CALIFORNIA ENERGY COMMISSION
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June 1, 2009

Mr. Andrew Welch, Vice President
Competitive Power Ventures, Inc.
8403 Colesville Road, Suite 915
Silver Spring, MD 20910

DOCKET
08-AFC-11
DATE June 1 2008
RECD. June 1 2008

RE: CPV VACA STATION PROJECT (08-AFC-11)
DATA REQUEST SET 3 (#s 68-96)

Dear Mr. Welch:

Pursuant to Title 20, California Code of Regulations, Section 1716, the California Energy Commission staff seeks the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the project, 2) assess whether the facility will be constructed and operated in compliance with applicable regulations, 3) assess whether the project will result in significant environmental impacts, 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner, and 5) assess potential mitigation measures.

This set of data requests (#s 68-95) is being made in the areas of biological resources (#s 68-74), soils and water resources (#s75-95), and visual resources (# 96). If possible, we would appreciate written responses to the enclosed data requests on or before July 1, 2009, or at such later date as may be mutually agreeable.

If you are unable to provide the specific information requested, need additional time, or object to providing requested/specific information, please send a written notice to both Commissioner Jeffrey Byron, Presiding Committee Member for the CPV Vaca Station (CPVVS) project, and to me, within 20 days of receipt of this letter. If sent, this notification must contain the reason(s) for not providing the information, the need for additional time, and the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions, please call me at (916) 654-5191 or email me at rjones@energy.state.ca.us.

Sincerely,

Rod Jones
Project Manager

Enclosure
cc: Docket (08-AFC-11) and POS

PROOF OF SERVICE (REVISED 2/18/08) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 6/1/08
MS

Technical Area: Biological Resources
Author: Heather Blair

BACKGROUND

A pre-jurisdictional delineation of wetlands and waters of the United States and State was submitted to the Energy Commission in response to Data Request #33. The study identified 11 secondary agricultural drainage features that are likely to be considered jurisdictional waters, subject to confirmation by U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or California Department of Fish and Game (CDFG).

DATA REQUESTS

68. Please quantify the acreage of temporary and permanent impacts to each potentially jurisdictional drainage.

69. Please provide an update on coordination efforts with USACE, RWQCB, and CDFG (as applicable) regarding project permits and mitigation for impacts to jurisdictional waters. Provide any supporting documents (letter or record of conversation) that result from communication with these agencies, including impact mitigation, the permits required for the project, the steps the applicant has taken or plans to take, and the schedule for obtaining the permits.

BACKGROUND

The proposed project may result in permanent and/or temporary[1] impacts to giant garter snake (*Thamnophis gigas*; federally threatened, state threatened) upland and aquatic habitat. Information on acreage of impact is requested to assess the magnitude of impacts and identify the amount of compensation acreage, if required. Further, this information was requested by U.S.Fish and Wildlife Service in their comments on the AFC, which were submitted to the Energy Commission via email on April 21, 2009.

DATA REQUESTS

70. Please quantify the acreage of temporary and permanent impacts for both upland and aquatic giant garter snake habitat.

71. Please provide an update on coordination efforts with USFWS and CDFG regarding required project permits or agency proposed mitigation for impacts to listed species. Provide any supporting documents (letter or record of conversation) that result from communication with these agencies, including impact mitigation measures, the permits required for the project, the steps the applicant has taken or plans to take, and the schedule for obtaining the permits.

[1] Temporary impacts are defined by USFWS as effects that can be restored within one year.

BACKGROUND

The proposed project would use the existing Easterly Wastewater Treatment Plant (EWTP) discharge stream for cooling and other power plant processes, which will decrease the amount of water discharging into Old Alamo Creek. Old Alamo Creek is a tributary to Alamo Creek, a tributary to Ulatis Creek, which flows southeast into Cache Slough, then into the Sacramento River, and ultimately to the San Francisco Bay. A reduction in flows to Old Alamo Creek may affect species, including anadramous fish that utilize Old Alamo Creek and downstream aquatic habitat. Information required to analyze these potential project effects was not included in the Application for Certification (AFC) and is listed below.

DATA REQUESTS

72. a. Please identify resident or migratory fish, avian (or other) species (including any state or federally listed species) that utilize Old Alamo Creek and Alamo Creek.

    b. Please discuss how these species could be impacted by the changes in flow and water quality in Old Alamo Creek resulting from the project's use of EWTP discharge stream.

73. a. Please provide information on all state or federally listed species that could utilize Old Alamo Creek and Alamo Creek including the migratory windows for transient species that could utilize these waters during migration.

    b. Please discuss how these species could be impacted by the changes in flow and water quality in Old Alamo Creek resulting from the project's use of EWTP discharge stream.

74. Please provide copies of any correspondence and discuss any contacts that CPPV has had with California Department of Fish and Game, U.S. Fish and Wildlife Service, and/or National Marine Fisheries Service regarding the planned reduction in flows in Old Alamo Creek and Alamo Creek.

Technical Area: Soils and Water Resources
Authors: Mark Lindley & Philip Luecking

BACKGROUND

Phase I and Phase II Environmental Site Assessments (ESA) were conducted for the CPVVS site. The Phase I ESA indicated that the site had previously been utilized for agricultural activities and disposal of biosolids from municipal wastewater treatment sludge. The Phase II ESA found levels of arsenic and chromium greater than human health screening levels. However, the arsenic levels were not significantly above background levels and moderately elevated arsenic levels are typical for many California soils. The chromium analyses were not subject speciation to determine the levels of the more toxic chromium VI and it is not expected that there are significant levels of chromium VI. Organochlorine pesticides including DDE were detected at levels above the Title 22 hazardous waste criteria (but below the human health screening levels) in a number of surface samples.

Potential impacts and LORS compliance related to existing soil contamination will be examined in both Waste Management and Soil and Water Resources. Waste Management staff will be examining the soil handling and disposal aspects of this issue. Soil and Water Resources staff will be examining the potential for the existing soils to cause either onsite of offsite impacts to soil and water primarily related to wind and/or water borne erosion of the existing soils during construction activities. The Phase II Site Assessment concluded that the project should develop a Soil Management Plan that addresses issues related to construction worker exposure to contaminated soils and potential offsite impacts related to wind and water borne erosion.

DATA REQUEST

75. Please provide a draft Soil Management Plan including planning level discussion of soil handling plans for removal of existing soils including the planned disposal location for the excavated materials. The draft Soil Management Plan should include sufficient detail for Waste Management staff to review the adequacy of the plan related to soil handling and disposal and for Soil and Water Resources staff to confirm that Best Management Practices will be employed to limit the potential impacts related to wind or water borne erosion of existing soils.

BACKGROUND

CPV Vacaville, LLC (CPVV or Applicant) proposes to construct a 600-megawatt (MW) natural gas fired, combined-cycle power plant in Vacaville, California. The CPV Vaca Station (CPVVS) plans to utilize up to 6.3 million gallons per day of recycled water for cooling and plant makeup water uses. Secondary treated recycled water will be supplied from the City of Vacaville's (city) Easterly Wastewater Treatment Plant (EWTP). A 2,600-foot long utility corridor between EWTP and CPVVS will contain the

20-inch recycled water pipeline, a 12-inch potable water pipeline as well as a 2-inch sanitary sewer pipeline and a 6-inch tertiary treated wastewater pipeline.

The CPVVS proposes to utilize secondary-treated recycled water for water used in the evaporative cooling towers and for all plant makeup water. The recycled water will be supplied by EWTP, via a new 20-inch diameter recycled water pipeline. EWTP is located just northwest of the CPVVS site. The average annual recycled water use is estimated to be 3,636 acre-feet per year (afy) with an average daily use of 2,254 gallons per minute (gpm), or approximately 3.2 million gallons per day (mgd). The maximum daily use is estimated to be 4,363 gpm or approximately 6.3 mgd. The EWTP supply of secondary-treated recycled water averages 6.5 mgd. The CPVVS has a Will Serve letter from the city reserving 5 mgd of effluent from the EWTP and up to 840 gallons per day of potable water from wells located at the treatment plant. There are currently no other users of secondary-treated recycled water. The peak daily demand for recycled water is approximately 97% of the average plant daily production. No backup water supply is planned based on reliability of supply from EWTP. Staff would like additional information to confirm that the EWTP can provide an adequate, reliable water supply to meet the peak demands at the CPVVS to ensure that the project can operate reliably.

The CPVVS average water use during construction will be approximately 224 million gallons per year or 690 afy. The CPVVS will not use any groundwater resources, though the Will Serve letter provides for some use of groundwater resources for potable water supply to CPVVS.

A new 12-inch potable water supply pipeline will provide potable water for domestic uses including drinking, eye washes, and safety showers. The AFC indicates that fire protection water will be provided by both the city of Vacaville's potable water system and from EWTP's fire-water loop.

DATA REQUESTS

76. Please provide the range of production rates of secondary-treated recycled water from EWTP that result in an average production of 6.5 mgd. Additionally, provide discussion showing the seasonal variation of discharges to verify that the EWTP summer discharges will meet the peak demands of the CPVVS, which are most likely to occur during the hot summer months.

77. Please provide a discussion of the recycled water storage capacity at the EWTP. This storage capacity is critical to provide the reliability of supply for CPVVS and subsequently precludes the need for any backup supplies for cooling water. Please include in the discussion, if there are any options for alternative sources of cooling water if EWTP is not capable of meeting peak water demands. Ideally, the applicant should provide a water balance illustrating that there is sufficient storage capacity at EWTP to dampen variations in effluent production and water demand at CPVVS.

78. Please provide a discussion of the anticipated uses and requirements for potable water. Please confirm if the 12-inch potable water line is required to supply water for fire protection and/or to utilize potable water as a backup supply.

79. Please confirm the planned source of water for fire protection. Please clarify if CPVVS is planning to utilize potable water, the EWTP fire loop, or both for fire protection.

BACKGROUND

The EWTP discharges secondary-treated effluent to Old Alamo Creek, tributary to Alamo Creek, tributary to Ulatis Creek, tributary to Cache Slough which flows to the Sacramento River and Sacramento–San Joaquin Delta before flowing to San Francisco Bay. Old Alamo Creek and Alamo Creek currently support well-developed riparian habitat. The Draft Solano Multispecies Habitat Conservation Plan (MHCP) describes Alamo Creek as a priority drainage and watershed area which represents a high value conservation area. It is not clear how the removal of the EWTP discharge to Old Alamo Creek will impact the existing habitat and resident species of Old Alamo Creek, and Alamo Creek. Staff would like additional information to help determine the potential for the project's proposed use of EWTP effluent to impact flows and water quality in Old Alamo Creek and Alamo Creek.

DATA REQUESTS

80. Please provide average monthly flow data for Old Alamo Creek upstream and downstream of the point of discharge from EWTP and for Alamo Creek downstream of the confluence with Old Alamo Creek. Please provide an estimate of the percentage of the average monthly flow in Old Alamo Creek and subsequently Alamo Creek that is made up of effluent discharged from EWTP.

81. Please provide a discussion of the anticipated impacts to average monthly flow rates, water quality, salinity, and temperature in Old Alamo Creek and Alamo Creek if all or most of the EWTP effluent is diverted to the CPVVS.

82. Please provide copies of any correspondence and discuss any contacts that CPPV has had with the local RWQCB regarding the planned reduction in flows in Old Alamo Creek and Alamo Creek.

BACKGROUND

The CPVVS proposes to utilize evaporative cooling. The project's average daily water use is estimated to be 2,254 gallons per minute (gpm) with an estimated 1,995 gpm lost to evaporation in the project's cooling towers. The project's maximum daily water use is estimated to be 4,363 gpm with 3,841 gpm estimated to be lost to evaporation in the plant's cooling towers. Thus, about 88.5% of the average water use and 88% of the maximum water use is lost to evaporation in the project's cooling towers.

Dry cooling technology can significantly reduce CPVVS's proposed water use. This technology has proven economical and reliable in numerous power plants throughout California. As outlined in the background and data requests provided above, staff is concerned that the project's proposed use of EWTP effluent could lead to potentially significant impacts to flows and habitat along Old Alamo Creek and Alamo Creek. Staff would like additional information to analyze the feasibility of dry cooling vs. the proposed evaporative cooling approach to address the potential for significant impacts related to reduction in flows in the Alamo Creek system.

DATA REQUEST

83. Please provide a discussion of project alternatives including utilizing dry cooling technology as an alternative to evaporative cooling at CPVVS. Please provide a planning level economic analysis and water supply estimates comparing the use of dry cooling, wet/dry cooling, vs. the proposed wet cooling approach.

BACKGROUND

The CPVVS plans to treat secondary recycled water from EWTP to tertiary treatment standards of the California Title 22 Regulations for industrial reuse of secondary-treated wastewaters. The on-site treatment process includes continuous, upflow sand filtration.

Under California Code of Regulations (CCR) Title 22, the applicant will be required to prepare an engineer's report for the production, distribution, and use of recycled water at the CPVVS and to obtain review and comments from the State Department of Health Services (DHS) and RWQCB which typically approve wastewater recycling plants.

The production and use of recycled water is regulated under federal and state law. The State Water Resources Control Board (SWRCB) shares jurisdiction with the Regional Water Quality Control Board (RWQCB) and DHS over the production and use of recycled water. The SWRCB exercises general oversight over recycled water projects, while DHS is charged with the protection of public health and drinking water supplies through the development of uniform water recycling criteria. Under California Water Code, Sections 13522.5, 13523 and 13523.1, any person who proposes to produce or use recycled water must file a report and obtain water reclamation requirements for a master reclamation permit from the appropriate RWQCB.

One of the primary conditions for the use of recycled water is protection of public health. The current water recycling criteria (Title 22, CCRs, Sections 60301 through 60355) require the submission of an engineering report to the RWQCB and DHS before recycled water projects are implemented. In addition, Title 17, California Code of Regulations addressed the health and safety requirements of backflow prevention and cross connection of potable non-potable water lines.

DATA REQUEST

84. Please provide documentation showing the applicant has established contact with DHS and RWQCB notifying them that they propose to treat and use recycled water for project operation. If the applicant has already contacted these

agencies regarding their proposed treatment and use, please provide copies of any correspondence**.**

BACKGROUND

The treatment process will include phosphate removal by addition of ferric chloride. The wastewater stream created during filtering backwash will be approximately 10 percent of the feedwater flow. During summer peak power production and plant water use for cooling, the wastewater stream flow rate could be as high as 436 gpm or 0.63 mgd (million gallons per day).

The wastewater stream will differ from the secondary recycled water as follows: an increase in total suspended solids (TSS), with precipitated iron and phosphate; reduced alkalinity; increased chloride; decrease in biochemical oxygen demand (BOD) and total organic carbon (TOC); reduction in pH. It is planned that the wastewater generated by the filter backwash process will be returned to the headworks of EWTP via a 6-inch pipeline. The applicant is currently in discussions with EWTP to arrange for the return of this wastewater to the EWTP headworks, however, it is not clear if the EWTP can process wastewater from CPVVS's tertiary treatment process. Staff needs to confirm the CPVVS has a workable plan to discharge wastewater and confirm that EWTP can process the planned wastewater discharge.

DATA REQUESTS

85. Please provide a status report on the discussions with EWTP to return the filter backwash wastewater stream to the EWTP headworks.

86. Please provide a discussion of alternate plans for treatment of the filter backwash if the water quality of the wastewater stream does not allow for direct delivery to the EWTP headworks.

BACKGROUND

There is no existing stormwater drainage system at the project site. Stormwater runoff from the CPVVS site either infiltrates into the soils or drains to existing drainage culverts. A preliminary stormwater management plan was included as an appendix to the AFC. This plan includes preliminary stormwater runoff calculations and a site plan showing drainage patterns and retention pond at the eastern edge of the project site. Stormwater from the equipment area drains will be directed to an oily water separator before being recovered for reuse in the cooling tower makeup water. Stormwater from the remaining site area will be directed to the stormwater retention pond via a network of drainage ditches and pipes.

The AFC states that there will be no discharge of stormwater from the site to nearby water ways or released off-site and that all water routed to the retention pond will be percolated or evaporated. However, the site plan contained in the preliminary stormwater management plant clearly shows an outlet at the southeast corner of the

detention pond with a 48-inch riser pipe. The riser is connected to a stormwater drain that discharges to an existing culvert near the intersection of Fry Road and Lewis Road.

The site plan also shows storm drains and drainage ditches that discharge directly to the surface at the southern boundary of the pond. The stormwater runoff volumes used to size the stormwater retention basin were based on a 100-year 1-hour storm event. The storage capacity of the pond is 203,963 ft^3 as presented in the preliminary stormwater management plan calculation documentation. However, the site plan contained within this same document shows a retention pond with an estimated storage capacity of approximately 150,000 ft^3.

The CPVVS will utilize best management practices (BMP) to prevent offsite migrations of sediment and other pollutants and reduce the impacts of runoff from the site during and following construction. The Energy Commission requires the development and implementation of a Drainage Erosion and Sediment Control Plan (DESCP) to reduce the impacts of runoff from the CPVVS site.

DATA REQUESTS

87. Please provide a discussion clarifying the intended function of the retention pond, indicating if stormwater will be released from the site during events equal or below a 100-year event.

88. Please provide hydrologic design calculations for the proposed stormwater retention basin, demonstrating that the basin can handle a 100-year 24-hour runoff volume based on the retention basin stage-volume relationship and the planned outlet structure.

89. Please clarify if the 48-inch riser pipe is intended to serve as an emergency outlet for the retention pond for events greater than the 100-year event, and if so, provide discussion and calculations for sizing the structure. If this is not the case, provide a discussion and/or figures to clearly demonstrate the design intent and include an emergency outlet for the retention pond.

90. Please provide a discussion of the waterways and water bodies downstream of the connection to the culvert at Fry and Lewis Roads that will receive stormwater runoff discharged from the retention pond if this is to occur as shown on the site drainage plan.

91. Please provide documentation demonstrating that the CASQA Water Quality Volume can infiltrate into the subsurface within 3 to 5 days given the low permeability soil conditions that exist at the CPVVS site.

92. Please clarify the discrepancy related to the preliminary size of the retention pond.

93. Please provide a draft Drainage Erosion and Sediment Control Plan (DESCP) containing elements A through I below outlining site management activities and erosion/sediment control BMPs to be implemented during site mobilization, excavation/demolition, construction, and post-construction activities. The level of

detail in the draft DESCP should be commensurate with the current level of planning for 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. The DESCP may be combined with the Stormwater Pollution Prevention Plan (SWPPP) required by the Regional Water Quality Control Board to limit the need for the project to develop separate stormwater management plans.

A. **Vicinity Map** – A map(s) at a minimum scale 1"=100' will be provided indicating the location of all project elements (construction site, laydown area, pipelines, etc.) 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 CPVVS (project site, laydown area, 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 CPVVS construction, laydown, 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. **Narrative of Project Site Drainage** – 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 CPVVS construction and laydown areas.

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

G. disposal areas, fills, or other special features will also be shown. Illustrate existing and proposed topography tying in proposed contours with existing topography.

H. **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 CPVVS project (project site, lay down area, transmission corridors, and pipeline corridors) whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported.

I. **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.

J. **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, during all project element (site, pipelines, etc.) excavations 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.

BACKGROUND

The CPVVS project will make no direct use of groundwater resources. The geotechnical investigation included soil borings and cone penetration tests to investigate subsurface site conditions. Groundwater measurements were taken in coordination with these borings. The depth to groundwater was reported to be between 3 and 5 feet below ground surface. The report further states that groundwater will be encountered during construction of the CPVVS facilities and dewatering will be required during construction. Excavation depths for the various CPVVS facilities range from less than one foot to 25 feet.

Additionally, Phase I and Phase II Environmental Site Assessments (ESA) were conducted for the CPVVS site. Groundwater samples were collected as part of Phase II ESA and indicated that low levels of metals and organochlorine pesticides are present in shallow groundwater at the site. This water may be considered a waste and require management in accordance with RWQCB waste discharge permit requirements.

DATA REQUESTS

94. Please provide a detailed discussion of the construction dewatering plan. Include discussion of how materials will be handled on site, where the groundwater will

be discharged, whether water treatment required and whether a RWQCB Waste Discharge permit will be required.

95. If a RWQCB waste discharge permit is required please provide a draft Report of Waste Discharge that has also been submitted to the RWQCB for review and comment.

Technical Area: Visual Resources (Visual Simulations)
Author: William Kanemoto

BACKGROUND

Staff may need to prepare visible vapor plume simulations of the project, depending upon the results of the vapor plume modeling study to be completed by staff. If simulations are required, staff will require high-resolution digital files of the applicant's previously prepared simulations, to serve as the base image for the plume simulations.

DATA REQUEST

96. Please provide high-resolution digital copies of the simulations prepared for the AFC.