Data Request 62:

Please describe on an agency by agency basis (i.e., agencies noted in above background statement) the rules and regulations, including but not limited to those of the Mojave Basin adjudication, that are applicable to the proposed project's use of groundwater.

Response:

As Data Request 62 implies, the Stipulated Judgment (Adjudication) entered by the Court and administered by the Mojave Water Agency (MWA) in its role as Watermaster, developed Rules and Regulations that were adopted June 30, 1994 and revised December 11, 1996 and March 23, 2005. These rules and regulations are in effect today and govern groundwater use, including any use by the VV2 Project. Copies of the Stipulated Judgment and the Rules and Regulations are attached for ease of reference (see Attachment DR62-1 and Attachment DR62-2).

As a result of subsequent implementation of the aforementioned Rules and Regulations, the MWA reported in the MBWN Annual Report, April 2007, that the management goals for the Upper Basin (Alto) have been met and that "further Rampdown is not warranted in Alto at this time." Effectively, this is an indication that the basin is no longer in overdraft, but rather, is in balance and in full compliance with the Mojave Area Basin Judgment. Therefore, concerns or policies based on the assumption that a current critical state of "overdraft" exists may not be valid.

Refer to the Mojave Basin Area Watermaster Annual Report, April 2007 – page 32.

Data Request 63:

Please discuss how the MWA's Regional and Urban Water Management Plans address the use of groundwater.

Response:

As noted in the response to Data Request 62, MWA in its role as Watermaster is responsible for accounting for all water use in the Mojave River Basin and assuring that all parties to the Adjudication comply with the Stipulated Judgment. Actions suggested in either the Regional or Urban Water Management Plans must be consistent with the principles established in the Adjudication for the management of the Mojave River Basin.

Data Request 64:

Reclaimed water is currently a source of flow to the Mojave River and a source of recharge to the groundwater system through irrigation and aquifer recharge projects, which contributes to the hydrologic recovery of the Mojave Basin.

a. Please describe the applicable LORS that address the use of reclaimed water for the proposed project.

b. Please discuss how the MWA's Regional and Urban Water Management Plans address the disposition of wastewater from VVWRA Shay Road facility.

Response:

a. In general, LORS do not permit reclaimed water to be used for potable supplies or for irrigation of vegetable crops. They also generally specify where reclaimed water is used for ground water recharge. The depth to the main aquifer must be sufficient to meet established standards related to detention time in the vadose zone. The VV2 Project will comply with the applicable regulations of DHS and the Regional Water Quality Control Board, etc. regarding the use of reclaimed water as a supply. Furthermore, direct reuse of municipal wastewater was anticipated and is allowed pursuant to Section 4.bb of the Judgment.

b. Regional and Urban Water Management Plans quantify the present and projected disposition of wastewater from the Victor Valley Wastewater Reclamation Authority (VVWRA). The Plans also include projections (valid during report development) for "recycled water" that effectively removed discharges from VVWRA to the Mojave River. Copies of recent Plans are provided as Attachments DR64-1 and DR64-2. Attachment DR64-3 is the 2005 annual summary of VVWRA operations and maintenance, and Attachment DR64-4 provides VVWRA's most recent annual reclaimed water quality analytical data.

Data Request 65:

The importation and use of SWP water is one of the key components for meeting regional water demands and curing the overdraft of groundwater. Please describe the following:

a. The rules and regulations, including but not limited to those of the Mojave Basin adjudication, that are applicable to the use of SWP water for the proposed project;

b. Please include any applicable to SWP water importation by entities within the Mojave Basin;

c. How MWA's Regional and Urban Water Management Plans address the use of SWP water for large industrial projects;

d. Excluding water for the proposed Victorville 2 project, the estimated amount of SWP water that MWA will be required to import during the life (i.e. 30-40 years) of the project.

e. A description and estimate of the quantity of SWP water for any ongoing projects that require importation of SWP water by MWA, such as the High Desert Power Plant, and provide a description of the basis for these estimates.

Response:

MWA is a State Water Project (SWP) contractor and may use its supply for any beneficial use. The Adjudication does not address or restrict how MWA may beneficially use its SWP supply. The City of Victorville has re-evaluated its approach to providing back-up water for the VV2 Project and has decided to obtain emergency back-up water for cooling and other industrial uses from the City water system. The City believes this is a more prudent and practical approach than using SWP water. Victorville will provide a Will-Serve Letter for this usage shortly.

This approach is predicated on the expectation that very little water will be required for back-up, since tertiary treatment systems have a demonstrated high reliability factor. The VVWRA tertiary system has never ceased being operational in its several years of operation. Additionally, in order to ensure that the ground water aquifer (upon which the City water system is based), will not be negatively impacted in the unlikely event of a VVWRA shut down, the City plans to purchase twice as much water from the SWP as replacement for any City water consumed as back-up. Finally, given the low level of exposure, the City is prepared to simply shut down the Project in the unlikely event of an extended VVWRA shut down (more than 30 days).

a. In light of the above response, SWP water will not be used by the VV2 Project.

b. MWA holds the contract with the California Department of Water Resources (DWR) for use of SWP supplies. There are no other importers within the Basin.

c. The principal use of the MWA SWP supply is for ground water recharge in order to maintain the reliability of the ground water supplies of the Mojave River Basin. The

Plans address the amounts of water needed to satisfy all project future demands, including industrial uses.

d. To meet continuing demands for water within the boundaries of the MWA for the next 30-40 years will likely require importation of MWA's entire allocation of SWP supplies. The attached Regional and Urban WMPs (see Attachments DR64-1 and DR64-2) specifically discuss projected future demand within the Basin.

e. Importation of SWP supplies is essential to managing the total water supply of the Basin. MWA is a wholesaler of its SWP allocation and, with the exception of the approximately 3,500 acre-feet per year sold to the City of Victorville for ultimate use by the High Desert Power Project (HDPP), the allocation is currently used principally for ground water recharge.

Data Request 66:

Please provide a copy of the Initial Study/Negative Declaration for the Victor Valley Wastewater Reclamation Authority Regional Wastewater Treatment Facility Expansion project.

Response:

The requested Initial Study/Negative Declaration for the VVWRA Expansion Project is provided as Attachment DR66-1 on the CD that is part of this submittal to the CEC.

Data Request 67:

Please address the following regarding the Mojave River watershed:

a. How would this change affect the hydrology of the watershed?

b. How would it affect the quality of water as the hydrology changes?

c. How would it affect wetlands in the Mojave River or elsewhere?

d. How would the impacts accumulate over time?

Response:

a. Technical Memo #3 to the Judgment (see Attachment DR62-1) shows that water recycling was modeled in a variety of scenarios.

b. The water quality will improve because of the decrease in salts being sent to the river.

c. The MOU established base line protection. Exhibit H of the Judgment also addresses wetland protection. Wetlands in the Mojave River and elsewhere will flourish at the rate of the VVWRA growth, in accordance with the MOU and Adjudication.

d. Technical Memo #3 to the Judgment attempted a systemic impact view of reclaimed water use.

Data Request 68:

Please explain whether Victorville 2 would be subject to purchasing SWP water to offset its use of reclaimed water in a manner similar to that being considered by the owners of HDPP.

Response:

The City is not fully privy to the plans of the owners of HDPP in this regard. However, VV2 will not purchase SWP for injection directly into the aquifer, as is currently the practice at HDPP.

Data Request 69:

Please clarify the maximum annual volume of groundwater the project will require.

Response:

The VV2 Project's maximum a*nnual* potable water demand is 3.6 acre-feet and is calculated from the 2.2 gpm (3,168 gpd) average maximum ***daily*** rate shown in Table 2-4 of the AFC. The 5,400 gpd figure (which yields the 6.1 acre-feet per year value) stated in Section 6.17.3.2 of the AFC is erroneous and should be replaced with 3,168 gpd.

The City has elected to service the VV2 Project with its existing potable water system rather than drilling an onsite well. This will provide additional reliability to the plant and is more consistent with the City's plan to service the SCLA surrounding area with a city water system. The City water system is presently serving SCLA customers and the existing 16 inch line that terminates on Perimeter Road in front of the HDPP facility will be extended along the City's planned extension of Perimeter Road (as shown on Figure DR69-1) approximately three miles to service the VV2 Project. The VV2 Project's estimated maximum potable water use of 3.6 acre-feet per year is roughly equivalent to five residential dwellings. The Victor Valley has approximately 200,000 homes built or permitted to be built and thus, the VV2 Project potable needs are minimal by comparison. The Project will use such a small quantity of potable water (drinking, toilets, washing, etc.) that it can easily be supplied by the existing City water system. The fact that MWA has determined the Upper Basin is no longer in overdraft, but rather, is in balance and in full compliance with the Stipulated Judgment, further supports the idea that this small amount of water will not create significant impacts.

The City will provide a Will-Serve letter for this use shortly.

Figure DR69-1

Data Request 70:

Please describe and quantify the following in regard to groundwater use:

a. Annual groundwater production rates for each of the sub areas of the Mojave Basin for each of the last 10 years (1997-2006).

b. Changes in groundwater use and distribution of pumping that has occurred in each of the sub areas of the Mojave Basin during the last 10 years.

c. Changes in groundwater levels and flows in the Mojave River that have occurred in each of the sub areas of the Mojave Basin over the last 10 years. Include hydrographs, groundwater contour maps and stream flow records to describe these changes.

Response:

Note: Inasmuch as the City no longer plans to rely on onsite wells to supply the VV2 Applicant's potable water needs, much of the information requested in this and several subsequent Soil and Water Data Requests appears to be rendered moot. Nevertheless, the City has prepared responses that address those aspects that are potentially relevant. Additional information is available in the published documents provided to the courts and available on the MWA website. http://www.mojavewater.org/.

a. The Project is located in the upstream portion of the Alto Subarea Transition Zone of the Mojave Basin. Data from the Watermaster Reports, including "Verified Production" values for each Sub-Area, for each year are presented in tabular and graphic form as Table DR70-1 and Figure DR70-1, respectively.

b. The Watermaster Reports do not provide specific data on the use of pumped water (Ag, Urban, M&I, etc.). Table DR70-2 summarizes consumptive uses of water for Agriculture, Urban, and Phreatophytes from 1997 to 2006.

c. Changes in ground water levels are monitored by the USGS and are available on their website. Attachment DR70-1 provides three figures from the Mojave Watermaster Annual Report for Water Year 2005-2006: historical surface flow in the Mojave River at the upper end of the basin is presented in Figure 3-3 of the Watermaster Report, Figure 3-4 from the Watermaster Report shows flow at the Lower Narrows and Figure 3-5 shows flow at Afton.

Table DR70-1

Figure DR70-1

Figure DR70-2

Data Request 70b: Table of Annual Consumptive Groundwater Use for each of the Mojave Basin Sub-Areas

Sub-Area	Water Year									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Alto										
Agriculture	7,900				2,500		1,900	1,700	1,500	1,700
Urban	40,700				43,300		46,000	49,000	47,700	51,500
Phreatophytes	11,000				11,000		11,000	11,000	11,000	11,000
Baja										
Agriculture	20,800				15,200		14,300	14,100	12,600	14,500
Urban	7,900				9,900		7,400	6,900	6,200	6,600
Phreatophytes	2,000				2,000		2,000	2,000	2,000	2,000
Centro										
Agriculture	13,000				7,100		6,300	6,200	5,500	6,300
Urban	8,500				7,300		7,200	7,400	6,700	6,800
Phreatophytes	3,000				3,000		3,000	3,000	3,000	3,000
Este										
Agriculture	3,900				4,100		3,700	4,000	3,800	4,200
Urban	2,200				1,900		1,900	2,000	1,800	2,300
Phreatophytes	0				0		0	0	0	0
Oeste										
Agriculture	2,300				1,000		1,200	1,300	1,200	1,200
Urban	1,300				1,500		1,500	1,700	1,500	1,600
Phreatophytes	0				0		0	0	0	0

Notes: All values are in Acre Feet

Not all data is readily available

Source: Mojave Watermaster Annual Reports for Water Years 1997-2006

Data Request 71:

Please describe and quantify the following in regard to groundwater recharge:

a. Changes in recharge that have occurred in each of the sub areas of the Mojave Basin during the last 10 years; include information on water importation, reclamation of wastewater and new recharge programs.

b. MWA's recharge projects using SWP and reclaimed water including:

   i. a map of the site location and a description of current recharge rate, recharge capacity, hydrology and hydrogeology for each site; and

   ii. any available assessments of the recharge performance of these projects.

c. Please provide a regional water budget and discuss the status of overdraft of the Mojave Basin.

Response:

a. Imported water deliveries by MWA are reported in each of the Watermaster Reports by Subarea and month. Deliveries to the solar facility at Kramer Junction are also shown. All available data for WYs 97-06 are attached hereto (see Attachment DR71-1). For additional information, the Watermaster Reports are available at the MWA website: http://www.mojavewater.org/.

b.i. Figure DR71-1 is a map of the MWA recharge sites and Table DR71-1 provides data about the recharge sites. Recharge rates throughout the basin are estimated to be about seven ft/day (see Attachment DR71-2, Mojave River Basins Groundwater Recharge Study). A specific assessment at Oro Grande Wash determined recharge rates to average 2.8 ft/day (see Attachment DR71-3).

b.ii In terms of historical recharge performance, see the data provided in Attachment DR74-1.

c. Attachment DR71-4 provides Table C-1 from the Judgment and Table 5-2 of the 2005-06 Watermaster Report, which present the requested information. As shown on Table 5-2 for 2005-06, there is a supply deficiency of 32,031 acre-feet, which is within the allowable margin of five percent.

Figure DR71-1

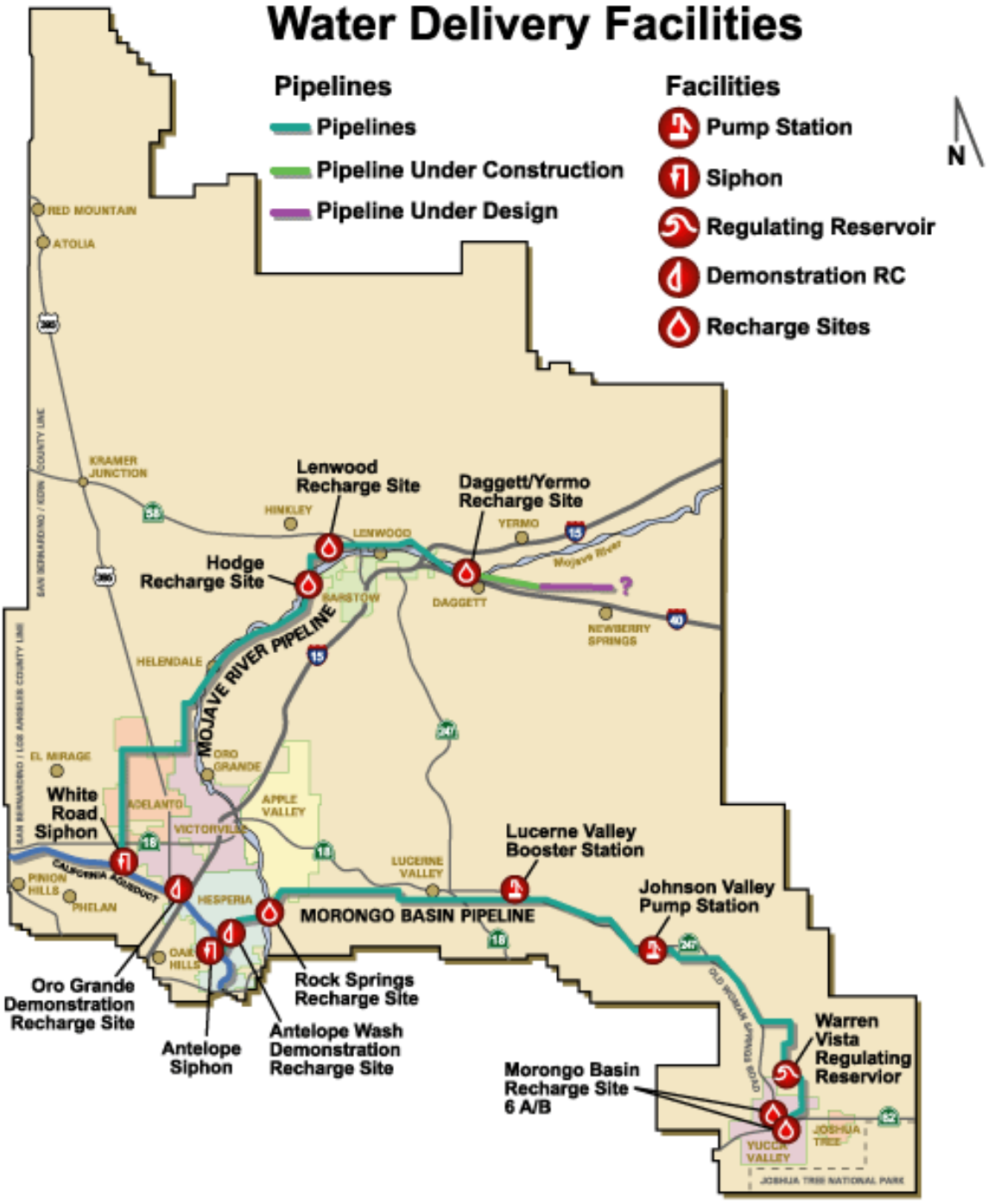

Table 71-1

Data Request 72:

Please clarify the annual volume of reclaimed water the project will require for process and cooling demands, specifying both average and maximum annual demands.

Response:

As stated in Table 2-4 of the AFC, the currently estimated maximum projected process and cooling water requirement for VV2 is 3,150 AF/yr. The 3,500 AF/yr figure included in the letter from VVWRA was simply intended to represent a maximum rough estimate that was deliberately overstated in order to demonstrate that the Project's needs could be easily met. The average maximum annual demand (as derived from Table 2-4) is 2, 550 AF/yr based on current operating assumptions, energy market projections and available climatological data.

Data Request 73:

Please provide the reported population and the annual total amount of fresh-water deliveries for the VVWRA service area for 2005.

Response:

According to the latest U.S. census data, the reported populations for the City of Victorville; the City of Hesperia; and the Town of Apple Valley for 2005 are as follows:

Census-Population	**2000**	**2006**
Victorville	64,029	98,662
Hesperia	62,582	83,351
Apple Valley	54,239	68,886

Source. U.S. Census.Bureau

The 2005 populations for, CSA 42 and CSA 64 are not available; SCLA is also within the VVWRA service area and has no residential population.

Accurate data regarding freshwater deliveries in the VVWRA service area is not readily available. The VVWRA member entities include the City of Victorville, the City of Hesperia, the Town of Apple Valley, SCLA, CSA 42, and CSA 64. The freshwater purveyors are different than the member entities and have different boundaries and include: Victor Valley Water District, Apple Valley Rancheros Water District, and Hesperia Water District. There

are also smaller agencies and private wells within the service area. Additionally, not all homes within the VVWRA boundaries utilize the VVWRA, but rather, many homes utilize septic systems. Therefore, the Applicant is informed that a meaningful reconciliation of the various boundaries and estimates for population and freshwater deliveries in the VVWRA is not possible.

Data Request 74:

Please describe the basis for the estimate of 2009 wastewater effluent and reclaimed water production from VVWRA provided in the AFC including the following:

a. Population projections;

b. Any other factors contributing to the estimate of future reclaimed water supplies;

c. Annual volumes and sources of fresh-water deliveries required to support an annual production of 20,000 acre-feet of reclaimed water by VVWRA; and

d. An explanation as to why the estimates in the AFC are different than those projected by MWA in their 2004 Regional Water Management Plan.

Response:

a. The 2007 "Flow Projection Study" for VVWRA is provided as Attachment DR74-1. The document lists in detail the VVWRA flow projections and the assumptions on which they were based.

b. See response to item "a" immediately above.

c. VVWRA flow projections for reclaimed water are based on land use not on freshwater deliveries. To estimate the production based on freshwater deliveries in the VVWRA service, an estimate of the freshwater deliveries would be required which is not readily available (see Data Request 73, 74a).

d. The estimates in the Regional Water Management Plan (16.68 mgd for the year 2009) are included as part of a study adopted in 2005 *and* utilized projections from VVWRA compiling data from 2004 and earlier. The estimates in the AFC (18.09 mgd for the year 2009) are based on a study conducted by VVWRA in early 2007. The AFC's figure predicts 7.8 percent more service area growth than the study conducted in 2005. The 2005 study was obviously not able to utilize information capturing the most recent

development trends. The 2007 study assumed the current rate of building activity is sustained over the immediate period ahead. This difference in assumptions accounts for the difference in estimated wastewater effluent in the year 2009. In light of the rapid population and economic growth currently being experienced by VVWRA's member entities, the Applicant felt the more recent figures are most relevant.

Data Request 75:

On a monthly and annual basis, please characterize how reclaimed water produced by VVWRA was used during each of the past five years (2001-2006) by providing the following:

a. Describe the amount of reclaimed water produced by VVWRA.

b. Identify the recipients, the amount of water delivered, the type of use, and location of each discharge or application site.

c. Identify the amount of water consumed, recharged to the aquifer and/or discharged to the river by each recipient.

Response:

a. Currently, a portion of VVWRA's reclaimed water is delivered to the SCLA golf course with the remainder released to the Mojave River. The golf course did not begin receiving reclaimed water until January 2005. In 2006, 311 acre-feet were delivered to the golf course and 11,095 acre-feet were released to the river. Table DR75-1 shows the production of reclaimed water by VVWRA from 2001-2006. Data by usage is not available.

b. See the response to item "a" immediately above.

c. The golf course uses water for irrigation and none is returned directly to the river. VVWRA is not aware of any studies to determine if groundwater recharge is occurring at the site (personal communication, Logan Olds, VVWRA, July 10, 2007). A rule of thumb used by many local water agencies is that 50 percent of water used for irrigation eventually returns to the groundwater.

Table DR75-1. VVWRA Annual Treatment Process and Discharge Monitoring Report

Month	Treatment Facility Effluent to the Mojave River (Outfall 001) of Title 22 Reclaimed Water*						Reclaimed Flow to SCLA Golf Course (mg)
	Yearly Effluent Flow (mg)						
	2001	2002	2003	2004	2005	2006	
JAN	234.41	223.13	186.44	177.34	181.82	210.24	2.65
FEB	208.75	208.37	161.00	152.38	164.98	267.44	3.83
MAR	225.16	231.20	190.42	173.77	195.06	307.11	0.92
APR	222.12	238.98	179.93	167.07	232.40	300.87	3.55
MAY	234.70	182.82	181.18	156.37	291.03	328.61	11.66
JUN	223.96	170.97	177.43	169.70	273.08	333.61	16.79
JUL	246.40	179.85	188.45	170.53	301.42	353.19	16.20
AUG	230.17	193.13	192.93	170.77	267.67	354.53	19.31
SEP	225.28	178.85	184.71	168.75	224.64	345.59	12.83
OCT	231.89	190.29	178.63	180.54	224.50	357.30	7.81
NOV	206.14	181.21	175.09	176.73	195.61	245.33	5.42
DEC	212.82	187.09	173.16	178.44	201.00	211.89	0.26
TOTAL	2,701.81	2,365.89	2,169.37	2,042.39	2,753.20	3,615.71	101.23
DAILY AVG	7.40	6.48	5.94	5.58	7.54	10.11	
	Yearly Effluent Flow (Acre/Feet)						
TOTAL	8,290.32	7,259.56	6,656.56	6,266.91	8,448.00	11,094.54**	310.62
DAILY AVG	22.71	19.89	18.24	17.12	23.15	31.02	

*Use by VVWRA on site for Cal biomass and equipment operation averages less than 50,000 gpd and is therefore negligible.
**This total represents available reclaimed water AFTER providing water to the SCLA golf course and VVWRA onsite uses.

Data Request 76:

Please provide a description of the site-specific hydrologic and geologic conditions of each VVWRA discharge or application site. The purpose of this request is to obtain information necessary to assess the hydrologic effect of existing VVWRA applications. For irrigation or percolation pond applications, please include the following information, if available:

a. Identify the underlying aquifer formations. Describe layering and subsurface features that would affect groundwater recharge, for example, hardpans, lakebed deposits or faults.

b. Aquifer parameters including hydraulic conductivity and specific yield.

c. Depth to groundwater

d. Descriptions and results of percolation tests or studies.

e. Total acreage of irrigation or percolation site.

f. Historical monthly irrigation records and/or average monthly irrigation rates (provide monthly breakdown of supply sources if reclaimed water is not sole source).

g. Average monthly potential evapotranspiration.

h. Average monthly evaporation losses for percolation sites.

i. Crop-water use efficiency for any irrigated sites.

For VVWRA releases to the Mojave River, please include the following information, if available:

a. Schedule of required river releases.

b. Historical measurement of stream flow.

c. Baseflow information or studies.

Response:

VVWRA is awaiting the completion of the EPA modeling effort to determine the hydrologic and geologic conditions affected by their percolation pond discharge. The characterization of the Mojave River discharge point will be completed in approximately 18 months.

The requested information is included in the Phase 1 Report – Transition Zone Hydrogeology, Mojave River Transition Zone Recharge Project (see Attachment DR76-1 provided on a CD that accompanies this submittal to the CEC).

Data Request 77:

Please provide copies of the most current service agreements and estimates of future demands of reclaimed water from the VVWRA facility. The list should include, but not be limited to the following:

a. the City of Victorville for use at the Westwinds Golf Course;

b. the City of Victorville for other uses;

c. High Desert Power Plant;

d. Southern California Logistics Airport;

e. any other existing customer or group of customers obtaining water from the VVWRA Shay Road Facility; and

f. any future customers currently planned by VVWRA.

Response:

a. A copy of this agreement is provided as Attachment DR77-1; note that this is currently VVWRA's only customer for reclaimed water

b. See Attachment DR77-1.

c. While HDPP has been considering use of reclaimed water for some time, no agreement with either the City or VVWRA has yet been reached. Based on previous discussions, the Applicant understands that HDPP wishes to obtain up to approximately 1,500 acre-feet per year.

d. Other than the golf course at SCLA, SCLA is not a current or expected future user of VVWRA reclaimed water.

e. Other than those already identified, there are no other current customers for VVWRA reclaimed water.

f. Other than those already identified, there are no other known future customers for VVWRA reclaimed water.

Data Request 78:

Please provide an estimate of the maximum annual demand for SWP water and the expected frequency of SWP water use by the project as an emergency backup to the use of reclaimed water for cooling.

Response:

In conjunction with the City's re-evaluation of its approach to providing potable water to the VV2 Project, it has also determined that providing back-up water from the City water system is a more prudent and practical approach than using SWP water.

This approach is predicated on the following:

- The expectation is that very little water (if any) will be required for emergency back-up cooling use, since tertiary treatment systems have a demonstrated high reliability factor. In fact, several California CEC-approved power plants currently rely on tertiary treated reclaimed water for process and cooling water needs, including Palomar Energy, Los Medanos and Delta Energy. For the latter two installations in particular, which have been in operation for several years and rely on Contra Costa Canal water as their back-up, the reclaimed water source (local WWTPs) has never gone down. Based on the above background, the Applicant is confident that the back-up water requirements will be minimal. However, to be conservative, the Applicant is willing to assume a 98.5 percent availability for the reclaimed water supply, consistent with data obtained from wastewater treatment industry sources. Using this value, theVV2 Project would expect to require no more than 45 acre-feet per year as back-up.

- In order to ensure that the ground water aquifer (upon which the City water system is based) will not be negatively impacted in the unlikely event of a VVWRA shut down, the City plans to rely on its participation in MWA's "Claim" Program. The Claim Program allows the City to pre-purchase SWP water for recharge by MWA. The Claim Program will allow the City to pre-mitigate the effect of consuming City water, by pre-purchasing the water. The recharge site will be determined by the MWA and may vary, depending upon MWA's assessment of the Basin.

Victorville will provide a Will-Serve Letter for this usage shortly.

Data Request 79:

Please provide the basis for estimating the potential demand for SWP water for emergency backup by Victorville 2, including historical data for the last 10 years (to the extent available) of any interruptions to the supply of reclaimed water from VVWRA. In listing outage information for the wastewater treatment plant and distribution system, please include the location, dates, duration in days and cause of any interruptions.

Response:

See the response to DR 78. Given the low level of exposure, the Applicant is prepared to simply shut down the Project in the unlikely event of an extended VVWRA shut down (30 days).

Data Request 80:

Please describe the dependability of SWP water from Mojave Water Agency as would be delivered via the City of Victorville's pipeline to serve the emergency backup needs to Victorville.

Please include the following:

a. Clarification as to whether MWA or City of Victorville would be the purveyor of the backup water supply to the project;

b. A Will-Serve Letter from the purveyor (and Mojave Water Agency if the purveyor is City of Victorville) indicating backup water supply at the estimated maximum rate and volume needed would be available to Victorville 2 for the life of the project;

c. Indication as to whether MWA's source of backup water supply to the project is continuously available and if it would rely on its Department of Water Resources' (DWRs) Table A allocation to long-term SWP contractors; if not, please describe the type of allocation and its dependability; and

d. A summary of MWA's commitments of its SWP water supply to existing and planned customers including High Desert Power Plant. Please note the following:

e. priority for service, maximum supply rate, maximum annual volume, maximum contractual deliveries for all months, and the term of the agreements; and

f. monthly and annual deliveries representative of normal and critically dry water years for MWA's existing customers.

Response:

As previously discussed in the response to Data Request 69, the City has determined that providing back-up water from the City water system is a more prudent and practical approach than using SWP water. This approach effectively renders the information requested in this Data Request moot. For this reason, no further response is provided to this Data Request.

Data Request 81:

Please provide a description of the chemical composition of reclaimed water produced by VVWRA. Quantify both average conditions and the range of constituent concentrations if date is available.

Response:

Attachment DR81-1 provides data on the water quality of VVWRA effluent. This data was taken from the VVWRA Annual Treatment Process and Discharge Monitoring Report for 2005. The entire annual monitoring report can be found on the VVWRA web site, www.vvwra.com

---

Data Request 82:

Please provide a description of the chemical composition of SWP water imported by MWA. Quantify both average conditions and the range of constituent concentrations if data is available.

Response:

As previously discussed in the response to Data Request 69, The City has determined that providing back-up water from the city water system is a more prudent and practical approach than using SWP water. This effectively renders the information requested in this Data Request moot and no further response is provided to this Data Request.

Data Request 83:

Please provide a draft DESCP containing elements "A through I" below outlining site management activities and erosion/sediment control Best Management Practices (BMPs) to be implemented during site mobilization, excavation/demolition, construction, and operations. The level of detail in the draft DESCP should be commensurate with the current level of planning for site demolition and corresponding site grading and drainage. Please provide all conceptual erosion control information for those phases of construction and post-construction that have been developed or provide a statement when such information will be available, inclusive of BMPs for the solar field.

A. **Vicinity Map** – A map(s) at a minimum scale 1"=100' should be provided indicating the location of all project elements with depictions of all significant geographic features including swales, storm drains, and sensitive areas.

B. **Site Delineation** – All areas subject to soil disturbance for the Victorville 2 project (project site, lay down/demolition areas, all linear facilities, landscaping areas, and any other project elements) shall be delineated showing boundary lines of all construction/demolition areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.

C. **Watercourses and Critical Areas** – The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. Indicate the proximity of those features to the Victorville 2 project construction, lay down/demolition, and landscape areas and all transmission and pipeline construction corridors.

D. **Drainage Map** – The DESCP shall provide a topographic site map(s) at a minimum scale 1"=100' showing all existing, interim and proposed drainage systems and drainage area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off-site for a minimum distance of 100 feet in flat terrain.

E. **Drainage of Project Site Narrative** – The DESCP shall include a narrative of the drainage measures to be taken to protect the site and downstream facilities. The narrative should include the summary pages from the hydraulic analysis prepared by a professional engineer/erosion control specialist. The narrative shall state the watershed size(s) in acres that was used in the calculation of drainage measures. The hydraulic analysis should be used to support the selection of BMPs and structural controls to

divert off-site and on-site drainage around or through the Victorville 2 project construction and laydown/demolition areas.

In an e-mail to staff dated May 23, 2007, the Lahontan Regional Water Quality Control Board addressed their concerns regarding avoidance and minimization of water quality and erosion impacts. These concerns are indicated with an * and shown in italics in the following data requests.

**Considering the project would alter natural drainage features and related stormwater flows, please address the following:*

i. *How will flows that currently cross the site through these drainage features be managed in the future?*

ii. *How will the loss of beneficial uses of these features such as water quality enhancement, infiltration, groundwater recharge and flood water attenuation be impacted?*

iii. *What alternatives could be used to avoid and minimize these impacts?*

iv. *What in-kind measures would be used to minimize these impacts?*

F. **Clearing and Grading Plans** – The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections or other means. The locations of any disposal areas, fills, or other special features will also be shown. Illustrate existing and proposed topography tying in proposed contours with existing topography.

G. **Clearing and Grading Narrative** – The DESCP shall include a table with the quantities of material excavated or filled for the site and all project elements of the Victorville 2 project (project site, lay down/demolition areas, transmission corridors, and pipeline corridors) to include those materials removed from the site due to demolition, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported. The table shall distinguish whether such excavations or fill is temporary or permanent and the amount of material to be imported or exported.

H. **Best Management Practices Plan** – The DESCP shall identify on the topographic site map(s) the location of the site specific BMPs to be employed during each phase of construction (initial grading/demolition, project element excavation and construction, and final grading/stabilization). BMPs shall include measures designed to prevent wind

and water erosion in areas with existing soil contamination, if any. Treatment control BMPs used during construction should enable testing of groundwater and/or stormwater runoff prior to discharge.

I. **Best Management Practices Narrative** – The DESCP shall show the location (as identified in H above), timing, and maintenance schedule of all erosion and sediment control BMPs to be used prior to initial grading/demolition, during project element excavation and construction, final grading/stabilization, and post-construction. Separate BMP implementation schedules shall be provided for each project element for each phase of construction. The maintenance schedule should include post-construction maintenance of structural control BMPs, or a statement provided when such information will be available.

In an e-mail to staff dated May 23, 2007, the Lahontan Regional Water Quality Control Board addressed their concerns regarding avoidance and minimization of water quality and erosion impacts. These concerns are indicated with an * and shown in italics in the following data requests.

*Please address the following questions regarding the loss of pervious ground surfaces and erosion control measures:

i. *How will the loss of pervious surface be minimized and mitigated?*

ii. *Will use of pervious surfaces such as porous cement, pavers or gravel be used where feasible?*

iii. *What measures would be used to infiltrate rainwater on site?*

iv. *If soil stabilizers are to be used, do they have the potential to leach into rainwater?*

v. *If leaching is possible, what measures would be used to protect the quality of groundwater and rainwater runoff?*

vi. *How would spills that could contaminate soils and degrade water quality be prevented, and in the event of a spill be contained and cleaned-up?*

Response:

A Preliminary Draft DESCP for the VV2 Project is provided as Attachment DR83-1. The following responses are provided based on material contained in the Preliminary Draft DESCP.

A. See DESCP drawings SKC-2005-038CP-071007-1A, SKC-2005-038CP-071007-1B and SKC-2005-038CP-071007-1C.

B. See DESCP drawing SKC-2005-038CP-071007-2, Ref. Figure = "Figure 2-1".

C. The only watercourse nearby the proposed site is the Mojave River and an intermittent stream as shown on See DESCP drawing SKC-2005-038CP-071007-3.

D. See DESCP drawings SKC-2005-038CP-071007-4A, SKC-2005-038CP-071007-4B

E.i. The existing topographic conditions of the Victorville 2 Project site depict 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. The east side of the site has a steep slope of 7 to 12 percent to the east, while the west side slopes at 0.8 to 1 percent to the west. See Appendix A of the DESCP document.

For purposes of developing drainage plans for the VV2 Project site, the power block (the roughly 25-acre area of the overall site where the combined-cycle generating equipment will be located) and the solar field (the remaining approximately 250 acres of the site) were divided into independent drainage systems. Each area has its own discharge location. The solar field will discharge along the entire length of the north side of the development area, while the power block will discharge through the outlet pipe of the planned sediment retention facility (see DESCP Drawings 4A and 4B which illustrate the conceptual drainage plans).

The power block, located in the southeastern portion of the Project site, is situated at the high point of the site. The power block area will drain to the north and south by means of sheet flow, swales, inlets, and/or storm sewer pipes. At the north and south sides of the power block, the runoff will be intercepted by a system of channels, culverts and/or storm sewers that will convey the storm water to the east. The storm water runoff will then be discharged into the Project's sediment retention facility located on the east side of the power block area.

The solar field will be graded at a 0.5 percent slope and storm water will drain to the north. The small slope will keep storm water flow rates low, thus minimizing the amount of sediments picked up by the runoff. In addition, applying a dust-controlling agent such as Dirt Glue or a similar product will stabilize sediments in the solar field.

E.ii. As described in Section 2 of the Preliminary Draft DESCP, the proposed grade has smaller slopes through the entire site allowing for an increase in time of concentration and infiltration for the runoff. Additionally, the sediment retention facility is expected to enhance the existing water quality properties on the site.

Water quality for the solar field will be addressed by a combination of flat slopes, silt fence and a grading arrangement that allows for ponding in the north side of the site. Infiltration is expected to be similar or higher than existing conditions due to the flat slopes proposed.

With-Project flooding conditions on the site will be improved compared to existing conditions, since the proposed grading will allow most of the runoff to be contained in the solar field for a short amount of time, providing the ability to control peak discharge rates at the northeast corner of the site.

E.iii. The proposed measures described above represent the Project's plan at the current stage of Project design. Additional detailed design work will quantify the efficiency of sediment removal, total infiltration, and floodwater attenuation. If the outcome of the detailed design work shows the need for a larger retention area, a trapezoidal ditch can be built at the north end of the solar field, which would allow for additional sediment removal, infiltration and flood water attenuation.

E.iv. In-kind mitigation would involve a combination of underground storage system and a trapezoidal ditch on the north side of the solar field.

F. See DESCP Drawings SKC-2005-038CP-071007-5A and SKC-2005-038CP-071007-5B.

G. See Section 3 of the Preliminary Draft DESCP..

H. See DESCP Drawings SKC-2005-038CP-071007-6A and SKC-2005-038CP-071007-6B.

I.i. No significant loss of pervious surface is expected in the solar field; for the power block area it is expected that only 30 percent of the area will be impervious surface due to foundations and the control building. The addition of this small impervious area will be mitigated by means of a sediment retention facility.

I.ii. Permeable surfaces will be used where feasible. The power block area will be covered with gravel in areas other than foundations and the roads.

I.iii. A sediment retention facility is planned for the power block area and the entire solar field will allow for infiltration

I.iv. In the unlikely event that soil stabilization is needed, BMPs will be implemented as described in Section 4 of the Preliminary Draft DESCP.

I.v. See Section 4 of the Preliminary Draft DESCP.

I.vi. A Spill Prevention Control and Countermeasures Plan (SPCC) Plan will be developed for the VV2 Project, and will be provided to the CEC when it is completed.

Data Request 84:

Please provide an economic and environmental assessment of wet, hybrid and dry cooling options for the project. As part of your assessment, please include the following information:

a. Capital Costs

1. For dry cooling, any additional cost for a steam turbine-generator designed to accommodate higher backpressure;
2. For wet and hybrid cooling, any additional cost for the condenser if not already included in the capital cost of the cooling towers;
3. For wet and hybrid cooling, capital cost of the circulating water and condensate pumps;
4. Engineering and construction costs (in addition to materials and equipment if already provided) for all water supply and cooling components;
5. Water supply pipeline capital costs, including the general design criteria specifying rated capacity, length, diameter, and its alignment for each source if different than the proposed project;
6. Water supply pump station or groundwater well capital costs from source to the project (if applicable);
7. Zero Liquid Discharge (ZLD) system capital costs accounting for the progressively lower treatment capacity needed when considering wet, hybrid and dry cooling respectively.

b. Operating Costs (for the Hybrid Cooling Tower only)

1. General design criteria, including for a parallel configuration, what portion of the cooling would be accomplished by the wet vs. dry sections;
2. Power consumption in kW by auxiliary equipment components including cooling tower fans, circulating water pumps, pump power for any wells or water supply stations, and water treatment with ZLD;
3. Water treatment chemicals; and
4. Make-up cooling water purchase cost.

c. Net Power Effects

1. The expected average capacity factor of the proposed project on an average annual basis; and
2. For hybrid cooling, power loss due to high STG backpressure.

Response:

a.1. Backpressure turbines (non-condensing) are not available over 100 MW . Thus, they are not considered suitable for use for the VV2 Project.

a.2. Additional cost for the condenser for wet cooling is estimated at $3,000,000. For hybrid cooling and for dry cooling, the condenser is included in the overall ACC cost.

a.3. Capital costs for circulating water pumps for wet cooling are estimated at $3,000,000. Assuming that circulating flow for a hybrid cooling system is half that of a wet cooling system, capital costs would be $1,500,000. Circulating water pumps are not needed for dry cooling.

Condensate pump sizing is dependent on boiler requirements, which are similar for all three cooling options ((wet, dry, and hybrid). Capital costs for all three options are estimated at $700,000.

a.4. In addition to the materials and equipment costs already provided, total, all-inclusive capital costs for water supply and cooling components, including engineering, construction, materials, and equipment are estimated as follows:

- Wet cooling tower $23,200,000
- ACC (dry cooling tower) $57,175,000
- Wet-dry hybrid cooling system $45,600,000

a.5. Following are estimated costs associated with the water supply pipeline for all three cooling alternatives:

<u>Dedicated Reclaimed Water Supply Line from water treatment plant to the Project:</u>

- Wet Cooling Tower- $1,100,000.
  (14” diameter pipeline, 1.2 miles long, 4000 gpm, 50 psig at plant boundary,96 psig at pump discharge),
- ACC- $1,100,000.
  (8” diameter pipeline, 1.2 miles long, 900 gpm, 50 psig at plant boundary, 90 psig at pump discharge),
- Wet-Dry Hybrid- $900,000.
  (10” diameter pipeline, 1.2 miles long, 2000 gpm, 50 psig at plant boundary, 97 psig at pump discharge).

Reclaim Water Storage Tank on site:

- Wet Cooling Tower- $750,000 (600,000 gallon tank)
- ACC- $125,000 (100,000 gallon tank)
- Wet-Dry Hybrid- $375,000 (300,000 gallon tank)
  - Water supply pipeline capital costs, including the general design criteria specifying rated capacity, length, diameter, and its alignment for each source if different than the proposed project.

Reclaim Water Pump Station:

- Wet Cooling Tower- $500,000 (227 HP)
- ACC- $200,000 (66 HP)
- Wet-Dry Hybrid- $300,000 (112 HP)

a.6. Water supply pump station-related costs from the source to the Project site are as follows:

Reclaim Water Pump Station:

- Wet Cooling Tower- $500,000 (227 HP)
- ACC- $200,000 (66HP)
- Wet-Dry Hybrid- $300,000 (112HP)

Reclaimed Water Pipeline

- Wet Cooling Tower- $1,100,000
  (14” diameter pipeline, 1.2 miles long, 4000 gpm, 50 psig at plant boundary, 96 psig at pump discharge),
- ACC- $1,100,000
  (8” diameter pipeline, 1.2 miles long, 900 gpm, 50 psig at plant boundary, 90 psig at pump discharge)
- Wet-Dry Hybrid- $900,000
  (10” diameter pipeline, 1.2 miles long, 2000 gpm, 50 psig at plant boundary, 97 psig at pump discharge)

a.7. Zero Liquid Discharge (ZLD) system capital costs are estimated as follows:

Item	Wet Cooling Tower	ACC	Wet-Dry Hybrid
ZLD Water Treatment System (includes all equipment, buildings, tanks, piping, and pumps)	$9,000,000	$2,000,000	$5,000,000

b. Operating Costs (for the Hybrid Cooling Tower only)

b.1. The portion of the cooling that would be accomplished by the wet and dry sections of a wet-dry hybrid cooling tower is shown in the following table:

Item	Minimum Design Case: 2 CTGs at 100%, Unfired with no solar, 18°F, 60%RH, 13.23 psia.	Average Design Case: 2 CTGs at 100%, Solar with partial firing, 77°F, 40%RH, 13.23 psia.,	Maximum Design Case: 2 CTGs at 100%, Solar with partial firing, 105°F, 28%RH, 13.23 psia.,
% ACC	100%	50%	40%
% Wet Cooling Tower	0%	50%	60%
Expected Backpressure	2.29 in hga	2.86 in hga	6.00 in hga

b.2. Power consumption in kW by auxiliary equipment components is shown in the following table:

Item	Wet Cooling Tower	ACC	Hybrid (50% ACC/50% Wet Cooling)
Fan power	1,700 kW	6,530 kW	3,000 kW
Circulating pump power	2,400 kW	0 kW	1,200 kW
Reclaimed water supply and ZLD water treatment power consumption; all pumps and equipment	850 kW	<200kW	525 kW
Pumping power for reclaimed water from treatment plant to pump	169kW	<50kW	83kW

b.3. Operating costs for water treatment chemicals are estimated as follows:

Circulating Water Chemical Usage-

- Wet Cooling Tower- $250,000
- ACC- $0 (no circulating water)
- Wet-Dry Hybrid- $125,000

Condensate treatment chemical usage was not considered because these costs are primarily driven by boiler requirements and will be substantially the same for all three cooling alternatives.

b.4. Makeup cooling water purchase cost is estimated at $200 per acre-foot.

c. Net Power Effects

c.1. The expected average capacity factor of the VV2 Project on an average annual basis is 65 percent.

c.2. Power loss due to high STG backpressure for hybrid cooling is shown below for three different cases:

- 105^{o}F 2 CTGs at 100%, Solar with partial firing-10,408 kw
- 77^{o}F 2 CTGs at 100%, Solar with partial firing- 0 kW-design case
- 18^{o}F 2 CTGs at 100%, unfired, no solar-1,448 kW operating on ACC only, Cooling Tower shut down