5.15 Water Resources

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

- Water supply and quality
- Disposal of waste water
- Compliance with state water policies
- Stormwater discharge
- Flooding

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

5.15.1 Affected Environment

5.15.1.1 Water Features, Rainfall, and Drainage

The LEC project site is a 4.4-acre parcel off of North Thornton Road. The site is in rural San Joaquin County southwest of the intersection of Highway 12 and Interstate 5, at the end of North Cord Road, southwest of Lodi. The LEC project site is located on land owned and incorporated by the City of Lodi. This City-owned land also encompasses the adjacent White Slough Water Pollution Control Facility (WPCF) and NCPA Combustion Turbine Project #2 (STIG plant).

The LEC project site is on the eastern edge of the Sacramento-San Joaquin River Delta (Delta) (Figure 5.15-1). In the Delta, the Sacramento and San Joaquin rivers combine with tidal action to produce a biologically-rich estuarine environment. However, the Delta has been highly modified by channelization and water diversions for municipal, industrial, and agricultural uses. As a result, the Delta is a patchwork of numerous islands and tracts surrounded by natural and man-made channels and sloughs. Because the majority of Delta islands are below sea level, they are protected by an extensive levee system. The San Joaquin County General Plan designates the west-central portion of the county containing the Delta as the Delta Planning Area (San Joaquin County, 1992). The LEC project site is in the boundaries of the Central Valley Regional Water Quality Control Board (RWQCB). RWQCB boundaries are based on watersheds; however, due to its complexity and size, the Delta falls under the jurisdiction of both the Central Valley RWQCB and the San Francisco Bay RWQCB. The area under the San Francisco Bay RWQCB's jurisdiction comprises all of the San Francisco Bay segments extending to the mouth of the Delta (Winter Island near Pittsburg). Each RWQCB makes critical water quality decisions for its region, including setting standards, issuing waste discharge requirements, determining compliance with

those requirements, and taking appropriate enforcement actions. The RWQCB adopts water quality control plans, or Basin Plans, which 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 Plans. For those waters not attaining water quality standards, the RWQCB establishes total maximum daily loads (TMDLs) and a program of implementation to meet the TMDL[1].

The San Francisco Bay Basin Water Quality Control Plan (Basin Plan) designates beneficial uses for the Delta. Beneficial uses include agricultural supply; municipal and domestic supply; groundwater recharge; industrial service supply; industrial process supply; ocean, commercial, and sport fishing; estuarine habitat; fish migration; preservation of rare and endangered species; fish spawning; wildlife habitat; contact and non-contact water recreation; and navigation (San Francisco Bay RWQCB, 2007a).

Water quality objectives for the Delta are contained in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary prepared by the State Water Resources Control Board (SWRCB; SWRCB, 1995). The Delta is considered an impaired water body. In response to growing concerns related to protection of beneficial uses in the Delta, staff from the SWRCB, San Francisco Bay RWQCB, and Central Valley RWQCB formed the Bay-Delta Team to develop a coordinated and comprehensive plan to address protection of beneficial uses in the San Francisco Bay and the Delta.

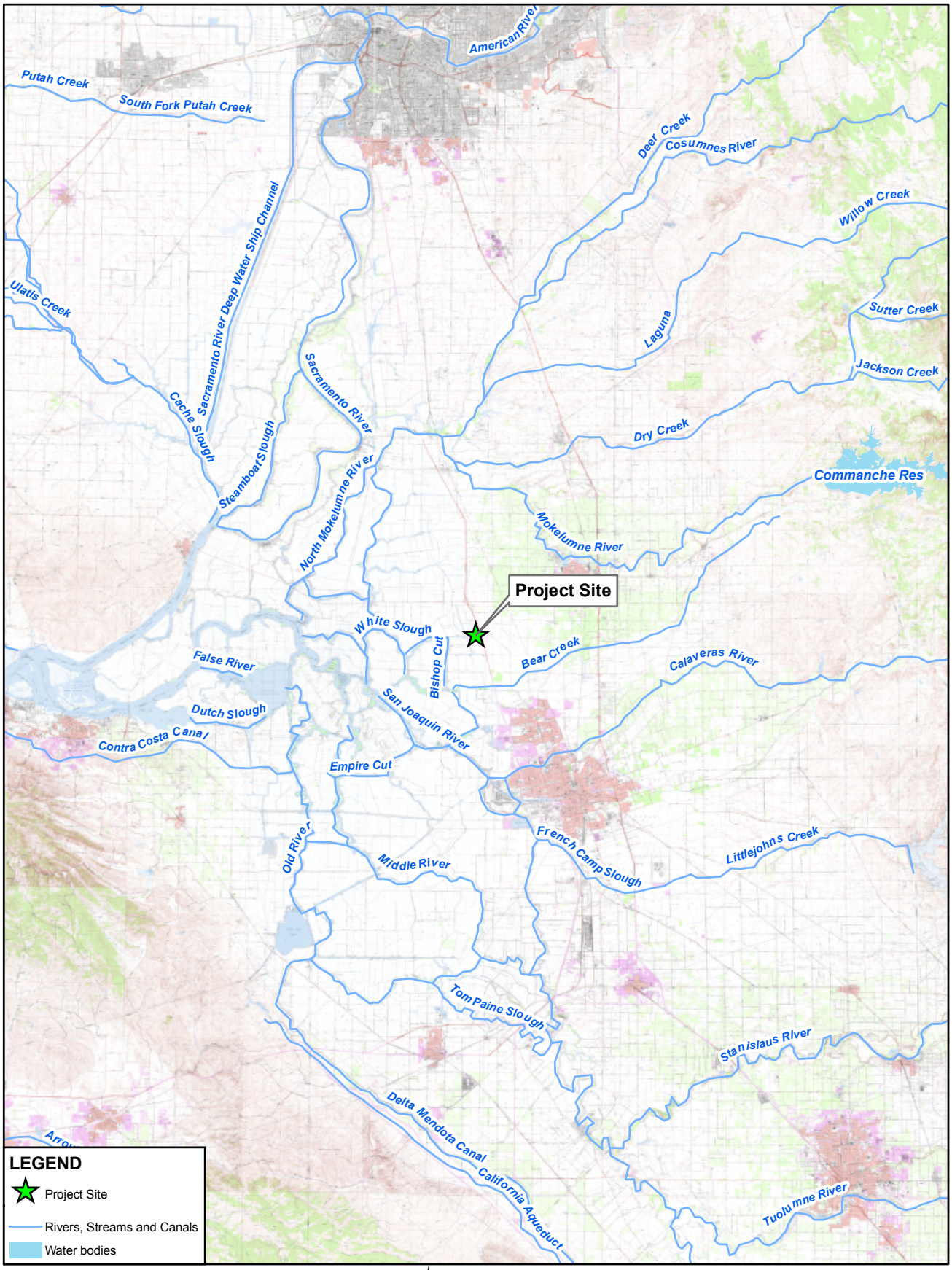
Table 5.15-1 lists the pollutants for which the Delta does not meet water quality objectives and proposed TMDL completion dates.

TABLE 5.15-1
Clean Water Act Section 303(d) List of Water Quality Impairments in the Sacramento-San Joaquin River Delta

Pollutant/Stressor	Potential Sources	Proposed TMDL Completion
Chlordane	Nonpoint	2008
DDT	Nonpoint	2008
Dieldrin	Nonpoint	2008
Dioxin Compounds	Atmospheric Deposition	2019
Exotic Species	Ballast Water	2019
Furan Compounds	Atmospheric Deposition	2019
Mercury	Multiple	2006
Nickel	Unknown	2019
PCBs (Polychlorinated biphenyls)	Unknown Nonpoint	2006
PCBs (dioxin-like)	Unknown Nonpoint	2019
Selenium	Multiple	2019

Source: San Francisco Bay RWQCB, 2007b

[1] 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 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 (SWRCB, n.d.).



Notes:
1. Source: The Dept. of Water Resources, Groundwater Basin Map, 2004.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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FIGURE 5.15-1
SURFACE WATER RESOURCES
LODI ENERGY CENTER
LODI, CALIFORNIA

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In addition, the Delta Protection Commission (Commission), established under the Delta Protection Act of 1992, is required to prepare and adopt a Land Use and Resource Management Plan for the Delta. The Delta is divided into a Primary Zone, which comprises the principal jurisdiction of the Commission, and a Secondary Zone, which is outside of the Primary Zone, but still within the legal Delta, that is not within the planning area of the Commission. The LEC project is located within the Secondary Zone as defined by the Commission.

Major rivers in San Joaquin County include the San Joaquin, Mokelumne, Calaveras, and Stanislaus. The San Joaquin River originates in Fresno County, crossing southwestern San Joaquin County before terminating in the Delta. The Mokelumne, Calaveras, and Stanislaus terminate in the San Joaquin River at or near the Delta. All of the major rivers in San Joaquin County have been modified by impoundments or diversion channels. The San Joaquin River also serves as a deep water shipping channel for transportation between the San Francisco Bay and the Port of Stockton.

The southern portion of the LEC project area is bordered by a drainage ditch that discharges to Dredger Cut, which drains into White Slough. White Slough is to the west of the project site and ultimately drains to the Delta. There are no beneficial uses identified for White Slough in the Basin Plan (San Francisco Bay RWQCB, 2007a). Table 5.15-2 describes the water quality characteristics of the surface waters in the vicinity of the LEC project site.

TABLE 5.15-2
Water Quality Characteristics of Surface Waters in the Vicinity of the LEC Project Site

Constituent	Dredger Cut (mg/L)	White Slough (mg/L)
Bicarbonate alkalinity ($CACO_3$)	80	71
Total alkalinity ($CACO_3$)	80	71
Hardness ($CACO_3$)	86	74
Total dissolved solids	200	150
Chloride	23	18
Sulfate	19	14
Calcium	18	16
Magnesium	10	8.9
Sodium	25	16

mg/L = milligram per liter

Source: Beeler, 1990.

Average rainfall ranges from 8 inches per year south of the City of Tracy to 17 inches per year in the City of Lodi. Most of the precipitation occurs between December and April, while the summer months are virtually rainless (San Joaquin County, 1992). Table 5.15-3 provides average historical rainfall from the meteorological station in Lodi.

TABLE 5.15-3
Average Rainfall near the Proposed Project Site (Lodi, California) (1948-2007)

Precipitation	Annual	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Average	17.62	0.9	2.25	3.11	3.42	2.9	2.6	1.42	0.5	0.13	0.04	0.05	0.29

Source: WRCC, 2008.

5.15.1.2 Groundwater

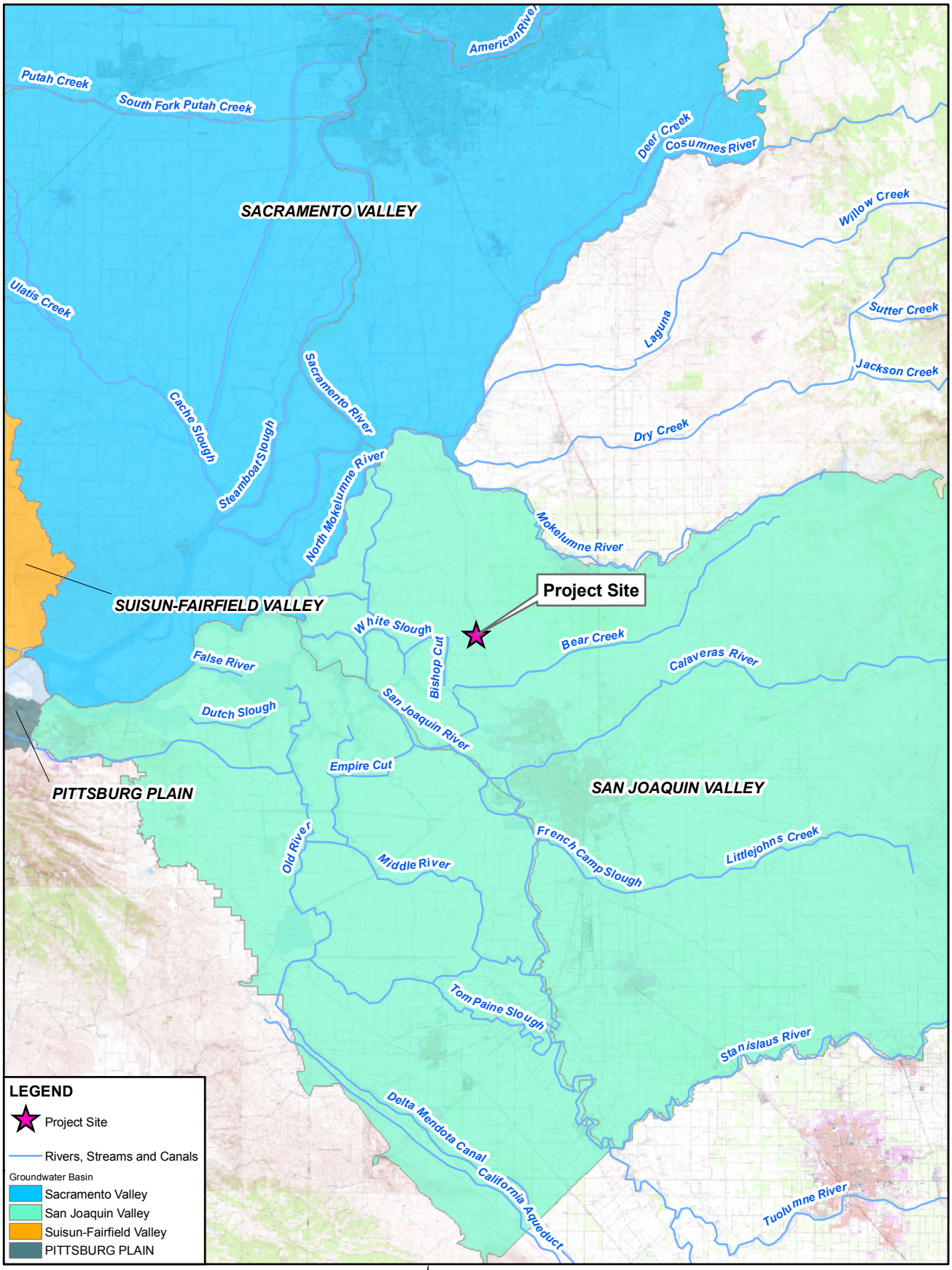
The LEC project site is within the San Joaquin Valley Groundwater Basin within the Eastern San Joaquin Subbasin (DWR, 2006) (Figure 5.15-2). The Eastern San Joaquin Subbasin is defined by the areal extent of unconsolidated to semiconsolidated sedimentary deposits that are bounded by the Mokelumne River on the north and northwest, San Joaquin River on the west, Stanislaus River on the south, and consolidated bedrock on the east. The Eastern San Joaquin Subbasin is drained by the San Joaquin River and several major tributaries, including the Stanislaus, Mokelumne, and Calaveras.

Unless otherwise designated by the Central Valley RWQCB or excluded based on the minimum beneficial use exception criteria described in Table 5.15-4, all ground waters are considered suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply (Central Valley RWQCB, 1998).

TABLE 5.15-4
Minimum Beneficial Use Exception Criteria

Minimum Beneficial Use	Exception Criteria
Municipal and Domestic Water Supply	Total dissolved solids (TDS) exceeds 3,000 mg/L (5,000 mhos/cm, electrical conductivity) and is not reasonably expected to supply a public water system
Municipal and Domestic Water Supply, Agricultural Supply, Industrial Service Supply, and Industrial Process Supply	Contamination, either by natural processes or by human activity (unrelated to a specific pollution incident) cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices
Municipal and Domestic Water Supply, Agricultural Supply, Industrial Service Supply, and Industrial Process Supply	Does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day
Municipal and Domestic Water Supply, Agricultural Supply	The aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 CFR, Section 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR Section 261.3

Source: Central Valley RWQCB, 1998



Notes:
1. Source: The Dept. of Water Resources, Groundwater Basin Map, 2004.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

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FIGURE 5.15-2
GROUNDWATER RESOURCES
LODI ENERGY CENTER
LODI, CALIFORNIA

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Groundwater levels in the Eastern San Joaquin Subbasin have shown a continuous decline over the past 40 years. During this period, groundwater levels have declined at an average rate of 1.7 feet per year and have dropped as much as 100 feet in some areas (DWR, 2006). Well yields in the fresh water-bearing formation underlying the subbasin range from approximately 650 to 1,500 gallons per minute (DWR, 2006). Saltwater intrusion, occurring as a result of declining groundwater levels, has caused water quality to deteriorate eastward along a 16-mile front on the east side of the Delta. In addition, large areas of elevated nitrate levels exist in groundwater supplies within the subbasin southeast of Lodi.

The majority of groundwater in the Eastern San Joaquin Subbasin is characterized by calcium-magnesium bicarbonate or calcium-sodium bicarbonate types. Bicarbonate is predominant in the eastern part of the subbasin. Large areas of chloride type water occur along the western margin of the subbasin along the San Joaquin River. Based on the analyses of 174 water supply wells in the subbasin, total dissolved solids (TDS) concentration ranges from 30 to 1,632 milligrams per liter, with an average TDS of approximately 310 milligrams per liter (DWR, 2006). Table 15.5-5 presents groundwater quality from a well near the LEC project site.

TABLE 5.15-5
Groundwater Quality in the Vicinity of the LEC Project Site

Constituent	Quantity
Total Dissolved Solids	600-700 mg/L
Calcium, Magnesium	40 mg/L
Chlorine	10-20 mg/L
Sulfate	5 mg/L
Sodium, Potassium	60-70 mg/L
Bicarbonate, Carbonate	60-70 mg/L

Source: Lowney-Kaldveer Associates, 1975

Domestic wells in the Eastern San Joaquin Subbasin range from approximately 25 to 993 feet in depth, averaging approximately 242 feet (DWR, 2006). Irrigation wells in the subbasin range from approximately 75 to 780 feet in depth, averaging approximately 349 feet (DWR, 2006).

Regionally, the hydrologic gradient and groundwater movement are controlled by a pumping cone depression around the City of Stockton that persists throughout the year, and the groundwater moves in an east-southeasterly direction (City of Lodi, 2006). Groundwater use for irrigation is higher to the east of the LEC project site resulting in a local gradient that is consistently to the east (City of Lodi, 2006). As a result, groundwater in the vicinity of the LEC project site flows generally from west to east (City of Lodi, 2006).

Groundwater elevations in the vicinity of the LEC project site fluctuate seasonally and in response to variations in precipitation from year to year (City of Lodi, 2006). Groundwater fluctuations are lowest to the west of the LEC project site because the Delta is subject to less pumping and more uniform recharge throughout the year. Groundwater elevations at production wells in the vicinity of the LEC project site typically fluctuate by up to

approximately 10 feet annually (City of Lodi, 2006). Groundwater elevation in the vicinity of the LEC project site is also affected by local groundwater pumping. Figure 5.15-3 shows all wells within 1 mile of the LEC project site. The primary use of groundwater in the area is agricultural.

Substantial groundwater recharge occurs in the vicinity of the LEC project site. Sources of groundwater recharge in the area include irrigation of Delta lands and seepage from related Delta waterways to the west, surface-water-irrigated lands to the north and east, percolation from WPCF storage ponds, and recharge from WPCF land application areas (City of Lodi, 2006).

5.15.1.3 Flooding Potential

The project site is in the 100-year flood plain (Zone A) as defined by the Federal Emergency Management Agency (FEMA; Figure 5.15-4) (FEMA, 2002). The potential for a 100-year flood event to impact the site is medium to high. Although the LEC project area is protected by levees, many of the Delta levees are unstable and may fail during severe storms.

5.15.1.4 Water Supply

This section describes the quantity of water required, the sources of the water supply, and water treatment requirements.

5.15.1.4.1 Process Water

The LEC project will connect with the WPCF for supplies of recycled water for cooling through an existing 48-inch diameter pipeline in the utility corridor connecting the LEC and the WPCF. Table 5.15-6 shows the expected water quality of the LEC source water from the WPCF. Incoming recycled water will be stored in the raw water tank. Recycled water from the raw water tank will be available for the fire water system. Untreated recycled water will be used for plant washwater. Due to the high level of reliability of water from the WPCF, no backup water supply is required or planned for this project at this time.

Part of the incoming recycled water from the WPCF will be treated by a demineralization system and then stored in a demineralized water storage tank. The tank would be sized for 20,000 gallons, which is nominally 4.6 days of plant demineralized water usage, of back-up water supply. This water will be used in the heat recovery steam generator (HSRG) feedwater and condensate system for turbine water wash and combustion turbine inlet air cooling.

Demineralized water for the HSRG feedwater and condensate system will be treated by a cold lime softener clarifier and a micro-filtration system before going through the demineralization process. Figure 2.1-5A shows the water balance for the LEC project (the water balance calculations are provided in Appendix 2A). The demineralization system would include first and second pass reverse osmosis (RO) and electro-deionization. As shown in Table 5.15-7, the LEC's average daily water use would be approximately 1.23 million gallons per day (24-hour period). Maximum daily use would be 2.2 million gallons per day during the summer (fired) condition. A will-serve letter from the City of Lodi indicating that a sufficient amount of recycled water will be available to the project is included in Appendix 2D. Based on a 70 to 80 percent capacity factor (approximately 7,000 hours of operation per year), the LEC would use an average of 1,103 acre-feet (359.52 million gallons) per year of water.

LEGEND

Major Roads

W4 Water Wells

Map ID	Well ID	Distance from Project Site
A1	USGS3227644	0 - 1/8 Mile East
A2	USGS3227642	1/8 - 1/4 Mile East
A3	USGS3227643	1/8 - 1/4 Mile East
4	USGS3227628	1/4 - 1/2 Mile WSW
5	CADW20000038925	1/2 - 1 Mile NNE
6	CADW20000038913	1/2 - 1 Mile SSW
7	USGS3227614	1/2 - 1 Mile SSW
8	USGS3227478	1/2 - 1 Mile WNW
9	USGS3227613	1/2 - 1 Mile SW

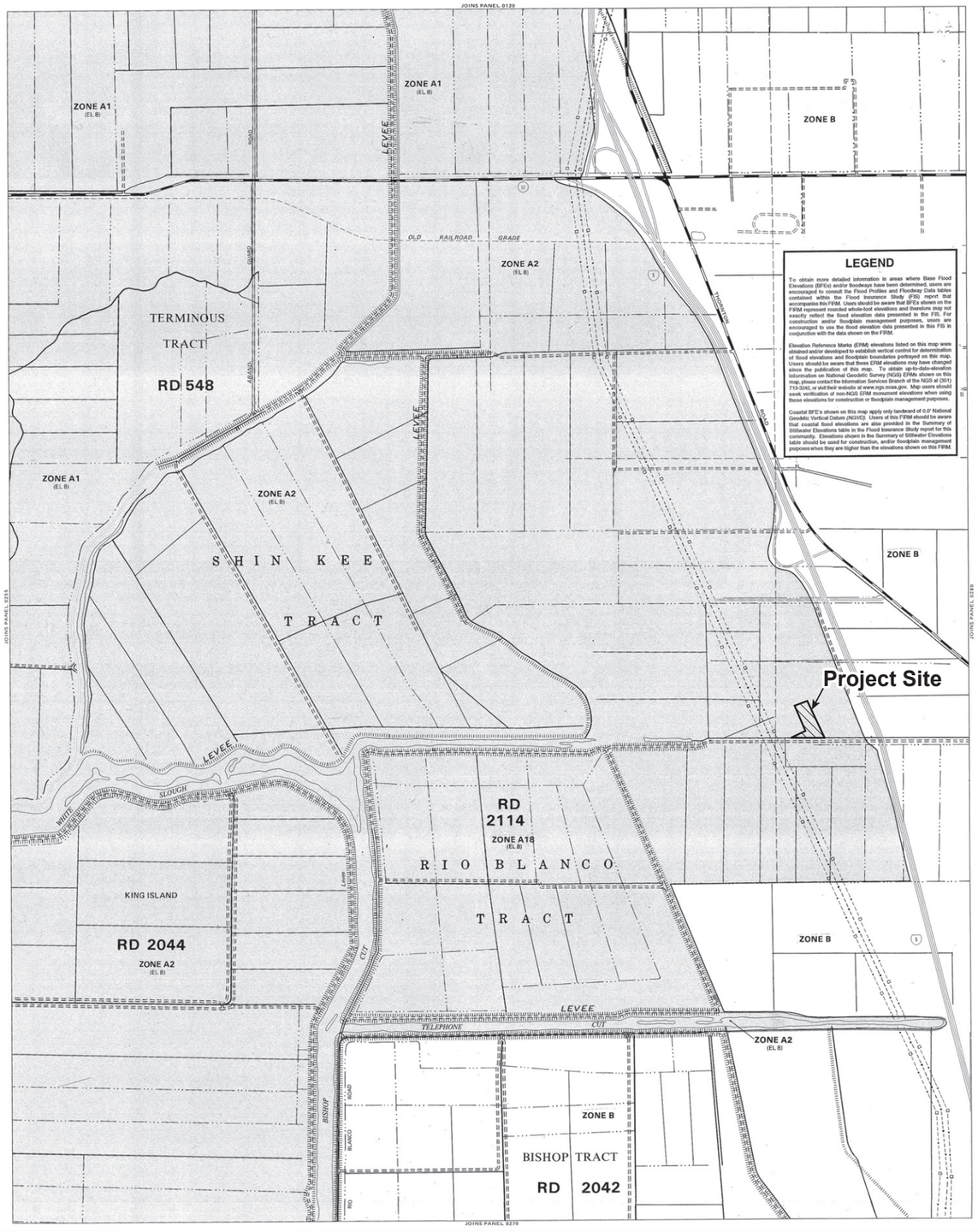
0 1/4 1/2 1 Miles

Approximate Scale

N

FIGURE 5.15-3
GROUNDWATER WELLS WITHIN 1 MILE OF LEC PROJECT SITE
LODI ENERGY CENTER
LODI, CALIFORNIA

Source: Carlton Engineering, 05/28/2008



LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Elevation Reference Marks (ERM) elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date-elevation information on National Geodetic Survey (NGS) ERM shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map apply only landward of 0.0' National Geodetic Vertical Datum (NGVD). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

KEY TO MAP

500-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE A1
Zone Designations*	ZONE A5
100-Year Flood Boundary	ZONE B
500-Year Flood Boundary	ZONE B
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
*User Mile	•M1.5
Approximate 100- Year Flood Boundary	ZONE A

**Reference to the National Geodetic Vertical Datum of 1929

UNDEVELOPED COASTAL BARRIERS†

Identified 1983 | Identified 1990 | Otherwise Protected Areas

† Coastal barrier areas are normally located within or adjacent to special flood hazard areas.

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFEs, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For adjoining panels, see separately printed Map Index.

INITIAL IDENTIFICATION:
MAY 15, 1980

FLOOD HAZARD BOUNDARY MAP REVISION:

FLOOD INSURANCE RATE MAP EFFECTIVE:
MAY 15, 1980

FLOOD INSURANCE RATE MAP REVISIONS:
JULY 4, 1988

Map revised April 2, 2002 to update corporate limits, to change base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to add roads and road names, to reflect updated topographic information, to incorporate previously issued letter of amendment, and to change floodway.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

FIGURE 5.15-4
FEMA FLOOD ZONE MAP
LODI ENERGY CENTER
LODI, CALIFORNIA

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TABLE 5.15-6
WPCF Expected Water Quality Data

Parameter	Units	Value
Alkalinity – Bicarbonate	mg/L	170.73
Alkalinity – Carbonate	mg/L	0.00
Alkalinity – P-$BaCl_2$	mg/L	0.00
Barium	mg/L	0.00
Chloride	mg/L	66.00
Fluoride	mg/L	0.00
Calcium	mg/L	32.00
Magnesium	mg/L	12.00
Iron	mg/L	0.09
Nitrate	mg/L	40.00
pH	Standard units	8.30
Phosphate	mg/L	0.40
Potassium	mg/L	15.00
Silica	mg/L	69.00
Sodium	mg/L	72.00
Sulfate	mg/L	31.00
Total Dissolved Solids	mg/L	508.22
Specific Conductance	microsiemens per centimeter	667.05
Free CO_2	mg/L	1.42
Total Cations	mg/L $CaCO_3$	305.84
Total Anions	mg/L $CaCO_3$	355.60
Total Hardness	mg/L $CaCO_3$	129.44

Source: NALCO, 2008 (Appendix 5.15A)

TABLE 5.15-7
LEC Flow Rates

Case (Heat Balance Case)	Daily Average Flows	
	Gallons per Minute	Million Gallons per Day[a]
Annual Average	856	1.23
Winter Typical	657	0.95
Winter Minimum	586	0.84
Summer Typical	1196	1.72
Summer Maximum	1351	1.95
Summer Maximum (fired[b])	1528	2.20

[a]24-hour operation
[b]Duct burning status on
Source: WorleyParsons, 2008

5.15.1.4.2 Domestic and Sanitary Water Use

Potable water will be used for eye-wash stations and sanitary facilities (as needed). The LEC will use a minimal amount of potable water (approximately 450 gallons per day, Monday through Friday, and 90 gallons per day, Saturday and Sunday). The LEC will obtain its potable water from an onsite groundwater well, which will be constructed as part of the project.

5.15.1.4.3 Water Supply during Construction

Construction of the LEC project is scheduled to last 24 months. The entire 4.4-acre project site will be graded during construction. There are four proposed laydown and parking areas ranging from approximately 1.6 to 3.1 acres each (Figure 2.1-3).During construction of the project, water will be required primarily for dust suppression (12 hours per day for approximately 24 months). Construction activities would require a relatively limited amount of water (an average of approximately 50 gpm and approximately 200 gpm for 1 hour for dust control and soil compaction, at peak use). The construction water supply will come from the WPCF. The average daily water use for construction would be 36,000 gallons per day and daily maximum water use would be 144,000 gallons per day. The average annual water use for construction would be 13.14 million gallons per year (maximum annual water use would be 52.56 million gallons per year).

5.15.1.5 Wastewater Collection, Treatment, Discharge and Disposal

Wastewater from the LEC will be discharged directly to an onsite Class I underground injection well that will be constructed as part of the project. As backup, the LEC site would use the existing injection well in place for the STIG plant. The LEC would discharge up to a maximum of 225 gallons per minute of process wastewater that would be injected into the well. A Class I underground injection well permit package will be submitted to the U.S. Environmental Protection Agency (EPA) Region IX, Water Department. A copy of the permit package will be provided at a later date. The permit package will include three well permits:

- A permit for a new Class I underground injection well to be built for the LEC plant
- An updated application for the existing (and currently permitted) Class I underground injection well at the STIG plant, which will be used as backup for the LEC project
- A new Class I underground injection well to be used as a backup for both the STIG and LEC plant. This well will not be constructed at the same time as the LEC project, but will be permitted in the event the construction of the well becomes necessary in the future.

Table 5.15-8 shows the expected water quality from the LEC project based on the preliminary modeling conducted by NCPA. A zero liquid discharge system (ZLD) will not be used for the LEC.

The plant washwater from the equipment drains will pass through an oil-water separator and wastewater sump before it is discharged to the atmosphere through evaporation in the cooling tower. The oil and sludge removed from the washwater will be disposed of offsite. Wastewater from the safety showers and eye wash will also be discharged to the atmosphere through evaporation in the cooling tower. Sanitary wastewater will be minimal and will be discharged to the WPCF. A will-serve letter from the City of Lodi indicating that receiving domestic waste from the LEC would be acceptable is included in Appendix 2D.

TABLE 5.15-8
Expected LEC Water Quality

Parameter	Units	Cooling Tower Blowdown
Alkalinity – Bicarbonate	mg/La	107.31
Alkalinity – Carbonate	mg/L	0.00
Alkalinity – P-$BaCl_2$	mg/L	0.00
Barium	mg/L	0.00
Chloride	mg/L	527.40
Fluoride	mg/L	0.00
Calcium	mg/L	159.43
Magnesium	mg/L	58.95
Iron	mg/L	0.06
Nitrate	mg/L	253.74
pH	s.u.[b]	7.50
Phosphate	mg/L	2.74
Potassium	mg/L	95.15
Silica	mg/L	36.94
Sodium	mg/L	456.95
Sulfate	mg/L	488.19
Total Dissolved Solids	mg/L	2,186.87
Specific Conductance	microsiemens per centimeter	4,037.10
Free CO_2	mg/L	5.65
Total Cations	mg/L $CaCO_3$	1,759.58
Total Anions	mg/L $CaCO_3$	1,579.86
Total Hardness	mg/L $CaCO_3$	641.46

Source: NALCO, 2008

[a]milligrams per liter

[b]standard units

5.15.1.6 Stormwater Runoff and Drainage

The existing LEC site is a basin-like area moderately covered with seasonal grass and there is a natural swale along the southwest corner of the site (Carlton Engineering, 2008). A culvert is in place in the southern portion of the site to convey drainage runoff from the swale offsite. Currently, drainage from the LEC site is indirectly discharged to White Slough and Bishop Cut (Carlton Engineering, 2008).

For the LEC project, the site will be graded such that all runoff will be collected for discharge to the WPCF. Tables 5.15-9 and 5.15-10 present the pre-development and post-development runoff volumes for the site, respectively.

TABLE 5.15-9
Pre-development Runoff for the LEC Site

Area	Return Period (years)	Runoff Peak (cfs)	Runoff Volume (ft^3)
4.3	2	1.61	790
4.3	10	2.84	1392

cfs=cubic feet per second
ft^3=cubic feet

TABLE 5.15-10
Post-development Runoff for the LEC Site

Area	Return Period (years)	Runoff Peak (cfs)	Runoff Volume (ft^3)
4.58	2	4.14	2.30
4.58	10	7.31	3583

The peak runoff for the 2- and 10-year storm events for the site in the pre- and post-development condition was determined and compared. Runoff increased for the post-development condition due to an increase in impermeable surfaces. However, paving will improve both the air and water quality due to the minimization of dust during the dry season and sedimentation of runoff during rain events.

5.15.2 Environmental Analysis

Project effects on water resources can be evaluated relative to significance criteria derived from the California Environmental Quality Act (CEQA) Appendix G checklist. Under CEQA, the project is considered to have a potentially significant effect on water resources if it 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 which 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 waste discharge requirements, 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 (e.g., the production rate of pre-existing nearby wells will drop to a level which 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 Impacts

5.15.2.1.1 Drainage

The general site grading will establish a working surface for construction and plant operating areas, and will provide positive drainage from buildings and structures, as well as adequate ground coverage for subsurface utilities. During construction, approximately 4.4 acres of land associated with the LEC project will be graded. There are four proposed LEC project laydown and/or parking areas (A through D), that are to the east and northeast of the proposed LEC site (Figure 1.1-3).

Surface water impacts are anticipated to be related primarily to short-term construction activity and would consist of increased turbidity due to erosion of newly excavated or placed soils. However, compliance 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 Stormwater Discharges Associated with Construction Activity (SWRCB Water Quality Order No. 99-08-DWQ; SWRCB, 1999), a Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the construction site and will include best management practices (BMPs) for erosion and sediment control. The SWPPP will be prepared prior to construction of the LEC project to prevent the offsite migration of sediment and other pollutants, and to reduce the effects of runoff from the construction site to offsite areas. Successful implementation of the SWPPP will ensure that construction impacts to drainage are mitigated to a less-than-significant level.

5.15.2.1.2 Water Quality

Potential water quality impacts due to construction include impacts to surface water runoff during excavation and construction. In addition, construction materials could contaminate runoff or groundwater if not properly stored and used. Such construction impacts will be less than significant with implementation of a SWPPP and associated BMPs, including practicing proper housekeeping at the construction site. A SWPPP is required under the General Permit for Stormwater Discharges Associated with Construction Activity (SWRCB Water Quality Order No. 99-08-DWQ; SWRCB, 1999) for projects resulting in one or more acres of soil disturbance. SWPPP procedures include submitting a Notice of Intent (NOI) to the Central Valley Regional Water and Quality Control Board (RWQCB) and developing the SWPPP prior to the start of construction activities. Implementation of the SWPPP will prevent the offsite migration of sediment and other pollutants, and will reduce the effects of runoff from the construction site to offsite areas, thereby reducing construction impacts to water quality to a less-than-significant level.

Water used for dust control and soil compaction during construction will not result in discharge because only a minimal amount of water will be used for this purpose. Therefore, no impact to water quality would occur as a result of dust control and soil compaction during construction. During the construction 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 off site.

5.15.2.2 Operational Impacts

5.15.2.2.1 Drainage

The project site is currently partially developed with several impervious surfaces, mainly roads. Development of the project will result in an increase of impervious surfaces and once developed, the project will result in approximately 4.4 acres of impervious surfaces. Stormwater runoff from the site will be captured and directed to the WPCF. Currently, the stormwater from the adjacent STIG plant also is directed to the WPCF. The stormwater collection system will be designed to discharge directly to the WPCF at a rate that would not exceed the WPCF's capacity. The increase in the amount of impervious surface is not expected to significantly change the amount or timing of runoff from the LEC project site. Because stormwater would be collected and discharged to the WPCF, the LEC project would not result in substantial erosion, siltation, or flooding on- or offsite. Therefore, operational impacts to drainage patterns are less than significant.

5.15.2.2.2 Water Quality

Operation of the LEC project will not result in any direct discharge offsite to receiving surface or groundwater. All runoff from the site will be collected and discharged to the WPCF. Because there is an agreement in place with the City of Lodi to accept stormwater and sanitary discharge from the LEC project, operational impacts to surface water and groundwater quality are less than significant.

5.15.2.2.3 Waste Discharge Requirements

Wastewater from the LEC will be discharged to a new onsite Class I underground injection well to be constructed as part of this project. This well will be permitted through the EPA's Underground Injection Control (UIC) program, which strictly regulates the conditions on which a permit for Class I injection wells can be issued. Class I permits allow the injection of hazardous and nonhazardous fluids (industrial and municipal wastes) into isolated formations beneath the lowermost underground source of drinking water (EPA, 2004). The LEC would discharge up to a maximum of 225 gallons per minute of process wastewater to the underground injection well. In addition, as described in Section 5.15.1.5, two additional wells are included in the UIC permit package that will be submitted to EPA Region IX. The LEC facility will use the existing Class I injection well currently in use at the STIG plant as a backup in the event the new well is unavailable.

Because wastewater discharge to the injection well would be permitted under the EPA's UIC program, impacts to groundwater quality would be less than significant. The UIC permit package will include the following items:

- Permit Application
- Area of review methods
- Maps of well areas and area of review
- Corrective action plan and well data

- Maps and cross sections of underground sources of drinking water and geologic structure of area
- Operating data
- Formation testing program
- Stimulation program
- Injection procedures
- Construction procedures and details
- Plans for well failures
- Monitoring program
- Plugging and abandonment plan, including proof of necessary resources
- Aquifer exemption
- Existing EPA permits
- Description of business

5.15.2.2.4 Groundwater

The LEC project will use potable water from a new onsite well for eye-wash stations and sanitary facilities, as needed. This well will be permitted through the San Joaquin Department of Environmental Health, as required by the City of Lodi Municipal Code, Chapter 8.08.

The onsite well will draw from the Eastern San Joaquin Subbasin within the highly productive San Joaquin Valley Groundwater Basin. Well yields in the fresh water-bearing formation underlying the subbasin range from approximately 650 to 1,500 gallons per minute (DWR, 2006). The onsite well will have sufficient capacity to supply 450 gallons per day of potable water necessary for the LEC (approximately 450 gallons per day, Monday-Friday, and 90 gallons per day on Saturday and Sunday). The overall volume of potable water to be used by the LEC is less than 0.4 acre-feet per year with a maximum pumping rate of less than 1 gallon per minute. All pumped water will be consumptively used and no groundwater return flows are expected.

There are two aquifers in the LEC project area. The upper aquifer is perched on top of an impervious zone and is found at depths of 2 to 14 feet (Lowney-Kaldveer Associates, 1975). The lower aquifer begins at a depth of about 50 feet and is of a higher water quality than the upper aquifer. For the LEC project, the onsite well will be screened several hundred feet below the known area of low-quality shallow groundwater. The target aquifer is the Laguna Formation, which has average irrigation well yields of 900 gallons per minute in the Eastern San Joaquin Subbasin (DWR, 2006). The well will be screened at a sufficient depth to be unaffected by the existing shallow low-quality groundwater. Additional measures to protect the water quality of the well include:

- 75 feet of cemented surface casing will be installed.

- Vertical hydraulic gradients will be estimated annually using the existing shallow groundwater monitoring wells.
- A sampling port will be installed at the well and the well will be sampled for general chemistry parameters, nitrates, and coliform, at least annually.

Given the low production rate of the onsite well relative to what the aquifer is capable of producing, the effect on local groundwater levels is expected to be negligible. An extensive monitoring well network exists for several miles surrounding the WPCF, which allows actual water level and water quality effects to be observed, if they are measurable. Operation of this well is not expected to have any measurable effect on production wells or surface water bodies within 0.5 mile of the LEC potable well or contribute to the migration of groundwater contaminants. A Technical Memo evaluating the potential groundwater impacts associated with the LEC potable supply well was prepared by a professional geologist and is included in Appendix 5.15B.

Groundwater is available within the Eastern San Joaquin Subbasin to supply the LEC. In the vicinity of the LEC project site, groundwater recharge and water-use returns exceed the current and expected future pumping, which occurs primarily for agricultural use. Sources of recharge in the vicinity of the LEC include irrigation of Delta lands and seepage from related waterways to the west, surface-water-irrigated lands to the north and east, percolation from WPCF storage ponds, and recharge from WPCF land application areas (City of Lodi, 2006). Because the LEC project would not substantially deplete groundwater supplies such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, impacts to groundwater are less than significant.

As described above, groundwater recharge in the vicinity of the LEC occurs from several sources. Once developed, the project would result in 4.4 acres of impervious surfaces, which will not interfere substantially with groundwater recharge and impacts are less than significant. Because the project will use only a small amount of water, the project is unlikely to affect groundwater quality. No changes in the existing physical or chemical conditions of groundwater resources are expected as a result of the LEC project and no impacts to groundwater quality would occur.

5.15.2.2.5 Flooding Potential

The LEC project site is in the 100-year flood plain (Zone A) as defined by FEMA. The potential for a 100-year flood event to impact the site is medium to high. The LEC project site is on the eastern edge of the Delta and is protected from the Delta by a system of levees. Weakness and instability within the Delta levee system has led to the creation of numerous programs targeted at repairing and maintaining the Delta levees. The City of Lodi Municipal Code, Title 15 (Buildings and Construction) addresses flood damage prevention (Chapter 15.60) and sets guidelines for development in flood hazard areas. A development permit shall be obtained before construction or development begins within any area of special flood hazards (Section 15.60.070 of the Lodi Municipal Code). Furthermore, all construction and development in flood hazard areas must adhere to the Standards of Construction in Section 16.60.140, Article III, Provisions for Flood Hazard Reduction. While the project could potentially expose people or structures to significant risk of loss, injury, or death resulting from levee failure, compliance with the Lodi Municipal Code would sufficiently mitigate any flood risk to a less-than-significant level. Furthermore, the LEC

project is not near the Pacific Ocean or on steep slopes, and any potential inundation from seiche, tsunami, or mudflow is remote.

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 § 21083; California Code of Regulations, title 14, § 15064(h), 15065(c), 15130, and 15355).

In July 2008, 72 projects[2] were being processed with the San Joaquin County Building Department. These projects were in Acampo, Escalon, Farmington, French Camp, Linden, Lodi, Lockeford, Manteca, Ripon, Stockton, and Tracy. The types of projects included residential projects such as new residences, additions and remodels to existing residences, mobile home renovations, and pool construction; commercial projects such as administration buildings, barns, and a riding arena; light industrial projects such as storage buildings, spray booths, and warehouses; office projects such as building conversions and tenant improvements; and institutional projects such as classroom relocation and facilities to house animals (Raborn, 2008).

A cumulative impact could occur if the LEC discharge to the WPCF combined with the trucked in septic waste from the development applications in San Joaquin County exceeded the WPCF's capacity. Septic waste trucked into the WPCF for disposal is typically from residential land uses within the facility's service boundary, which includes unincorporated county areas north of Eight-mile Road, south of the Sacramento-San Joaquin County line (excluding Galt), east of the Delta boundary, and west of the foothills (Dell Karlin, pers. comm., 2008). However, while the WPCF does accept trucked in septic waste from unincorporated San Joaquin County lands, this amount is minimal compared to the facility's capacity (Dell Karlin, pers. comm., 2008). Therefore, the potential for cumulative impacts of the LEC project combined with other projects in San Joaquin County would be less than significant.

In July 2008, 21 projects were in various stages of progress with the City of Lodi. Most of these projects are zoned residential, with a few office, mixed use, institutional, commercial, and industrial projects proposed. New residential development includes approximately 3,348 units (Bereket, 2008). A cumulative impact could occur if the LEC discharge to the WPCF combined with the discharge from the development applications exceeded the WPCF's capacity.

Currently, the WPCF treats approximately 6.3 million gallons per day (2,299 million gallons per year) of municipal wastewater from the City of Lodi (City of Lodi, 2006). Table 5.15-11 shows the average influent flows to the WPCF between 2002 and 2005. New development is projected to produce an average of 97 gallons per capita per day (West Yost and Associates, 2001). Projected peak flows are shown in Table 5.15-12. While the WPCF was expanded in 1992 to its current capacity of 8.5 million gallons per day, the plant's permitted capacity remains at 7 million gallons per day. The plant is currently functioning at 75 percent of design capacity, and 91 percent of permitted capacity.

[2] For the purposes of this discussion, San Joaquin County sorted its projects by project cost, and provided a list of the projects costing $25,000 or more.

However, the Phase 3 Improvements Project 2007 is currently underway and includes the installation of new influent screens, screening washers, and influent pumps, among other treatment process improvements (West Yost and Associates, 2001). These improvements will increase the treatment capacity of the WPCF to 8.5 million gallons per day (3,102 million gallons per year) of average dry weather flows, and are scheduled to be completed by March, 2009. The WPCF permit, issued by the Central Valley RWQCB in September, 2007, will allow for an effluent limit of 8.5 million gallons per day upon completion of the Phase 3 Improvements Project.

TABLE 5.15-11
Average Influent Flows to the Lodi WPCF (2002-2005)

Flows	Annual Flow (million gallons per year)
Domestic Wastewater (metered)	2,252
Industrial Wastewater (metered or estimated from water supply data)	131
Stormwater – Onsite (unmetered)	46
Stormwater – offsite (unmetered)	154
Total	2,583

Source: City of Lodi, 2006

TABLE 5.15-12
Current and Projected Wastewater Flow

	2001 (million gallons per day)	2020 (million gallons per day)
Average Daily Flow	7.5	8.5
Peak Monthly Flow	8.5	9.6
Peak Daily Flow	9.7	11.0
Peak Daily Flow (dry weather)	8.9	10.0

Source: West Yost and Associates, 2001

The LEC project will discharge stormwater runoff and a minimal amount of sanitary wastewater to the WPCF. A will-serve letter from the City of Lodi indicating that there is sufficient capacity to receive domestic waste from the LEC is included in Appendix 2D. Therefore, the potential for cumulative impacts of the proposed LEC project combined with other projects would be less than significant.

The LEC project will use potable water from a new onsite well for eye-wash stations and sanitary facilities, as needed. The overall volume of potable water to be used by the LEC is less than 0.4 acre-feet per year with a maximum pumping rate of less than 1 gallon per minute. Groundwater is available within the Eastern San Joaquin Subbasin to supply the LEC. In the vicinity of the LEC project site, groundwater recharge and water-use returns exceed the current and expected future pumping, which occurs primarily for agricultural use. Because the LEC project, even in combination with other groundwater water uses in the area, would not substantially deplete groundwater supplies such that there would be a net

deficit in aquifer volume or a lowering of the local groundwater table level, cumulative impacts to groundwater are less than significant.

5.15.4 Mitigation Measures

This section presents mitigation measures proposed to reduce impacts to water resources to a less-than-significant level.

5.15.4.1 Construction

The mitigation measures proposed are prescribed by stormwater and erosion control management programs mandated under the NPDES permitting system. These programs have been in place for a number of years and the prescribed measures have proven effective. Under the General NPDES Permits for Construction, for example, various specific measures are prescribed, and a program of monitoring is required.

- In accordance with the construction SWPPP, implement BMPs designed to minimize soil erosion and sediment transport during construction of the plant site. Design appropriate erosion and sediment controls for slopes, catch basins, culverts, stream channels, and other areas prone to erosion.
- In accordance with the construction SWPPP, perform refueling and maintenance of mobile construction equipment only in designated lined and/or bermed areas away from stream channels. Prepare and implement spill contingency plans in areas where they are appropriate.

5.15.4.1.1 Groundwater

For the LEC project, the onsite potable well will be screened several hundred feet below the known area of low-quality shallow groundwater. The well will be screened at a sufficient depth to be unaffected by the existing shallow low-quality groundwater. Additional measures to protect the water quality of the well include:

- 75 feet of cemented surface casing will be installed;
- Vertical hydraulic gradients will be estimated annually using the existing shallow groundwater monitoring wells;
- And a sampling port will be installed at the well and the well will be sampled for general chemistry parameters, nitrates, and coliform, at least annually.

5.15.4.1.2 Flooding Potential

The City of Lodi Municipal Code, Title 15 (Buildings and Construction) addresses flood damage prevention (Chapter 15.60) and sets guidelines for development in flood hazard areas. A development permit shall be obtained before construction or development begins within any area of special flood hazards (Section 15.60.070 of the Lodi Municipal Code). Furthermore, all construction and development in flood hazard areas must adhere to the Standards of Construction in Section 16.60.140, Article III, Provisions for Flood Hazard Reduction. While the project could potentially expose people or structures to significant risk of loss, injury, or death resulting from levee failure, compliance with the Lodi Municipal Code would sufficiently mitigate any flood risk to a less-than-significant level.

5.15.5 Laws, Ordinances, Regulations, and Standards

Federal, state, and local LORS applicable to water resources and anticipated compliance are discussed in this section and summarized in Table 5.15-13.

TABLE 5.15-13
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).	See below under State and Local	Sections 5.15.2.1, 5.15.2.2
Safe Drinking Water Act	Requires EPA to develop minimum federal requirements for Underground Injection Control (UIC) programs and other safeguards to protect public health by preventing injection wells from contaminating underground sources of drinking water.	EPA Region IX Ground Water Office 475 Hawthorne Street (WTR-9) San Francisco, CA 94105-3901 (415) 972-3537	Section 5.15.2.2.3
State			
Federal Clean Water Act (implemented by State of California)	Implements and enforces the federal NPDES permit program.	Central Valley RWQCB 11020 Sun Center Drive #200 Rancho Cordova, CA 95670-6114 (916) 464-3291	Sections 5.15.2.1, 5.15.2.2
Porter-Cologne Water Quality Control Act	Controls discharge of wastewater to the surface and ground waters of California.	Central Valley RWQCB 11020 Sun Center Drive #200 Rancho Cordova, CA 95670-6114 (916) 464-3291	Sections 5.15.2.1, 5.15.2.2
Delta Protection Commission	An entity that plans for and guides the conservation and enhancement of the natural resources of the Delta. The LEC site is located within the secondary zone which is not within the planning area of the Delta Protection Commission.	Delta Protection Commission 14215 River Road P.O. Box 530 Walnut Grove, CA 95690 (916) 776-2290	Section 5.15.5.2.5

TABLE 5.15-13
Laws, Ordinances, Regulations, and Standards for Water Resources

LORS	Requirements/ Applicability	Administering Agency	AFC Section Explaining Conformance
SWRCB Resolution No. 75-58; California Water Code Sections 13550, 13551, 461, and 13751; CEC Policy	Discourages use of fresh water for power plant cooling purposes unless alternatives would cause an adverse environmental impact or be economically or otherwise infeasible. Requires a well completion report be submitted to DWR.	Central Valley RWQCB 11020 Sun Center Drive #200 Rancho Cordova, CA 95670-6114 (916) 464-3291 California Energy Commission 1516 Ninth Street, MS-29 Sacramento, CA 95814-5512 (916) 654-4287 Department of Water Resources 1416 9th Street Sacramento, CA 95814 (916) 653-5791	Section 5.15.1.4.1
Local			
San Joaquin County General Plan 2010, Section IV – Community Development, Section V – Public Health and Safety, & Section VI – Resources	Addresses infrastructure services, flood hazards, and water resources and quality; regulates transmission lines.	San Joaquin County, Community Development Department 1810 E. Hazelton Ave. Stockton, CA 95205 (209) 468-3124	Section 5.15.5.3.1
Title 9 – Development Title of San Joaquin County	Provides requirements for alteration of land within county.	San Joaquin County, Community Development Department 1810 E. Hazelton Ave. Stockton, CA 95205 (209) 468-3124	Section 5.15.5.3.1
Improvement Standards for San Joaquin County	Provides design standards for improvements within county.	San Joaquin County, Department of Public Works 1810 East Hazelton Avenue Stockton, CA 95205 (209) 468-3000 Phone	Section 5.15.5.3.1
San Joaquin County Standard Specifications and Special Provisions	Provides the County's minimum requirements for excavation safety, dust control, watering, earthwork, and erosion and pollution control.	San Joaquin County, Department of Public Works 1810 East Hazelton Avenue Stockton, CA 95205 (209) 468-3000 Phone	Section 5.15.5.3.1
Lodi Municipal Code	Provides requirements for development of land within the City limits, including land within flood hazard designations, and requirements for obtaining permits for water wells.	City of Lodi, Community Development Department 221 W. Pine Street Lodi, CA 95240 (209) 333-6711	Sections 5.15.2.3.1, 5.15.5.3.2

5.15.5.1 Federal LORS

In California, discharges of wastewater and stormwater into surface waters are regulated by the SWRCB and RWQCBs under the Clean Water Act and the Porter-Cologne Water Quality Control Act. LEC will discharge wastewater to an underground injection well and to the atmosphere through evaporation in the cooling tower. Relevant NPDES permits for stormwater quality management are discussed below under state and local LORS.

5.15.5.1.1 Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996, and requires many actions to protect drinking water and its sources. The EPA sets national standards for drinking water to protect against health risks, considering available technology and costs. These National Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants in drinking water or required ways to treat water to remove contaminants. The SDWA requires EPA to develop minimum federal requirements for Underground Injection Control (UIC) programs and other safeguards to protect public health by preventing injection wells from contaminating underground sources of drinking water. As a result, a permit from EPA is required to discharge to an underground injection well. The federal regulations for the UIC Program are found in Title 40 of the Code of Federal Regulations.

5.15.5.2 State LORS

5.15.5.2.1 SWRCB Resolution No. 75-58; California Water Code Sections 13550, 13551, 461, and 13751; CEC Policy

SWRCB Resolution No. 75-58 provides statewide water quality principles for adoption of discharge requirements and implementation actions for power plants that depend upon inland waters for cooling. This policy also provides guidance in the planning of new power plants to encourage the use of wastewater for cooling, thus minimizing the use of potable water. In addition, California Water Code Sections 13550, 13551, and 461 encourage the conservation of potable water resources and the maximum reuse of wastewater to conserve potable water, particularly in areas where recycled water of adequate quality is available at a reasonable cost. California Water Code Section 13751 requires a well completion report be filed with the Department of Water Resources (DWR) within 60 days from the date of construction, alternation, abandonment, or destruction of a well is completed.

In the 2003 Integrated Energy Policy Report, the California Energy Commission adopted a policy requiring new power plants to use degraded or recycled water or air-cooled systems to reduce the amount of fresh water used for power plant cooling systems. Fresh water can only be used if alternative cooling methods would cause a significant adverse environmental impact or be economically or otherwise infeasible.

5.15.5.2.2 Phase II NPDES Stormwater Permit Program

In accordance with the Clean Water Act, the City of Lodi and San Joaquin County have each prepared a Stormwater Management Program (2003). These Stormwater Management Programs were prepared pursuant to EPA's Phase II Stormwater Permit Program for small municipal separate storm sewer systems (MS4s). A regulated small MS4 operator must develop, implement, and enforce a stormwater management program designed to reduce the discharge of pollutants from their MS4 to the "maximum extent practicable," to protect

water quality, and to satisfy the appropriate water quality requirements of the CWA. The rule assumes the use of narrative, rather than numeric, effluent limitations requiring implementation of BMPs.

5.15.5.2.3 Industrial Stormwater NPDES Permit

The SWRCB implements regulations under the federal Clean Water Act 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 (SWRCB, 1997). The SWRCB has issued Waste Discharge Requirements (WDRs) for discharges of stormwater associated with industrial activities (SWRCB Order 97-03-DWQ), excluding construction activities. The LEC project is discharging all stormwater runoff to the WPCF and will apply for an exemption from the General Permit for Discharges of Stormwater Associated with Industrial Activities because there will be no discharge offsite.

5.15.5.2.4 Construction Stormwater NPDES Permit

The federal Clean Water Act 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 Water Quality Order No. 99-08-DWQ; SWRCB, 1999) that applies to projects resulting in one or more acres of soil disturbance. The proposed project would result in disturbance of more than one 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 Central Valley RWQCB requires a NOI to be filed prior to 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 beginning of construction activities.

5.15.5.2.5 Delta Protection Commission

The Delta Protection Act of 1992 established the Delta Protection Commission, an entity to plan for and to guide the conservation and enhancement of the natural resources of the Delta, while sustaining agriculture and meeting increased recreational demand. The Act defines a Primary Zone, which comprises the principal jurisdiction of the Commission. The Secondary Zone is the area outside the Primary Zone, but still within the legal Delta; however, the Secondary Zone is not within the planning area of the Commission. The Act requires the Commission to prepare and adopt a Land Use and Resource Management Plan for the Delta, which must meet specific goals. In order to achieve these goals, local land use plans and decisions must be in conformance with the Land Use and Resource Management Plan for the Delta and local decisions are subject to appellate review by the Delta Protection Commission. The LEC project is located within the Secondary Zone and is not within the planning area of the Commission.

5.15.5.3 Local LORS

5.15.5.3.1 San Joaquin County

Applicable San Joaquin County regulations include the General Plan 2010 (San Joaquin County, 1992), the Development Title (LexisNexis Municipal Codes, 1995), the Improvement Standards (San Joaquin County Department of Public Works, 1997), as well as the Standard Specifications and Special Provisions document (San Joaquin County Department of Public Works, 2008).

Sections of the General Plan that may be relevant to this project include Section IV (Community Development), Section V (Public Health and Safety), and Section VI (Resources). Infrastructure services are addressed in the Community Development section, flood hazards are addressed in the Public Health and Safety section, and water resources and quality are addressed in the Resources section of the plan. Policies regarding transmission lines are found in the Utilities subsection of the Community Development portion of the plan.

The Development Title describes the requirements for land alteration within the county. Several of the Development Title divisions that may apply to this project include Division 11 (Infrastructure Standards and Requirements), Division 14 (Grading and Excavation Regulations), Division 15 (Natural Resources Regulations), and Division 16 (Safety Regulations). Specifically, Chapter 9-1400 of the San Joaquin County Ordinance provides a permitting process for construction excavation, grading, and earthwork within San Joaquin County. The ordinance requires the preparation and submittal of a drainage, erosion, and sedimentation control plan to minimize impacts to waters of the State as a condition of securing a building permit.

The Improvement Standards document describes design standards for roads, storm drains, water systems, sewer systems, and fire access that would apply to construction on the site. The San Joaquin County Standard Specifications and Special Provisions document provides the County's minimum requirements for excavation safety, dust control, earthwork, watering, erosion control and pollution control. LEC compliance with the requirements of these regulations will be accomplished through the public project review process and by local review for grading and excavation permits.

5.15.5.3.2 City of Lodi

Lodi Municipal Code, Title 8 (Health and Safety), Chapter 8.08 (Water Wells) requires a (Well) Boring Permit application be submitted to the San Joaquin Department of Environmental Health prior to placement of a well. A well or pump may be installed by property owners as long as work is accomplished in accordance with Chapter 8.08 of the Lodi Municipal Code.

Lodi Municipal Code, Title 15 (Buildings and Construction) addresses flood damage prevention (Chapter 15.60) and sets guidelines for development in flood hazard areas. A development permit shall be obtained before construction or development begins within any area of special flood hazards, established in Section 15.60.070 of the Lodi Municipal Code. Application for a development permit shall be made on forms furnished by the floodplain administrator. In addition, prior to construction of the proposed site, a site preparation grading permit is required in accordance with Lodi Municipal Code, Title 17 (Zoning). The code includes information for application filling and processing

(Chapter 17.50), permit approval (Chapter 17.52), and permit implementation, time limits, and extensions (Chapter 17.54).

Best Management Practices (BMPs) are required to be implemented to prevent, control, and reduce stormwater pollution for all construction within the City limits. At this time there are no formal permits associated with BMPs because they are built into the City's construction and land development permit review. The LEC project will conform to these requirements by preparing and submitting an application for the site preparation grading permit.

5.15.6 Agency Contacts, Permits Required, and Permit Schedule

Agency contacts for required permits are listed in Table 5.15-14.

TABLE 5.15-14
Permits and Permitting Agencies for Water Resources

Permit	Schedule	Agency
Application of Service for Recycled Water	Will-serve letter received November 29, 2005	City of Lodi, Public Works Department P.O. Box 3006 Lodi, CA 95241-1910 (209) 333-6706
Industrial Wastewater Discharge Permit	Apply for exemption prior to operation of the LEC project.	City of Lodi, Public Works Department P.O. Box 3006 Lodi, CA 95241-1910 (209) 333-6706
National Pollution Discharge Elimination System General Permit for Construction	Submit NOI to use the permit at least 30 days in advance of use, prepare SWPPP for construction.	Central Valley RWQCB 11020 Sun Center Drive #200 Rancho Cordova, CA 95670-6114 (916) 464-3291
Site Preparation Grading permit; Development permit for areas of special flood hazards	Prior to construction of the LEC project.	City of Lodi, Public Works Department Kari Chadwick P.O. Box 3006 Lodi, CA 95241-1910 (209) 333-6711
Class I Underground Injection Well permit	Prior to operation of the LEC project.	EPA Region IX Ground Water Office Adam Freedman 475 Hawthorne Street (WTR-9) San Francisco, CA 94105-3901 (415) 972-3845
(Well) Boring Permit Application	Submit permit application at least 48 hours prior to proposed commencement of work on water well.	San Joaquin Department of Environmental Health, Director of Environmental Health Donna Heran, REHS 600 E. Main Street Stockton CA 95202 (209) 468-3420 Phone
Report of Completion	Submit within 60 days from the completion date of construction of the water well.	Department of Water Resources 1416 9th Street Sacramento, CA 95814 (916) 653-5791

5.15.7 References

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