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5.15 Water Resources

This section provides a discussion of the existing water resources near the Alamitos Energy Center (AEC) site and assesses the potential effects of construction and operation of the AEC on water resources. Specifically, this chapter discusses the project and its potential effects in the following areas:

- Water supply and quality
- Disposal of wastewater
- Stormwater discharge
- Flooding

Section 5.15.1 discusses the existing hydrologic environment. Potential environmental effects of the construction and operation of the AEC on water resources are discussed in Section 5.15.2. A discussion of potential cumulative project effects is presented in Section 5.15.3. Section 5.15.4 discusses proposed mitigation measures that will avoid or minimize significant effects. Section 5.15.5 presents applicable laws, ordinances, regulations, and standards (LORS) related to water resources. Section 5.15.6 describes permits that relate to water resources, lists contacts with relevant regulatory agencies, and presents a schedule for obtaining permits. References cited are listed in Section 5.15.7.

5.15.1 Affected Environment

AES Southland Development, LLC (AES-SLD) proposes to construct, own, and operate the AEC—a natural-gas-fired, air-cooled, combined-cycle, electrical generating facility in Long Beach, Los Angeles County, California. The proposed AEC will have a net generating capacity of 1,936 megawatts (MW) and gross generating capacity of 1,995 MW.[1] The AEC will replace and be constructed on the site of the existing Alamitos Generating Station.

The AEC will consist of four 3-on-1 combined-cycle gas turbine power blocks with twelve natural-gas-fired combustion turbine generators (CTG), twelve heat recovery steam generators (HRSG), four steam turbine generators four air-cooled condensers, and related ancillary equipment. The AEC will use air-cooled condensers for cooling, completely eliminating the existing ocean water once-through-cooling system. The AEC will use potable water provided by the City of Long Beach Water Department (LBWD) for construction, operational process, and sanitary uses but at substantially lower volumes than the existing Alamitos Generating Station has historically used. This water will be supplied through existing onsite potable water lines.

The AEC will interconnect to the existing Southern California Edison 230-kilovolt switchyard adjacent to the north side of the property. Natural gas will be supplied to the AEC via the existing offsite 30-inch-diameter pipeline owned and operated by Southern California Gas Company that currently serves the Alamitos Generating Station. Existing water treatment facilities, emergency services, and administration and maintenance buildings will be reused for the AEC. The AEC will require relocation of the natural gas metering facilities and construction of a new natural gas compressor building within the existing Alamitos Generating Station site footprint. Stormwater will be discharged to two retention basins and then ultimately to the San Gabriel River via existing stormwater outfalls.

The AEC will include a new 1,000-foot process/sanitary wastewater pipeline to the first point of interconnection with the existing LBWD sewer system and will eliminate the current practice of treatment and discharge of process/sanitary wastewater to the San Gabriel River. The project may also require upgrading approximately 4,000 feet of the existing offsite LBWD sewer line downstream of the first point of interconnection, therefore, this possible offsite improvement to the LBWD system is also analyzed in this AFC. The total length of the new pipeline (1,000 feet) and the upgraded pipeline (4,000 feet) is approximately 5,000 feet.

[1] Referenced to site ambient average temperature conditions of 65.3 degrees Fahrenheit (°F) dry bulb and 62.7°F wet bulb temperature without evaporative cooler operation.

To provide fast-starting and stopping, flexible generating resources, the AEC will be configured and deployed as a multi-stage generating (MSG) facility. The MSG configuration will allow the AEC to generate power across a wide and flexible operating range. The AEC can serve both peak and intermediate loads with the added capabilities of rapid startup, significant turndown capability (ability to turn down to a low load), and fast ramp rates (30 percent per minute when operating above minimum gas turbine turndown capacity). As California's intermittent renewable energy portfolio continues to grow, operating in either load following or partial shutdown mode will become necessary to maintain electrical grid reliability, thus placing an increased importance upon the rapid startup, high turndown, steep ramp rate, and superior heat rate of the MSG configuration employed at the AEC.

By using proven combined-cycle technology, the AEC can also run as a baseload facility, if needed, providing greater reliability to meet resource adequacy needs for the southern California electrical system. As an in-basin generating asset, the AEC will provide local generating capacity, voltage support, and reactive power that are essential for transmission system reliability. The AEC will be able to provide system stability by providing reactive power, voltage support, frequency stability, and rotating mass in the heart of the critical Western Los Angeles local reliability area. By being in the load center, the AEC also helps to avoid potential transmission line overloads and can provide reliable local energy supplies when electricity from more distant generating resources is unavailable.

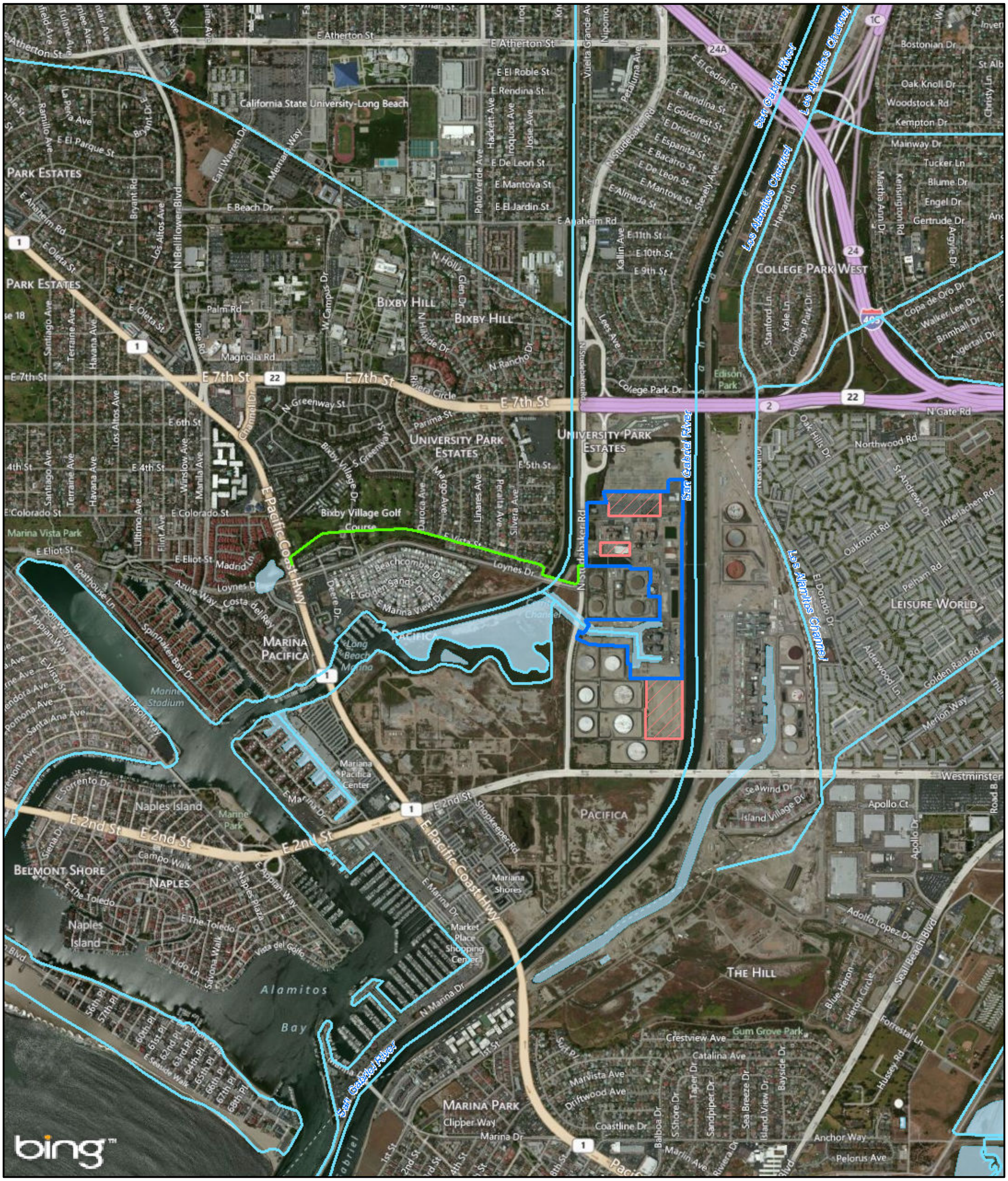
The AEC's combustion turbines and associated equipment will include the use of best available control technology to limit emissions of criteria pollutants and hazardous air pollutants. By being able to deliver flexible operating characteristics across a wide range of generating capacity, at a relatively consistent and superior heat rate, the AEC will help lower the overall greenhouse gas emissions resulting from electrical generation in southern California and allow for smoother integration of intermittent renewable resources.

Existing Alamitos Generating Station Units 1–6 are currently in operation. All six operating units and retired Unit 7 will be demolished as part of the proposed project. Construction and demolition activities at the project site are anticipated to last 139 months, from first quarter 2016 until third quarter 2027. The project will commence with the demolition of retired Unit 7 and other ancillary structures to make room for the construction of AEC Blocks 1 and 2. The demolition of Unit 7 will commence in the first quarter of 2016. The construction of Block 1 is scheduled to commence in the third quarter of 2016 and construction of Block 2 is scheduled to commence in the fourth quarter of 2016. The demolition of existing Units 5 and 6 will make space for the construction of AEC Block 3. AEC Block 3 construction is scheduled to commence in the first quarter of 2020 and will be completed in the second quarter of 2022. The demolition of existing Units 3 and 4 will make space for the construction of AEC Block 4. AEC Block 4 construction is scheduled to commence in the second quarter of 2023 and will be completed in the fourth quarter of 2025. The demolition of remaining existing units is scheduled to commence in the third quarter of 2025.

Construction of the AEC will require the use of onsite laydown areas (approximately 8 acres dispersed throughout the existing site) and an approximately 10-acre laydown area located adjacent to the existing site. The adjacent 10-acre laydown area will be shared with another project being developed by the Applicant (Huntington Beach Energy Project [HBEP] 12-AFC-02). Due to the timing for commencement of construction for these two projects, the adjacent laydown area will already be in use for equipment storage before AEC construction begins.

5.15.1.1 Water Features, Rainfall, and Drainage

The San Gabriel River is immediately adjacent to the east of the site. Alamitos Bay, a marina owned by the City of Long Beach, is located to the west of the site. There are several freshwater ponds, estuarine and emergent wetland areas, and human-made channels south and west of the project area (Figure 5.15-1). There are five existing retention basins on the site. These lined retention basins are along the eastern boundary of the site and are used for onsite runoff from storm drains, boilers, and sumps.



Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline
- Water Features
- Waterbody

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FIGURE 5.15-1
Surface Water Resources
Alamitos Energy Center
Long Beach, California

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The Regional Water Quality Control Boards (RWQCB) make water quality decisions for their designated region, including setting standards, issuing waste discharge requirements (WDR), determining compliance with those requirements, and taking appropriate enforcement actions. Each RWQCB adopts Water Quality Control Plans, or Basin Plans, that establish water quality objectives to ensure the reasonable protection of beneficial uses and a program of implementation for achieving water quality objectives within the basin. For waters not attaining water quality standards, the RWQCB establishes total maximum daily loads (TMDL) and a program of implementation to meet the TMDLs.[2]

The AEC site is within the boundaries of the Los Angeles RWQCB. Water quality objectives for Long Beach are contained in the Basin Plan for the Los Angeles Region (Los Angeles RWQCB, 1994). San Gabriel River Estuary, Alamitos Bay, and Los Cerritos Channel are considered impaired water bodies on the 2010 TMDL list approved by the U. S. Environmental Protection Agency. Table 5.15-1 lists the pollutants for which the San Gabriel River Estuary, Alamitos Bay, and Los Cerritos Channel are listed as impaired and the proposed TMDL completion dates.

TABLE 5.15-1
Clean Water Act Section 303(d) List of Water Quality Impairments

Pollutant/Stressor	Potential Sources	Water Body Type	Proposed TMDL Completion
San Gabriel River Estuary			
Copper	Source Unknown	River & Stream	N/A
Dioxin	Source Unknown	River & Stream	2021
Nickel	Source Unknown	River & Stream	2021
Dissolved Oxygen	Source Unknown	River & Stream	2021
Alamitos Bay			
Indicator Bacteria	Source Unknown	Bay & Harbor	2019
Los Cerritos Channel			
Ammonia	Point Source	Tidal Wetland	2015
Ammonia	Nonpoint Source	Tidal Wetland	2015
Bis(2ethylhexyl)phthalate (DEHP)	Source Unknown	Tidal Wetland	2019
Chlordane (sediment)	Source Unknown	Tidal Wetland	2019
Coliform Bacteria	Nonpoint Source	Tidal Wetland	2019
Copper	Nonpoint Source	Tidal Wetland	2019
Lead	Nonpoint Source	Tidal Wetland	2019
Trash	Source Unknown	Tidal Wetland	2019
Zinc	Nonpoint Source	Tidal Wetland	2019
pH	Unknown Nonpoint Source	Tidal Wetland	2021

Source: State Water Resources Control Board (SWRCB), 2010

[2] Section 303(d) of the Clean Water Act requires that the states make a list of waters that are not attaining water quality standards. For waters on this list, the states are to develop total maximum daily loads or TMDLs. A TMDL must account for all sources of the pollutants that caused the water to be listed. Federal regulations require that the TMDL, at a minimum, account for contributions from point sources (federally permitted discharges) and contributions from nonpoint sources. TMDLs are established at the level necessary to implement the applicable water quality standards. In California, the State Water Resources Control Board (SWRCB) has interpreted state law (Porter-Cologne Water Quality Control Act, California Water Code Section 13000 et. seq.) to require that implementation be addressed when TMDLs are incorporated into Basin Plans. The Porter-Cologne Act requires each RWQCB to formulate and adopt Basin Plans for all areas within its region. It also requires that a program of implementation be developed that describes how water quality standards will be attained. TMDLs can be developed as a component of the program of implementation, thus triggering the need to describe the implementation features, or alternatively as a water quality standard. When the TMDL is established as a standard, the program of implementation must be designed to implement the TMDL.

Long Beach experiences mild summers and cool winters. August is the warmest month of the year, with an average maximum temperature of 84.0°F. January is the coldest month of the year, with an average maximum temperature of 66.9°F. Annual average precipitation in Long Beach is 12.03 inches. Most rainfall occurs during November through March. The wettest month of the year is February, with an average rainfall of 2.85 inches (Western Regional Climate Center [WRCC], 2013). Table 5.15-2 provides average historical rainfall from the nearby meteorological station at Long Beach Municipal Airport, which is approximately 4.3 miles from the AEC.

TABLE 5.15-2
Rainfall near the AEC Site (1958–2012)

Precipitation	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	12.03	2.60	2.85	1.81	0.70	0.20	0.06	0.02	0.06	0.19	0.42	1.21	1.81
Maximum	27.67	12.76	12.09	8.75	4.42	2.32	0.86	0.34	2.03	1.45	5.34	6.05	10.41
Minimum	2.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: WRCC, 2013

5.15.1.2 Groundwater

The AEC site is in the Central Subbasin of the Coastal Plain of Los Angeles Groundwater Basin, which lies inland, adjacent to the West Coast Subbasin, and has a surface area of 277 square miles (Figure 5.15-2). The total capacity of the Central Basin is 13,800,000 acre-feet (Department of Water Resources [DWR], 2004). The main productive freshwater-bearing sediments are contained within Holocene alluvium and the Pleistocene Lakewood and San Pedro Formations. The main additional productive aquifers in the subbasin are the Gardena and Gage aquifers within the Lakewood Formation and the Silverado, Lynwood, and Sunnyside aquifers within the San Pedro Formation. Historically, groundwater flow in the Central Basin has been from recharge areas in the northeast part of the subbasin, toward the Pacific Ocean on the southwest. However, pumping has lowered the water level in the Central Basin and water levels in some aquifers are about equal on both sides of the Newport-Inglewood uplift, decreasing subsurface outflow to the West Coast Subbasin (DWR, 2004).

Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water; and replenishes the aquifers in the forebay areas where permeable sediments are exposed at ground surface. Natural replenishment of the subbasin's groundwater supply is largely from surface inflow through Whittier Narrows (and some underflow) from the San Gabriel Valley. Imported water purchased from Metropolitan Water District of Southern California (MWD) and recycled water from Whittier and San Jose Creek Treatment Plants are used for artificial recharge in the Montebello Forebay at the Rio Hondo and San Gabriel River spreading grounds. Saltwater intrusion is a problem in areas where recent or active river systems have eroded through the Newport Inglewood uplift. A mound of water to form a barrier is formed by injection of water in wells along the Alamitos Gap (DWR, 2004).

LBWD serves as the regional wholesaler and developer of local water supplies, as well as providing recycled water. LBWD has the right to pump over 30,000 acre-feet per year of groundwater from the Central Basin. Groundwater extracted from the Central Subbasin satisfies up to 60 percent of the LBWD's water demand. Underground water in the Central Basin, from which groundwater is produced for Long Beach, has the San Gabriel Mountains via the San Gabriel River as its primary source. Increased water demand in the San Gabriel Valley by the mid-1900s significantly reduced the southerly flows to the Central Basin, which further contributed to the falling water tables. To protect this source of local water supply, in 1959, the Board of Water Commissioners instituted a lawsuit against major water producers in the upper San Gabriel Valley to guarantee water supplies to Central Basin producers. Parties to the lawsuit negotiated a settlement that provided the basis of stipulation for judgment (the "Long Beach Judgment") rendered by the Superior Court on October 8, 1965. This judgment guarantees the replenishment waters will continue in perpetuity (LBWD, 2013).

Legend

Project Boundary

Parking/Laydown Construction Area

Process/Sanitary Wastewater Pipeline

Groundwater Basin

Coastal Plain of Los Angeles

Coastal Plain of Orange County

0 1,000 2,000 Feet

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FIGURE 5.15-2
Groundwater Basins
Alamitos Energy Center
Long Beach, California

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Beneficial uses for the Central Subbasin groundwater include: Municipal and Domestic Supply, Agricultural Supply, Industrial Process Supply, and Industrial Service. As a source of municipal and domestic water supply, groundwater wells generally meet most drinking water standards subject to some localized impairments (Table 5.15-3).

TABLE 5.15-3
Water Quality in Public Supply Wells

Constituent Group[a]	Wells Sampled[b]	Wells with a Concentration above Maximum Contaminant Level (MCL)[c]
Central Subbasin		
Inorganics - Primary	316	15
Radiological	315	1
Nitrates	315	2
Pesticides	322	0
VOCs and SVOCs	344	43
Inorganics – Secondary	316	113

[a]A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in California's Groundwater – Bulletin 118 by DWR (2004).

[b]Represents distinct number of wells sampled as required under the Title 22 program from 1994 through 2000.

[c]Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

SVOC = semivolatile organic compound
VOC = volatile organic compound

Source: DWR, 2004

5.15.1.3 Flooding Potential

The AEC site is outside the 100-year floodplain, in Zone X as defined by the Federal Emergency Management Agency (FEMA), which means it is an area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods (FEMA, 2008). The FEMA floodplains are shown on Figure 5.15-3.

The AEC site is adjacent to an area mapped for tsunami susceptibility run-up hazard (California Emergency Management Agency, 2013). Tsunamis are seismically induced ocean waves with very long periods (the duration between waves). Tsunamis may be manifested in the form of wave bores or a gradual upwelling of sea level and can be caused by landslides or earthquakes. The offshore area of Los Angeles County area contains many faults and fault scarps capable of producing tsunamis; however, seismically induced sea waves are uncommon. Seven tsunamis have been recorded in California. In southern California, a significant tsunami was associated with the 1960 Chile Earthquake. Damage occurred in the Long Beach–Los Angeles harbor, where 5-foot-high waves surged back and forth in channels, causing damage to small boats and yachts. Tsunami tidal surge occurred in the Long Beach Harbor from the magnitude 8.8 Chile Earthquake in February 2010, and minor effects were reported in the Long Beach Harbor from the March 2011 Japan tsunami.

Seiches are defined as oscillations in confined or semi-confined bodies of water due to earthquake shaking. The AEC site is adjacent to the San Gabriel River channel and within 0.5-mile of an enclosed bay or harbor that could be subject to seiches caused by tsunamis that are captured and reflected within the enclosed area of an inner harbor.

Flooding potential in the project vicinity also may be associated with predicted sea level rise as a result of climate change. The AEC site is approximately 12 to 15 feet above existing mean sea level. The California Energy Commission (CEC) forecasts that by 2030 the mean sea level in southern California could rise between 4 and 30 centimeters (cm), or approximately 1.5 inches to 1 foot, because of climate change (CEC, 2009). By 2050, the CEC's forecasted mean sea level in southern California may rise by 0.5 meter (approximately 1.5 feet) (CEC, 2009, page 8, Figure 2). Additionally, with the predicted rise in sea level, wave-induced storm surges and higher wave run-up may affect coastal areas. The CEC 2009 report includes a forecast of wave-induced storm surges in California of up to 1.5 meters (approximately 5 feet).

Depending on several factors, the AEC has a projected operational expectancy of approximately 30 years, or until approximately 2050, based on an expected commercial operation date (COD) of 2019 to 2025. The combination of predicted sea level rise (approximately 1.5 feet) and increased wave-induced storm surges (approximately 5 feet) in southern California could result in an increased depth of inundation in the project area of approximately 6.5 feet from wave-induced storm surges; however, as the AEC site's existing elevation is approximately 12 to 15 feet above existing mean sea level, there would still be a buffer of at least 5.5 feet on the AEC site through its expected operational period of approximately 2050 (based on a COD of 2019 to 2025 and 30 years of site operations).

The design and engineering of the AEC will meet applicable LORS, including those related to flood protection, such as California and federal building code requirements and applicable LORS of the City of Long Beach and Los Angeles County. The design and engineering of the AEC will also address any applicable LORS related to predicted sea level rise, storm surge/wave run-up inundation, and site flooding protection.

5.15.1.4 Water Supply

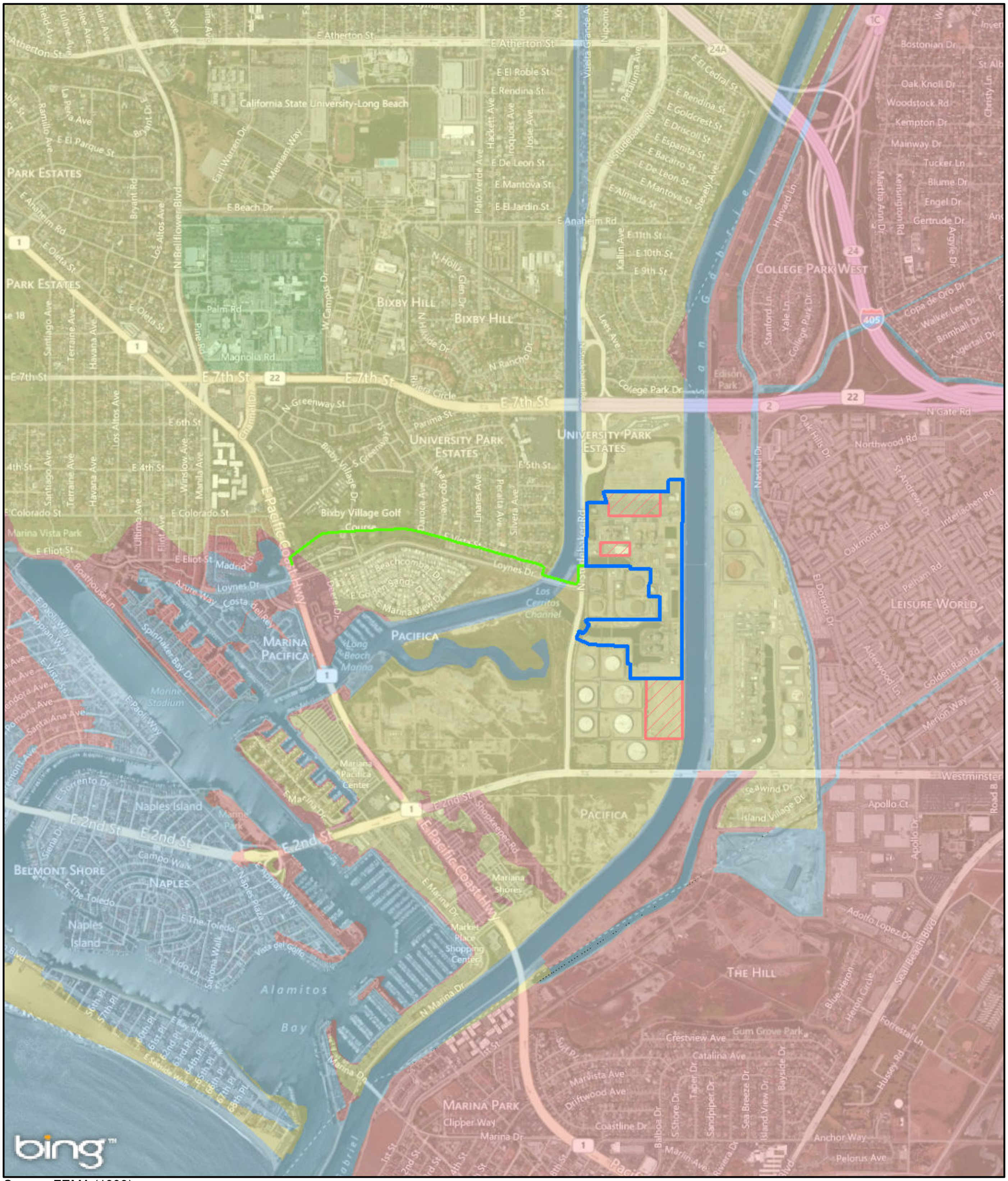
This section describes the quantity of water required for the project, the sources of the water supply, and water quality of the source water.

5.15.1.4.1 Process Water

The AEC will use potable water provided by the LBWD for process water. Process water will be used for the turbine compressor wash, evaporative cooling, HRSG blowdown and makeup water, emergency fire protection and domestic and sanitary uses. Currently, LBWD supplies the existing Alamitos Generating Station with potable water for process via an existing pipeline interconnection. The project will use the existing LBWD pipeline that enters the site along Studebaker Road for potable water supply.

The annual potable water requirements for operation of the AEC at maximum permit loads will be substantially less than the actual historical potable water consumption of the existing Alamitos Generating Station as demonstrated from a comparison of actual water use at the Alamitos Generating Station from 2010 through 2012. Figures 2.1-5a and 2.1-5b provide the water balances for the AEC, representing two operating conditions. Figure 2.1-5a represents AEC operations under site annual average ambient temperature (SAAT) conditions with the turbines operating at 100 percent load without the inlet air evaporative cooling operating. For the SAAT conditions, AEC water use will be approximately 165.6 gallons per minute and approximately 176 acre-feet per year (assuming 3,685 hours of operation at the average maximum daily temperatures including start up and shutdown hours), as shown in Table 5.15-4.
Figure 2.1-5b shows AEC operations at site peak summer ambient temperature (SPSAT) conditions with the turbines operating at 100 percent load with the inlet evaporative cooling operating. Under SPSAT conditions (107°F dry bulb temperature and 10 percent relative humidity) with three turbines operating at 100 percent load and CTG inlet evaporative cooling, water use will be approximately 905.2 gallons per minute. Based on water volumes from 2010 through 2012, the Alamitos Generating Station has historically used approximately 255 gallons per minute and 412 acre-feet per year. Because the existing Alamitos Generating Station uses more potable water than is proposed for use by the AEC, the AEC will result in a net reduction of potable water use and a beneficial impact on potable water supply.

LBWD has provided a will-serve letter (see Appendix 2E) indicating there is sufficient supply of potable water to accommodate the project. Information about the feasibility of other water supply sources is presented in Section 6.6.3. As noted in Section 6.6.3, water supply alternatives including the potential use of reclaimed water to support the AEC were analyzed and determined to be infeasible.



Source: FEMA (1993).

Legend

- Project Boundary
- Parking/Laydown Construction Area
- Process/Sanitary Wastewater Pipeline

FEMA Flood Zone

A	An area inundated by 1% annual chance flooding, for which no BFEs have been determined.
ANI	An area that is located within a community or county that is not mapped on any published FIRM.
X	Areas determined to be outside 500-year floodplain determined to be outside the 1% and 0.2% annual chance floodplains.
X500	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. An area inundated by 0.2% annual chance flooding.

0 1,000 2,000 Feet

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FIGURE 5.15-3
FEMA Flood Plains
Alamitos Energy Center
Long Beach, California

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The City of Long Beach's water supply, which is provided by LBWD, uses a combination of groundwater, imported surface water, and recycled water. Groundwater extracted from the Central Subbasin satisfies up to 60 percent of the LBWD's water demand (LBWD, 2013). Approximately one-quarter of the LBWD's potable water supply is treated surface water purchased from MWD. This water originates from two sources: the Colorado River, via the 242-mile Colorado River Aqueduct and Northern California's Bay-Delta region, via the 441-mile California Aqueduct. LBWD also accommodates nearly 15 percent of Long Beach's water demand through reclaimed water supplies. Reclaimed water originates from the Long Beach Water Reclamation Plant on the east side of the city. Table 5.15-5 shows the expected water quality for AEC uses.

TABLE 5.15-4
Estimated Daily and Annual Water Use for AEC Operations

Water Use	Average Daily Use Rate (gpm)	Peak Use Rate (gpm)	Average Annual Use* (acre-feet per year)
Potable water	165.6	905.2	176.3

*Assumes 3,685 hours of operation, at the average maximum daily temperature.

gpm = gallon(s) per minute

TABLE 5.15-5
Expected Water Quality from Long Beach Water Department (Blended Zone Quality)

Parameter	Units	MCL	Range of Detections Blended Water	Amount Detected Blended Water	MCL Violation
Aluminum	mg/L	1	0.069-0.137	0.092	No
Arsenic	µg/L	10	ND – 3.0	2.0	No
Bromate[a,d]	µg/L	10	ND-2.2	<2.0	No
Chloramines[b]	mg/L	4.0 as Cl2	0.48-2.88	2.1	No
Haloacetic Acids (HAAs)-Stage 2[a]	µg/L	60	7-19	17	No
TTHMs[a]	µg/L	80	34-69	61	No
Total Coliform Bacteria[c]	%pos. samples	>5% of monthly	0-0.44%	0.044%	No
Fluoride	mg/L	2	0.81-0.91	0.86	No
Nitrate as Nitrite	mg/L	45	ND-0.22	0.08	No
Chloride	mg/L	500[f]	35-84	46	No
Color	color units	15[f]	ND – 4	1	No
Odor[e]	odor units	3[f]	NA	1	No
Specific Conductance	µmho/cm	1,600[f]	401-737	486	Yes[g]
Sulfate	mg/L	500[f]	20-120	46	No
Total Dissolved Solids	mg/L	1,000[f]	232-424	289	Yes[g]
Turbidity	NTU	5[f]	0.08-0.11	0.11	No
Boron	µg/L	Not Regulated	NA	130	NA
Calcium	mg/L	Not Regulated	19-43	26	NA
Hardness, total	mg/L	Not Regulated	60-184	93	NA
Magnesium	mg/L	Not Regulated	2.4-18	6.8	NA
pH	pH units	Not Regulated	7.79-8.22	8.07	NA
Sodium	mg/L	Not Regulated	61-74	69	NA
Nitrosodimethylamine (NDMA)	ng/L	Not Regulated	<2.0-3.5	<2.0	NA
Potassium	mg/L	Not Regulated	1.4-3.6	1.9	No

TABLE 5.15-5
Expected Water Quality from Long Beach Water Department (Blended Zone Quality)

Parameter	Units	MCL	Range of Detections Blended Water	Amount Detected Blended Water	MCL Violation
Silica	mg/L	Not Regulated	8.1-20	16	No
Uranium	pCi/L	20	3.0-9.4	1.6-3.7	No

[a]Citywide sample, byproducts of disinfection
[b]Citywide sample, disinfectant added
[c]Citywide sample, naturally present in environment
[d]Imported water supplied with detectable levels of bromate
[e]Single value from annual monitoring
[f]Contaminant is regulated as a secondary standard
[g]Specific conductance and total dissolved solids (TDS) were detected above their respective Secondary MCLs in one well. Secondary MCLs are established for various compounds to protect against unpleasant aesthetic effects, such as taste and color. Exceeding Secondary MCLs for these compounds does not pose a health risk.

µg/L = micrograms per liter
µmho/cm = micromhos per centimeter
MCL = Maximum Contaminant Level
mg/L = milligrams per liter
NA = Not Applicable
ND = Not Detected
ng/L = nanograms per liter
NTU = nephelometric turbidity unit
pCi/L = picocuries per liter
ppb = parts per billion
ppm = parts per million
ppt = parts per trillion
TTHM = total trihalomethanes

Source: LBWD, 2012

AEC makeup water will be fed directly from LBWD service connections through metering equipment into an existing 428,000-gallon service water tank, of which 228,000 gallons will be dedicated solely to firefighting supply. The remaining 200,000 gallons will be used as plant service water, irrigation water, makeup to the combustion turbine inlet air evaporative coolers, and raw feed to the steam cycle makeup water treatment system. A second 150,000-gallon service water tank will be added to the project and an existing 300,000-gallon storage tank also will be used for service water. A new 150,000-gallon deionized water tank will be added to the project (in addition to three existing 300,000-gallon storage tanks that will be reused) to provide approximately 5 days of operational service water storage.

5.15.1.4.2 Domestic and Sanitary Water Use

Potable water will be supplied to the AEC via an existing LBWD pipeline. Because the AEC’s combined cycle technology requires much less potable water than the existing Alamitos Generating Station’s boiler systems, the AEC’s potable water requirements are significantly lower than the existing generating station’s current use. All the existing connections will be used to support the AEC. No new offsite potable water supply pipelines will be required for the project. The AEC will employ a staff of 51 to operate the facility. Staff will include power plant operators, supervisors, administrative personnel, mechanics, and electricians (see Table 2.4-1). The facility will be capable of operating 24 hours per day, 7 days per week. A minimal amount of potable water will be used for sanitary use, drinking, eye wash, safety showers, and fire protection water (less than 1 gallon per minute, as needed).

5.15.1.5 Wastewater Collection, Treatment, Discharge, and Disposal

Process wastewater from the AEC will be discharged to the public sewer system via a new 1,000-foot process/sanitary wastewater pipeline to the first point of interconnection with the existing LBWD sewer system and will eliminate the current practice of treatment and discharge of process/sanitary wastewaster to the San Gabriel River. Discharge to LBWD would be approximately 112.3 gallons per minute and 81.7 acre-feet per year (assuming 3,686 hours of operation, at the average annual temperatures) with a maximum discharge rate of 190 gallons per minute[3], as shown in Table 5.15-6 and Figures 2.1-5a and 2.1-5b. Table 5.15-7 lists the expected process wastewater quality at the AEC point of connection. A wastewater discharge tank (labeled “Clear Water Storage Tank” on Figure 2.1-2) is included in the project design to allow wastewater discharge flows to be controlled when the AEC is fully operational.

TABLE 5.15-6
Estimated Daily and Annual Wastewater Discharge for AEC Operations

Wastewater Use	Average Daily Discharge Rate (gpm)	Maximum Daily Discharge Rate (gpm)	Average Annual Discharge* (acre-feet per year)
Wastewater to City Sewer	112.3	190	81.7

*Assumes 3,686 hours of operation at the average daily maximum temperature.

TABLE 5.15-7
Expected AEC Process Wastewater Quality

Parameter	Units	Concentration
Calcium	mg/L as Ca	99.52
Magnesium	mg/L as Mg	30.72
Sodium	mg/L as NA	217.79
Potassium	mg/L as K	9.38
Total Alkalinity	mg/L as $CaCO_3$	300.31
Chloride	mg/L as Cl	173.73
Sulfate	mg/L as SO_4	300.48
Nitrate	mg/L as NO_3	0.83
Silica	mg/L as SiO_2	34.10
Phosphorous	mg/L as P	2.52
Phosphate	mg/L as PO_4	7.64
Conductivity	µmho/cm	1768.21
Total Organic Carbon	mg/L	0.00
Total Dissolved Solids	mg/L	1080.62
Aluminum	µg/L as Al	242.94
Arsenic	µg/L as	3.27
Boron	µg/L	355.49
Bromate	µg/L	8.11
Copper	µg/L as Cu	332.43
Fluoride	mg/L	2.23
Lead	µg/L as Pb	0.54
Total Hardness	mg/L as $CaCO_3$	409.70
Alpha Radiation	pCi/L	3.94
Uranium	pCi/L	2.93

µg/L = micrograms per liter
µmho/cm = micromhos per centimeter
pCi/L = picocuries per liter
mg/L = milligrams per liter

[3] The LBWD has requested that AEC limit process/sanitary discharges to less than 190 gpm.

General plant drains will collect containment area wash down, sample drains, and drainage from facility equipment drains. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping, and routed to the process drain collection system. Drains that potentially could contain oil or grease will first be routed through an oil/water separator. The AEC will have a total of three oil/water separators, one for Blocks 1 and 2 and one each for Blocks 3 and 4. Each oil/water separator will be an aboveground tank with a capacity of 3,000 gallons and a maximum throughput of 300 gallons per minute. Wastewater streams that are unlikely to contain oil and grease, including CTG inlet air evaporative cooler blowdown, HRSG blowdown, blowdown from the auxiliary cooling system fin fan fluid cooler, and reverse osmosis reject will bypass the oil/water separator. Miscellaneous wastewaters, including those from combustion turbine water washes and from some water treatment membrane-based system's cleaning operations, will be collected in holding tanks or sumps and will be trucked offsite for disposal at an approved wastewater disposal facility. Information about the feasibility of alternative wastewater disposal options is presented in Section 6.5.6. As described in Section 6.5.6, alternatives were analyzed and determined to be infeasible.

Sanitary wastewater from sinks, toilets, showers, dishwashers, and other sanitary facilities will be conveyed via the new 1,000-foot wastewater pipeline to the first point of interconnection with the existing LBWD sewer system and will eliminate the current practice of treatment and discharge of process/sanitary wastewaster to the San Gabriel River.[4] The LBWD delivers sanitary wastewater to the Sanitation Districts of Los Angeles County (LACSD). The water balance diagrams, Figures 2.1-5a and 2.1-5b, show the expected sanitary wastewater streams. The sanitary wastewater flows would be 0.57 gpm under both the annual average and peak summer conditions (as shown in the water balances in Figures 2.1-5a and 2.1-5b).

A will-serve letter from LBWD indicating there is sufficient capacity to receive sanitary and industrial wastewater from the AEC is included in Appendix 2E. An Industrial Wastewater Discharge Permit is required from the City of Long Beach. AEC discharges will be required to meet standards for industrial waste discharge pursuant to the LACSD Wastewater Ordinance and City of Long Beach rules and regulations, including numeric standards for constituents of concern. Issuance of an Industrial Wastewater Discharge Permit also will require payment of a sewer capacity charge and implementation of a discharge sampling and monitoring program.

5.15.1.6 Stormwater

Stormwater will be collected in two recontoured onsite retention basins and then discharged to the San Gabriel River via the existing permitted outfall for the existing Alamitos Generating Station. A portion of the existing onsite storm drains will remain in place. New inlets and storm drains will be installed in the eastern portion of the site to convey rainwater to the new retention pond. Drainage plans showing existing and proposed drainage basins, and calculations for the proposed drainage basins, are included in Appendix 5.15A. Stormwater that falls within process equipment containment areas will be collected and discharged to a process drain system, which will consist of oil/water separators and two retention basins. The residual oil-containing sludge will be collected via vacuum truck and disposed of as hazardous waste. Stormwater that falls within the plant in pavement area and outside the process equipment containment areas will either percolate directly into the soil or drain over the surface into the retention basins to assist with the removal of suspended solids.

5.15.1.7 Construction and Demolition

Construction and demolition activities at the project site are anticipated to last 139 months, from January 2016 until July 2027. The project will commence with the demolition of retired Alamitos Generating Station Unit 7 and other ancillary structures to make room for the construction of AEC Blocks 1 and 2 on the

[4] The 1,000-foot pipeline references the installation of a new pipeline to the first point of interconnection with the LBWD sanitary system. LBWD has indicated that upgrade of the remainder of this pipeline (another 4,000 feet) may be required and this analysis assumes the entire 5,000-foot pipeline is included as part of the project.

Alamitos Generating Station site. The demolition of Alamitos Generating Station Unit 7 will commence in the first quarter of 2016. The construction of Block 1 is scheduled to commence in the third quarter of 2016, and construction of Block 2 is scheduled to commence in the fourth quarter of 2016. The demolition of Alamitos Generating Station Units 5 and 6 will make space for the construction of AEC Block 3. AEC Block 3 construction is scheduled to commence in the first quarter of 2020 and to be completed in the second quarter of 2022. The demolition of Alamitos Generating Station Units 3 and 4 will make space for the construction of AEC Block 4. AEC Block 4 construction is scheduled to commence in the second quarter of 2023 and to be completed in the fourth quarter of 2025. The demolition of the remaining Alamitos Generating Station units is scheduled to commence in the third quarter of 2025.

Parking for construction and demolition workers will be available onsite. Figure 2.1-1 identifies laydown and parking areas. These areas will provide adequate parking space for construction and demolition personnel, as well as visitors during construction and demolition.

In addition to field office siting, areas within the site will be used for offloading and laydown and for storage of materials, equipment, and vehicles. Construction laydown areas will be within existing site boundaries. These areas include the parking lot north of existing Units 1 through 4 and the area between existing Units 1 and 2 and their intake canal, to include an existing warehouse bounded by these two features. Construction access will be generally from Studebaker Road. Large or heavy equipment, such as the turbines, generators, generator step-up transformers, and HRSG modules will be delivered to site by heavy haul truck/trailer.

Figure 2.1-1 identifies the areas that have been reserved for laydown, storage, and parking. Approximately 8 acres have been allocated onsite, as well as approximately 10 acres located immediately adjacent to the southern border of the project site.

During construction and demolition of the project, water will be required primarily for dust suppression. Construction and demolition activities would require a relatively limited amount of water. Average daily use of potable water is expected to be approximately 18,000 gallons during the construction and demolition period. Construction and demolition water will be potable water from the LBWD. During the commissioning period, when activities such as hydrostatic testing, cleaning and flushing and steam blows of the HRSGs, and steam cycles will be conducted, average water usage is estimated at 24,000 gallons per day with a maximum daily use of 130,000 gallons. Hydrostatic test water and cleaning water will be tested and disposed of in accordance with applicable LORS.

5.15.2 Environmental Analysis

Appendix G of the California Environmental Quality Act (CEQA) is a screening tool, not a method for setting thresholds of significance. Appendix G is typically used in the Initial Study phase of the CEQA process, asking a series of questions. The purpose of these questions is to determine whether a project requires an Environmental Impact Report, a Mitigated Negative Declaration, or a Negative Declaration. As the Governor's Office of Planning and Research stated, "Appendix G of the Guidelines lists a variety of potentially significant effects, but does not provide a means of judging whether they are indeed significant in a given set of circumstances." The answers to the Appendix G questions are not determinative of whether an impact is significant or less than significant. Nevertheless, the questions presented in CEQA Appendix G are instructive.

In terms of potential effects on water resources, Appendix G asks, in part, whether the project would:

- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which will result in substantial erosion or siltation on- or offsite, or in flooding on- or offsite.
- Create or contribute runoff water that will exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff.
- Violate any water quality standards or WDRs, or otherwise substantially degrade water quality.

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level (for example, the production rate of preexisting nearby wells will drop to a level that will not support existing land uses or planned uses for which permits have been granted).
- Place within a 100-year flood hazard area structures that will impede or redirect flood flows.
- Cause inundation by seiche, tsunami, or mudflow.

5.15.2.1 Construction and Demolition Impacts

5.15.2.1.1 Drainage

The AEC general site grading will establish a working surface for construction and plant operating areas, and will provide positive drainage from buildings and structures. The AEC site grading and drainage will be designed to comply with all applicable LORS. During construction and demolition, approximately 50 acres of land associated with the AEC will be graded.[5]

Potential surface water impacts are anticipated to be related primarily to short-term construction activity and would consist of increased turbidity from erosion of newly excavated or placed soils. However, complying with engineering and construction specifications and following approved grading and drainage plans will effectively mitigate these short-term impacts. Furthermore, as required under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ (Construction General Permit), a Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the construction site and will include best management practices (BMP) for erosion and sediment control. The SWPPP will be prepared prior to project construction and demolition to prevent the offsite migration of sediment and other pollutants and to reduce the effects of runoff from the construction site to offsite areas. AEC construction and demolition is not expected to increase the amount of impervious surfaces onsite because the project will replace the existing Alamitos Generating Station. Implementation of the SWPPP and BMPs, described in Section 5.15.4, will mitigate construction impacts on drainage to a less-than-significant level.

Potential impacts on soil resources during AEC construction and demolition can include increased soil erosion. Soil erosion causes the loss of topsoil and can increase the sediment load in surface water bodies near the construction site. The magnitude, extent, and duration of construction-related impacts depend on the erodibility of the soil; the proximity of the construction activity to the receiving water; and the construction methods, duration, and season.

Because conditions that could lead to excessive soil erosion via water are not present at the AEC site, relatively little soil erosion from rain events is expected during the construction and demolition period. Additionally, construction BMPs will be implemented during AEC construction and demolition in accordance with a site-specific SWPPP that is required under the Clean Water Act (CWA) for all construction projects over 1 acre in size. The CEC also requires project owners to develop and implement a drainage, erosion, and sediment control plan (DESCP) to reduce the impact of runoff from the construction site. Monitoring will involve inspections to ensure that the BMPs described in the SWPPP and DESCP are properly implemented and effective. Therefore, impacts from soil erosion via water are expected to be less than significant.

5.15.2.1.2 Water Quality

Potential construction- and demolition-related water quality impacts include impacts on surface water runoff during excavation and construction. Additionally, construction materials could contaminate runoff or groundwater if not properly stored and used. Such construction and demolition impacts will be less than significant with implementation of a SWPPP and associated BMPs, including practicing proper housekeeping

[5] Subsection 5.11 Soils, Table 5.11-2.

at the construction and demolition site. A SWPPP is required under the General Permit for Stormwater Discharges Associated with Construction Activity for projects resulting in one or more acres of soil disturbance. SWPPP procedures include submitting a Notice of Intent (NOI) to the Los Angeles RWQCB and developing the SWPPP prior to the start of construction activities.

Potential surface water quality impacts are anticipated to be related primarily to short-term construction and demolition activity and would consist of increased turbidity from erosion of newly excavated or placed soils. However, complying with engineering and construction specifications and following approved grading and drainage plans will effectively mitigate these short-term potential impacts. Furthermore, as required under the Construction General Permit, a SWPPP will be prepared for the construction site and will include BMPs for erosion and sediment control. The SWPPP will be prepared prior to construction of the AEC to prevent the offsite migration of sediment and other pollutants and to reduce the effects of runoff from the construction site to offsite areas. Implementation of the SWPPP and BMPs, described in Section 5.15.4, will mitigate construction impacts on water quality to a less-than-significant level.

Water used for dust control and soil compaction during AEC construction and demolition will not result in discharge because only a minimal amount of water will be used for this purpose. Therefore, no impact on water quality would occur as a result of dust control and soil compaction during construction. During the construction and demolition period, sanitary waste will be collected in portable toilets supplied by a licensed contractor for collection and disposal at an appropriate receiving facility resulting in no onsite discharge. Equipment wash water will be collected and disposed of offsite. With the implementation of the SWPPP and BMPs, described in Section 5.15.4, construction effects on water quality will be less than significant.

It is expected that the construction laydown and construction/demolition worker parking areas that are not already graveled or paved will be covered by gravel or paving immediately after site preparation to prevent subsequent wind erosion losses.

5.15.2.2 Operational Impacts

5.15.2.2.1 Drainage

The project site is currently developed with many impervious surfaces. Stormwater runoff from the site will be captured by a stormwater drainage system, which includes two retention ponds, and discharged to the San Gabriel River outfall. AEC construction is not expected to increase the amount of impervious surfaces onsite because the project will replace the existing Alamitos Generating Station. Because stormwater would be collected and discharged via a stormwater drainage system and outfall, the AEC would not result in substantial erosion, siltation, or flooding onsite or offsite. Therefore, operational impacts on drainage patterns are less than significant.

5.15.2.2.2 Water Quality / Waste Discharge Requirements

Process and sanitary wastewater from the AEC will be discharged to the LBWD sanitary system and conveyed to LACSD facilities for treatment and ultimate disposal. AEC wastewater discharge quality (see Table 5.15-7) will comply with the narrative and numeric standard required by the LACSD Wastewater Ordinance and the City of Long Beach rules and regulations. Additionally, a will-serve letter from the City of Long Beach indicating there is sufficient capacity to receive process and sanitary wastewater from the AEC is included in Appendix 2E. As a customer of LBWD, the AEC will not violate any WDRs and will not negatively affect water quality.

Stormwater runoff from the building roofs and parking areas will be collected and ultimately discharged to the San Gabriel River. No impact on the quantity of impervious surface as a result of AEC construction is expected. However, if the new/replaced impervious surface area is greater than 50 percent of the total project area, pretreatment will be required. Potential stormwater quality impacts during operation include discharge of heavy metals (e.g., brake dust) and oil and grease from parking areas. These impacts will be less than significant with implementation of an Industrial SWPPP and associated BMPs, including practicing proper housekeeping at the site. A SWPPP is required under the General Permit for Stormwater Discharges Associated with Industrial Activity for steam-electric power plant projects. SWPPP procedures include submitting an NOI to the SWRCB and developing the Industrial SWPPP prior to the start of operations. The AEC includes an oil/water separator to treat the stormwater.

5.15.2.2.3 Groundwater

The AEC will pump no groundwater and will have no effect on groundwater quantity or quality.

5.15.2.2.4 Flooding Potential

The AEC site is not in the 100-year floodplain as defined by FEMA. Therefore, project implementation will not result in any structures that will impede or redirect flood flows and no impacts will occur.

The AEC site is adjacent to an area mapped for tsunami susceptibility run-up hazard and is adjacent to a river channel and within 0.5 mile of an enclosed bay or harbor that could be subject to seiches caused by tsunamis. Although the offshore area of Los Angeles County area contains many faults and fault scarps capable of producing tsunamis, seismically induced sea waves are uncommon. Therefore, inundation by tsunami or seiche, while possible, is unlikely and project implementation would not increase the potential for inundation.

The combination of predicted sea level rise (approximately 1.5 feet) and increased wave-induced storm surges (approximately 5 feet) in southern California potentially could result in an increased depth of inundation in the vicinity of the AEC site of approximately 6.5 feet from wave-induced storm surges; however, because the site’s existing elevation is approximately 12 to 15 feet above existing mean sea level, there would still be a buffer of at least 5.5 feet on the AEC site through its expected operational period of approximately 2050 (based on a COD of 2019 to 2025 and 30 years of site operations).

To provide adequate flood protection that incorporates predicted sea level rise, the design and engineering of the AEC will meet applicable LORS, including those related to flood protection, California and federal building code requirements, and applicable LORS of the City of Long Beach and Los Angeles County. The design and engineering will address any applicable LORS related to sea level rise, storm surge/wave run-up inundation, and site flooding protection. Therefore, flooding caused by sea level rise is unlikely, and no adverse impacts will occur as a result of project implementation.

5.15.3 Cumulative Effects

A cumulative impact refers to a proposed project’s incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code Section 21083; California Code of Regulations, Title 14, Sections 15064(h), 15065I, 15130, and 15355).

As required under the General Permit for Stormwater Discharges Associated with Construction Activity, a SWPPP will be prepared for the AEC and will include BMPs for erosion and sediment control. Implementation of the SWPPP and BMPs will prevent the offsite migration of sediment and other pollutants and reduce runoff from the construction site to offsite areas. Therefore, the AEC would be very unlikely to cause cumulative impacts when its effects are considered in combination with those of other construction projects.

The AEC would have little or no adverse impact on water quality or WDRs, sanitary waste discharge capacity, flooding potential, or groundwater resources. Therefore, the project would be very unlikely to cause cumulative impacts when its effects are considered in combination with those of other projects.

5.15.4 Mitigation Measures

With the features incorporated into the project design, the AEC will have no significant adverse impacts on water resources. The following measure will be implemented, as prescribed by stormwater and erosion control management programs mandated under the National Pollution Discharge Elimination System (NPDES):

- Implement BMPs designed to minimize soil erosion and sediment transport during construction of the AEC in compliance with the statewide General Construction Permit.
- Design appropriate erosion and sediment controls for slopes, catch basins, culverts, stream channels, and other areas prone to erosion in compliance with both the statewide General Construction Permit and General Industrial Permit.

This program has been in place for several years, and the prescribed measures have proven effective. Under the General NPDES Permits for Construction and Industrial Stormwater, various specific measures are prescribed and a monitoring program is required. Compliance with this program should ensure that residual impacts associated with the AEC will be at a less-than-significant level. As part of the General NPDES Permit for Construction, prior to construction, the Project Owner will develop a Construction SWPPP to prevent the offsite migration of sediment and other pollutants and to reduce the effects of runoff from the project site to offsite areas.

5.15.5 Laws, Ordinances, Regulations, and Standards

Federal and state LORS applicable to water resources and anticipated compliance are discussed in this section and summarized in Table 5.15-8.

TABLE 5.15-8
Laws, Ordinances, Regulations, and Standards for Water Resources

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
Federal			
Clean Water Act/Water Pollution Control Act. P.L. 92-500, 1972; amended by Water Quality Act of 1987, P.L. 100-4 (33 USC 466 et seq.); NPDES (CWA, Section 402)	Prohibits discharge of pollutants to receiving waters unless the discharge is in compliance with an NPDES permit. Applies to all point-source discharges, including stormwater runoff from construction (including demolition). Applies to nonpoint sources through municipal NPDES permits.	Los Angeles RWQCB	Compliance with existing statewide NPDES permit for construction stormwater (Section 5.15.5.2) Compliance with existing statewide NPDES permit (Industrial General Permit) for continued stormwater discharges to the existing outfall (Section 5.15.5.2)
State			
Porter-Cologne Water Quality Control Act	Controls discharge of wastewater to surface water and groundwater of California.	Los Angeles RWQCB	Compliance with existing statewide NPDES permit for construction stormwater discharges (Section 5.15.5.2) Compliance with existing statewide NPDES permit (Industrial General Permit) for continued stormwater discharges to the existing outfall (Section 5.15.5.2)
California State Constitution, Article X, Section 2	Prohibits waste or unreasonable use of water.	SWRCB	The AEC will not waste or make unreasonable use of potable water. The AEC will use water for plant processes at rates significantly below historical usage for the site (Section 6.6.3)

TABLE 5.15-8
Laws, Ordinances, Regulations, and Standards for Water Resources

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
California Water Code, Section 13550	States that use of potable water for non-potable purposes is an unreasonable use of water if recycled water is available that meets specified conditions.	SWRCB	The AEC will use potable water for plant processes because recycled water is not available that meets the conditions of 13550. (See Section 6.0, Alternatives)

5.15.5.1 Federal LORS

In California, discharges of wastewater and stormwater to surface waters are regulated by the SWRCB and RWQCBs pursuant to the CWA and the Porter-Cologne Water Quality Control Act. Relevant NPDES permits for industrial discharges and stormwater quality management are discussed under state LORS.

5.15.5.2 State LORS

5.15.5.2.1 California Ocean Plan

The SWRCB formulates and adopts a water quality control plan for California ocean waters. The 2009 California Ocean Plan regulates waste discharges, effluent discharges, and discharge locations (SWRCB, 2009a). The plan sets specific narrative and numeric water quality objectives for bacteriological, physical, and chemical characteristics. The plan applies to both point and nonpoint source discharges. The water quality objectives from the 2009 Ocean Plan (or as updated) will be met by the AEC, which will be demonstrated when a new NPDES permit is approved prior to the start of AEC operations in 2019 to 2025.

5.15.5.2.2 Statewide Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling

The SWRCB established technology-based standards to implement federal CWA Section 316(b), which requires that the location, design, construction, and capacity of cooling intake structures reflect the best technology available for minimizing adverse environmental impact. An implementation plan has been submitted pursuant to the requirements of the Once-Through Cooling (OTC) Policy (Revised Plan June 17, 2011).

5.15.5.2.3 Construction Stormwater NPDES Permit

The federal CWA effectively prohibits discharges of stormwater from construction sites unless the discharge is in compliance with an NPDES permit. The SWRCB is the permitting authority in California and has adopted a statewide General Permit for Stormwater Discharges Associated with Construction Activity (SWRCB Order 2009-0009-DWQ) that applies to projects resulting in 1 acre or more of soil disturbance (SWRCB, 2009b). The proposed project would result in disturbance of more than 1 acre of soil. Therefore, the project will require the preparation of a construction SWPPP that would specify site management activities to be implemented during site development. These management activities will include construction stormwater BMPs, dewatering runoff controls, and construction equipment decontamination. The Los Angeles RWQCB requires an NOI to be filed prior to any stormwater discharge from construction activities and that the SWPPP be implemented and maintained onsite. A Construction Drainage Erosion and Sediment Control Plan/SWPPP will be completed prior to the start of construction activities.

5.15.5.2.4 Industrial Stormwater NPDES Permit

The SWRCB implements regulations under the federal CWA requiring that point source discharges of stormwater (which is a flow of rainfall runoff in some kind of discrete conveyance such as a pipe, ditch, channel, or swale) associated with industrial activity that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by an NPDES permit. The SWRCB has issued WDRs for discharges of stormwater associated with industrial activities (SWRCB Order 97-03-DWQ), excluding construction activities.

5.15.6 Agency Contacts, Permits, and Permit Schedule

Agency contacts and required permits are listed in Table 5.15-9.

TABLE 5.15-9
Agency Contacts, Permits, and Permit Schedule for Water Resources

Permit	Contacted Agency	Schedule
NPDES Construction Activities Stormwater General Permit	Not Applicable (submit online using Stormwater Multiple Application and Report Tracking System [SMARTS])	Submit NOI to use the permit at least 30 days prior to construction.
NPDES Industrial Activities Stormwater General Permit	State Water Resources Control Board Division of Water Quality Attn. Stormwater Section P.O. Box 1977 Sacramento, CA 95812	Submit NOI to use the permit at least 30 days prior to operations.
Statewide Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling	Joanna Jensen State Water Resources Control Board Division of Water Quality, 15th floor 1001 I Street Sacramento, CA 95814 jjensen@waterboards.ca.gov	Implementation Plan has already been submitted to meet these requirements. Revisions to the Implementation Plan will be issued as necessary. (Revised Plan June 17, 2011).
Industrial Wastewater Discharge Permit	Long Beach Water Department Engineering Bureau – Business Development 1800 E. Wardlow Road Long Beach, CA 90807	A minimum of 4 to 6 months is required for processing and approval.

5.15.7 References

California Energy Commission (CEC). 2009. The Impacts of Sea Level Rise on the California Coast, Final Paper. California Energy Commission, Docket CEC-500-2009-024-F.

California Emergency Management Agency. 2013. Tsunami Hazards. Available online at: http://myhazards.calema.ca.gov/

California Department of Water Resources (DWR). 2004. Coastal Plain of Los Angeles County Groundwater Basin, Central Subbasin. California's Groundwater Bulletin 118.

Federal Emergency Management Agency (FEMA). 2008. Flood Insurance Rate Online Maps. Available online at: http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=78816084&IFIT=1

Long Beach Water Department (LBWD). 2013. Sources of Water. Available online at: http://www.lbwater.org/sources-water.

Long Beach Water Department (LBWD). 2012. Annual Water Quality Report, Reporting Year 2012. Available online at: http://www.lbwater.org/annual-water-quality-report

Los Angeles Regional Water Quality Control Board. 1994. Water Quality Control Plan for the Los Angeles Region.

State Water Resources Control Board (SWRCB). 2009a. *California Ocean Plan 2009 – Water Quality Control Plan Ocean Waters of California*.

State Water Resources Control Board (SWRCB). 2009b. National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) Water Quality Order 2009-0009-DWQ.

State Water Resources Control Board (SWRCB). 2010. Approved 2010 Clean Water Act Section 303(d) List of Water Quality Limited Segments. U.S. Environmental Protection Agency approval date November 12, 2010. Available online at: http://maps.waterboards.ca.gov/webmap/303d/files/2010_USEPA_approv_303d_List_Final_122311wsrcs.xls

Western Regional Climate Center. 2013. Long Beach WSCMO General Climate Survey. Available online at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?calong.