

6.17 WATER RESOURCES

This section presents a discussion of the existing water resources, potential environmental impacts and proposed mitigation measures with respect to proposed VV2 Project activities related to water resources. It includes a discussion of direct and indirect impacts that would occur on the VV2 Project site and in areas near the Project site and its linear corridors.

6.17.1 LORS Compliance

Table 6.17-1 presents a summary of the water resources-related Laws, Ordinances, Regulations and Standards (LORS) that are applicable or potentially applicable to the proposed VV2 Project.

Table 6.17-1
LORS Applicable to Water Resources

LORS	Applicability	Where Discussed in AFC
Federal:		
Clean Water Act of 1977 (including 1987 amendments) Section 402, 33 United States Code (USC) Section 1342, 40 Code of Federal Regulations (CFR) Parts 112, 122 – 136	The Clean Water Act (CWA) authorizes the U.S. Environmental Protection Agency (EPA) to regulate discharges of wastewater and storm water into surface waters by using National Pollutant Discharge Elimination System (NPDES) permits. Spill prevention control and countermeasure plans are required for facilities storing petroleum products at quantities above the regulatory threshold.	Sections 6.17.1 and 6.17.3
State:		
The California Porter-Cologne Water Quality Control Act 1998; California Water Code Section 13000 - 14957; Division 7, Water Quality	Authorizes the State to develop and implement a statewide program to control the quality of all waters of the State.	Sections 6.17.1 and 6.17.3
The California Porter-Cologne Water Quality Control Act of 1972, California Water Code Section 13260 - 13269; 23 CCR Chapter 9	Requires adequate protection of water quality by appropriate design, sizing and construction of erosion and sediment controls.	Sections 6.17.1 and 6.17.3

Table 6.17-1
LORS Applicable to Water Resources

LORS	Applicability	Where Discussed in AFC
CA Water Code Section 461; CA Constitution, Article 10 Section 2	Prohibits the waste or unreasonable use of water, regulates the method of use and method of diversion of water and requires all water users to conserve and reuse available water supplies to the maximum extent possible.	Sections 6.17.1 and 6.17.3
CA Water Code Section 13523; 22 CCR Section 60323	Provides requirements for users and/or producers of recycled water.	Sections 6.17.1 and 6.17.3
State Water Resources Control Board, Resolution 75-58	Prescribes State water quality control policy on the use and disposal of inland water used for power plant cooling.	Sections 6.17.1 and 6.17.3
California Public Resources Code Section 25523(a), 20 CCR Sections 1752, 1752.5, 2300 – 2309, and Chapter 2 Subchapter 5. Article 1, Appendix B, Part (1)	Provides for the inclusion of requirements in the California Energy Commission's (CEC's) decision on an Application for Certification (AFC) to assure protection of environmental quality and requires submission of information to the CEC concerning proposed water resources and water quality protection.	Sections 6.17.1 and 6.17.3
California Water Code Section 13571	Requires well completion report to be filed with the State for well construction, alternation, or destruction.	Sections 6.17.1 and 6.17.3
California Code of Regulations, Title 22 Sections 64400.80 through 64445	Requires periodic monitoring of water quality for potable water wells (non-transient, non-community water systems).	Sections 6.17.1 and 6.17.3.
Local:		
VWVRA, Wastewater Ordinance Article 08	Discharge limits of the Victor Valley Water Reclamation Authority (VWVRA).	Sections 6.17.1 and 6.17.3
Victor Valley Water District conditions relating to pumping groundwater	Conditions relating to groundwater pumping in the area.	Section 6.17.1

**Table 6.17-1
LORS Applicable to Water Resources**

LORS	Applicability	Where Discussed in AFC
San Bernardino County Code Title 3, Div. 3, Ch.6 Domestic Water Sources and Systems	Provides for monitoring and enforcement of all applicable laws and orders for public water supply systems with less than two hundred (200) service connections within San Bernardino County.	Section 6.17.1.

6.17.1.1 Federal LORS

This section describes in detail the Federal LORS potentially applicable to the proposed Project.

Clean Water Act of 1977 (including 1987 amendments) Section 402, 33 USC Section 1342; 40 CFR Parts 112, 122 – 136. The primary objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation’s surface waters. Pollutants regulated under the CWA include “priority” pollutants, including various toxic pollutants; “conventional” pollutants, such as biochemical oxygen demand, total suspended solids, oil and grease, and pH; and “non-conventional” pollutants, including any pollutant not identified as either conventional or priority.

The CWA regulates both direct and indirect discharges. The National Pollutant Discharge Elimination System (NPDES) Program (CWA §502) controls direct discharges into waters of the United States. NPDES permits contain industry-specific, technology-based limits and may also include additional water quality-based limits, and establish pollutant-monitoring requirements. A NPDES permit may also include discharge limits based on Federal or State water quality criteria or standards. In 1987, the CWA was amended to include a program to address storm water discharges for industrial and construction activities.

Facilities with the potential to impact Waters of the U.S. with releases of oil are required to develop and implement a Spill Prevention Control and Countermeasure (SPCC) Plan. The Plan must describe both spill prevention and response measures. Secondary containment is required for all oil storage containers with a capacity of 55-gallons or more. Secondary containment is also required for oil-filled equipment. The SPCC Plan must be certified by a Professional Engineer.

The administering agencies for the Federal LORS are the State Water Resources Control Board (SWRCB), the Lahontan Regional Water Quality Control Board (LRWQCB), and EPA, Region IX. The VV2 Project will comply with the applicable Federal LORS related to water use and quality.

6.17.1.2 State

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the State Water Resources Control Board and the nine Regional Water Quality Control Boards to adopt water quality criteria to protect State waters. Those criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. Water quality criteria for the proposed project area are contained in the Water Quality Control Plan for the Lahontan Region (Basin Plan) which was adopted in 1994 and is in the process of being amended. This plan sets numerical and/or narrative water quality standards controlling the discharge of wastes to the State's waters and land.

State Construction Storm Water Program. Construction activities that disturb more than one acre are required to obtain coverage under California's General Permit for Discharges of Storm Water Associated with Construction Activity, Water Quality Order 99-08-DWQ (Construction General Permit). Activities subject to permitting include clearing, grading, stockpiling, and excavation.

For coverage under the Construction General Permit, a Notice of Intent (NOI) must be submitted to the State Water Resources Control Board (SWRCB) prior to the start of construction activities. A NOI receipt letter is mailed to the applicant within two weeks of receipt of a complete NOI, thus certifying coverage under the Construction General Permit. For the proposed VV2 Project, the provisions of the General Construction Permit will be implemented by the Lahontan Regional Water Quality Control Board (RWQCB).

The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will reduce or prevent construction pollutants from leaving the site in storm water runoff and will also minimize erosion associated with the construction project. The SWPPP must contain site map(s) that show the construction site perimeter; existing and proposed structures and roadways; storm water collection and discharge points, general topography both before and after construction; and drainage patterns across the site. Additionally, the SWPPP must describe the monitoring program to be implemented.

Following completion of construction activities, a Notice of Termination must be completed and submitted to the SWRCB.

State Industrial Storm Water Program. Industrial activities with the potential to impact storm water discharges are required to obtain a NPDES permit for those discharges. In California, an Industrial Storm Water General Permit, Order 97-03-DWQ (Industrial General permit) may be issued to regulate discharges associated with ten broad categories of industrial activities, including electrical power generating facilities. The General Industrial Permit requires the implementation of management measures that will protect water quality. In addition, the discharger must develop and implement a SWPPP and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce storm water pollution described. The monitoring plan requires sampling of storm water discharges during the wet season and visual inspections during the dry season. A report must be submitted each year by July 1 documenting the status of the program and monitoring results.

California Water Code. Section 13552.8 of the California Water Code states that use of potable water for cooling if suitable reclaimed water is available is an unreasonable use of the potable water. The availability of reclaimed water is determined by the SWRCB based on criteria presented in Section 13550. Those criteria include provisions that the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and will not impact downstream users or biological resources. Section 13260 et seq. requires adequate protection of water quality by appropriate design, sizing and construction of erosion and sediment controls. Section 13523 and 22 CCR Section 60323 provides the authority by which the RWQCB can prescribe water recycling requirements for users and/or producers of recycled water following consultation with the California Department of Health Services. Title 22 of the California Code of Regulations requires the submittal of an Engineering Report for proposed wastewater reuse activities, including those associated with using recycled water for cooling activities.

California Department of Resources Conservation. 1978. *Erosion and Sediment Control Handbook.* Provides procedures by which physical and climatic data and erosion control practices can be considered in making an assessment of a site for determining the need for an erosion control plan and for preparing an erosion control plan.

California Water Code §461; California Constitution, Article 10 Section 2. Prohibits the waste or unreasonable use of water, regulates the method of use and method of diversion of water and requires all water users to conserve and reuse available water supplies to the maximum extent possible.

State Water Resources Control Board, Resolution 75-58. On June 19, 1975, the SWRCB adopted the Water Quality Control Policy on the Use and Disposal of Inland Waters used for Power Plant Cooling. The purpose of the policy is to provide consistent statewide water quality principles and guidance for adoption of discharge requirements, and implementation actions for power plants that depend on inland waters for cooling.

California Public Resources Code Section 25523(a), 20 CCR Sections 1752, 1752.5, 2300 – 2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1). The Public Resources Code provides for the inclusion of requirements in the CEC's decision on an AFC to assure protection of environmental quality and requires submission of information to the CEC concerning proposed water resources and water quality protection.

State Policy (SWRCB Resolutions 75-88, 77-1) encourages the use of wastewater for power plant cooling and sets the following order of preference for cooling purposes: 1) wastewater being discharged to the ocean; 2) ocean water; 3) brackish water or irrigation return flows; 4) inland waste waters of low total dissolved solids (TDS); and 5) other inland waters. The criteria for the selection of water delivery options involves economic feasibility (e.g., the power plant cooling system must be cost-effective to the project); engineering constraints, such as cooling water composition and temperature; and environmental considerations such as impacts on riparian habitat, groundwater levels and surface and subsurface water quality.

California Water Code Section 13571 requires that anyone who constructs, alters, or destroys a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well, file a well completion report with the Department of Water Resources.

California Code of Regulations Title 22, Article 3, Water Wells, Sections 64400.80 through 64445 requires monitoring for potable water wells, defined as non-transient, non-community water systems (serving 25 people or more for more than six months); the Project will employ 36 workers during operations. Regulated wells must be sample for bacteriological quality once a month, and the results submitted to the State Department of Health Services (DHS). If no exceedances were found in the prior 12 months, the well operator may request a reduction in monitoring frequency to once a quarter. 22 CCR 64421-64423.1. The well must also be monitored for inorganic chemicals annually and organic chemicals quarterly. The operator may apply for a monitoring waiver for organic chemicals if it can be documented that the chemical has not been previously used, manufactured, transported, stored, or disposed of within the watershed or zone of influence and, therefore, that the source can be designated nonvulnerable. If previous use of the chemical locally is unknown or the chemical is known to have been used previously and

the source cannot be designated nonvulnerable, the operator may still be eligible for a waiver based on a review related to susceptibility to contamination.

The administering agencies for the State LORS are the CEC, the State Water Resources Control Board, and the Lahontan Regional Water Quality Control Board. The VV2 Project will comply with the applicable State LORS related to water use and quality.

6.17.1.3 Local

The Project will be required to obtain permits and comply with the discharge limits of the VVWRA Sewer Use Ordinance Article 08. The Project also will be required to submit engineered plans for the water supply system, obtain necessary well permits, and obtain an annual operation permit from the San Bernardino County Department of Environmental Health, Division of Environmental Health Services. Well permits must be submitted by a C-57 licensed driller. In addition, the Project will be required to comply with Victor Valley Water District requirements that relate to groundwater pumping.

6.17.1.4 Involved Agencies and Agency Contacts

Agencies and agency contacts relative to water resources for the VV2 Project are provided in Table 6.17-2.

Agency	Contact	Permit/Issue
Victor Valley Wastewater Reclamation Authority 20111 Shay Road, Victorville, CA	Marce Delaney Pretreatment and Regulatory Compliance Supervisor (760) 246-8638	Wastewater recycling and sanitary wastewater discharge issues
Lahontan Regional Water Quality Control Board, Victorville, CA	Mike Coony Water Resources Control Engineer (760) 241-4942	Storm water and hydrostatic test water discharge permitting
City of Victorville, Public Works Department 14343 Civic Drive, Victorville, CA	Kimberly Cox Senior Management Analyst (760) 955-5038	Backup water supply

Table 6.17-2 Agencies and Agency Contacts		
Agency	Contact	Permit/Issue
San Bernardino County Department of Public Health, Division of Environmental Health Services 385 N. Arrowhead Ave. San Bernardino, CA	Mike Farrell Registered Environmental Health Specialist (909) 387-4666	Potable water well permitting

6.17.1.5 Required Permits and Permit Schedule

Agency-required permits related to water resources are summarized in Table 6.17-3. Agencies will be contacted to obtain the necessary permits at the appropriate time.

**Table 6.17-3
Permits Required and Permit Schedule**

Permit/Approval	Schedule
California General Storm Water Permit for Construction Activities	Submit Notice of Intent at least one month prior to initiating construction activities
California General Storm Water Permit for Industrial Activities	Submit Notice of Intent at least one month prior to startup
California Water Code, Section 13751.	File Well Completion Report with California Department of Water Resources 770 Fairmont Avenue, Suite 102 Glendale, CA 91203 within 60 days of the completion of the work for any wells destroyed or constructed.
San Bernardino County Department of Public Health Well Permit	Submit application for well permit (via C-57 licensed contractor) at least 30 days prior to well installation
San Bernardino County annual well operation permit	Submit application for annual well permit as soon as well system approved by the County
VVWRA sanitary sewer discharge permit	Single-use permit for hydrostatic test water and separate permit for discharges during Project operations phase. Application for permits to be submitted prior to connection/discharge to sanitary sewer

6.17.2 Affected Environment

The VV2 Project site is located in the Mojave Desert. Figure 6.17-1 presents the hydrologic environment of the Project area. Water issues in the Mojave Desert are complex and affect supply, demand, and quality for domestic, commercial, industrial and agricultural use.

6.17.2.1 Precipitation

The VV2 is located in the western Mojave Desert, which exhibits typical California and Nevada high desert meteorological conditions. Typical of these conditions are summer temperatures above 100°F with annual rainfall of less than 8 inches. In the winters, nightly temperatures may drop below freezing in December and January.

While summers may produce an occasional thunderstorm, the wettest season tends to be from January to March, in which high-intensity, short-duration storms produce an annual average rainfall of 5.72 inches. George Air Force Base records from 1942-1992 show precipitation ranges from 0.77 to 11.22 inches annually. A 100-year storm, however, could produce up to 3 inches of precipitation in a 24-hour period. Snowfall in the region may total a few inches per year, although its occurrence is infrequent. The average annual evapotranspiration potential (ET_p) rate, the rate at which water transpires from vegetation, is approximately 82.5 inches, which greatly exceeds annual precipitation.

6.17.2.2 Groundwater Resources

The following subsections discuss the hydrogeology and water quality of the groundwater in the Project vicinity

Regional Hydrogeology. The project area is located in the Alto Subarea of the Mojave River Basin. The boundaries of the Alto Subarea and the two other subareas, Centro and Baja, were defined under a recent adjudication of the Mojave River Basin as within the boundaries of the Mojave Water Agency (MWA). Natural groundwater recharge is derived primarily from percolation of precipitation runoff from the San Bernardino and San Gabriel Mountains located to the southwest of the Basin. Little to no recharge occurs from precipitation in the Victor Valley area due to low precipitation rates and high evapotranspiration rates.

Groundwater flows follow much the same path as the Mojave River, flowing north to northeast. The river is dry throughout much of its over 100-mile length; it has perennial flows for about three miles at its headwaters which begin in the San Bernardino Mountains in the vicinity of Deep Creek and West Fork. The river again surfaces for about seven

miles in Victorville at the Upper and Lower Narrows due to levels of bedrock closer to the surface. At its closest point, the Mojave River is located approximately one-half mile east of the eastern boundary of the VV2 Project site.

In the Victor Valley area, the upper aquifer, (a perched aquifer) extends from depths of 130 to 180 feet below ground surface and flows in a north to northeast direction with an approximate hydraulic gradient of 0.003 ft/ft. This perched aquifer is separated from the lower aquifer by an aquitard, a layer of silt and clay with low permeability. It is the lower aquifer that is considered to be part of the regional aquifer, and which constitutes the primary source of the region's groundwater supply.

The quality of groundwater in the regional aquifer is generally considered suitable for domestic and industrial purposes. The Upper Mojave River Valley Groundwater Basin has water characterized with calcium bicarbonate near the San Bernardino Mountains and near the Mojave River channel (Department of Water Resources 2003). Groundwater near Victorville was found to contain sodium bicarbonate. Total dissolved solids content in the basin are typically less than 500 mg/L but concentrations up to 1,105 mg/L have been found near Apple Valley (Department of Water Resources, 2003).

Plant Site and Vicinity Hydrogeology. The VV2 Project site is located northeast of the SCLA, formerly George Air Force Base (AFB). The site is within the George Groundwater sub-basin which includes an upper perched aquifer and a deeper regional aquifer system (Montgomery-Watson, 1995). According to a George AFB Installation Restoration Program (IRP) report (Montgomery-Watson, 1995), groundwater near the VV2 site may be encountered at approximately 115 feet below ground surface and the regional aquifer is expected to be encountered at depths of 210 to 250 feet below ground surface.

The aquitard separating the perched aquifer from the lower aquifer is thickest (39 feet) in the westernmost portion of the SCLA; however, its average thickness is 25 feet (Montgomery-Watson, 1995). Based on data from the Montgomery-Watson (1995) study, the aquitard has a hydraulic conductivity between 9.0×10^{-9} centimeters per second (cm/sec) and 5.0×10^{-8} cm/sec. Low hydraulic conductivity rates such as these indicate that this layer acts as an effective barrier against vertical groundwater movement. Also, based on core samples taken of the aquitard, “no desiccation cracks, rootholes, faults or other through-going conduits or breaks have been observed” (Montgomery-Watson, 1995).

Portions of the perched aquifer system in the vicinity of the SCLA have been impacted with trichloroethylene (TCE) from leaking underground tanks, pipeline leaks and/or as a result historical military activities. In February 1990, the EPA added George AFB to the Superfund National Priority List. The George AFB IRP was developed to characterize and

quantify contamination in the vicinity of the SCLA (Montgomery-Watson, 1995). Through implementation of the IRP, the TCE plume is being addressed using a pump-and-treat method which employs extraction wells and an air stripper to remove TCE to below drinking water MCL clean-up requirements prior to discharge into percolation ponds for recharge. Data provided by IRP program personnel, based on samples collected from groundwater wells in late 2005, shows that TCE plumes are present in both the upper and lower aquifers (Cox, 2006). An Operable Unit Base Map shows that the northernmost edges of the two TCE plumes closest to the VV2 Project site (areas with TCE concentrations exceeding 5 parts per billion) are located approximately 0.7 mile and approximately 1.0 mile south-southeast of the VV2 site's southern boundary (Cox, 2006).

There are a number of domestic water wells known to exist on the VV2 Project site, and these wells are thought to be in use. However, water quality data are not available for these onsite wells.

6.17.2.3 Surface Water Resources

The following paragraphs address surface water bodies, floodplains, and wetlands issues in the Project vicinity.

Surface Water Bodies. The Mojave River is considered the surface receiving water for the VV2 Project and is located approximately 0.5 mile east of the VV2 Project plant site. The Mojave River normally is dry except during periods of flow after intense storm events. The Mojave River is designated by the Lahontan Regional Water Quality Control Board with beneficial uses including: municipal supply, agricultural use, groundwater recharge, contact and non-contact recreation, commercial and sport fishing use, warm and cold freshwater habitat, and wildlife habitat.

Water quality objectives (also called standards) have been developed by the RWQCB to protect the beneficial uses of the Mojave River and are discussed in the RWQCB's Basin Plan. In the vicinity of the VV2 Project, water quality objectives for the Mojave River include the following: 0.003 milligrams per liter (mg/L) of chlorine, 100 mg/L of chloride, 5 mg/L of nitrate, 100 mg/L of sulfate, 312 mg/L of total dissolved solids, no alteration of temperature, no increasing natural turbidity levels by more than 10 percent, and no alteration of sediment (suspended solids) levels causing a nuisance. The Mojave River is not listed as "impaired" by the State Water Resources Control Board.

The VVWRA treatment facility is located upstream of the Project site and discharges effluent into the Mojave River pursuant to a permit issued by the RWQCB. Surface runoff from the VV2 Project site would be conveyed to small natural channels, which drain to the

Mojave River; runoff from the power block of the plant site will drain first to a dry basin and then to the natural channels, while runoff from the solar field will sheet flow in the direction of the Mojave River. Runoff from the VV2 Project to these channels is expected to occur only in times of heavy storms.

Floodplains. According to the Federal Emergency Management Agency (FEMA) Flood Zone Map 06071C, Community 5805F, Panel 5805, dated March 18, 1996, the western areas of the proposed VV2 Project plant site are inside the 500-year flood zone (Zone X), with the eastern portions of the site identified as “undetermined” (Zone D) with respect to flood zoning (see Figure 6.17-2). The present undeveloped property has sheet drainage/run-off to what are normally dry desert washes. During infrequent large precipitation events (annual rainfall in the area is approximately eight inches), run-off from the site may reach the Mojave River, less than a mile to the east. The existing topographic conditions of the Project site show an average slope of one percent toward the north. Moreover, a ridgeline located in the middle of the site causes the surface runoff to flow to the west or east of the site.

Wetlands. A Wetlands Delineation conducted for the Project (see Section 6.4, Biological Resources and AFC Appendix H) identified no jurisdictional waters (drainages) in the immediate vicinity of the plant site. However, a total of 40 small, ephemeral drainages were identified along Segment 1 of the Project’s transmission line route near the Mojave River. Ten jurisdictional waters were identified along Segment 2 and five were identified along Segment 3. Potential VV2 Project impacts on jurisdictional waters are addressed in Section 6.4.

6.17.2.4 Water Supply

The following paragraphs discuss the supply of both reclaimed water and potable water in the Project vicinity.

Reclaimed Water. Reclaimed water is an important and growing component of the desert region of San Bernardino County’s water supply. It is obtained through the tertiary treatment of municipal wastewater and produces a safe and reliable water supply for non-potable uses. Reclaimed water will be used as the primary source of process water for the VV2 Project. As discussed in Section 2.0, Project Description, the reclaimed water will be supplied by the VVWRA, which operates a major regional wastewater treatment plant approximately one mile south of the Project site that has a capacity to process over 12.5 million gallons of wastewater per day. A project is under construction to expand the VVWRA plant’s capacity to 18 million gallons of treated water per day, with construction expected to be complete in spring 2008 (Olds 2007). As discussed in Section 2.0, the

reclaimed water will be transported to the VV2 Project site via a new 1.5-mile pipeline extending from an existing reclaimed water main at the VVWRA plant. The new pipeline will be protected against surge pressures by a 12-inch pressure relief valve that will dump excess pressure back into the reclaimed water wet well.

Potable Water. The small quantity of potable water (domestic consumption by the Project's construction and operation workforce) required by the Project during normal operation will be provided by a new onsite source water well. In compliance with DHS regulations regarding potable water wells, the Project will conduct the necessary monitoring to ensure that water from the well is sufficiently potable. The Project will also require a backup water source for power plant use when reclaimed water is not available from the VVWRA because of outages in the reclaimed water production system. The Project will connect to an existing water supply pipeline beneath Helendale Road immediately adjacent to the southwestern corner of the plant site.

Potable water in the Victorville area is supplied through both local and imported water. For San Bernardino County it is estimated that, on average, 85 percent of the potable water is supplied by local water sources (i.e., groundwater) with the balance of 15 percent as imported purchased water (County of San Bernardino, Circulation and Infrastructure Background Report, 2005). In the past, the principal source of groundwater has been percolation of naturally occurring runoff from the headwaters of the Mojave River. Natural flow has averaged about 65,000 acre-feet per year (AF/yr) at the upstream end of the Alto Subarea. However, the groundwater basins have become increasingly depleted.

The Mojave River Groundwater Basin is managed by the Mojave Water Agency (MWA), a contractor of the State of California that provides water to retailers in the high desert area of San Bernardino County, including the Victorville Water District. Because the Mojave River Basin hydrologic subbasins, including the Alto Subarea, have become increasingly depleted, the MWA has looked for ways to minimize deficits. The MWA constructed the Mojave River Pipeline (MRP), a 72-mile pipeline that conveys imported State Water Project (SWP) water to four groundwater recharge sites (i.e., percolation ponds) located along the Mojave River. The City of Victorville constructed a pipeline to provide water from the MRP to the High Desert Power Project (HDPP); this pipeline runs along Helendale Road adjacent to the VV2 Project site, and is planned as the VV2 Project's backup source of water for cooling and other non-potable water uses.

6.17.3 Environmental Impacts

This section provides a general description of the potential environmental consequences of the VV2 Project on the water resources of the region.

6.17.3.1 Construction Impacts

Construction activities are expected to take place over a period of approximately 27 months. This section describes potential impacts to water resources related to construction activities.

Water Use. Reclaimed water from the VVWRA will be used for dust suppression. The water will be trucked to the VV2 site from the VVWRA plant until completion of construction of the Project's reclaimed water supply pipeline from the treatment plant. Construction-phase water demand will be greatest during site grading. During grading of the combined-cycle area of the site, the daily maximum water demand is expected to be 65,000 gallons per day (gpd); during grading of the much larger solar field area, which will occur immediately after site preparation for the combined-cycle area, average daily water demand is expected to be 560,000 gpd with a peak of 650,000 gpd. Outside of the grading period, average daily water demand during Project construction is expected to be approximately 58,000 gpd.

Bottled water will be used for drinking water purposes by Project construction personnel. Portable sanitary facilities will be used onsite during the construction phase, and thus, no water will be required for sanitary uses and no sanitary wastewater will be discharged from the site.

Wastewater Discharge. Project construction activities will generate a one-time use of approximately 355,000 gallons of reclaimed water for hydrostatic testing of pipelines (90,000 gallons for the HSRG, 40,000 gallons for the plant piping and equipment, and 225,000 gallons for the solar field). The hydrostatic test water will be reused to the maximum practicable to test different Project systems, and then will be discharged through a temporary connection to the Project's sanitary wastewater disposal pipeline and sent to the VVWRA treatment plant.

Equipment wash water will be discharged at designated wash areas. This wash water will be transported to the nearby VVWRA treatment plant by a vacuum truck hauler, and no significant impacts are expected. A permit for discharge to the VVWRA will be obtained prior to discharge.

Drainage and Runoff. The VV2 site is located in the Mojave Desert where the annual rainfall is less than eight inches per year. Storm water discharges during the VV2 Project construction phase will be managed in accordance with the California General Storm Water Construction Permit issued by the SWRCB and overseen by the Lahontan RWQCB. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented for the

construction phase of the VV2 Project. The construction SWPPP will identify the best management practices (BMPs), e.g., erosion and sediment controls, that will be used to prevent construction activities from causing or contributing to exceedances of applicable water quality standards in regional groundwater aquifers or in the Mojave River. No significant impacts are expected related to storm water discharges.

6.17.3.2 Operational Impacts

This section describes potential environmental impacts on water resources related to the ongoing operation of the VV2 Project.

Potable Water Use. Approximately 5,400 gallons/day of potable water for domestic and sanitary purposes will be required to meet the needs of the VV2 Project. This water will be provided by a new onsite water well which will produce approximately 40 gallons per minute of water and operate ten percent of the time. The well will be equipped with a pressurized storage tank to allow for intermittent operation. All necessary permits will be obtained from the County of San Bernardino for construction and annual operation of the well. Periodic monitoring of the water quality from the well will be conducted, with reports submitted to DHS. This monitoring will ensure that water from the new well is suitable for drinking and other domestic uses at the Project. No significant impacts are expected from the small quantity of groundwater to be used for domestic and sanitary purposes.

As noted earlier, there is a TCE plume in the groundwater southeast of the site stemming from past activities at the former George Air Force Base. Cleanup activities are ongoing as part of the Air Force's IRP activities; however, data show that the plume does not come closer than approximately 0.7 mile from the southern boundary of the VV2 Project site. Further, given the direction of groundwater flow in the Project vicinity, the TCE plume is not upgradient of the VV2 Project site. Thus, the VV2 Project's proposed groundwater well is not expected to be affected by (or to have effects on) the Air Force TCE plume. Based on available information, the VV2 Project is not expected to have significant groundwater quality impacts.

Reclaimed Water Use. An adequate volume of recycled water will be available to the VV2 project from the VVWRA Shay Road facility. A "will-serve" letter from the City of Victorville is provided in AFC Appendix M. This letter discusses providing reclaimed water to the VV2 Project pursuant to the City's Memorandum of Understanding with the VVWRA. The recycled water availability at the VVWRA Shay Road facility is based on a number of factors, including current and future VVWRA effluent volumes, VVWRA requirements associated with recharging the Mojave River with treated effluent and

providing tertiary level treated effluent for the Westwinds Golf Course located at the SCLA.

According to a Memorandum of Understanding with the California Department of Fish and Game dated June 27, 2003, the VVWRA must discharge up to 9,000 acre-feet annually of available recycled water (daily influent to the Plant, less any flows removed for sewage and solids processing and less any flows used for irrigation of the Westwinds Golf Course) to the Mojave River. However, VVWRA's discharge to the Mojave River need not be more than is necessary to produce, in combination with the base flow, a total of 15,000 acre-feet annually. Also, the VVWRA must discharge no less than 20 percent of the amount of recycled water resulting in the future from any increases in the amount of daily influent wastewater flow to the Shay Road Plant. Total effluent flow, which would represent the amount of wastewater that is available for recycling, increased from 11,876.2 acre-feet in 2004 to 13,470.90 acre-feet in 2005, a 14.69 percent change (VVWRA Discharge Monitoring Report, 2005).

Current VVWRA projections for 2009 show approximately 20,000 acre-feet (AF) of wastewater as influent to the plant and thus available for recycling or discharge to the river after tertiary treatment. VVWRA personnel indicate that in 2009, they expect to provide 11,200 AF as discharge to the Mojave River, and provide for sale 1,700 AF to the Westwinds Golf Course in Victorville, and approximately 1,000 AF to HDPP (beginning in 2008), as well as supplying the 3,500 AF needed to supply the VV2 Project (Olds 2007). Total outflow of reclaimed water in 2009 would be 17,400 AF (the sum of the above projections), leaving an additional 2,600 AF available for sale after meeting their obligation for discharge to the river, as well as their current (golf course) and expected future (HDPP and VV2 Project) commitments. As the VVWRA is expected to be able to supply VVWRA, while meeting its other commitments and still have additional reclaimed water available for sale, the VV2 Project is not expected to have significant water supply impacts.

State Water Project water will be used as the backup cooling water supply source in the event that there is an extended outage of the VVWRA reclaimed water supply system. As discussed earlier, this water would be supplied from an existing City-owned pipeline that was built to supply SWP water to HDPP and that runs along Helendale Road adjacent to the VV2 Project site.

Wastewater Discharge. As described in the Section 2.0, Project Description, the VV2 Project has been designed as a zero-discharge facility; therefore, with the exception of the minimal amounts of sanitary wastewater generated from the Project's operation workforce of 36 individuals, no wastewater will be discharged from the facility. Flows to the sanitary sewer will occur through a new disposal pipeline described in Section 2.0, Project

Description. The Project will obtain the necessary approvals for connection with the sanitary sewer and will comply with influent limitations as required by the VVWRA. Thus, no significant impacts are expected from the VV2 Project wastewater discharges. Storm water discharges are described below.

Drainage and Runoff. The Project's combined-cycle power block area is located at the high point of the plant site. The power block area will drain to the north and south, away from equipment foundations, by means of sheet flow, swales, inlets and storm sewer pipes, as required. The runoff will then flow through ditches to an unlined dry basin located on the east side of the power block. The dry basin will be designed to provide water quality improvement and to restrict the discharge to the predevelopment peak discharge rate per City of Victorville, State of California and San Bernardino County design requirements contained in the San Bernardino Water Quality Management Plan (approved by the Lahontan RWQCB in April 2004). Following water quality treatment and peak flow attenuation, the storm water runoff will be discharged by gravity to an existing ditch on the east side of the dry basin. Local area containments will be provided around locations such as oil-filled transformers and chemical storage areas; runoff from these areas and from other plant drains will be sent to an onsite oil-water separator before discharge to the sanitary sewer system in order to avoid discharges to the storm drain system other than storm water.

The solar field will be graded from the south to the north with a 0.5 percent slope. The solar field area runoff will drain by sheet flow, but due to the planned 0.5 percent slope, future storm water runoff velocities are expected to be lower than at present.

Project operations phase storm water discharges will be covered under the California General Storm Water Permit for Industrial Activities issued by the SWRCB and implemented by the Lahontan RWQCB. An operation-phase SWPPP will be developed and implemented. The SWPPP will identify and evaluate sources of pollutants that may affect the quality of storm water discharges and identify site-specific BMPs and other management controls to minimize storm water contact with contaminants and thus minimize pollutants in storm water such that water quality standards are not exceeded (as required by the permit). These Project management controls include employee training, good housekeeping, inspection, preventive maintenance, and spill prevention and response programs; erosion and sediment controls and structural BMPs such as temporary containments during maintenance activities and permanent secondary containment structures at chemical storage and process areas. With implementation of these management controls, VV2 Project operation is expected to result in no significant impacts associated with drainage and runoff of storm water.

Potential Spills and Releases. Oils and hazardous materials will be stored onsite within secondary containment. Facility transformers will be constructed within secondary containment. In addition, a Spill Prevention Control and Countermeasure (SPCC) Plan will be prepared and implemented for the VV2 Project. The plan will describe the spill prevention measures, training, spill response, reporting requirements and inspection program to be implemented by the Project.

While solar collector design has advanced to an excellent level of performance and reliability, occasional small spills of HTF do occur, primarily due to equipment failures. The existing solar thermal plants in southern California (e.g., 80 MW facility at Kramer Junction) that utilize the same basic technology as proposed for the VV2 Project have reduced HTF spills due to accidents or pipe rupture to very low levels. Good maintenance practices and the use of ball joint assemblies rather than flexible hoses in the HTF system are the major contributors to this improvement.

If a spill or release is observed, the system operators in the power block will be notified immediately and the affected collector loop shut down. An appropriately equipped crew will make any necessary equipment repairs and any HTF-impacted soil will be cleaned up immediately and placed in drums for offsite disposal at an appropriately permitted disposal facility.

6.17.3.3 Flooding Impacts

San Bernardino County has experienced major flooding throughout its history and has found it important to identify those areas at high risk from severe flooding. The County participates in the National Flood Insurance Program (NFIP) by adhering to federally-set requirements to reduce flood hazards. The County uses flood districts and zones to prevent construction of habitable structures in flood zones.

The Mojave River is the principal flood hazard to developed areas within the Victorville Planning Area. Potential flood hazard at the VV2 Project site is minimal due to flood control improvements on the river such as levees and Forksite Dam, which is located approximately 18 miles upstream from the VV2 Project. The Project site also is not in a zone of high flood risk; the eastern area of the site (the portion closest to the Mojave River) is identified by FEMA as “undetermined”, while the western portion is inside the 500-year flood plain. Therefore, the VV2 Project will have no significant flooding impacts.

6.17.3.4 Cumulative Impacts

As discussed above, projections by the VVWRA of the supply and demand for reclaimed water indicate that the supplies are expected to be adequate to meet the needs of the VV2

Project plus the VVWRA's other existing and expected requirements (discharge to the Mojave River, and supplying a local golf course and the HDPP), while leaving additional reclaimed water available for sale. Thus, the VV2 Project will not contribute to a significant cumulative water supply impact.

There is the potential for cumulative impacts on surface water quality from the VV2 Project when considered together with the SCLA Rail Service (Intermodal) project that will occur to the south of the VV2 site. However, as is the case for the VV2 Project, it is assumed that the Intermodal project (and other cumulative projects) will utilize good engineering and construction practices, implement SWPPPs with BMPs and other management controls to ensure compliance with NPDES and other project-specific permit requirements. Further, both the VV2 Project and other cumulative projects (including, the Intermodal project and other SCLA expansion projects), are being developed under the aegis of the City of Victorville, and the design of the VV2 Project's drainage system, development of the needed erosion control plans, SWPPPs and other controls will be coordinated with similar activities of the Intermodal project. Furthermore, all significant new development projects in the County, such as the VV2 Project and the Intermodal project, must comply with the San Bernardino County Water Quality Management Plan requirements, which is a regional program intended to address cumulative water quality and hydrology impacts. Thus, the cumulative contribution of the VV2 Project to cumulative impacts on surface water quality is expected to be less than significant.

6.17.4 Mitigation Measures

This section presents the mitigation measures that will be implemented to minimize VV2 Project impacts on water resources in areas affected by the power plant and linear features.

- WTR-1** Design the site drainage system to be in conformance with good engineering practice and with applicable regulatory requirements (including City and County requirements for Water Quality Management Plans for new development projects).
- WTR-2** Perform Project construction activities in accordance with the SWPPP that will be developed to meet the requirements of the General NPDES permit for Discharges of Storm Water Associated with Construction Activity. This will include implementation of the BMPs identified in the SWPPP to control erosion, sediment transport, and discharge of pollutants during construction.
- WTR-3** Perform operations at the power plant in accordance with the SWPPP prepared to meet the requirements of the General NPDES Permit for

Discharges of Storm Water Associated with Industrial Activity. The will include implementation of the BMPs identified in the SWPPP to control erosion, and minimize the entrainment of pollutants associated with Project operation in entering storm water discharges.

WTR-4 Utilize reclaimed water for cooling tower makeup, process water, landscape irrigation, and the Project's other non-potable uses. Use of reclaimed water will comply with all applicable requirements of Title 22 California Code of Regulations.

6.17.5 References

California Department of Water Resources, 2003. South Lahontan Hydrologic Region, Upper Mojave River Valley Groundwater Basin, California's Groundwater, Bulletin 118.

California Regional Water Quality Control Board Lahontan Region, 2003. Water Recycling Requirements for Victor Valley Wastewater Reclamation Authority and City of Victorville; Westwinds Golf Course, Order No. R6V-2003-028.

California Regional Water Quality Control Board Lahontan Region, 1991. Water Quality Control Plan for the Lahontan Region (Basin Plan).

County of San Bernardino, 2005. Circulation and Infrastructure Background Report. November.

Cox, Calvin, Booz Allen Hamilton, 2006. Personal communication with C. Schnell of ENSR. December.

High Desert Power Project (HDPP) L.L.C., 1997. Application for Certification to the California Energy Commission.

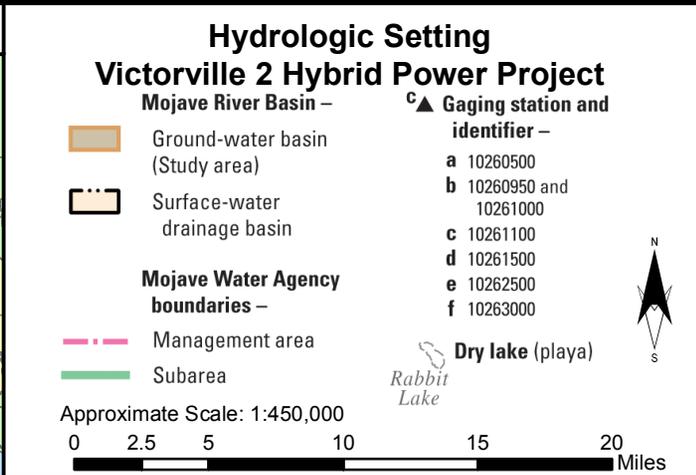
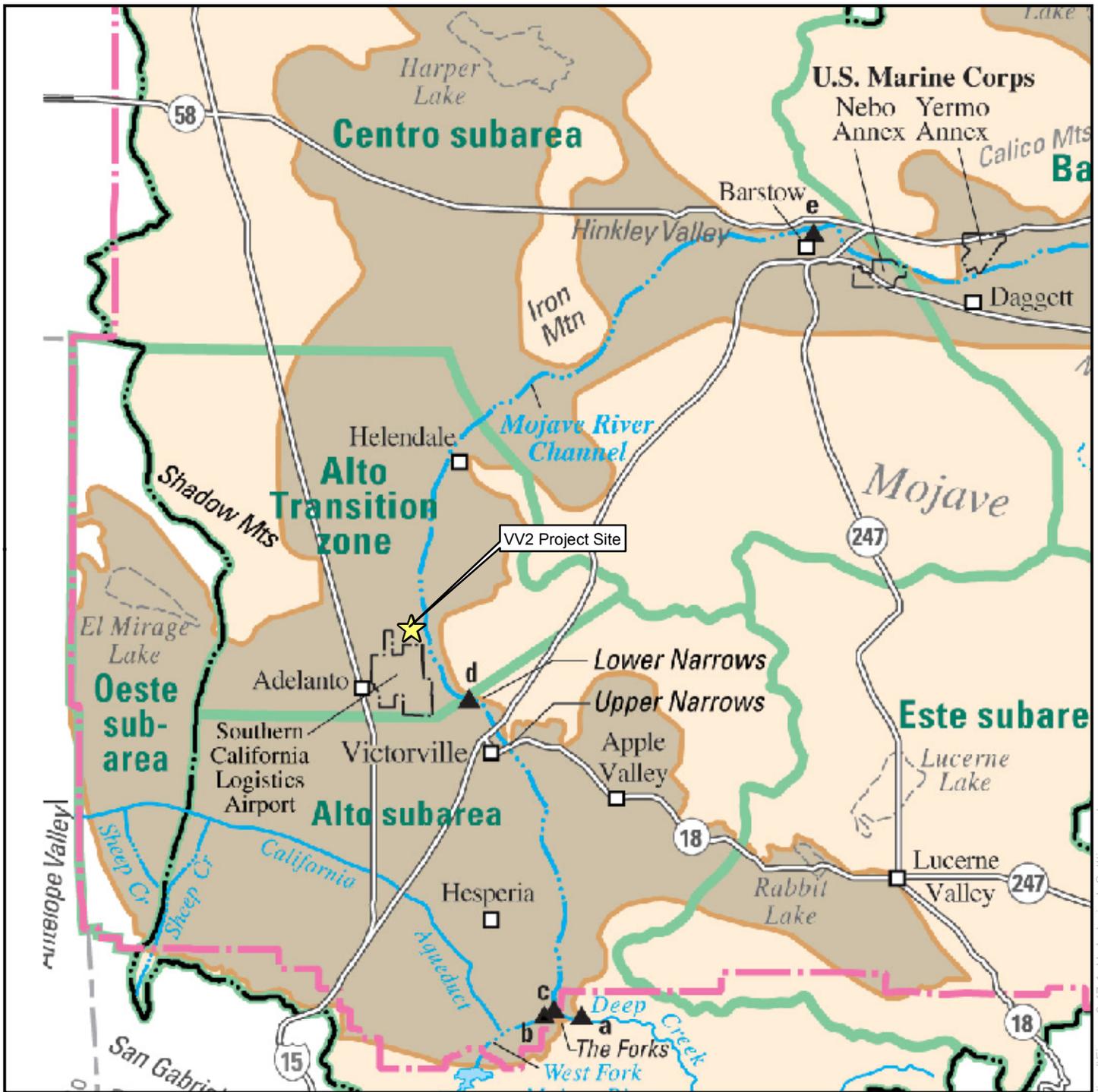
Memorandum of Understanding by and between the California Department of Fish and Game and the Victor Valley Wastewater Reclamation Authority regarding the Discharge to the Mojave River Transition Zone. June 27, 2003.

Olds, Logan, VVWRA, 2007. Personal communication with T. Penna of Inland Energy. January.

RBF Consultants, 2004. City of Victorville – SB 610 Water Supply Assessment SCLA Rail Service Development.

Victor Valley Wastewater Reclamation Authority, 1999. Revised Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit Renewal for Victor Valley Wastewater Reclamation Authority Regional Wastewater Treatment Plant, Board Order 6-99-58.

Victor Valley Wastewater Reclamation Authority, 2005. *2005 Annual Discharge Monitoring Report*.





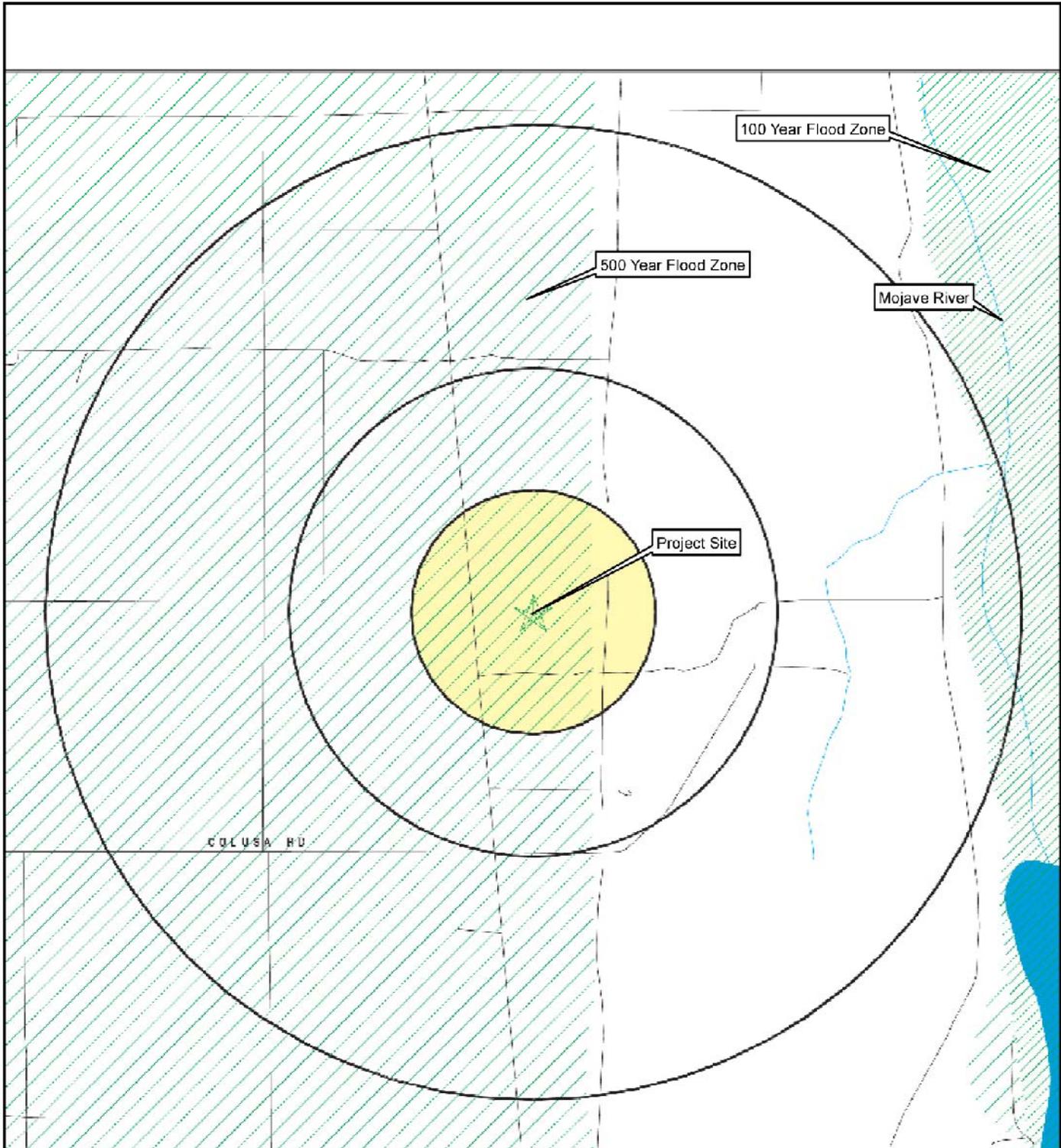
Inland Energy, Inc.



ENSR | AECOM

Figure: 6.17-1

Date: February 2007



**Flood Zone Map
VV2 Hybrid Power Project**



Source: Environmental Data Resources, Inc.
Figure not to scale

Figure 6.17-2
Date: February 2007

Y:\Projects\InlandEnergy\Victoria\river\DX\EGC_Figures_Finalized\Figure_6-17_Flood_Zone.mxd