. *GWR Facilities:* All of the electrical power for the GWR facilities will be provided directly from the PG&E grid, which has adequate capacity to supply the GWR facilities demand. The operation of the GWR facilities of the MPWSP Variant would not result in a significant impact due to constraints on local or regional energy supplies, due to requiring additional capacity, or due to adverse effects on peak and busy periods of electricity demand.	None required.
4.19 Population and Housing				
Impact 4.19-1: Induce substantial population growth directly (for example, by proposing new homes and businesses).	**LS** Construction and operation of the proposed project would not induce substantial population growth because the construction workforce requirements would substantially be met by the regional labor force and only a small number of new employees would be needed to operate the desalination plant; the other MPWSP facilities would be operated and maintained by existing CalAm employees	None required.	**LS** The MPSWP Variant would result in the same effect on population growth as the proposed project: the CalAm facilities and the GWR would not induce substantial population growth due to construction employment, long-term operational employment, or infrastructure development. The combined impact is less than significant. *CalAm Facilities:* The potential for the MPWSP Variant to induce substantial population growth would be the same as under the proposed project because the construction workforce would also be drawn from the regional labor force and essentially the same small number of new employees would be needed to operate the smaller desalination plant. As under the MPWSP, the other CalAm owned facilities would be operated and maintained by existing CalAm staff.	None required.

TABLE 6-7 (Continued)
COMPARISON OF THE ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT VS. MPWSP VARIANT

Impact	Proposed Project: Impacts and Mitigation as presented in Chapter 4 of this EIR	Mitigation Measures and Improvement Measures – Proposed Project and CalAm Facilities of the MPWSP Variant	MPWSP Variant: Impacts and Mitigation of GWR Facilities are as presented in the *Pure Water Monterey WR DEIR (MRWPCA*, April 2015)	Additional Mitigation Measures – GWR Facilities of the MPWSP Variant (MRWPCA, 2015)
4.19 Population and Housing				
Impact 4.19-1 (cont.)			<u>*GWR Facilities:*</u> Construction: During the approximate 18- to 21-month construction period, the average daily number of persons necessary for all construction activities at all of the GWR facilities of the MPWSP is estimated to be approximately 135 construction workers. It is expected that the construction workforce requirements could be met with the local labor force within the Monterey Bay Area. This temporary employment condition would not result in a substantial permanent increase in population. Thus, construction of the GWR facilities would not result in substantial population growth in the region and no mitigation measures are required. Operation: The GWR facilities would not result in population growth through development of new residential or commercial uses, and would not induce population growth due to a substantial increase in demand for new permanent employees or extension of roads or public services to unserved locations. At most, only nine new employees would be needed to operate the GWR facilities. Therefore, the GWR facilities would not induce population growth. In addition, the GWR facilities would not produce all of the replacement water that CalAm would need to comply with the State Water Board's order and the Watermaster's adjudication. The primary objective of the GWR facilities is to replenish the Seaside Groundwater Basin that would replace a portion of CalAm's water supply as required by the state orders.	

TABLE 6-8
CONSISTENCY WITH APPLICABLE LAND USE PLANS, POLICIES, AND REGULATIONS – PROPOSED PROJECT VS. MPWSP VARIANT

Topic	Plans, Policies, and Regulations With Which the Proposed Project is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – Proposed Project and CalAm Facilities of the MPWSP Variant	Plans, Policies, and Regulations With Which the MPWSP Variant is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – GWR Facilities
4.2 Geology, Soils, and Seismicity				
Consistency with Plans Policies and Regulations Related to Geology, Soils, and Seismicity	• California Coastal Act Section 30235, 30253 • City of Marina General Plan Policy 4.102.4 • City of Marina Local Coastal Land Use Plan, Planning Guidelines, Geotechnical • Monterey Harbor Land Use Plan Policy 3.b, 3.c, 3.d • Del Monte Beach Land Use Plan Policy 3.1, 3.3, 3.4, 3.7, 3.11 • Monterey County General Plan Policy S-1.5, S-1.6 As discussed in Section 4.2, Geology, Soils, and Seismicity (see **Table 4.2-6**), with mitigation, the proposed project would be brought into conformity with these plans, policies, or regulations. The proposed project would not be expected to conflict with other plans, policies, or regulations related to geology, soils, and seismicity that were adopted for the purpose of avoiding or mitigating an environmental effect.	**MM 4.2-6a: Slant Well Abandonment Plan** **MM 4.2-6b: Monterey Pipeline Deepening** *See Impact 4.2-6 for description and analysis.*	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to geology, soils, and seismicity.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* None required.
4.3 Surface Water Hydrology and Water Quality				
Consistency with Plans Policies and Regulations Related to Surface Water Hydrology and Water Quality	The proposed project would be consistent with all plans, policies, and regulations pertaining to surface water hydrology and water quality (see Table 4.3-6).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to surface water hydrology and water quality.	*CalAm Facilities:* None required. *GWR Facilities:* None required.
4.4 Groundwater Resources				
Consistency with Plans Policies and Regulations Related to Groundwater Resources	The proposed project would be consistent with all plans, policies, and regulations pertaining to groundwater resources (see Table 4.4-8).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to groundwater resources.	*CalAm Facilities:* None required. *GWR Facilities:* None required.
4.5 Marine Biological Resources				
Consistency with Plans Policies and Regulations Related to Marine Biological Resources	The proposed project would be consistent with all plans, policies, and regulations pertaining to marine biological resources (see Table 4.5-3).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to marine biological resources.	*CalAm Facilities:* None required. *GWR Facilities:* None required.
4.6 Terrestrial Biological Resources				
Consistency with Plans Policies and Regulations Related to Terrestrial Biological Resources	• City of Marina General Plan Policy 2.4.4, 2.10, 4.112, 4.114, 4.116, 4.118, 4.119, 4.120, 4.121 • City of Marina Local Coastal Land Use Plan Policy 8, 19, 24, 25, 26 • City of Marina Local Coastal Land Use Plan Planning Guidelines Rare and Endangered Species: Habitat Protection, Wetlands Protection • Marina Municipal Code Chapter 17.51 • Del Monte Beach Land Use Plan Policy 1, 2, 3, 4, 10	**MM 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures** **MM 4.6-1b: Construction Worker Environmental Awareness Training/ and Education Program**	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities could potentially conflict with the following: • Monterey County General Plan Policy OS-5.4, OS-5.6, OS-5.16, OS-5.18, OS-	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* **MM BF-1a: Construction during Low Flow Season** **MM BF-1b: Relocation of Aquatic**

Topic	Plans, Policies, and Regulations With Which the Proposed Project is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – Proposed Project and CalAm Facilities of the MPWSP Variant	Plans, Policies, and Regulations With Which the MPWSP Variant is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – GWR Facilities
	• Monterey City Code Chapter 37 • Monterey Harbor Land Use Plan Policy 3.d, 3.e, 3.k, 3.l • Pacific Grove Municipal Code Title 12 • Sand City Local Coastal Program Land Use Plan Policy 4.3.19, 4.3.20, 4.3.22, 4.3.23 • Sand City Municipal Code Chapter 16.12 • City of Seaside Local Coastal Program Land Use Plan Policy NCR-CZ 1.1.C, NCR-CZ 1.2.A, NCR-CZ 1.2.B, NCR-CZ 1.3.A, NCR-CZ 1.3.B, LUD-CZ 3.1.A, LUD-CZ 3.1B • Seaside General Plan Policy COS-4.1, COS-4.2, COS-4.3 • Seaside Municipal Code Chapter 8.54 • Carmel Valley Master Plan Policy CV-3.11 • Greater Monterey Peninsula Area Plan Policy GMP-3.5, GMP-3.9 • Monterey County Code Section 21.64.260 • Monterey County General Plan Policy OS-4.1, OS-5.1, OS-5.2, OS-5.4, OS-5.5, OS-5.6, OS-5.11, OS-5.13, OS-5.16, OS-5.17, OS-5.18, OS-5.25 • North County Land Use Plan Policy 2.3.2.1, 2.3.2.2, 2.3.2.3, 2.3.2.4, 2.3.2.5, 2.3.2.6, 2.3.2.8, 2.3.2.9, 2.3.2.10, 2.3.3.B4, 2.3.3.B5, 2.3.3.B6, 2.3.3.C2 • North County Land Use Plan Key Policy 4.3.4 • Fort Ord Reuse Plan Biological Resources Policy A-2, A-4 (Program A-4.1, A-4.3), A-9 (Program A-9.1, A-9.3), B-1 (Program B-1.2), C-1, C-3, D-1 • California Coastal Act Section 30240, 30233 As discussed in Section 4.6, Terrestrial Biological Resources (see **Table 4.6-2**), with mitigation, the proposed project would be brought into conformity with these plans, policies, or regulations. The proposed project would not be expected to conflict with other plans, policies, or regulations related to terrestrial biological resources that were adopted for the purpose of avoiding or mitigating an environmental effect.	**MM 4.6-1c: General Avoidance and Minimization Measures** **MM 4.6-1d: Protective Measures for Western Snowy Plover** **MM 4.6-1e: Avoidance and Minimization Measures for Special-status Plants** **MM 4.6-1f: Avoidance and Minimization Measures for Smith's Blue Butterfly** **MM 4.6-1g: Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard** **MM 4.6-1h: Avoidance and Minimization Measures for Western Burrowing Owl** **MM 4.6-1i: Avoidance and Minimization Measures for Nesting Birds** **MM 4.6-1j: Avoidance and Minimization Measures for American Badger** **MM 4.6-1k: Avoidance and Minimization Measures for Monterey Dusky-Footed Woodrat** **MM 4.6-1l: Avoidance and Minimization Measures for Special-status Bats** **MM 4.6-1m: Avoidance and Minimization Measures for Native Stands of Monterey Pine** **MM 4.6-1n: Habitat Mitigation and Monitoring Plan** **MM 4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California tiger Tiger Salamander** **MM 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas** **MM 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities** **MM 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands** **MM 4.6-4: Compliance with Local Tree Ordinances** **MM 4.6-5: Installation and Monitoring of Bird Deterrents at the Brine Storage Basin** **MM 4.12-1b: General Noise Controls for Construction Equipment** **MM 4.14-2: Site-Specific Construction Lighting Measures**	5.25, OS-4.1 • Greater Monterey Peninsula Area Plan Policy GMP-3.6 • North County Land Use Plan Policy 2.3.2.1, 2.3.2.2, 2.3.2.5, 2.3.2.10, 2.3.3.B1, 2.3.3.B2, 2.3.3.B4, 2.3.3.B6, 2.3.3.C2 • North County Land Use Plan Key Policy 4.3.4 • Monterey County Code Section 21.64.260 • Marina General Plan 4.114, 4.116, 4.118, 4.119 • Marina General Plan Policy 2.4.4, 4.112, 2.10 • City of Marina Land Use Plan Policy 24, 26 • City of Marina Land Use Plan Rare and Endangered Species: Habitat Protection, Wetlands Protection • Marina Municipal Code Chapter 17.51 • Seaside General Plan COS-4.1, COS-4.2 • City of Seaside Land Use Plan Policy NCR-CZ 1.1.C, NCR-CZ 3.1.A • Seaside Municipal Code Chapter 8.54 • Sand City Land Use Plan Policy 4.3.22 • Del Monte Beach Land Use Plan Policy 2, 3, 4, 10 • CCC Section 30240, 30233 • Pacific Grove Municipal Code Title 12 • Fort Ord Reuse Plan Biological Resources Policy A-9, C-3 With implementation of mitigation, the GWR facilities of the MPWSP Variant would be brought into conformity with these plans, policies, or regulations. The GWR facilities would not be expected to conflict with other plans, policies, or regulations related to terrestrial biological resources that were adopted for the purpose of avoiding or mitigating an environmental effect.	**Species during Construction** **MM BF-2a: Maintain Migration Flows** **MM BF-2a: Modify San Jon Weir** **MM BT-1a: Implement Construction Best Management Practices** **MM BT-1b: Implement Construction-Phase Monitoring** **MM BT-1c: Implement Non-Native, Invasive Species Controls** **MM BT-1d: Conduct Pre-Construction Surveys for California Legless Lizard** **MM BT-1e: Prepare and Implement Rare Plant Restoration Plan to Mitigate Impacts to Sandmat Manzanita, Monterey Ceanothus, Monterey Spineflower, Eastwood's Goldenbush, Coast Wallflower, and Kellogg's Horkelia** **MM BT-1f: Conduct Pre-Construction Protocol-Level Botanical Surveys within the Product Water Conveyance: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch; and the remaining portion of the Project Study Area within the Injection Well Facilities site** **MM BT-1g: Conduct Pre-Construction Surveys for Special-Status Bats** **MM BT-1h: Implementation of Mitigation Measures BT-1a and BT-1b to Mitigate Impacts to the Monterey Ornate Shrew, Coast Horned Lizard, Coast Range Newt, Two-Striped Garter Snake, and Salinas Harvest Mouse** **MM BT-1i: Conduct Pre-Construction Surveys for Monterey Dusky-Footed Woodrat** **MM BT-1j: Conduct Pre-Construction Surveys for American Badger** **MM BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark** **MM BT-1l: Conduct Pre-Construction Surveys for Burrowing**

Topic	Plans, Policies, and Regulations With Which the Proposed Project is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – Proposed Project and CalAm Facilities of the MPWSP Variant	Plans, Policies, and Regulations With Which the MPWSP Variant is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – GWR Facilities
		MM 4.14-4: Outdoor and Security Lighting *See Impact 4.6-1, Impact 4.6-2, Impact 4.6-3, Impact 4.6-4, Impact 4.6-5, Impact 4.6-6, and Impact 4.6-7 for description and analysis.*		**Owl** **MM BT-1m: Minimize effects of nighttime construction lighting** **MM BT-1n: Mitigate Impacts to Smith's blue butterfly** **MM BT-1o: Avoid and Minimize Impacts to Monarch butterfly** **MM BT-1p: Avoid and Minimize Impacts to Western Pond Turtle** **MM BT-1q: Avoid and Minimize Impacts to California Red-Legged Frog** **MM BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats** **MM BT-2b: Avoidance and Minimization of Impacts to Central Dune Scrub Habitat** **MM BT-2c: Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River** **MM BT-6a: Implementation of Mitigation Measures BT-1a and BT-1b for Avoidance and Minimization of Operational Impacts to Sensitive Habitat** *See Impact BF-1, Impact BF-2, Impact BF-3, Impact BT-1, Impact BT-2, BT-5, and BT-6 for description and analysis.*
4.7 Hazards and Hazardous Materials				
Consistency with Plans Policies and Regulations Related to Hazards and Hazardous Materials	The proposed project would be consistent with all plans, policies, and regulations pertaining to hazards and hazardous materials (see **Table 4.7-3**).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to hazards and hazardous materials.	*CalAm Facilities:* None required. *GWR Facilities:* None required.
4.8 Land Use, Land Use Planning, and Recreation				
Consistency with Plans Policies and Regulations Related to Geology, Soils, and Seismicity	The proposed project would be consistent with all plans, policies, and regulations pertaining to land use, land use planning, and recreation (see Table **4.8-2**).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to land use, land use planning, and recreation.	*CalAm Facilities:* None required. *GWR Facilities:* None required.

Topic	Plans, Policies, and Regulations With Which the Proposed Project is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – Proposed Project and CalAm Facilities of the MPWSP Variant	Plans, Policies, and Regulations With Which the MPWSP Variant is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – GWR Facilities
4.9 Traffic and Transportation				
Consistency with Plans Policies and Regulations Related to Traffic and Transportation	• Del Monte Beach Land Use Plan Policy 13 • Harbor Land Use Plan Policy 3.K • City of Seaside General Plan Policy C-1.7 • Monterey County General Plan Policy C-3.4 As discussed in Section 4.9, Traffic and Transportation (see **Table 4.9-2**), with mitigation, the proposed project would be brought into conformity with these plans, policies, or regulations. The proposed project would not be expected to conflict with other plans, policies, or regulations related to traffic and transportation that were adopted for the purpose of avoiding or mitigating an environmental effect.	**MM 4.9-1: Traffic Control and Safety Assurance Plan** *See Impact 4.9-1 and Impact 4.9-5 for description and analysis.*	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities could potentially conflict with the following: • Monterey County General Plan Policy C-4.3 • City of Marina Local Coastal Program Land Use Plan Policy 1 • Del Monte Beach Land Use Plan Policy 13, 3.K With implementation of mitigation, the GWR facilities of the MPWSP Variant would be brought into conformity with these plans, policies, or regulations. The GWR facilities would not be expected to conflict with other plans, policies, or regulations related to traffic and transportation that were adopted for the purpose of avoiding or mitigating an environmental effect.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* **MM TR-2: Traffic Control and Safety Assurance Plan** *See Impact TR-2 for description and analysis.*
4.10 Air Quality				
Consistency with Plans Policies and Regulations Related to Air Quality	• California Coastal Act Section 30253 • Monterey County General Plan Policy OS-10.6, OS-10.8, OS-10.9 • Seaside Municipal Code Section 8.40.030, 8.40.040 As discussed in Section 4.10, Air Quality (see **Table 4.10-3**), with mitigation, the proposed project would be brought into conformity with these plans, policies, or regulations. The proposed project would not be expected to conflict with other plans, policies, or regulations related to air quality that were adopted for the purpose of avoiding or mitigating an environmental effect.	**MM 4.10-1a: Construction Fugitive Dust Control Plan** **MM 4.10-1b: Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road** **MM 4.10-1c: Idling Restrictions** *See Impact 4.10-1 for description and analysis.*	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities could potentially conflict with the following: • California Coastal Act Section 30253 • Monterey County General Plan Policy OS-10.6, OS-10.9 With implementation of mitigation, the GWR facilities of the MPWSP Variant would be brought into conformity with these plans, policies, or regulations. The GWR facilities would not be expected to conflict with other plans, policies, or regulations related to air quality that were adopted for the purpose of avoiding or mitigating an environmental effect.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* **MM AQ-1: Construction Fugitive Dust Control Plan** *See Impact AQ-1 for description and analysis.*
4.11 Greenhouse Gas Emissions				
Consistency with Plans Policies and Regulations Related to Greenhouse Gas Emissions	**Consistency analysis addressed directly in impact discussion.**	*See Impacts 4.11-1 through 4.11-3 for description and analysis.*	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to greenhouse gas emissions.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* None required.
4.12 Noise and Vibration				
Consistency with Plans Policies and Regulations Related to Noise and Vibration	• City of Marina General Plan Maximum Allowable Noise Restrictions • Marina Municipal Code Section 15.04.055 • Monterey City Code Section 38-112.2 • Seaside General Plan Policy N-3.1 • Seaside Municipal Code Section 9.12.030(D) • Monterey County General Plan Policy S-7.2, S-7.4, S-7.10 • Fort Ord Reuse Plan Noise Policy B-9 As discussed in Section 4.12, Noise and Vibration (see **Table 4.12-3**), with mitigation, the proposed project would be brought into conformity with these plans, policies, or regulations.	**MM 4.12-1a: Neighborhood Notice** **MM 4.12-1b: General Noise Controls for Construction Equipment** **MM 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction** **MM 4.12-1d: Additional Noise Controls for ASR-5 and ASR-6 Wells** **MM 4.12-1e: Offsite Accommodations**	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities could potentially conflict with the following: • Monterey County General Plan Policy S-7.10 • City of Monterey General Plan Policy d.2 With implementation of mitigation, the GWR facilities of the MPWSP Variant would be	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* **MM NV-1b: Monterey Pipeline Noise Control Plan for Nighttime Pipeline Construction** **MM NV-1c: Neighborhood Notice**

Topic	Plans, Policies, and Regulations With Which the Proposed Project is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – Proposed Project and CalAm Facilities of the MPWSP Variant	Plans, Policies, and Regulations With Which the MPWSP Variant is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – GWR Facilities
	The proposed project would not be expected to conflict with other plans, policies, or regulations related to noise and vibration that were adopted for the purpose of avoiding or mitigating an environmental effect.	**for Substantially Affected Nighttime Receptors** **MM 4.12-3: Vibration Reduction Measures** **MM 4.12-5: Stationary-Source Noise Controls** **MM 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District** *See Impact 4.12-1, Impact 4.12-2, Impact 4.12-3, Impact 4.12-4, Impact 4.12-5, and Impact 4.12-6 for description and analysis.*	brought into conformity with these plans, policies, or regulations. The GWR facilities would not be expected to conflict with other plans, policies, or regulations related to noise and vibration that were adopted for the purpose of avoiding or mitigating an environmental effect.	**MM NV-2b: Construction Hours** *See Impact NV-1and Impact NV-2 for description and analysis.*
4.13 Public Services and Utilities				
Consistency with Plans Policies and Regulations Related to Public Services and Utilities	The proposed project would be consistent with all plans, policies, and regulations pertaining to public services and utilities (see **Table 4.13-4**).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities could potentially conflict with the following: • California Green Building Standards Code California Code of Regulations, Title 24, Part 11 (CALGreen) Diversion Rates Related to Construction With implementation of mitigation, the GWR facilities of the MPWSP Variant would be brought into conformity with these plans, policies, or regulations. The GWR facilities would not be expected to conflict with other plans, policies, or regulations related to public services and utilities that were adopted for the purpose of avoiding or mitigating an environmental effect.	*CalAm Facilities:* None required. *GWR Facilities:* **MM PS-3: Construction Waste Reduction and Recycling Plan** *See Impact PS-3 for description and analysis.*
4.14 Aesthetic Resources				
Consistency with Plans Policies and Regulations Related to Aesthetic Resources	• Seaside General Plan Policy UD-1.1, UD-3.1 As discussed in Section 4.14, Aesthetic Resources (see **Table 4.14-2**), with mitigation, with mitigation, the proposed project would be brought into conformity with these plans, policies, or regulations. The proposed project would not be expected to conflict with other plans, policies, or regulations related to aesthetic resources that were adopted for the purpose of avoiding or mitigating an environmental effect.	**MM 4.14-3a: Facility Design** **MM 4.14-3b: Facility Screening** *See Impact 4.14-3 for description and analysis.*	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to aesthetic resources.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* None required.
4.15 Cultural and Paleontological Resources				
Consistency with Plans Policies and Regulations Related to Cultural and Paleontological Resources	• California Coastal Act Section 30244 • City of Marina General Plan Policy 4.126 • City of Seaside Local Coastal Program Land Use Plan Policy LUD-CZ 2.11 • Seaside General Plan Policy COS-5.1 • Seaside General Plan Implementation Plan COS-5.1.1 • North County Land Use Plan Specific Policies 2.9.3 • North County Land Use Plan General Policy 2.9.1, 2.9.2 • Fort Ord Base Reuse Plan Cultural Resources Policy A-1 (Program A-1.1, Program A-1.2, Program A-1.3) As discussed in Section 4.15, Cultural and Paleontological Resources (see **Table 4.15-5**), with mitigation, the proposed project would be brought into conformity with these plans,	**MM 4.15-2a: Establish Archaeologically Sensitive Areas** **MM 4.15-2b: Inadvertent Discovery of Cultural Resources** *See Impact 4.15-2 for description and analysis.*	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities could potentially conflict with the following: • Monterey County General Plan Policy PS-12.1.6 • North County Land Use Plan 2.9.1 Key Policy, 2.9.2 General Policies, 2.9.3 Specific Policies • City of Marina General Plan Policy 4.126 • City of Seaside Local Coastal Program Land Use Plan Policy LUD-CZ 3.7.A	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* **MM CR-2a: Archaeological Monitoring Plan** **MM CR-2b: Discovery of Archaeological Resources or Human Remains** **MM CR-2c: Native American**

Topic	Plans, Policies, and Regulations With Which the Proposed Project is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – Proposed Project and CalAm Facilities of the MPWSP Variant	Plans, Policies, and Regulations With Which the MPWSP Variant is Potentially Inconsistent	Mitigation Measures that Resolve Potential Inconsistency – GWR Facilities
	policies, or regulations. The proposed project would not be expected to conflict with other plans, policies, or regulations related to cultural and paleontological resources that were adopted for the purpose of avoiding or mitigating an environmental effect.		• Seaside General Plan COS-5.1.1 • Sand City Local Coastal Program Land Use Plan Policy 4.4.30 • California Coastal Act Section 30244 • Fort Ord Base Reuse Plan Cultural Resources Policy A-1 (Program A-1.1, Program A-1.2, Program A-1.3) With implementation of mitigation, the GWR facilities of the MPWSP Variant would be brought into conformity with these plans, policies, or regulations. The GWR facilities would not be expected to conflict with other plans, policies, or regulations related to cultural and paleontological resources that were adopted for the purpose of avoiding or mitigating an environmental effect.	**Notification** *See Impact CR-2 for description and analysis.*
4.16 Agriculture and Forestry Resources				
Consistency with Plans Policies and Regulations Related to Agriculture and Forestry Resources	The proposed project would be consistent with all plans, policies, and regulations pertaining to agriculture and forestry resources (see **Table 4.16-2**).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to agriculture and forestry resources.	*CalAm Facilities:* None required. *GWR Facilities:* None required.
4.17 Mineral Resources				
Consistency with Plans Policies and Regulations Related to Mineral Resources	The proposed project would be consistent with all plans, policies, and regulations pertaining to mineral resources (see **Table 4.17-1**).	None required.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities of the MPWSP Variant would be consistent with all plans, policies, and regulations pertaining to mineral resources.	*CalAm Facilities:* None required. *GWR Facilities:* None required.
4.18 Energy Conservation				
Consistency with Plans Policies and Regulations Related to Energy Resources	• California Coastal Act Section 30253 As discussed in Section 4.18, Energy Conservation (see **Table 4.18-2**), with mitigation, the proposed project would be brought into conformity with these plans, policies, or regulations. The proposed project would not be expected to conflict with other plans, policies, or regulations related to energy conservation that were adopted for the purpose of avoiding or mitigating an environmental effect.	**MM 4.10-1c: Idling Restrictions** **MM 4.18-1: Construction Equipment Efficiency Plan** *See Impact 4.18-1 for description and analysis.*	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* The GWR facilities could potentially conflict with the following: • City of Marina Local Coastal Program Land Use Plan Section 30253 With implementation of mitigation, the GWR facilities of the MPWSP Variant would be brought into conformity with these plans, policies, or regulations. The GWR facilities would not be expected to conflict with other plans, policies, or regulations related to energy conservation that were adopted for the purpose of avoiding or mitigating an environmental effect.	*CalAm Facilities:* Same as for the proposed project. *GWR Facilities:* **MM EN-1: Construction Equipment Efficiency Plan** *See Impact EN-1 and Impact EN-2 for description and analysis.*

SOURCES: ESA, 2015 and MRWPCA, 2015.

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6.3.1 Surface Water Hydrology and Water Quality

See **Table 6-7** for the analysis of MPWSP Variant impacts related to surface water hydrology and water quality that correspond to Impacts 6.3-1 through 6.3-3 and Impacts 6.3-6 through 6.3-11. For the analysis corresponding to Impacts 6.3-4 and 6.3-5, see below.

6.3.1.1 Ocean Plan Water Quality Constituents

Impact 6.3-4: Violate water quality standards or waste discharge requirements, or degrade water quality as a result of the operation of the MPWSP Desalination Plant. (*Less than Significant with Mitigation*)

This impact discussion assesses the potential operational water quality impacts from point discharges that would occur under the MPWSP Variant. Treated wastewater from the existing MRWPCA Regional Wastewater Treatment Plant is currently discharged through the MRWPCA outfall. The discharges under the MPWSP Variant would occur into Monterey Bay through the existing MRWPCA outfall and would include brine from the MPWSP Desalination Plant, and/or effluent from the MRWPCA-proposed GWR project, and/or treated wastewater from the existing MRWPCA wastewater treatment plant. Depending on the operational scenario, the following discharges would be released into Monterey Bay through the existing MRWPCA outfall:

- Brine-only: 8.99 mgd of brine would be generated at the MPWSP Desalination Plant and discharged alone through the MRWPCA outfall. This operating scenario would occur if the GWR facilities come on line after the MPWSP Desalination Plant, or the GWR facilities periodically shut down.
- Brine-with-Wastewater: 8.99 mgd of brine would be discharged with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. This operating scenario would occur when treated wastewater is available and if the GWR facilities come on line after the MPWSP Desalination Plant, or the GWR facilities periodically shut down.
- GWR-only discharge or GWR Effluent: 0.73 mgd of effluent generated under the GWR facilities would be discharged alone through the MRWPCA outfall. This operating scenario would occur if the GWR facilities come on line before the MPWSP Desalination Plant, or the MPWSP Desalination Plant periodically shuts down.
- Blended discharge: 8.99 mgd of brine generated from the MPWSP Desalination Plant would be blended with 0.73 mgd of GWR effluent to form 9.72 mgd of blended discharge. This operating scenario would typically occur in the irrigation season.
- Combined discharge: The blended discharge (9.72 mgd) would be combined with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. This operating scenario would typically occur in the non-irrigation season (explained further below).
- GWR-with-Wastewater: 0.73 mgd of GWR effluent would be discharged with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. This operating scenario would occur when treated wastewater is available and if the GWR

facilities come on line before the MPWSP Desalination Plant, or the MPWSP Desalination Plant periodically shuts down.

The current NPDES Permit (Order No. R3-2014-0013, NPDES Permit No. CA0048551), which regulates the wastewater discharge from the MRWPCA outfall, would be amended to incorporate the different aforementioned discharges before the MPWSP Variant comes into operation. Under the Amended NPDES Permit, the discharges would be subject to the Ocean Plan water quality objectives, which would be incorporated into the permit in the form of specific effluent limitations as water quality requirements. The Ocean Plan water quality objectives, therefore, were used as significance thresholds to determine the impact significance.

The operational water quality impacts were analyzed by studying whether the discharges under the MPWSP Variant (listed above) would exceed the Ocean Plan water quality objectives. The analysis relies upon best available information and uses multiple available data sets for the source water entering the MPWSP Desalination Plant and two comparative methodologies to assess the water quality of the discharges in order to most conservatively assess a representative range of potential impacts. As shown in detail in **Appendices D3** and **D4**, the data analyses demonstrate that by using the Monterey Bay water quality data for source water, the brine-only and the brine with wastewater (under low wastewater flows) discharges would result in a potential exceedance in polychlorinated biphenyls (PCBs) over the Ocean Plan water quality objectives. The brine-and-moderate wastewater flow discharge would also result in a potential exceedance of ammonia. The blended discharge (brine and GWR effluent) would also result in potential exceedances in the following constituents: ammonia, chlordane, dichloro-diphenyl-trichloroethane (DDT), PCBs, 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD), and toxaphene. The combined discharge with moderate wastewater flow could result in exceedances for ammonia, chlordane, PCBs, TCDD, and toxaphene. This would be a significant impact, which would be minimized to less-than-significant level by implementing **Mitigation Measure 4.3-4 (Implement Measures to Avoid Exceedances over Water Quality Objectives at the Edge of the ZID)**. There were no exceedances estimated under the GWR only, the GWR with wastewater and the combined discharge (brine-GWR effluent-wastewater) scenarios.

As discussed in Section 4.3.1, Setting and **Table 4.3-4**, the ambient maximum levels (or concentrations) of chlordane, DDT, and PCBs in Monterey Bay currently exceed the Ocean Plan water quality objectives. Since Monterey Bay water quality data was used in the analysis as the quality of the source water entering the MPWSP Desalination Plant, concentrating it through the desalination process through the generation of brine was found to result in an exceedance over the Ocean Plan water quality objectives for PCBs upon its discharge. However, it is very likely that a fraction of the PCBs in Monterey Bay water are associated with suspended solids or colloids in the aqueous (or the water or liquid) phase. It is reasonable to assume that PCBs associated with colloids or suspended solids will be removed by passage of the seawater through sediment en route to the subsurface intake wells (Luthy, 2015). This analysis, however, took a conservative approach and concluded that the impact could be significant and would need mitigation similar to that under the proposed project. The blended discharge was also found to result in exceedances in ammonia, TCDD, and toxaphene. While their concentrations in the brine were assumed to be zero

since there was no Monterey Bay data (or source water quality data) available[5], the blended discharge had a low dilution ratio, which caused the constituents in the GWR effluent to exceed the water quality objectives. In the case of the combined discharge with moderate wastewater flows, the constituents that were found to exceed the water quality objectives were the constituents with higher concentrations in the GWR effluent and the wastewater than in the source water for the MPWSPDesalination Plant. The relatively lower flows of the wastewater[6] resulted in a decrease in the dilution factor of the discharge, resulting in exceedances.

The impact under the four discharge scenarios resulting in exceedances over the water quality objectives was therefore identified as significant, and could be reduced to less-than-significant levels by implementing **Mitigation Measure 4.3-4** described in Section 4.3, Surface Water Hydrology and Water Quality.

Implementation of **Mitigation Measure 4.3-4** would involve employing design features and/or operational measures following testing of the source water and the discharges prior to operating the MPWSP Variant. Examples of the design features and operational measures include temporary storage and release, auto-control and managing the release, and/or treatment of the source water and/or discharge(s), if deemed necessary prior to the release of the discharge.

As stated above, all of the assessed discharge scenarios (including the brine-only, brine-with-wastewater, and blended discharges) would be incorporated into the amended NPDES Permit and subject to the permit requirements. The amendment process would result in revised permit conditions to include such measures and mandatory compliance with the permit. The discharges would be subject to any requirements proposed by the RWQCB as part of the permit amendment process to ensure that operation of the MPWSP Variant would not violate waste discharge requirements defined in the amended NPDES permit. Implementation of **Mitigation Measures 4.3-4** will ensure compliance with the regulatory standards that would protect the beneficial uses and would result in a less-than-significant impact.

MPWSP Desalination Plant Operation and Discharge Scenarios

Under the MPWSP Variant, the MPWSP Desalination Plant would treat 15.5 mgd of source water at a 42 percent recovery rate. Approximately 8.99 mgd of brine would be generated, consisting of concentrates from the pre-treatment and RO processes as well as waste effluent produced during routine backwashing and operation and maintenance of the pretreatment filters. The brine generated in the desalination process would be discharged into Monterey Bay through the MRWPCA's existing ocean outfall (see **Figures 3-3** and **3-4** in Chapter 3, Project Description). The outfall consists of an 11,260-foot-long pipeline with a diffuser positioned offshore in Monterey Bay at a depth of approximately 100 feet (RWQCB, 2014). See Section 3.4.2.6 in Chapter 3, Project Description, for additional information.

5 Constituents were not monitored or not detected by using the method reporting limits for testing.
6 Compared to the combined discharge with high (19.78 mgd) wastewater flows that was found to result in no exceedances.

The MPWSP Variant would also include the operation of the MRWPCA-proposed GWR facilities, which would involve RO treatment of a minimum of 3.9 mgd of source water to produce 3.2 mgd of product water and 0.73 mgd of effluent.[7]

During certain times of the year, the brine-only, the GWR effluent, and the blended discharges would combine with treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. The treated wastewater flow from the MRWPCA Regional Wastewater Treatment Plant varies throughout the year with the highest flows observed during the non-irrigation season (November through March) and the lowest flows during the irrigation season (April through October) when the secondary treated wastewater is processed through the SVRP for tertiary treatment and distributed to irrigators through the CSIP[8]. During the irrigation season, on some days, all of the wastewater flows could be provided to irrigators, and only the brine, the GWR effluent, and/or the blended discharges would be discharged into Monterey Bay through the outfall. The discharges were assumed to be released through 120 open diffuser ports of the MRWPCA outfall.

Table 6-9 shows the average monthly projected flows for the various discharge scenarios associated with operation of the MPWSP Variant, including the treated wastewater flows from the existing MRWPCA Regional Wastewater Treatment Plant.

As shown in **Table 6-9**, the treated wastewater flow varies throughout the year, with the highest flows observed during the non-irrigation season (November through March) and the lowest flows observed during the irrigation season (April through October), when the treated wastewater is processed through the SVRP for tertiary treatment and distributed to irrigators through the CSIP. During the irrigation season, on some days, all of the wastewater flows could be provided to irrigators. This analysis assumes that the brine would be discharged alone, or discharged with the GWR effluent as *blended discharge* during the entire irrigation season (dry months), and that the *combined discharge* (i.e., the blended discharge along with the routine secondary-treated wastewater), brine-with-wastewater discharge, and GWR-with-wastewater discharge would occur during the non-irrigation season (wet months) only. Using this conservative assumption, the impact is analyzed for the brine-only, the GWR effluent, and blended discharges that would occur during the irrigation season and the brine-with-wastewater, GWR-with-wastewater, and combined discharges that would occur during the non-irrigation season.

The treated wastewater from the routine operations of the MRWPCA Wastewater Treatment Plant and the GWR effluent would provide dilution for the brine, which would not occur in the case of the brine-only discharge. For the brine-with-wastewater discharge scenario, the analysis accounts for different wastewater flows ranging from 19.78 mgd in the winter/Davidson season (when higher discharge volumes are anticipated) to a range of lower flows of 0.25, 0.5, 1, and 2 mgd in case the wastewater is not available at higher rates (**Table 6-9**).[9]

7 A minimum of 4,320 afy of source water would be treated to produce 3,500 afy of product water.

8 Section 4.3.2.2, State Regulations in Section 4.3, Surface Water Hydrology and Water Quality, discusses the *Waste Discharge Requirements for the Monterey Regional Water Pollution Control Agency Treatment Plant* (Order No. R3-2014-0013, NPDES Permit No. CA0048551) (RWQCB, 2014).

9 The analysis with low wastewater flows is based on the analysis conducted by Flow Science, Inc. (2014) in **Appendix D2** for the proposed project.

TABLE 6-9
MONTHLY AVERAGE DISCHARGE FLOWS FROM THE PROPOSED DESALINATION PLANT AND THE GWR PROJECT UNDER THE MPWSP VARIANT, AND SECONDARY-TREATED WASTEWATER FLOWS FROM EXISTING MRWPCA REGIONAL WASTEWATER TREATMENT PLANT (MGD)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Treated Wastewater from MRWPCA[a]	*19.78*	18.41	14.68	7.02	2.40	1.89	0.90	1.03	2.79	9.89	17.98	19.27
Brine-only	*8.99*	8.99	8.99	8.99	8.99	8.99	*8.99*	8.99	*8.99*	8.99	8.99	8.99
Brine-with-Wastewater	*28.77*	27.4	23.67	16.01	11.39	10.88	9.89	10.02	11.78	18.88	26.97	28.26
GWR-only Discharge	*0.73*	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
GWR-with-Wastewater	*20.51*	19.14	15.41	7.75	3.13	2.62	1.63	1.76	3.52	10.62	18.71	20
Blended Discharge (Brine-with-GWR effluent)	*9.72*	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72	9.72
Combined Discharge (Blended Discharge-with-Wastewater)	*29.5*	28.13	24.4	16.74	12.12	11.61	10.62	10.75	12.51	19.61	27.7	28.99

NOTE: Shaded cells represent the seasonal discharge scenarios used in the analysis of operational water quality impacts.

Numbers in *italics* represent the flow rates used in the modeling analysis of salinity (discussed in **Impact 4.3-5**), the results of which were used to analyze other constituents in the brine and combined discharges (discussed below in this impact analysis). In the case of the combined discharge, the modeling analysis also used lower wastewater flow rates of 0.25, 0.5, 1, and 2 mgd.

SOURCES: MRWPCA, 2013[a]; Trussell Technologies, 2015 (see **Appendix D2**)

The brine-with-wastewater, GWR-with-wastewater, and combined discharges during the non-irrigation season would be consistent with the recommendations in the SWRCB's technical report on discharges of brine from desalination plants[10] by "co-discharging it with municipal wastewater" and discharging it "through a multiple-port diffuser system" (SWRCB, 2012a) and with the proposed amendments to the Ocean Plan (SWRCB, 2014; 2015). The brine-only, GWR effluent, and the blended discharges during the irrigation season along with the other discharges would also adhere to the panel's recommendation of discharging it through a multiple-port diffuser system. The discharges were assumed to be released through 120 open diffuser ports of the outfall. The potential operational water quality impacts for the MPWSP Variant are analyzed below.

Approach to Analysis

The approach to analyzing potential impacts to water quality is focused on studying whether any of the six discharge scenarios under the MPWSP Variant would exceed the water quality objectives established in the Ocean Plan, which are protective of the beneficial uses identified for Monterey Bay. Non-compliance with the water quality objectives could degrade water quality and adversely affect the beneficial uses of the receiving waters in Monterey Bay.

As discussed in detail in Section 4.3.2.2, Regulatory Framework, in Section 4.3, Surface Water Hydrology and Water Quality, the Ocean Plan establishes objectives for a wide range of constituents and also forms the basis of effluent quality requirements for specific waste discharges. For typical wastewater discharges, when released from an outfall, the wastewater and ocean water undergo rapid mixing (see Flow Science, Inc., 2014 in **Appendix D2** for details). The mixing of the discharge with receiving ocean waters is affected by the buoyancy and momentum of the discharge, a process referred to as initial dilution. The Ocean Plan water quality objectives are to be met after the initial dilution of the discharge into the ocean. The initial dilution occurs in an area known as the zone of initial dilution (ZID). The ZID is defined as the zone immediately adjacent to a discharge where buoyancy- and momentum-driven mixing produces rapid dilution of the discharge. Therefore, compliance with Ocean Plan objectives at the outer edge of the ZID was used as the threshold for determining water quality impacts. **Table 4.3-3** in Section 4.3.2, Regulatory Framework, in Section 4.3, Surface Water Hydrology and Water Quality, provides the suite of constituents and their Ocean Plan water quality objectives. The water quality impact was analyzed based on available data for this list of constituents.

Based on published literature on discharges from desalination plants, temperature is a commonly studied parameter, particularly when brine streams from desalination plants combine with power (thermal) plant discharges that have high temperatures (Roberts et al., 2010; Dawoud and Al Mulla, 2012) as well as the anticipated increase in temperature from the distillation and other processes that use high temperatures (Dawoud and Al Mulla, 2012). In this case, the MPWSP Desalination Plant would be an independent facility and would not operate in combination with a thermal or power plant. There would be no heating mechanism or any process that would increase the temperature of the source water as it passes through the treatment units. Therefore, the

[10] The recommendations were made as part of the Southern California Coastal Water Research Project, discussed in Section 4.3.2, Regulatory Framework, in Section 4.3, Surface Water Hydrology and Water Quality.

desalination process under the MPWSP Variant is not expected to substantially increase the temperature of the discharge effluent and is not discussed further.

Methodology

The impact analysis relies upon best available information. Different available data sets for the source water entering the MPWSP Desalination Plant and different methodologies to assess the water quality of the discharges were used in order to conservatively characterize the likely range of potential impacts. The specific constituent concentrations resulting from the discharges vary with the resolution of the data and the methodology used in **Appendix D3** and **D4**. **Appendix D3** contains the water quality analysis developed for the MPWSP and **Appendix D4** contains the analysis conducted by Trussell Technologies, Inc., (2015) for the GWR facilities and also includes analysis for the MPWSP Variant as a whole. However, the conclusions of the analyses utilizing different methodologies as well as the various available water quality data are consistent, as discussed further below. The impact conclusion is based on the approach, methodology, and results analyzed in **Appendix D3** and the methodology and results identified in **Appendix D4**.

An important point to note is that the water quality of the source water entering the MPWSP Desalination Plant is a key driver of the assessed water quality of the discharges, which would depend on the water intake or extraction process. During project operations, as the ocean water would pass through the seafloor sediments into the proposed subsurface intake wells, constituents (such as metals, organics, and man-made compounds) would come into contact with microbes, sediment particles, and organic matter, which would break down some of the compounds and remove others.

Sediments containing organic matter function to remove contaminants in two ways. First, contaminants with chemical characteristics that give them relatively low solubility in water tend to adsorb, or get attached to, sediment particles. Second, contaminants with chemical characteristics that give them relatively high solubility in water tend to be absorbed by the sediment organic matter (Chiou and Kile, 2000). Consequently, it is highly probable that the concentration of constituents present in the source water would be reduced to below ambient levels by the time the water reaches the MPWSP Desalination Plant. An example of the first type of contaminants is organic compounds such as PCBs, chlordane, and DDT that have a high likelihood of adsorbing to the sediment particles as the water travels through subsurface sediments to the intake wells. As a result, the concentration of such constituents in the source water entering the MPWSP Desalination Plant would be reduced and be present at much lower concentrations than the water in the bay (Luthy, 2015). The estimated water quality of the discharge in this analysis is, therefore, considered to be a conservative “worst case” scenario and would be studied further as part of the NPDES permit amendment process in the permitting phase of the proposed project.

While the desalination process would concentrate the remaining constituents, the mass of constituents being delivered to the MPWSP Desalination Plant (and therefore, returned to the ocean as brine) would be less than the mass of those constituents returned to the ocean if the proposed project were to utilize open ocean intakes. This analysis takes a conservative approach,

therefore, by using the best available water quality data directly, which could have higher constituent (or pollutant) loading than is anticipated through the use of subsurface intakes.

The water quality of the six discharges was studied by calculating the constituent concentrations at the edge of the ZID upon discharge. For the brine discharge, the concentrations of the constituents identified in the Ocean Plan (see **Table 4.3-3** in Section 4.3, Surface Water Hydrology and Water Quality) were estimated under both the methodologies by using 1) quality of the source water entering the MPWSP Desalination Plant, 2) the 42 percent efficacy of the treatment process at the MPWSP Desalination Plant, and 3) the dilution factor estimated upon discharge (see Section 4.3.2, the Ocean Plan discussion under the Regulatory Framework).

Water quality data used for source water under the different methodologies included the following:

- Under the first methodology (see **Appendix D3**), two available data sets were used to represent the water quality of the source water entering the MPWSP Desalination Plant:
    - One data set was from a Marina Coast Water District (MCWD) well, referred to herein as the "well data." The well data was collected by Trussell Technologies, Inc., (2010) from a monitoring well located at the Marina State Beach approximately 5,000 feet south of the proposed MPWSP Seawater Intake System site at the CEMEX property. This data set was used for the constituent concentrations in the source water for two reasons: (1) the data was collected from a well, and (2) the monitoring well is located at a close proximity to the proposed MPWSP Seawater Intake System site. However, only a single water quality sampling was conducted at this location so this data represents only one data point of constituent concentrations in source water.
    - The second data set consisted of the ambient concentrations in Monterey Bay reported under the Central Coast Long-term Environmental Assessment Network (CCLEAN) herein referred to as the CCLEAN data. The CCLEAN data was compiled from time-integrated ocean samples collected over 30-day periods in both the wet season and dry season from September 2008 through April of 2013 and were obtained for two sites in Monterey Bay: the Southern Monterey Bay site and the Northern Monterey Bay site, located approximately 4 and 12 miles, respectively, from the discharge site for the proposed project.

  Neither of the two data sets for source water covered the entire suite of constituents regulated under the Ocean Plan; therefore, this analysis is developed based on a subset – and not the entire list – of constituents regulated by the Ocean Plan. With the absence of specific source water data, both the data sets were used in the analysis. Using two different data sets to characterize the source water quality allowed for a comparative study as well as a validation of the conclusions drawn from the analysis (see **Appendix D3**). Further, the data tested under CCLEAN were accurate to a substantially lower concentration limit for the monitored constituents due to the much lower method reporting limits used (in nanograms per liter) in laboratory analysis of the CCLEAN samples as compared to the tests for the well data (milligrams per liter [mg/L]). Due to the higher reporting limits used for the well data, several constituents could not be detected; the same constituents that were tested under CCLEAN showed a detectable, and a much lower concentration value.

Because the data sets employed different testing technologies and reporting limits and showed a wide range of concentrations for several constituents, a tiered approach was taken to best utilize the existing data. The constituent concentrations in the brine were studied first by using the well data, which had higher reporting limits but analyzed samples for a wider variety of water quality constituents, and then studied by using the CCLEAN data which was analyzed using substantially lower reporting limits, but had results for fewer constituents as compared to the well data (**Appendix D3**).

- Under the methodology outlined in the Ocean Plan (**Appendix D4**), only one data set was used as source water consisting of the constituent concentrations monitored in Monterey Bay under CCLEAN.

The constituent concentrations in the brine were calculated using the available data for source water quality as stated above and 42 percent efficacy of the desalination process at the MPWSP Desalination Plant.

The methodology in **Appendix D4** was based on the Implementation Provisions in the Ocean Plan, which used the background concentrations for five constituents as provided in *Table 3* of the 2012 Ocean Plan (*page 14*; SWRCB, 2012b) – for arsenic, copper, mercury, silver, and zinc; for other constituents, the background concentration was assumed to be zero. However, the background seawater concentrations provided in the Ocean Plan apply to the entire coast of California and do not necessarily accurately reflect the ambient concentrations near the MPWSP project area in Monterey Bay.

The dilution ratios (or factors) were used to determine the constituent concentrations at the edge of the ZID upon discharge of the brine. Both methodologies used the dilution factors for the discharges that were estimated as part of the modeling analysis of salinity performed by Flow Science, Inc. (2014) (see **Appendix D2**). Flow Science, Inc. (2014) used two analytical methods — Semi-Empirical Analysis (SEA) and Visual Plumes (VP) modeling — to characterize and understand the range of dilution that might be expected to occur for the discharge from the MRWPCA outfall diffuser; both methods are consistent with the regulatory approach recommended by the SWRCB for analyzing the brine discharge (Flow Science, Inc., 2014; SWRCB, 2012b). The range of dilution depends on the nature of the brine discharge plume. **Figure 4.3-4** in Section 4.3, Surface Water Hydrology and Water Quality, illustrates the likely trajectories of a brine discharge: a plume is buoyant when the density is lower than the ambient salinity and it rises; and a plume is sinking or negatively buoyant when the density is higher than the ambient salinity and it sinks (see **Appendix D2** for details).

The VP method is widely used in diffuser discharge analyses; however, because it has only recently been validated against limited experimental data for sinking plumes, data from the SEA method is presented for redundancy in the analysis and confirmation of the results (Flow Science, Inc., 2014). Therefore, the impact determination for this analysis relies on the modeling results using the SEA method for the negatively buoyant (sinking) plume and the VP method for the rising plume.

For the GWR effluent only discharge, the constituent concentrations at the edge of the ZID were calculated by MRWPCA (see Trussell Technologies, Inc., **Appendix D4**) using the data for GWR effluent obtained as part of pilot testing of the MRWPCA-proposed GWR facilities and MRWPCA wastewater quality data from 2008-2014 obtained from MRWPCA and CCLEAN[11] (Refer to **Appendices D3** and **D4**).

For the discharges when the brine, GWR effluent, and the blended streams would combine with wastewater, in addition to the above components discussed, the constituent concentrations were calculated using the wastewater quality data (2008-2014) obtained from MRWPCA (Refer to **Appendices D3** and **D4**) and the relative proportions of brine and the wastewater flows in the discharge. The discharges (brine-with-wastewater, GWR-and-wastewater, combined discharge) were studied for the month of January – a representative time of the Davidson season when the oceanic conditions allow for lowest extent of dilution and mixing compared to the upwelling and oceanic seasons (see **Appendix D2** for details). The combined discharge was modeled using a wastewater flow of 15.92 mgd.

The impact conclusion was based on the constituent concentrations at the edge of the ZID that were calculated using the dilution ratios estimated by Flow Science, Inc. (2014) under the near-field salinity modeling analysis (refer to the discussion under the heading, *Methodology for Salinity*, below) and how the concentrations compared against the water quality objectives. The final impact conclusion reflects consideration of the constituents that exceeded the water quality objectives under both the analyses (**Appendices D1** and **D2**).

The dilution ratio for the discharges (expressed below as 'discharge:seawater') estimated for the discharges were as follows:

- Brine discharge: 1:15 (brine:seawater);
- Brine-with-wastewater discharge: 1:84 at wastewater flow of 19.78 mgd (in the Davidson season).
- GWR effluent: 1:523 (**Appendix D4**)
- Blended discharge (brine and GWR effluent): 1:17
- GWR-and-wastewater:1:137
- Combined discharge (brine, GWR effluent, and wastewater): 1:82

Due to the varying quantities of treated wastewater discharged through the MRWPCA outfall over the course of a year, the water quality impact from the brine-with-wastewater discharge was assessed first, for an average flow of 19.78 mgd (non-irrigation season; see *Methodology for Salinity* below for further information) and then for flows as low as 0.25 mgd (amongst the lowest in the dry season). Refer to **Appendix D3**. The dilution ratio used for calculating constituent concentrations at the edge of the ZID for the wastewater (baseline discharge) was the minimum dilution of 1:145 required under the MRWPCA's NPDES Permit for the wastewater discharge

[11] Maximum concentrations in the data were used for this analysis.

(R3-2014-0013). A reduced dilution ratio (1:17) was used to calculate the constituent concentrations in the combined discharge with lower wastewater volumes (that of 0.25 mgd).

In the case of constituents that were not detected in the source water, the GWR effluent, or the wastewater, the highest documented reporting limit was used as a discrete concentration in the analysis (a conservative but not necessarily a representative approach). The impact significance was determined based on detected constituents in the source water (for brine-only discharge); both in the source water and wastewater (for the brine-and-wastewater discharge); and both in the source water and GWR effluent (for the blended discharge); and all three – source water, wastewater, and GWR effluent (for the combined discharge). For the constituents that showed exceedances[12] in a discharge with more than one stream (e.g., blended discharge), their concentrations were reviewed in the individual streams (e.g., the source water and brine and the GWR effluent in the case of blended discharge). In such cases, any exceedances in the brine-and-wastewater and blended discharges attributable to the relatively higher constituent concentrations in the wastewater and/or the GWR effluent flows were not considered as an impact from the brine discharge alone, but rather from a combination of the brine with the wastewater and/or with the GWR effluent respectively. Any exceedances under the wastewater-only discharge scenario are assumed to be reviewed by MRWPCA and the RWQCB under the current NPDES Permit (R3-2014-0013) and are part of the baseline.

Results and Impact Discussion

Based on the detailed analyses (see **Appendices D3** and **D4**), three out of the six discharge scenarios were found to result in possible exceedances over Ocean Plan water quality objectives: brine-only discharge for PCBs; brine-and-wastewater discharge with low wastewater flow for PCBs; and blended discharge for ammonia, chlordane, DDT, PCBs, TCDD, and toxaphene.

The brine-and-wastewater (with 19.78 mgd wastewater flow), GWR effluent, GWR-with-wastewater, and combined discharges would comply with the water quality objectives. The discharges containing wastewater (during the non-irrigation season) and the GWR effluent discharge were estimated to form a rising plume because of the lower density (due to the lower salinity) of the discharge compared to the ambient ocean water density (Flow Science, Inc., 2014). The discharges would also be released through the multiport diffuser of the MRWPCA outfall would result in greater mixing with the ocean water and higher dilution ratios.

Conversely, the brine-only and blended discharges, although released through the same multiport diffuser, would form a sinking plume because of higher densities (Flow Science, Inc., 2014), which would also apply to the brine-and-wastewater discharge with low (0.25 mgd) wastewater flow. With a lower dilution ratio (shown in parenthesis), the three discharges were found to cause exceedances over the water quality objectives for the following constituents:

- Brine-only discharge (1:15) for PCBs;

[12] Exceedances for detected constituents as well as exceedances for constituents that were not detected. In the case of constituents that were not detected, they were recorded at concentrations less than their method reporting limits and where the reporting limits were lower than the concentration of those constituents in the wastewater.

- Brine-and-wastewater discharge with low (0.25 mgd) wastewater flows (1:17) for PCBs; and
- Blended discharge (1:17) for ammonia, chlordane, DDT, PCBs, TCDD, and toxaphene.

Due to the exceedances over the water quality objectives, the three discharges would have a significant impact, which would be reduced to less than significant levels, as described below.

The higher concentration of the constituents listed above resulting from the three discharges would be a function of their concentration in the source water, which gets further concentrated in the desalination process, or their concentrations in the individual discharge stream (e.g., brine and GWR effluent in the case of the blended discharge) and the dilution achieved by the discharges.

Constituent concentrations in the source water to the MPWSP Desalination Plant

In the case of PCBs, as discussed in Section 4.3.1, Setting and **Table 4.3-4** in Section 4.3, Surface Water Hydrology and Water Quality, the water quality monitoring data over the past decade shows an increase in their ambient levels in Monterey Bay since 2006 where the levels exceed the water quality objective for PCBs in majority of the water samples. Therefore, further concentration of the existing PCB levels through the desalination process would expectedly increase the PCB levels to greater than its water quality objective. Also as discussed above, this analysis takes a conservative approach and uses the source water or the Monterey Bay water quality data directly and assumes no attenuation of constituent concentrations as the water travels through approximately 200 feet of sand and sediment material to the subsurface intake wells and then piped to the MPWSP Desalination Plant. The resulting brine water quality therefore, represents a conservative scenario with a higher PCB concentration than is likely to occur under realistic operational conditions (Luthy, 2015; also see a discussion in Section 4.3.2, Regulatory Framework under Ocean Plan). This can be ascertained by testing the source water before it is routed to the MPWSP Desalination Plant.

Similar to PCBs, the maximum ambient (baseline) concentrations reported for chlordane and DDT in Monterey Bay (shown in **Table 4.3-4** and listed in **Table 6-10**) currently already exceed the Ocean Plan water quality objectives. As organic synthetic compounds, the discussion of PCBs above would apply to chlordane and DDT. Similar to the discussion above, further concentration of these constituents through the desalination process would expectedly increase their levels to greater than their respective water quality objectives. Also as discussed above, this analysis takes a conservative approach and uses the source water or the Monterey Bay water quality data directly and assuming no attenuation of constituent concentrations as the water travels through approximately 200 feet of sand and sediment material to the subsurface intake wells and then piped to the MPWSP Desalination Plant. The resulting brine water quality therefore represents a conservative scenario with a higher concentration of chlordane, DDT, and PCBs than is likely to occur under realistic operational conditions (Luthy, 2015; also see a discussion in Section 4.3.2, Regulatory Framework under Ocean Plan in Section 4.3, Surface Water Hydrology and Water Quality). This can be ascertained by testing the source water before it is routed to the MPWSP Desalination Plant.

Although the data for all the constituents regulated by the Ocean Plan was not available for the source water, i.e., not all the constituents were tested by MCWD (well data) or under CCLEAN, there was data available for the constituents in the MRWPCA wastewater and GWR effluent. The analysis of the available data indicated that ammonia, TCDD, and toxaphene were the three constituents that showed exceedances under the blended discharge scenario where the constituent concentrations in the GWR effluent were relatively higher (see **Appendices D4** and **D3**):

- Ammonia: There was no data for ammonia available under CCLEAN. However ammonia was tested in the monitoring well by MCWD and not detected at its method reporting limit of 50 µg/L. Therefore assuming the method reporting limit (50 µg/L) as the conservative concentration in the source water and 191,579 µg/L in the GWR effluent, the blended discharge (brine-and-GWR effluent) showed an exceedance for ammonia.
- TCDD: There was no well data or CCLEAN data available for TCDD. Assuming its concentration as zero in the brine and at 8.09×10^{-7} µg/L in the GWR effluent, the blended discharge showed an exceedance.
- Toxaphene: Toxaphene was tested by MCWD at the method reporting limit of 0.5 µg/L and was not detected. When monitored under CCLEAN, toxaphene was again not detected at a lower method reporting limit of 0.0032 µg/L. Therefore, the method reporting limit of 0.0032 µg/L (under CCLEAN) was used as its conservative concentration in the source water and 0.037 µg/L in the GWR effluent. As a result, the blended discharge (brine-and-GWR effluent) showed an exceedance for toxaphene.

Dilution ratio of the discharges

Compared to the required minimum dilution ratio of 1:145 at which the treated wastewater is currently discharged, the brine-only discharge would have a much lower dilution ratio (1:15) and would result in higher constituent concentrations, resulting in an exceedance in PCBs over its water quality objective. This would also apply to the brine-and-wastewater discharge with 0.25 mgd wastewater flow that would have a low dilution ratio of 1:17. The blended discharge would also have a much lower dilution ratio (1:17) and would result in higher constituent concentrations, resulting in exceedances over the water quality objectives for the six constituents listed above. The dilution ratio of the blended discharge would also be much lower than that for the GWR effluent discharge alone.[13] Thus, with a lower dilution ratio, the discharges would result in higher constituent concentrations and vice versa with higher dilution ratios. Higher dilution, therefore, would aid in avoiding exceedances.

Detailed modeling analysis conducted for studying dilution of the brine-only and brine-and-wastewater discharges (see **Appendix D2** and the discussion corresponding to Impact 4.3-5 below) for the proposed project showed higher dilution ratios when brine was discharged at higher flow rates in the case of brine-only discharge (greater than 13.98 mgd) and when brine was discharged along with higher wastewater flows (at least 19.78 mgd). In this case under the project variant for the brine-and-wastewater discharges (see **Table 6-10**), a higher dilution ratio achieved

[13] The lowest dilution ratio estimated for the GWR effluent discharge was 1:270 by Flow Science, Inc. as part of the near-field salinity modeling study for the MPWSP Variant and was 1:523 as part of a study for the GWR Project (see **Appendix D4**). The dilution ratio therefore would be greater than the dilution ratio of 1:145 for the baseline wastewater-only discharge.

by commingling the brine with a higher wastewater flow (dilution ratio of 1:84) shows a lower PCB concentration compared to the combined flow of brine and a low wastewater flow (dilution ratio of 1:17).[14]

Since the GWR effluent alone exhibits a higher dilution ratio than the wastewater discharge, similar to the wastewater, it has a potential to provide a higher dilution ratio when blended at higher flows with brine. However, since the concentrations of ammonia, toxaphene, and TCDD were found to be higher in the GWR effluent, higher flows of the GWR effluent – even with a higher dilution ratio for the GWR effluent itself – may not aid in reducing the overall concentrations of these constituents in the blended discharge. Therefore, different options included in **Mitigation Measure 4.3-4 (Implement Measures to Avoid Exceedances Over Water Quality Objectives at the Edge of the ZID)** would be implemented as necessary such that the constituent concentrations resulting from the discharge would be below the Ocean Plan water quality objectives.

An additional study was conducted by MRWPCA immediately prior to release of this EIR (see Addendum in Trussell Technologies, Inc., 2015) with select discharge scenarios to sufficiently demonstrate the impact of the updated model input parameters (i.e., number of open diffuser ports at the outfall and GWR effluent flow). The updated flow of 0.94 mgd was used for the GWR Effluent. The study included new scenarios of brine-and-wastewater discharge with moderate wastewater flow of 5.8 mgd and combined discharge with a moderate wastewater flow of 5.3 mgd and assumed that the discharges would be released through the outfall with 130 open ports at the diffuser. The study also incorporated 0.1 mgd of "hauled brine," which is trucked to the Regional Wastewater Treatment Plant and blended with the secondary effluent prior to being discharged (Trussell Technologies, Inc., 2015).

The study showed a slightly higher dilution ratio for the discharges, using 130 open ports compared to the discharges with 120 open ports. As shown in **Table 6-10,** the discharges with moderate flows of wastewater showed additional constituents that exceeded the Ocean Plan water quality objectives. The results are summarized as follows (see **Appendices D3** and **D4** for further details):

- Brine-and-wastewater with moderate (5.8 mgd) wastewater flow: PCBs and ammonia
- Combined discharge with moderate (5.3 mgd) wastewater flow: Ammonia, chlordane, PCBs, TCDD, and toxaphene.

Based on the previous results and the additional study (discussed in more detail in **Appendices D3** and **D4**), **Table 6-10** below summarizes the constituents and their conservative concentrations that were found to potentially exceed the Ocean Plan water quality objectives.

[14] This is particularly applicable to the constituents which had higher concentrations in the source water than in the wastewater.

TABLE 6-10
CONSTITUENTS THAT WOULD EXCEED THE WATER QUALITY OBJECTIVE RESULTING FROM DISCHARGES UNDER THE MPWSP VARIANT

Discharge Scenario	Dilution Ratio*	Constituents That Would Exceed Water Quality Objectives	Constituent Concentration at the edge of the ZID (µg/L)	Ocean Plan Water Quality Objective For the Constituent Showing an Exceedance (µg/L)
Brine-only	1:15	PCBs*	**0.00014**	0.000019
GWR effluent	1:523	None	Not Applicable	
Blended discharge (brine-and-GWR effluent)**	1:17	Chlordane	**0.000028**	0.000023
		DDT	**0.000183**	0.00017
		PCBs	**0.00014**	0.000019
		Ammonia**	**1,022**	600
		TCDD**	**4.3E-09**	3.9E-09
		Toxaphene**	**0.00026**	0.0002
Brine-with-wastewater	1:84 (with19.78 mgd wastewater)	PCBs	0.000013	
	1:17 (with 0.25 mgd wastewater)	PCBs*	**0.00012**	
	1:22 (with 5.8 mgd wastewater)	Ammonia	629	600
		PCBs***	**0.000067**	0.000019
GWR-and-wastewater	1:137	None	Not Applicable	
Combined discharge (brine-GWR effluent-wastewater)	1:82	None	Not Applicable	
	1:24 (with 5.3 mgd wastewater)***	Ammonia***	**985**	600
		Chlordane***	**0.000024**	0.000023
		PCBs***	**0.000067**	0.000019
		TCDD***	**4.2E-09**	3.9E-09
		Toxaphene***	**0.00022**	0.00021

NOTES: Constituent concentrations that are found to exceed the Ocean Plan water quality objectives are shown in **bold**.

*The dilution ratio requirement for the current wastewater discharge under the NPDES Permit (R3-2014-0013) is 1:145.
The analysis in **Appendix D4 indicated that the blended discharge would result in exceedances for ammonia, TCDD, and toxaphene (see **Appendix D4** and the discussion below).
*** Based on the additional study conducted by MRWPCA (see Addendum in Appendix D4), which also assumed 130 open diffuser ports as against 120 open diffuser ports assumed in the previous studies.

SOURCE: Appendix D3 and Appendix D4

The discharges that showed additional exceedances under the more recent study compared to those discussed previously were the ones that contained moderate wastewater flows. The brine-and-wastewater discharge with 5.8 mgd wastewater flow showed an exceedance in PCBs and ammonia. As previously discussed, the brine-and-low-wastewater (0.25 mgd wastewater flow) discharge showed an exceedance only in PCBs. This indicates that the additional exceedance in ammonia may be resulting from higher concentration of ammonia in the wastewater (36,400 µg/L) compared to that in the source water entering the MPWSP Desalination Plant, in addition to its lower dilution ratio and a sinking plume compared to that of the combined discharge with higher-wastewater flow (~20 mgd).

As previously shown, ammonia was not found to exceed its water quality objective under the GWR effluent-and-wastewater discharge scenario without the brine, or under the brine-with-higher wastewater flows; in both the cases, the discharge resulted in a rising plume with relatively high ocean mixing within the ZID. This potential Ocean Plan exceedance in both the cases emerged when the treated wastewater was not present at a sufficiently higher flow to dilute the brine, and thus the two – brine-with-wastewater and combined – discharges were denser than seawater, forming a sinking plume with relatively low mixing within the ZID. Similarly, as discussed previously, there was no exceedance in ammonia under the brine-and-low-wastewater (0.25 mgd wastewater flow) discharge scenario, where even though there is relatively low ocean mixing in the ZID, the ammonia concentration in the discharge was less because the wastewater formed a smaller fraction of the overall discharge. The ammonia concentration however increased near the point where the brine was discharged with the highest flow of wastewater that still results in a sinking plume (Trussell Technologies, 2015), in this case 5.8 mgd.

It should be noted that ammonia was already identified as a constituent with potential exceedance (along with several other constituents) under the blended discharge with little or no treated wastewater; and as illustrated by the additional study, the exceedances also apply to brine-and-wastewater discharge with moderate wastewater flow (approximately 5.8 mgd).

As **Table 6-10** shows, the combined discharge (brine-GWR effluent-wastewater) with moderate wastewater flows (5.3 mgd) showed an exceedance in ammonia, chlordane, PCBs, TCDD, and toxaphene when as previously discussed the same discharge with high (19.78 mgd) wastewater flows showed no exceedances. All of these constituents were reported at higher concentrations in the wastewater and GWR effluent compared to that in the source water entering the Desalination Plant (see **Appendix D3**). Despite the higher concentrations, the higher wastewater flow in the previously studied combined discharge contributed to the buoyancy and a higher dilution ratio of 1:82 for the discharge and the resulting rising plume, whereas the new combined discharge with lower wastewater flows (5.3 mgd) showed a lower dilution ratio (1:24) and higher density of the discharge resulting from moderate (5.3 mgd) wastewater flows. The discharge thus resulted in higher concentrations of ammonia, chlordane, PCBs, TCDD, and toxaphene. The potential Ocean Plan exceedances for the discharge emerged when the treated wastewater (at 5.3 mgd) was not present at a sufficiently higher flow to dilute the brine, and thus the combined discharge was denser than seawater, forming a sinking plume with relatively low mixing within the ZID. Similar to ammonia, it should be noted that chlordane, chlordane, PCBs, TCDD, and toxaphene were

already identified to exceed the water quality objectives under the blended discharge and as illustrated by the additional study, these exceedances also apply to the combined discharge with moderate wastewater flow (approximately 5.3 mgd).

In summary, the impact resulting from the exceedances under these scenarios would be minimized to a less-than-significant level by implementing **Mitigation Measure 4.3-4 (Implement Measures to Avoid Exceeding Water Quality Objectives at the Edge of the ZID)**, which would ensure that water quality objectives aremet.[15] The mitigation measure would be implemented following the source water and discharge water quality testing during the NPDES Permit amendment process as part of the project permitting phase. The water quality would be tested for the entire suite of constituents and as per protocol (e.g., the intervals and the duration of sampling) in coordination with and approval from the RWQCB).

Mitigation Measures

Mitigation Measure 4.3-4 applies only to brine discharge from the MPWSP Desalination Plant.

> **Mitigation Measure 4.3-4: Implement Measures to Avoid Exceeding Water Quality Objectives at the Edge of the ZID.**
>
> (See Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, for the description.)

Summary and Impact Conclusion

The water quality impact was studied for the six discharge scenarios resulting from the operation of the MPWSP Variant. The water quality analysis used the best available information and the impact conclusion was based on modeled constituents in the discharge streams and water quality data collected from Monterey Bay under CCLEAN to represent source water entering the MPWSP Desalination Plant. Based on the analyses, the brine-only discharge, the brine-and-wastewater discharge (with low [0.25 mgd] and moderate [5.8 mgd] wastewater flow), the blended discharge, and the combined discharge with moderate (5.3 mgd) wastewater flow were found to result in an exceedance over the water quality objectives for the following constituents at the edge of the ZID:

- Brine-only: PCBs
- Brine-with-Wastewater (low wastewater flows): PCBs
- Brine-and-wastewater (with moderate [5.8 mgd) wastewater flow): PCBs and ammonia
- GWR-only discharge or GWR Effluent: None
- GWR-with-Wastewater: None
- Blended discharge: Ammonia, chlordane, DDT, PCBs, TCDD, toxaphene
- Combined discharge with high (19.78 mgd) wastewater flow: None

[15] The water quality testing will involve a larger suite of constituents than those studied in this analysis. This mitigation measure is developed based on the exceedances observed by analyzing the available data and can be modified based on the water quality results.

- Combined discharge with moderate (5.3 mgd) wastewater flow: Ammonia, chlordane, PCBs, TCDD, and toxaphene

Based on the analyses and exceedances over the water quality objectives, the brine-only, brine-and-low wastewater, and blended discharges would result a significant impact, which would be minimized to less-than-significant levels through implementation of **Mitigation Measure 4.3-4**. The mitigation would involve employing design features and/or operational measures following testing of the source water and the discharges prior to operating the MPWSP Variant. Examples of the design features and operational measures include temporary storage and release, auto-control and managing the release, and/or treatment of the source water and/or discharge(s), if deemed necessary prior to the release of the discharge. These operational changes or measures, along with the additional analysis of the constituents that were not detected or could not be analyzed, would be incorporated as part of the process of amendment of the MRWPCA NPDES Permit (R3-2014-0013). The project variant would result in a less-than-significant impact with mitigation.

6.3.1.2 Salinity

Impact 6.3-5: Violate water quality standards or waste discharge requirements for salinity, or degrade water quality from increased salinity as a result of the discharges associated with the operation of the MPWSP Variant. (*Less than Significant*)

This impact analysis focuses on whether the point discharges under the MPWSP Variant (introduced in Impact 6.3-4 above) would exceed the significance threshold for salinity, i.e., result in salinity greater than 2 parts per thousand (ppt) over ambient salinity levels. The salinity levels are analyzed in the near field (within the ZID) and in the far field (beyond the outer edge of the ZID). The near-field analysis was specifically developed to address the amendment to the Ocean Plan (2014) that proposes a new salinity standard of not increasing the salinity levels to greater than 2 ppt over ambient salinity. The far-field analysis was developed to address comments received during the project scoping period on the fate and travel path of the brine plume beyond the near field. The discharges (discussed in Impact 6.3-4) would result in salinity levels that would be less than 2 ppt greater than ambient salinity.

MPWSP Desalination Plant Operation and the Discharge Scenarios

Refer to Impact 6.3-4 for the operational conditions of the MPWSP Desalination Plant and the resulting in brine-only and blended discharge scenarios.

Approach to Analysis

The current NPDES Permit (Order No. R3-2014-0013, NPDES Permit No. CA0048551), which regulates the wastewater discharge from the outfall, would be amended before the MPWSP Variant comes into operation to incorporate the discharge under the possible multiple scenarios. Under the Amended NPDES Permit, the discharges would be subject to the Ocean Plan water quality objectives, which would be incorporated into the permit in the form of specific effluent limitations as water quality requirements.

Based on the proposed amendment to the Ocean Plan (SWRCB, 2014) described in Section 4.3.2, Regulatory Framework, the discharges resulting from the operation of the MPWSP Variant would result in a significant water quality impact if it would:

- Exceed the ambient salinity at the edge of the ZID by 2 ppt or more.

To address this significance threshold, the salinity impact was analyzed within the ZID, i.e., in the near field. Here, the analysis involved processes that are influenced by the physical discharge stream, the discharge structure and where the study area was confined to the ZID. Salinity levels at the edge of the ZID were evaluated against the significance threshold of 2 ppt.

This impact analysis also addresses comments received during the project scoping period concerning the brine discharge and its travel path beyond the near field. There are no significance thresholds for the far-field analysis of the discharge plumes. To study the fate of the brine plume (i.e., of brine-only and blended discharges) beyond the ZID, a far-field analysis was conducted using salinity concentrations and is discussed further below. This approach may also be applied to the far-field analysis using other constituents. The far-field analysis is also presented to assist in the evaluation of impacts to marine resources.

Near-Field Analysis

The near-field analysis evaluates the processes that are primarily influenced by the physical discharge itself and the discharge structure. The analysis was performed to determine the dilution rates of the plume of the different discharges (discussed in Impact 6.3-4) under the MPWSP Variant. The salinity levels resulting from the discharges were calculated at the edge of the ZID and were compared against ambient salinity levels and the significance threshold.

Methodology

Flow Science, Inc. (2014; see **Appendix D2**) conducted near-field modeling of the six proposed discharge scenarios under the MPWSP Variant. Input to the model included temperature and salinity levels within the ambient water column, using data from the Monterey Bay Aquarium Research Institute Monitoring Station C1 during the period from 2002 and 2012. This monitoring station is located approximately 5 miles northwest of the MRWPCA outfall at the head of the Monterey Submarine Canyon in an area considered representative of ambient conditions for the proposed discharge. The salinity and temperature of ocean water determine its density, which affects the movement of the brine plume upon its discharge. Based on recent data (2010–2012) from the project vicinity, a temperature, salinity, and density profile was developed for the upper 98 feet of the water column for the three oceanic conditions (upwelling, oceanic, and Davidson, as discussed in Section 4.3.1). As discussed in Section 4.3.1, Setting, salinity in Monterey Bay in the project vicinity as monitored by the Monterey Bay Aquarium Research Institute ranged between 33.1 and 34.2 ppt, with a natural variability of 3.3 percent or approximately 1.1 ppt and a temperature range from 47.5°F to 59.4°F (refer to **Appendix D1** for further information).

An ocean current velocity of zero, which represents a worst-case scenario for dilution, was used for the near-field modeling (Flow Science, Inc., 2014; SWRCB, 2012a). The near-field modeling was conducted for three oceanic conditions:

- upwelling (mid-February to November),
- oceanic (mid-August to mid-October), and
- Davidson (December to mid-February) (see also **Appendix D1**, **Table 4.3-2**).

A wastewater-only discharge scenario was modeled for the Davidson oceanic condition to understand the dynamics of the baseline non-irrigation-season condition. The brine-only discharge scenario was modeled for all three oceanic climate conditions,[16] and a combined discharge scenario was modeled for the non-irrigation season. For the combined discharge scenario (No. 3.1), the analysis incorporated data on salinity, temperature, and total dissolved solids (representative of salinity) measured in the treated wastewater from the MRWPCA Regional Wastewater Treatment Plant.[17]

Consistent with the recommendations in the SWRCB's technical report on discharges from desalination plants (SWRCB, 2012a), the near-field modeling analysis studied the plume behavior in terms of the density (a function of temperature and salinity) and flow rate of the discharge. **Table 6-11** lists the modeled scenarios in the order from the most blended to the least blended discharges. Scenario 0.0 represents the current, baseline conditions of treated wastewater discharged into the Bay.

TABLE 6-11
NEAR-FIELD SCENARIOS MODELED FOR SALINITY (MPWSP VARIANT)

Scenario No.	Oceanic Conditions	Month	Average Discharge Rate (mgd)	Dilution at the Edge of the ZID (Brine:Seawater)
0.0 (Treated wastewater-only)	Davidson	January	19.78	1:145
11.1 (Combined Discharge)	Davidson	January	25.64	1:82
7.1 (Brine-with-wastewater)	Davidson	January	28.77	1:84
15.1(GWR-with-wastewater)	Davidson	January	16.65	1:180
9.1 (Blended Discharge)	Upwelling	July	9.72	1:17
10.1 (Blended discharge)	Davidson	January	9.72	1:17
12.1 (Blended discharge)	Oceanic	September	9.72	1:17
14.1 (GWR-only)	Davidson	January	0.73	1:270
13.1 (GWR-only)	Upwelling	July	0.73	1:159
16.1(GWR-only)	Oceanic	September	0.73	1:678
6.1 (Brine-only)	Davidson	January	8.99	1:15
5.1 (Brine- only)	Upwelling	July	8.99	1:15
8.1 (Brine-only)	Oceanic	September	8.99	1:15

SOURCE: Flow Science, Inc., 2014.

16 The brine-only discharge during the non-irrigation season (January) is a less likely operating scenario because at least some wastewater would flow through the outfall, along with the brine, throughout the year. Nonetheless, this scenario was evaluated during the Davidson condition (January), as was the MRWPCA wastewater-only discharge, to understand how the brine would influence existing conditions.

17 Wastewater monitoring data from the MRWPCA Regional Wastewater Treatment Plant for salinity and total dissolved solids (1998–2012) and for temperature (2006–2012).

Salinity levels of the brine discharge were calculated by determining the size of the discharge plume, its trajectory in the ocean, and the dilution of the brine with ambient seawater within the ZID. The ZID is defined as the zone immediately adjacent to a discharge where momentum and buoyancy-driven mixing produces rapid dilution of the discharge (Flow Science Inc., 2014). The size of the plume and the extent of dilution would depend on whether the plume is positively buoyant (rising) or negatively buoyant (dense or sinking; see **Figure 4.3-4** in Section 4.3, Surface Water Hydrology and Water Quality). In the near-field analysis for a sinking plume, the ZID would end at a point where the plume contacts the seafloor. The ZID for a buoyant plume would end at the point where the plume reaches the water surface or attains a depth level where the density of the diluted effluent plume becomes the same as the density of ambient water (i.e., the "trap" level). The discharge is required to meet the relevant water quality standards at the edge of the ZID.

Two analytical methods—SEA and VP modeling—were used to characterize and understand the range of dilution that might be expected to occur for the discharge from the MRWPCA outfall diffuser; both methods are consistent with the regulatory approach recommended by the SWRCB for analyzing the brine discharge (Flow Science Inc., 2014; SWRCB, 2012b). The VP method is widely used in diffuser discharge analyses, however it has only recently been validated against limited experimental data for sinking plumes; hence the data from the SEA method is presented to provide redundancy in the analysis and confirmation of results (Flow Science Inc., 2014). Due to higher densities, both the brine-only and blended discharges were found to be sinking plumes. The existing wastewater discharge and its respective combinations with the brine, GWR effluent, and the blended discharges as well as the GWR effluent only discharge were found to be rising plumes, due to the lower densities. Therefore, the impact determination for this analysis relies on the modeling results using the SEA method for the negatively buoyant (sinking) plumes and the VP method for the rising plumes (see **Figure 4.3-4** in Section 4.3, Surface Water Hydrology and Water Quality).

Impact Analysis and Discussion

Table 6-12 shows the modeling results for the sinking plume under the SEA Method and for the rising plume under the VP Method. The discharges are listed in the order of their dilution (i.e., starting from the maximum dilution and proceeding down to minimum or no dilution). The edge of the ZID for a negatively buoyant (sinking) plume (i.e., for the brine and blended discharges) is shown in the shaded column in **Table 6-12** as the horizontal distance from the point of discharge (the diffuser port of the outfall) to the centerline of the brine plume, and was estimated at 10 and 11 feet respectively for the brine-only and blended discharge scenarios under the SEA method—well within the 100-meter (or 328-foot) regulatory mixing zone recommended by the SWRCB (2012a) (see **Figure 4.3-4**). **Table 6-12** shows the extent of the ZID and the dilution and the diameter of the discharge plume for the various discharge scenarios associated with the project variant. Also refer to **Figure 4.3-4** in Section 4.3, Surface Water Hydrology and Water Quality, for an illustration of the brine discharge through the MRWPCA outfall and diffuser. Under the VP method, the edge of the ZID was estimated at 27 feet for the wastewater-only flows (baseline/existing conditions), 38 feet for the combined discharge, and 24 feet for the GWR-with-wastewater discharge.

TABLE 6-12
DILUTION AND HORIZONTAL DISTANCE ESTIMATED UNDER NEAR-FIELD ANALYSIS FOR SALINITY (MPWSP VARIANT)

	Scenario No.	Discharge Flow (mgd)	SEA Method (for sinking plumes)			VP Method (for rising plumes)			
			Plume Diameter (inches)	Center-line Dilution	Horizontal Distance from Port (ZID) (feet)	Plume Diameter (inch)	Average Dilution	Horizontal Distance from Port (feet)	Maximum Height Above Port (feet) [a]
Rising Plume (Positively Buoyant)	0.0 (Baseline, Wastewater-only)	19.78	--	--	--	246	167	27	69
	11.1 (Combined Discharge)	25.64	-	-	-	204	82	38	38
	7.1 (Brine-with-wastewater)	28.77	-	-	-	207	84	38	41
	10.1 Blended Discharge (January)	9.72	34	17	11				
	9.1 Blended Discharge (July)	9.72	34	17	11				
	12.1 Blended Discharge (September)	9.72	34	17	11				
	15.1 (GWR-with-wastewater)	16.65	--	--	--	243	180	24	68
	14.1 (GWR-only)	0.73	--	--	--	86	270	5	24
	13.1 (GWR-only)	0.73	--	--	--	159	777	6	48
	16.1 (GWR-only)	0.73	--	--	--	121	678	5	41
Sinking Plume (Negatively Buoyant)	6.1 Brine Only (January)	8.99	31	15	10				
	5.1 Brine Only (July)	8.99	31	15	10				
	8.1 Brine Only (September)	8.99	31	15	10				

NOTE: Modeling results for the sinking plume are shown in the "SEA Method" column and for the rising plume in the "VP Method" column. Dilution is presented as parts of seawater or wastewater (Scenario 11.1) for one part of brine.

[a] These values are "trap" levels (the point where the plume reaches the water surface or attains a depth level where the density of the diluted effluent plume becomes the same as the density of ambient water) above the diffuser.

SOURCE: Flow Science, Inc., 2014.

The impact analysis for salinity involved evaluating the salinity levels under the representative project variant discharge scenarios against baseline conditions (wastewater only, Scenario 0.0) and using a range of oceanic conditions. The salinity of the brine generated at the MPWSP Desalination Plant is estimated at 58.23 ppt (July), 57.4 ppt (January), and 57.64 ppt (September) based on the varying salinities of the source (ocean) water. **Table 6-13** below, provides the volume, velocity, and salinity of the discharges at the diffuser port as well as the plume salinity at the edge of the ZID and its salinity level compared with the ambient or ocean-water salinity.

As shown in **Table 6-13**, the salinity at the edge of the ZID would comply with the significance threshold under all of these discharge scenarios.

The brine-only discharge (during the irrigation season) is estimated to form a negatively buoyant (sinking) plume because of its higher density. The higher density is due to the greater salinity of the brine alone (approximately 58 ppt) compared to the ambient salinity (approximately 33 ppt) under all of the three oceanic conditions (Flow Science Inc., 2014).

As shown in **Table 6-13**, the salinity level of the brine discharged from the diffuser port at approximately 58 ppt would be reduced to approximately 35 ppt at the edge of the ZID under the SEA method. The salinity would reduce as the brine is discharged through the 120-port diffuser and gets mixed with seawater. The maximum salinity of the plume at the edge of the ZID under the SEA method is estimated to exceed ambient salinity by approximately 1.7 ppt in September. Based on the near-field analysis, the project variant would be in compliance with the significance threshold under all the discharge scenarios including the brine-only discharge under the conservative scenario of when the brine would receive no dilution and when the GWR facilities are not operational.

Impact Conclusion

The near-field analysis of salinity levels indicates that the brine and combined discharges would result in salinity less than 2 ppt above ambient salinity. The project variant would therefore not exceed or violate the salinity standards or degrade water quality in terms of salinity. The impact would be less than significant.

Far-Field Analysis

Unlike the near-field analysis, the far-field analysis evaluates processes that are primarily influenced by natural ocean turbulence. As part of the analysis, calculations were performed to determine the pre-mitigation dilution rates of the plume from the brine-only discharge and blended discharge, as it travels beyond the edge of the ZID. Salinity levels in the far field were calculated and compared against ambient salinity levels and mapped for the three oceanic conditions.[18]

Methodology

ESA conducted a far-field analysis of the plume's fate, transport and resulting salinity levels using data on ocean currents from the Regional Ocean Modeling System (ROMS) model, which is one of the models recommended in the SWRCB's technical report on discharges from desalination

[18] This analysis is conducted using salinity; similar analyses may be conducted using other constituents.

plants (SWRCB, 2012b). The ROMS model was used to define the seasonal distribution of temperature, salinity, and the currents at the point of discharge in Monterey Bay. To estimate the plume salinity levels, ESA used a far-field particle tracking model to calculate the dilution rates of the plume (before mitigation) as it traveled farther from the point of discharge beyond the edge of the ZID. The far-field particle tracking model was used to calculate the dilution rates of the plume as it traveled farther from the point of discharge beyond the edge of the ZID. In the model, the mass of the plume is comprised of a number of particles or discharged packets of water (see **Appendix D1)**.

Based on the dilution rate achieved in the near field within the ZID (Flow Science, Inc., 2014), the dilution rates of the plume were modeled over a period of 90 days at a depth of approximately 98 feet (or 30 meters, which is the approximate water depth at the diffuser) under three oceanic current conditions -- Davidson season (December to February), upwelling season (June to August), and oceanic season (August to September). During these seasons, the temperature ranged between 47.3 and 59.4°F and the salinity ranged between 33.1 and 34.2 ppt with a natural variability of 3.3 percent (refer to **Appendix D1** for further information). For standardization of the oceanographic variables used for this study, the two parameters were converted to Absolute Salinity and Conservative Temperature based on the International Thermodynamic Equations of Seawater or TEOS (TEOS-10, 2010). The estimated salinity for the blended discharge was 54.16 ppt (July) and 53.39 ppt (January), 53.61 ppt (September).

The far-field study continues forward from the point where the near-field analysis ends and assumes there is no interaction between the near- and far-field mixing zones. The dilution was modeled on a two- dimensional scale, where only lateral mixing was assumed with no vertical mixing. No large-scale motions or external forces such as currents induced by wave motions were considered; therefore, this scenario involves least conducive conditions for dilution and hence is considered conservative. The study assumes there are no currents at the initial dilution of the brine plume in the near field and that in the far field the ocean currents are spatially homogeneous, which means the oceanic current velocities are the same spatially throughout the flow field. This assumption is most applicable at early stages of the brine discharge,[19] therefore, a limited time frame of 48 hours was selected to compute the final salinity concentration of the particles. The modeling analysis involved releasing a particle of the brine discharge every 30 minutes and following the particle for 48 hours, for the course of a season (~90 days), meaning that each “discharge” (its salinity) was tracked for 48 hours over 90 days of discharge (see **Appendix D1**) and compared with the ambient salinity levels.

[19] This assumption tends to under-predict the extent of dilution over larger distances. Refer to **Appendix D1** for details.

TABLE 6-13
SALINITY LEVELS FROM THE BRINE DISCHARGE AT THE EDGE OF THE ZID (PROJECT VARIANT)

	Scenario No.	Discharge Volume (mgd)	Discharge Velocity (feet per second)	Oceanic Condition (Month)	Discharge Salinity (ppt)	Ambient Salinity at Diffuser (ppt)	Plume Salinity at the Edge of the ZID[a]				Complies with the Proposed Ocean Plan Salinity Standard? <2 psu Over Ambient Salinity
							SEA Method (Negative Buoyant Plume)		VP Method (Rising Plume)		
							Salinity (ppt)	Increase Over Ambient Salinity (ppt)	Salinity (ppt)	Increase Over Ambient Salinity (ppt)	
Rising Plume (Positively Buoyant)	0 (Baseline, Wastewater-only)	19.78	11.5	Davidson (January)	0.8	33.36	--	--	--	--	Yes
	11.1 (Combined Discharge)[b]	25.64	13.1	Davidson (January)	20.73	33.36	--	--	--	--	Yes
	7.1 (Brine-with-Wastewater)	28.77	13.9	Davidson (January)	18.48	33.36	-	--	-	--	Yes
	10.1 (Brine-with-GWR)	9.72	8.0	Davidson (January)	53.39	33.36			34.3	0.9	Yes
	9.1 (Blended Discharge)	9.72	8.0	Upwelling (July)	54.16	33.84			34.7	0.9	Yes
	12.1 (Blended Discharge)	9.72	8.0	Oceanic (September)	53.61	33.50			34.4	1.0	Yes
	15.1 (GWR-with-wastewater)	16.65	11	Davidson (January)	0.9	33.36	--	--	--	--	Yes
	14.1 (GWR-only)	0.73	3.4	Davidson (January)	4	33.36	--	--	--	--	Yes
	13.1 (GWR-only)	0.73	3.4	Upwelling (July)	4	33.84	--	--	--	--	Yes
	16.1 (GWR-only)	0.73	3.4	Oceanic (September)	4	33.50	--	--	--	--	Yes
Sinking Plume (Negatively Buoyant)	10.1 Blended Discharge	9.72	8	Davidson (January)	53.39	33.36	34.8	1.4			Yes
	9.1 Blended Discharge	9.72	8	Upwelling (July)	54.16	33.84	35.3	1.4			Yes
	12.1 Blended Discharge	9.72	8	Oceanic (September)	53.61	33.50	34.9	1.4			Yes
	6.1 (Brine Only)	8.99	7.5	Davidson (January)	57.40	33.36	35.0	1.6			Yes
	5.1 (Brine Only)	8.99	7.5	Upwelling (July)	58.23	33.84	35.5	1.6			Yes
	8.1 (Brine Only)	8.99	7.5	Oceanic (September)	57.64	33.50	35.1	1.7			Yes

NOTES:
Salinity results reported for the negatively buoyant (sinking) plume under the SEA method and for the rising plume under the VP method.
[a] Bold text indicates the salinity level exceeds the proposed standard.
[b] '-' indicates rising plume. Combined discharge (during the non-irrigation or wet season only) is estimated to have a rising plume where the plume salinity is lower than the ambient seawater, hence not reported in the table.
SOURCE: Flow Science Inc., 2014.

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Impact Analysis and Discussion

Operation of the MPWSP Desalination Plant under the MPWSP Variant would result in 8.99 mgd of brine, which would be discharged to Monterey Bay through the MRWPCA outfall. Prior to discharge, the brine would combine with the effluent from the GWR facilities to form a blended discharge. The brine-only and/or the blended discharge would combine with wastewater from the MRWPCA Regional Wastewater Treatment Plant when it is available (during the wet, or non-irrigation, season). This far-field analysis was conducted for scenarios when the wastewater would not be available (i.e., brine-only and blended discharge scenarios).

The ROMS model was used to define the seasonal distribution of temperature, salinity, and the currents at the point of the brine-only discharge and in Monterey Bay. Based on the dilution rate of the plume under the modeling analysis, the salinity levels of the discharge dissipate rapidly with time as the plume travels away from the point of discharge.

Two types of salinity levels were identified: chronic and peak. Chronic levels refer to the average of the particle salinity levels over 3 months or the 90-day season of the oceanic current conditions selected, which in terms of impacts on biological species represent longer-term exposure to average salinity levels above the ambient. Acute (peak) levels refer to maximum (or instantaneous maximum) salinity values, which from a biological perspective represent exposure to maximum salinity levels during a short-term timeframe. **Table 6-14** shows the average values of chronic and acute salinity levels in the shaded columns.

As discussed in the near-field analysis and as shown in **Table 6-14** the chronic salinity levels of the brine-only discharge (~57-58 ppt) and the blended discharges (~53-54 ppt) were found to reduce at the edge of ZID to approximately 35 ppt in both the cases. Outside the ZID, the far-field analysis over 48 hours indicated further dissipation of the plume salinity, where the average of the chronic salinity levels was found to exceed the ambient salinity under all three oceanic current conditions by 0.25 to 0.26 ppt for the brine-only discharge and 0.19 to 0.2 ppt for the blended discharge. The averages of peak acute salinity levels were higher than the chronic levels and ranged from 0.53 to 1.18 ppt greater than ambient salinity for the brine-only discharge and from 0.33 to 0.35 ppt greater than ambient salinity for the blended discharge. These reductions in salinity were observed as the brine plume traveled further away from the discharge point and mixed with ocean water. The ambient conditions that affect mixing of the brine vary as a result of seasonal weather cycles and can also be severely modified by global ocean climate events. Other factors that contribute to the mixing and dilution of the plume are ambient conditions such as the bathymetry,[20] currents and waves, and the differences in density (due to variations in temperature, salinity, etc.) between the plume and the receiving waters. **Appendix D1** provides additional details on the salinity levels.

Additionally, the model output also represented the spatial extent of the salinity levels likely to occur above ambient salinity and is discussed below in terms of the brine plume area that exhibits chronic and peak salinity levels above the ambient salinity for each brine discharge particle for 48 hours, and a new particle released for the time period of 90 days. **Table 6-15** shows the areal extent of the plume within which there may be points that exhibit salinity levels greater than 1.5 ppt above ambient for both chronic and peak salinity levels. These salinity levels are estimated over a

[20] Refers to physical features and topography inside the ocean.

TABLE 6-14
AVERAGE CHRONIC AND ACUTE SALINITY LEVELS ESTIMATED FOR THE BRINE-ONLY AND BLENDED DISCHARGE PLUMES IN THE FAR FIELD AT A DEPTH OF 98 FEET

Oceanic Conditions	Brine Salinity at Point of Discharge (ppt)	Brine Salinity at Edge of ZID (ppt) [a]	Ambient Salinity (ppt)	Average of Chronic Plume Salinity (ppt) [b]	Plume Salinity Relative to Ambient Salinity (ppt)	Average of Peak Plume Salinity (ppt) [b]	Plume Salinity Relative to Ambient Salinity (ppt)
Brine-only							
Davidson (January)	57.40	35.0	33.52	33.77	+0.25	34.07	+1.18
Upwelling (July)	58.23	35.5	34.00	34.26	+0.26	34.53	+0.53
Oceanic (September)	57.64	35.1	33.66	33.91	+0.25	34.20	+0.54
Blended Discharge							
Davidson (January)	53.39	34.8	33.52	33.71	+0.19	34.06	+0.35
Upwelling (July)	54.16	35.3	34.00	34.20	+0.20	34.53	+0.33
Oceanic (September)	53.61	34.9	33.66	33.85	+0.19	34.20	+0.35

NOTE:
a Refer to Table 4.3-6 for the near-field modeling results of the brine salinity at the edge of the ZID.
b Average plume salinity is the average salinity over 90 days.
SOURCE: Monterey Peninsula Water Supply Project – Far-Field Modeling and Mixing Analysis of the Brine Discharge Technical Memorandum (see **Appendix D3**).

TABLE 6-15
AREAL EXTENT OF BRINE-ONLY AND BLENDED DISCHARGE PLUMES BASED ON CHRONIC AND PEAK SALINITY LEVELS IN THE FAR FIELD AT A DEPTH OF 98 FEET

Oceanic Condition	Brine Salinity at the Point of Discharge (ppt)	Brine Salinity at Edge of ZID[a] (ppt)	Area with Chronic Plume Salinity At or Greater Than 1.5 ppt Above Ambient[b] (Acres)	Area with Peak Plume Salinity At or Greater Than 1.5 ppt Above Ambient (Acres)
Brine-only Discharge				
Davidson (January)	57.40	35.0	-	69.4
Upwelling (July)	58.23	35.5	-	147.1
Oceanic (September)	57.64	35.1	-	99.7
Blended Discharge				
Davidson (January)	53.39	34.8	-	-
Upwelling (July)	54.16	35.3	-	-
Oceanic (September)	53.61	34.9	-	-

NOTES:
a Refer to Table 4.3-6 for the near-field modeling results of the brine salinity at the edge of the ZID.
b "-" indicates that the average plume salinity was lower than 1.5 ppt above ambient salinity and hence not presented.

SOURCE: Monterey Peninsula Water Supply Project – Far-Field Modeling and Mixing Analysis of the Brine Discharge Technical Memorandum (see **Appendix D1**)

90-day period following the discharge and are present at a time within the 90-day period and do not necessarily represent consecutive days or a continuous time period.

For the blended discharge, both the chronic and acute salinity levels were found to be slightly above (i.e., ~0.2 ppt) but less than 1.5 ppt above ambient under all oceanic conditions and are therefore not reported in **Table 6-15**. For the brine-only discharge, the chronic salinity levels were found to be less than 1.5 ppt above ambient salinity under all the conditions, while there were peak salinity levels that were found to exceed the ambient salinity by greater than 1.5 ppt (but lower than 2 ppt). As shown in **Table 6-15**, the plume area in this case was found to range from the lowest at approximately 69 acres under the Davidson period to highest at approximately 147 acres under the upwelling period. The plume area in the Davidson season was smaller than during the upwelling season due to the slower motion of ocean currents during the Davidson period that caused the plume to move and dilute at a slower pace.

Similar to the proposed project, the brine plume under the MPWSP Variant was found to have the largest area during the Upwelling season and smallest during the Davidson season (**Table 6-15**). The chronic plume salinity levels were predicted to be below the natural salinity variability of +/- 3.3 percent at all locations.

In both the cases of chronic and peak (acute) salinity levels, the spatial extent of the plume was found to be directly correlated to the currents from the ROMS model. For example, the rate of both the plume dispersion and dilution was the lowest in the Davidson period (see **Appendix D1**), which has the slowest currents. The greatest dispersion and dilution was observed during upwelling when the plume mostly extends into southern Monterey Bay. Compared to the upwelling season, the plume area was found to be somewhat smaller under the oceanic period, where the plume extended from near the Monterey Submarine Canyon rim to the center of the southern half of Monterey Bay.

As indicated in **Tables 6-14** and **6-15**, most of the dilution occurs within the first 12 hours to salinity to reduce to less than 2 ppt above ambient conditions for all the three oceanic seasons (Refer to **Appendix D1** for a graphical representation and further details on the spatial extent of the plume). Similar to that discussed for the proposed project, the far-field analysis indicates that the brine plume travels away from the point of discharge with time. The salinity of the brine plume is estimated to progressively reduce with time and distance from the point of discharge, approaching background salinity levels through dispersion and dilution with the ocean currents.

Impact Conclusion

The far-field analysis indicated that the plume of the brine-only and blended discharges travels away from the point of discharge with time. Although there were no significance thresholds for salinity beyond the ZID, the salinity of the plumes was estimated to progressively reduce with time and distance from the point of discharge, approaching background salinity levels through dispersion and dilution with the ocean currents. Therefore, the impact would be less than significant and no mitigation is required.

Mitigation Measures

None required.

6.3.2 Groundwater Resources

See **Table 6-7** for the analysis of MPWSP Variant impacts related to groundwater resources that correspond to Impacts 6.4-1 and 6.4-2. For the analysis corresponding to Impacts 6.4-3 and 6.3-4, see below.

6.3.2.1 Depletion of Groundwater and Interference with Recharge

Impact 6.3-3: 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 during operations. (*Less than Significant*)

Salinas Valley Groundwater Basin

In the SVGB, implementation of the MPWSP Variant would extract brackish groundwater from the Seawater Intake System for treatment in the CalAm proposed desalination facility and the GWR facilities of the project variant would provide treated wastewater and urban runoff from the MRWPCA Regional Waste Water Treatment Plant to CSIP. The proposed Salinas Valley Return Flows from the MPWSP Desalination Plant would be injected into groundwater wells at either of two proposed locations: the CEMEX site or at a site near Charlie Benson Road. Locations of the Salinas Valley Return Flow Injection sites (Option 1, CEMEX and Option 2, Charlie Benson Road) are shown on **Figure 6-1**. As currently proposed, Salinas Valley return flows must be injected or routed to an alternate location because the additional GWR-produced water developed at the Regional Wastewater Treatment Plant would take up the capacity at CSIP.

The North Marina Groundwater Model (NMGWM) was used to simulate aquifer response (as groundwater level change) of the MPWSP Variant in the Dune Sands Aquifer and the deeper 180-Foot Equivalent Aquifer. Three individual scenarios were modeled: Scenario 5n assumed that Salinas Valley return flows were routed directly to CSIP, Scenario 5ncb simulated return flows being routed to injection at Charlie Benson Road, and 5nc evaluated return flows being injected at CEMEX. The results of the Scenario 5n condition are displayed graphically in **Figure 6-2** and **6-3** because they show the most pronounced change in water levels (compared to baseline conditions) of the three scenarios modeled.

Depletion of Groundwater Supply to Neighboring Production Wells

In accordance with the significance criteria (Section 4.4.3.1), the MPWSP Variant would cause a significant impact if its operation substantially lowered groundwater elevations in neighboring wells, thereby exposing wells screens or well pumps. As discussed in the Groundwater Resources section (Section 4.4) for the proposed project (model Scenario 3n), the distance from the slant wells to the contour showing one foot of drawdown (-1) extended a maximum distance of 5 miles in the Dunes Sands Aquifer and up to 7 miles in the 180-Foot Equivalent Aquifer **(see Table 6-16)**. As shown in **Table 6-16**, the greatest distance that would experience a drawdown of up to 1 foot, is 2 miles under the project variant scenario that assumes injection of Salinas Valley return

water at CEMEX (scenario 5nc). This 2-mile distance would exist in the Dune Sand Aquifer and 180-Foot Equivalent Aquifer during a climatic period characterized by moderate rainfall following a prolonged wet period.

TABLE 6-16
MAXIMUM DISTANCE INLAND FROM THE PROPOSED SLANT WELLS
WITH WATER LEVEL DECLINE OF ONE FOOT FOR INDICATED MODEL SCENARIOS

Model Scenario	Aquifer	Maximum Distance Inland in Miles from the Slant Wells with Water Level Decline of One Foot				
		September 2027 (Prolonged Dry)	September 2034 (Moderate Period)	September 2046 (Prolonged Wet)	September 2050 (Moderate Period)	September 2074 (End of Model Simulation)
3n Proposed Project	DSA	**4.7**	**5.0**	**3.3**	**3.8**	**4.2**
	180	**4.9**	**7.0**	**3.6**	**3.7**	**4.2**
5ncb	DSA	**1.3**	**1.4**	**1.5**	**1.7**	**1.6**
	180	**1.4**	**1.4**	**1.6**	**1.8**	**1.7**
5nc	DSA	**1.5**	**1.5**	**1.6**	**2.0**	**1.8**
	180	**1.4**	**1.5**	**1.8**	**2.0**	**1.9**

NOTES:
DSA = Dune Sand Aquifer
180 = 180-Foot Equivalent Aquifer or 180-Foot Aquifer
SOURCE: Geoscience, 2015.

The modeled distance to the -1 groundwater contour indicates that these scenarios would generate a smaller area of influence when compared to the groundwater pumping under the proposed project. In turn, the decreased area of influence means a shallower cone of depression and thus shallower drawdown in the near vicinity of the slant wells. For instance, under the proposed project, the deepest pumping drawdown at the slant wells is 30 feet in the 180-foot Equivalent Aquifer while under the project variant, the deepest drawdown is between 15 and 20 feet.

The model simulations of the project variant scenarios (5n, 5ncb, and 5nc) show that the combined effect of groundwater extraction at the proposed slant wells and the increased supply of treated water from the Regional Wastewater Plant would have a reduced area of pumping influence, and therefore a smaller cone of depression, when compared to the response of the proposed project. This dampened response in the Dune Sands Aquifer and the 180-Foot Equivalent Aquifer would occur because, under the project variant, less water would be extracted from the slant wells, more water would be provided to CSIP from the Regional Wastewater Treatment Plant for use by agricultural users and, in the case of Scenarios 5ncb and 5nc, from the injection of Salinas Valley return water injection into the 180-Foot Equivalent Aquifer.

In accordance with the significance criteria, a significant impact of the project would occur if the drawdown caused by the slant well pumping caused drawdown in a neighboring well such that the well screen of well pump would be exposed causing damage or the inability of the well to produce water. **Table 4.4-14** lists several neighboring production wells within a 2-mile radius of the proposed slant wells. The impact analysis of the proposed project identified these wells as those with a higher probability of being negatively impacted by the proposed project pumping at the slant wells. The proposed project analysis concluded that these wells would not experience

draw down that would expose pumps or well screens and thus the impact to these neighboring production wells was less than significant. Given that the cone of depression and area of influence is less under the project variant, it follows that the project variant would also not adversely impact groundwater supplies or recharge and thus this impact is less than significant.

Depletion of Groundwater Supply from the SVGB

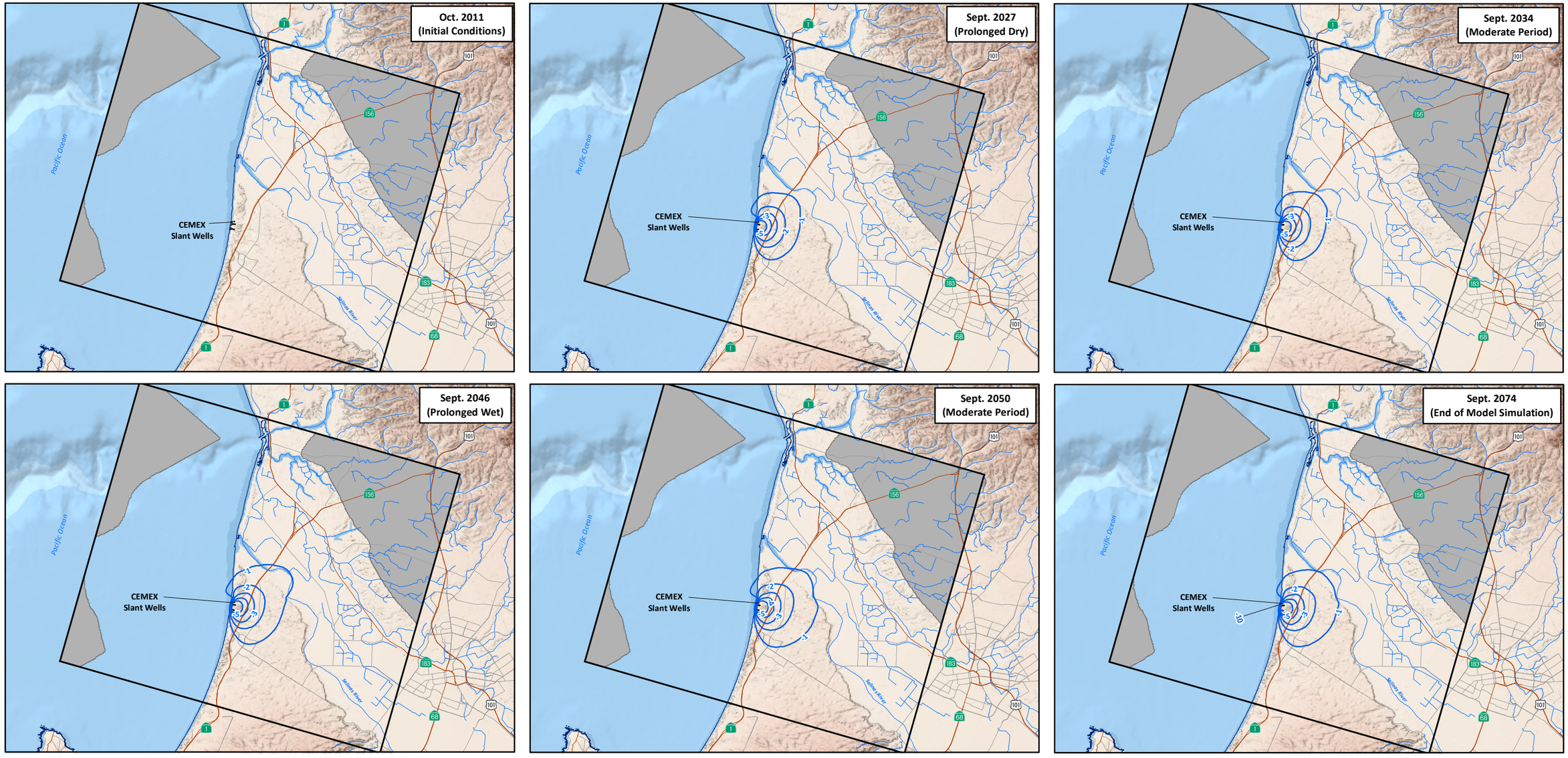
Operation of the MPWSP Variant could cause changes in the groundwater flow direction such that groundwater from inland groundwater sources in the SVGB would be captured and drawn into the seawater intake system. In accordance with the significance criteria (Section 4.4.3.1), a significant impact could occur if the operation of the proposed slant wells would substantially deplete the groundwater supply from inland sources within SVGB. This impact reflects the SWRCB concern that groundwater users could be harmed by the project's use of water from inland areas of the SVGB, especially the 180-Foot Aquifer.

This impact was analyzed by using particle tracking maps developed through the NMGWM to illustrate the source of water entering the slant wells. The modeling results assess whether and how much water might be drawn from inland water sources and plot the predicted pathway of water entering the slant wells before and during operations. Model scenarios 5n, 5ncb, and 5nc simulated the response from the project variant. The modeling results indicated that the majority of water entering the slant wells would originate from west of the slant wells, ultimately from the ocean by infiltration through the ocean floor. A much smaller volume of water would originate within a narrow flow path originating from inland areas. The modeling results showed shorter particle tracks in an area closer to the coast and thus an overall dampened of particle tracking response compared to that identified from similar modeling for the proposed project. Because the reduced capacity desalination plant requires less source water, less water would be drawn from inland sources. The impact of the project variant on the groundwater supply in the SVGB is less than significant because lower extraction rates at the slant wells, the increased water delivered to CSIP from the Regional Wastewater Treatment site and, in the case of Scenario 5ncb and 5nc, the injection of Salinas Valley return flows. The inland groundwater drawn to the slant wells under the project variant would be from an area previously impacted by seawater intrusion and that fraction of water would ultimately be returned to the basin as Salinas Valley return flows.

Recharge and Surface Water-Groundwater Interaction at the Salinas River

As shown on **Figure 6-2**, the area where groundwater levels in the Dune Sand Aquifer are anticipated to decrease by one foot or more due to the project variant are west of the Salinas River and only extend beyond the river during the prolonged wet period characterized in the model as September 2046. The NMGWM estimates that the average annual decrease of surface water loss to the underlying aquifer, as a result of the project variant, would be about 65 afy (Geoscience, 2015). The project variant would cause a small decrease in the amount of surface water loss to the underlying aquifer; however, it is not considered a substantial interference to groundwater recharge and would be a less than significant impact.

Implementation of the MPWSP Variant would improve overall groundwater conditions of the SVGB by reducing extractions of groundwater in the CSIP area. In addition to the well pumping reduction benefits, treating and delivering a portion of surface stream diversions as recycled water

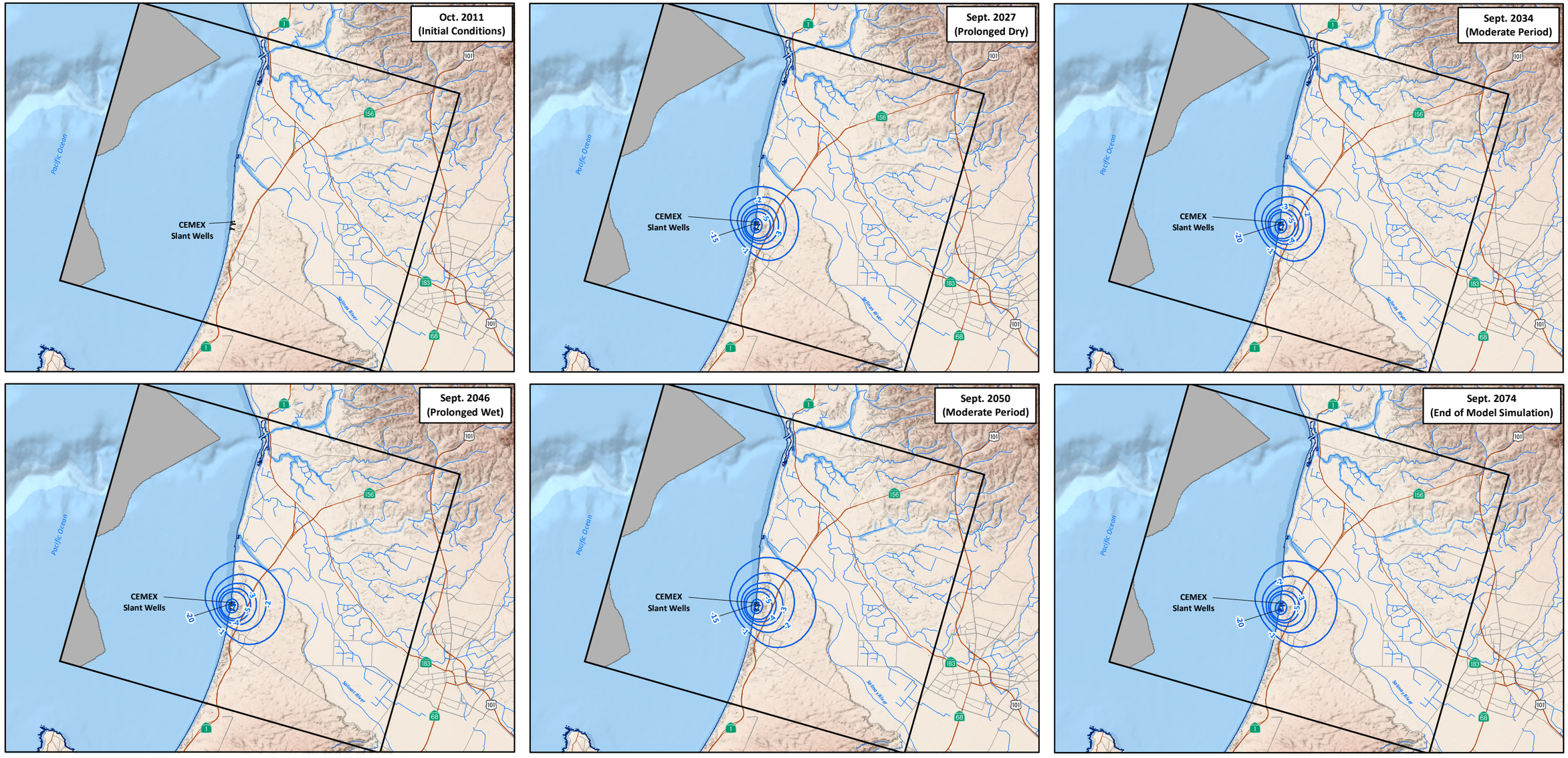


SOURCE: Geoscience, 2015c

205335.01 Monterey Peninsula Water Supply Project

Figure 6-2

Changes in Groundwater Elevations in the Dune Sand Aquifer
Project Variant – Scenario 5n



SOURCE: Geoscience, 2015c

205335.01 Monterey Peninsula Water Supply Project

Figure 6-3

Changes in Groundwater Elevations in the 180-Foot Equivalent Aquifer
Project Variant – Scenario 5n

to growers in the CSIP area would add to the surface application of water over a large area of the study area (i.e., the Crop Irrigation component of the proposed project). Thus, any reduction in recharge due to source water diversions from surface water bodies (Reclamation Ditch, Tembladero Slough and Blanco Drain) to the aquifers underlying the water bodies would only slightly reduce the benefit to groundwater in the Salinas Valley Groundwater Basin.

Surface Water-Groundwater Interaction at CEMEX

The impacts to recharge and the surface water-groundwater interaction at the CEMEX site are similar to or less than those of the proposed project. The proposed project impacts were determined to be less than significant. As discussed in the previous sections, the groundwater response within the Dune Sands Aquifer caused by the project variant would be dampened and result in a shallower cone of depression and less extensive area of influence. Therefore, effects to the CEMEX ponds from the project variant would be less pronounced and therefore less than significant.

Impervious Surfaces

The impacts associated with facilities and the potential for a reduction of recharge due to impervious surfaces are less than or similar to those of the proposed project. Facilities proposed for the project variant would slightly increase the amount of impervious surfaces in the project area due to a greater number of total facilities, but it would not reduce the potential for surface water to recharge the underlying aquifers. These impacts are less than significant.

Operation of the ASR Injection/Extraction Wells

In accordance with the significance criteria (Section 4.4.3.1), a significant impact could occur if operation of the ASR injection/extraction wells proposed under the MPWSP Variant were to result in groundwater mounding, change groundwater gradients, or lower groundwater levels such that nearby municipal or private groundwater production wells were to experience a substantial reduction in well yield or physical damage (due to exposure of well pumps). The impact analysis presented below for the project variant, is based on a groundwater impact evaluation completed by Todd Groundwater for the Pure Water Monterey Groundwater Replenishment Project Draft Environmental Impact Report (MRWPCA, 2015).

Todd Groundwater conducted a detailed Draft Recharge Impacts Assessment for the GWR to determine if operation of that project would result in adverse groundwater impacts (Todd Groundwater, 2015a). To determine whether the impact would be significant, Todd Groundwater analyzed the potential for groundwater mounding, change in groundwater gradients, or lower groundwater levels such that nearby municipal or private groundwater production wells experience a reduction in well yield or physical damage (due to exposure of well screens), resulting in a well not being capable of supporting existing land uses or planned uses for which permits have been granted.

Because the GWR component of the project Variant would provide additional water for downgradient groundwater extraction, it would result in both higher and lower water levels in existing basin wells over time depending on the timing of extraction and the buildup of storage in the basin. Todd Groundwater examined potential changes in water levels for eight key production

wells for a 33-year simulation period (including 25 years of project variant operations). The results of the groundwater modeling performed by HydroMetrics for Todd Groundwater indicated that simulated water levels would sometimes be lower under the project variant compared to baseline, because of increased pumping at existing extraction wells. However, simulated water levels would be lowered only about ten feet or less and would be lowered for a relatively short duration, typically for a few months. In addition, simulated water levels would be generally higher than pre-project levels. As such, none of the municipal or private production wells would experience a reduction in well yield or physical damage. All existing wells would be capable of pumping the current level of production or up to the permitted production rights.

In addition, Todd Groundwater found that there would be no adverse impacts to the quantity of groundwater resources. Because the project variant would only recover up to the amount of purified recycled water injected into the Seaside Basin aquifers, there would be no impact related to long-term change in groundwater storage because the purified recycled water being used for groundwater replenishment would eventually be extracted by CalAm for municipal use.

Based on the analysis conducted by Todd Groundwater for the GWR project, operation of the injection/extraction wells proposed under the MPWSP Variant would not result in groundwater mounding, change groundwater gradients, or lower groundwater levels such that nearby municipal or private groundwater production wells were to experience a substantial reduction in well yield or physical damage (due to exposure of well pumps). This impact is less than significant.

Mitigation Measures

None required.

6.3.2.2 Groundwater Quality

Impact 6.3-4: Violate any water quality standards or otherwise degrade groundwater quality during operations. (*Less than Significant*)

Operation of Subsurface Slant Wells

Impacts on Seawater Intrusion

Groundwater extraction from the slant wells proposed under the MPWSP Variant would have an adverse impact if it were to cause the seawater/freshwater interface to migrate further inland, causing active water supply wells to become unusable due to increased salinity. In accordance with the Significance Criteria (Section 4.4.3.1) a significant impact would occur if extraction at the subsurface slant wells were to adversely affect groundwater quality by exacerbating seawater intrusion in the SVGB.

As concluded from the analysis of the proposed project, groundwater extraction would reduce the inland migration rate of the seawater/freshwater interface. This is the similar case under the MPWSP Variant in that the groundwater extraction at the coast, in combination with the injection of Salinas Valley return flows, and increased deliveries to CSIP would facilitate the reduction of

seawater intrusion. Particle flow path analysis of the project Variant scenarios (5n, 5ncb, and 5nc) showed that, in all scenarios, the portion of the intruding seawater would be removed from the coast through pumping at the seawater intake system. This is especially the case for Scenario 5nc, which includes injection of Salinas Valley return flows into wells at the CEMEX site. Similar to the proposed project, the MPWSP Variant would extract groundwater from the coast, reduce the pressure on the seawater flowing landward and reduce the inland flow of seawater rather than allowing it to continue to migrate inland. This would cause the seawater/freshwater interface to eventually migrate back towards the ocean, thus reducing the extent of the area currently affected by seawater intrusion. The project Variant would facilitate the reduction of seawater intrusion and the impact would, therefore, be considered less than significant.

Impacts Associated with Existing Groundwater Remediation Systems

Analysis for the MPWSP Variant indicated that the fully developed cone of depression that would originate at the proposed slant wells could intersect existing contaminant plumes that have migrated from sites on the former Fort Ord. When the area of influence of a pump and treat site intersects that of another water extraction system, the cones of depression interfere with each other and can cause the groundwater contamination to spread into previously uncontaminated areas. Previous analysis of groundwater response resulting from the project variant indicated that the cone of depression and the resultant area of influence of the MPWSP Variant slant wells were considerably less extensive than those of the MPWSP project. Because of this, the pumping influence from the slant well pumping under the project variant would not intersect the plumes and this impact is less than significant.

Impacts Associated with ASR Injection/Extraction Wells

Impacts to Neighboring Remediation Activities

Similar to the proposed project, injection of desalinated product water into the proposed ASR-5 and ASR-6 Wells would increase groundwater elevations and the volume of water in underground storage. This increase in groundwater elevations would alter groundwater flow patterns in the vicinity of the proposed ASR-5 and ASR-6 Wells and could interfere with remediation activities, pushing contaminated groundwater into currently uncontaminated areas and degrading the existing water quality. However, there are no known contaminated sites undergoing groundwater remediation in the area between the ASR injection/extraction wells and the edge of the groundwater depression. Therefore, the potential for the ASR well operation under the MPWSP Variant to interfere with groundwater remediation activities would be low and thus, this impact is less than significant.

Geochemical Compatibility of Purified Recycled Water and Groundwater

When two water types with different water chemistry are mixed (such as the GWR project purified recycled water and native groundwater), the compatibility of the waters requires examination. Geochemical reactions in the groundwater system in the vicinity of the well and in the aquifer beyond could result in precipitation or dissolution of constituents (e.g., precipitation of silica or dissolution of metals). These reactions could contribute to clogging in the well and/or pore throats or alter groundwater quality thorough dissolution in the vadose zone or aquifer. In particular, if not addressed, subsurface application of purified recycled water in the vadose zone

could lead to leaching of natural or anthropogenic constituents that could impact groundwater quality or lead to well scaling or biofouling.

The GWR EIR analyzed the effects of mixing purified water and groundwater and Section 4.4 Groundwater Resources, of this EIR analyzed the effects of mixing desalinated water with groundwater (less than significant). The following discussion provides the key findings and conclusion from the GWR geochemical compatibility analysis (Todd Groundwater, 2015b).

- Chemicals associated with the former Fort Ord activities, including soluble nitroaromatic compounds (explosives), perchlorate, or certain organic constituents, were not detected (or for those that were detected, the samples were not indicative of actual groundwater quality) in soil core samples or groundwater samples and testing indicates Fort Ord activities have not contaminated groundwater near the proposed Injection Well Facilities site.
- Potential changes in injected purified recycled water quality beneath vadose zone wells from geochemical reactions between the purified recycled water and formation materials along vertical flow paths are small. The analysis of leaching of chromium, arsenic, and lead indicated that concentrations in the zone of saturation are expected to be very low and would meet water quality standards.
- Aquifer clogging by calcite precipitation is unlikely to be a problem for the MPWSP Variant. In the Aromas Sand, calcium and bicarbonate concentrations are below saturation levels. Ambient groundwater in the Paso Robles Formation is at saturation with respect to calcite, but given the pH of the purified recycled water, calcite would not be expected to precipitate.
- Biofouling would not likely pose a problem for the injection wells because the purified recycled water is very low in nitrogen and phosphorus and would not tend to stimulate microbial growth.
- Based on the water chemistry of the Advanced Water Treatment Facility pilot plant water and observations from the ASR Project's wellfield, adverse impacts from geochemical incompatibility are unlikely in the Santa Margarita Aquifer in the vicinity of the deep injection wells.

None of the modeling results indicated that groundwater would be geochemically incompatible with the purified recycled water. Impacts related to biochemical incompatibility are less than significant for the project variant.

Impacts on Seawater Intrusion

The MPWSP Variant is not expected to cause water levels to fall below elevations that are protective against seawater intrusion. The project variant would incorporate operational monitoring to track impacts on water levels from recharge and pumping. Real-time modifications can be incorporated into the operation of the project variant to address any short-term water level declines, if needed. The project variant would increase basin production to replace a portion of the CalAm water supply as directed by the adjudication of the SGB. Water levels are below sea level at the coast in the Santa Margarita Aquifer and the project variant would not raise levels in the Seaside Basin over the long term. However, the short term rise in water levels associated with the project variant during the winter when pumping is less will prevent significant water level declines during the summer when pumping increases. The project Variant, including subsurface

application of purified recycled water through both vadose zone wells and deep injection wells, would be required to comply with federal, state and local statutes and regulations established to protect water quality. The project variant would have a beneficial effect on salt and nutrient concentrations in groundwater and would have a less-than-significant impact on groundwater quality for all other constituents, including those related to the seawater intrusion, conditions of the basin, the safety of the water supply for human consumption, and the beneficial use of the Seaside Basin.

Mitigation Measures

None required.

6.3.3 Marine Biological Resources

See **Table 6-7** for the analysis of MPWSP Variant impacts related to marine biological resources that correspond to Impacts 6.5-1, 6.5-2, and 6.5-5. For the analysis corresponding to Impacts 6.5-3 and 6.5-4, see below.

6.3.3.1 Candidate, Sensitive, and Special-status Species

Impact 6.5-3: Result in substantial adverse effects on candidate, sensitive, or special-status species during MPWSP Variant operations. (*Less than Significant with Mitigation*)

Potential Effects of Subsurface Slant Wells

Although the MPWSP Variant would have fewer subsurface slant wells in operation than the proposed project and would have a lower intake rate of 15.5 mgd compared to 24.1 mgd, the discussion under Impact 4.5-3 in Section 4.5, Marine Biological Resources regarding the potential for impingement of marine organisms during intake of seawater is applicable to the MPWSP Variant. As discussed there, the proposed project was estimated to result in a peak vertical infiltration rate of approximately 0.011 mm/sec through the seafloor. A comparison of published swimming speeds for plankton, larval invertebrates and larval fish, summarized in **Table 4.5-7**, indicates that it is unlikely that such organisms would be impinged against the seafloor by vertical infiltration of seawater. Because of its reduced number of wells and rate of intake compared to the proposed project, the MPWSP Variant would result in a peak vertical infiltration rate equal to or less than that of the proposed project, and so similarly would have a less-than-significant impact with respect to impingement of marine organisms.

Another concern for operation of the subsurface slants wells is the possibility that fine organic matter could be impinged against the seafloor causing a build-up of organic matter and change the normal distribution of sediment grain size. As described under Impact 4.5-3 in Section 4.5, Marine Biological Resources, because local current speeds are greater than 30 centimeter per second in the study area, fine-grained material would not settle to the seafloor over the subsurface slant wells.

For the reasons described above and in greater detail in Impact 4.5-3 in Section 4.5, Marine Biological Resources, impacts to candidate, sensitive, or special-status species including southern sea otters, humpback whales, gray whales, leatherback sea turtles, winter-run Chinook salmon,

Coho salmon, steelhead trout, and white sharks due to operation of the MPWSP Variant subsurface slant wells would be less than significant, and no mitigation is required.

Potential Effects of Elevated Salinity

Based on the data analysis shown in Section 6.3.1, above, the discharge of GWR-only and GWR-with-wastewater would not exceed the significance thresholds for salinity or any of the Ocean Plan constituents studied (i.e., the discharges would comply with Ocean Plan water quality objectives). In all discharge scenarios in which GWR effluent would be discharged with brine from the desalination plant, the incremental volume addition and lower salinity of the GWR effluent decreases salinity in the discharge at the edge of the ZID. However, the blended discharge (brine with GWR effluent) could potentially exceed Ocean Plan water quality objectives for several constituents.

The MPWSP Variant desalination process is expected to generate 8.99 mgd of brine that would be discharged via the MRWPCA ocean outfall. The outfall is currently used to discharge treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant. The discharge of brine, alone or mixed with the GWR effluent (blended discharge), treated wastewater (brine-with-wastewater), or both (combined discharge) could have an effect on special-status species that frequent the Marine Resources Study Area (listed in **Table 4.5-1**). The discharged brine, if concentrated enough, could also result in the loss of foraging habitat if the benthic infauna and macrofauna populations were to decline.

As described under Impact 4.5-3 in Section 4.5, Marine Biological Resources, numerous studies have demonstrated that salinity effects are species-specific (summarized in **Table 4.5-9**). MPWSP Variant-related discharges of brine resulting in salinities that are greater than 2 ppt above ambient at the edge of the ZID could result in a significant impact as defined by the July 2014 proposed amendment to the Ocean Plan. The analysis under Impact 6.3-5 for the MPWSP Variant (Section 6.3.1, above) indicates that the greatest increases over ambient salinity would occur as a result of brine-only discharges, and these increases would be less than 2 ppt (1.6 and 1.7 ppt; see **Table 6-13**). Therefore, the MPWSP Variant would have a less-than-significant impact on special-status species as a result of elevated salinity.

Potential Effects of Other Discharge-Associated Contaminants

MPWSP Variant discharge scenarios of GWR-only and GWR with wastewater would result in compliance at the edge of the ZID for all Ocean Plan water quality objectives.

As described in Section 6.3.1, brine-only and some brine-with-wastewater and combined discharges would result in a potential exceedance in PCBs over the Ocean Plan water quality objectives (**Table 6-10**). It was assumed that the entire mass of contaminants in ocean water delivered to the MPWSP Variant Desalination Plant through the subsurface slant wells would be present, and therefore concentrated, in the brine discharge. Additionally, as described in Section 6.3.1, brine-with-wastewater, blended discharge ammonia would be present in MPWSP Variant discharge, and combined discharges would result in exceedances for ammonia. However, as described under Impact 4.3-5 in Section 4.5, such discharges would not approach the concentrations or exposure durations shown to be acutely toxic to marine life. Additionally, with

implementation of **Mitigation Measure 4.3-4 (Implement Measures to Avoid Exceeding Water Quality Objectives at the Edge of the ZID)**, discharges would be managed to meet water quality objectives, resulting in a less than significant impact on marine organisms from PCBs and ammonia.

However, GWR effluent would contain several other contaminants regulated under the Ocean Plan that could occasionally approach or exceed Ocean Plan water quality objectives when mixed with brine from the desalination plant (See Section 6.3.1), including chlordane, DDT, dioxins/furans (TCDD), and toxaphene.

Chlordane, DDT, and TCDDs (as well as PCBs, addressed above) are known carcinogens whose objectives are intended to protect human health. These contaminants typically accumulate in lipids and are known to occur in progressively higher concentrations with each successive step up a food chain. Their water quality objectives have been set, also with appropriate safety margins, to ensure they do not accumulate to unhealthy concentrations in biota that may be eaten by humans. In contrast to the discharge of brine and wastewater under the proposed project, the MPWSP Variant would involve discharges of contaminants that previously did not directly enter the ocean. While the mass of some contaminants could increase in the ocean from the discharge of GWR effluent, contaminant toxicity is associated with concentration, not mass. Consequently, Ocean Plan objectives and published results of toxicity tests remain at the core of marine resource impact analysis for the MPWSP Variant.

Chlordane

The Ocean Plan defines chlordane as the summed concentrations of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and Oxychlordane. Chlordenes are metabolic breakdown products of the chlordanes and are not typically measured in environmental sampling programs. Kenaga (1981) reported maximum acceptable toxicant concentrations (MATC) for four species of freshwater fishes ranging from 0.32 micrograms per liter (μg/L) to 1.2 μg/L. Moore et al (1998) reported chlordane potencies (percent mortality/μg/L) of 0.88, 1.17, 1.68, and 2.54 for *Hyalella azteca* (amphipod), *Daphnia magna* (cladoceran) *Pimephales promelas* (fish) and *Chironomus tentans* (insect), respectively. Thus, a concentration of 10 mg/L would be expected to kill approximately 9 percent of the amphipods and 25 percent of the insects. In a study of sublethal effects on *S. gardneri*, Little et al (1990) found statistically significant reductions in swimming activity, feeding frequency, prey consumed, percentage of fish consuming prey, and percentage of fish surviving predation after 96-hour exposures to 2.0 μg/L of chlordane. As for PCBs, the Ocean Plan objective for chlordane was developed for the protection of human health. The sublethal effects on trout spermatogenesis occurred at concentrations several orders of magnitude above the Ocean Plan objective of 0.000023 μg/L for the protection of human health. Consequently, very short-term exceedances of the Ocean Plan objective for chlordane are unlikely to result in measurable increases in accumulation in animals or humans.

DDT

The Ocean Plan defines DDT as the summed concentrations of 4,4’DDT, 2,4’DDT, 4,4’DDE, 2,4’DDE, 4,4’DDD, and 2,4’DDD. The two DDT compounds are the parent forms, with the

DDEs and DDDs being breakdown products (U.S. Department of Health and Human Services, 2000). Kenaga (1981) reported 4-day LC50 for the fathead minnow of 48 µg/L DDT and MATC of 0.09 µg/L. Kinter et al (1972) documented that an important effect of DDT on fishes is disruption of osmoregulation and the effects of DDT on vertebrate endocrine systems are well known (U.S. Department of Health and Human Services, 2000). These lethal and sublethal effects on aquatic organisms are several orders of magnitude greater than the Ocean Plan objective of 0.00017 µg/L for the protection of human health.

TCDD

The Ocean Plan defines TCDD as "the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors." Based on extensive research on the carcinogenesis caused by these compounds, their relative toxicities have been set using 2,3,7,8-tetra CDD as an index, as follows:

Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CD	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

The concentration of each isomer group is multiplied by its respective toxicity equivalency factor and the products are summed to give the TCDD. Including some of the most toxic compounds known, the Ocean Plan water quality objective for the protection of human health is extremely low at 0.0000000039 µg/L.

Direct toxicity of TCDD to aquatic organisms was first evaluated due to its presence in herbicides widely used in forest management (Norris and Miller, 1977). These authors found that 120-hour exposures of guppies (*Poecilia reticulatus*) to concentrations of TCDD between 0.1 and 10.0 µg/L resulted in eventual death of all fish within 37 days of test initiation. Pre-death examinations determined the presence of fin necrosis and, in some cases, necrosis of the maxillary cartilage. The survival time after exposure was linearly related to fish size. Helder (1980) studied the effects of TCDD on early development in pike (*Esox lucius*). Freshly fertilized eggs that were exposed to TCDD concentrations ranging from 0.0001 µg/L to 0.01 µg/L for 96 hours had significantly delayed development and fry growth following hatch, with dose-related mortality. Hatching abnormalities, such as hatching tail first, were observed in the TCDD exposures in a dose-related fashion, with no tail-hatching being observed in the controls.

Numerous pathologies were observed histologically, with dose-related edemas occurring in the treated fry (i.e., less than 5 percent for 0.0001 μg/L up to nearly all fry for 0.01 μg/L).

Toxaphene

Toxaphene is a potent insecticide that was one of the most widely used in the United States before it was banned entirely in 1990 (U.S. Department of Health and Human Services, 1996). It was composed of a complex mixture of over 650 different compounds and was used on a variety of agricultural crops, and well as in the treatment of insect pests on cattle and for clearing lakes and reservoirs of unwanted fish. As with many other chlorinated pesticides, it degrades very slowly in the environment and tends to accumulate in the fatty tissues of fishes and other predatory vertebrates. The very low water quality objective (i.e., 0.00021 μg/L) set for toxaphene by the Ocean Plan is based on its high toxicity.

Due to its high toxicity and widespread use, the toxicity of toxaphene has been tested on a variety of aquatic organisms to examine both acute and subtle effects. Chaiyarach et al (1975) exposed a fish species (*Gambusia affinis*), two crustaceans (*Palaemonetes kadiakensis* and *Procambarus simulans*) and a clam (*Rangia cuneata*) for 24 hours, 48 hours, 72 hours, and 96 hours at a range of concentrations to determine the median tolerance limits (TL_m; median concentration causing death of the test organism at each exposure duration). Mortality for each test species increased with time of exposure and the fish was the most sensitive, with a TL_m of 8 μg/L at 96 hours. The clam was the least sensitive organism in these tests with a 96-hour TL_m of 460,000 μg/L. Mehrle and Mayer (1975a and 1975b) studied the effects of toxaphene on growth and development in brook trout (*Salvelinus fontinalis*) and on growth and bone composition in fathead minnow (*Pimephales promelas*). *S. fontinalis* eggs were exposed to toxaphene at several concentrations of toxaphene ranging from 0.039 μg/L to until hatching and for 90 days after hatching. Hatching success was unaffected by any of the tested concentrations, but all fry exposed to the 0.288 mg/L and 0.502 μg/L died within 30 days and 60 days after hatching, respectively. Growth was significantly reduced after 30 days in the 0.139 μg/L and 0.288 μg/L concentrations and after 60 days to 90 days in 0.068 μg/L and 0.039μg/L. There were also significant changes in collagen content and mineral composition of the bones of young *S. fontinalis* exposed to toxaphene. Young *P. promelas* exposed to toxaphene concentrations from 0.055 μg/L up to 1.23 μg/L exhibited decreased growth after 150 days of exposure and also had altered collagen content and mineral composition in their bones. As these reported toxic concentrations of toxaphene are orders of magnitude above the Ocean Plan water quality objective, small, short-term exceedances would have imperceptible impacts to marine resources.

For marine resources, a significant impact would occur if the MPWSP Variant would adversely affect marine life or humans by increasing concentrations of contaminants outside the ZID to levels considered toxic. Although the contaminants discussed here would not approach the concentrations or exposure durations shown to be acutely toxic, potential exceedance of their respective Ocean Plan objectives could lead to significant impacts on marine resources. As discussed above for PCBs, the Amended NPDES Permit would incorporate water quality objectives that are informed by the Ocean Plan for the protection of the beneficial uses of Monterey Bay, including supporting marine life, and would establish effluent limitations on the discharges under the MPWSP Variant with that goal. Additionally, **Mitigation Measure 4.3-4**

(Implement Measures to Avoid Exceeding Water Quality Objectives at the Edge of the ZID) would require CalAm to incorporate design features and operational measures at the MPWSP Desalination Plant to allow for treatment of the source water and brine to reduce constituent concentrations to water quality objective levels, and/or to allow for temporary storage of brine at the proposed 3-million-gallon storage basin at the MPWSP Desalination Plant site (see Chapter 3, Project Description) and releases of brine with a controlled (higher) flow rate and/or greater rate of dilution with treated wastewater effluent in such a way that the brine-only and combined discharges would not exceed the Ocean Plan water quality objectives at the edge of the ZID.

Therefore, with mitigation, impacts to candidate, sensitive, or special-status species including southern sea otters, humpback whales, gray whales, leatherback sea turtles, winter-run Chinook salmon, Coho salmon, steelhead trout, and white sharks due to discharge of brine-associated contaminants (i.e., PCBs, ammonia, chlordane, DDT, dioxins/furans (TCDD), and toxaphene) would be less than significant.

Potential Effects of Brine and Other Discharge Shear Stress

As discussed for Impact 4.5-3, concern has been expressed that the jet velocities associated with desalination brine discharges could cause damage to marine organisms. The minimum and maximum discharge velocities modeled for the MPWSP Variant are 3.5 feet per second (ft/sec) (GWR-only discharge) and 13.9 ft/sec (brine-with-wastewater), respectively (see **Table 6-13**).[21] These velocities are expected to create small turbulent eddies that affect a small volume of water in the immediate vicinity of the discharge. Similar to the discussion under Impact 4.5-3 for the proposed project, at these very small eddy scales, although larvae that experience the highest shear likely would experience lethal damage, the overall increase in mortality would be low. Therefore, impacts to candidate, sensitive, or special-status species including southern sea otters, humpback whales, gray whales, leatherback sea turtles, winter-run Chinook salmon, Coho salmon, steelhead trout, and white sharks, including juvenile stages, due to shear stress caused by the MPWSP Variant discharges would be less than significant and no mitigation is required.

Mitigation Measures

Mitigation Measure 4.3-4 applies only to brine discharge from the MPWSP Desalination Plant.

> **Mitigation Measure 4.3-4: Implement Measures to Avoid Exceeding Water Quality Objectives at the Edge of the ZID.**
>
> (See Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, for the description.)

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[21] With implementation of **Mitigation Measure 4.3-4 (Implement Measures to Avoid Exceeding Water Quality Objectives at the Edge of the ZID)**, the discharge velocity may increase above 13.9 ft/sec with increased discharge volumes of greater than 28.77 mgd. However, because the modeled PCB concentration at the edge of the ZID for the 28.77 mgd brine-with-wastewater discharge met the Ocean Plan water quality objective, it is unlikely that much, if any, additional discharge would be needed to meet Amended NPDES Permit requirements under this mitigation measure, and any potential increase in discharge volume and resultant velocity is expected to be minimal. Additionally, as discussed under Impact 4.5-3 in Section 4.5, discharge velocities up to 15.2 ft/sec are not expected to result in significant shear stress impacts on marine organisms.

6.3.3.2 Movement of Native Resident or Migratory Fish or Wildlife Species

Impact 6.5-4: Result in substantial interference with the movement of any native resident or migratory fish or wildlife species during MPWSP Variant operations. (*Less than Significant with Mitigation*)

Potential Effects of Subsurface Slant Wells

As discussed for Impact 6.5-3 above, impingement of organisms or fine organic matter against the seafloor due to operation of the subsurface slant wells is highly unlikely. Therefore, operation of the subsurface slant wells under the MPWSP Variant would not substantially interfere with the movement of any native resident or migratory fish or wildlife species during operations and impacts would be less than significant and no mitigation is required.

Potential Effects of Elevated Salinity

As discussed under Impact 6.5-3 above, the MPWSP Variant desalination process is expected to generate 8.99 mgd of brine that would be discharged via the MRWPCA ocean outfall. The potential for elevated brine concentrations near or along the seafloor within the ZID could result in altering the movement of native resident or migratory fish or wildlife species through the small area where elevated salinities may occur. The results of the brine discharge modeling indicates that the discharge of brine, alone or in combination with GWR or wastewater discharges, would exceed ambient salinities by less than 2 ppt at the edge of the ZID, which would constitute a less-than-significant impact. Therefore, substantial interference with the movement of any native resident or migratory fish or wildlife species during operations would be less than significant and no mitigation is required.

Potential Effects of Other Discharge-Associated Contaminants

As discussed for Impact 6.5-3 above, MPWSP Variant discharges could exceed the Ocean Plan objective for PCBs and several other contaminants. Although the contaminants discussed there would not approach the concentrations or exposure durations shown to be acutely toxic, potential exceedance of their respective Ocean Plan objectives could lead to significant impacts on marine resources. As discussed under Impact 6.5-3 above, the Amended NPDES Permit would incorporate water quality requirements that are informed by the Ocean Plan water quality objectives for the protection of the beneficial uses of Monterey Bay, including supporting marine life, and would establish effluent limitations on the discharges under the proposed project with that goal. Additionally, with implementation of **Mitigation Measure 4.3-4**, discharges would be managed to meet water quality objectives. Therefore, discharge of PCBs and other contaminants associated with the brine and GWR effluent would not substantially interfere with the movement of any native resident or migratory fish or wildlife species during operations and the impact would be less than significant with the implementation of mitigation.

Potential Effects of Brine and Other Discharge Shear Stress

As described under Impact 4.5-3 above, the small eddies that could be expected to be produced at the discharge velocities associated with the MPWSP Variant would affect a small volume of water in the immediate vicinity of the discharge. Therefore, discharge velocities would not

substantially interfere with the movement of any native resident or migratory fish or wildlife species during operations and the impact would be less than significant. No mitigation is required.

Mitigation Measures

Mitigation Measure 4.3-4 applies only to brine discharge from the MPWSP Desalination Plant.

> **Mitigation Measure 4.3-4: Implement Measures to Avoid Exceeding Water Quality Objectives at the Edge of the ZID.**
>
> (See Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, for the description.)

6.3.4 Air Quality

See **Table 6-7** for the analysis of MPWSP Variant impacts related to air quality. **Table 6-17**, below, shows the estimated maximum daily construction particulate matter equal to or less than 10 microns (PM_{10}) emissions for the MPWSP Variant as a whole and for the CalAm and GWR facilities separately.

TABLE 6-17
ESTIMATED MAXIMUM DAILY CONSTRUCTION PM_{10} EMISSIONS FOR THE MPWSP VARIANT

Emission Source	PM_{10} (pounds/day)
CalAm Facilities	230
GWR Facilities	145
All Facilities Combined	**375**
Monterey Bay Unified Air Pollution Control District CEQA Significance Threshold	82
Exceeds Threshold Without Mitigation?	Yes
All Facilities Combined with Implementation of Mitigation	124
Exceeds Threshold With Mitigation?	Yes

SOURCES: ESA, 2015; Illingworth & Rodkin, Inc., 2014a and 2014b; See **Appendix G**.

6.3.5 Greenhouse Gases

See **Table 6-7** for the analysis of MPWSP Variant impacts related to greenhouse gases (GHGs). **Table 6-18**, below, shows the estimated amortized annual GHG emissions for the MPWSP Variant as a whole and for the CalAm and GWR facilities separately.

TABLE 6-18
ESTIMATED AMORTIZED ANNUAL GHG EMISSIONS FOR THE MPWSP VARIANT

Emission Source	CO_2e (metric tons/year)
CalAm Facilities	4,084
GWR Facilities	1,844
All Facilities Combined	**5,928**
CEQA Significance Threshold	2,000
Exceeds Threshold Without Mitigation?	Yes

SOURCES: ESA, 2015; Illingworth & Rodkin, Inc., 2014a and 2014b; See **Appendix G**.

6.4 MPWSP Variant Cumulative Impact Analysis

6.4.1 Introduction to Cumulative Impact Analysis

Chapter 5, Cumulative Impacts, describes the methodology used to analyze the potential cumulative impacts to which the proposed project could contribute, provides a table of projects included in the cumulative scenario (**Table 5-1**), and provides a resource-by-resource analysis of the proposed project's contributions to cumulative impacts. The following sections provide an analysis of the MPWSP Variant's potential contributions to cumulative impacts based on the same methodology and cumulative scenario described in Chapter 5, substituting the MPWSP Variant for the MPWSP proposed project.[22]

6.4.2 Geology, Soils, and Seismicity

The MPWSP Variant would have similar impacts to the MPWSP related to geology, soils, and seismicity. The residual impacts of the MPWSP Variant would be less than significant after implementation of mitigation measures. The following discussion describes why the MPWSP Variant's contribution to cumulative impacts on geology, soils, and seismicity would be similar to that of the MPWSP.

Like the MPWSP, because of the localized nature of the anticipated MPWSP Variant impacts, the projects listed in **Table 5-1** would not combine with those of the MPWSP Variant to cause or contribute to potential cumulative geologic, soil, or seismic impacts associated with soil erosion or loss of topsoil (Impact 4.2-1), fault rupture (Impact 4.2-2), or expansive soils (Impact 4.2-8) (*no impact*).

As described in Impacts 4.2-3, 4.2-4, and 4.2-9, seismically induced ground shaking, liquefaction and lateral spreading, and corrosive soils could cause pipeline leaks or ruptures. Because the

[22] Note that the project variant was not assumed within the Chapter 5, cumulative impacts analysis for the proposed project because it is not contemplated that the GWR project would be built in the absence of its being a component of the MPWSP. The driving force behind the GWR project has been to assist in creating a supply of water to meet CalAm territory demand and the envisioned water purchase agreement between the MPWMD and CalAm would be a cornerstone of funding the GWR project.

MPWSP Variant and cumulative projects identified in **Table 5-1** would be required to comply with applicable provisions of State and local building regulations and standards that have been established to address and reduce the potential for such impacts to occur, the incremental impacts of the MPWSP Variant when combined with impacts of the cumulative projects would not cause or contribute to a significant cumulative impact related to seismically induced ground shaking, liquefaction and lateral spreading, or corrosive soils.

The MPWSP Variant would include the same facilities as the MPWSP that are located in an area with high to moderate landslide susceptibility described in Impact 4.2-5. Because no cumulative projects are located in the vicinity of these facilities, the MPWSP Variant would not cause or contribute to any potential cumulative effect related to landslide (*no impact*).

Because the MPWSP Variant would include fewer slant wells within an area subject to coastal retreat than the MPWSP, and no additional components (GWR facilities) would be vulnerable to coastal erosion or retreat, the impacts of the MPWSP Variant related to coastal erosion would be reduced compared to the MPWSP (Impact 4.2-6). Similar to the MPWSP, the residual impacts of the MPWSP Variant would not combine with other projects to create a significant cumulative impact because the subsurface slant wells would be decommissioned before becoming exposed on the active beach (*no impact*).

As described for the MPWSP, the soil structure above the slant wells and the CalAm Slant Test Well Project would not be subject to subsidence as a result of pumping from the Salinas Valley Groundwater Basin (Impact 4.2-7). Additionally, the proposed GWR facilities' net new extractions from the Seaside Groundwater Basin would not exceed the net new injections on an average annual basis, and so would not contribute to land subsidence impacts in this basin. Because no MPWSP Variant facilities would contribute to land subsidence, the MPWSP Variant would not cause or contribute to any potential cumulative effect related to subsidence (*no impact*).

Based on the depth to groundwater and minor groundwater mounding, the risk of hydro-collapse of soils due to injection of water into the Seaside Groundwater Basin (GWR facilities) would be less than significant (Impact GS-6). The proposed back-flush basin may cause wetting of the shallow eolian deposits. However, the back-flush basin is only expected to receive pumped water for a few hours per week so settlement due to hydro-collapse is anticipated to be relatively minor and limited to the footprint of the back-flush basin which can accommodate minor settlement. Because this impact would be minor and highly localized, it would not combine with the effects of other projects to cause or contribute to a cumulative effect related to hydro-collapse (*no impact*).

6.4.3 Surface Water Hydrology and Surface Water Quality

The MPWSP Variant would have similar construction-related impacts on surface water hydrology and surface water quality compared to the MPWSP. The overall amount of construction and surface disturbance would be incrementally greater under the MPWSP Variant because although there would be fewer slant wells associated with the CalAm facilities, the GWR facilities would be constructed in addition to the CalAm facilities. Therefore, with respect to

surface water quality impacts resulting from construction, the MPWSP Variant would have a slightly greater impact related to soil erosion or inadvertent releases of toxic chemicals (Impact 4.3-1), dewatering discharges (Impact 4.3-2), and discharges of treated water and disinfectant from pipelines (Impact 4.3-3), though for the same reasons provided for the MPWSP, these impacts would not be expected to combine with those of the cumulative projects to cause a cumulatively significant water quality impact.

During operation of the MPWSP Variant, discharges through the MRWPCA outfall would differ from those of the MPWSP in terms of concentration of salinity and PCBs, and would include additional constituents (ammonia, chlordane, DDT, dioxins/furans (TCDD), and toxaphene), but like the MPWSP discharges would be subject to the amended NPDES effluent permit (Impacts 4.3-4 and 4.3-5), and with implementation of **Mitigation Measure 4.3-4**, would comply with the permit requirements. The requirements of NPDES permits incorporate the Ocean Plan water quality objectives, which are designed and intended to protect beneficial uses of receiving waters (i.e., Monterey Bay) from the effects of numerous potential sources of pollution, and are therefore protective against adverse cumulative impacts. Therefore, because the MPWSP Variant would comply with objectives that are protective of beneficial uses against all sources, like the MPWSP, it would not have a cumulatively considerable contribution to the cumulative water quality impact in Monterey Bay (*less than significant*).

The potential for discharges associated with maintenance of subsurface slant wells and injection wells under the MPWSP Variant would be similar to the MPWSP. Although there would be three fewer wells to be maintained among the CalAm facilities, the GWR facilities would include several additional injection wells that also would need to be maintained through weekly backflushing (Impact 4.3-6). As for the MPWSP, the discharge of the backflushed effluent would be subject to specific requirements under the General Waiver of WDRs for Specific Types of Discharges (Resolution R3-2008-0010) to protect surface water quality. Cumulative projects in **Table 5-1** that would include discharge of maintenance-related discharges from water supply wells would be subject to and be required to comply with the water quality control requirements under the General Waiver. As a result, the effects of the MPWSP Variant would not combine with those of cumulative projects to cause a cumulatively significant water quality impact from well maintenance-related discharges. The MPWSP Variant's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

The MPWSP Variant would create approximately 3.5 more acres of new impervious surface than the MPWSP due to the proposed Treatment Facilities at the Regional Treatment Plant associated with the GWR facilities (Impacts 4.3-7 and 4.3-8). This minor incremental increase would not cause the MPWSP Variant to represent a substantial land use change when combined with the cumulative projects; storm runoff volumes and water quality generated by the cumulative scenario would be similar to the existing runoff typical of urbanized watershed. Additionally, compliance with the Monterey Regional Stormwater Management Program and NPDES Municipal Stormwater Permit, which are designed to address the potential cumulative effects of past, present, and foreseeable projects within the region would ensure hydrology and water quality effects related to the alteration of drainage patterns would not cause a cumulatively significant effect. The

MPWSP Variant's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

Like the MPWSP, the CalAm facilities within the 100-year flood zone would be located entirely underground under the MPWSP Variant (Impact 4.3-9). However, some GWR facilities in the 100-year flood zone would be aboveground. These include small boxes located up to 10 feet above ground that would not impede or redirect flood flows. The GWR component would not place habitable structures in a 100-year flood zone. All MPWSP Variant facilities within the tsunami inundation zone would be designed to withstand inundation (Impact 4.3-10). During operations, some GWR facilities (i.e., the Salinas Pump Station, Salinas Treatment Facility Storage and Recovery, Tembladero Slough, and Blanco Drain Diversion sites) may be exposed to flooding due to failure of a levee or dam. In addition, the Lake El Estero Source Water Diversion site may be exposed to sea level rise, and storm surges/tides related to climate change (Impact 4.3-11). Flooding due to failure of a levee or dam, sea level rise, or storm surges/tides would not pose a substantial risk of loss, injury, or death. Some of the cumulative projects identified in **Table 5-1** could have significant adverse effects related to flooding, tsunami, and sea level rise inundation. However, because the MPWSP Variant facilities, would not impede or redirect flood flows, be vulnerable to inundation, or expose people or structures to significant risk of loss, injury, or death from flooding, they would not contribute considerably to cumulatively significant effects associated with flooding, tsunami, and sea level rise (*less than significant*).

6.4.4 Groundwater Resources

The MPWSP Variant would have similar construction related impacts to groundwater resources when compared to the MPWSP. However, the impact associated with slant well construction would be less because there would be fewer wells, and the potential for degradation to water quality would be reduced. Therefore, the project variant would not result in a significant cumulative groundwater impact during construction.

As discussed in Chapter 5, Cumulative Impacts, the analysis of the MPWSP showed that no significant cumulative impacts to groundwater quality or quantity would occur from the operation of the Seawater Extraction Wells. In the SVGB, the groundwater response of slant well operation under the project variant would be less than under the proposed project. Groundwater modeling was conducted to evaluate the response of the project variant under cumulative conditions (Scenario 5f), which included land use assumptions for the year 2060 and the operation of the proposed Marina Coast Water District desalination wells. The model results showed an aquifer response that was similar to that of the MPWSP variant: a substantially smaller area of influence and cone of depression in both the Dune Sands Aquifer and 180-Foot Equivalent Aquifer when compared to that of the proposed project. Although similar, the project variant under cumulative conditions did show a slight increase in the modeled extent of the area of influence over that of the project variant under current conditions. That increase would likely be offset and diminished if the Salinas Valley Water Project Phase II (SVWP Phase II) were implemented. The effects of SVWP Phase II were evaluated by modeling and comparing the groundwater levels produced under SVWP Phase II conditions against those produced under Phase I conditions (Model Run 2f). Modeling results show that there is very little change, if any, after prolonged dry hydrologic

conditions (assumed in September 2027). Under the other hydrologic conditions, SVWP Phase II would tend to increase water levels in the Dune Sands Aquifer (+25 feet) and the 180-Foot Equivalent Aquifer (+45 feet) in the Salinas River Valley. Decreases in groundwater elevations adjacent to the Salinas River in the southeast would reach a maximum of -20 feet in the Dune Sand Aquifer and from -5 to -25 feet in the 180-Foot Equivalent Aquifer. The decreased water levels in the southeast model boundary area under SVWP Phase II would be caused by changes in SVWP water delivery amounts and locations.

Because the groundwater response in the Dune Sands Aquifer and the 180-Foot Equivalent Aquifer would be less pronounced under the MPWSP Variant than with the proposed project, the project variant would also not result in a significant cumulative impact to groundwater quality or quantity.

Cumulative effects of the project variant in the SGB were analyzed within the cumulative impacts analysis in the GWR EIR. For the GWR project cumulative analysis, HydroMetrics WRI analyzed the potential for cumulative groundwater impacts related to implementation of cumulative projects in the SGB, which considered and incorporated the MPWSP with a 6.4 mgd desalination plant as well as the GWR project plus cumulative projects.

HydroMetrics WRI used its calibrated groundwater model of the Seaside Groundwater Basin (HydroMetrics WRI, 2009) to estimate impacts from the cumulative projects over a 33-year modeling period, including 25 years of project variant operation. The following cumulative projects and conditions were included in the modeling:

- The MPWSP with a 6.4-mgd desalination plant (the MPWSP Variant),
- implementation of Aquifer Storage and Recovery injection and extraction wells in accordance with water rights to divert from the Carmel River system and system capacity,
- ongoing imposed reductions of groundwater pumping in accordance with the requirements of the Seaside Groundwater Basin adjudication, and
- other changes to recharge and extraction assumed by the Seaside Watermaster in their ongoing modeling efforts.

A predictive model incorporating reasonable future hydrologic conditions was developed for this impact analysis. The groundwater model was calibrated through 2008; therefore, the predictive model begins in 2009. The predictive model simulates a 33 year period: from 2009 through 2041. Simulated future Carmel River flows were based on historical flow records. The amount of Carmel River water available for winter injection into the Seaside Basin was estimated by MPWMD staff. MPWMD compared historical daily streamflows with minimum streamflow requirements for each day, and then identified how much water could be extracted from the Carmel River for injection into the ASR wells in the Seaside Basin each month.

CalAm provided average monthly projections of both the groundwater injection and groundwater pumping needed to meet its anticipated future demands for the project variant, which assumes implementation of the GWR facilities along with the MPWSP with a 6.4 mgd desalination plant. These projections were incorporated into the predictive model to the degree possible. Some

modifications to CalAm's projections were performed to compensate for anticipated pumping capacity shortfalls in specific future years. One additional modification to CalAm's projected groundwater pumping schedule was necessary to ensure adequate water would be available during a potential five-year drought. CalAm may need to suspend its planned groundwater repayment plan during three years of the five-year drought. This is a reasonable assumption, because all water purveyors are expected to fully use any available water supplies during a drought.

Model results show that Seaside Basin groundwater conditions (water levels, protective elevations at the coast, storage capacity, and recharge) with implementation of the cumulative projects would be the same or better than conditions without implementation of the cumulative projects. Groundwater elevations generally would be higher under the cumulative conditions than under the conditions without the cumulative projects. These higher groundwater levels would tend to slow or stop seawater intrusion. For these reasons, there would not be a significant cumulative impact on groundwater levels, recharge, or storage.

Assuming cumulative projects and required groundwater extraction changes are implemented in accordance with the Seaside Basin adjudication requirements, particle tracking was used to estimate the travel time for the proposed GWR purified recycled water from the point of recharge to the closest point of extraction. Particle tracking showed that the shortest travel time for any recharged GWR purified recycled water would be 334 days. Travel times of less than 12 months would occur for 10 years of the 25-year simulation period when the project variant is in operation. With these travel times, the project variant (when combined with the implementation of cumulative projects) would still be able to meet regulatory and statutory requirements established to protect human health. Analysis of the project variant demonstrates that it would have a beneficial impact on certain water quality conditions (total dissolved solids and chloride levels), and would not degrade water quality in the Seaside Basin related to other constituents. For these reasons, the project variant would not have a considerable contribution to a significant cumulative impact on groundwater quality.

6.4.5 Marine Biological Resources

The MPWSP Variant would have the same types of construction-related impacts on marine biological resources compared to the MPWSP. The overall amount of construction and surface disturbance near the ocean, where impacts on marine resources could occur, would be incrementally smaller under the MPWSP Variant because there would be fewer slant wells constructed. The GWR facilities would not be constructed in proximity to the ocean, and so would not affect marine resources during construction. Therefore, with respect to impacts on marine biological resources resulting from construction, the MPWSP Variant would have slightly reduced impacts resulting from suspension of beach sands in water and generation of noise from directional drilling compared to the MPWSP. For the same reasons described for the MPWSP, the MPWSP Variant's construction impacts on candidate, sensitive, or special-status marine species (Impact 4.5-1) and construction impacts on the movement of native resident or migratory fish or marine wildlife species (Impact 4.5-2) would not combine with those of the cumulative projects to cause a cumulatively significant impact on marine biological resources (*no impact*).

The MPWSP Variant could contribute to cumulative effects during operation, described below.

Because it would include fewer subsurface slant wells, the MPWSP Variant would have a reduced impact related to potential wildlife and/or fine organic matter impingement during intake of seawater compared to the MPWSP. Additionally, it would have a similarly less-than-significant impact on marine resources due to shear stress from discharge jets (Impacts 4.5-3 and 4.5-4). Like the MPWSP, the less-than-significant MPWSP Variant impacts related to impingement of marine organisms and/or fine organic matter and shear stress would be highly localized and none of the cumulative projects could cause similar impacts within the same area of seafloor, no cumulative impact would occur (*no impact*).

As described in Section 6.3.3, Marine Biological Resources, the discharge of brine, alone or mixed with the GWR effluent (blended discharge), treated wastewater (brine-with-wastewater), or both (combined discharge) could have an effect on special-status species that frequent the Marine Resources Study Area. The discharged brine, if concentrated enough, could also result in the loss of foraging habitat if the benthic infauna and macrofauna populations were to decline.

As described in the cumulative effects analysis for the MPWSP, the Test Slant Well Project would not produce effluent with a higher salinity than ocean water, and so it would not contribute to cumulative salinity increases. Additionally, discharges from the RUWAP Desalination Element, Sand City Coastal Desalination Project, and Deepwater Desal Projects would be located too far from the MRWPCA outfall to cause discharge plumes that would overlap with those of the MPWSP Variant discharges. Therefore, these projects would not combine with the effects of the MPWSP Variant to cause a significant cumulative impact from salinity on candidate, sensitive, or special-status species (Impact 4.5-3).

In addition to increased salinity, MPWSP Variant effluent discharges would contain PCBs, ammonia, chlordane, DDT, dioxins/furans (TCDD), and toxaphene. Because the MPWSP Variant would not increase the mass of PCBs in the ocean water and would not degrade the existing water quality of Monterey Bay as measured by PCB concentration, and because the MPWSP Variant would meet water quality objectives after implementation of **Mitigation Measure 4.3-4**, it would not contribute to a cumulative impact related to PCBs, and this impact is not discussed further (*no impact*). For the additional contaminants that would be present in discharges containing GWR effluent, the potential for the MPWSP Variant to contribute to a cumulative impact on marine resources is similar to the description above for increased salinity. The Test Slant Well Project would not produce effluent containing the above-listed constituents, and so it would not contribute to cumulative increases in the concentrations of these contaminants near the MPWSP Variant discharge point. Discharges from the RUWAP Desalination Element, Sand City Coastal Desalination Project, and Deepwater Desal Projects, while not expected to contain these contaminants, regardless would be located too far from the MRWPCA outfall to cause discharge plumes that would overlap with those of the MPWSP Variant discharges. Therefore, these projects would not combine with the effects of the MPWSP Variant to cause a significant cumulative impact from regulated contaminants on candidate, sensitive, or special-status species (Impact 4.5-3).

For the same reasons described in **Table 4.5-3** for the MPWSP, the MPWSP Variant would be consistent with the applicable sections of the California Coastal Act with respect to construction and operation-related disturbances and water quality impacts on marine organisms. Because as described above, the MPWSP Variant would not contribute to a significant cumulative impact on marine biological resources, it also would not contribute to a significant cumulative effect that would conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (Impact 4.5-5).

6.4.6 Terrestrial Biological Resources

With the exception of the subsurface slant wells under the project variant, the CalAm facilities would result in the same impacts to special-status plants and wildlife species as with the proposed project (Impact 4.6-1). At the subsurface slant well site, the total disturbance area would be reduced and there would be a corresponding reduction in impacts to special-status plant species at this site, Smith's blue butterfly, western snowy plover, black legless lizard, silvery legless lizard, and coast horned lizard.

The GWR facilities would have no impact on western snowy plover; therefore, the MPWSP Variant would have a reduced overall impact on western snowy plover compared to the MPWSP, and like the MPWSP would not contribute to a cumulatively significant effect on western snowy plover (*less than significant*).

Like the CalAm facilities, construction of the GWR facilities would affect non-native grassland, central maritime chaparral, oak woodland, central dune scrub, and riparian woodland and scrub (Impacts 4.6-1 and 4.6-2). Impacts on these sensitive habitat communities could affect special-status species reliant on these habitats. As described for the MPWSP, the effects of the CalAm facilities would be reduced to less-than-significant levels through implementation of mitigation measures. The effects of the GWR facilities also would be reduced to a less-than-significant level through implementation of mitigation measures for that project (see Table 6-7). Due to the increase in construction locations associated with the MPWSP Variant compared to the MPWSP, the residual effects of the MPWSP Variant on these habitats may be incrementally greater than those of the MPWSP. As identified in the cumulative analysis for the MPWSP, several cumulative projects could affect the same sensitive habitat communities, creating a potentially significant cumulative impact on sensitive habitat communities and associated special-status species through vegetation trimming or removal, elevated noise and dust levels, and increased human presence. Most MPWSP Variant effects would be limited to the 30-month construction phase, with restoration of temporarily disturbed areas to previous conditions or better at the end of construction. Permanent impacts on sensitive habitat communities and associated special-status species would be compensated for as described in **Mitigation Measure 4.6-2a** and GWR Mitigation Measure BT-1f. Given the limited extent of effects at any given MPWSP Variant component site, the prevalence of such habitats within the geographic scope of analysis relative to the areas of MPWSP Variant effect, and the nearby availability of such habitats for use by species displaced during the construction period, the MPWSP Variant's incremental contribution to

cumulative effects on sensitive natural communities, including riparian habitat, would not be cumulatively considerable (*less than significant*).

Like the CalAm facilities, temporary impacts to federal wetlands, federal other waters, and/or waters of the state could occur during construction and operation of the GWR facilities, and impacts would be reduced to less-than-significant levels with implementation of project-specific mitigation measures (Impacts 4.6-3 and 4.6-7). Due to the increase in construction and maintenance locations associated with the MPWSP Variant compared to the MPWSP, the residual effects of the MPWSP Variant on these habitats may be incrementally greater than those of the MPWSP. As identified in the cumulative analysis for the MPWSP, several cumulative projects could affect wetlands. Concurrent construction and/or operation of these projects could result in cumulatively significant impacts on these resources through wetlands fill or draining and increased human presence. However, given that the MPWSP Variant's residual effects on federal wetlands, federal other waters, and/or waters of the state would be similar to those of the MPWSP, as described for the MPWSP, the MPWSP Variant's incremental contribution would not be cumulatively considerable (*less than significant*).

The MPWSP Variant would have the same less-than-significant residual impact related to conflicting with local tree ordinances as the MPWSP (Impact 4.6-4), and because, like the MPWSP, the MPWSP Variant would comply with these ordinances, it would not have a cumulatively considerable contribution to a significant cumulative effect (*less than significant*).

Similarly, like the MPWSP, the MPWSP Variant would be required to comply with applicable provisions of the applicable habitat management plan (Impact 4.6-8). Therefore, the effects of the MPWSP Variant regarding conflicts with an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan would not be cumulatively considerable (*less than significant)*.

6.4.7 Hazards and Hazardous Materials

The MPWSP Variant would have a similar potential to create hazards through the routine transport, use, and disposal of hazardous materials, or to release hazardous materials into the environment, including within 0.25 mile of a school, though it would result in an overall increase in the number of sites upon which hazardous materials would be used during construction compared to the MPWSP, incrementally increasing the risk of such hazards (Impacts 4.7-1 through 4.7-4, 4.7-6, and 4.7-7). However, for the same reasons described for the MPWSP, any potential for exposure to hazardous materials would be contained within the project sites, and spills would be cleaned up promptly, using methods and to standards that would reduce residual contamination to levels below established numeric action levels and prevent the potential for migration to surface or groundwaters. Therefore, the residual less-than-significant effects of the MPWSP Variant that would remain after mitigation would not combine with those potential residual effects of cumulative projects to cause a potential cumulatively significant effect.

The MPWSP Variant also would have a similar impact on increasing the risk of wildfire compared to the MPWSP (Impact 4.7-5), though it would result in an overall increase in the number of sites within high or very high fire hazard zones. As described for the MPWSP,

although several other projects nearby would be located within the same Very High Fire Hazard Zone as components of the MPWSP Variant, all projects' compliance with CAL FIRE's fire prevention regulations would reduce the potential for a cumulatively significant impact with respect to substantial increase in wildfire risk, and the MPWSP Variant's contribution would not be cumulatively considerable (*less than significant*).

Like the MPWSP, the MPWSP Variant proposes no aboveground structures within the Monterey Peninsula Airport's Primary Planning Area, and aboveground facilities proposed within the Secondary Planning Area would be consistent with height, location, and use limitations for this area. As described for the MPWSP, although several other projects nearby would be located within the airport land use plan areas for the Monterey Peninsula and Marina airports, all projects' compliance with the applicable provisions of airport land use plans would reduce the potential for a cumulatively significant impact with respect to safety hazards within and airport land use plan area, and the MPWSP Variant's contribution would not be cumulatively considerable (*less than significant*).

6.4.8 Land Use, Land Use Planning, and Recreation

The MPWSP Variant would not divide an established community; therefore, it could not cause or contribute to any cumulative impact related to this issue. The facilities of the project variant would only temporarily disrupt use of and/or access to recreational facilities within the project area during construction and none of the facilities would result in a long-term impact to recreation facilities or access. Therefore, it would have the same potential to contribute to a cumulative impact as the MPWSP (*no impact*).

6.4.9 Traffic and Transportation

The MPWSP Variant's construction-related traffic impacts would be similar to those of the MPWSP (Impacts 4.9-1 through 4.9-7). Like the MPWSP, given the size of the MPWSP Variant, along with the number of cumulative projects and uncertainty regarding cumulative project construction timing, the residual MPWSP Variant transportation impacts could still contribute substantially to cumulative local and regional traffic and roadway capacity disruptions, a cumulatively significant impact. **Mitigation Measure 4.9-C.1** would apply to the CalAm facilities under the MPWSP Variant to further reduce its incremental contribution to below a cumulatively considerable level. However, implementation of all aspects of this measure cannot be guaranteed, and the MPWSP Variant's incremental contribution to potentially significant cumulative effects would remain cumulatively considerable if not fully implemented (*significant and unavoidable with mitigation incorporated*).

The MPWSP Variant's increased operational trips would result in a greater contribution to a cumulative impact than the MPWSP (Impact 4.9-8); however, for the same reasons described for the MPWSP, this incremental contribution to operations-related traffic would not cause a cumulatively significant impact (*less than significant*).

6.4.10 Air Quality

After implementation of mitigation, the MPWSP Variant would have a significant and unavoidable impact associated with short-term emissions of criteria air pollutants (Impact 4.10-1). The air quality construction threshold established by Monterey Bay Unified Air Pollution Control District (MBUAPCD) was designed for the North Central Coast Air Basin and is intended to address the incremental contributions of individual projects on the quality of the air basin as a whole, and conformance with the MBUAPCD threshold would ensure that an individual project would not have a cumulatively considerable impact with respect to overall air quality within the air basin. However, because the MPWSP Variant's incremental contribution of construction-related PM_{10} emissions would exceed this threshold, it would have a cumulatively considerable contribution to a cumulatively significant impact. No further feasible mitigation is available to reduce the MPWSP Variant's total combined maximum day emissions to below 82 pounds (*significant and unavoidable*).

Although the MPWSP Variant would increase the potential exposure of sensitive receptors to diesel particulate matter (DPM) during construction, these emissions would be temporary (Impact 4.10-2). Other nearby projects also would generate DPM emissions. As described for the MPWSP, however, no cumulatively significant impact would be expected due to the temporary nature of these emissions. Also, like the MPWSP, the MPWSP Variant would create odors associated with diesel emissions. However, due to the temporary nature and rapid dissipation of these odors, no cumulatively significant effect related to odors would be expected (*less than significant*).

Pursuant to MBUAPCD CEQA Guidelines, a project's operational emissions would have a significant cumulative impact if they exceed adopted significance thresholds. The MPWSP Variant would have reduced operational emissions compared to the MPWSP due to the smaller size of the required emergency generator, and operational NOx emissions would not exceed the 137 pound per day threshold (Impact 4.10-3). Therefore, the emissions generated by MPWSP Variant operations would not be cumulatively considerable and the MPWSP Variant's incremental contribution to the cumulative impact would not be significant (*less than significant*).

The MPWSP Variant's operational DPM emissions and related odors from emergency generators would be negligible and intermittent, and would not exceed the MBUAPCD significance threshold for increased health risks (Impact 4.10-4). Therefore, MPWSP Variant operational impacts on sensitive receptors would not be cumulatively considerable and the MPWSP Variant's incremental contribution to the cumulative impact would not be significant (*less than significant*).

6.4.11 Greenhouse Gas Emissions

As described for the MPWSP, because GHG emissions have global climate change implications, the evaluation of GHG emissions impacts is inherently a cumulative impact analysis. Although they would be reduced compared to the MPWSP, the MPWSP Variant's annual greenhouse gas emissions would exceed the 2,000 metric tons per year significance threshold, indicating that the MPWSP Variant may not be consistent with the GHG emission reduction goals for year 2020 identified in Executive Order S-3-05 and AB 32 (Impacts 4.11-1 through 4.11-3). Mitigation

would reduce these emissions, but the CPUC cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, with mitigation incorporated, the MPWSP Variant's contribution to a cumulatively significant impact relative to the generation of GHG emissions that would conflict with the goals and policies set forth in S-3-05 and Assembly Bill 32 would remain cumulatively considerable (*significant and unavoidable*).

6.4.12 Noise and Vibration

The MPWSP Variant would have a significant and unavoidable impact related to nighttime construction noise associated with the Monterey Pipeline, drilling and development of the ASR-5 and ASR-6 wells, and the Injection Well Facility sites, even with implementation of mitigation measures (Impact 4.12-1).Additionally, the MPWSP Variant would have a significant and unavoidable impact related to exposing people to or generating noise levels in excess of established standards associated with construction at the Tembladero Slough Diversion site (GWR facilities) (Impact 4.12-2). Other components would result in less-than-significant noise impacts (during both day and night) after the implementation of mitigation (Impacts 4.12-1 and 4.12-4). Like the MPWSP, the only cumulative projects that would be within 500 feet of proposed MPWSP Variant facilities and would be under construction concurrently, and thus could contribute to cumulative construction noise impacts, would be located along proposed pipeline alignments. As for the MPWSP, the MPWSP Variant pipeline construction would proceed at a rate of approximately 150 to 250 feet per day, limiting the potential window of time for a noticeable concurrent construction noise impact to occur at any given receptor to less than a week. Given this limited duration of potential concurrent activity (not exceeding the two-week significance threshold for daytime noise), no cumulatively significant daytime noise impact would be expected (*less than significant*). However, it is conservatively assumed that the potential exists for residual MPWSP Variant pipeline construction noise to combine with that of one or more of the five cumulative projects identified in Section 5.2.11 to cause nighttime noise levels to exceed the sleep interference threshold. As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact. No additional mitigation within the scope of this EIR is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, MPWSP Variant nighttime construction noise could contribute considerably to a cumulatively significant effect (*significant and unavoidable*).

Like the MPWSP, the MPWSP Variant would have significant project-level construction vibration impacts from operation of roller/compactors and sheet pile drivers during pipeline installation that would be reduced to a less-than-significant level through implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** (Impact 4.12-3). In addition to reducing project-level vibration impacts, this mitigation measure includes required monitoring that would also capture vibration contributed by the six cumulative projects identified as potential contributors to a cumulative vibration impact, should the timing and location of construction overlap, and allow the MPWSP Variant construction to respond accordingly (i.e., use smaller equipment, adjust equipment operations, alternate construction methods) to avoid significant vibratory effects. Consequently, no cumulatively significant construction-related vibration impacts would result (*less than significant*).

Among the GWR facilities, the Salinas Treatment Facility and all diversion sites except the Salinas Pump Station Diversion site would include operational noise sources. The operational noise impacts at these locations would be less than significant. No cumulative projects would be located in proximity to these facilities such that their long-term noise impacts could combine to cause or contribute to a significant cumulative noise impact. The contribution of the CalAm facilities to cumulative long-term noise impacts would be as described for the MPWSP (Impacts 4.12-5 and 4.12-6). Therefore, the MPWSP Variant's operational noise would not cause a considerable contribution to a cumulatively significant noise impact (*no impact*).

None of the MPWSP Variant components would generation operational vibration. Therefore, the MPWSP Variant would not cause a considerable contribution to a cumulatively significant operational vibration impact (*no impact).*

6.4.13 Public Services and Utilities

Like the MPWSP, the MPWSP Variant would have no impact on public services. Accordingly, it would not cause or contribute to cumulative impacts related to public services.

The MPWSP Variant would have a similar potential to that of the MPWSP to damage or disrupt existing water, sewer, stormwater drainage, natural gas, electric, or communication lines, or to necessitate the relocation of utilities (Impact 4.13-1), though because there would be more construction sites under the MPWSP Variant, the potential may be somewhat greater than under the MPWSP. Implementation of mitigation and standard protocols would reduce the project-level impact to less than significant. As described for the MPWSP, most potential effects would be related to pipeline construction. Given the rate of pipeline installation (150 to 250 feet per day), MPWSP Variant construction activities having the potential to disrupt utility service would not occur in the vicinity of other cumulative projects for extended periods of time such that prolonged or frequent disruption of service would occur in the vicinity (or utility service subarea) of cumulative projects with potential to cause similar effects. Therefore, the MPWSP Variant's residual effects would be minimal and would not be expected to contribute considerably to cumulative utility service impacts (*less than significant*).

Like the MPWSP, the CalAm facilities under the MPWSP Variant would be subject to mitigation requiring the diversion of 50 to 100 percent of construction materials from local landfills (Impact 4.13-2). Additionally, the GWR facilities would be subject to similar mitigation (GWR Mitigation Measure PS-3). With implementation of these measures, the MPWSP Variant would comply with State mandates for diversion of construction wastes. Thus, like the MPWSP, the MPWSP Variant would not contribute considerably to a cumulatively significant effect on landfill capacity (*less than significant*).

Because the MPWSP Variant desalination plant would have a reduced capacity compared to the MPWSP, it would produce less residual solid waste from the desalination process (approximately two thirds that of the MPWSP; Impact 4.13-3). Thus, like the MPWSP, its incremental impact on daily and total capacity at the Monterey Peninsula Landfill also would not contribute considerably to a cumulatively significant impact. Operation of the GWR facilities would produce minimal solid waste associated with minor servicing, replacement parts, and basic

facility maintenance that would not result in an impact on landfill capacity or be out of compliance with regulations related to solid waste (*less than significant*).

Similar to the MPWSP, implementation of mitigation measures to protect and repair, as needed, the MRWPCA ocean outfall would protect the outfall under the MPWSP Variant (Impact 4.13-5). Although discharges under the MPWSP Variant would differ from the MPWSP discharges as described in Section 6.3.1, Surface Water Hydrology and Water Quality, the incremental contribution of the MPWSP Variant to a cumulative impact related to corrosion of the MRWPCA ocean outfall would be similar to that of the MPWSP because some discharges would have high salinity concentrations. The RUWAP projects (Nos. 31 and 35) could increase the proportion of effluent being discharged through the outfall that is composed of brine. However, because cumulative brine concentrations would not be substantially different from that of MPWSP Variant operations alone, and because protections would be in place as a result of the MPWSP Variant's mitigation measures, a cumulatively significant impact related to outfall or diffuser corrosion would not occur (*less than significant*).

The MPWSP Variant would have a similar impact to the MPWSP with respect to exceeding the capacity of the ocean outfall because, like the MPWSP, it includes the construction and operation of a 3-million-gallon brine storage and disposal system. In the event that the MPWSP Variant brine stream, when combined with instantaneous peak flows of wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant and the RUWAP Desalination Element brine stream, were to exceed the capacity of the outfall and diffuser during large storm events, CalAm would detain the MPWSP Variant brine stream at the proposed brine storage basin until sufficient capacity is available in the outfall for discharge. The proposed brine storage basin has sufficient capacity to detain flows from more than 5 hours of MPWSP Variant desalination plant operations. With detention, the MPWSP Variant effluent would not substantially contribute to outfall capacity constraints. The residual effect of the MPWSP Variant effluent on ocean outfall capacity impacts would not be cumulatively considerable (*less than significant*).

6.4.14 Aesthetic Resources

During MPWSP Variant construction, no additional cumulative projects would be under construction and visible from the same vantage points as the CalAm and GWR facilities' construction sites as compared to those described for the MPWSP. Therefore, the cumulative impacts of construction, and the MPWSP Variant's incremental contribution, would be as described for the MPWSP (*less than significant*).

The Salinas Pump Station Diversion site would include the aboveground installation of small control systems and fencing; this area would be 0.3 miles from the nearest public road and none of the cumulative projects would be near this site. Similarly, while the small aboveground improvements at the Reclamation Ditch Diversion site could be visible from Davis Road, and those at the Tembladero Slough Diversion site could be visible from Highway 1 in Castroville, none of the cumulative projects are located near these sites or along Davis Road or this portion of Highway 1. At the Salinas Treatment Facility, aboveground pump station structures would be low in profile. The nearest cumulative project, the East Garrison Specific Plan project (No. 2), is approximately 0.70 mile from the Salinas Treatment Facility, and these components would not be

visible from the same vantage points due to the flat topography and intervening vegetation along the Salinas River. At the Blanco Drain Diversion site, the new pump station similarly would be low in profile and screened from views that may include any other cumulative projects. Improvements at the Lake El Estero Diversion site would be underground or within existing structures. Permanent GWR facilities at the Regional Wastewater Treatment Plant would not be visible from areas accessible to the public, and all other GWR facilities would be underground. Therefore, the GWR facilities would not contribute to cumulative impacts on the scenic resources or the visual character or quality of the project area and its surroundings. The CalAm facilities would have the same aesthetic impacts described for the MPWSP. Therefore, the MPWSP Variant's cumulative impacts on scenic resources and visual character and quality would be as described for the MPWSP.

Nighttime security lighting for the CalAm facilities would be as described for the MPWSP, reduced to a less-than-significant level through implementation of mitigation. Therefore, cumulative impacts for the CalAm facilities would be as described for the MPWSP. Some GWR facilities (the Treatment Facilities at the Regional Plant, the Product Water Conveyance Booster Pump Station (either RUWAP or Coastal option), and the Injection Well Facilities) would require exterior night lighting, the effects of which would be reduced to less than significant by implementation of GWR Project-specific mitigation. The Coastal pump station option would be located immediately adjacent to the Main Gate Specific Plan area of the Fort Ord Reuse Plan (No. 18), which is proposed for mixed-use development. Combined, the Main Gate Specific Plan and Coastal pump station option may result in a cumulatively significant new source of nighttime lighting; however, the contribution of minimal safety lighting for the Coastal pump station would not be cumulatively considerable. Similarly, the RUWAP pump station option would be located near the CSUMB North Campus Housing Master Plan area (No. 13), but would not have a cumulatively considerable contribution to a cumulatively significant new source of nighttime lighting. New lighting at the Regional Wastewater Treatment Plant would not be perceptible from areas accessible to the public. The Injection Well Facilities would be located near the existing Seaside Groundwater Basin Phase I and Phase II ASR facilities (Nos. 29 and 30) and these projects' minimal nighttime lighting after mitigation could combine, but would not result in a cumulatively significant new source of nighttime light that would be visible from residences or other areas accessible to the public.

6.4.15 Cultural and Paleontological Resources

The MPWSP Variant would not require new disturbance of previously undisturbed lands during operation. Therefore, it would not contribute to potential cumulative impacts on cultural and paleontological resources during the operation phase.

The MPWSP Variant would cause the same potential vibration-related impact on historic properties within the Monterey Old Town Historic District (Impact 4.15-1). The addition of the Lake El Estero Diversion facility as part of the GWR facilities would not introduce construction vibration close enough to the Historic District to increase potential cumulative construction vibration impacts on these properties, and no cumulatively significant effect on architectural resources would occur during construction (*less than significant*).

Similar to the MPWSP, excavation associated with the MPWSP Variant could result in a less than significant impact to known and previously unrecorded archaeological resources and/or human remains following the implementation of recommended mitigation measures for both the CalAm and GWR facilities (Impacts 4.15-2 and 4.15-4). All of the cumulative projects may have a similar potential impact to known and previously unrecorded archaeological resources and/or human remains. However, because each project's potential impacts would be site-specific, they could not overlap to combine with those of the MPWSP Variant and no significant cumulative effect would result (*less than significant*).

The MPWSP Variant could result in a direct or indirect effect to paleontological resources located within the Monterey Formation during excavation or other ground disturbing activities (Impact 4.15-3). The incremental impacts of the MPWSP Variant could combine with those of the Laguna Seca Villas (No. 3), 459 Alvarado Street (No. 20), and Rancho Canada Village and Golf Club (Nos. 27 and 28); which are the only cumulative projects that could affect the Monterey Formation. Ground disturbance associated with the cumulative projects could result in a cumulatively significant impact due to damage or destruction of a unique paleontological resource. However, the MPWSP Variant would not be expected to contribute considerably to such an effect because the components proposed for the Monterey Formation, both for CalAm and GWR facilities, would occur within previously-disturbed rights-of-way. Therefore, the MPWSP Variant's incremental contribution to potentially significant cumulative paleontological resources impacts would not be cumulatively considerable (*less than significant*).

6.4.16 Agriculture and Forestry Resources

Like the MPWSP, there are no forest resources or timberland that could be adversely affected by the MPWSP Variant. Because the MPWSP Variant would result in no impact to forest land or timberland resources, it could not cause or contribute to any potential cumulative effect to such resources.

The GWR facilities would not affect properties under a Williamson Act contract. While some of the GWR facilities would be located within land zoned for agriculture, the proposed facilities are allowable uses within these zones, and disturbance of farmland would be temporary, as these facilities would be underground and the land would be restored after construction such that agricultural uses could resume. The effects of the CalAm facilities would be similar to those described for the MPWSP (Impacts 4.16-1 through 4.16-3). Therefore, the contribution of the MPWSP Variant to cumulative impact on agriculture would be similar to that of the MPWSP. The MPWSP Variant would not have a cumulatively considerable contribution to a significant cumulative impact related to conversion of farmland or local zoning conflicts (*less than significant*).

6.4.17 Mineral Resources

The MPWSP Variant would have similar less-than-significant impacts on mineral resources to those described for the MPWSP; the reduction in slant wells would not substantially decrease the impacts of the CalAm facilities on mineral resources, and the addition of the GWR facilities would not substantially increase impacts on mineral resources. The MPWSP Variant's temporary

impacts on CEMEX mining operations would not combine with the effects of other projects to further disrupt mining activities at the CEMEX facility, which is the only active mining operation in coastal Northern Monterey County. Although the MPWSP Variant and most of the cumulative projects would preclude the use of the developed lands within the Mineral Resource Zone (MRZ) 2 designation for sand, gravel, and stone mining for the duration of these cumulative projects' lifetimes, given the total amount of remaining undeveloped land within the MRZ-2, the overall effect would not be substantial. Therefore, as described for the MPWSP, the MPWSP Variant would not have a cumulatively considerable contribution to a cumulatively significant impact during construction or operation (*less than significant*).

6.4.18 Energy Conservation

The CalAm facilities under the MPWSP Variant would require incrementally less energy consumption than the MPWSP during both construction and operation due to the reduced number of slant wells and the smaller size of the desalination plant. However, additional energy consumption would occur as a result of the construction and operation of the GWR facilities. Regardless, for the same reasons described for the MPWSP, the MPWSP Variant would not conflict with energy standards or require or result in the construction of new electrical generation and/or transmission facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects. Therefore, it could not contribute to a cumulative impact related to these criteria (*no impact*).

Further, after implementation of energy efficiency mitigation measures, MPWSP Variant construction and operation would not use fuel or electricity in an unnecessary, wasteful, or inefficient manner (Impacts 4.18-1 and 4.18-2). Because the MPWSP Variant would not result in such unnecessary, wasteful, or inefficient use of energy resources, it could not contribute to a cumulative unnecessary, wasteful, or inefficient use of energy (*less than significant*).

The electrical load demands of the CalAm facilities under the MPWSP Variant would be smaller than those of the MPWSP, and thus like the MPWSP, can be met with the existing available capacity (Impact 4.18-3). The additional operational electrical load demands of the GWR facilities also could be met by existing PG&E capacity. The MPWSP Variant and related cumulative projects would create additional demands on electricity and natural gas supplies and distribution infrastructure. However, this type of load growth is part of PG&E's required planning process to ensure adequate delivery capacity is available. As described for the MPWSP, the combined effects of the MPWSP Variant and cumulative projects would not be substantial, and MPWSP Variant operation would not be expected to contribute to a cumulatively significant energy conservation impact (*less than significant*).

6.4.19 Population and Housing

Like the MPWSP, the MPWSP Variant would have no impact related to displacing housing units or people, necessitating construction of replacement housing elsewhere. Therefore, it could not cause or contribute to any cumulative effect related to the construction of replacement housing (*no impact*).

Temporary and long-term employment for construction and operation of the CalAm facilities under the MPWSP Variant would be substantially similar to that of the MPWSP (Impact 4.19-1). Construction of the GWR facilities would require approximately 100 workers, expected to be drawn from the regional labor pool. As described for the MPWSP, given the availability of workers regionally, the combined impacts of the MPWSP Variant construction and cumulative projects on population and housing would not be expected to result in a cumulatively significant impact (*less than significant*). During operation, the GWR facilities would require up to nine new permanent employees. Even if all were to relocate to the region, this would represent a negligible portion of countywide employment. Given the small number of personnel required to operate and maintain the MPWSP Variant, and the availability of personnel and housing in the region, the effects of the MPWSP Variant would not contribute to a cumulatively significant population and housing impact (*less than significant*).

The potential for the MPWSP Variant to indirectly induce population growth by removing an obstacle to growth, and cumulative impacts related to such growth inducement, are addressed in Chapter 8, Growth-Inducement Potential and Secondary Effects of Growth.

The potential for the MPWSP to indirectly induce population growth by removing an obstacle to growth, are addressed in Chapter 8 Growth-Inducement Potential and Secondary Effects of Growth. As noted above, the MPWSP would not *directly* contribute to the creation of additional housing or jobs within the area it serves as it is limited construction and operation of water supply facilities and infrastructure. However, the proposed project would *indirectly* support growth by removing, to some extent, water supply limitations as an obstacle to growth, thereby enabling a degree of growth under the approved general plans within the area served by the MPWSP. The project-specific growth effect would be significant and unavoidable.

Several of the cumulative projects identified in **Table 5-1** would also provide new sources of water to the region (i.e., Cumulative Projects Nos. 24, 31, 33, 34, 35, 48). Given the cost and regulatory hurdles associated with such water projects, and because demand for additional water supplies is not unlimited, it is unlikely and even speculative that all such projects would be constructed. However, given that each is proposed, this analysis briefly considers the possibility that the cumulative water projects referenced above would be constructed.

Development of cumulative water projects would satisfy present and near-term future demand for water supply, further removing limitations to growth in the region. In addition, such an increase could support a level and rate of growth beyond that anticipated and planned for by local governments in their general plans. Correspondingly, such growth could implicate environmental effects in areas such as visual resources, biological resources, air quality, cultural resources, traffic and transportation, public services, and others. The types of resultant effects would be similar to and beyond those presented in **Table 8-8**, Impacts Associated with Planned Growth in the Project Area. The effect would be cumulatively significant and unavoidable. And given the size and regional significance of the MPWSP, its contribution to such growth impacts would be cumulatively considerable (*significant and unavoidable*).

6.5 Additional Mitigation Measures for GWR Facilities

In addition to the mitigation measures identified in this EIR in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, the GWR facilities of the MPWSP Variant would also require implementation of the following additional mitigation measures. The following mitigation measures have been extracted from the Pure Water Monterey GWR Draft EIR (MRWPCA, 2015), they are numbered here consistent with the GWR Draft EIR, they apply to the GWR facilities of the MPWSP Variant, and are included in **Tables 6-7** and **6-8** and in Section 6.3, above

6.5.1 Surface Water Hydrology and Water Quality

Mitigation Measure HS-4 applies to Reclamation Ditch Diversion.

Mitigation Measure HS-4: Management of Surface Water Diversion Operations.

Rapid, imposed water-level fluctuations shall be avoided when operating the Reclamation Ditch Diversion pumps to minimize erosion and failure of exposed (or unvegetated), susceptible banks. This can be accomplished by operating the pumps at an appropriate flow rate, in conjunction with commencing operation of the pumps only when suitable water levels or flow rates are measured in the water body. Proper control shall be implemented to ensure that mobilized sediment would not impair downstream habitat values and to prevent adverse impacts due to water/soil interface adjacent to the Reclamation Ditch and Tembladero Slough.

6.5.2 Terrestrial Biological Resources and Non-Marine Fisheries

Mitigation Measure BT-1a applies to all GWR facilities.

Mitigation Measure BT-1a: Implement Construction Best Management Practices.

The following best management practices shall be implemented during all identified phases of construction (i.e., pre-, during, and post-) to reduce impacts to special-status plant and wildlife species:

1. A qualified biologist must conduct an Employee Education Program for the construction crew prior to any construction activities. A qualified biologist must meet with the construction crew at the onset of construction at the site to educate the construction crew on the following: 1) the appropriate access route(s) in and out of the construction area and review project boundaries; 2) how a biological monitor will examine the area and agree upon a method which would ensure the safety of the monitor during such activities, 3) the special-status species that may be present; 4) the specific mitigation measures that will be incorporated into the construction effort; 5) the general provisions and protections afforded by the USFWS and CDFW; and 6) the proper procedures if a special-status species is encountered within the site.
2. Trees and vegetation not planned for removal or trimming shall be protected prior to and during construction to the maximum extent possible through the use of exclusionary fencing, such as hay bales for herbaceous and shrubby vegetation, and

protective wood barriers for trees. Only certified weed-free straw shall be used, to avoid the introduction of non-native, invasive species. A biological monitor shall supervise the installation of protective fencing and monitor at least once per week until construction is complete to ensure that the protective fencing remains intact.

3. Protective fencing shall be placed prior to and during construction to keep construction equipment and personnel from impacting vegetation outside of work limits. A biological monitor shall supervise the installation of protective fencing and monitor at least once per week until construction is complete to ensure that the protective fencing remains intact.

4. Following construction, disturbed areas shall be restored to pre-construction contours to the maximum extent possible and revegetated using locally-occurring native species and native erosion control seed mix, per the recommendations of a qualified biologist.

5. Grading, excavating, and other activities that involve substantial soil disturbance shall be planned and carried out in consultation with a qualified hydrologist, engineer, or erosion control specialist, and shall utilize standard erosion control techniques to minimize erosion and sedimentation to native vegetation (pre-, during, and post-construction).

6. No firearms shall be allowed on the construction sites at any time.

7. All food-related and other trash shall be disposed of in closed containers and removed from the project area at least once a week during the construction period, or more often if trash is attracting avian or mammalian predators. Construction personnel shall not feed or otherwise attract wildlife to the area.

Mitigation Measure BT-1b applies to the Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Project Water Conveyance: RUWAP and Coastal Pipeline Alignment Options, and Injection Well Facilities.

Mitigation Measure BT-1b: Implement Construction-Phase Monitoring.

The project proponents shall retain a qualified biologist to monitor all ground disturbing construction activities (i.e., vegetation removal, grading, excavation, or similar activities) to protect any special-status species encountered. Any handling and relocation protocols of special-status wildlife species shall be determined in coordination with CDFW prior to any ground disturbing activities, and conducted by a qualified biologist with appropriate scientific collection permit. After ground disturbing project activities are complete, the qualified biologist shall train an individual from the construction crew to act as the on-site construction biological monitor. The construction biological monitor shall be the contact for any special-status wildlife species encounters, shall conduct daily inspections of equipment and materials stored on site and any holes or trenches prior to the commencement of work, and shall ensure that all installed fencing stays in place throughout the construction period. The qualified biologist shall then conduct regular scheduled and unscheduled visits to ensure the construction biological monitor is satisfactorily implementing all appropriate mitigation protocols. Both the qualified biologist and the construction biological monitor shall have the authority to stop and/or redirect project activities to ensure protection of resources and compliance with all environmental permits and conditions of the project. The qualified biologist and the construction monitor shall complete a daily log summarizing activities and environmental

compliance throughout the duration of the project. The log shall also include any special-status wildlife species observed and relocated.

Mitigation Measure BT-1c applies to all GWR facilities.

Mitigation Measure BT-1c: Implement Non-Native, Invasive Species Controls.

The following measures shall be implemented to reduce the introduction and spread of non-native, invasive species:

1. Any landscaping or replanting required for the project shall not use species listed as noxious by the California Department of Food and Agriculture (CDFA).
2. Bare and disturbed soil shall be landscaped with CDFA recommended seed mix or plantings from locally adopted species to preclude the invasion on noxious weeds in the Project Study Area.
3. Construction equipment shall be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds, before mobilizing to arrive at the construction site and before leaving the construction site.
4. All non-native, invasive plant species shall be removed from disturbed areas prior to replanting.

Mitigation Measure BT-1d applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities.

Mitigation Measure BT-1d: Conduct Pre-Construction Surveys for California Legless Lizard.

The project proponents shall retain a qualified biologist to prepare and implement a legless lizard management plan in coordination with CDFW, which shall include, but is not limited to, the protocols for pre-construction surveys, construction monitoring, and salvage and relocation. The management plan shall include, but is not limited to, the following:

Pre-Construction Surveys. Pre-construction surveys for legless lizards shall be conducted in all suitable habitat proposed for construction, ground disturbance, or staging. The qualified biologist shall hold or obtain a CDFW scientific collection permit for this species. The pre-construction surveys shall use a method called “high-grading.” The high grading method shall include surveying the habitat where legless lizards are most likely to be found, and the survey must occur under the conditions when legless lizards are most likely to be seen and captured (early morning, high soil moisture, overcast, etc.). The intensity of a continued search may then be adjusted, based on the results of the first survey in the best habitat.

A “three pass method” shall be used to locate and remove as many legless lizards as possible. A first pass shall locate as many legless lizards as possible, a second pass should locate fewer lizards than the first pass, and a third pass should locate fewer lizards than the second pass. All search passes shall be conducted in the early morning when legless lizards are easiest to capture. Vegetation may be removed by hand to facilitate hand raking and search efforts for legless lizards in the soil under brush. If lizards are found during the first

pass, an overnight period of no soil disturbance must occur before the second pass, and the same requirement shall be implemented after the second pass. If no lizards are found during the second pass, a third pass is not required. Installation of a barrier, in accordance with the three pass method, may be required if legless lizards are found at the limits of construction (project boundaries) and sufficient soft sand and vegetative cover are present to suspect additional lizards are in the immediate vicinity on the adjacent property. A barrier shall prevent movement of legless lizards into the property. All lizards discovered shall be handled according to the salvage procedures outlined below.

Construction Monitoring. Monitoring by a qualified biologist shall be ongoing during construction. The onsite monitor shall be present during all ground-disturbing construction activities. To facilitate the careful search for lizards during construction, vegetation may need to be removed. If removal by hand is impractical, equipment such as a chainsaw, string trimmer, or skid-steer may be used, if a monitor and crew are present. The task of the vegetation removal is to remove plants under the direction of the monitor, allowing the monitor to watch for legless lizards. After plants are removed, the monitor and crew shall search the exposed area for legless lizards. If legless lizards are found during pre-construction surveys or construction monitoring, the protocols for salvage and relocation identified below shall be followed. Upon completion of pre-construction surveys, construction monitoring, and any resulting salvage and relocation actions, a report shall be submitted to the CDFW. The CDFW must be notified at least 48 hours before any field activity begins.

Salvage and Relocation. Only experienced persons may capture or handle legless lizards. The monitor must demonstrate a basic understanding, knowledge, skill, and experience with this species and its habitat. Once captured, a lizard shall be placed in a lidded, vented box containing clean sand. Areas of moist and dry sand need to be present in the box. The boxes must be kept out of direct sunlight and protected from temperatures over 72°F. The sand must be kept at temperatures under 66°F. Ideal temperatures are closer to 60°F. On the same day as capture, the lizards shall be examined for injury and data recorded on location where found as well as length, color, age, and tail condition. Once data is recorded, lizards shall be relocated to appropriate habitat, as determined through coordination with the CDFW, qualified biologist, and potential landowners.

Suitability of habitat for lizard release must be evaluated and presented in a management plan. The habitat must contain habitat factors most important to the health and survival of the species such as appropriate habitat based on soils, vegetated cover, native plant species providing cover, plant litter layer and depth, soil and ambient temperature, quality and composition of invertebrate population and prey availability. Potential relocation sites that contain the necessary conditions may exist within the habitat reserves on the former Fort Ord, including the Fort Ord National Monument. Lizards shall be marked with a unique tag (pit or tattoo) prior to release. Release for every lizard shall be recorded with GPS. GPS locations shall be submitted as part of the survey result report to document the number and locations of lizards relocated.

Mitigation Measure BT-1e applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities; does not apply to HMP species within the former Fort Ord.

Mitigation Measure BT-1e: Prepare and Implement Rare Plant Restoration Plan to Mitigate Impacts to Sandmat Manzanita, Monterey Ceanothus, Monterey Spineflower, Eastwood's Goldenbush, Coast Wallflower, and Kellogg's Horkelia.

Impacts to species individuals shall be avoided through project design and modification, to the extent feasible while taking into consideration other site and engineering constraints. If avoidance is not possible, the species shall be replaced at a 1:1 ratio for area of impact through preservation, restoration, or combination of both. A Rare Plant Restoration Plan, approved by the lead agency prior to commencing construction on the component site upon which the rare plant species would be impacted, shall be prepared and implemented by a qualified biologist. The plan shall include, but is not limited to, the following:

a. A detailed description of on-site and/or off-site mitigation areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, including, if appropriate, increased planting ratio to ensure the applicable success ratio. Specifically, seed shall be collected from the on-site individuals that would be impacted and grown in a local greenhouse, and then transplanted within the mitigation area. Plants shall be transplanted while they are young seedlings in order to develop a good root system. Alternatively, the mitigation area may be broadcast seeded in fall; however, if this method is used, some seed shall be retained in the event that the seeding fails to produce viable plants and contingency measures need to be employed.

b. A description of a 3-year monitoring program, including specific methods of vegetation monitoring, data collection and analysis, restoration goals and objectives, success criteria, adaptive management if the criteria are not met, reporting protocols, and a funding mechanism.

The mitigation area shall be preserved in perpetuity through a conservation easement or other legally enforceable land preservation agreement. Exclusionary fencing shall be installed around the mitigation area to prevent disturbance until success criteria have been met.

Mitigation Measure BT-1f applies to the Product Water Conveyance: Coastal Alignment Option and non-HMP species at the Injection Well Facilities site.

Mitigation Measure BT-1f: Conduct Pre-Construction Protocol-Level Botanical Surveys within the Product Water Conveyance: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch; and the remaining portion of the Project Study Area within the Injection Well Facilities site.

The project proponents shall retain a qualified biologist to conduct protocol-level surveys for special-status plant species within the Project Survey Area of the Product Water Conveyance Pipeline: Coastal Alignment Option between Del Monte Boulevard and the Regional Treatment Plant site on Armstrong Ranch and the portion of the Injection Well Facilities site not surveyed prior to any ground disturbing activities. Protocol-level surveys shall be conducted by a qualified biologist at the appropriate time of year for species with the potential to occur within the site. A report describing the results of the surveys shall be provided to the project proponents prior to any ground disturbing activities. The report shall include, but is not limited to: 1) a description of the species observed, if any; 2) map of the location, if observed; and 3) recommended avoidance and minimization measures, if

applicable. The avoidance and minimization measures shall include, but are not limited to, the following:

- Impacts to species individuals shall be avoided through project design and modification, to the extent feasible while taking into consideration other site and engineering constraints.
- If impacts to State listed plant species cannot be avoided, the project proponents shall comply with the CESA and consult with the CDFW to determine whether authorization for the incidental take of the species is required prior to commencing construction. If it is determined that authorization for incidental take is required from the CDFW, the project proponents shall comply with the CESA to obtain an incidental take permit prior to commencing construction on the site upon which state listed plant species could be taken. Permit requirements typically involve preparation and implementation of a mitigation plan and mitigating impacted habitat at a 3:1 ratio through preservation and/or restoration. At a minimum, the impacted plant species shall be replaced at a 1:1 ratio through preservation and/or restoration, as described below. The project proponents shall retain a qualified biologist to prepare a mitigation plan, which shall include, but is not limited to identifying: avoidance and minimization measures; mitigation strategy, including a take assessment, avoidance and minimization measures, compensatory mitigation lands, and success criteria; and funding assurances. The project proponents shall be required to implement the approved plan and any additional permit requirements.
- If impacts to non-State listed, special-status plant species cannot be avoided, the species shall be replaced at a 1:1 ratio for acreage and/or individuals impacted through preservation, restoration, or combination of both. A Rare Plant Restoration Plan, approved by the project proponents prior to commencing of construction on the site upon which the rare plant would be impacted, shall be prepared and implemented by a qualified biologist. The plan shall include, but is not limited to, the following:
    - A detailed description of on-site and/or off-site mitigation areas, salvage of seed and/or soil bank, plant salvage, seeding and planting specifications, including, if appropriate, increased planting ratio to ensure the applicable success ratio. Specifically, seed shall be collected from the on-site individuals that will be impacted and grown in a local greenhouse, and then transplanted within the mitigation area. Plants shall be transplanted while they are young seedlings in order to develop a good root system. Alternatively, the mitigation area may be broadcast seeded in fall; however, if this method is used, some seed shall be retained in the event that the seeding fails to produce viable plants and contingency measures need to be employed.
    - A description of a 3-year monitoring program, including specific methods of vegetation monitoring, data collection and analysis, restoration goals and objectives, success criteria, adaptive management if the criteria are not met, reporting protocols, and a funding mechanism.

The mitigation area shall be preserved in perpetuity through a conservation easement or other legally enforceable land preservation agreement. Exclusionary fencing shall be installed around the mitigation area to prevent disturbance until success criteria have been met.

Mitigation Measure BT-1g applies to the Salinas Pump Station, Salinas Treatment Facility, Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options and Booster Stations, and Injection Well Facilities.

Mitigation Measure BT-1g: Conduct Pre-Construction Surveys for Special-Status Bats.

To avoid and reduce impacts to special-status bat species, the project proponents shall retain a qualified bat specialist or wildlife biologist to conduct site surveys during the reproductive season (May 1 through September 15) to characterize bat utilization of the component site and potential species present (techniques utilized to be determined by the biologist) prior to tree or building removal. Based on the results of these initial surveys, one or more of the following would occur:

- If it is determined that bats are not present at the component site, no additional mitigation is required.
- If it is determined that bats are utilizing the component site and may be impacted by the Proposed Project, pre-construction surveys shall be conducted no more than 30 days prior to any tree or building removal (or any other suitable roosting habitat) within 100 feet of construction limits. If, according to the bat specialist, no bats or bat signs are observed in the course of the pre-construction surveys, tree and building removal may proceed. If bats and/or bat signs are observed during the pre-construction surveys, the biologist shall determine if disturbance would jeopardize a maternity roost or another type of roost (i.e., foraging, day, or night).
- If a single bat and/or only adult bats are roosting, removal of trees, buildings, or other suitable habitat may proceed after the bats have been safely excluded from the roost. Exclusion techniques shall be determined by the biologist and would depend on the roost type.
- If an active maternity roost is detected, avoidance is preferred. Work in the vicinity of the roost (buffer to be determined by biologist) shall be postponed until the biologist monitoring the roost determines that the young have fledged and are no longer dependent on the roost. The monitor shall ensure that all bats have left the area of disturbance prior to initiation of pruning and/or removal of trees that would disturb the roost. If avoidance is not possible and a maternity roost must be disrupted, authorization from CDFW shall be required prior to removal of the roost.

Mitigation Measure BT-1h applies to the Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities.

Mitigation Measure BT-1h: Implementation of Mitigation Measures BT-1a and BT-1b to Mitigate Impacts to the Monterey Ornate Shrew, Coast Horned Lizard, Coast Range Newt, Two-Striped Garter Snake, and Salinas Harvest Mouse.

If these species are encountered, implementation of **Mitigation Measures BT-1a** and **BT-1b**, which avoid and minimize impacts through implementing construction best management practices and monitoring, would reduce potential impacts to these species to a less-than-significant level.

Mitigation Measure BT-1i applies to the Blanco Drain Diversion, Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities.

Mitigation Measure BT-1i: Conduct Pre-Construction Surveys for Monterey Dusky-Footed Woodrat.

To avoid and reduce impacts to the Monterey dusky-footed woodrat, the project proponents shall retain a qualified biologist to conduct pre-construction surveys in suitable habitat proposed for construction, ground disturbance, or staging within three days prior to construction for woodrat nests within the project area and in a buffer zone 100 feet out from the limit of disturbance. All woodrat nests shall be flagged for avoidance of direct construction impacts and protection during construction, where feasible. Nests that cannot be avoided shall be manually deconstructed prior to land clearing activities to allow animals to escape harm. If a litter of young is found or suspected, nest material shall be replaced, and the nest left alone for 2-3 weeks before a re-check to verify that young are capable of independent survival before proceeding with nest dismantling.

Mitigation Measure BT-1j applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options.

Mitigation Measure BT-1j: Conduct Pre-Construction Surveys for American Badger.

To avoid and reduce impacts to the American badger, the project proponents shall retain a qualified biologist to conduct focused pre-construction surveys for badger dens in all suitable habitat proposed for construction, ground disturbance, or staging no more than two weeks prior to construction. If no potential badger dens are present, no further mitigation is required. If potential dens are observed, the following measures are required to avoid potential significant impacts to the American badger:

- If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers from re-using them during construction.
- If the qualified biologist determines that potential dens may be active, the den shall be monitored for a period sufficient (as determined by a qualified biologist) to determine if the den is a maternity den occupied by a female and her young, or if the den is occupied by a solitary badger.
- Maternity dens occupied by a female and her young shall be avoided during construction and a minimum buffer of 200 feet in which no construction activities shall occur shall be maintained around the den. After the qualified biologist determines that badgers have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.
- Solitary male or female badgers shall be passively relocated by blocking the entrances of the dens with soil, sticks, and debris for three to five days to discourage the use of these dens prior to project construction disturbance. The den entrances shall be blocked to an incrementally greater degree over the three to five day period. After the qualified biologist determines that badgers have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.

Mitigation Measure BT-1k applies to all GWR facilities.

Mitigation Measure BT-1k: Conduct Pre-Construction Surveys for Protected Avian Species, including, but not limited to, white-tailed kite and California horned lark.

Prior to the start of construction activities at each project component site, a qualified biologist shall conduct pre-construction surveys for suitable nesting habitat within the component Project Study Area and within a suitable buffer area from the component Project Study Area. The qualified biologist will determine the suitable buffer area based on the avian species with the potential to nest at the site.

In areas where nesting habitat is present within the component project area or within the determined suitable buffer area, construction activities that may directly (e.g., vegetation removal) or indirectly (e.g., noise/ground disturbance) affect protected nesting avian species shall be timed to avoid the breeding and nesting season. Specifically, vegetation and/or tree removal can be scheduled after September 16 and before January 31. Alternatively, a qualified biologist shall be retained by the project proponents to conduct pre-construction surveys for nesting raptors and other protected avian species where nesting habitat was identified and within the suitable buffer area if construction commences between February 1 and September 15. Pre-construction surveys shall be conducted no more than 14 days prior to the start of construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). Because some bird species nest early in spring and others nest later in summer, surveys for nesting birds may be required to continue during construction to address new arrivals, and because some species breed multiple times in a season. The necessity and timing of these continued surveys would be determined by the qualified biologist based on review of the final construction plans.

If active raptor or other protected avian species nests are identified during the pre-construction surveys, the qualified biologist shall notify the project proponents and an appropriate no-disturbance buffer shall be imposed within which no construction activities or disturbance should take place until the young have fledged and are no longer reliant upon the nest or parental care for survival, as determined by a qualified biologist.

Mitigation Measure BT-1l applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options.

Mitigation Measure BT-1l: Conduct Pre-Construction Surveys for Burrowing Owl.

In order to avoid impacts to active burrowing owl nests, a qualified biologist shall conduct pre-construction surveys in suitable habitat within the construction footprint and within a suitable buffer, as determined by a qualified biologist, of the footprint no more than 30 days prior to the start of construction at a component site. If ground disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site shall be resurveyed. The survey shall conform to the DFG 1995 Staff Report protocol. If no burrowing owls are found, no further mitigation is required. If it is determined that burrowing owls occupy the site during the non-breeding season (September 1 through January 31), then a passive relocation effort (e.g., blocking burrows with one-way doors and leaving them in place for a minimum of three days) shall be undertaken to ensure that the owls are not harmed or injured during construction. Once it has been determined that

the owls have vacated the site, the burrows shall be collapsed, and ground disturbance can proceed. If burrowing owls are detected within the construction footprint or immediately adjacent lands (i.e. within 250 feet of the footprint) during the breeding season (February 1 to August 31), a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer area shall be enclosed with temporary fencing, and construction equipment and workers shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. After the breeding season, passive relocation of any remaining owls shall take place as described above.

Mitigation Measure BT-1m applies to the Injection Well Facilities.

Mitigation Measure BT-1m: Minimize effects of nighttime construction lighting.

Nighttime construction lighting shall be focused and downward directed to preclude night illumination of the adjacent open space area.

Mitigation Measure BT-1n applies to the Product Water Conveyance: Coastal Alignment Option.

Mitigation Measure BT-1n: Mitigate Impacts to Smith's blue butterfly.

Removal or damage to obligate host plant species (coast and dune buckwheat) shall be avoided through project design and modification to the extent feasible while taking into consideration other site and engineering constraints, unless protocol-level surveys by an approved biologist determine the species is not present and the USFWS concurs with this finding.

If protocol-level surveys are not conducted and if avoidance is not possible or if protocol-level surveys have a positive presence finding, Section 7 formal consultation under the federal ESA with the USFWS would be required due to the project's federal nexus (e.g., federal funding) and the potential impacts to federally listed species that may result from the Proposed Project. The USFWS would be required to issue a Biological Opinion for the project and the Biological Opinion would likely require measures to reduce impacts to this species. Measures may include, but are not limited to, restoration and/or preservation at a 3:1 ratio of impacted habitat and buckwheat plant and/or seed salvage prior to ground disturbing activities. Any measures required by the Biological Opinion would be incorporated into the Proposed Project's Mitigation Monitoring and Reporting Program and implemented in accordance with the Biological Opinion.

Mitigation Measure BT-1p applies to the Blanco Drain Diversion and Product Water Conveyance: Coastal Alignment Option.

Mitigation Measure BT-1p: Avoid and Minimize Impacts to Western Pond Turtle.

A qualified biologist shall survey suitable habitat no more than 48 hours before the onset of work activities at the components site for the presence of western pond turtle. If pond turtles are found and these individuals are likely to be killed or injured by work activities, the biologist shall be allowed sufficient time to move them from the site before work activities begin. The biologist shall relocate the pond turtles the shortest distance possible

to a location that contains suitable habitat and would not be affected by activities associated with the project.

Mitigation Measure BT-1q applies to the Salinas Treatment Facility and Blanco Drain Diversion.

Mitigation Measure BT-1q: Avoid and Minimize Impacts to California Red-Legged Frog.

The following measures for avoidance and minimization of adverse impacts to California Red-Legged Frog (CRLF) during construction of the Proposed Project Components are those typically employed for construction activities that may result in short-term impacts to individuals and their habitat. The focus of these measures is on scheduling activities at certain times of year, keeping the disturbance footprint to a minimum, and monitoring.

The MRWPCA shall annually submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project construction activities at the component site would begin until the MRWPCA receives confirmation from the Service that the biologist(s) is qualified to conduct the work.

A USFWS-approved biologist shall survey the work site 48 hours prior to the onset of activities. If CRLF, tadpoles, or eggs are found, the approved biologist shall determine the closest appropriate relocation site. The approved biologist shall be allowed sufficient time to move them from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and moving of CRLF.

Before any construction activities begin on the project component site, a USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the CRLF and its habitat, the importance of the CRLF and its habitat, general measures that are being implemented to conserve the CRLF as they relate to the project, and the boundaries within which the project construction activities may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

A USFWS-approved biologist shall be present at the work site until such time as all removal of CRLF, instruction of workers, and disturbance of habitat have been completed. After this time, the biologist shall designate a person to monitor on-site compliance with all minimization measures and any future staff training. The USFWS-approved biologist shall ensure that this individual receives training outlined in Mitigation Measure Bt-1a and in the identification of CRLF. The monitor and the USFWS-approved biologist shall have the authority to stop work if CRLF are in harm's way.

The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of riparian and wetland areas to the extent practicable.

Work activities would be completed between April 1 and November 1, to the extent practicable. Should the Agency demonstrate a need to conduct activities outside this period, the MRWPCA may conduct such activities after obtaining the Service's approval. (applies to Blanco Drain site only)

If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters (mm) to prevent CRLF from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

The Declining Amphibian Populations Task Force's Fieldwork Code of Practice shall be followed to minimize the possible spread of chytrid fungus or other amphibian pathogens and parasites.

Mitigation Measure BT-2a applies to the Tembladero Slough Diversion, Blanco Drain Diversion, and Product Water Conveyance: Coastal Alignment Option.

Mitigation Measure BT-2a: Avoidance and Minimization of Impacts to Riparian Habitat and Wetland Habitats.

When designing the facilities at these component sites, the MRWPCA shall site and design project features to avoid impacts to the riparian and wetland habitats shown in **Attachment 8 of Appendix H** and **Appendix I**, including direct habitat removal and indirect hydrology and water quality impacts, to the greatest extent feasible while taking into account site and engineering constraints. To protect this sensitive habitat during construction, the following measures shall be implemented:

- Place construction fencing around riparian and wetland habitat to be preserved to ensure construction activities and personnel do not impact this area.
- All proposed lighting shall be designed to avoid light and glare into the riparian and wetland habitat. Light sources shall not illuminate these areas or cause glare.

In the event that full avoidance is not possible and a portion or all of the riparian and wetland habitat would be impacted, the following minimization measures shall be implemented:

- Impacted riparian and wetland habitat shall be mitigated at a 1:1 replacement-to-loss ratio through restoration and/or preservation. The final mitigation amounts shall be determined during the design phase. It is expected that the mitigation can occur within the Locke Paddon Lake watershed, along the Tembladero Slough, and within the Salinas River corridor near the Blanco Drain near where impacts may occur. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared by a qualified biologist to mitigate for impacts to riparian and wetland habitat. The HMMP shall outline the details of a riparian and wetland habitat restoration plan, including but not limited to, planting plan, success criteria, monitoring protocols to determine if the success criteria have been met, adaptive management protocols in the case that the success criteria are not met, and funding assurances.

Mitigation Measure BT-2c applies to the Blanco Drain Diversion.

Mitigation Measure BT-2c: Avoidance and Minimization of Construction Impacts Resulting from Horizontal Directional Drilling under the Salinas River.

The project proponents in coordination with the contractor shall prepare and implement a Frack-Out Plan to avoid or reduce accidental impacts resulting from horizontal directional drilling beneath the Salinas River. The Frack-Out Plan shall address spill prevention, containment, and clean-up methodology in the event of a frack out.

Mitigation Measure BT-4 applies to the Product Water Conveyance: RUWAP and Coastal Alignment Options, and Injection Well Facilities site within the former Fort Ord only.

Mitigation Measure BT:4. HMP Plant Species Salvage.

For impacts to the HMP plant species within the Project Study Area that do not require take authorization from Service or CDFW, salvage efforts for these species shall be evaluated by a qualified biologist per the requirements of the HMP and BO. A salvage plan shall be prepared and implemented by a qualified biologist, which shall would include, but is not limited to: a description and evaluation of salvage opportunities and constraints; a description of the appropriate methods and protocols of salvage and relocation efforts; identification of relocation and restoration areas; and identification of qualified biologists approved to perform the salvage efforts, including the identification of any required collection permits from Service and/or CDFW. Where proposed, seed collection shall occur from plants within the Project Study Area and topsoil shall be salvaged within occupied areas to be disturbed. Seeds shall be collected during the appropriate time of year for each species by qualified biologists. At the time of seed collection, a map shall also be prepared that identifies the specific locations of the plants for any future topsoil preservation efforts. The collected seeds shall be used to revegetate temporarily disturbed construction areas and reseeding and restoration efforts on- or off-site, as determined appropriate in the salvage plan.

Mitigation Measures BF-1a and BF-1b apply to Reclamation Ditch and Tembladero Slough Diversions.

Mitigation Measure BF-1a: Construction during Low Flow Season.

Conduct construction of diversion facilities during periods of low flow outside of the SCCC steelhead migration periods, i.e. between June and November, which would be outside of the adult migration period from December through April and outside of the smolt migration period from March through May.

Mitigation Measure BF-1b: Relocation of Aquatic Species during Construction.

Conduct pre-construction surveys to determine whether tidewater gobies or other fish species are present, and if so, implement appropriate measures in consultation with applicable regulatory agencies, which may include a program for capture and relocation of tidewater gobies to suitable habitat outside of work area during construction.

Mitigation Measure BF-2a applies to Reclamation Ditch Diversion.

Mitigation Measure BF-2a: Maintain Migration Flows.

Operate diversions to maintain steelhead migration flows in the Reclamation Ditch based on two criteria – one for upstream adult passage in Jan-Feb-Mar and one for downstream juvenile passage in Apr-May. For juvenile passage, the downstream passage shall have a

flow trigger in both Gabilan Creek and at the Reclamation Ditch, so that if there is flow in Gabilan Creek that would allow outmigration, then the bypass flow requirements, as measured at the San Jon Gage of the Reclamation Ditch shall be applied. If there is no flow in Gabilan Creek, then only the low flow (minimum bypass flow requirement as proposed in the project description) shall be applied, and these flows for the dry season at Reclamation Ditch as measured at the San Jon USGS gage shall be met.

Alternately, as the San Jon weir located at the USGS gage is considered a barrier to steelhead migration and the bypass flow requirements have been developed to allow adult and smolt steelhead migration to have adequate flow to travel past this obstacle, if the weir were to be modified to allow steelhead passage, the mitigation above would not have to be met. Therefore, alternate Mitigation Measure BF-2a has been developed, as follows:

Mitigation Measure Alternate BF-2a: Modify San Jon Weir.

Construct modifications to the existing San Jon weir to provide for steelhead passage. Modifications could include downstream pool, modifications to the structural configuration of the weir to allow passage or other construction and improvements to remove the impediment to steelhead passage defined above.

6.5.3 Hazards and Hazardous Materials

Mitigation Measure HH-2a applies to the Lake El Estero Diversion, Product Water Conveyance System Options, and Injection Well Facilities.

Mitigation Measure HH-2a: Environmental Site Assessment.

If required by local jurisdictions and property owners with approval responsibility for construction of each component, MRWPCA and CalAm shall conduct a Phase I Environmental Site Assessment in conformance with ASTM Standard 1527-05 to identify potential locations where hazardous material contamination may be encountered. If an Environmental Site Assessment indicates that a release of hazardous materials could have affected soil or groundwater quality at a project site, a Phase II environmental site assessment shall be conducted to determine the extent of contamination and to prescribe an appropriate course of remediation, including but not limited to removal of contaminated soils, in conformance with state and local guidelines and regulations. If the results of the subsurface investigation(s) indicate the presence of hazardous materials, additional site remediation may be required by the applicable state or local regulatory agencies, and the contractors shall be required to comply with all regulatory requirements for facility design or site remediation.

Mitigation Measure HH-2b applies to the Lake El Estero Diversion, Product Water Conveyance System Options, and Injection Well Facilities.

Mitigation Measure HH-2b: Health and Safety Plan.

The construction contractor(s) shall prepare and implement a project-specific Health and Safety Plan (HSP) for each site on which construction may occur, in accordance with 29 CFR 1910 to protect construction workers and the public during all excavation, grading, and construction. The HSP shall include the following, at a minimum:

- A summary of all potential risks to construction workers and the maximum exposure limits for all known and reasonably foreseeable site chemicals (the HSP shall incorporate and consider the information in all available existing Environmental Site Assessments and remediation reports for properties within ¼-mile using the EnviroStor Database);
- Specified personal protective equipment and decontamination procedures, if needed;
- Emergency procedures, including route to the nearest hospital;
- Procedures to be followed in the event that evidence of potential soil or groundwater contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and specifically include, but are not limited to, the following: immediately stopping work in the vicinity of the unknown hazardous materials release, notifying Monterey County Department of Environmental Health, and retaining a qualified environmental firm to perform sampling and remediation; and
- The identification and responsibilities of a site health and safety supervisor.

Mitigation Measure HH-2c applies to the Lake El Estero Diversion, Product Water Conveyance System Options, and Injection Well Facilities.

Mitigation Measure HH-2c: Materials and Dewatering Disposal Plan.

MRWPCA and CalAm and/or their contractors shall develop a materials disposal plan specifying how the contractor will remove, handle, transport, and dispose of all excavated material in a safe, appropriate, and lawful manner. The plan must identify the disposal method for soil and the approved disposal site, and include written documentation that the disposal site will accept the waste. For areas within the Seaside munitions response areas called Site 39 (coincident with the Injection Well Facilities component), the materials disposal plans shall be reviewed and approved by FORA and the City of Seaside.

The contractor shall develop a groundwater dewatering control and disposal plan specifying how the contractor will remove, handle, and dispose of groundwater impacted by hazardous substances in a safe, appropriate, and lawful manner. The plan must identify the locations at which potential contaminated groundwater dewatering are likely to be encountered (if any), the method to analyze groundwater for hazardous materials, and the appropriate treatment and/or disposal methods. If the dewatering effluent contains contaminants that exceed the requirements of the General WDRs for Discharges with a Low Threat to Water Quality (Order No. R3-2011-0223, NPDES Permit No. CAG993001), the construction contractor shall contain the dewatering effluent in a portable holding tank for appropriate offsite disposal or discharge. The contractor can either dispose of the contaminated effluent at a permitted waste management facility or discharge the effluent, under permit, to the Regional Treatment Plant.

6.5.4 Traffic and Transportation

Mitigation Measure TR-2 applies to the Lake El Estero Diversion, Product Water Conveyance System Options, and Injection Well Facilities.

Mitigation Measure TR-2: Traffic Control and Safety Assurance Plan.

Prior to construction, MRWPCA and/or its contractor shall prepare and implement a traffic control plan or plans for the roadways and intersections affected by MRWPCA construction (Product Water Conveyance Pipeline). The traffic control plan(s) shall comply with the affected jurisdiction's encroachment permit requirements and will be based on detailed design plans. For all project construction activities that could affect the public right-of-way (e.g., roadways, sidewalks, and walkways), the plan shall include measures that would provide for continuity of vehicular, pedestrian, and bicyclist access; reduce the potential for traffic accidents; and ensure worker safety in construction zones. Where project construction activities could disrupt mobility and access for bicyclists and pedestrians, the plan shall include measures to ensure safe and convenient access would be maintained.

The traffic control and safety assurance plan shall be developed on the basis of detailed design plans for the approved project. The plan shall include, but not necessarily be limited to, the elements listed below:

General

a. Develop circulation and detour plans to minimize impacts on local streets. As necessary, signage and/or flaggers shall be used to guide vehicles to detour routes and/or through the construction work areas.

b. Implement a public information program to notify motorists, bicyclists, nearby residents, and adjacent businesses of the impending construction activities (e.g., media coverage, email notices, websites, etc.). Notices of the location(s) and timing of lane closures shall be published in local newspapers and on available websites to allow motorists to select alternative routes.

Roadways

c. Haul routes that minimize truck traffic on local roadways and residential streets shall be used to the extent feasible.

d. Schedule truck trips outside of peak morning and evening commute hours to minimixe adverse impacts on traffic flow

e. Limit lane closures during peak hours. Travel lane closures, when necessary, shall be managed such that one travel lane is kept open at all times to allow alternating traffic flow in both directions along affected two-lane roadways; the contractor shall use steel plates or trench backfilling to restore vehicle access at the end of each workday.

f. Restore roads and streets to normal operation by covering trenches with steel plates outside of normal work hours or when work is not in progress.

g. Comply with roadside safety protocols to reduce the risk of accidents. Provide "Road Work Ahead" warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. Train construction personnel to apply appropriate safety measures as described in the plan.

h. Provide flaggers in school areas at street crossings to manage traffic flow and maintain traffic safety during the school drop-off and pickup hours on days when pipeline installation would occur in designated school zones.

i. Maintain access to private driveways.

j. Coordinate with MST so the transit provider can temporarily relocate bus routes or bus stops in work zones as deemed necessary.

Pedestrian and Bicyclists

k. Perform construction that crosses on-street and off-street bikeways, sidewalks, and other walkways in a manner that allows for safe access for bicyclists and pedestrians. Alternatively, provide safe detours to reroute affected bicycle/pedestrian traffic.

Recreational Trails

l. At least two weeks prior to construction, post signage along all potentially affected recreational trails; Class I, II, and II bicycle routes; and pedestrian pathways, including the Monterey Peninsula Recreational Trail, to warn bicyclists and pedestrians of construction activities. The signs shall include information regarding the nature of construction activities, duration, and detour routes. Signage shall be composed of or encased in weatherproof material and posted in conspicuous locations, including on park message boards, and existing wayfinding signage and kiosks, for the duration of the closure period. At the end of the closure period, CalAm, MRWPCA or either of its contractors shall retrieve all notice materials.

Emergency Access

m. Maintain access for emergency vehicles at all times. Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools.

n. Provide advance notification to local police, fire, and emergency service providers of the timing, location, and duration of construction activities that could affect the movement of emergency vehicles on area roadways.

o. Avoid truck trips through designated school zones during the school drop-off and pickup hours.

Mitigation Measure TR-3 applies to all GWR facilities.

Mitigation Measure TR-3: Roadway Rehabilitation Program.

Prior to commencing project construction, MRWPCA (for all components other than the CalAm Distribution System Improvements) shall detail the preconstruction condition of all local construction access and haul routes proposed for substantial use by project-related construction vehicles. The construction routes surveyed must be consistent with those identified in the construction traffic control and safety assurance plan developed under Mitigation Measure TR-2. After construction is completed, the same roads shall be surveyed again to determine whether excessive wear and team or construction damage has occurred. Roads damaged by project-related construction vehicles shall be repaired to a structural condition equal to that which existed prior to construction activities.

Mitigation Measure TR-4 applies to the Product Water Conveyance Pipelines in Marina and Seaside.

Mitigation Measure TR-4: Construction Parking Requirements.

Prior to commencing project construction, the construction contractor(s) shall coordinate with the potentially affected jurisdictions to identify designated worker parking areas that would avoid or minimize parking displacement in congested areas of Marina, Seaside, and downtown Monterey. The contractors shall provide transport between the designated parking location and the construction work areas. The construction contractor(s) shall also provide incentives for workers that carpool or take public transportation to the construction work areas. The engineering and construction design plans shall specify that contractors limit time of construction within travel lanes and public parking spaces and provide information to the public about locations of alternative spaces to reduce parking disruptions.

6.5.5 Air Quality

Mitigation Measure AQ-1 applies to all GWR facilities.

Mitigation Measure AQ-1: Construction Fugitive Dust Control Plan.

The following standard Dust Control Measures shall be implemented during construction to help prevent potential nuisances to nearby receptors due to fugitive dust and to reduce contributions to exceedances of the state ambient air quality standards for PM_{10}, in accordance with MBUAPCD's CEQA Guidelines.

a. Water all active construction areas at least twice daily with water (preferably from non-potable sources); frequency should be based on the type of operation, soil, and wind exposure.

a. Prohibit grading activities during periods of high wind (over 15 mph).

b. Cover all trucks hauling soil, sand, and other loose materials and require trucks to maintain at least 2 feet of freeboard.

c. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.

d. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;

e. Enclose, cover, or water daily exposed stockpiles (dirt, sand, etc.);

f. Replant vegetation in disturbed areas as quickly as possible.

g. Wheel washers shall be installed and used by truck operators at the exits of the construction sites to the Advanced Water Treatment Facility site, the Injection Well Facilities, and the Booster Pump Station.

Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the MBUAPCD shall also be visible to ensure compliance with MBUAPCD rules.

6.5.6 Noise and Vibration

Mitigation Measure NV-1a applies to the Injection Well facilities.

Mitigation Measure NV-1a: Drilling Contractor Noise Measures.

Contractor specifications shall include a requirement that drill rigs located within 700 feet of noise-sensitive receptors shall be equipped with noise reducing engine housings or other noise reducing technology and the line of sight between the drill rig and nearby sensitive receptors shall be blocked by portable acoustic barriers and/or shields to reduce noise levels such that drill rig noise levels are no more 75 dBA at 50 feet. This would reduce the nighttime noise level to less than 60 dBA L_{eq} at the nearest residence.

The contractor shall submit to the MRWPCA and the Seaside Building Official, a "Well Construction Noise Control Plan" for review and approval. The plan shall identify all feasible noise control procedures that would be implemented during night-time construction activities. At a minimum, the plan shall specify the noise control treatments to achieve the specified above noise performance standard.

Mitigation Measure NV-1c applies to the Injection Well facilities.

Mitigation Measure NV-1c: Neighborhood Notice.

Residences and other sensitive receptors within 500 feet of a daytime construction area and 900 feet of a nighttime construction area shall be notified of the construction location and schedule in writing, at least two weeks prior to the commencement of construction activities. The notice shall also be posted along the proposed pipeline alignments, near the proposed facility sites, and at nearby recreational facilities. The contractor shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the noise disturbance coordinator shall be conspicuously placed on construction site fences and included in the construction schedule notification sent to nearby residences. The notice to be distributed to residences and sensitive receptors shall first be submitted, for review and approval, to the MRWPCA and city and county staff as may be required by local regulations.

Mitigation Measure NV-2a applies to the Source Water Diversion and Storage Sites – Reclamation Ditch, Tembladero Slough and Blanco Drain, Product Water Conveyance Pipeline segments within the City of Marina and RUWAP Booster Station.

Mitigation Measure NV-2a: Construction Equipment.

Contractor specifications shall include a requirement that the contractor shall:

- Assure that construction equipment with internal combustion engines has sound control devices at least as effective as those provided by the original equipment manufacturer. No equipment shall be permitted to have an un-muffled exhaust.
- Impact tools (i.e., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically

powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler shall be placed on the compressed air exhaust to lower noise levels by approximately 10 dBA. External jackets shall be used on impact tools, where feasible, in order to achieve a further reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.

The construction contractor(s) shall locate stationary noise sources (e.g., generators, air compressors) as far from nearby noise-sensitive receptors as possible,

For Product Water Conveyance pipeline segments within the City of Marina, noise controls shall be sufficient to not exceed 60 decibels for more than twenty-five percent of an hour,

Mitigation Measure NV-2b applies to the Product Water Conveyance Pipelines and Booster Pump Station in the City of Marina.

Mitigation Measure NV-2b: Construction Hours.

The construction contractor shall limit all noise-producing construction activities within the City of Marina to between the hours of 7:00 AM and 7:00 PM on weekdays and between 9:00 AM and 7:00 PM Saturdays, except that construction may be allowed until 8:00 PM during daylight savings time.

6.5.7 Public Services and Utilities

Mitigation Measure PS-3 applies to all GWR facilities.

Mitigation Measure PS-3: Construction Waste Reduction and Recycling Plan.

The construction contractor(s) shall prepare and implement a construction waste reduction and recycling plan identifying the types of construction debris the Proposed Project will generate and the manner in which those waste streams will be handled. In accordance with the California Integrated Waste Management Act of 1989, the plan shall emphasize source reduction measures, followed by recycling and composting methods, to ensure that construction and demolition waste generated by the project is managed consistent with applicable statutes and regulations. In accordance with the California Green Building Standards Code and local regulations, the plan shall specify that all trees, stumps, rocks, and associated vegetation and soils, and 50% of all other nonhazardous construction and demolition waste, be diverted from landfill disposal. The plan shall be prepared in coordination with the Monterey Regional Waste Management District and be consistent with Monterey County's Integrated Waste Management Plan. Upon project completion, MRWPCA and CalAm shall collect the receipts from the contractor(s) to document that the waste reduction, recycling, and diversion goals have been met.

6.5.8 Aesthetic Resources

Mitigation Measure AE-2 applies to the Injection Well Facilities.

Mitigation Measure AE-2: Minimize Construction Nighttime Lighting.

As part of its contract specifications, MRWPCA shall require its construction contractors to implement site-specific nighttime construction lighting measures for nighttime construction

at the proposed Injection Well Facilities site. The measures shall, at a minimum, require that lighting be shielded, directed downward onto work areas to minimize light spillover, and specify that construction lighting use the minimum wattage necessary to provide safety at the construction sites. MRWPCA shall ensure these measures are implemented at all times during nighttime construction at the Injection Well Facilities site and for the duration of all required nighttime construction activity at this location.

Mitigation Measure AE-4 applies to the Product Water Conveyance Booster Pump Station Options and Injection Well Facilities.

Mitigation Measure AE-4: Exterior Lighting Minimization.

To prevent exterior lighting from affecting nighttime views, the design and operation of lighting at the Product Water Conveyance Booster Pump Station - RUWAP and Coastal Options and Injection Well Facilities, shall adhere to the following requirements:

- Use of low-intensity street lighting and low-intensity exterior lighting shall be required.
- Lighting fixtures shall be cast downward and shielded to prevent light from spilling onto adjacent offsite uses.
- Lighting fixtures shall be designed and placed to minimize glare that could affect users of adjacent properties, buildings, and roadways.
- Fixtures and standards shall conform to state and local safety and illumination requirements.

6.5.9 Cultural and Paleontological Resources

Mitigation Measures CR-2b and CR-2c apply to all GWR facilities.

Mitigation Measure CR-2b: Discovery of Archaeological Resources or Human Remains.

If archaeological resources or human remains are unexpectedly discovered during any construction, work shall be halted within 50 meters (±160 feet) of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented. The County Coroner shall be notified in accordance with provisions of Public Resources Code 5097.98-99 in the event human remains are found and the Native American Heritage Commission shall be notified in accordance with the provisions of Public Resources Code section 5097 if the remains are determined to be of Native American origin.

Mitigation Measure CR-2c: Native American Notification.

Because of their continuing interest in potential discoveries during construction, all listed Native American Contacts shall be notified of any and all discoveries of archaeological resources in the project area.

6.5.10 Agriculture and Forestry Resources

Mitigation Measure LU-1 applies to the Salinas Treatment Facility and a portion of the Blanco Drain Diversion.

Mitigation Measure LU-1: Minimize Disturbance to Farmland.

To support the continued productivity of designated Prime Farmland and Farmland of Statewide Importance, the following provisions shall be included in construction contract specifications:

Construction contractor(s) shall minimize the extent of the construction disturbance, including construction access and staging areas, in designated important farmland areas.

Prior to the start of construction, the construction contractor(s) shall mark the limits of the construction area and ensure that no construction activities, parking, or staging occur beyond the construction limits.

Upon completion of the active construction, the site shall be restored to pre-construction conditions.

6.5.11 Energy Conservation

Mitigation Measure EN-1 applies to all GWR facilities.

Mitigation Measure EN-1: Construction Equipment Efficiency Plan.

MRWPCA shall contract a qualified professional (i.e., construction planner/energy efficiency expert) to prepare a Construction Equipment Efficiency Plan that identifies the specific measures that MRWPCA (and its construction contractors) will implement as part of project construction to increase the efficient use of construction equipment. Such measures shall include, but not necessarily be limited to: procedures to ensure that all construction equipment is properly tuned and maintained at all times; a commitment to utilize existing electricity sources where feasible rather than portable diesel-powered generators; consistent compliance with idling restrictions of the state; and identification of procedures (including the use of routing plans for haul trips) that will be followed to ensure that all materials and debris hauling is conducted in a fuel-efficient manner.

6.5 Conclusions

The CalAm facilities of the project variant would include a reduced capacity desalination plant, which would require fewer seawater intake wells for source water and would result in a lower volume of brine when compared to the proposed project. The GWR facilities of the project variant would include an array of source waters, a new Advanced Water Treatment Facility, new pipelines and injection wells. When combined with the other CalAm facilities (e.g. pipelines and ASR facilities) the project variant would have impacts similar to the proposed project for most of the topical areas evaluated. However, there are several impacts of the project variant that are unique, or are more or less severe than the proposed project.

The following impacts are unique to the GWR facilities of the project variant, and are not associated with the proposed project:

- The soils that underlie the proposed location for the Injection Well Facilities in the Seaside Groundwater Basin could be susceptible to hydro-collapse if large quantities of water are injected into the ground. The risk would be less than significant.
- Construction of the proposed Reclamation Ditch and Tembladero Slough diversions could indirectly result in habitat modifications for endangered or threatened fish species as a result of construction activities and dewatering the construction sites. This impact would be less than significant with implementation of mitigation.
- Operation of the project variant would result in changes in stream flows that may interfere with fish migration in the Salinas River and Reclamation Ditch. This impact would be less than significant with implementation of mitigation.

The following impacts are more severe with the project variant than with the proposed project, as noted:

- Construction of the project variant would result in an overall increase in the amount of soil that would be disturbed, and therefore, would increase the potential to result in soil erosion and loss of topsoil. The combined impact would be mitigated to a less-than-significant level.
- Rapid water fluctuations may induce erosion and sedimentation within the downstream affected reach of the Reclamation Ditch and Tembladero Slough components of the project variant that would not be realized under the proposed project. This significant impact of the project variant would be reduced to less-than-significant with the implementation of mitigation.
- The addition of the GWR facilities would result in an overall increase in temporary, construction-related trips on local roadways compared to the proposed project, and construction of the GWR facilities would overlap with construction of the CalAm facilities for almost two years. The combined impact would be mitigated to a less-than-significant level.
- The proposed project would be able to mitigate the generation of noise levels to meet the applicable standards during construction. However, impacts associated with construction at the Tembladero Slough Diversion site would conflict with County Code Section 10.60.030, resulting in a significant and unavoidable impact of the project variant, even with mitigation.
- While the emissions of PM10 associated with the proposed project could be mitigated to a less-than-significant level, the total combined maximum day construction emissions of the MPWSP Variant would result in a significant unavoidable impact even with mitigation.
- Discharges associated with proposed project through the existing outfall would result in exceedences in Ocean Plan water quality objectives for PCBs and ammonia. Discharges associated with the project variant would, in addition, exceed Ocean Plan water quality objectives for chlordane, toxaphene, DDT and TCDD Equivalents. All exceedences, for both projects, could be reduced to less than significant with the same mitigation.

The following impacts would be less severe with the project variant than with the proposed project, as noted:

- The response of the SVGB to the operations of the project variant in the Dune Sands Aquifer and 180-Foot Equivalent Aquifer is much less pronounced than it is under the proposed Project because less water is extracted from the slant wells, more water is provided to CSIP for agricultural users, and from the injection of Salinas Valley return water into the 180-Foot Equivalent Aquifer.
- Interference with the remediation of a contaminated groundwater plume can be mitigated under the proposed project; it can be avoided with operation of the project variant as a result of the dampened groundwater elevation response in the SVGB.
- The combined components of the project variant would use 4,700 MWh/year less energy than the proposed project. The impact remains less than significant for both the proposed project and the project variant since the energy would not be used in a wasteful and inefficient manner.
- The project variant would generate 253 metric tons CO_2e (GHG) per year less than the MPWSP. The impact remains significant and unavoidable for both the proposed project and the project variant.

References – MPWSP Variant and Impact Analysis

California American Water Company (CalAm), 2014. Proposed Water Portfolio Data plus energy spreadsheet provided to CPUC by John T. Kilpatrick on March 12, 2014.

Chaiyarach, S., V. Ratananun and R.C. Harrel. Acute Toxicity of the Insecticides Taxa[hene and Carbaryl and the Herbicides Propanil and Molinate to Four Species of Aquatic Organisms. Bulletin of Environmental Contamination and Toxicology. 14(3): 281 – 284. 1975.

Chiou C. T and D. E. Kile, 2000. Contaminant Sorption by Soil and Bed Sediment – Is There a Difference? USGS Fact Sheet 087-00, June 2000.

Dawoud, Mohamed A. and Mohamed Al Mulla, 2012. Environmental Impacts of Seawater Desalination: Arabian Gulf Case Study, International Journal of Environment and Sustainability, Vol. 1 No. 3, pp. 22-37. 2012.

Denise Duffy and Associates (DDA), 2015. Email from Alison Imamura to Kelly White RE: GWR EIR energy/minerals – energy demand for CalAm water vs. ag irrigation water. Dated April 10, 2015.

Environmental Science Associates (ESA), 2014. Analysis of Historic and Future Coastal Erosion with Sea Level Rise, March 19, 2014.

Environmental Science Associates (ESA), 2015. Air Quality and Greenhouse Gas Emissions Estimates for the Monterey Peninsula Water Supply Project. March 2015.

Flow Science Inc., 2014. *MRWPCA Brine Discharge Diffuser Analysis, FSI 134302 Draft Technical Memorandum*, August 29, 2014.

Denise Duffy and Associates (DDA), 2015. Email from Alison Imamura to Kelly White RE: GWR EIR energy/minerals – energy demand for CalAm water vs. ag irrigation water. Dated April 10, 2015.

Flow Science Inc., 2014. *MRWPCA Brine Discharge Diffuser Analysis, FSI 134302 Draft Technical Memorandum,* August 29, 2014.

Geoscience Support Services, Inc. (Geoscience), 2015. *Draft Monterey Peninsula Water Supply Project Groundwater Modeling and Analysis*, April 17, 2015.

Helder, T., 1980. Effects of 2, 3, 7, 8 – Tetrachlorodibenzo-p-dioxin (TCDD) on Early Life Stages of the Pike (Esox Lucius L.). The Science of the Total Environment, 14 (255-264). 1980.

Illingworth & Rodkin, Inc., 2014a. *Construction Air Quality Analysis for Pure Water Monterey Groundwater Replenishment Project.* December 2014.

Illingworth & Rodkin, Inc., 2014b. *Operational Air Quality Analysis for Pure Water Monterey Groundwater Replenishment Project.* December 2014.

Kenaga, E., 1981. *Aquatic Test Organisms and Methods Useful for Assessment of Chronic Toxicity of Chemicals.* Regulatory Toxicology and Pharmacology 1, 277-292. 1981.

Little, E., Archeski, R., Flerov, B., and V. Kozlovskaya, 1990. *Behavioral Indicators of Sublethal Toxicity in Rainbow Trout.* Arch. Environ. Contam. Toxicol. 19, 380-385. 1990.

Luthy, Richard, 2015. Memorandum *on PCBs In Monterey Bay,* Dated March 26, 2015.

Mehrle, P.M. and F.L. Mayer, Jr. Toxaphene Effects of Growth and Development of Brook Trout (Salvelinus fontenalis) 1975. Journal of the Fisheries Research Board of Canada, 32(5) 605 – 613.

Mehrle, P.M. and F.L. Mayer, Jr. Toxaphene Effects on Growth and Bone Composition of Fathead Minnow, Pimephalis promelas. 1975. Journal of the Fisheries Research Board of Canada, 32(5) 593 – 598.

Monterey County Airport Land Use Commission, 1987. *Comprehensive Land Use Plan for the Monterey Peninsula Airport.* March 23, 1987.

Monterey County Airport Land Use Commission, 1996. *Comprehensive Land Use Plan for the Marina Municipal Airport.* November 18, 1996.

Monterey County Zoning Administrator, 2009. Resolution No. 090193 in the matter of the application of J & J Armstrong Limited Partnership approving a Use Permit for the Regional Urban Water Augmentation Project Recycled Water Pipeline through Armstrong Ranch land, adopted December 10, 2009.

Monterey Regional Water Pollution Control Agency (MRWPCA), Influent SVRP-ocean outfall flows 1998-2012 and wastewater quality data received from MRWPCA, 2013.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2015. *Draft Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project.* April 2015.

Moore, M., Huggett, D., Gillespie, W., Rodgers, J., and C. Cooper, 1998. Comparative Toxicity of Chlordane, Chlorpyrifos, and Aldicarb to Four Aquatic Testing Organisms. Arch. Environ. Contam. Toxicol. 34, 152-157. 1998.

Ninyo & Moore, 2014. *Preliminary Geotechnical Evaluation, Groundwater Replenishment Project EIR, Monterey County, California*. December 2, 2014.

Norris, L., and R. Miller, 1974. The Toxicity of 2, 3, 7, 8 – Tetrachlorodibenzo-p-dioxin (TCDD) in Guppies (Peocilia reticulatus Peters). Bulletin of Environmental Contamination Toxicology. Vol. 12, No. 1. 1974

RBF Consulting, 2013. *Memorandum: Recommended Capacity for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant.* January 7, 2013.

Regional Water Quality Control Board (RWQCB), Central Coast Region, 2014. Waste Discharge Requirements for Monterey Regional Water Pollution Control Agency (MRWPCA) Regional Treatment Plant Order No. R3-2014-0013, NPDES Permit No. CA0048551, 2014.

Roberts, R., Johnston, E., Knott, N., 2010. Impacts of Desalination Plant Discharges on the Marin Environment: A Critical Review of Published Studies, Water Research (2010), doi:10.1016/j.watres.2010.04.036.

State Water Resources Control Board (SWRCB), 2012a. Management of Brine Discharges to Coastal Waters, Recommendations of a Science Advisory Panel, Technical Report 694. March 2012.

State Water Resources Control Board (SWRCB), 2014. Draft Staff Report Including the Draft Substitute Environmental Documentation. Amendment to the Water Quality Control Plan For Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Nonsubstantive Changes.

State Water Resources Control Board (SWRCB), 2015. Draft Staff Report Including the Draft Substitute Environmental Documentation. Amendment to the Water Quality Control Plan For Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Non-substantive Changes.

Todd Groundwater, 2015a. *Draft Recharge Impacts Assessment Report* prepared for Monterey Regional Water Pollution Control Agency, March 2015.

Todd Groundwater, 2015b. *Draft Hydrogeologic Field Investigation: MRWPCA Monitoring Well 1 (MW-1) Installation, Groundwater Quality Characterization, and Geochemical Assessment, Monterey Peninsula Groundwater Replenishment (GWR) Project*, prepared for Monterey Regional Water Pollution Control Agency, March 2015.

Trussell Technologies, Inc. 2015. Ocean Plan Compliance Assessment and Addendum Report for the Pure Water Monterey Groundwater Replenishment Project. March and April 2015.

U.S. Department of Health and Human Services, 2000. Toxicological Profile for Polychlorinated Biphenyls (PCBs), November 2000.

U.S. Department of Health and Human Services. Toxicological Profile for Toxaphene. Published by Public Health Service, Agency for Toxic Substances and Disease Registry. August 1996.