8.14 Water Resources

The affected environment of the Tracy Peaker Project (TPP) is described in terms of regional water resources and the identified water supply. The potential impacts to surface water or groundwater that could result from the TPP are described for the San Joaquin County area. Cumulative and indirect impacts and mitigation measures are also addressed below. Finally, the laws, ordinances, regulations, and standards (LORS) that apply to the use and conservation of water resources are presented.

8.14.1 Affected Environment

GWF Energy LLC proposes to build and operate the Tracy Peaker Project (TPP), a nominal 169-megawatt (MW) simple-cycle power plant, on a nine-acre, fenced site within a 40-acre parcel in an unincorporated portion of San Joaquin County. The site is located immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. The TPP would consist of the power plant, two onsite 115-kilovolt (kV) switchyards, an approximately 1,470-foot water supply pipeline (as measured from the fence line), an onsite natural gas supply interconnection, and improvements to an existing dirt access road approximately one mile in length. An approximately 5.2-acre area west of the plant fence line and within the 40-acre parcel would be used for construction laydown and parking. Figure 2-1 shows the regional location of the GWF site. Figure 2-2 shows the immediate site location of the GWF project, including the location of the proposed generating facility and the proposed water supply and access routes.

The proposed facility would be constructed on agricultural property. The area immediately surrounding the site is predominantly used for agricultural and industrial purposes. The Owens-Brockway glass container manufacturing facility is directly north of the Union (Southern) Pacific Railroad tracks, and the Tracy Biomass power plant is just north of Owens-Brockway.

8.14.1.1 Regional Water Resources

Climate and Precipitation. The Tracy area is arid to semiarid, with hot summers and mild winters. Most of the yearly precipitation falls between the months of October and May.

Table 8.14-1 lists the average monthly maximum temperatures, the average monthly minimum temperatures, and the average monthly rainfall recorded at the Tracy Carbona weather station from 1927 through 2000. Average annual rainfall is 9.99 inches.

Regional Water Use and Supply. Groundwater and surface water are used to meet water needs in San Joaquin County. Total annual water use in the county is 1,626,000 acre-feet (530 billion gallons). Approximately 50 to 60 percent of the total use is from groundwater; the remainder comes from surface water supplies, which include the San Joaquin River, the Central Valley Project, and the State Water Project (Nategawa, 2001). In 1999, the Delta-Mendota Canal, which is part of the federal Central Valley Project, delivered over 7 billion gallons of water to San Joaquin County, including over 2.3 billion gallons to the city of Tracy (Martin, 2001).

Geologic Setting and Groundwater. The TPP site is located within the southern two-thirds of the Central Valley aquifer system, which underlies a portion of San Joaquin County. This aquifer system is made up of post-Eocene continental rocks and deposits, which contain most of the fresh water in the valley. Below the continental deposits are tertiary marine sediments that contain mostly saline water, except in certain areas where an influx of fresh water has flushed out the saline water.

The aquifer system in the San Joaquin Valley generally consists of an upper and a lower aquifer, which are separated by a relatively thick clay layer of regional extent called the Corcoran Clay member of the Tulare Formation (shown on Figure 8.14-3). Several of these clay beds were deposited in a lake that once occupied the San Joaquin Valley trough. The Corcoran Clay is part of the modified E-clay in the San Joaquin Valley; it is located approximately 450 feet below ground surface (bgs) and is approximately 50 to 100 feet thick. The Corcoran Clay is silty, diatomaceous clay with low permeability and is one of the largest confining bodies in the region, underlying an area of approximately 5,000 square miles. In general, clay zones are impermeable aquitards that restrict vertical and lateral movement of groundwater. Movement of groundwater through soil can be retarded or terminated by aquitards.

Although the Corcoran Clay is believed to be a competent barrier between the upper and the lower aquifers in the southern sections of the San Joaquin Valley, the Corcoran

Clay pinches out and begins to disappear as it moves north toward the TPP site. Where the Corcoran Clay disappears, the lower aquifer is no longer isolated from the upper aquifer. The absence of the Corcoran Clay allows the regional groundwater flow to be affected by numerous lenses of fine-grained materials that are distributed throughout the aquifer. These fine-grained lenses have a combined thickness of several thousand feet.

Local depths to groundwater vary from around 30 to 200 feet below ground surface, as shown on Figure 8.14-2. Table 8.14-2 contains water quality data for groundwater in the site vicinity.

Surface Water. The TPP site is located within the San Joaquin Basin, which includes the San Joaquin Valley, the eastern slope of the Coast Ranges, and the western slope of the Sierra Nevada. Surface water is used within the basin primarily for municipal, agricultural, and industrial purposes.

The principal streams in the basin are the San Joaquin River and its larger tributaries: the Cosumnes, Calaveras, Mokelumne, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. Major reservoirs include Pardee, New Hogan, Millerton, McClure, Don Pedro, and New Melones. Runoff from the Sierra Nevada and Coast Ranges supplies the San Joaquin River with fresh surface water before eventually flowing out to the Sacramento–San Joaquin Delta. The TPP site is located approximately five miles southwest of the San Joaquin River.

In addition to the rivers, surface water is imported to the basin through several main canals via the State Water Project (SWP) and the federal Central Valley Project (CVP). These canals include the Delta-Mendota Canal (CVP) and the California Aqueduct (SWP). The Delta-Mendota Canal and California Aqueduct carry fresh water from the Sacramento and San Joaquin River systems and groundwater from various wells throughout the region to a network of local canals and irrigation ditches. These sources provide water to agricultural lands as well as cities and industries throughout the central San Joaquin Valley region. Approximately 38 percent of the surface water supplied to the lower San Joaquin Valley is imported from the Sacramento–San Joaquin Delta through the Delta-Mendota Canal and the California Aqueduct (USGS, 1998). Completed in 1951, the Delta-Mendota Canal carries water southeasterly from

the Tracy Pumping Plant to the Mendota Pool, where it is used for irrigation along the west side of the San Joaquin Valley. The California Aqueduct is approximately one-quarter mile southwest of the proposed TPP site.

8.14.1.2 Water Supply for the Proposed Tracy Peaker Project

Water required for TPP construction activities will be supplied by the Plain View Water District from their turnout (No. 11.45LT) in the Delta-Mendota Canal. One of the initial construction activities will involve installation of the 1,470-foot water supply line from the turnout north to the TPP site. Water required during the construction of this line and water for any site grading or excavation will be taken by truck to the site from the existing Plain View Water District turnout piping distribution system.

Maximum daily water use for TPP construction activities will occur during site grading and excavation, expected to take place over a 3-month period. Most of this water will be used for fugitive dust control. The maximum daily use is expected to be approximately 12,000 gallons, with the daily average estimated at approximately 2,000 gallons. Additional water will be required for the flushing and commissioning of water treatment systems. It is estimated that this activity will take place over a five-day period, with the peak/average daily water use for this activity estimated at 2,000 gallons. Wastewater from this activity will be discharged to an onsite holding tank for transport offsite, an arrangement that will also be used for (and is fully described in association with) plant wastewater and contact stormwater runoff. Wastewater volumes associated with this activity are expected to be generally equivalent to the water used for the process.

After the construction of the TPP, the Plain View Water District would supply the TPP site with water from the Delta-Mendota Canal for plant operation. The 1,470-foot-long pipeline built during the construction phase would transport water from a turnout in the canal to the TPP site. The project does not include a cooling tower and would therefore have a minimal water demand. Average annual water consumption from the canal would be approximately 29.5 acre-feet (9.6 million gallons), based on 8,000 hours of operation. The TPP site average daily flow rate would be 20 gallons per minute (gpm).

Water at the site would be used for fire protection, evaporative cooling in the air intake (for power augmentation), and to wash the turbine compressor. The turbine compressor washwater would be treated with reverse osmosis and portable ion exchange bottles prior to use. Water for evaporative cooling would be treated by reverse osmosis only. Plant personnel would bring bottled water on site for domestic purposes.

Industrial wastewater and contact stormwater runoff from the plant would be stored in an onsite storage unit and eventually transported off site by truck (see Section 8.14.2 for more detail concerning wastewater disposal). Noncontact stormwater from the plant site would be channeled and directed to an onsite evaporation/percolation basin.

8.14.2 Environmental Consequences

This section evaluates the potential impacts of the TPP on various water resources, including groundwater, surface water use and storage, and the Delta-Mendota Canal water supply. Consistency with state water policy and power plant cooling water policy are also examined.

Consistent with the California Environmental Quality Act (CEQA) Guidelines, the TPP is determined to have a significant effect on the environment if it would:

- Substantially degrade water quality;
- Contaminate a public water supply;
- Substantially degrade or deplete groundwater resources;
- Interfere substantially with groundwater recharge;
- Encourage activities that result in the use of large amounts of water;
- Use water in a wasteful manner;
- Cause substantial flooding, erosion, or siltation; or
- Substantially diminish habitat for fish, wildlife, or plants.

Project-related impacts and their significance are described below. The cumulative and indirect impacts on water resources are discussed in Section 8.14.3. Figures

8.14-1a and 8.14-1b illustrate the water balance for the annual average and maximum daily cases under the TPP. Table 8.14-3 provides general water quality information for the Delta-Mendota Canal, the source proposed to supply TPP water.

Groundwater Impacts. The TPP is not expected to have an impact on local and regional groundwater. The TPP would not directly withdraw groundwater from the area. The onsite evaporation/percolation basin would contain noncontact stormwater, and is thus not expected to contain significant concentrations of any constituents of concern. However, a monitoring program will be established to ensure that stormwater discharges to the basin meet all applicable water quality standards. Therefore, the evaporation/percolation basin would not cause an impact on local and regional groundwater.

Sanitary flow from employee restrooms at the TPP would be discharged to a septic system onsite. The septic system proposed is based on two restroom facilities and a maximum of 5 persons onsite at any time. The maximum daily sanitary flow to the septic system will be 350 gallons per day. The septic tank will be 1,500 gallons and will have a drain field of 1,000 square feet. Percolation tests were performed as part of the preliminary geotechnical evaluation. Two tests were performed, one yielding a value of 0.5 gallons per square foot and the second a value of 1.0 gallons per square foot. Using the more conservative 0.5 gallons per square foot yields a drainage field requirement of 700 square feet.

Based on the relatively low level of sanitary flow, the presence of clayey soils onsite, and the distance to the nearest domestic supply well, no adverse impacts to local or regional groundwater are expected.

Impacts on Surface Water Use and Storage. Potential surface water impacts resulting from the TPP include the disruption of surface runoff patterns during the construction phase, and stormwater management requirements during the operations and maintenance phase.

During construction of the TPP, approximately nine acres would be disturbed at the TPP site, one acre for the proposed water line, and 5.2 acres for construction laydown and staging. The plant footprint and other disturbed areas would not encroach on the San Joaquin River or the California Aqueduct. No project features will cross any surface water drainages or

other surface water bodies. Thus, no impacts on surface water bodies are expected. Special procedures to be identified in the Stormwater Pollution Prevention Plan (SWPPP) developed for project construction would be implemented to prevent construction impacts on the Delta-Mendota Canal.

The TPP site generally slopes toward the northeast, with an elevation change of approximately 20 feet from the southwest (higher) to northeast (lower) corners of the site. No major surface water drainages are present on the site. Stormwater runoff currently runs by sheet flow across the site toward the northeast, but is prevented from continuing in that direction by the Union Pacific railroad tracks. The nearest drainage ditch to the east is along the west side of Lammers Ferry Road, though it is doubtful that sheet flow from the TPP site continues that far. The gradual slope and intervening features (pipeline, farm fields) likely encourage infiltration by slowing flow velocities in all but the most extreme storm events.

The presence of the Delta-Mendota Canal along the upslope (western) boundary of the site means that offsite runoff from upslope areas is prevented from flowing onto the TPP site. Thus, the majority of the stormwater crossing the TPP site is runoff generated by rain falling on the site itself, as opposed to surrounding properties. Table 8.14-4 shows the rainfall depth expected at various return frequencies and the corresponding runoff expected from the site prior to construction.

Grading during construction of the TPP would alter existing drainage patterns on the site. Surface water runoff would be directed around the construction site to the maximum extent feasible to minimize excess erosion and pollutant loading. After plant construction, approximately 9 acres of the 40-acre site will be covered with impervious surfaces, chiefly the TPP itself and related structures and access roads. It is anticipated that the remainder of the site will continue to be used for agricultural production. Table 8.14-5 shows the runoff depths expected from the site following TPP completion. As described later in this section, the stormwater runoff generated from all storms up to and including the 25-year, 24-hour event will be captured by the site's drainage system and either routed to the onsite evaporation/percolation basin or to an onsite holding tank for eventual offsite disposal via truck, depending on the portion of the site it comes from.

The drainage patterns of the area disturbed during the construction of the water line and the laydown area would be re-established after construction. Existing roadways would be used to the maximum extent possible; if additional roadways must be established, they would be sited and graded to minimize erosion and disturbance to runoff patterns. Best engineering management practices and drainage control would be implemented to minimize impacts from construction activities. A stormwater monitoring program would also be implemented for construction activities at the TPP site. In addition, erosion and sediment controls would be implemented in compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activity and all other applicable LORS. These controls would be identified in the SWPPP to be prepared prior to the start of construction. The California General Permit for Stormwater Discharge Associated with Construction Activities is included in Attachment 8.14-1.

Following the completion of construction activity, both contact and noncontact stormwater would be controlled and contained within the TPP site, and would not be discharged to surface waters. Both stormwater runoff from the immediate plant area (contact stormwater) and industrial wastewater would be stored in an onsite holding tank and eventually transported offsite via truck for disposal by EnVectra, a licensed waste management company under current contract to GWF. EnVectra will arrange for the shipment and disposal of both project wastewater slurry (the nonrecyclable portion) and contact stormwater at the Liquid Waste Management, Inc., McKittrick Waste Treatment site in Kern County (WMU ID# 50152041001). This facility accepts RCRA, non-RCRA, nonhazardous waste and is permitted as a Class II landfill. The facility has a capacity of 412 cubic meters (solids equivalent) per day. The slurry material from project wastewater is anticipated to constitute a small fraction of the McKittrick facility's daily capacity. The anticipated physical and chemical characteristics of the plant wastewater discharge are presented in Table 8.14-6. The noncontact stormwater drainage system for other portions of the TPP site would be designed to accommodate runoff from a maximum 25-year, 24-hour rainfall event (approximately 2.4 inches) (Durfee, 2000). The drainage system would consist of a network of berms, drainage pipes, and culverts installed to collect and direct noncontact stormwater runoff originating on the upslope, western portion of the site into the evaporation/percolation basin to be located directly northwest of the TPP. This system will also receive runoff from areas around the plant site that are not in contact with equipment or other

sources of potentially hazardous substances. Contact runoff from exterior areas inside the plant footprint will be directed to a series of catch basins that will deliver it to the holding tank for eventual offsite disposal. Additional details on these drainage systems will be included in the SWPPP to be prepared prior to the start of construction. Drainage at the TPP site would be designed to prevent flooding of permanent facilities and roads. As a result of these features, no impacts to surface water quality due to local flooding are expected.

The water-balance diagrams for the TPP are presented in Figures 8.14-1a and 8.14-1b. The expected flow rates of the wastewater streams for both average annual ambient temperature (63°F) and maximum daily ambient temperature (98°F) are provided. As illustrated, the primary wastewater discharge for the plant is from the water reverse osmosis treatment and demineralization systems. This wastewater stream will be collected in a storage tank and then processed through the use of a mechanical vapor re-compression unit to separate the concentrated dissolved solids from the wastewater stream. Clean water will be returned to the raw water holding tank and the small amount of concentrated slurry discharge will be stored in a wastewater tank and periodically transported offsite for disposal, as described above. Waste streams from the oil/water separator and turbine wash-water will be collected in separate holding tanks and will also be periodically transported offsite for disposal.

Facilities that do not discharge stormwater to designated "waters of the United States" do not require a permit under the General Permit for Discharges of Stormwater Associated with Industrial Activity. The stormwater runoff collected from outside bermed or graded stormwater collection areas (contact runoff) would be controlled through a stormwater collection system. The noncontact stormwater would be directed to an evaporation/percolation basin inside the facility fenceline. Because the noncontact runoff from the TPP would be discharged to an evaporation/percolation basin, the General Permit and associated monitoring and reporting requirements do not apply. The project site is not located within the 100-year floodplain; Federal Emergency Management Agency floodplain maps for this area do not exist, and thus it is not an area of concern (Barkely, 2001).

Use of water from the Delta-Mendota Canal for the TPP would not adversely impact the Sacramento–San Joaquin Delta. Water is provided to the canal through a series of water rights agreements that would not be affected by the project. Water will be supplied to the

TPP under an existing contract with the U.S. Bureau of Reclamation and would not represent a new demand on the system. The project would not alter the flow of surface or ground water into the Delta and would not impact Delta outflow or water quality objectives.

No adverse impacts to surface waters are anticipated to result from project wastewater disposal, as no discharges to surface water bodies are proposed to occur under the effluent disposal method being proposed at the TPP. The McKittrick waste disposal site is a licensed Class II facility and, as such, must comply with pertinent Regional Water Quality Control Board discharge requirements.

Impacts on the Delta-Mendota Water Supply. Construction, process, and firewater requirements for the TPP would be met by the Delta-Mendota Canal. A new water supply pipeline would be constructed to carry water from the Delta-Mendota Canal to the TPP site. The average annual water requirement for the TPP is estimated at 29.5 acre-feet (9.6 million gallons). With the purchase of the 40-acre site, GWF acquired the right to 136 acre-feet of water. GWF would also have access to 120 acre-feet of water from the Tracy Biomass facility as a backup source. The Tracy Biomass CVP water entitlement could be transferred to the TPP by agreement and delivered by the Plain View Water District through the same Delta-Mendota Canal turnout to be used for the primary TPP water supply source. No additional treatment for this water source would be needed prior to use in the TPP.

The Tracy Biomass Plant water supply is from a groundwater supply well. The plant currently requires approximately 328 acre-feet per year (average plant usage over the last five years). The 120 acre-foot CVP entitlement held by the TPP site at the Tracy Biomass facility has never been needed for plant operations. The CVP entitlement is transferred on an annual basis to other customers in the Plain View Water District. As a result, there will be no impact on the Tracy Biomass facility operations resulting from the transfer of water to the TPP. It is not expected that there will ever be a requirement to “exercise” the delivery option from Tracy Biomass, because the TPP average water requirement is 29.5 acre-feet per year and the entitlement is 164 acre-feet per year. For TPP to require the Tracy Biomass entitlement, the CVP allocation would have to fall below 18%.

Water from the canal would be supplied to the project under the Plain View Water District's contract with the U.S. Bureau of Reclamation for Delta-Mendota Canal water delivery. The Plain View Water District confirmed that it is able to supply the required amount of water to the TPP. Because an overdraft of water has been contracted out of the Delta-Mendota Canal, the full allocation for the TPP site may not be available every year. It is estimated that the Delta-Mendota Canal can only meet 50 to 60 percent of the contracted water demand south of the Delta during drought years. However, the contracted amount for the TPP site exceeds the projected plant requirement. Thus, with access to additional water from the Tracy Biomass facility, the plant's water needs would likely be met during drought years. Because water for TPP operation would be supplied under a pre-existing contract, the project would not exert an additional or new demand upon Delta-Mendota Canal water and is therefore not projected to cause a significant impact on canal water supply.

Consistency with State Water Policy. The volume of water that would be used for the TPP represents a small fraction of the current beneficial use of the state's inland waters. Conformance with state water policies and agreements is discussed below.

Power Plant Water Cooling Policy. The State Water Resources Control Board's (SWRCB) policy regarding power plant cooling water indicates preferences for the sources of cooling water (SWRCB, 1975). Before concluding that it is necessary to use surface water as cooling water for the TPP, GWF evaluated other potential sources of water, based on SWRCB policy, to determine whether these sources would be environmentally sound and economically feasible. The following cooling water alternatives were considered:

- Use of secondary wastewater from the City of Tracy wastewater treatment plant
- Drilling of an onsite supply well
- Use of wastewater from nearby industrial facilities
- Importing of wastewater streams from nearby communities
- Importing of ocean or brackish water
- Wet-dry cooling

- Dry cooling

All of these options were rejected as environmentally unacceptable, economically unsound, or both. In particular, concerns over the local and regional drawdown of the aquifer underlying the TPP site and the difficulty of providing for groundwater recharge to mitigate the project impact prevented the use of an onsite supply well. Several of the other options outlined above would have involved the construction of lengthy supply lines. As a result, these options are considered to be economically infeasible. The existing contract for water from the Delta-Mendota Canal and the proximity of the canal to the site renders the surface water option the most efficient and economical water source for the TPP.

8.14.3 Cumulative and Indirect Impacts on Water Resources

Current plans to construct additional industrial facilities in the project vicinity are described in Section 8.4. Project descriptions are only available for two of the projects: a 200-acre auto auction facility and approximately 100,000 square feet of small commercial/industrial project space. Proposals for these and other new facilities would undergo separate environmental review and any water resource impacts would be evaluated and mitigated.

However, cumulative impacts on surface and groundwater resources from the proposed project in conjunction with these other regional development proposals are not expected to occur since the TPP will be using an existing contract for Delta-Mendota Canal water to supply its needs. Other projects will be required to certify that an adequate water supply has been secured before final approvals are granted for construction. At this time, it is unknown whether any of these projects are intending to use the Delta-Mendota Canal as a source of water. Any intention to do so will need to be approved by either the U.S. Bureau of Reclamation or a local Delta-Mendota Canal contract water purveyor. Cumulative impacts on local surface water and groundwater quality are not anticipated to occur since the TPP will be disposing of its wastewater slurry at a licensed Class II disposal facility and discharging its stormwater to an onsite evaporation basin. Appropriate monitoring of the TPP's stormwater discharges will be undertaken to ensure that adverse impacts to local groundwater are presented.

Two other power generation projects are also being planned for the area: the East Altamont power plant and the Florida Power and Light Tesla Combined Cycle project. The East

Altamont project will require approximately 4,600 acre-feet of water per year, with an increase of up to 7,000 acre-feet during peak years. This water will be provided to the plant by the Byron Bethany Irrigation District (BBID) under its pre-1914 water rights. The water to be supplied to the plant by BBID is diverted from the Sacramento-San Joaquin River Delta under water rights senior to those of the CVP. Though the East Altamont plant will obtain its water from a different source than the TPP, both facilities will be supplied by water diverted from the Delta. As a junior appropriator, however, the CVP will need to adjust its operation to account for fluctuations in BBID diversions to mitigate any adverse effect on the Delta. As a result, the TPP may need to periodically obtain water supply from an alternate source, the Tracy Biomass facility. However, this would not be the result of the water needs of the East Altamont plant exclusively but would instead be the outcome of a region-wide drought or other such strain on the water supply. A zero discharge system is proposed to handle wastewater from the East Altamont plant, so no cumulative impacts are expected. No publicly available information concerning water supply requirements and wastewater disposal plans for the Florida Power and Light project was obtained, so no determination of cumulative impact is yet possible.

No cumulative impacts are expected on surface water bodies from construction of TPP linear facilities in conjunction with other known projects in the vicinity, as the TPP linears will not be crossing any surface water bodies.

8.14.4 Mitigation Measures

Though no significant adverse water resources impacts are expected to result from TPP construction and operation, GWF will implement mitigation measures to further minimize potential less-than-significant impacts to surface water. No impacts to groundwater have been identified, and thus no mitigation is required.

GWF will take actions during the construction and operation of the TPP to minimize impacts to water quality. These actions include the following:

WR-1. Project design and construction practices will minimize soil erosion during construction and operation of all TPP facilities. Implementing recommendations of the

U.S. Natural Resource Conservation Service in Stockton and from the *California Stormwater Best Management Practice Handbook* will minimize soil erosion.

Proposed Verification: SWPPP, erosion control plan, and site re-vegetation plan to be reviewed by CEC prior to start of construction. CEC will receive copies of monitoring reports made in compliance with the SWPPP.

WR-2. In accordance with the SWPPP prepared for construction activity at the site, particular care will be taken to prevent any construction stormwater runoff from reaching the Delta-Mendota Canal.

Proposed Verification: CEC will receive copies of monitoring reports made in compliance with SWPPP.

WR-3. Contact stormwater from the TPP will be collected within bermed and confined areas, routed to the onsite holding area, and transported offsite by EnVectra via truck.

Proposed Verification: CEC will review SWPPP prior to the start of construction

WR-4. Noncontact stormwater from the TPP will be collected and directed to an onsite evaporation/percolation basin for stormwater control purposes.

Proposed Verification: CEC will review SWPPP prior to the start of construction.

WR-5. Process wastewater from the TPP site will be collected in the onsite holding area and transported by EnVectra via truck to the McKittrick waste treatment site in Kern County. The performances of EnVectra will be reviewed on an annual basis for compliance with all applicable waste hauling permits. Instances of negligence or non-compliance will provide grounds for GWF to select a different qualified hauler.

Proposed Verification: CEC shall be notified on an annual basis concerning status of or any changes in the TPP's wastewater disposal plan.

WR-6. Equipment refueling and maintenance during construction will be performed within designated areas in a way that is consistent with best management practices. Spill contingency plans will be prepared and followed.

Proposed Verifications: CEC will review SWPPP prior to the start of construction and will receive copies of monitoring reports made in compliance with the SWPPP.

WR-7. A monitoring program will be implemented at the TPP site to assess the quality of stormwater discharges to the evaporation/percolation basin. Should constituents of concern be detected at concentrations at or in excess of water quality objectives for groundwater, the source of the contamination will be immediately identified and the discharge will be suspended.

Proposed Verification: CEC will receive copies of this monitoring reporting.

WR-8. The SWPPP for construction activities at the TPP site will contain a monitoring program to ensure compliance with all components of the NPDES general permit and the SWPPP. A spill prevention plan will also be included. The monitoring program will outline procedures for resolving the situation should impacts be discovered during monitoring.

Proposed Verification: CEC will review the SWPPP prior to the start of construction and will receive copies of the monitoring reports made in compliance with the SWPPP.

WR-9. The company selected to haul project wastewater to the offsite disposal location must have the appropriate permits from the U.S. Department of Transportation, the necessary equipment, and authorized admittance to the designated disposal facility. Any company not in the possession of these items will be ineligible for use at the TPP.

Proposed Verification: CEC will receive a copy of the contract conditions for the agreement between the TPP and the selected wastewater hauling company.

8.14.5 Applicable Laws, Ordinances, Regulations, and Standards

8.14.5.1 Federal LORS

The federal LORS applicable to the TPP are discussed in this section and are summarized in Table 8.14-7.

Clean Water Act: The Clean Water Act, as amended (Title 40, Code of Federal Regulations [CFR], Parts 112, 122, and 125) has the objective to restore and maintain the chemical, physical, and biological properties of the nation's surface waters. The Clean Water Act authorizes the U.S. Environmental Protection Agency to regulate discharges of wastewater and stormwater into any surface water body by issuing NPDES permits and pretreatment standards. These regulations apply to stormwater and any other point-source discharges released during construction and operation of any industrial activity that disturbs five acres or more.

In California, the administering authority for issuing and enforcing these permits has been delegated to the SWRCB (described below). The Central Valley Regional Water Quality Control Board (CVRWQCB) would issue and have oversight of the General Construction Activity Storm Water Permit for construction of the proposed TPP. The General Industrial Activity Storm Water Permit is not applicable to the operation of the TPP, because contact stormwater from the site would be collected and disposed of off site and would not be allowed to drain according to natural patterns.

Resource Conservation and Recovery Act (RCRA) of 1976, 40 CFR Part 260 et seq.: RCRA seeks to prevent surface and ground water contamination by issuing permits and establishing guidelines to track and control the handling and disposal of hazardous waste and hazardous materials.

In California, the administering agency for issuing and enforcing these permits is the California Department of Toxic Substances Control (DTSC). Region I of the DTSC will issue and have oversight of any RCRA permits required for the proposed TPP.

8.14.5.2 State LORS

The state LORS applicable to the TPP are discussed below.

California Constitution, Article 10 Section 2: Article 10 of the California Constitution prohibits waste or unreasonable use of water. The article also regulates the method of use and diversion of water. The administering agency is the SWRCB.

California Environmental Quality Act (CEQA), Public Resources Code § 21000 et seq.; CEQA Guidelines, 14 CCR Section 15000 et seq., Appendix G: CEQA establishes guidelines that define water resources impacts. Appendix G contains definitions of projects that may be considered to cause significant impacts to water resources. The administering agency for the CEQA is the CEC.

California Porter-Cologne Water Quality Control Act (1998); California Water Code Sections 13000–14957, Division 7, Water Quality: The Porter-Cologne Water Quality Control Act authorizes implementation of a statewide program to control the quality of all waters of the state. The act establishes the state and regional water quality control boards as the state agencies with the primary responsibilities for coordinating and controlling water quality. The siting, operation, and closure of waste disposal sites are regulated. The CVRWQCB requires that wastes and disposal sites be classified, and that discharges comply with groundwater protection and monitoring requirements, as set forth in RCRA.

The CEC, the SWRCB, and the CVRWQCB have authority and oversight of water quality issues for the proposed project.

California Water Code Sections 13260–13269; 23 CCR Chapter 9: The Water Code requires that a waste discharge report be filed regarding any waste discharge requirements where a discharge can affect the quality of any waters. The discharge requirements will support enforcement of relevant water quality protection objectives for the Water Quality Control Plan and applicable federal technology-based effluent standards. The discharge requirements may also incorporate requirements based on the Clean Water Act, Section 402(p) to address construction activities. The administering agency is the CVRWQCB.

California Water Code Sections 13271–13272; 23 CCR Sections 2250–2260: The California Water Code requires that releases of specified quantities of hazardous substances, sewage, or petroleum products be reported if the release is likely to result in discharge to waters

of the state. Where the release or threat of discharge affects surface waters, hazardous substances and reportable quantities are defined in 40 CFR Section 116.5 under Section 311(b)(2) of the Clean Water Act. Where the release or threat of discharge affects groundwater, hazardous substances are defined as the substances listed as hazardous under the California Hazardous Waste Control Act, Health and Safety Code Sections 2510 and 2520, and the reportable quantities are those specified in 40 CFR Part 302. Releases of hazardous quantities are not anticipated as a result of operation of the proposed TPP; however, if releases occur, reporting requirements specified in this code would be followed.

The administering agency is the CVRWQCB and the California Office of Emergency Services.

Water Quality Control Policy: Use and Disposal of Inland Waters Used for Power Plant Cooling: The SWRCB requires alternative sources of water to be evaluated when fresh inland waters are used for power plant cooling. Alternative sources must be shown to be environmentally undesirable or economically unsound. The SWRCB also requires an analysis of the impacts that the use of inland waters for power plant cooling will have on Delta outflow and Delta water quality objectives.

California Public Resources Code Section 25523(a); 20 CCR Sections 1752, 1752.5, 2300–2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (1): These sections of the Public Resources Code allow the CEC to include requirements to ensure protection of environmental quality in its decision on an AFC. These sections also require information to be submitted to the CEC regarding water resources and water quality protection. The administering agency is the CEC.

8.14.5.3 Local Authorities and Administering Agencies

Resource Conservation District: Soil resource policies, which are intended to maintain agricultural productivity, are administered largely by the Resource Conservation District rather than by San Joaquin County. To avoid increased erosion, recommendations for handling of soil during grading and construction will be obtained from the local Resource Conservation District.

8.14.6 LORS Compliance Strategy

Construction and operation of the proposed TPP, including the plant, the onsite natural gas interconnect, and other associated facilities, would comply with all applicable hydrology and water quality LORS. Application for required notifications and permits would be completed prior to the start of construction. A Notice of Intent would be filed with the CVRWQCB for coverage under the California General Permit for Stormwater Discharges Associated with Construction Activities prior to the start of construction activities at the project site. No additional permit applications pertaining to water resources are necessary.

Proposed conditions of certification are contained in Appendix K. These conditions are proposed in order to ensure compliance with applicable LORS and/or to reduce potentially significant impacts to less-than-significant levels.

Permit	Agency	Schedule
California General Permit for Stormwater Discharges Associated with Construction Activities	SWRCB	Notice of Intent filed with Regional Water Quality Control Board September 2001

8.14.7 Involved Agencies and Agency Contacts

Agency	Contact/Title	Telephone
Central Valley Regional Water Quality Control Board 3614 East Ashlan Avenue Fresno, CA 93726	Doug Patterson, Senior Water Resource Control Engineer	(559) 445-5116
Central Valley Regional Water Quality Control Board 3614 East Ashlan Avenue Fresno, CA 93726	Darrell Evensen, Water Resource Engineer	(559) 445-5910
State Water Resources Control Board 1001 I Street, PO Box 944213 Sacramento, CA 94244-2130	Bruce Fujimoto	(916) 657-1146
Department of Public Works, San Joaquin County 1810 East Hazelton Avenue Stockton, CA 95205	Brandon Nategawa	(408) 792-2324
Delta-Mendota Canal Water Authority 14201 S. Highway 33 Santa Nella, CA 95322	Joe Martin	(209) 833-1040
Federal Emergency Management Agency Building 105 Presidio of San Francisco San Francisco, CA 94129	Chris Barkely	(415) 923-7257
Plain View Water District 6715 S. Tracy Boulevard Tracy, CA	Nate Rupert	(209) 835-0375

8.14.8 References

Barkely, Chris, 2001. Personal communication from Chris Barkely, Federal Emergency Management Agency to R. Farre, URS, July.

Durfee, Kevin, 2000. Personal communication from Kevin Durfee, Western Regional Climatic Data Center, to T. Cudzilo, URS/Radian, March.

Martin, Joe, 2001. Personal communication from Joe Martin, Delta-Mendota Water Agency to R. Farre, URS, July.

Nategawa, Brandon, 2001. Personal communication from Brandon Nategawa, San Joaquin County Public Works to R. Farre, URS, July.

San Joaquin County Planning Department, 1998. San Joaquin County General Plan. Updated.

State Water Resources Control Board (SWRCB), 1975. *Water Quality Control Policy: Use and Disposal of Inland Waters Used for Powerplant Cooling.*

U.S. Geological Survey (USGS), 1998. *Environmental Setting of the San Joaquin-Tulare Basins, California.*

U.S. Geological Survey (USGS), 1998. *Water Quality in the San Joaquin-Tulare Basins, California, 1992-95.*

Western Regional Climatic Data Center. Climate information obtained from http://www.wrcc.dri.edu.

Wheeler, Doug, 2000. Personal communication from Doug Wheeler, Vice President, GWF Power Systems Company, Inc., to D. Stein, URS/Radian, April.

TABLES

Table 8.14-1
Monthly Climate Summary at Tracy Carbona
December 1, 1927 to July 31, 2000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (degrees F)	54.1	61.0	66.7	73.4	80.6	88.1	93.8	92.4	87.9	78.6	64.9	54.7	74.7
Average Min. Temperature (degrees F)	36.7	40.0	42.5	45.6	50.0	54.8	56.8	55.6	53.9	48.7	42.1	36.6	46.9
Average Total Precipitation (in.)	1.93	1.71	1.41	0.84	0.50	0.09	0.03	0.09	0.24	0.53	1.13	1.49	9.99

Note:
Percentages of possible observations for period of record: maximum temperature; 94.9%; minimum temperature, 94.4%; precipitation, 95.8%; snowfall, 97.0%.
Source: Western Regional Climate Center website, 2001.

Table 8.14-2
Water Quality Data for Groundwater[1]

	Well # 374303121294801	Well # 374235121283601
Temperature (degrees C)	22	22.5
Specific Conductance (microsiemens/cm at 25°C)	3,960	1,940
pH	7.8	7.5
Carbon dioxide (dissolved, mg/L)	4.1	
Acid Neutralizing Capacity	160	150
Nitrate (dissolved, mg/L as N)	9.9	14
Total Hardness (mg/L as CaO_3)	760	490
Noncarbonate Hardness (mg/L as $CaCO_3$)	260	
Dissolved Calcium (mg/L as Ca)	140	120
Dissolved Magnesium (mg/L as Mg)	100	46
Dissolved Sodium (mg/L as Na)	590	210
Dissolved Potassium (mg/L as K)	3.3	3.1
Dissolved Chloride (mg/L as Cl)	420	250
Dissolved Sulfate (mg/L as SO_4)	1,300	400
Dissolved Fluoride (mg/L as F)	<0.1	0.1
Dissolved Silica (mg/L as SiO_2)	31	40
Dissolved Boron (μg/L as B)	3,700	1,800
Dissolved Nitrogen, Nitrate (mg/L as NO_3)	44	62

[1]Samples taken 5-24-79.
Source: USGS Water Resources for California.

Table 8.14-3
Surface Water Needs for the Tracy Peaker Project and Quality Parameters of Surface Water Source

Delta-Mendota Canal Pumping Needs of TPP	
Maximum Daily Water Requirements for the TPP	
Flow (gpm)	52
Average Daily Water Requirements for the TPP	
Flow (gpm)	20

Delta-Mendota Canal Water Quality Parameters (unfiltered mg/L unless otherwise indicated)		
Alkalinity, as calcium carbonate[3]	129.3	
Conductivity[2]	749.17 μmhos/cm	
Hardness, as calcium carbonate[1]	102.00	
Total dissolved solids[2]	416.67	
Aluminum[2]	1.07	
Barium[2]	.053	
Cadmium[2]	<0.0001	
Calcium[3]	40.7	
Chloride[3]	140.0	
Chromium[2]	<0.01	
Copper[2]	0.0021	
Iron[2]	1.25	
Lead[2]	<0.001	
Manganese[2]	0.116	
Magnesium[3]	21.8	
Nickel[2]	<0.05	
Nitrate[3]	2.1	
Selenium[2]	<0.001	
Silica[3]	20.0	
Sodium[3]	120.0	
Sulfate[3]	120.0	
Zinc[2]	<0.01	
Bromodichloromethane[1]	52.5	μg/L (parts per billion)
Bromoform[1]	3.075	μg/L (parts per billion)
Chloroform[1]	112.8	μg/L (parts per billion)
Dibromoclоromethane[1]	22.00	μg/L (parts per billion)

[1] Sampled at O'Neill intake on 1/5/00, 2/3/00, 3/2/00, 4/4/00, 5/3/00, 5/30/00, 7/6/00, 8/2/00, 9/5/00, 10/3/00, 10/31/00, 12/6/00

[2] Sampled at Mile Post 9.87 on 6/23/92, 7/14/92, 8/18/92, 10/9/92, 11/5/92

[3] Reported by the Bureau of Reclamation, 2001

mg/L = milligrams per liter (equivalent to parts per million)
gpm = gallons per minute
μmhos/cm = reciprocal micro ohms per centimeter

Table 8.14-4
Stormwater Runoff Prior to Construction

Return Period of Storm (Years)	Rainfall Depth for 24-Hour Storm (inches)[1]	Runoff Depth from Site for 24-Hour Storm (inches)[2]
10	2.00	0.80
25	2.40	1.10
50	2.60	1.30
100	2.90	1.50

[1]Source: NOAA Atlas 2, Precipitation Frequency Atlas of the Western U.S. (1973), U.S. National Oceanic and Atmospheric Administration.
[2]Based on agricultural (straight row crops) land use and poorly drained soils (hydrologic soil group C).

Table 8.14-5
Stormwater Runoff Post-Construction

Return Period of Storm (Years)	Rainfall Depth for 24-Hour Storm (inches)[1]	Runoff Depth from Site for 24-Hour Storm (inches)[2]
10	2.00	0.87
25	2.40	1.17
50	2.60	1.37
100	2.90	1.82

[1]Source: NOAA Atlas 2, Precipitation Frequency Atlas of the Western U.S. (1973), U.S. National Oceanic and Atmospheric Administration.
[2]Based on nine acres of impervious area and 31 acres agricultural (straight row crops) land use and poorly drained soils (hydrologic soil group C)

Table 8.14-6
Physical/Chemical Characteristics of TPP Wastewater

Constituent	Concentration (mg/L)
Aluminum	21.40
Barium	1.06
Cadmium	0.002
Calcium	814.00
Chloride	2,800.00
Chromium	0.20
Copper	0.042
Iron	25.00
Lead	0.02
Manganese	2.32
Magnesium	436.00
Nickel	1.00
Nitrate	42.00
Selenium	0.02
Silica	400.00
Sodium	2,400.00
Sulfate	2,400.00
Zinc	0.20
Bromodichloromethane	1.05
Bromoform	0.06
Chloroform	2.25
Dichloromethane	0.44
Total Dissolved Solids	8,334.00
Hardness, as calcium carbonate	2,040.00
Conductivity	14,984.00 μmhos/cm
Alkalinity, as calcium carbonate	2,586.00

μmhos/cm = reciprocal micro ohms/cm
Source: GWF

Table 8.14-7
Summary of LORS and Compliance for Water Resources

Jurisdiction	Authority	Administering Agency	Requirements & Compliance
Federal	Clean Water Act, 40 CFR Parts 111,122, and 125	RWQCB Central Valley Region (authority deferred from U.S. EPA to RWQCB)	Stormwater management practices during construction must follow best management practices. Completed applications and fees must be submitted prior to construction. Section 8.14.15.1
Federal	Resource Conservation and Recovery Act	California Department of Toxic Substances Control, Region 1	Hazardous material and hazardous waste must be handled, tracked, and reported in conformance with permits issued for the facility. Potential water resources impacts will be monitored through any permits issued. Section 8.14.15.1
State	California Constitution, Article 10, Section 2	RWQCB Central Valley Region	Minimization of consumptive water use through recycling of oil production water; water uses combined where feasible in facility design and process operations. Section 8.14.2 and 8.14.5.2
State	California Porter-Cologne Water Quality Control Act, California Water Code §§ 13000–14957, Division 7, Water Quality	CEC, RWQCB Central Valley Region	Siting, operation, and closure of waste disposal points. Requires submission of waste and site classification for any waste discharge permit required. Section 8.14.5.2
State	CEQA, Public Resources Code Section 2100 et seq.; CEQA Guidelines, 14 CCR § 15000 et seq., Appendix G	CEC	Water resources impacts identified and mitigation measures detailed in this document. Section 8.14.5.2

Table 8.14-7 (continued)
Summary of LORS and Compliance for Water Resources

Jurisdiction	Authority	Administering Agency	Requirements & Compliance
State	California Water Code, Sections 13260–13269; 23 CCR Chapter 9; Sections 13271–13272; 23 CCR Sections 2250–2260	RWQCB Central Valley Region, and California Office of Emergency Services	Construction activity stormwater management will be addressed under the construction activities general permit. Industrial stormwater is exempt from the general permit. Reporting of any accidental leaks or spills related to discharge piping and connections will be conducted in compliance with the Water Code. Section 8.14.5.2 and 8.14.6
State	Water Quality Control Policy: Use and Disposal of Inland Waters Used for Power Plant Cooling	RWQCB Central Valley Region	Evaluation of alternative water sources for cooling water was performed; potential impacts to the Delta were evaluated. Section 8.14.2 and 8.14.5.2
State	California Public Resources Code § 25523(a); 20 CCR §§1752, 1752.5, 2300–2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (1)	CEC	Requires AFC to include information on water resources and water quality protection. Section 8.14.15.1

CCR = California Code of Regulations
CEC = California Energy Commission
CFR = Code of Federal Regulations
RWQCB = Regional Water Quality Control Board
CEQA = California Environmental Quality Act

FIGURES