7.14 WATER RESOURCES

This section evaluates the effects of the proposed project on water resources in the area of the CPV Sentinel Energy Project (CPVS). The facility will incorporate eight natural gas-fired GE Energy LMS100 combustion turbine generators (CTGs) in eight power units. Each CTG is expected to produce approximately 100 megawatts (MW) during typical operating conditions and up to 850 MW with all units running.

The proposed project will use reclaimed water supplied by the Mission Springs Water District's (MSWD) Horton Wastewater Treatment Plant (WWTP), located approximately 5 miles east of the proposed project site. Wastewater at Horton is currently treated to secondary levels, but MSWD plans to upgrade the treatment system to tertiary levels. The reclaimed water will be discharged to existing percolation ponds located adjacent to the Horton WWTP, where it will percolate into the underlying Mission Creek subbasin, which is part of the Coachella Valley Groundwater Basin (Basin) and be banked for later use by the proposed project. MSWD will construct the plant upgrades and continue to operate the plant and the associated percolation ponds. CPV Sentinel will purchase from MSWD, at the Horton WWTP, 1,500 acre-feet per year (afy) of reclaimed water, of which the proposed project is expected to use approximately 550 afy on an average lifetime basis and up to 1,100 afy in any calendar year.

The proposed project will use a zero liquid discharge (ZLD) system to handle project wastewater. A septic system will be constructed on site for sanitary wastewater. Potable water will be provided by MSWD via a new pipeline connection to the existing MSWD water supply pipeline along Dillon Road.

The proposed project consists of the following project areas:

- Proposed project site – new power plant and switchyard;
- Temporary construction laydown area – construction parking, construction trailers, and construction laydown area;
- Access roads, natural gas pipeline extension, potable water line and transmission line.

The proposed project site is located in unincorporated Riverside County, California, approximately 8 miles northwest of the center of Palm Springs. The proposed project vicinity is extensively developed for wind energy and electrical transmission infrastructure.

The power generation facility and switchyard will occupy approximately 37 acres, as illustrated in Figures 2.3-1 and 2.5-2. A 2-acre-foot storm water retention basin will be located immediately south of the plant area. The proposed project site is currently undeveloped land, with the exception of a vacant dwelling unit and garage located at the southeastern corner of the site. Site topography generally slopes from the northwest to the southeast toward Powerline Road and ranges from approximately 1,120 to 1,050 feet above mean sea level (msl). The site will be cut and filled to provide a relatively level area for the power generation facility and switchyard areas, at an approximate elevation from 1,095 feet in the northern portion of the site to approximately 1,075 feet in the southern portion of the site. The project will include 85 acres of disturbance during construction, including construction of the power plant and offsite linears (transmission line, gas line, access road, and potable water line). Of the 85 acres of construction disturbance, 24.5 acres will be returned to pre-project conditions after the project is constructed and 60.5 acres will remain permanent disturbance. Of the 38.5 acres of temporary disturbance, 14 acres consists of an area designated for temporary construction office, construction parking, and construction equipment, and material laydown area. The temporary construction laydown area will be located south of the power plant, as shown on Figure 2.3-1. The remaining 24.5 acres of the temporary disturbance are due to construction right-of-ways for the installation of the project linear features.

The storm water retention basin will be an unlined basin. The power facility area will be covered with asphalt pavement, equipment, tanks, and buildings. The switchyard area will be covered with asphalt pavement and gravel. The 37-acre power plant area will be approximately 75 percent impervious.

The aspects of water resources that could potentially be affected by the proposed project include water supply, water quality, and flood hazards. The California Environmental Quality Act (CEQA) Guidelines and applicable laws, ordinances, regulations, and standards (LORS) define significance criteria for compliance in each of these areas. The impacts of the proposed project on beneficial water uses are expected to be too small to be significant.

7.14.1 Affected Environment

7.14.1.1 Groundwater

The proposed project site is located in the Coachella Valley Groundwater Basin (Basin) (see Figure 7.14-1). The Basin extends from the northwest near Whitewater, California to the southeast at the Salton Sea. This Basin has been divided by the Coachella Valley Water District (CVWD) and others (Tyley, 1974; Reichard & Medowss, 1992) into Upper and Lower Coachella Valley Groundwater Basins (Upper Valley Basin and Lower Valley Basin) (MWH, 2002 and 2005). Geographically, the Upper Valley Basin is northwest of a line extending from Washington Street and Point Happy near Indian Wells and La Quinta, California, to the Indio Hills near Jefferson Street north of Bermuda Dunes. The Lower Valley Basin is southeast of this line. In general, the Upper Valley is a resort/recreation-based economy developed on groundwater, while the Lower Valley is an agricultural-based economy with access to Colorado River water imported via the Coachella Canal. In addition, the line between the Upper and Lower Valley Basins represents the boundary between historically declining (in Upper Valley) and rising (in Lower Valley) water levels (Riechard and Medows, 1992) and unconfined (Upper) and confined (Lower) groundwater conditions (DWR, 2004). The proposed project is within the Upper Valley Basin.

The hydrogeology of the Basin and its subbasins has been described in numerous publications by the U.S. Geological Survey (USGS) (e.g., Tyley, 1974; Reichard and Meadows, 1992), Department of Water Resources (DWR) (2003), in consultants' studies for the water districts in the area (Slade, 2000; Gsi/water, 2006; MWH, 2002 and 2005; Psomas, 2004 and 2004), and by other parties. A summary of the hydrogeology of the area is presented below.

Groundwater Subbasins

Groundwater in the Coachella Valley Groundwater Basin occurs in the alluvium, terrace deposits, and older sedimentary units that fill the valley. The Basin is bounded on the east by the nonbearing cyrstalline rocks of the San Bernardino and Little San Bernardino Mountains and on the west by the crystalline rocks of the Santa Rosa and San Jacinto Mountains. The northern boundary is formed by the San Gorgonio Pass. The Mecca Hills and the Salton Sea form the southern boundary.

The faults that cross the valley form partial barriers to groundwater flow and interrupt the overall flow of groundwater in the valley, which occurs from northwest to southeast. Based on the faults in the area and their effect on groundwater flow, the USGS, the DWR, and the California Regional Water Quality Control Board (RWQCB) have divided the Coachella Valley Groundwater Basin into four groundwater subbasins. The subbasins are shown on Figure 7.14-1 and are, from north to south, the following:

1. Desert Hot Springs Subbasin
2. Mission Creek Subbasin
3. Garnet Hill Subbasin
4. Whitewater River Subbasin

These subbasins are typically long and relatively narrow, and extend from northwest to southeast between the mountains and the various branches of the San Andreas Fault Zone. Of the four subbasins, the Garnet Hill is the smallest and least developed. The Whitewater River Subbasin is by far the largest, and is the most developed of the subbasins in the Coachella Valley Groundwater Basin. The Upper Valley Basin includes the Mission Creek and Garnet Hill Subbasins as well as upper portions of the Desert Hot Springs and Whitewater River Subbasins. The Lower Valley Basin only includes the lower portions of the Desert Hot Springs and Whitewater River Subbasins. Since the proposed project is located within the Upper Valley Basin, no additional discussion of the Lower Valley Basin is included in this section.

Groundwater in the Upper Valley Basin flows generally to the southeast. In some cases, the faults form partial to substantial barriers to groundwater flow, with water levels varying between subbasins by 100 to 200 feet below ground surface (bgs) or more, along most of the length of the faults. In some areas, however, there is underflow between subbasins, as groundwater flows over, through, or around the faults that otherwise form barriers to groundwater flow. The majority of flow between subbasins appears to occur in the eastern portions of the various subbasins. There is some groundwater flow from the Desert Hot Springs Subbasin into the Mission Creek subbasin, which in turn has some outflow into the Garnet Hill Subbasin. The Garnet Hill Subbasin has some outflow to the Whitewater River Subbasin (MWH, 2005).

As shown on Figures 7.14-1 and 7.14-2, the proposed project site overlies the northwest portion of the Upper Valley Basin, specifically the Mission Creek Subbasin. Portions of the laydown area and the access road to the site overlie the Garnet Hill Subbasin. The nearest significant Quaternary fault to the CPVS site is the Banning segment of the San Andreas Fault about 0.25 mile southwest of the site. The Banning Fault forms the barrier between the Mission Creek and Garnet Hill Subbasins, although, as indicated above, there is some flow from the Mission Creek Subbasin to the Garnet Hill Subbasin (MWH, 2005).

Basin Characteristics

Most of the sediments of the Upper Valley Basin consist of coarse sand and gravel with minor occurrences of clay. Sediments in the northern portion near Whitewater tend to be coarser than in the southern portion near Indio. Due to the large portion of coarser sediments in the northern portion of this subbasin, water that is applied at the ground surface (e.g., at the Whitewater Spreading Facility) will percolate directly through the sand into the underlying groundwater aquifer (MHW, 2002).

The shallower water-bearing deposits in the vicinity of the proposed project (e.g., in both the Mission Creek and the Garnet Hill Subbasins) overlie the semi-water-bearing sediments and consist of the Cabezon fanglomerate, Ocotillo conglomerate, alluvium, and terrace deposits. These materials are estimated to have a total thickness of approximately 2,000 feet (Reichard and Meadows, 1992); however, most studies completed for the region assume the thickness of the active flow system in these deposits to be approximately 1,000 feet (DWR, 2004; Tyley, 1974; Geotechnical Consultants, 1979).

Studies of the area by the USGS and others indicate that the water-bearing sediments in each of the subbasins within the Upper Valley Basin form single, thick unconfined aquifers. Extensive low-permeability clay or silt layers that would form aquitards or separating layers between aquifers, or that would act as confining layers, are not evident. Table 7.14-1 summarizes characteristics for the subbasins in the Upper Valley Basin. In the vicinity of the proposed project site transmissivity of sediments are on the order of 10,000 to 25,000 gallons per day per foot (gpd/ft), and storage is estimated to be between 0.15 and 0.18 (Tyley, 1974), which is consistent with an unconfined aquifer.

Groundwater Elevations and Flow

Groundwater in the Upper Valley Basin is recharged by runoff and underflow from the surrounding mountains, and percolation of surface water flows at the mouths of the larger canyons in the area. Groundwater generally flows toward the southeast, in a direction similar to the slope of the valley floor. Between 1936 and 1973, water levels in the upper Coachella Valley declined more than 100 feet in the Palm Springs area and more than 70 feet in the Palm Desert area (MWH, 2005). In 1936, there was relatively little groundwater pumping in the valley, and groundwater flowed under generally natural conditions. By 1973, water levels declined due to development in the valley.

In the vicinity of the proposed project site, groundwater in the Mission Creek Subbasin flows in a southeasterly direction. Near the site, the Banning Fault forms a significant barrier to groundwater flow (Tyley, 1974; Reichard and Meadows, 1992), and as a result, groundwater in the Mission Creek Subbasin flows to the east-southeast rather than crossing the fault to the south. The depth to groundwater on the north side of the fault has been shown to be less than on the south side of the fault. The difference in groundwater levels across the Banning Fault is more than 100 feet in many areas.

South of the Banning Fault, groundwater in the Garnet Hill Subbasin flows generally to the southeast (Tyley, 1974; DWR, 2004). The Garnet Hill Fault forms a substantial barrier to groundwater flow, forcing groundwater to flow more easterly, rather than flowing across the fault.

Depth to groundwater varies throughout the Basin. Within the Upper Valley Basin, the depth to the water table ranges from more than 500 feet bgs near Whitewater Hill near the west end to less than 100 feet bgs near the east end. Shallower depths to groundwater can be found near Mission Creek and Whitewater River. Depth to groundwater at the proposed project site is approximately 350 feet, based on measurements from the onsite well.

Water Balance

A groundwater subbasin water balance is a useful tool for understanding the inflow and outflow of water from a subbasin, and for evaluating the effects of water use in the area. For a groundwater subbasin, the inflows include recharge to the groundwater from percolation of precipitation on the subbasin, percolation of surface water entering the subbasin as creeks, subsurface inflow of groundwater, return flow of groundwater pumped from the subbasin, and imported water that is percolated into the groundwater subbasin. Outflow of groundwater occurs as groundwater rises to the surface and flows out of the subbasin as surface water, underflow of groundwater out of the subbasin, and consumptive use. Consumptive use includes that portion of groundwater that is pumped from groundwater wells that does not infiltrate back into the groundwater as return flow, and evapotranspiration of groundwater by phreatophytes. When the outflows exceed the inflows, groundwater is removed from storage in the subbasin, and water levels in the subbasin decline.

As presented in the CVWD's Urban Water Management Plan (MWH, 2005), the CVWD and Desert Water Agency (DWA) are actively participating in the implementation of management actions to reduce the overdraft and return the Coachella Valley Groundwater Basin to a state of long-term balance. These measures include a groundwater replenishment program using State Water Project (SWP) water exchanged for Colorado River Aqueduct (CRA) water. The CRA water is percolated at the Whitewater Spreading Facility and the Mission Creek Recharge Basin. Since 1973, more than 1.8 million acre-feet of CRA water has been delivered to the Whitewater Spreading Facility through the SWP exchange program (MWH, 2005). Between 2002 and 2005, approximately 37,000 acre-feet of CRA water has been delivered to the Mission Creek Recharge Basin (MWH, 2005; Psomas, 2006).

Historically, because the amount of groundwater pumped from the Basin (i.e., primarily from the Whitewater River and Mission Creek Subbasins) exceeded the amount replenished, these subbasins were

in overdraft condition for a significant portion of the last century (MWH, 2005). The Garnet Hill Subbasin is not considered to be in overdraft. In 2004 the estimated amounts of overdraft in the Upper Whitewater River Subbasin and the Mission Creek Subbasin were approximately 82,000 afy and 2,300 afy, respectively (MWH, 2005). CVWD and DWA expect overdraft in the Upper Whitewater River Subbasin to be eliminated by 2015 (MWH, 2005). Available data from CVWD, DWA, and MSWD indicate that the importation and percolation of water into the Mission Creek Subbasin has already reversed the overdraft condition of that subbasin.

Groundwater Wells

Most of the development in the Upper Valley Basin is in the Palm Springs area to the south (Whitewater River Subbasin) or in the city of Desert Hot Springs to the northeast (Mission Creek Subbasin). CVWD currently has 107 active groundwater wells for domestic water supply (MWH, 2005) within the upper and lower Whitewater River Subbasin and the Mission Creek Subbasin. In 2005, CVWD production from the Upper Valley Basin was approximately 106,000 acre-feet (i.e., from the Upper Whitewater Subbasin and the Mission Creek Subbasin) and from the Lower Valley Basin was approximately 33,000 acre-feet. Wells owned and operated by MSWD are within the Mission Creek Subbasin (see on Figure 7.14-2). MSWD production from these wells was approximately 14,000 acre-feet in 2004 (Psomas, 2006). There are relatively few water wells in the Garnet Hill Subbasin because there are relatively few residences or businesses in the subbasin area. The Desert Hot Springs Subbasin is not extensively developed, except in the Desert Hot Springs area, and use of this groundwater is limited due to its relatively poor water quality. The Desert Hot Springs groundwater is used for various spas due to its high temperature and high TDS level. The Desert Hot Springs and Garnet Hill Subbasins are not currently within a groundwater management area, and there is no municipal groundwater production from these subbasins (MHW, 2005); therefore, information on these subbasins is limited.

There is an existing domestic well on site near the vacant residence at the southeast corner of the site (Figure 2.5-2). This well is approximately 500 feet deep, and groundwater at that location is approximately 345 feet bgs. Water quality data from this well are summarized in Table 7.14-2. Several databases (e.g., Riverside County, GeoCheck, and USGS) were searched and revealed no other wells within a half mile of the proposed project site.

The nearest wells to the proposed project site are located approximately 0.9 mile southeast (on APN 668-200-012) and approximately 1.1 miles south-southeast (on APN 668-280-015). These wells are within the Garnet Hill Subbasin. There are no other known wells within a mile of the site.

Groundwater Beneficial Uses

Beneficial uses of groundwater in the Coachella Valley Groundwater Basin include municipal and domestic water supply, industrial service supply, and agriculture supply (RWQCB, 2002).

Groundwater Quality

The quality of groundwater in the Basin has been studied by the USGS, other agencies, and local water districts. Table 7.14-2 summarizes water quality data for groundwater in the Basin, with focus on the Upper Valley Basin in the proposed project vicinity. In general, water quality in the Upper Valley Basin (with the exception of the Desert Hot Springs Subbasin) is good and meets current drinking water standards. Based on water quality data collected by CVWD between 1996 and 2004, the only parameters that have exceeded either primary or secondary drinking water standards within the Upper Valley Basin include total dissolved solids (TDS), nitrate, and perchlorate (MWH, 2005).

Concentrations of TDS are generally below 500 mg/L (the recommended secondary drinking water standard is 500 mg//L) in the Upper Valley Basin except in the limited areas adjacent to the Whitewater

Spreading Facility and in the Palm Desert area (MWH, 2005). Based on data for 1996 to 1999, wells in the vicinity of the Whitewater Spreading Facility had TDS concentrations of 378 and 505 mg/L (MWH, 2005), just barely above the secondary drinking water standard. A cluster of wells in the Palm Desert area have had TDS concentrations ranging from 500 to 1,000 mg/L. It should be noted that the TDS objective for Colorado River water below Parker Dam (i.e., the intake location for the CRA) is 747 mg/L (MWH, 2005).

Within the Upper Valley Basin, elevated levels of nitrate have been detected in shallow groundwater wells in the vicinity of the Whitewater River from Cathedral Hill to La Quinta. However, municipal wells generally do not have elevated levels of nitrates due to the depth of the well perforations (several hundred feet below the ground surface). DWA, however, has several municipal wells in the Palm Springs area with nitrate levels up to 70 mg/L (MWH, 2005); the use of these wells is currently restricted. In general, nitrate levels in groundwater are due to fertilizers or discharges from individual domestic septic tank/leachfield systems.

Throughout the Basin, very low levels of perchlorate (less than one mg/L) have been detected in groundwater sources (MWH, 2005). Percholate at these low levels may occur naturally in groundwater (MWH, 2005). Water quality monitoring of the CRA water (which is used for percolation into the Basin) by Metropolitan Water District since 1997 indicates that percolate levels in this water have ranged from non-detect to 9 micrograms per liter (µg/L) and have been generally declining. In 2005, perchlorate levels in CRA water were in the range of about 2 to 4 µg/L (MWH, 2005).

7.14.1.2 Surface Water

Surface Water Features

The proposed project site is located within the Whitewater River watershed, which is generally situated in Riverside County within the Coachella Valley Planning Area of the Colorado River Basin RWQCB. The watershed is generally defined by the boundaries of the Whitewater Hydrologic Unit as described in the *Water Quality Control Plan for the Colorado River Basin RWQCB* (Basin Plan). The watershed lies almost entirely in Riverside County and covers 1,920 square miles (RWQCB, 2005). Much of the watershed consists of sparsely populated mountains, desert, and agricultural lands. Urbanized areas are principally located on the valley floor between Banning and Indio along Interstate 10 (I-10), and from Palm Springs to Coachella along State Highway 111.

There is perennial flow in the mountains, but because of diversions and percolation into the underlying aquifer, the Whitewater River and its tributaries become dry further downstream. Runoff resulting from rains and snowmelt at the higher elevations is a source of groundwater replenishment, as the water that flows in the creeks and washes disappears into the valley alluvium at the foot of the slopes (Slade, 2000). The constructed downstream extension of the Whitewater River channel known as the Coachella Valley Storm Water Channel, serves as a drainage way for irrigation return flows, treated community wastewater, and storm runoff.

There are no long-term natural or artificial water bodies in the vicinity of the proposed project site. Surface washes are dry most of the year. Flow in streambeds in the upper Coachella Valley occurs as brief runoff events following precipitation. In the immediate vicinity of the site, precipitation runoff occurs as sheet flow to the southeast across the alluvial fan surface surrounding the site and contributes flow to the Garnet Wash, which is a tributary of the Whitewater River.

Mission Creek originates in the San Bernardino Mountains northwest of the proposed project site. Along the valley floor, the creek widens, becomes braided, and joins Morongo Wash. These and other washes eventually drain to the Whitewater River.

Regional surface water features are shown on Figures 7.14-2 and 7.14-3. Existing surface water features in the proposed project vicinity are shown on Figure 2.3-2 at a scale of 1:24,000 and on Figure 2.5-1.

Historical streamflow data are available for the Whitewater River and Mission Creek and are summarized in Table 7.14-3. However, data are not available for Garnet Wash.

The CRA is located north and west of the proposed project site (see Figures 7.14-2 and 7.14-3). The importation of Colorado River water via the Canal del Alamo, which began shortly after the turn of the century, and subsequently via the All-American Canal has resulted in numerous supply canals, drainage channels, and water bodies where previously surface waters were nonexistent, intermittent, or limited in nature. Since the mid-1970s, a portion of the Colorado River water that is imported via the California Aqueduct by the Metropolitan Water District of Southern California is used for groundwater replenishment in the upper portions of Coachella Valley.

Both the CVWD and the DWA are SWP contractors. Because there are no pipelines to convey SWP water to the valley, these agencies have agreements with the Metropolitan Water District to trade, on an acre-foot for acre-foot basis, SWP water for a like amount of Metropolitan Water District's CRA water. The CVWD and DWA divert water from the CRA at two locations along the aqueduct: (1) where it crosses the Whitewater River and (2) where it crosses Mission Creek. The CRA water is then used for percolation at the Whitewater Spreading Facility and the Mission Creek Recharge Basin. Since 1973, more than 1.8 million acre-feet of CRA water has been delivered to the Whitewater Spreading Facility (MWH, 2005). Since replenishment commenced in 2002, approximately 38,000 acre-feet have been delivered to the Mission Creek Recharge Basin (MWH, 2005; Psomas, 2006).

Surface Water Beneficial Uses

The Basin Plan summarizes the beneficial uses of surface waters within the Colorado River Basin. Beneficial uses of the Whitewater River from its headwaters in the San Gorgonio Mountains to the Whitewater Recharge Basins near Indian Avenue in Palm Springs include municipal and domestic supply, agriculture supply, groundwater recharge, contact and noncontact water recreation, cold freshwater habitats, wildlife habitat, and hydropower generation. Beneficial uses of washes (i.e., ephemeral streams) are intermittent and include freshwater replenishment, groundwater recharge, noncontact water recreation, and wildlife habitat.

Existing Surface Water Quality

Water quality data for the Whitewater River near Whitewater, California, and for the Colorado River are summarized in Table 7.14-2. The water quality data for Colorado River water represent the water quality of CRA water, which typically has higher concentrations of total dissolved solids (TDS) and higher pH values than the regional groundwater.

7.14.1.3 Climate and Precipitation

The climate of the Coachella Valley can be characterized as that of a typical, arid, rainshadow desert. The valley experiences long, hot, dry summers and relatively short, mild winters. There are several weather stations in the area; the Palm Springs station has the longest period of record. Monthly mean, maximum, and minimum temperature data based on an 83-year record for the Palm Springs weather station, located 7.1 miles south-southeast, are presented in Table 7.14-4. The average annual temperature for Palm Springs is 73°F. Extreme daily temperatures range from 19°F recorded on January 22, 1937, to 123°F recorded on July 10, 1979, and on August 1, 1993 (WRCC, 2007).

Although precipitation in the mountains to the west and north of the valley can reach 40 inches per year (USGS, 1992), average annual precipitation on the valley floor is much lower. The mountains form an

effective barrier against coastal storms, and as a result, precipitation on the valley floor is low. Precipitation does not contribute significantly to the water supply on the valley floor (CVWD, 1998).

The Palm Springs weather station, located approximately 7 miles south-southeast of the proposed project site, has a 73-year record of precipitation. Based on this record, the average annual precipitation is 6.13 inches. The nearest weather station is at North Palm Springs, located 1.5 miles east of the site. Average annual precipitation for this station is 5.53 inches (WRCC, 2007) based on a period of record from January 1, 1927, through December 31, 2005. In the Coachella Valley, potential evaporation is much greater than precipitation. Average monthly precipitation for the Palm Springs station and evapotranspiration are shown in Table 7.14-5.

Based on the National Oceanic and Atmospheric Administration Atlas 14 (NOAA, 2006), the 25-year, 24-hour and the 100-year, 24-hour rainfall amounts for the proposed project site are approximately 4.19 inches and 5.86 inches, respectively.

7.14.1.4 Current and Proposed Water Supply and Use

Water Supply

Several agencies supply water to users in the upper Coachella Valley (Table 7.14-6). The primary source of water supply in the Upper Valley Basin is groundwater. In 1999, most of the 224,200 acre-feet of water supplied by the CVWD to the Upper Valley Basin was groundwater (92 percent) (MWH, 2002). Other sources include CRA water (approximately 1 percent), surface water (approximately 3 percent), and reclaimed water (approximately 4 percent). All domestic water served by the CVWD is obtained locally from wells drilled in the Upper Valley Basin. Currently groundwater is the only source of water supplied by the MSWD. Approximately 95 percent of the water supplied by DWA is from local groundwater, with the remainder of its drinking water supply provided by local mountain streams (DWA, 2007). Water demands in the Upper Valley Basin are projected to increase to approximately 352,300 acre-feet in 2035 due to population growth and increased golf course development (MWH, 2005).

Within the Upper Valley Basin, recycled water was not used prior to 1965 and remained below 500 afy until the late 1980s (MWH, 2005). Use of reclaimed water in the CVWD service area dramatically increased in the late 1980s, reaching approximately 8,100 afy in 2004 (MWH, 2005). Historically, reclaimed water in the area has been used for irrigation of golf courses and other municipal and landscape areas.

Reclaimed water for the proposed project will be supplied by MSWD's Horton WWTP, located approximately 5 miles from the proposed project site. Wastewater at Horton is currently treated to secondary levels, but MSWD plans to upgrade the treatment system to tertiary levels. The treatment upgrade of the wastewater treatment plant is an independent project currently planned by the MSWD, and it will conduct its own environmental review of the upgrade as well as obtain a revised discharge permit. MSWD will construct the plant upgrades and continue to operate the plant and its associated percolation ponds. The reclaimed water will be discharged to existing percolation ponds located adjacent to the Horton WWTP, where it will percolate into the underlying Basin and be banked for later use by the proposed project. CPVS will purchase 1,500 afy of the Horton WWTP treated wastewater, which will be percolated to the Basin by MSWD. The proposed project is expected to use approximately 550 afy on an average lifetime basis and up to 1,100 afy in any calendar year. The proposed project will access its banked water supply in the Basin via onsite wells.

Negotiations are underway between CPV Sentinel and MSWD regarding the purchase of wastewater from the Horton WWTP and the conditions for water extraction by site wells. MSWD plans to have the tertiary treatment come online in late 2009 or very early 2010, the same year that the proposed project

would begin operations. Should the tertiary treatment system completion be delayed, then the proposed project would purchase from MSWD secondary treated wastewater from the Horton WWTP for percolation into the Basin. The secondary treated wastewater is currently percolated under a permit from the RWQCB, and filtration by the 300 to 400 feet of sand/gravel between grade level and the upper surface of the aquifer will ensure that the Basin water quality is not impaired.

Based on preliminary analysis, the proposed project could require up to five groundwater wells, which would be located on or near the proposed project site (Figure 2.5-2). A well test program is currently planned to assess the local aquifer characteristics and provide site-specific information for the design of the extraction wells.

The existing onsite well may be used as a water supply well or monitoring well, or it may be abandoned. Because the capacity of the well is quite small (assumed to be less than 50 gallons per minute [gpm]), it will be used during the well test program and possibly for supply of construction water. It could also provide a limited, backup water supply. After construction, it may be more feasible to use the well as a monitoring well. If abandoned, it would be properly abandoned and destroyed in accordance with Riverside County and DWR regulations.

All water extraction from the onsite wells would be performed in accordance with an existing well metering agreement with the DWA or a new agreement with MSWD. MSWD in turn has a replenishment agreement with DWA. Under either agreement, DWA would then percolate water flows from the CRA at the Mission Creek percolation basin, located approximately 5 miles north of the proposed project site. The well metering and replenishment agreements would ensure that there is no net drawdown of the Basin as a result of the proposed project's operation.

Water Use

The proposed project would require an average of approximately 1,975 gpm of raw water makeup when operating at full plant load during average summer ambient conditions (90 ^{o}F, 30.2% RH). Maximum instantaneous water requirements on a peak ambient summer day (120°F, 12.7% RH) are approximately 2,059 gpm. Key plant raw water uses include makeup to the cooling tower systems, makeup to the mobile demineralizer system (MDS), and makeup to the service water system.

The water balance diagram (Figure 2.4-6) and water balance tables (Table 2.4-5 and Table 7.14-7) show the proposed power plant's water treatment processes and the distribution of treated water. Water treatment would vary according to the quality required for each of the plant's various water uses. Details about the plant's water uses and treatment are provided in Section 2.4.4 of this AFC.

The proposed project would also require potable water for personnel consumption, eyewash stations, showers, and sanitary needs. This water would be provided from a local municipal water source (MSWD), and no onsite treatment would be required. The proposed project will connect to an existing 12-inch-diameter potable water main line located adjacent to Dillon Road. Approximately 3,200 feet of 3-inch-diameter pipeline would be used to connect to the existing line.

During construction, water would be supplied by the existing onsite well, the future groundwater wells, or water trucks that import water to the site. Average daily use of construction water is estimated to be about 25,000 gallons. A maximum daily water usage is estimated at 250,000 gallons during hydrotests of plant facilities (e.g., tanks and pipes). Approximately 300,000 gallons of water would be used to hydrotest the new gas pipeline. There would be three cycles of water to be disposed of during the hydrotest. Depending on the test or washing cycle, the water to be discharged could include some metals or detergents. The water used during the hydrotest would be tested. If suitable for discharge, it would be routed to the stormwater retention basin. If the water quality were not suitable for discharge, it would be transported by trucks to an approved offsite disposal facility.

Water Policy

The California Energy Commission (CEC) has the responsibility to apply state water policy to minimize the use of fresh water, promote alternative cooling technologies, and minimize or avoid degradation of the quality of the state's water resources. The state's water policy, adopted by the State Water Resources Control Board (SWRCB), is specified in Resolution 75-58. The Commission's 2003 Integrated Energy Policy Report (IEPR) provides that "...the Commission will approve use of fresh water for cooling purposes…only where alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound.'" Economically unsound is defined as economically or otherwise infeasible. Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, legal, social, and technological factors.

The CEC's regulations require CPV Sentinel to provide information on the source of water supply, the rationale for its selection, and if fresh water is to be used for cooling purposes, to discuss all other potential sources and why they were not considered feasible.

Alternative Technologies

Alternative 1: Alternate Project Configurations. CPVS consists of eight General Electric LMS100 combustion turbines. The power purchase agreement between CPVS Sentinel and SCE requires that the CPVS include five LMS100 combustion turbines in a simple cycle mode. Other generation configurations would not meet the goals and objectives of CPVS Sentinel or the requirements of the Power Purchase Agreement.

Alternative 2: Heat Rejection. CPVS will use mechanical draft, cooling towers to reject heat from the LMS100 intercoolers and LMS100 oil coolers. An air-cooled heat exchanger was considered as an alternative. The wet cooling tower was found to be the most cost-effective heat rejection system and produces the highest plant efficiency.

The advantages of an air-cooled heat exchanger include reductions in makeup water requirements, water vapor plumes, and cooling tower drift. Among the disadvantages of the air-cooled heat exchanger are the land area requirements and high cost. Heat exchanger performance is inversely related to the temperature of the cooling medium. The local climate in the project area is characterized by high dry-bulb temperatures and low wet-bulb temperatures (i.e., low relative humidity). Consequently, the performance the LMS intercoolers cooled using an air-cooled heat exchanger (which is inversely related to dry-bulb temperature) is poor compared to the performance of the LMS intercoolers cooled using a cooling tower (which is inversely related to wet-bulb temperature). The air-cooled heat exchanger's relatively poor performance results in relatively high gas turbine intercooling air temperature, which negatively impacts gas turbine output and efficiency. This negative impact causes a decrease in overall plant output and efficiency. The air-cooled heat exchanger also uses more auxiliary power due to the greater number and horsepower of its fans as compared to the wet cooling tower. As a result, net plant output and efficiency are further reduced. In addition, the capital cost and land requirements of an air-cooled heat exchanger greatly exceed the cost of a surface heat exchanger, circulating water system, and wet cooling.

The air-cooled heat exchanger's disadvantages of reduced plant output, reduced plant efficiency, and higher capital costs were found to significantly outweigh the advantage of reduced water consumption.

Alternative 3: Direct Piping of Municipal Wastewater. The direct delivery of reclaimed municipal wastewater for power plant cooling at the proposed project site has been determined to be infeasible, primarily due to the distance required for the distribution pipeline and the large wastewater storage capacity that would be required on site.

On an annual average basis, the Horton WWTP processes approximately 1,500 afy. The proposed project would consume a maximum of 1,100 afy if operated at the capacity factor associated with the permit limits proposed in this AFC. However, the peak project water demand would be 2,059 gpm, whereas the average wastewater production rate at the Horton WWTP is approximately 1,390 gpm (based on permitted capacity of 2 mgd). At present, the Horton WWTP does not operate at its upper permitted capacity. It operates at approximately 75 percent of its capacity. Direct delivery of wastewater to the proposed plant would require a delivery pipeline and a large storage capacity on site. The required storage capacity is estimated to be approximately 30 million gallons, and together with the wastewater pipeline would require incremental investment of a financed cost of approximately $20 million. This cost, together with other economic impacts such as higher pumping costs, would not allow the proposed project to meet its objective of providing competitively priced electricity. Other impacts associated with construction of the piping and storage tank would also be significant. Thus, this scenario is not considered feasible.

Alternative Water Supplies

CPV Sentinel evaluated several different alternative water supply and conservation options as part of the proposed project. Other potential sources of water, as listed in SWRCB Resolution 75-58, were considered but deemed to be infeasible, as summarized below.

Alternative 1: Ocean Water. Ocean water is not considered a feasible alternative since this water source is not locally available. The proposed project site is located in an inland valley, more than 68 miles from the ocean.

Alternative 2: Brackish Water from Irrigation Return Flow or Groundwater. There is no agricultural irrigation in the upper Coachella Valley, and the nearest known source of brackish water is the Coachella Canal, located more than 20 miles to the southeast. Thus, there is no water of this type available to the proposed project.

Limited information is available regarding the use of poorer quality groundwater from deeper zones in the vicinity of the proposed project. The base of the fresh water occurs about 4,000 feet below mean sea level at the proposed project site (DWR, 2004) or about 3,000 feet below the site. The limited data available indicate the deeper strata may be largely nonwater-bearing. Few wells have been drilled to these depths. While it is conceivable that a water supply could be developed from those deeper materials, determining whether that supply exists could entail substantial expense in drilling exploratory wells to find strata that might yield significant amounts of water to wells. Furthermore, even if promising water-bearing strata were identified, substantial uncertainties would remain as to the sources of recharge for those strata, and the long-term viability of production from such zones. The costs to install wells with depths in excess of 3,000 feet would be infeasible. Therefore, use of poorer quality groundwater from deeper zones is considered infeasible.

Groundwater in the Desert Hot Springs Subbasin has relatively poor water quality (highly mineralized and high temperatures). Currently this water supplies the local spa resort industry. This water source is located more than 5 miles northeast of the proposed project site. Costs that would be associated with construction of infrastructure to extract, treat, and convey groundwater from the Desert Hot Springs Subbasin to the proposed project site are expected to be significant. Therefore, use of this groundwater source is not considered feasible.

Alternative 3: Other Sources of Municipal Wastewater. After the Horton WWTP, the next closest source of treated wastewater is the MSWD Desert Crest WWTP. This facility is much smaller than the Horton WWTP, with a capacity of 180,000 gpd (125 gpm) (URS, 2005). It produces an average daily flow of 50,000 gpd (34.7 gpm) of secondary treated wastewater. This plant is located approximately 10 miles to the east of the proposed project site. Reclaimed wastewater from this treatment plant is not

economically feasible for use because of the small output of the plant and its great distance from the proposed project site.

The closest plant operated by the CVWD is the Palm Desert wastewater reclamation plant (WRP-10). This plant serves the communities of Indian Wells, Palm Desert, and Rancho Mirage, as well as a portion of Cathedral City, and provides recycled water to irrigate several golf courses in the area. The current tertiary treatment capacity at this plant is 15 mgd (10,410 gpm) (MWH, 2005). In 2004, the plant treated approximately 12,100 acre-feet of wastewater and provided approximately 4,700 acre-feet of reclaimed water (MWH, 2005). This plant is located more than 20 miles away from the proposed project site. All of the current output of tertiary treated wastewater from this plant is already committed to irrigation uses. Even if wastewater was available, potential environmental impacts that would be associated with construction of infrastructure to convey reclaimed water directly to the proposed project site from the Palm Desert plant would be expected to be significant. Therefore, direct use of reclaimed water from the plant, even if it would be available, is not considered feasible.

DWA also produces reclaimed water at its plant; however, all of the current production of tertiary treated wastewater from the DWA plant is already committed to irrigation uses.

While other plants in the region provide reclaimed water (either secondary or tertiary treated), they are either located too far away or have insufficient amounts of reclaimed water available to provide a feasible source of water to support the proposed project.

Alternative 4: Other Inland Waters. Potable water from the local water supply agencies was considered. MSWD is the local purveyor of potable water in the area. The nearest connection to the water supply system is approximately 300 feet south of the proposed project site where a water supply pipeline runs east-west along Dillon Road. This pipeline is part of the MSWD's Valley View distribution system. The source of water for this system is the MSWD's Well No. 27 (located south of Dillon Road and east of Indian Avenue). This well has a capacity of 1,100 gpm and feeds a storage tank with a capacity of 0.31 million gallons (URS, 2007). Due to limited capacity of the nearby distribution system, use of this system as the sole supply of water for the proposed project's process water supply was determined not to be feasible. However, the proposed project would use this source as the plant's potable water supply (1 to 4 gpm). In addition, if CPV Sentinel and MSWD reach agreement on this point, this source could be used as a backup source to the proposed plant's site wells.

To recharge groundwater supplies, CVWD and DWA obtain imported water supplies from the SWP, which is managed by the DWR. CVWD and DWA are 2 of 29 agencies holding long-term water supply contracts with the State of California for SWP water. CVWD's entitlement to SWP water is 23,100 acre-ft/yr, while DWA's is 38,100 acre-ft/yr, for a combined total of 61,200 acre-ft/yr. SWP water originates from rainfall and snowmelt in Northern California. Runoff is stored in Lake Oroville, the project's largest storage facility, and then released down the Feather River to the Sacramento River and the Sacramento-San Joaquin Delta. Water is diverted from the delta into the Clifton Court Forebay and then pumped into the 444-mile-long California Aqueduct. SWP water is stored in San Luis Reservoir, which is jointly operated by the DWR and the U.S. Bureau of Reclamation. Six pumping stations lift the water more than 3,000 feet and energy is recovered at power plants along the aqueduct. (MWH, 2002)

CVWD and DWA do not directly receive their SWP water. Instead, their SWP water is delivered to Metropolitan Water District pursuant to the exchange agreement described above. Metropolitan in turn delivers an equal amount of Colorado River water to CVWD and DWA at the Whitewater River and the Mission Creek percolation basins. CVWD is participating in the East Branch Enlargement to provide the capacity to obtain additional water from the SWP when it is available. Nearly 1.7 million acre-feet of Colorado River water has been delivered through the exchange.

There are two connections to the CRA in the Coachella Valley. One connection is located where the aqueduct crosses the Whitewater River. This is more than 4 miles away from the proposed project site. The other connection is located near Indian Avenue and Worsley Road, approximately 4 miles north of the proposed project site. Both CVWD and DWA currently import CRA water into the Whitewater Spreading Facility and the Mission Creek percolation basin.

While the proposed project could possibly contract with either CVWD or DWA for direct use of SWP water through the SWP exchange program, the release of water to the replenishment basins is not done on a continuous basis—the water releases are controlled entirely by Metropolitan Water District and often releases are separated by several months with no releases. The proposed project would require water on a continuous basis whenever it is dispatched. Therefore, use of SWP or CRA water is not considered feasible.

No other inland waters exist. There are no surface water supplies available, no other nearby sources of reclaimed water, or water sources other than groundwater recovery of treated wastewater that is percolated and stored in the Basin. Therefore, other inland water alternatives are considered environmentally and economically unfeasible.

7.14.1.5 Wastewater Discharge

The proposed project is designed to be a ZLD facility. No liquid wastes would be discharged from the plant. The wastewater would be recovered and treated for reuse within the plant. Wastes (both liquid and solid) that are not reused would be collected and disposed off site at a suitable facility.

The proposed power plant's process wastewater would consist primarily of cooling tower blowdown, service water system wastewater, fogger drains, mobile demineralizer drains and rinses, and ZLD treatment system wastes (liquid and solid).

The Water Balance Diagram (Figure 2.4-6) and the Water Balance Table (Table 2.4-5), summarize the power plant's wastewater streams and flow rates for the various plant processes. The flow rates shown are based on summer maximum (at 100 percent load) and annual average summer conditions (at 100 percent load).

The proposed power plant's wastewater streams and treatments are described below in more detail.

Service Water System

An oil/water separator (OWS) system is provided to collect wastewater from equipment washdowns and leakage, sample drains, and miscellaneous plant drains. Water from areas that may accumulate small amounts of oil and miscible chemicals is collected in a system of floor drains, sumps, and piping and routed through the OWS. After passing through the OWS, water from the clean effluent chamber is recovered as cooling tower makeup.

The OWS is a small, skid-mounted enclosed unit. Oil and sludge from the OWS is collected and sent off site for suitable treatment and recycling.

Mobile Demineralizer System

Rinse and draindown waters generated during the exchange of trailers are collected and recovered, untreated, to the cooling tower as makeup.

Air Inlet Fogger System

The inlet air fogger system generates clean wastewaters from its mist elimination drains. These drains are recovered, untreated, for use as makeup water to the mobile demineralizer system. Alternatively, these drains could also be recovered as cooling tower makeup.

Intercooler Condensate

Condensate is generated by the intercooler units from the moisture present in the ambient air. This condensate stream is recovered, untreated, as cooling tower makeup.

Cooling Tower Blowdown Treatment

The ZLD system is used to treat the cooling tower blowdown and recover approximately 99 percent of the treated blowdown for uses within the plant. The balance of the blowdown waste stream (approximately 1 percent of the blowdown) is contained within the solids that are ultimately disposed off site.

The ZLD system consist of a Wastewater Collection Tank, a microfiltration (MF) membrane-based softening system, a reverse osmosis (RO) system, and a crystallizer system.

Blowdown is first processed in the MF system to remove particulate material, calcium, and silica. The MF system uses various chemical feeds to accomplish removal of these constituents. Sulfuric acid is used for pH adjustment in the first-stage reaction tank along with possible use of ferric chloride addition as a coagulant and sodium hypochlorite addition to inhibit biofilm formation. The second-stage reaction tank uses sodium hydroxide, sodium carbonate, and magnesium sulfate chemical additions to effect the precipitation of calcium (as calcium carbonate) and silica (adsorbed onto magnesium hydroxide precipitate). The accumulated solids are concentrated by the MF membranes and directed as a slurry-type waste stream to a dewatering system. The dewatering system consists of a thickener (with addition of a polymeric-based thickening aid) and a plate-and frame type filter press. Decant liquid from the thickener is recovered to the feed of the MF membrane portion of the system, as is filtrate from the filter press. The filter press will produce a dry cake consisting of at least 25 percent dry solids. These solids are collected and disposed off site or at any other suitable facility as a nonhazardous landfill material.

Filtrate from the MF system is then treated to be suitable as feedwater to the RO system. This treatment involves the addition of sulfuric acid and a proprietary polymeric antiscalant to inhibit scaling and precipitation in the RO system, and if needed, addition of sodium bisulfite to remove any residual chlorine that may be present. The RO system produces purified product water with approximately 98 percent of the total dissolved solids removed. This purified water is recovered as cooling tower makeup. The majority (approximately 83 percent) of the reject stream from the RO is recycled to the feed of the MF system, while a small portion of the stream is directed to the crystallizer system.

The crystallizer system concentrates this waste stream (the small portion of the RO reject) to a slurry containing approximately 30 percent dissolved and suspended solids. The distillate from the crystallizer is recovered as makeup to the mobile demineralizer system. The crystallizer slurry is sent to a centrifuge to further concentrate it to approximately 90 percent dry solids. The filtrate from the centrifuge is recycled to the crystallizer feed, while the solids are collected and disposed off site or at any other suitable facility as a nonhazardous landfill material.

The membrane-based systems, the MF and the RO, will require periodic chemical cleaning to remove foulants from the membrane surfaces. These spent cleaning solutions will be disposed by one of the following methods:

- Collection and return to the feed of the MF system (on a metered basis)
- Collection and feed to the crystallizer system
- Collection and transport off site for disposal at a suitable facility.

Periodic purging (draining) of the crystallizer may be required to maintain operating chemistry, specifically nitrate levels. This purge volume may be as high as 3 percent of the feed rate (approximately 0.6 gpm at the summer average condition). The final purge rate would be determined by simulation tests prior to plant startup. The purge volume may then be disposed via either (1) collection and offsite disposal at a suitable treatment facility or (2) via increasing the water content of the solid waste (to approximately 80 to 85 percent dry solids from the anticipated 90 percent dry solids) generated from the centrifuge. A combination of these methods could also be used.

Sanitary Wastewater System

Currently no County or municipal sanitary collection or treatment facilities are located in the vicinity of the proposed project site. The closest connection to a MSWD sewer line is several miles away form the project site. Therefore, all sanitary waste will need to be treated at the plant in an engineered treatment facility. Wastewater from sanitary facilities will be run through the plant septic tank. Wastewater effluent from the septic tank will be discharged into the ground through a leach field to be constructed just southeast of the proposed power plant. The proposed project is expected to be operated by a staff of approximately 14 employees. The facility will be capable of operating seven days per week, 24 hours per day. The septic tank will be permitted by Riverside County Department of Health and Human Services Environmental Health Division. Effluent discharge through the septic tank and into the leach field will be approved by the Colorado River Basin Region of the California Regional Water Quality Control Board (RWQCB). The septic leach field will be designed to be in conformance with the RWQCB's "Guidelines for Waste Disposal from Land Developments." The leach field will be designed to be more than 100 feet away from existing domestic wells, public wells, and flowing streams, and more than 50 feet away from ephemeral streams and the property line. If future extensions of the sanitary waste collection systems by MSWD provide service to this site, connection to the collection system will be considered by the proposed project.

7.14.1.6 Site Drainage

The preconstruction site drainage is shown in Figures 2.3-2 and 2.5-1. The site grading and stormwater management and the erosion control plan for permanent and temporary facilities are shown in Figures 2.5-1 and 2.5-2. Estimated areas of land disturbance during construction and operation of the plant are shown in Table 2.6-4.

The proposed project site is currently unoccupied land with a vacant house and garage located at the southeast corner of the site. Predevelopment runoff from the proposed site consists primarily of sheet flow. The runoff flows generally from the northwest to the southeast towards Powerline Road, which runs in an east-west direction along the southern boundary of the project site. Once the runoff reaches Powerline Road, it collects in a swale located on the north side of the road and flows toward the east. Additionally, an existing drainage path along the west side of the site flows in a southeasterly direction. This drainage path appears to carry flow only during severe rain events, and it too discharges to the swale along the north side of Powerline Road. During large runoff events, flow from the drainage path passes over Powerline Road because there are no drainage structures along the road.

During construction activities, best management practices (BMPs), such as stabilized construction entrances, gravel-covered construction laydown areas, and silt fencing, will be used to minimize the potential for erosion and discharge of pollutants off the site. Stormwater runoff from the plant area will be conveyed to a retention basin located near the south portion of the site. This basin will be sized to

allow sediments that may be carried in the runoff to settle and not be discharged off site. This temporary sediment basin would be converted to a permanent storm water retention basin. Storm water runoff from the construction laydown area would be handled in a similar manner at the plant site. A construction storm water pollution prevention plan (SWPPP) that includes temporary BMPs to be implemented during construction will be prepared in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharge Associated with Construction Activities. The BMPs will minimize discharge of pollutants to surface waters and groundwater. A draft of the SWPPP is presented in Appendix G.

BMPs may include:

- Erosion Control BMPs
  - Preservation of existing vegetation
  - Soil binders
  - Earth dikes and drainage swales
  - Velocity dissipation devices
  - Slope drains

- Sediment Control BMPs
  - Silt fence
  - Check dam
  - Sandbag barrier

- Tracking Control
  - Stabilized construction entrance/exit
  - Stabilized construction roadway

- Wind Erosion Control

- Non-Storm Water Control
  - Water conservation practices
  - Paving and grinding operations
  - Vehicle and equipment cleaning
  - Vehicle and equipment maintenance
  - Concrete curing

- Waste Management and Materials Pollution Control
  - Material delivery and storage
  - Material use
  - Stockpile management
  - Spill prevention and control
  - Solid waste management
  - Sanitary/septic management
  - Liquid waste management

Linear facilities include the gas transmission line, potable water line, access road, and transmission line. The gas transmission and potable water lines will be buried pipelines. The access road will extend from Dillon Road to the proposed project site, and construction will include associated intersection widening at Dillon Road and Melissa Lane. Land disturbance associated with the transmission line construction will be limited to the foundations for the transmission towers between the project site and Devers substation. The draft SWPPP discussed above, when finalized, and will include BMPs for the construction of the linear facilities, similar to those identified for the project site.

After construction is complete, the crushed rock surfacing on the construction laydown area will remain in place. The offsite linear facilities will be constructed within the right-of-ways of roads. The surface of these roads will be paved after construction of the plant facilities is complete.

The post-construction drainage plan maintains the existing predevelopment flow patterns at the site. Storm water runoff from the site will be collected via a system consisting of swales, ditches, culverts, drain pipes, and OWS, as necessary, and then conveyed to the retention basin. Storm water runoff from areas subject to oil contamination will be collected and routed through passive oil-water interceptors before entering the retention basin. The storm water management collection system will be designed to provide storm drainage retention for the incremental runoff, but the retention basin will actually provide retention for the fully developed site for the worst-case, 100-year event (3 hour) or as required by the applicable local codes and standards (e.g., the Riverside County Flood Control and Water Conservation District's requirements). Preliminary calculations for sizing the retention basin are provided in the draft Hydrology Report (see Appendix R-2).

Outflow from the basin will include percolation to the subsurface and evaporation. Due to relatively high infiltration rates of the soils at the site combined with the high evaporation rates in the area, water in the basin would not be contained for very long. It is anticipated that the basin will be emptied within 72 hours after the cessation of a storm event to avoid the potential for mosquito breeding.

Upland runoff from undisturbed areas northwest of the proposed project site will be collected in diversion ditches, which will be located along the northern edge of the proposed project boundary. These ditches will discharge to ditches and/or existing drainage path along the east and west edges of the proposed project site. The location of the storm water management system is shown on Figures 2.5-1 and 2.5-2. Details of the storm water management system are discussed in Section 2.4.4.

Oil leakage from equipment is expected to be minimal. Nonetheless, all equipment that has potential for leakage of oil or hazardous chemicals, such as glycol coolants, will be located within spill containment areas. Storm water from areas that could collect only nonmiscible oil will be directed to passive OWSs consisting of sumps divided into clear effluent chambers and oil containment chambers. Water from the clear effluent chambers of these separators will be discharged to the retention basin. The oil from the oil containment chambers will be collected and shipped off site for disposal or recycling. Areas that collect miscible chemicals or volatile liquids will be directed to an OWS, as described in Section 2.4.4. A SWPPP that describes the post-construction storm water management system and BMPs to be implemented to prevent the discharge of pollutants off site will be prepared in accordance with the NPDES General Permit for Stormwater Discharge Associated with Industrial Activities.

The retention basin and interceptors will be sized in conformance with the standards of the California RWQCB, the federal Clean Water Act (CWA), and Riverside County.

7.14.1.7 Flooding

The current site topography slopes from northwest to southeast from approximately elevation 1,120 feet to 1,050 feet above msl. After construction, the main portion of the power plant will be at an approximate elevation of 1,085 feet above msl (Figure 2.5-2). As shown on Figure 7.14-4, the plant site is not within the 100-year flood zone (Zone A or AO) or the 500-year flood zone (Zone B). However, a portion of the gas transmission line corridor passes through Zone B. The FEMA Flood Insurance Rate Map (FIRM), Community Panel Number 0602450900D has an effective date of November 20, 1996 (FEMA, 1996).

Within the actual project site, buildings and equipment will be constructed on foundations set at elevations above potential surface waters, and the overall site-grading scheme is designed to route surface water around and away from all equipment and buildings. The storm water drainage system will be sized to accommodate a 100-year storm event (3 hour) or as required by applicable local codes and standards.

Buildings and equipment will be constructed in a manner that provides protection from a 100-year storm event.

7.14.2 Environmental Consequences

To evaluate the environmental consequences of the proposed project relative to water supply, water quality, and flood hazards, the following criteria were used to determine whether project-related impacts would be significant. Impacts would be considered significant if the project would:

- Groundwater
  - Substantially degrade groundwater quality; or
  - Substantially deplete groundwater supplies or interfere substantially with groundwater recharge or a lowering of the local groundwater table.

- Surface Water
  - Substantially alter surface water chemistry or temperature;
  - Substantially alter the volume of water in a surface water body;
  - Contaminate a public water supply;
  - Substantially reduce the amount of water otherwise available for public water supplies;
  - Change currents or the course of direction of water movements in marine or fresh waters; or
  - Obstruct or alter any navigable water of the United States.

- Flood Hazard
  - Substantially increase the risk of flooding, erosion, or siltation; or
  - Change absorption rates, drainage patterns, or the rate and amount of surface runoff.

7.14.2.1 Groundwater

Impacts from Spills

Construction, operation, or maintenance of the facility could potentially affect groundwater quality through inadvertent spills or discharge that could then infiltrate and percolate down to groundwater. Excavation dewatering during construction is not anticipated, since depth to groundwater is in excess of 300 to 400 feet. Infiltration from the septic leach field could potentially affect groundwater. The leach field would be permitted through the County Public Health Department, which would require the system to be protective of groundwater supplies.

Due to the depth to groundwater (in excess of 300 to 400 feet), degradation of groundwater is not anticipated. However, Mitigation Measure WR-1 (presented in Section 7.14.4.1) provides additional protection so that impacts to groundwater quality would be less than significant.

Effect on Basin Water Balance

The proposed project would purchase reclaimed water from the Horton WWTP, which would be percolated into the Basin via percolation ponds. On average, the amount of water to be percolated on an annual basis would be approximately 1,500 afy. The Basin has adequate storage capacity available to store the banked water. The proposed project would then access its banked reclaimed water supply via onsite wells. Since the average annual amount of percolation at the Horton WWTP would be more than the amount of water used by the proposed project, there would be a net inflow to the aquifer. Assuming the maximum annual use of 1,100 afy by the CPVS plant, the net inflow to the aquifer would be 400 afy.

Assuming the expected long-term average annual use of 550 afy, the net long-term average inflow to the Basin would be 950 afy.

In addition, as part of the well metering agreement with DWA, or the water supply agreement with MSWD, the proposed project would be required to pay a replenishment fee for the water it extracts, which would be collected by the MSWD and paid to the DWA or paid directly to the DWA (depending on the final terms of the agreement now under discussion with MSWD). The DWA is then responsible for replenishment at the Mission Creek percolation basin. DWA has established a replenishment assessment fee to recover construction costs for the Mission Creek percolation basin completed in June 2002. The DWA supplements its groundwater replenishment program with Colorado River water imported from the CRA through an exchange agreement with the Metropolitan Water District of Southern California. In effect, the replenishment assessment fee would result in the proposed project providing up to an equal amount of inflow to the amount of water extracted. Since the total amount of inflow to the Basin due to the proposed project would be more than twice the amount extracted, potential impacts to groundwater supplies are considered less than significant, and would actually be beneficial to the Basin.

Mitigation Measures WR-3 and WR-6 (see Section 7.14.4.1) provide additional protection so that impacts to groundwater storage would be less than significant.

Water Level Drawdown Effects

The effect of the proposed project's extraction of its banked water on water levels in the Basin was evaluated using a three-dimensional groundwater flow model. MODFLOW, a groundwater modeling program developed by the USGS, was used for the simulation. Details of the modeling are presented in the Groundwater Modeling Technical Memorandum presented in Appendix R-1.

The model simulates extraction from a proposed well field in the vicinity of the proposed project site. The estimated long-term average power plant water demand is approximately 550 afy. For purposes of the modeling, three to five supply wells were assumed (tentative locations of the proposed wells are shown on Figure 2.5-2). The pumping rate is divided evenly among the wells, resulting in a long-term average pumping rate of 68 gpm to 114 gpm at each well (assuming five to three wells, respectively). Throughout the 30-year model simulation, the pumping rate is assumed to be steady and continuous.

The model simulates percolation at both the Horton WWTP percolation basins and the Mission Creek Recharge Basin. An equivalent quantity of water (550 afy) would be diverted from the CRA through an exchange agreement with the Metropolitan Water District and percolated at the recharge basin, located north of the power plant site. CPV Sentinel would purchase reclaimed water from the Horton WWTP, which would be percolated into the Basin via percolation ponds. On average, the amount of water to be percolated at the Horton WWTP on an annual average basis would be approximately 1,500 afy. Consequently, the amount of water percolated into the Basin would be more than twice the volume to be extracted from the onsite wells.

Model simulation results show drawdown at the pumping area during early simulation times and water table rise at the percolation basins throughout the simulation. The maximum drawdown at the onsite wells was 3.0 feet, occurring approximately 3 years after pumping began (assuming five wells). After approximately 3 years, the water from the percolation basins started to significantly affect the drawdown in the pumping area, and consequently the water table started to rise in the pumping area. After approximately 13 years, the drawdown in the pumping area is negated by the water from the percolation basins and water elevations begin to rise above initial elevations. At the end of the simulation (30 years), the water table at the onsite wells rose between 5.7 and 6.0 feet. The water tables beneath the Mission Creek Recharge Basin and the Horton WWTP percolation basins rose 12.4 and 20.7 feet, respectively.

A sensitivity run was made assuming that reclaimed water would not be percolated at the Horton WWTP percolation basins on behalf of the proposed project. In this case, the long-term extraction from the onsite wells and percolation at the Mission Creek Recharge Basin would be the same (i.e., 550 afy). For this scenario, the maximum drawdown at the onsite wells would be approximately 3.6 feet after 30 years of pumping, and the maximum rise beneath the Mission Creek Recharge Basin would be about 4 feet.

Because the Upper Valley Basin consists predominantly of sandy soils with relatively thin clay layers, the potential for the proposed project to induce land subsidence would not be expected. Subsidence typically occurs in groundwater basins with thick clay layers that can compress when dewatered. Because of the general absence of thick clay layers in the vicinity of the project site, the potential to cause land subsidence is considered to be less than significant.

Mitigation Measures WR-3, WR-4, and WR-6 presented in Section 7.14.4.1 will provide additional protection so that impacts to water levels in the Basin would be less than significant.

Water Quality Effects

Considering the net amount of water to be percolated for the proposed project over 30 years (45,000 acre-feet) is only about 3 percent of the total amount of water in the Mission Creek Subbasin and less than 0.12 percent of the amount of water in the Upper Valley Basin, the proposed storage and extraction is not expected to have a significant impact on the water quality in the region. The water quality in the Basin is good, and the impact of storage and extraction on the water levels in the area and the amount of water in storage is small. As a result, the possibility that the proposed storage and extraction would result in the movement of poorer quality water into the Basin is considered very remote.

The proposed project would use a ZLD system. No wastewater would be discharged from the proposed project; therefore, there would be no impact on the quality of water underlying the site.

Because the proposed project would not discharge any wastewater to the environment, it would not affect the quality of the underlying groundwater in any way and would not affect the beneficial use of the groundwater as designated by the RWQCB in the Water Quality Control Plan for the area (RWQCB, 2005).

The construction of the linear facilities is anticipated to have no impacts on water quality due to the short duration of construction and implementation of methods to reduce potential impacts and the relatively shallow depths of excavation (less than 4 feet) compared to the depth to groundwater (300 to 400 feet). As discussed in Section 2.9.1, a project-specific Environmental Safety and Health Plan will be developed. Furthermore, a SWPPP and an Erosion Control Plan will be developed and implemented as specified in Section 7.14.4.

Historically, CRA water has contained higher levels of TDS than the local Basin water. The TDS objective for Colorado River water below Parker Dam (i.e., the intake location for the Colorado River Aqueduct) is 747 mg/L (MWH, 2005). In accordance with both CPV Sentinel's well metering agreement with DWA and MSWD's replenishment agreement with DWA, CRA water would be percolated at the Mission Creek Recharge Basin. Based on water quality sampling of the onsite well, the water that would be extracted by the proposed project would have TDS levels on the order of about 150 to 200 mg/L. Since the amount of CRA water to be percolated would be the same as the amount of water extracted, there could be a net increase of TDS on the order of 547 to 647 mg/L. However, 1,500 afy of tertiary treated reclaimed water will be percolated at the Horton WWTP on behalf of the proposed project. Since the tertiary treated water would need to meet T22 requirements, TDS levels of this water would be

expected to be less than 500 mg/L[1], thereby further reducing the overall average net TDS inflow into the subsurface. TDS levels would be expected to be significantly less by the time the percolated water reaches the groundwater that is several hundred feet below the surface. In addition, the quantity of water percolated and extracted by the project (i.e., 550 afy out and 2050 afy in) is insignificant compared to the total amount of water stored in the Basin. Therefore, potential impact on water quality in the Basin would be considered less than significant.

Mitigation Measures WR-3, WR-4, WR-5, and WR-6 in Section 7.14.4 provide additional protection so that impacts to groundwater quality would be less than significant.

7.14.2.2 Surface Water

The proposed project would not use surface water resources. Surface water is not a significant source of water supply in this area because surface water sources provide less than 5 percent of the regional water supply. These surface water sources are located in the upper portions of the drainages far from the proposed project site. Therefore, there would be no adverse impact on water supply or other users of this source.

There will be no discharge of process water to surface water bodies due to the ZLD system described in Section 2.4.6. Therefore, there would be no significant impacts to surface water quality.

Construction, operation, or maintenance of the facility could affect surface water quality of local streams and washes through inadvertent spills or discharges. Construction activities could also increase the potential for erosion and uncontrolled runoff of storm water contaminated with sediments or other pollutants that could impact surface water quality and sedimentation. The site drainage plan and erosion control plans of the proposed facility during and after construction are shown in Figures 2.5-1 and 2.5-2 and in the draft construction SWPPP provided in Appendix G. An erosion and sediment control plan will be prepared that includes BMPs to be used at the site during the construction phase to control sediment-laden runoff and ensure the integrity of the storm water collection system during construction. The plan will use control measures, as necessary, such as stabilized construction entrances, gravel-covered construction laydown area, silt fencing, seeding of the disturbed areas, and a sediment basin. A retention basin will be provided to retain storm water runoff and sediment. Storm water runoff from areas subject to oil contamination will be collected and routed through passive oil-water interceptors before entering the retention basin. With the project as designed and implementation of the mitigation measures proposed in Section 7.14.4, the impacts to surface water quality would be less than significant. Storm water collected in curbed areas of the plant will be collected and routed through an OWS before being conveyed to the storm water retention basin. Storm water within the curbed area would have the highest likelihood of coming into contact with potential contaminants. Since no storm water from the curbed areas would be discharged directly to local washes, or to underlying groundwater, there would be no impact to surface water quality.

The proposed project would not alter currents or direction of general site water flow because there would be no significant increase in discharges off site and site topography would not be altered except in the area of construction. The general site drainage pattern will be similar to that shown in Figure 2.5-1. Nor would the proposed project obstruct or alter navigable waters, since nearby streams are ephemeral. More detailed plans of the post-construction drainage pattern are shown on Figures 2.5-1 and 2.5-2.

[1] The current wastewater discharge permit for the Horton WWTP restricts the increase in concentration of TDS of the wastewater discharged to the percolation basins over that contained in the underlying groundwater to 400 mg/L (RWQCB, 2001). The wastewater discharge permit for CVWD's Palm Desert Wastewater Reclamation Facility issued by the RWQCB requires that wastewater effluent discharged to infiltration basins from the treatment facility contain TDS at less than 500 mg/L (annual mean limit) (RWQCB, 2000).

The construction of the linear facilities is anticipated to have no impacts on water quality due to the short duration of construction, limited area of disturbance, and implementation of BMPs to reduce potential impacts. There will be no construction activities within the washes. An SWPPP, similar to the draft provided in Appendix G, will be finalized and implemented and include BMPs for the construction of the linear facilities. The SWPPP and BMPs will be prepared in accordance with RWQCB and Riverside County requirements.

Project features designed to be protective of water quality include the ZLD system, which will eliminate offsite disposal of process wastewater; a retention basin to collect and manage storm water runoff from the project site; and secondary spill containment around chemical delivery and storage areas, diesel fuel tanks, and transformers. Impacts to surface water resources would be less than significant.

Mitigation Measures WR-7 and WR-8 in Section 7.14.4 provide additional protection so that impacts to surface water quality would be less than significant.

7.14.2.3 Flooding

The proposed project site is not within a 100-year floodplain. The proposed project would not increase the risk of flooding, erosion, or siltation. There would be only minimal changes in absorption rates, drainage patterns, or the rate or amount of surface runoff due to the additional surface paving and the placement of equipment associated with the proposed project. Storm water runoff from off site will be collected at the northern edge of the site and conveyed in ditches along the eastern and western edges of the site, such that overall drainage patterns will be maintained.

A portion (approximately 6,000 lineal feet) of the gas transmission corridor would cross through the 500-year floodplain (see Figure 7.14-4). The gas line would be buried underground and the surface topography along the pipeline would be the same as prior to construction, such that there would be no fill placed within the floodplain that would result in adverse impacts to water surface elevations. Therefore, impacts to floodplains would be less than significant.

Development of roads, buildings, and other paved and impermeable surfaces would reduce the amount of storm water that infiltrates into the ground and increase the amount of water that runs off the proposed project site. Runoff from most of the site would be routed to a retention basin that would allow water to percolate to the subsurface. The net effect is expected to result in an insignificant decrease in overall runoff volume from the site (due to percolation and evaporation instead of direct discharge off site). Therefore, the proposed project's impact on runoff volume and peak flows would be less than significant.

The plant site will be graded, as shown on Figure 2.5-2, to promote drainage to prevent onsite flooding and minimize the potential for flooding to neighboring areas. All new structures must be designed to accommodate possible flooding in accordance with the County Building Code. No significant impacts related to flooding are expected as a result of the proposed project.

7.14.3 Cumulative Impacts

Cumulative effects related to a project are those effects that could occur considering the proposed project as well as other reasonably foreseeable, future planned projects in the area. Cumulative effects related to the CPVS were evaluated by combining the effects of the proposed project with those that may occur from these other projects.

Past, current, and potential future projects, including the proposed project, would require a water supply. The proposed project will access its banked reclaimed water in the Basin via onsite wells. This water plan would have a negligible effect on water availability in the region and would not adversely affect water levels in the Basin. On a long-term basis, the proposed project will purchase 1,500 afy of reclaimed

water from MSWD that will be percolated to the Basin, and then extract only 550 afy from the project's onsite wells; therefore, there would be a positive impact to the basin. In addition, the well metering fees paid to DWA would result in even more importation of water to be percolated into the Basin. Therefore, the proposed project would not contribute to a cumulatively significant impact, and cumulative impacts of the proposed project would be less than significant.

7.14.4 Mitigation Measures

This section discusses mitigation measures that will be implemented to ensure that project-related impacts to water resources are less than significant.

7.14.4.1 Groundwater

WR-1 Implement BMPs during construction

Proper implementation of BMPs during construction and throughout project operation (e.g., spill prevention and control, preventative maintenance, hazardous materials management), proper installation of groundwater wells and proper construction and operation of the septic system, as well as adherence to all applicable codes and permits, will help minimize the potential for contamination of groundwater. No significant impacts to groundwater are anticipated.

WR-2 Well Testing

CPV Sentinel will conduct well tests in each of the new project wells to determine the drawdown-discharge characteristics of each well. Each well will be tested separately. CPV Sentinel will also conduct a test using the new project wells to determine the site-specific parameters of transmissivity and storativity. These test(s) will use one of the new wells as the pumping well and the other new wells as observation wells. The test period will be long enough to produce stable, measurable drawdown in the observation wells.

Thirty days prior to conducting the well testing, CPV Sentinel will submit to the CEC a work plan for testing for review and approval. Following approval of the work plan by the CEC, CPV Sentinel will conduct the foregoing tests on each of the new project wells. All tests will be in accordance with the protocols established in the work plan. Sixty days following completion of the tests, CPV Sentinel will submit to the CEC a test report for review and approval. The report will include all of the data collected during the testing, include the analyses of data, and describe the results of testing, the drawdown-discharge characteristics of each of the new project wells, and the calculated values for transmissivity and. The report will include a description of the results of the test, the test procedure, the raw data, and the calculation of transmissivity, storativity, and other parameters.

WR-3 Report of Monthly Water Extraction

CPV Sentinel will record the amount of water extracted each month by the project. The amounts of water extracted will be summarized in a Report of Monthly Water Extraction that will be submitted by CPV Sentinel to the CEC, DWA, and MSWD.

Four weeks following the end of each month of commercial operation, CPV Sentinel will submit to the CEC a copy of the Report of Monthly Water Extraction showing the previous month's extraction and historical extraction to date.

WR-4 Report of Groundwater Level Monitoring

CPV Sentinel will measure and record static, nonpumping water levels in the onsite project wells on a monthly basis for the first 6 months following project startup, and thereafter on a quarterly basis. The water levels will be summarized in a Report of Monthly Groundwater Level Monitoring that will be submitted by CPV Sentinel to the CEC.

Sixty days following project startup, and on a quarterly basis thereafter, CPV Sentinel will submit a quarterly Report of Groundwater Level Monitoring to the CEC.

WR-5 Report of Groundwater Quality Monitoring

CPV Sentinel will provide the results of annual chemical analyses of groundwater from at least one of the project wells. The analytes will include primary and secondary general minerals and physical parameters, volatile organic compounds, and semivolatile organic compounds. If a comparison of analyses from one sampling period to the next indicates that there is a significant increase in the concentration of one or more of the chemical compounds in the groundwater, the need for additional pretreatment of water will be reassessed. The need for pretreatment of groundwater prior to use by the proposed project will be based on incompatibility with the Waste Discharge Requirements (WDRs), exceedances of air emissions standards, worker safety standards, or standards of exposure of downwind receptors.

Sixty days following project startup, and annually thereafter for a total of five-years, CPV Sentinel will submit a Report of Groundwater Quality Monitoring to the CEC that presents the results of the required analyses in a summary format. The need for additional pretreatment of water will be assessed on an ongoing basis. The need for continued monitoring will be reassessed at the end of the 5-year period.

WR-6 Report of Groundwater Percolation

CPV Sentinel will record the amount of water MSWD percolates at the Horton WWTP on behalf of the project. The report will also record the replenishment fees paid to MSWD and/or DWA and the amount of water percolated at the Mission Creek percolation basin by DWA. The amounts of water percolated will be summarized in a Report of Groundwater Percolation that will be submitted by CPV Sentinel to the CEC and to MSWD on an annual basis. Four weeks following the end of each year of commercial operation, CPV Sentinel will submit to the CEC a copy of the Report of Groundwater Percolation showing the total amount of water percolated and the replenishment fess paid to date.

7.14.4.2 Surface Water

WR-7 Erosion Control Measures During Construction

As discussed in Section 7.9.1.4 (Soils, Soil Loss and Erosion), impacts to surface water from erosion are expected to be minimal during construction. Erosion will be controlled in accordance with an approved Erosion Control Plan as discussed in Section 7.9.2 (Soils, Construction). In addition, all construction activities will be performed in accordance with the California NPDES General Permit for Stormwater Discharge Associated with Construction Activities (SWRCB, 1999), thereby requiring the implementation of BMPs to control sediment and other pollutants mobilized from construction activities.

Temporary BMPs are discussed in Section 7.9.4 and may include slope stabilization, construction of berms and ditches, and sediment barriers such as straw bales or silt fences to prevent sediment

discharges from the proposed project site. These measures will be developed and described for the construction activities in a Construction SWPPP that must be prepared before construction begins. With proper implementation of BMPs, no significant impacts to surface water quality are anticipated during short-term construction activities. In addition, use of existing infrastructure will minimize physical impacts from construction activities. No significant impacts to surface water are anticipated as a result of construction activities.

WR-8 Permanent Erosion Control Measures

Permanent erosion control measures are discussed in Section 7.9.4. Operation of the proposed project facility will be in conformance with the California NPDES General Permit for Stormwater Discharge Associated with Industrial Activities (SWRCB, 1997). In accordance with this permit, an industrial SWPPP will be developed, and BMPs will be implemented to control pollutants in storm water discharges. BMPs will include refueling and maintenance of equipment only in designated lined and/or bermed areas, isolating hazardous materials from storm water exposure, and preparing and implementing spill contingency plans in specified areas. BMPs must also be selected, designed, and implemented in accordance with Riverside County's storm water management requirements (Camp Dresser & McKee, 2001; RWQCB, 2001). With proper implementation of these and other BMPs in the SWPPP, no significant impacts to surface water quality are anticipated during the long-term operation of the proposed facility.

7.14.5 Laws, Ordinances, Regulations, and Standards

The primary agency for regulating surface water and groundwater pollution in California is the RWQCB. The State Water Resources Control Board (SWRCB) delegates authority for implementation of regulations to RWQCB but creates general policies and plans. The SWRCB and RWQCB are agencies within the California Environmental Protection Agency (EPA). The federal agencies (e.g., U.S. EPA) have delegated most authority on water pollution issues to the state. Consequently, the RWQCB determines allowable concentration limits for effluents, issues permits, and enforces the regulations.

Local water districts, water suppliers, and health departments may also act when a pollutant has the potential to threaten their drinking water supply. Effluent limitations and toxic and effluent standards are established pursuant to Sections 301, 302, 303(d), 304, 307, and 316 of the Clean Water Act (CWA).

The RWQCB for the Colorado River Region produced the most recent *Colorado River Region Water Quality Control Plan* in 2005. This document outlines general water quality goals for the Sacramento and San Joaquin valleys. Industrial service supply water (e.g., process water supply) is identified as a beneficial use and as such has "essentially no water quality limitations except for gross constraints…" (RWQCB, 2005).

The proposed project will operate in accordance with all applicable laws, ordinances, regulations and standards (LORS). The LORS that are potentially applicable to the water resources components of the proposed project are identified below. Several LORS involve conformance only by reporting to the applicable agency if a spill or release occurs or requires notification/approval for structural work within a surface body, etc. Project conformance with the applicable LORS is summarized in Table 7.14-8 Federal

The Clean Water Act of 1977 (including 1987 amendments) §402; 33 USC §1342; 40 CFR Parts 122-136

Administering Agency: RWQCBs

Compliance: In lieu of individual NPDES Permits, the proposed project will use Notices of Intent (NOIs) to comply with the General NPDES permits that regulate storm water and other discharges to water by

establishing effluent limitations and monitoring and reporting requirements, as described in Section 7.14.7.

7.14.5.1 State

California Porter-Cologne Water Quality Control Act of 1998; California Water Code §13000-14957; Division 7, Water Quality

Administering Agency: SWRCB, RWQCB

Compliance: Discharge of waste to land, such as septic leach fields, must comply with the Waste Discharge Requirements.

The Porter-Cologne Act established the jurisdiction of the nine California RWQCBs, granting them the authority to issue WDRs that impose annual discharge fees and establish discharge limits, operation and maintenance requirements for treatment equipment, and monitoring, record keeping, and reporting requirements.

The septic leach field will be designed pursuant to the Guidelines for Waste Disposal from Land Developments and will be permitted by the Riverside County Department of Health and Human Services, Environmental Health Division. Prior to issuance of a permit, a soil profile test must be performed and submitted to the County.

California Water Code (CWC) § 13550 et seq.

Administering Agency: SWRCB; RWQCB

Compliance: Requires use of reclaimed water where available and appropriate. The SWRCB also adopted Resolution 75-58, which encourages the use of wastewater for power plant cooling and established the following order of preference for cooling purposes:

- Wastewater discharged to the ocean
- Ocean water
- Brackish water or irrigation return flow
- Inland wastewater with low total dissolved solids
- Other inland water

The proposed project will use a ZLD technology that will reduce the amount of water used by the plant and eliminate discharge of process wastewater. The project will also use banked reclaimed water provided by MSWD's Horton WWTP.

California Water Code § 13260

Administering Agency: RWQCB

Compliance: Requires a Report of Waste Discharge (ROWD) for any discharge waste that could affect the "quality of the waters of the State, other than into a community sewer system." This relates to the discharge of waste in the septic leach field, which will comply as discussed above.

California Water Code §13271-13272; 23 CCR §2250-2260

Administering Agency: RWQCB; California Office of Emergency Services

Compliance: Requires filing a report of release of specified reportable quantities of hazardous substances, including oil and petroleum products, when the release is into or will likely discharge into waters of the State.

California Constitution, Article 10 §2

Administering Agency: SWRCB

Compliance: Prohibits waste or unreasonable use of water. The proposed project will use reclaimed water that will be banked and accessed by onsite wells. The project also will use a ZLD technology.

The California Safe Drinking Water and Toxics Enforcement Act (California Health & Safety Code 25249.5 et seq.)

Administering Agency: RWQCB

Compliance: Prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The proposed project will not discharge process water.

California Water Code, Section 5002

Administering Agency: RWQCB

This requirement relates to the extraction of groundwater and requires that a Notice of Extraction and Diversion of Water be filed with the State Water Resources Control Board. This requirement applies in Riverside County for extractions greater than 25 afy. The proposed project will comply with this requirement by filing the required notice once project pumping begins.

California Water Code, Section 13751

Administering Agency: RWQCB

This is a requirement for a Report of Well Completion to be filed with the local RWQCB within 60 days of well completion. Reports will be filed for the onsite wells planned for the proposed project.

7.14.5.2 Local

Riverside County General Plan (Riverside County, 2003)

Administering Agency: Riverside County

Compliance: The proposed project will not be constructed in a floodplain, floodway, or floodway fringe (Policies S 4.2 through S 4.9). The project will use a ZLD system for the plant's process wastewater; therefore, there will be no discharge of pollutants into storm drainage systems, natural drainage, or aquifers (Policy OS 3.3).

Riverside County, County Ordinance No. 458.12

Administering Agency: Riverside County

Compliance: This ordinance regulates development within flood hazard areas in Riverside County. The proposed power plant site is not within a flood hazard area. Only a portion of the gas transmission line will be constructed within the 500-year flood zone (i.e., Zone B) and therefore will not be within the designated 100-year floodplain or floodway.

Riverside County, County Ordinance No. 592.1

Administering Agency: Riverside County

Compliance: This ordinance regulates sewer systems, including septic systems, in Riverside County. The septic system for the proposed project will be designed, constructed, and operated in accordance with this ordinance.

Riverside County, County Ordinance No. 754.2

Administering Agency: Riverside County

Compliance: This ordinance regulates storm water discharges in Riverside County. Site drainage and best management practices for the proposed project will be designed, constructed, and implemented in accordance with this ordinance.

Riverside County Health Department, County Ordinance No. 682.2

Administering Agency: Riverside County Health Department

Compliance: This ordinance regulates water well construction in Riverside County. Water supply wells constructed for the facility will be constructed in accordance with this ordinance.

Desert Water Agency (DWA) Well Metering Agreement

Administering Agency: DWA

Compliance: The DWA normally requires well metering for extractions in excess of 5 acre feet per year. As the proposed project will extract more than this amount on an annual basis, the project will comply with this agreement through its well metering agreement with the MSWD.

Riverside County, County Ordinance 682.3

Administering Agency: Riverside County Health Department

Compliance: Regulates the construction, reconstruction, abandonment, and destruction of wells. The proposed project will comply with this ordinance.

City of Palm Springs General Plan (2007)

Administering Agency: City of Palm Springs

Compliance: The proposed project will be protective of the quality and quantity of water (Policy 8.5). The project will minimize the potential for discharge of pollutants by managing storm water runoff, constructing wells in accordance with County well installation requirements, and installing and operating the septic system in accordance with County requirements (Policy 8.3). The project will not increase the potential for flooding (Policy 3.3).

7.14.6 Involved Agencies and Agency Contacts

Issue	Agency/Address	Contact/Title	Telephone
Water Supply	Coachella Valley Water District P.O. Box 1058 Coachella, CA 92236	Dan Parks Engineering Manager	(760) 398-2651
Water Supply	Mission Springs Water District 66575 Second Street Desert Hot Springs, CA 92240	Arden Wallum General Manager	(760) 329-5169
Water Supply	Desert Water Agency 1200 Gene Autry Trail South P.O. Box 1710 Palm Springs, CA 9263	David Luker General Manager	(760) 323-4971
Water Quality	State of California Environmental Protection Agency California Regional Water Quality Control Board, Colorado River Basin Region 73-720 Fred Waring Drive, Suite 100 Palm Desert, CA 92260	Jon Camona	(760) 776-8939
Water Quality	Regional Water Quality Control Board Colorado River Basin Region 73-720 Fred Waring Drive, Suite 100 Palm Desert, CA 92260	Jon Rokke Water Resource Control Engineer	Phone: (760) 776-8959 email: jrokke@water boards.ca.gov
Water Quality	County of Riverside Department of Environmental Health Indio, CA 92201	Anastasia	(760) 863-7000

7.14.7 Permits Required and Permit Schedule

This section describes the required permits related to water resources for the Colusa Generating Station. The following table summarizes these required permits.

Responsible Party	Permit/Approval	Schedule
County of Riverside Community Health Agency, Department of Environmental Health	Well Permit (addresses construction, reconstruction and destruction of wells)	One week prior to well construction
Colorado River RWQCB	Construction Activities Stormwater General Permit; California RWQCB Water Quality Order 99-08-DWQ (Addresses storm water during construction)	30 days prior to construction

Responsible Party	Permit/Approval	Schedule
Colorado River RWQCB	Low Threat Water Discharge Permit; California State Water Resources Control Board Water Quality Order No. 2003-0003-DWQ (Allows discharge of short duration or low-threat wastewater to land)	30 days prior to construction
Colorado River RWQCB	Industrial Activities Stormwater General Permit; California RWQCB Water Quality Order 97-03-DWQ (Addresses storm water during plant operation)	30 days prior to start of plant operations
Riverside County Department of Health and Human Services, Environmental Health Division	Riverside County Regulations; Septic Facility Permit (Allows operation of septic leach field)	30 days prior to start of plant operations

The California State Water Resources Control Board Water Quality Order 99-08-DWQ: NPDES General Permit for Stormwater Discharges Associated With Construction Activity (General Permit) authorizes a general permit for storm water discharges associated with construction activities that disturb more than 5 acres. Construction activities subject to the permit include cleaning, grubbing, grading, stockpiling, and excavation activities. The General Permit requires submittal of an NOI to comply with the permit and the development of a SWPPP for construction activities. The SWPPP will describe BMPs to prevent storm water pollution during construction activities. BMPs include erosion controls, sediment controls, and other controls to prevent storm water from contracting pollutants. The SWPPP will also include a storm water monitoring program. A draft construction SWPPP is provided in Appendix G.

The California SWRCB's Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality No. 2003-00003-DWQ addresses potential discharges of low water quality-threat wastewater. Such discharges include well development water, boring waste discharge, and monitoring well purge water discharge. An NOI will be filed with the RWQCB prior to activities, such as well installation, that would have low water quality-threat discharges.

The California SWRCB Water Quality Order No. 97-03-DWQ General Permit to Discharge Stormwater Associated With Industrial Activity authorizes a general permit to regulate industrial storm water discharges. An NOI will be filed with the RWQCB prior to commencement of operation. In accordance with NPDES permit requirements, a SWPPP that addresses storm water pollution prevention during operations must be developed. The SWPPP will identify BMPs to be used at the facility and a storm water monitoring program. The RWQCB issued a municipal storm water permit to Riverside County and several incorporated cities of the County within the Whitewater River watershed (order No. R7-2001-077, NPDES Permit No. CAS617002) on September 5, 2001 (RWQCB, 2001). The proposed project site is located within the Whitewater River watershed, which is covered by this permit. Therefore, the proposed project must also comply with the requirements of this permit in selection, design and implementation of BMPs (Camp Dresser & McKee, 2001).

Well construction permits will be obtained from the Riverside County Environmental Health Department prior to drilling of the water supply wells for the project. Permits will be obtained at least 1 week prior to starting drilling.

The plant will operate as a ZLD system as described in Chapter 2, and there will be no discharge of process water to surface water bodies. However, the plant will have an onsite septic system to handle sanitary wastewater. Pursuant to the California Water Code Section 13260, an ROWD must be filed with

the RWQCB if a project will discharge waste that could affect the quality of the waters of the state. Form 200, Application/Report of Waste Discharge, General Information for NPDES Permits and Waste Discharge Requirements, will be filled out and submitted to start the application process for waste discharge requirements for the discharge of wastewater to the septic leach field. This application is not required for the NPDES permit, since the proposed project will use the permit NOIs to comply with the General Industrial NPDES permit requirements. All storm water runoff from the plant site will be discharged to the retention basin and will be allowed to percolate or evaporate.

For compliance and control of sanitary wastewater, a permit will be obtained from the Riverside County Environmental Health Division, for the septic leach field. The system will be designed in accordance with the RWQCB's "Guidelines for Waste Disposal from Land Developments" and the County's requirements. Soil profile test results will be submitted with the permit application.

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Table 7.14-1
Upper Coachella Valley Groundwater Basin Characteristics

	Garnet Hill Subbasin[2]	Mission Creek Subbasin[3]	Upper Whitewater Subbasin[4]	Upper Desert Hot Springs Subbasin[5]
Subbasin Area	16 square miles	76 square miles	250 square miles	50 square miles (approximate)
Average Aquifer Inflow	5,500 afy	9,910 afy[6]	369,520 afy[6]	NA
Average Aquifer Outflow	5,500 afy	14,060 afy[6]	426,400 afy[6]	NA
Transmissivity[1]	10,000 to 50,000 gpd/ft	2,000 to 200,000 gpd/ft	50,000 to 360,000 gpd/ft	2,000 to 30,000 gpd/ft
Storage Coefficient[1]	0.15 to 0.18	0.08 to 0.18	0.06 to 0.15	0.08
Groundwater Storage Capacity	1 million acre-feet	2.6 million acre-feet	6.4 million acre-feet	2.5 million acre-feet
Groundwater in Storage	1 million acre-feet	1.4 million acre-feet	2.3 million acre-feet	0.8 million acre-feet

Sources: DWR (2004), RWQCB (2004), Tyley (1974), MWH, 2005.

Notes:

1. Transmissivity and storage coefficient values are from Tyley, 1974.
2. Storage capacity for the Garnet Hill Subbasin is from MWH, 2005. For purposes of this illustration and since this subbasin has never been considered to be in overdraft, the amount of groundwater in storage is assumed to be the same as the storage capacity.
3. Per DWR (2004), total theoretical storage capacity of the Mission Creek subbasin is approximately 2.6 million acre-feet and is based on 1,000 feet of saturated thickness. The estimated amount of groundwater in storage in 2000 was estimated to be approximately 1.4 million acre-feet (DWR, 2004).
4. Storage capacity for the Upper Whitewater River subbasin is from MWH, 2005 (includes Palm Springs and Thousand Palms subareas) and is based on 1,000 feet of saturated thickness. For purposes of illustration, the estimated amount of groundwater in storage is based on pro-rating Tyley's 1974 estimate of 10.2 million acre-feet for the entire Whitewater River Subbasin which has a total estimated theoretical storage capacity of 28.8 acre-feet (i.e., 2.3 = 6.4 x (10.2/28.8).
5. Per DWR (2004), the total area of the Desert Hot Springs Subbasin is 158 square miles. For purposes of this summary, it is assumed that approximately 50 square miles of the subbasin (based on information from Tyley, 1974) is within the upper Coachella Valley. Tyley (1974) estimated the amount of storage in the upper Desert Hot Springs subbasin to be 779,000 acre-feet based on a saturated depth of 300 feet and a storage coefficient of 0.08. In comparison, DWR (2004) estimated the total theoretical storage capacity of the entire Desert Hot Springs subbasin to be approximately 4.1 million acre-feet.
6. Average aquifer inflow and outflow for the Mission Creek and Whitewater Subbasins are 10-year averages (1995-2004) (MWH, 2005). Inflow includes recharge from local mountains, returns from use of applied water, artificial recharge, and inflows from adjacent subbasins. Outflow includes pumping, drain flows, evapotranspiration, and outflows to adjacent subbasins.

NA = not available

gpd/ft = gallons per day per foot

Table 7.14-2
Water Quality in the Upper Coachella Valley

Component	Units	Regulatory Level	Onsite Groundwater Well [1]		Coachella Valley Groundwater[6]	CVWD Cove Communities Groundwater[7]	CVWD Indio Hills & Desert Hot Springs Groundwater[8]	MSWD Desert Hot Springs Area Groundwater[9]	MSWD West Palm Springs Village Groundwater[9]	DWA Groundwater[10]	DWA Surface Water[10]	Colorado River Water[11]	Whitewater River at Whitewater, CA[12]
		California MCL 2	Nov 06 [3]	Mar 07 [4]									
Aluminum	ug/L	1,000	NA	<100	ND to 300	—	—	—	—	—	ND to 210	29	
Ammonia-N	mg/L	—	NA	<0.10	—	—	—	—	—	—	—	ND	ND to 0.05
Antimony	ug/L	6	0.34	<10	ND to 3	—	—	—	—	—	—	ND	
Arsenic	ug/L	50	2.3	<5.0	0.3 to 100	ND to 5.0	ND	—	—	—	—	2.7	ND to 2
Barium	ug/L	1,000	8.6	12	ND to 100	—	—	—	—	ND to 220	—	97	ND
Beryllium	ug/L	4	<1.0	<2.0	ND to 0.5	—	—	—	—	—	—	ND	
Bicarbonate Alkalinity	mg/L	—	103	110	ND to 50	—	—	—	—	120 to 220	55 to 140	160	137 to 240
Biochemical Oxygen Demand	mg/L	—	NA	<5.0	—	—	—	—	—	—	—	—	—
Cadmium	ug/L	5	NA	<5.0	ND to 0.68	—	—	—	—	—	—	0.062	ND
Calcium	mg/L	—	9.63	9.8	0.3 to 2,310	—	—	—	—	29 to 110	11 to 34	76	31 to 63
Carbonate Alkalinity	mg/L	—	2.3	<4	ND to 280	—	—	—	—	—	—	0.3	ND to 19
Chemical Oxygen Demand	mg/L	—	NA	<10	—	—	—	—	—	—	—	—	—
Chloride	mg/L	(500)	26.5	27	0.6 to 9,600	6.6 to 47	13 to 21	13 to 28	8 to 16	9.3 to 68	5.90 to 6.70	83	2 to 26
Chromium	ug/L	50	0.91	<5.0	0.7 to 22	ND to 19	13 to 18	ND to 17	ND	—	—	0.42	—
Cobalt	ug/L	—	<1.0	<5.0	—	—	—	—	—	—	—	—	—
Copper	ug/L	1,000	0.85	<5.0	ND to 50	ND to 0.08	ND	—	—	—	—	ND	ND
Fluoride	mg/L	2	NA	0.57	0.01 to 8.6	0.2 to 1.0	0.5 to 0.8	0.46 to 0.81	0.37 to 1.2	0.11 to 0.7	ND to 0.12	0.31	—
Hardness, as CaCO3	mg/L	—	29.7	110	0.8 to 6,430	22 to 310	120 to 200	100 to 260	160 to 200	80 to 340	30 to 92	308	110 to 230
Hydroxide Alkalinity	mg/L	—	<4	<4	—	—	—	—	—	—	—	—	—
Iron	ug/L	(300)	<50	<100	ND to 280	ND to 110	ND	—	—	ND to 240	ND to 330	ND	3 to 2400
Lead	ug/L	15	0.21	<3.0	ND to 15	—	—	—	—	—	—	ND	ND
Magnesium	mg/L	—	1.38	1.7	ND to 213	—	—	—	—	0 to 21	1.1 to 3.5	29	6 to 17
Manganese	ug/L	(50)	NA	<5.0	ND to 50	—	—	—	—	—	—	0.12	ND to 4.3
Mercury	ug/L	2	<0.20	<0.20	ND to 1	—	—	—	—	—	—	ND	—
Molybdenum	ug/L	—	7.3	8.8	—	—	—	—	—	—	—	—	—
Nickel	ug/L	100	<2.0	<5.0	ND to 5	—	—	—	—	—	—	1.9	—
Nitrate as N	mg/L	45	0.73	0.87	ND to 145	ND to 32	ND to 6.2	ND to 5.9	3.4 to 26	2.6 to 22	ND to 2.4	0.2	ND to 0.9
Nitrite as N	mg/L	1	<0.1	<0.05	—	—	—	—	—	—	—	ND	—
Oil & Grease	mg/L	—	NA	<4.75	—	—	—	—	—	—	—	—	—
Orthophosphate as P	mg/L	—	NA	0.033	—	—	—	—	—	—	—	—	ND to 0.04
Perchlorate	ug/L	—	NA	<4	—	—	—	—	—	—	ND to 6.6	5 to 9	—
pH	SU	(6.5 to 8.5)	8.3	7.8	—	7.2 to 8.3	7.7 to 8.0	—	—	7.3 to 7.8	7.4	8.3	7.9 to 8.6
Phosphorous	mg/L	—	NA	<0.03	—	—	—	—	—	—	—	—	—
Potassium	mg/L	—	NA	4	0.3 to 56	—	—	—	—	2.3 to 6	1.5 to 5.3	4.1	3 to 6
Selenium	ug/L	10	1.3	<10	ND to 11	—	—	—	—	—	—	ND	—
Silica	mg/L	—	NA	11	—	—	—	—	—	—	—	—	9.8 to 17
Silver	ug/L	(100)	<1.0	<5.0	ND to 5	—	—	—	—	—	—	ND	ND
Sodium	mg/L	—	51.2	54	17 to 3,900	6.1 to 56	58 to 81	49 to 75	18 to 26	19 to 63	5.7 to 14	95	8 to 36

Table 7.14-2
Water Quality in the Upper Coachella Valley

Component	Units	Regulatory Level	Onsite Groundwater Well [1]		Coachella Valley Groundwater[6]	CVWD Cove Communities Groundwater[7]	CVWD Indio Hills & Desert Hot Springs Groundwater[8]	MSWD Desert Hot Springs Area Groundwater[9]	MSWD West Palm Springs Village Groundwater[9]	DWA Groundwater[10]	DWA Surface Water[10]	Colorado River Water[11]	Whitewater River at Whitewater, CA[12]
		California MCL 2	Nov 06 [3]	Mar 07 [4]									
Specific Conductance	umhos/cm	(1,600)	311	300	—	230 to 730	580 to 750	ND to 780	380 to 420	260 to 870	84 to 230	1,012	—
Strontium [5]	mg/L	—	NA	0.115	—	—	—	—	—	—	—	—	—
Sulfate	mg/L	(500)	7.9	8.3	0.3 to 1,980	13 to 160	150 to 210	70 to 220	17 to 20	22 to 220	8.2 to 14	258	17 to 95
Sulfide	mg/L	—	NA	<0.04	—	—	—	—	—	—	—	—	—
Thallium	ug/L	2	<1.0	<10	ND to 0.8	—	—	—	—	—	—	ND	—
Total Alkalinity as CaCO3	mg/L	—	106	110	—	—	—	—	—	100 to 180	45 to 110	132	—
Total Dissolved Solids	mg/L	(1,000)	193	150	111 to 19,500	140 to 480	370 to 480	240 to 530	230 to 320	170 to 580	68 to 140	637	—
Total Organic Carbon	mg/L	—	NA	<0.50	—	—	—	—	—	—	—	3	—
Total Suspended Solids	mg/L	—	<10	<5	—	—	—	—	—	—	—	—	—
Uranium	pCi/L	20	—	-	-	ND to 12	ND to 11	2 to 24	2 to 5.5	ND to 21.48	ND to 6.75	4	—
Vanadium	ug/L	—	38.3	38	—	ND to 39	5.8 to 24	—	—	ND to 19	—	—	—
Zinc	ug/L	(5,000)	44.3 & 49.5	70	ND to 50	—	—	—	—	—	—	ND	ND

NA = not analyzed

"-" = not available

Notes

1. "<" indicates result was less than the indicated reporting limit.
2. California Maximum Contaminant Level as of September 12, 2003. Values in parenthesis are secondary standards.
3. Samples collected on November 13 and 14, 2006. Results by Severn Trent Laboratories, Inc., November 24 and 30, 2006.
4. Samples collected on March 29, 2007. Results by Curtis & Tompkins Laboratories, Inc., April 2007 – Preliminary.
5. Strontium analysis by Calscience Environmental Laboratories, Inc., March 31, 2007.
6. Coachella Valley groundwater quality for wells throughout the valley for the period 1996 to 2004 (MWH, 2005) Note that higher values typically are found in Lower Coachella Valley wells.
7. Includes wells in Rancho Mirage, Thousand Palms, Palm Desert, Indian Wells, La Quinta, and portions of Bermuda Dunes, Cathedral City and Riverside County in 2005 (CVWD, 2006).
8. CVWD wells in Indio Hill, Sky Valley, and areas around Desert Hot Springs (CVWD, 2006).
9. MSWD water quality for Desert Hot Springs area and West Palm Springs Village/Palm Springs Crest in 2005 (MSWD, 2006).
10. Water quality for DWA groundwater and surface water in 2004 (DWA, 2005).
11. Colorado River water is used by CVWD, MSWD, and DWA to recharge groundwater Values represent average results for Colorado River at Lake Havasu (Parker Dam) for 1990 TO 1999.
12. Surface water quality for the Whitewater River at Whitewater, CA, USGS gaging station 10256000 Period of record is from November 1966 through March 2005 (USGS, 2007).

Table 7.14-3
Mean Monthly Streamflow
(cfs)

Month	Mission Creek near Desert Hot Springs	Whitewater River at Windy Point near Whitewater	Whitewater at Rancho Mirage
January	3.1	88	34
February	7.3	96	5.9
March	5.9	117	4.5
April	4.8	129	0.02
May	3.9	116	0.08
June	2.5	133	0.01
July	1.7	83	0.03
August	1.3	97	0.09
September	0.92	113	0.12
October	0.84	119	0.42
November	1.1	138	0.10
December	1.1	97	0.37

Notes:

1. Streamflow data for USGS Gaging Station No. 10257600 –Mission Creek near Desert Hot Springs, California, are available for October 1967 through December 2004 and October 2005 through December 2006. Drainage area above the gaging station is 35.6 square miles.
2. Streamflow data for USGS Gaging Station No. 10257550 – Whitewater River at Windy Point near Whitewater, California are available for October 1984 through September 1987, October 1988 through September 1989, and October 1989 through September 2006. Drainage area above the gaging station is 264 square miles.
3. Streamflow data for USGS Gaging Station No. 10259100 – Whitewater River at Rancho Mirage, California are available for April 1989 through September 2006. Drainage area above the gaging station is 558 square miles.
4. Mean Monthly Streamflow data from: *http://water.usgs.gov/ca/nwis.1.*

cfs = cubic feet per second

Table 7.14-4
Monthly Temperature Data (°F) for Palm Springs, California

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	69.6	73.6	79.4	86.9	99.4	103.1	108.3	106.9	101.8	91.6	78.7	70.1
Mean	55.6	59.4	64.0	70.4	77.3	85.0	91.60	90.6	84.9	75.4	63.8	56.0
Min	42.1	45.3	48.6	54.0	60.2	66.7	74.8	74.2	67.8	59.2	48.8	42.1

Notes:

These data represent the period of record (1/1/1927-12/31/2005) (WRCC, 2007).

Values are in degrees Fahrenheit.

Table 7.14-5
Average Monthly Precipitation and Evapotranspiration in Coachella Valley

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Precip	1.14	1.02	0.59	0.17	0.05	0.06	0.20	0.30	0.34	0.26	0.47	0.93
ETo	2.48	3.36	5.27	6.90	8.68	9.60	9.61	8.68	6.97	4.96	3.00	2.17

Sources: Western Regional Climate Center, 2007 and MWH, 2005

Values are in inches.

ETo = average evapotranspiration for Zone 18 – Low Desert Valleys from CIMIS, 1999 (MWH, 2005)

Table 7.14-6
Water Supply and Demand in the Upper Coachella Valley

	Coachella Valley Water District	Mission Springs Water District	Desert Water Agency
Service Area	995 square miles	135 square miles	325 square miles
Primary Source of Water	Whitewater River subbasin	Mission Creek Subbasin	Whitewater River Subbasin
Average Annual Water Demand	224,200 afy (Upper Valley) in 1999 352,300 afy in 2035	9,100 afy in 2005 30,600 afy in 2035[1]	45,000 afy in 1990 84,000 afy in 2020

Sources: MWH, 2002; MWH, 2005; URS, 2005

[1] MSWD high-growth scenario

afy = acre-feet per year

Table 7.14-7
Daily and Annual Average Water Consumption Requirements

Stream Name	Average Flow[1] (gpm)	Maximum Flow[2] (gpm)	Maximum Annual Usage[3] (acre ft/year)
Plant Water Usage:			
CTG Inlet Air Cooling System	41	237.6	67
CTG NO_X Injection	151	443.2	244
Miscellaneous DM users	0	0.5	0
CTG Cooler Evaporation	469	1546	756
Cooling Tower Drift	0.1	0.3	0.2
Cooling Tower Blowdown	85	262	137
Service Water	0.3	1.0	0.5
Recovered Water:			
Recovered Water from Intercooler	15	138	24
Recovered Water from RO	79	242.8	127
Recovered Water from Crystallizer	6	19	10
Recovered Water from Inlet Air Cooling System	5	31.2	8
Total Plant Water Usage Requirements	**641**	**2,059**	**1,100**
Potable Water/Sanitary Waste	1	4	2

Notes:
1 Average annual usage based on average summer operating condition at 32.5% capacity factor.
2 Maximum daily usage based on a peak ambient summer day (120°F, 12.7 percent RH).
3 Maximum annual usage based on maximum permitted annual hours of operation However, the plant is expected to be dispatched, on a lifetime average basis, approximately half of the maximum annual permitted capacity Therefore, the long-term average annual water usage is estimated to be 550 afy.

CTG = combined turbine generator
DM =
gpm = gallons per minute
NO_x = oxides of nitrogen
RO = reverse osmosis

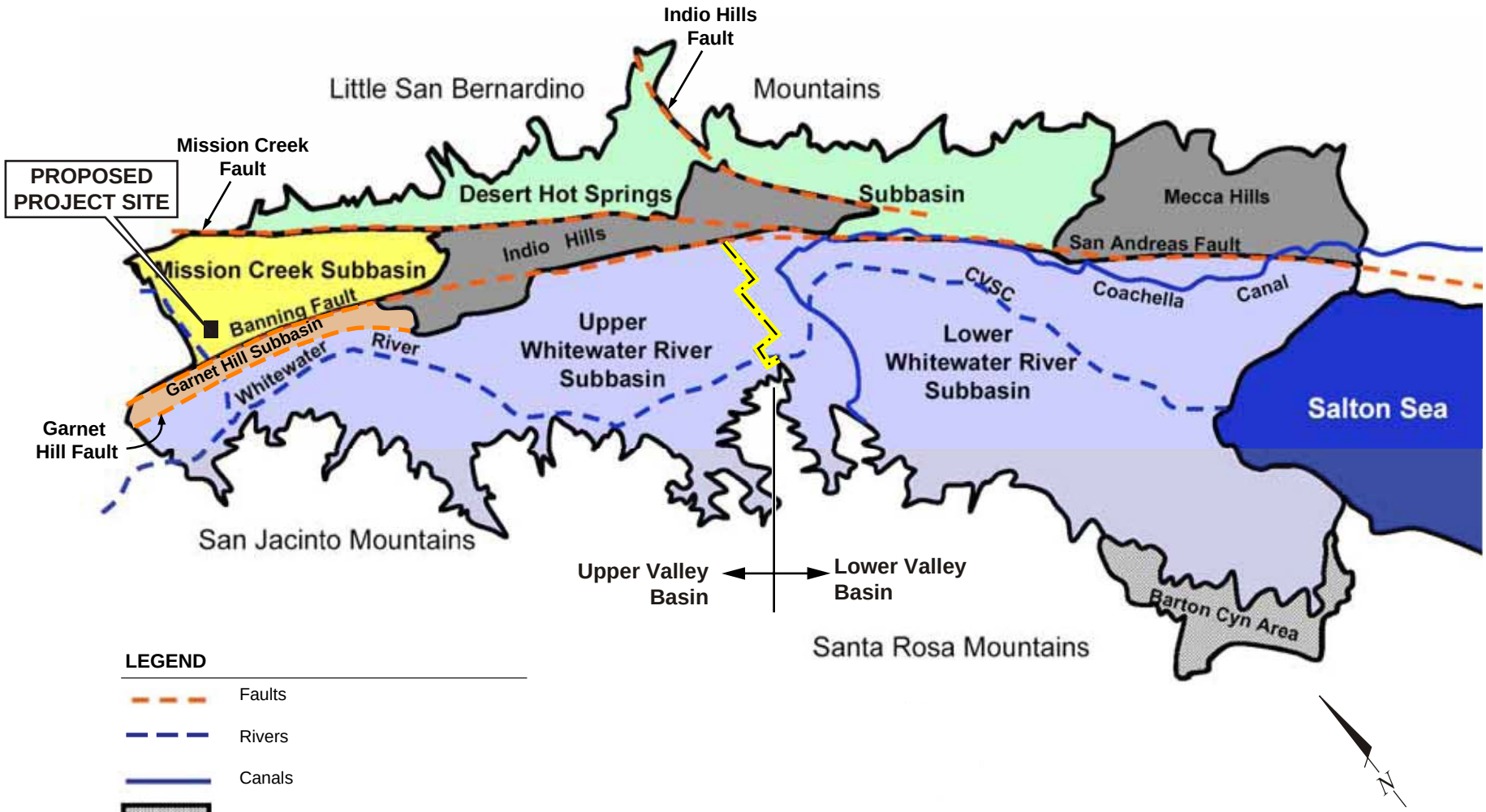
Table 7.14-8
Laws, Ordinances, Regulations, and Standards

Laws, Ordinances, Regulations, and Standards	Administering Agency	Applicability	AFC Section
Federal			
CWA	RWQCB	Regulates discharges of wastewater and stormwater to protect nation's waters. Applies to wastewater discharged to septic leach field and stormwater runoff.	Discharges of wastewater subject to WDR permit and stormwater subject to NPDES permits (Sections 7.14.2.1 and 7.14.2.2). Permits to be obtained through SWRCB.
RCRA	RWQCB	Controls storage, treatment, disposal of hazardous waste.	Hazardous waste will be handled and stored in conformance with Subtitle C. Section 7.13.4.
CERCLA	RWQCB	Places responsibility for releases of hazardous materials into the environment.	Obtain waste generator number and waste discharge/disposal permits as appropriate.
State			
SWRCB Water Quality Orders	RWQCB	Regulates industrial stormwater discharges during construction and operation of the facility.	Part of federal NPDES permit requirements. Compliance monitored by RWQCB. Section 7.14.2.2 and 7.14.7.
Porter-Cologne Water Quality Control Act	RWQCB	Controls discharge of wastewater to the surface and groundwaters of the state. Applies to wastewater discharged to septic leach field.	Discharge will be in accordance with CWA/Porter-Cologne NPDES/WDR permit. Section 7.14.5.2 and 7.14.7
Safe Drinking Water & Toxic Enforcement Act	RWQCB	Proposition 65 prohibits certain discharges to drinking water sources.	Part of federal NPDES permit requirements. Compliance monitored by RWQCB.
California Water Code Section 461 & SWRCB Resolution 77-1	RWQCB	Encourages conservation of water resources.	Effective practices for water conservation and reuse were engineered into the facility design. Section 7.14.
Local			
General Plan	Riverside County	Address issues such as drainage, erosion control, hazardous material spill control, facility siting in flood zones, and stormwater discharge.	Project will comply with the General Plan of Riverside County. Sections 7.14.2, 7.14.4, and 7.14.7.

Table 7.14-8
Laws, Ordinances, Regulations, and Standards

Laws, Ordinances, Regulations, and Standards	Administering Agency	Applicability	AFC Section
General Plan	City of Palm Springs	Address issues such as drainage, erosion control, hazardous material spill control, facility siting in flood zones, and stormwater discharge.	Project will comply with the General Plan of Palm Springs. Sections 7.14.2 and 7.14.4.
Riverside County Ordinance 458.12	Riverside County	Regulates development within flood hazard zones.	Project will comply with this ordinance. Section 7.14.2.3.
Riverside County Ordinance 592.1	Riverside County	Regulates sewer systems.	Project will comply with this ordinance. Section 7.14.1.5 and 7.14.7.
Riverside County Ordinance 682.2	Riverside County	Regulates water well construction.	Project will comply with this ordinance. Section 7.14.7.
Riverside County Ordinance 754.2	Riverside County	Regulates storm water discharges.	Project will comply with this ordinance. Section 7.14.2.2 and 7.14.7.

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
RWQCB = Colorado River Basin Regional Water Quality Control Board
CWA = Clean Water Act
NPDES = National Pollutant Discharge Elimination System
RWQCB = Regional Water Quality Control Board
SWRCB = State Water Resources Control Board
WDR = Waste Discharge Requirements



LEGEND

- Faults
- Rivers
- Canals
- Semi-Waterbearing Rocks
- Division Between Upper and Lower Valley Basins

Source:
MWH, 2005; Tyley, 1974.

COACHELLA VALLEY SUBBASINS

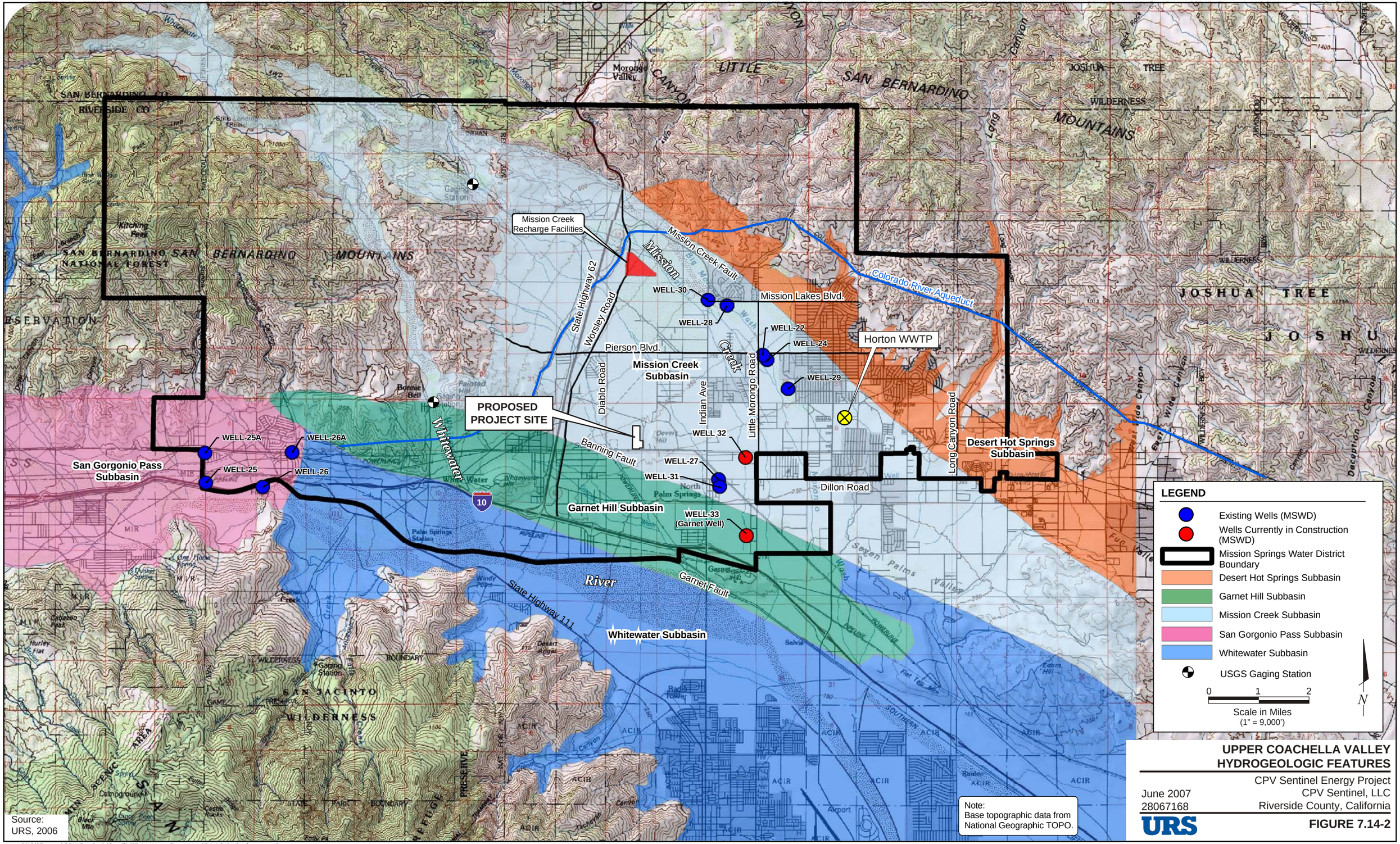
CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

June 2007
28067168

URS

FIGURE 7.14-1

6/20/07 vsa ..\CPV Sentinel (Ocotillo)\7.14 Water Resources\7.14-1_coachella subbasins.ai



UPPER COACHELLA VALLEY HYDROGEOLOGIC FEATURES

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

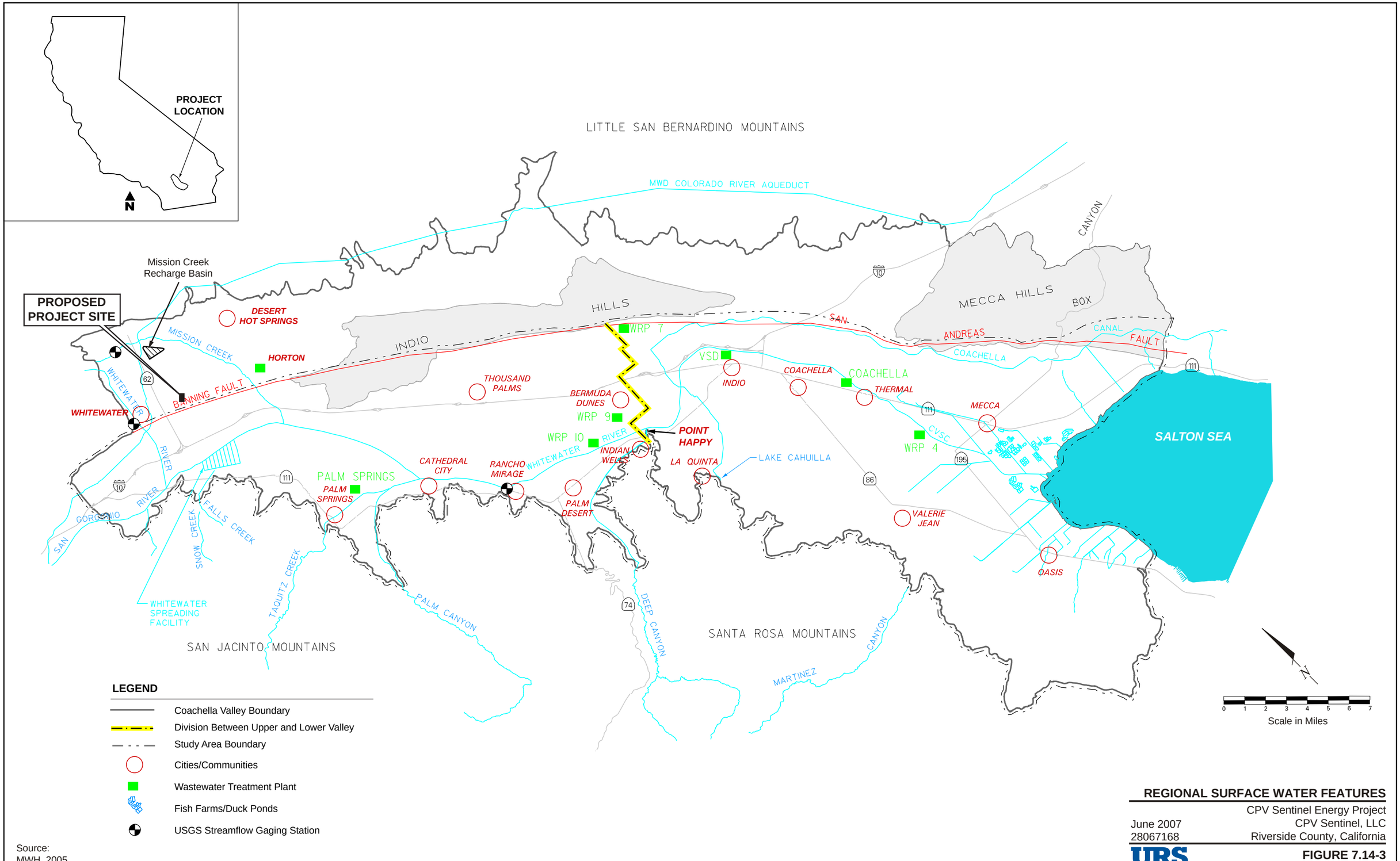
June 2007
28067168

URS

FIGURE 7.14-2

P:\Mission_Springs_Water_District\GIS\Plots\Groundwater_Sub-Basin.pdf

6/18/07 vsa ..\CPV Sentinel (Ocotillo)\7.14 Water Resources\7.14-2_hydro features.ai



Source:
MWH, 2005

REGIONAL SURFACE WATER FEATURES

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

June 2007
28067168

URS

FIGURE 7.14-3

6/18/07 vsa ..\CPV Sentinel (Ocotillo)\7.14 Water Resources\7.14-3_sfc water.ai

PROPOSED PROJECT SITE

ZONE C

Proposed Transmission Line

Construction Laydown Area

Proposed Access Road/ Water Line/Gas Transmission

Gas Transmission Corridor

ZONE AO
(DEPTH 1)
(VELOCITY 4 FS)

ZONE B

ZONE A

DIABLO RD.

WORSLEY ROAD

16TH AVENUE

BARREL CACTUS RD

DILLON RD.

DILLON RD

14TH AVE

HARVEST MOON RD.

INDIAN AVE

LOUISE ST

RM93

COVEY ST

THUMB DR

TEAGARDEN DR

FALLHAM ROAD

KEITH STREET

Palm Springs

Garnet Wash

INDIAN Wash

SOUTHERN PACIFIC

LIMIT OF STUDY

62

10

Source:
FEMA FIRM Map, 0602450900D, 1996

LEGEND

ZONE A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
ZONE AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet.
ZONE B	Areas between limits of the 100-year and 500-year flood, or certain areas subject to 100-year flooding with average depths of less than one (1) foot
ZONE C	Areas of minimal flooding (no shading)

N

0 2000 4000

Scale in Feet
1:24,000

FLOODPLAINS

June 2007
28067168

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

URS

FIGURE 7.14-4

6/20/07 vsa ..\CPV Sentinel (Ocotillo)\7.14 Water Resources\7.14-4_floodplain.cdr