

STATE OF CALIFORNIA
California Energy Commission

DOCKET

08-AFC-12

DATE OCT 26 2009

RECD OCT 26 2009

In the Matter of:

The Application for Certification
for the San Joaquin Solar 1 and 2 Hybrid
Power Plant Project

Docket No. 08-AFC-12

CALIFORNIA UNIONS FOR RELIABLE ENERGY
PETITION TO COMPEL PRODUCTION OF INFORMATION
IN RESPONSE TO CURE DATA REQUESTS, SET FIVE

October 26, 2009

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I. INTRODUCTION

The San Joaquin Solar 1 and 2 Hybrid Power Plant Project (“Project”) is proposed to be sited in Fresno County, near the City of Coalinga. This predominantly agricultural area of California is characterized by persistent drought conditions and groundwater overdraft. Although perennial water constraints and current drought conditions plague the San Joaquin Valley, the Project proposes to rely on groundwater from one of the more impacted water basins in Fresno County. Its annual water demand is roughly equivalent to *nine* 500-unit residential developments.¹

The Project area is also designated nonattainment for state PM10 and federal and state PM2.5 standards. The Project consists of two hybrid power plants that each includes a solar field and biomass facility. As such, the Project will burn approximately 450,000 bone-dry tons of biomass fuel annually. The apparent conflicts between this Project and its proposed environmental setting require adequate consideration by the California Energy Commission.

On September 4, 2009, California Unions for Reliable Energy (“CURE”) served its fifth set of data requests on the Applicant, San Joaquin Solar 1 and 2 LLCs (“SJS”), pursuant to section 1716(b). (Exhibit 1.) On September 24, 2009, SJS served objections to twenty-eight data requests. (Exhibit 2.) SJS served

¹ According to the Guidebook for Implementation of SB 610 prepared by the California Department of Water Resources, a dwelling unit generally would consume between .3 and .5 acre-feet of water. This equals approximately 162,925.7 gallons of water per dwelling unit per year. Thus, a 500-dwelling unit would consume 81,462,850 gallons a year. Wastewater will supply approximately half of the average daily requirements, therefore approximate annual use is 730,000,000. *See* AFC, 5.5-12. (1,000,000 x 2 x 365 = 730,000,000 gallons). $730,000,000/81,462,850 = 8.96$.

partial responses to CURE's fifth set of data requests on October 5, 2009. (Exhibit 3.)

CURE requested information that relates to the direct, indirect and cumulative environmental impacts of the Project under Commission regulations, the California Environmental Quality Act ("CEQA"), and the Warren-Alquist Act. As explained more fully below, this information relates to the Commission's analysis of the Project's potentially significant impacts to air quality, surface water quality, and ground water resources in the Pleasant Valley. Without this information, the Commission will not have all of the information necessary to evaluate the Project. In addition, CURE will be unable to exercise its right to fully participate in this proceeding and to provide meaningful input into the Commission's licensing process.

CURE respectfully submits this petition pursuant to section 1716(f) of the Commission's regulations to compel the production of information that is relevant, reasonably available and, in some cases, within the sole control of SJS. The Commission should find SJS's objections meritless and compel SJS to provide the information sought. CURE respectfully requests an order directing SJS to provide the information requested in Data Requests 206, 223, 224, 232, 234, 235, 236, 237, 242, 249, 257, 259, 261, 266-274 and 278.

II. DISCUSSION

Any party to an AFC proceeding may "request from the applicant any information reasonably available to the applicant which is relevant to the ...

proceedings or reasonably necessary to make any decision on the ... application.”²

At least three sources define the type of information that is relevant and reasonably necessary to make a decision on SJS’s AFC. First, Commission regulations identify the preliminary scope of environmental information that must be produced by SJS before the Commission can determine that an application is “data adequate.”

Second, CEQA requires sufficient facts and analysis for the Commission to identify potentially significant direct, indirect, and cumulative environmental impacts and devise feasible mitigation measures for those impacts. Third, the Warren-Alquist Act requires that the Commission determine the project’s conformity with other laws, ordinances, regulations and standards (“LORS”), and assure that the public’s health and safety will be protected prior to issuing a license. Information related to any of these requirements is unquestionably relevant and necessary for the Commission’s review of SJS’s AFC.

SJS raises general and specific objections to CURE’s data requests. For the third time in this proceeding, SJS has accused CURE, by way of a general objection, of engaging in illegal labor practices by virtue of its participation in this proceeding. Responses to those objections are provided in CURE’s petition to compel responses to CURE’s fourth set of data requests, which was filed on October 14, 2009, and is incorporated here by reference.³ Responses to SJS’s specific objections are set forth below. SJS’s objections lack merit.

² Cal. Code Regs., tit. 20, § 1716(b).

³ Exhibit 4: CURE Petition to Compel Production of Information in Response to CURE Data Requests, Set Four, pp.4-15.

A. SJS's Specific Objections Lack Merit

Commission discovery procedures provide that if the applicant refuses to provide the requested information, the requesting party “may petition the committee for an order directing the responding party to supply such information.”⁴ The Committee in the Carlsbad Energy Center proceeding noted that the production of “information” by the applicant includes data and other objective information available to it.⁵ Although the answering party is not required to perform research or analysis on behalf of the requesting party, the “line between discoverable data and undiscoverable analysis and research is dependent on the particulars of a request and cannot be drawn with precision.”⁶ Thus, in evaluating the request, the Committee in Carlsbad Energy Center considered four factors:

1. The relevance of the information;
2. Whether the information is available to the applicant, or from some other source, and whether it has already been provided in some form;
3. Whether the request is for data, analysis, or research; and
4. The burden on the applicant to provide the data.⁷

CURE's data requests are relevant to the application under CEQA and the Warren-Alquist Act, and the information sought should be reasonably available to SJS because it is already in SJS's possession or is required by Commission regulations. For these reasons, CURE's requests exact no unfair burden on SJS.

⁴ Cal. Code Regs., tit. 20, Ch. 5, art. 1 § 1716(g).

⁵ Committee Ruling on Intervenor Center for Biological Diversity's Petition to Compel Data Responses, Application for Certification for the Carlsbad Energy Project, Docket No. 07-AFC-6, (Dec. 26, 2008), p.2.

⁶ *Id.*

⁷ *Id.*

1. SJS's Objections to CURE's Data Requests Regarding Greenhouse Gas and Toxic Biofuel-Combustion Emissions Lack Merit

Information regarding potentially significant impacts to air quality from combustion of biomass is particularly relevant and necessary in this case because the Project's objectives are to "generate and sell clean, renewable electricity" in accordance with the Governor's orders and the State's regulatory requirements for a 33% Renewable Portfolio Standard (RPS) by 2020.⁸ Consistent with these standards, the AFC claims that the Project will be a carbon-neutral facility.⁹ However, SJS has failed to provide information that would enable the public and the Commission to verify SJS's claim.

SJS refuses to provide basic information, such as vendor specifications and greenhouse gas emissions factors for the Project's fluidized bed combustors. Similarly, SJS has failed to provide any information that explains how its "carbon-neutral" proposal will protect against the indirect, deleterious impacts to human health from the burning of toxic chemicals.

a) CURE Data Request No. 206: Fluidized Bed Combustion Technology

The basis for CURE's Data Requests 206 is as follows,

⁸ See AFC, p.2-1.

⁹ AFC, p.2-2.

Background: SPECIFICATIONS FOR FLUIDIZED BED COMBUSTORS

It appears that the Project would use bubbling fluidized bed combustors (“BFBs”) manufactured by EPI.¹⁰ The Applicant has not yet provided vendor specifications for the Project’s BFBs.

Data Request

206. Please provide EPI vendor specifications for the fluidized bed combustors that will be installed at the Project.

SJS Response

The applicant has provided many specifications for the fluidized bed combustors from EPI. The vendor specifications for the fluidized bed combustors such as equipment dimensions or materials of construction are not finalized, but a preliminary general arrangement is shown in the attached figure.¹¹

CURE Response

SJS’s response to Data Request 206 is inadequate. While SJS has provided some specifications for the fluidized bed combustors from EPI, it has not provided all of them. For example, SJS has not yet provided the following documents: (1) EPI boiler model data from October 22, 2009 (EPI reference 1587), relied on by SJS for the estimates of “EPI Emission Predictions”;¹² (2) “Data from EPI Emissions Predictions stm 9 26 08.pdf,” relied on by SJS for the estimates of the Project’s CO₂

¹⁰ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, “Combustor Startup Emission Estimations, Table 1587 (from EPI), BFB Cold Start-up Sequence.”

¹¹ 08-AFC-12, Supplemental Information In Response to Cure Data Request Set #5, (Oct. 5, 2009), Response to Data Request 206.

¹² AFC, Appendix B-3, revised June 2009.

emissions;¹³ or (3) “EPI 22-Oct-08,” which includes the emission factors used in SJS’s calculation of toxic air contaminant emissions.¹⁴ Therefore, CURE requests SJS to provide all documents from EPI that were used to estimate criteria pollutant and toxic air contaminant emissions from the Project.

By virtue of its response, SJS admits that Data Request 206 seeks information that is reasonably available to SJS, which is relevant and reasonably necessary for the Commission to make a decision on the application. SJS already has the requested information, evidenced by its reliance on the data for its air quality analysis. Furthermore, consistent with the Committee’s decision in Carlsbad Energy Center, the requested documentation is necessary to enable the Commission to evaluate whether SJS’s emission calculations are correct and based on applicable information.¹⁵ The requested information is reasonably necessary for a decision on the application, because the request is for data that SJS relied upon to evaluate the Project’s potentially significant impacts on air quality. The requested information is relevant to the application under CEQA, because the information will enable the Commission to identify the “significant environmental effects” of the proposed Project.¹⁶

b) CURE Data Requests 223 and 224: Operational Emissions

The basis for CURE’s Data Requests 223 and 224 is as follows,

¹³ *Id.*

¹⁴ See AFC, Appendix N.

¹⁵ Committee Ruling on Intervenor Center for Biological Diversity’s Petition to Compel Data Responses, Application for Certification for the Carlsbad Energy Project, Docket No. 07-AFC-6, (Dec. 26, 2008), p.4.

¹⁶ Public Res. Code § 21100(b)(1); Cal. Code Regs., tit. 14, §§ 15126(a), 15126.2(a), 15143.

Background: EMISSIONS OF NITROUS OXIDE AND METHANE FROM BIOMASS COMBUSTORS

Fluidized bed combustion is well known to produce considerable emissions of nitrous oxide (“N₂O”) and methane (“CH₄”), both potent greenhouse gases.

Emissions of N₂O and CH₄ depend mainly on the type of fuel, type of fluidized bed combustors (bubbling vs. circulating), combustion temperature, and control equipment configuration (SCR, SNCR, aqueous ammonia vs. urea, etc.).

Combustion temperature has the largest effect on N₂O emissions and shows an opposite effect to emissions of NO_x. Numerous investigations have demonstrated that while lower bed temperatures reduce NO_x emissions, they result in increasing N₂O emissions.¹⁷

SJS’s revised greenhouse gas emission estimates in Appendix AQ-2 to the 3rd Response to CEC Data Requests Set #1 (“San Joaquin 1&2 Solar Hybrid Project Total Operational Emissions”) do not account for emissions of N₂O and CH₄ from the fluidized bed combustors. The California Climate Action Registry General Reporting Protocol indicates that typical emission factors for electric power generation from wood are on the order of 0.009 and 0.07 pounds per million BTU (“lb/MMBtu”) for N₂O and CH₄, respectively.¹⁸ N₂O and CH₄ emission factors for the Project may be higher due to the fluctuating combustion temperatures when the biomass combustors are shut off during the day or ramp up in the evening.

¹⁷ See, e.g., Simon N. Oka, *Fluidized Bed Combustion*, Marcel Dekker, Inc., New York, 2004, pp.556-557.

¹⁸ California Climate Action Registry, General Reporting Protocol, Version 3.1, January 2009, Table C.8, p.103.

Data Request:

223. Please provide N₂O and CH₄ emission factors for the Project's biomass combustors for the various types of fuel mixes and combustion temperatures. Please document all your assumptions.

SJS Objection:

The Applicant has not calculated N₂O and CH₄ emission factors for “various types” of fuel mixes and combustion temperatures. The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

SJS first objects on the ground that the requested information is not reasonably available to SJS. This objection is without merit. SJS carries the burden of supplying the requested information under Commission regulations, which require applicants to provide “[t]he emission rates of criteria pollutants and greenhouse gases (CO₂, CH₄, N₂O and SF₆) from the stack, cooling towers . . . and all on-site secondary emission sources.”¹⁹ The requested information is reasonably available because N₂O and CH₄ emission factors for biomass combustors are available in the literature or can be obtained from permits or applications for biomass combustion facilities. For example, as provided above, the California Climate Action Registry General Reporting Protocol indicates that typical emission factors for electric power generation from wood are on the order of 0.009 and 0.07

¹⁹ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(8)(E).

lb/MMBtu for N₂O and CH₄, respectively. Therefore, the requested information is reasonably available to SJS.

SJS also objects on the ground that the requested information is not reasonably relevant to any decision the Commission must make on the Application. This objection is also without merit. First, the requested information is relevant to the Commission's decision, because greenhouse gas emissions from the Project are "clearly an element of [the Commission's] analysis."²⁰ For example, in the Carlsbad Energy Proceeding, Staff analyzed the potential for greenhouse gas emissions from the natural gas-fired Carlsbad Energy facility. Even though the Carlsbad Energy facility met GHG-emission requirements and was not subject to the Emission Performance Standard SB 1368, Staff recommended that the project-operator report greenhouse gas emissions to the California Air Resources Board in light of pending requirements regarding GHG reporting and reduction or trading.²¹

The requested information is also relevant under CEQA, which requires an analysis of the Project's cumulatively considerable environmental impacts.²² CEQA defines a "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment."²³ Such adverse effects include effects that may be individually limited, but are "cumulatively considerable."²⁴

²⁰ Committee Ruling on Intervenor Center for Biological Diversity's Petition to Compel Data Responses, Application for Certification for the Carlsbad Energy Project, Docket No. 07-AFC-6, (Dec. 26, 2008), p.4.

²¹ Preliminary Staff Assessment, Application for Certification for the Carlsbad Energy Project, Docket No. 07-AFC-6, (Dec. 11, 2009), p.4.1-59.

²² See Pub. Resources Code §§ 21068, 21081, 21083, subd. (b); CEQA Guidelines §§ 15091, 15093, 15355.

²³ Pub. Resources Code § 21068 (emphasis provided).

²⁴ Pub. Resources Code § 21083, subd. (b); CEQA Guidelines § 15065, subd. (a)(3).

The requested information is also relevant under California Assembly Bill 32 (“AB 32”), a landmark law to control and reduce the emission of global warming gases in California. AB 32 requires the reduction of GHG emissions to 1990 levels by 2020.²⁵ The California Legislature has also recognized that climate change is an environmental effect subject to CEQA and has instructed the Office of Planning and Research (“OPR”) to develop guidelines for the mitigation of GHG emissions.²⁶ In June 2008, OPR, in collaboration with the Resources Agency, California Environmental Protection Agency and California Air Resources Board, developed and released a new technical advisory containing informal guidance for public agencies as they address the issue of climate change in their CEQA documents, pending completion of formal guidelines.²⁷ The guidelines outline OPR’s recommended approach for performing a climate change analysis. These include methods for identifying and quantifying GHG emissions, determining the significance of the impact on climate change, and if the impact is found to be significant, identifying alternatives and/or mitigation measures to reduce the impact below significance. Therefore, lead agencies should determine whether a project’s climate change-related effects may be significant and impose feasible mitigation to substantially lessen or avoid any significant effects.²⁸ Therefore, the requested information is undeniably relevant to the Commission’s decision on the Application.

²⁵ Health & Saf. Code § 38550.

²⁶ Pub. Resources Code § 21083.05.

²⁷ <http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>

²⁸ CEQA Guidelines § 15064, subd. (f)(1) & 15021, subd. (a)(2).

Data Request:

224. Please provide estimates of annual carbon dioxide-equivalent emissions of N₂O and CH₄ for the Project biomass combustors. Please document all your assumptions.

SJS Objections:

The Applicant has not estimated the annual carbon dioxide-equivalent emissions of N₂O and CH₄ for the Project biomass combustors. The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

SJS carries the burden of producing information that is reasonably necessary and relevant to the Commission's decision on the Project's "direct, indirect, and cumulative impacts."²⁹ The information is reasonably available because annual carbon dioxide-equivalent emissions can be calculated from emission factors for N₂O and CH₄ (available as discussed above), the global warming potential for N₂O and CH₄ and the maximum annual heat input for the plant.

The requested information is relevant to the Commission's analysis of the Project's cumulatively considerable greenhouse gas emissions impacts under CEQA.

Greenhouse gas emissions from the Project include N₂O and CH₄ emissions from the biomass combustors. These emissions have not yet been provided for the Project, but are undeniably relevant to a GHG analysis.

²⁹ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(1).

c) CURE Data Requests No. 232: Operation Emissions

The basis for CURE's Data Requests 232 is as follows,

Background: MITIGATION FOR MOBILE SOURCE EMISSIONS

The CEC's AFC process for permitting of power plants is functionally equivalent to the process for other projects under CEQA. Under CEQA, many large stationary sources with considerable emissions attributable to mobile sources are required to implement stringent mitigation measures. For example, the proposed Liberty Quarry in Riverside County would be required to implement a number of mitigation measures to mitigate mobile source emissions. Emissions from off-site mobile sources at the proposed Liberty Quarry would amount to 58.1 tons/year NO_x, 9.5 tons/year PM₁₀, and 3.8 tons/year PM_{2.5}. In comparison, the SJS 1&2 Project would generate emissions from off-site mobile sources of 20.25 NO_x, 18.75 tons/year PM₁₀, and 3.22 tons/year PM_{2.5}.³⁰ To mitigate emissions from mobile sources, the Liberty Quarry would implement a Clean Air Truck program whereby the Applicant would either retrofit or replace 130 heavy-duty diesel-fueled truck engines when the proposed quarry first opens for operation. The Liberty Quarry Applicant would work with trucking firms to identify and retrofit these trucks prior to initiating permanent plant operations. The engine retrofits (diesel particulate filters and NO_x catalysts) will reduce individual truck emissions of PM₁₀ by about 85 percent and NO_x emissions by up to 40 percent, depending on the technology used for the retrofit. The Liberty Quarry Applicant plans to replace some of the

³⁰ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, "San Joaquin 1&2 Solar Hybrid Project Total Operational Emissions."

engines with model year 2007 or newer engines rather than retrofitting existing engines. Engine replacement results in emission reductions of PM10 by 90 to 96 percent (depending on the age of the replaced engine) and NOx by 95 percent or more from older engines.³¹ Here, the Applicant for the SJS 1&2 Project does not propose any mitigation for the emissions from mobile sources. A Clean Air Truck program, as proposed for the Liberty Quarry, is equally feasible for the Project to mitigate the substantial mobile source emissions associated with transporting biomass to the Project site.

Data Request:

232. Please discuss potential mitigation measures to mitigate the Project's mobile source emissions, including the feasibility of a "Clean Air Truck" program (retrofit and replacement of trucks owned by trucking firms delivering biomass) such as proposed by the Liberty Quarry Applicant.

SJS Objection:

As set forth in the Applicant's response to CEC Data Requests 24, the mobile source emissions of the project do not constitute a significant impact. In the absence of significant impacts, mitigation measures are not required. Therefore, a discussion of "potential mitigation measures" is not reasonably necessary to any decision the Commission must make on this Application.

³¹ County of Riverside, Draft Environmental Impact Report No. 475, Liberty Quarry, Surface Mining Permit No. 213, SCH No. 20077061104, July 2009, Mitigation Measure AQ-3j, p.3.2-52.

CURE Response:

SJS objects on the ground that the requested information is not reasonably necessary for any decision the Commission must make on the Application. This objection is without merit. CEQA defines a “project” as “the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.”³² Therefore, CEQA requires the Commission to determine Project emissions for all stationary, area, and mobile sources to determine the overall significance of the Project’s impacts on air quality. Furthermore, the requested information is relevant to the Commission’s duty under CEQA to consider feasible mitigation and alternatives that would lessen or eliminate any potentially significantly environmental impacts.³³

Off-site biomass trucking activity constitutes an indispensable component of the Project. According to the AFC, the Project will require 250 daily, round- trip truck-trips for biomass deliveries.³⁴ Total off-site mobile source emissions from deliver trucks would generate approximately 278 tons and 53 tons of PM10 and PM2.5 annually.³⁵ Therefore, a discussion of the Project’s mitigation measures for mobile source emissions is reasonably necessary for the Commission’s decision on whether the Project will mitigate potentially significant air quality impacts from mobile source emissions.

³² CEQA Guidelines § 15378(a).

³³ Pub. Resources Code § 21002; CEQA Guidelines §§ 15126.4, subd. (a), 15126.6, subd. (b).

³⁴ AFC, p.5.11-10, Table 5.11-6 (According to the AFC, car to truck –trip equivalency is 3 to 1; 750/3 = 250.

³⁵ AFC, Table 5.2-12.

d) CURE Data Requests 234 and 235: Operational Emissions

The basis for CURE's Data Requests 234 and 235 is as follows,

Background: COMBUSTION OF CONSTRUCTION AND DEMOLITION WOOD

The Applicant indicated that the municipal green waste fraction of the biomass fuel used for the Project may contain construction/demolition ("C&D") wood.³⁶

Construction waste originates from construction, repair, or remodeling of residential, commercial, and industrial buildings and typically consists of a variety of building products such as roofing, gypsum wallboard, and wood products. Construction waste wood typically consist of wood scraps from dimensional lumber, siding, laminates, flooring (potentially stained), laminated beams, and moldings (potentially painted). Demolition waste originates from the destruction of buildings or other structures. Typical constituents include aggregate, concrete, wood, paper, metal, insulation, glass, and other building materials, which are frequently contaminated with paints, including lead paints.

As a result, C&D wood waste may be contaminated with a variety of hazardous chemicals including heavy metals such as copper, chromium, arsenic, cadmium, lead, mercury, zinc, and beryllium, and organic contaminants such as creosote, pentachlorophenol, dioxin, polychlorinated biphenyls, polycyclic aromatic

³⁶ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #3, August 26, 2009, Response to Data Request #44.

hydrocarbons, solvents, and volatile organic compounds.³⁷ Incineration results in volatilization of metals during combustion and accumulation of metals in ash, which may result in health and environmental impacts.³⁸ Inorganic arsenic compounds are mainly used to preserve wood. Copper-chromium-arsenic (“CCA”) is a major arsenic-based treatment chemical used to preserve wood. Although no longer used in the U.S. for residential uses, it is still used in industrial applications. Wood preservatives, especially CCA, accounted for most of the arsenic consumption in U.S. until about 2004. As a result, a large quantity of arsenic-treated wood is currently in use and is present in significant amounts in C&D waste. Its presence in the disposal sector is predicted to increase heavily in the near future. Thus, a critical element in minimizing air emissions, especially toxic air contaminants, is the elimination of CCA-treated and pentachlorophenol-treated (“penta-treated”) wood and the minimization of painted wood and fines in the C&D wood waste.³⁹

The separation of wood products from C&D debris for beneficial uses depends on the type and origin of debris. Typically, construction debris is more easily separated than demolition debris. No statewide standards for the content of C&D waste exist and most waste management firms rely on their own standards and

³⁷ Ellen Moyer, Ph.D., P.E., Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM’s May 2006 Report, December 20, 2007;
<http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>.

³⁸ Florida Center for Solid and Hazardous Waste Management, Final Report of Evaluation of Thermal Processes for CCA Wood Disposal in Existing Facilities, May 15, 2006;
<http://combustcca.ees.ufl.edu/FCSHWM%20Report-CCA%20Thermal%20Processes.pdf>.

³⁹ Ellen Moyer, Ph.D., P.E., Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM’s May 2006 Report, December 20, 2007;
<http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>.

specifications to remove the majority of the contaminants and non-burnables from the C&D waste.

Due to concerns regarding the release of hazardous substances, several states have restricted or banned the use of C&D wood waste as fuel for biomass plants and other purposes. For example, New Hampshire has banned the use of C&D debris regardless of whether it is clean, unadulterated waste from construction sites or pressure-treated and painted wood, for example, from demolition activities. The State of Massachusetts has implemented a moratorium on use of C&D waste. The City of Portland, Oregon, prohibits any use, including combustion, of painted or pressure-treated woods except in “incidental” quantities.⁴⁰ The Maine Department of Environmental Protection has published detailed specifications limiting the permissible fraction of non-combustible materials, plastics, CCA-treated wood, fines, and asbestos in C&D wood waste and specifying fuel quality standards for arsenic, lead, and PCBs in blended biomass fuel.⁴¹

Data Request:

234. Please provide specifications for C&D wood waste that fuel suppliers must meet to ensure that the majority of contaminants and non-burnables are removed from the C&D waste.

⁴⁰ Ron Kotrba, The Politics of ‘Dirty’ Wood, Biomass Magazine, April 2009; http://www.biomassmagazine.com/article.jsp?article_id=2539&q=&page=all, accessed September 1, 2009.

⁴¹ Maine Department of Environmental Protection, Maine Solid Waste Management Rules: Chapter 418, Beneficial Use of Solid Wastes, June 16, 2006, pp.13-14.

SJS Response:

Biomass fuel supply contracts have not been executed at this time therefore the maximum percentage of C&D wood waste is unknown. Details such as managing the various components of urban wood waste will be determined during contract negotiations.

CURE Response:

SJS did not provide information in response to Data Request 234, and its response is unreasonable. SJS relied on toxic air contaminant emissions factors determined at the Mendota Biomass Power Plant (provided by the San Joaquin Valley Air Pollution Control District).⁴² It is unclear, however, whether the Mendota Biomass Power Plant does or does not burn C&D waste, as proposed by SJS. SJS must ensure that toxic air contaminant emissions from the facility do not exceed the emissions estimates based on the Mendota Biomass Power Plant emission factors. This requires that SJS provide unambiguous specifications to the supplier(s) of the C&D waste, e.g., that the C&D waste may not contain CCA- and penta-treated wood, plastic, lead paint, asbestos, etc.

By virtue of its response, SJS admits that Data Request 234 seeks information that is reasonably available to the Applicant and relevant to the application or reasonably necessary for the Commission to make a decision on the application. The requested information is reasonably available to SJS because it relates to *SJS's* vendor specifications. The requested information is relevant and reasonably necessary to the Commission's analysis of the Project's potentially

⁴² See AFC, Appendix N.

significant air quality and public health impacts under CEQA. Therefore, CURE requests SJS to provide specifications for C&D wood waste that will be used as the basis for negotiations that fuel suppliers must meet.

Data Request:

235. Please describe the testing and sampling procedures for the fuel at both the C&D processing facility and the Project to assure that the fuel quality will be maintained.

SJS Response:

Biomass fuel supply contracts have not been executed at this time therefore the testing and sampling procedures for the fuel supply is unknown. Details such as this will be determined during contract negotiations.

CURE Response:

SJS did not provide information in response to Data Request 235, and its response is unreasonable. By virtue of its response, SJS admits that Data Requests 235 seeks information that is reasonably available to the applicant, which is relevant to the application or reasonably necessary for the Commission to make a decision on the application. The requested information is reasonably available to SJS because SJS is required to develop and implement fuel sampling procedures.

The requested information is relevant and reasonably necessary to the Commission's analysis of the Project's potentially significant air quality and public health impacts under CEQA. SJS must implement testing and sampling procedures at the Project to assure that the fuel quality will be maintained. These testing and sampling procedures are independent from the supply contract

negotiations. Therefore, CURE requests SJS to provide a description of the testing and sampling procedures that would be implemented at the Project to assure that the fuel quality will be maintained.

e) CURE Data Requests Nos. 236 and 237: Operational Emissions

The basis for CURE's Data Requests 236 and 237 is as follows,

Background: TOXIC AIR CONTAMINANT EMISSIONS FROM BIOMASS COMBUSTION

Toxic air contaminant emissions from biomass combustion in fluidized bed boilers are dependent on the fuel type and the type of combustor (bubbling vs. circulating fluidized bed combustors). The Applicant estimated toxic air contaminant emissions from biomass combustors using emission factors provided by the equipment vendor, EPI, and emission factors provided by the SJVAPCD for a similar biomass facility, the Mendota Biomass Power Plant.⁴³ The Applicant did not provide information for the conditions under which these emission factors were derived (*e.g.*, load, combustion temperature, control equipment, fuel mix including C&D wood, etc.). Further, emission factors determined at the Mendota Biomass Power Plant which uses circulating fluidized bed combustors ("CFBs")⁴⁴ are likely not applicable to the Project's bubbling fluidized bed combustors ("BFBs").⁴⁵ CFBs

⁴³ Applicant's 3rd Response to CEC Data Request Set #1, July 13, 2009, Response to Data Request #80.

⁴⁴ See, AFC, Appendix A-4, p.18.

⁴⁵ See, 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, "Combustor Startup Emission Estimations, Table 1587 (from EPI), BFB Cold Start-up Sequence."

and BFBs operate over different temperature ranges resulting in considerably different emissions of air pollutants.

Data Request:

236. Please provide vendor specifications for the fluidized bed combustors that will be installed at the Project including toxic air contaminant emission factors.

SJS Objections:

The Applicant is unsure what is meant by “vendor specifications”. The Applicant has provided in the Application and in response to CEC Staff Data Requests, many specifications for the fluidized bed combustors from the vendor including fuel requirements, heat and energy production, criteria pollutant and air toxic contaminant emission factors, etc. If CURE is requesting the vendor specifications for the fluidized bed combustors such as equipment dimensions or materials of construction, these are not available until the final design is completed. Therefore, the Applicant objects to the question on the grounds that it is vague and the information is not reasonably available to the Applicant.

CURE Response:

Data Request 236 and Data Request 206 both seek information used in SJS’s air quality impact analyses. Providing the information sought would respond to both requests and would enable the Commission to adequately analyze the Project’s air quality impacts, including specific impacts from toxic air contaminants.

Data Request 236 is clear, because the background to CURE’s data request explains the basis for the request and the information sought. As explained in

CURE's response to Data Request 206, SJS provided specifications for the fluidized bed combustors from EPI. However, SJS has not provided the actual documents from EPI. For example, SJS's calculation of toxic air contaminant emissions were based in part on emission factors provided in "EPI 22-Oct-08,"⁴⁶ etc. Therefore, CURE requests that SJS provide all documents from EPI that were used to estimate criteria pollutant and toxic air contaminant emissions from the Project. The requested information is reasonably available because SJS relied on the requested documents to calculate toxic air contaminant emissions.

Data Request:

237. Please provide source tests for the Mendota Biomass Power Plant for toxic air contaminant emissions including a description under which these emissions were measured (load, fuel mix including specification of the fraction of C&D wood, combustion temperature, control equipment, etc.).

SJS Objections:

The Applicant is not in possession of the source tests for the Mendota Biomass Power Plant. The Applicant objects to the question on the grounds that the information is not reasonably available to the Applicant. If CURE desires this information, it is free to request the information from the Mendota Project or the Air District.

CURE Response:

SJS objects on the ground that the requested information is not reasonably available to SJS. However, Commission regulations require applicants to provide

⁴⁶ See AFC, Appendix. N.

“information necessary for the air pollution control district where the project is located to complete a Determination of Compliance;”⁴⁷ “the heating value and chemical characteristics of the proposed fuels, the stack height and diameter, the exhaust velocity and temperature, the heat rate and the expected capacity factor of the proposed facility;”⁴⁸ as well as “[t]he emission rates of criteria pollutants” from all on-site emission sources.⁴⁹

The requested information should be reasonably available to SJS because, as explained in CURE’s response to objections to data requests 206 and 236, SJS relied on the requested information to estimate toxic air contaminant emissions from this Project. Therefore, SJS should have had access to the requested information to determine that the emission factors used for these estimates are applicable to the Project, i.e. have been obtained for a similar load, fuel mix, combustion temperature, control equipment, etc. as anticipated for the Project. Notwithstanding SJS’s responsibility for obtaining this information, CURE has submitted at its own expense a Public Records Act request to the San Joaquin Valley Air Pollution Control District.

2. SJS’s Specific Objections to CURE’s Data Requests Regarding Soil Contamination at the Project Site Lack Merit.

TPH-d (Total Petroleum Hydrocarbons as Diesel) concentrations in soil at the Project site significantly exceed agency screening levels for protection of workers. Therefore, CURE submitted several requests to SJS regarding soil contamination at

⁴⁷ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(8)(A).

⁴⁸ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(8)(B).

⁴⁹ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(8)(F).

the Project site. However, SJS objected to CURE's requests on the basis that the requested information would be provided in SJS's Phase II ESA or that the information was not reasonably available or relevant to the Commission's decision. To date, SJS has failed to provide the requested information.

The basis for CURE's Data Request 242 is as follows,

Background: TOTAL PETROLEUM HYDROCARBONS DIESEL

TPH-d concentration in soil at the Project site significantly exceeds agency screening levels for protection of workers under industrial and construction scenarios. A Phase II Environmental Investigation⁵⁰ was prepared in June 2009 in response to CEC Data Request No. 146. The Phase II report, included as Appendix B to the applicant's response to Data Requests Set No. 1, states:

four soil samples (SJS-11A through SJS-11D) were collected from the ground surface (0 to 1 foot bgs) near the diesel-fuel AST and pesticide mixing ASTs on the southwest corner of the site. The four samples were composited by the laboratory in accordance with standard methods.⁵¹

In reporting the lab results of this sampling location, the Phase II states that in the AST area "TPH-d were detected in the composite sample at a concentration of 23,000 ug/kg."⁵² The Phase II concludes that "[t]he concentration of TPH in the

⁵⁰ 08-AFC-12, Report of Phase II Environmental Investigation. Response to DATA Request #146, Data Set #1, San Joaquin Solar Hybrid Power Stations 1 & 2, (Jun. 1, 2009).

⁵¹ *Id.*, pp. 2-3.

⁵² *Id.*, p. 3.

composite sample (23,000 ug/kg) is not considered a health concern under any property use scenario.”⁵³

The Analytical Report, which was attached to the Phase II report as Attachment A (Laboratory Analytical Report and Chain-of-Custody Form), indicates the following detection of TPHd:⁵⁴

Client Sample Number: SJS-11-A-D (composite)

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
TPH as Diesel	23000	100	20		mg/kg

The citation in the Phase II report is in error. As shown above, the TPH-d concentration in soil was reported by the laboratory in the units of milligrams per kilogram (mg/kg), not micrograms per kilogram (ug/kg). The result cited in the Phase II report (23,000 ug/kg) is 1000 times less than the actual lab result of 23,000,000 ug/kg (23,000 mg/kg) for the sample analyzed (SJS-11-A-D). Therefore, the conclusion made in the Phase II report, that TPH is not a health hazard, is erroneous.

In fact, TPH-d at 23,000 mg/kg (23,000,000 ug/kg) greatly exceeds California Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for TPH-d as summarized in the table below:⁵⁵

⁵³ *Id.*, p. 4.

⁵⁴ *Id.*, Attachment A, p. 2 of 16.

⁵⁵ *Id.*, Attachment A (sampling locations and analytical results).

Exposure Scenario for TPH – middle distillates (TPHd)⁵⁶	ESL (mg/kg)
Commercial/Industrial Land Use (Shallow Soils, <3m bgs; Groundwater is Current or Potential Source of Drinking Water)	83
Commercial/Industrial Land Use (Shallow Soils, <3m bgs; Groundwater is Not Current or Potential Source of Drinking Water)	180
Commercial/Industrial Worker Exposure	450
Construction/Trench Worker Exposure	4,200
TPHd concentration in soil sample composite SJS-11-A-D	23,000

The TPH-d soil concentration of 23,000 mg/kg is nearly 5.5 times greater than the ESL for construction/trench worker exposure of 4,200 mg/kg and is more than 50 times greater than the ESL for commercial/industrial worker exposure of 450 mg/kg. The Commercial/Industrial Worker Exposure scenario refers to the exposure level expected to be encountered by future employees at the Site. The Construction/Trench Worker Exposure refers to exposure level encountered by

⁵⁶ California Regional Water Quality Control Board. San Francisco Bay Region, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.. Interim Final Report – (Nov. 2007, revised May 2008), Tables A, K-2, and K-3, http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf

construction workers or utility trench workers who are expected to come into periodic contact with contaminants in deep soils.⁵⁷

The laboratory-reported TPH-d soil concentration of 23,000 mg/kg is clearly a significant source of potential hazard to construction workers upon site preparation which will involve land disturbance, including grading and excavation, of 640 acres.⁵⁸ The composite sample that returned the 23,000 mg/kg TPH-d result was collected in an area of numerous visible stains around the ASTs.

Please note that the AFC made no mention of the TPH-d soil contamination in Sections 5.4, Soils, 5.15, Hazardous Materials Handling, 5.16, Public Health and Safety, 5.17, Worker Safety, or elsewhere. In fact, the AFC made this erroneous statement:

While there is no documented contamination at the site, site preparation and Project construction may potentially involve excavation of contaminated soils.⁵⁹

Data Request:

242. Please provide a comparison of the TPH-d sample concentrations to regulatory agency screening levels.

SJS Objection:

The Applicant understands that this information will be included in the Phase 2 ESA that we expect will be completed and docketed in October 2009.

⁵⁷ *Id.*, p. 6-10.

http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf

⁵⁸ AFC, p. 5.4-12.

⁵⁹ AFC, p. 5.4-12.

CURE Response:

The Phase II ESA fails to provide the requested information. Data Request 242 specifically addresses regulatory screening levels for TPHd. The Phase II ESA reports TPH detections but fails to provide which TPH was detected (i.e. TPH-d or otherwise) and whether there is an exceedence of a regulatory threshold.⁶⁰

The Phase II ESA relies on CHHSLs (California Human Health Screening Levels) for comparing sampling data to regulatory standards. However, there is no CHHSL value for TPH. ESLs (Environmental Screening Levels) provide a regulatory threshold for TPH.⁶¹ The Phase II ESA states that ESLs are irrelevant because the Project is not located within the jurisdiction of the RWQCB (Regional Water Quality Control Board) San Francisco Bay Region.⁶² That reasoning is incorrect. While the location of the Project site is indeed not within the San Francisco Bay Region, ESLs are widely used regulatory thresholds in the State of California. The number of compounds for which CHHSL values are available is limited. In comparison, ESL values for a wide number of organic and inorganic compounds are established. Discussion of specific regulatory thresholds is necessary in order to identify cleanup goals that will ensure protection of workers at the Site. The Phase II does not address cleanup goals for TPHd.

SJS stated that a comparison of the TPH-d sample concentrations to regulatory agency screening levels “will be included in the Phase 2 ESA.” The

⁶⁰ 08-AFC-12, Phase II Environmental Site Assessment, Table 2.

⁶¹ See Regional Water Quality Control Board Environmental Screening Levels (revised May 2008), http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf.

⁶² 08-AFC-12, Phase II Environmental Site Assessment, p.7-2.

Phase II ESA does not include the requested information. SJS made no other timely objection to the requested information. Therefore, CURE requests an order directing SJS to provide the requested information in response to Data Request 242.

The basis for CURE's Data Request 249 is as follows,

**Background: PESTICIDES, EROSION AND SEDIMENT CONTROL,
 AND SWPPP**

The Applicant prepared a Draft Erosion and Sediment Control Plan for the Project.⁶³ However, the plan makes no mention of past pesticide use at the Site and potential impacts on runoff due to pesticides. It also provides no consideration to the TPH-d found at the Site.

The Applicant also prepared a Storm Water Pollution Prevention Plan (SWPPP) for the Project.⁶⁴ While the SWPPP refers to the presence of pesticides at the Site, it does not mention that soil is contaminated with pesticides and does not offer Site-specific BMPs to address the contamination. It also does not make any reference to the TPH-d found at the Site and its potential impact on stormwater and receiving waters.

Data Request:

249. Please provide a revised comprehensive and Site-specific Erosion and Sediment Control Plan that incorporates pesticide and TPH-d data.

⁶³ 08-AFC-12, Draft Erosion and Sediment Control Plan for San Joaquin Solar 1 & 2 Hybrid Power Project, Fresno County(Jun. 30, 2009).

⁶⁴ 08-AFC-12, Storm Water Pollution Prevention Plan for San Joaquin Solar 1 & 2 Hybrid Power Project (Jul. 14, 2009).

SJS Objection:

A draft DESCP was submitted with responses to CEC data [*sic*] Requests on July 14, 2009 and a revised DESCP was submitted on August 21, 2009. The Applicant objects to CURE's request to revise this plan again on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

The requested information is reasonably available to SJS. SJS has collected pesticide and TPH-d data; therefore the data needed for a revised DESCP is available to SJS. Furthermore, SJS has a draft DESCP to work from. SJS need only add mitigation measures to address pesticide and TPHd in the soil. Finally, SJS is the only party that knows what measures SJS will take to mitigate impacts from grading pesticide and TPH-d-laden soil. Thus, the information needed for a revised DESCP is only available to SJS.

Furthermore, the requested information is relevant to the Commission's duty under CEQA to identify feasible mitigation measures for significant impacts to water quality and public health from massive grading of pesticide and TPH-d-contaminated soil on the Project site. The requested information is also relevant to the Commission's decision on conformance with LORS.⁶⁵ Specifically, the Commission must determine whether the Project complies with the requirements of the National Pollutant Discharge Elimination System (NPDES) under the Clean

⁶⁵ Cal. Code Regs., tit. 20, art. 6, Appendix B(i)(A).

Water Act.⁶⁶ The Clean Water Act requires reporting of any prohibited discharge of oil or hazardous substances, such as pesticides and TPHd.

3. SJS's Specific Objections to CURE's Data Requests Regarding the Available Groundwater Supplies Lack Merit

California law is clear: CEQA lead agencies must consider with the maximum practicable degree of certainty whether a Project will stress California's scarce water resources. As the California Supreme Court held in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, the Commission must analyze the likelihood that the Project's anticipated water supply will actually be available.⁶⁷ The Commission is required under CEQA to "clearly and coherently" explain how predicted project demand will be met by intended water sources.⁶⁸ Even when a full discussion leaves some uncertainty regarding actual availability of the anticipated future water sources, CEQA requires a discussion of possible replacement sources or alternatives to the anticipated water use and of the environmental consequences of those contingencies.⁶⁹ This analysis is also necessary for the Commission to effectuate CEQA's substantive mandate that significant environmental effects must be mitigated, if the agency finds insufficient supplies to meet the Project's demand.⁷⁰

⁶⁶ 33 U.S.C. § 1342; 40 C.F.R. Part 110, 112, 115, 122-136.

⁶⁷ *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 432.

⁶⁸ *Id.* at 412.

⁶⁹ *Id.*

⁷⁰ See Pub. Resources Code, § 21002; Cal. Code Regs., tit. 14, §§ 15002(a)(3), 15021(a)(2).

An adequate water balance analysis is particularly critical in this proceeding. California is in its third consecutive drought year. Among all the agricultural districts in California, the San Joaquin Valley was hardest hit by the current water shortage.⁷¹ Approximately 21,000 jobs were lost in 2008 due to water shortages and approximately \$703 million in gross agricultural revenue are expected to be lost by the end of 2009.⁷² As of September 17, 2009, the U.S. Department of Agriculture designated all of the counties within the San Joaquin River, including Fresno County, as a primary *natural disaster area* because of losses caused by the current drought.⁷³ The Project's anticipated reliance on groundwater resources is a central issue in this proceeding, because the addition of this Project is likely to cause an additional stress on the already scarce water resources in San Joaquin Valley.

According to the AFC, the Project will rely on groundwater and recycled water to meet its anticipated water demand. However, groundwater may serve as the only source of water for the Project until, and if, recycled water becomes available.⁷⁴ Therefore, the Commission must analyze potentially significant impacts from using only groundwater to meet the Project's needs.

SJS plans to purchase roughly half of its water from a future wastewater treatment facility proposed by the City of Coalinga. However, the City of Coalinga

⁷¹ Department of Water Resources, California's Drought Update (Sep. 30, 2009), p.6.

⁷² *Id.* (in 2008 dollars).

⁷³ United States Department of Agriculture website, http://www.fsa.usda.gov/FSA/newsReleases?area=newsroom&subject=landing&topic=edn&newstype=ednewsrel&type=detail&item=ed_20080717_rel_1450.html (last visited Oct. 22, 2009).

⁷⁴ See AFC, 5.5-9.

is still in the very early stages of permitting the facility, and it is unclear if and when the facility will be operational. For example, the wastewater treatment plant is currently proposed on a site located in Fresno County. The City proposes to annex the site into the City of Coalinga. However, according to the Fresno Local Agency Formation Commission, the City has not yet filed an application for annexation.

Additionally, the City has not yet initiated a proceeding to cancel the Williamson Act contract that currently burdens the proposed waste water treatment facility site. As recognized in the September 2009 Draft Staff Report for Interim Guidance for Desert Renewable Energy Project Development, projects on agricultural land under a Williamson Act contract require termination of the contract, which involves lengthy time frames.⁷⁵

Finally, even if SJS could secure wastewater supplies prior to its anticipated operation in the first quarter of 2011, the Project will displace existing agricultural wastewater uses and indirectly increase dependence on groundwater resources in the Pleasant Valley Groundwater Basin.⁷⁶ According to the City of Coalinga's Final Program Environmental Impact Report on the proposed waste water facility, farmers that currently rely on the City's existing waste water will likely turn to groundwater to meet their needs once both SJS and the future waste water

⁷⁵ California Energy Commission, Draft Status Report, Interim Guidance for Desert Renewable Energy Project Development (Sep. 2009). p.17.

⁷⁶ City of Coalinga, Coalinga Wastewater Treatment Plant Final Program Environmental Impact Report, (Apr. 2006), p.V-59-60.

treatment facility are in operation.⁷⁷ As such, even if SJS is able to reduce its dependence on groundwater in the years to come, the Project will still exact an indirect impact on the Pleasant Valley Groundwater Basin.

CURE requested basic information that is necessary to evaluate the Project's potential impacts on groundwater resources in the Pleasant Valley Groundwater Basin. CURE also requested basic information to ensure that groundwater and wastewater resources will actually be available for the Project, as proposed. However, SJS objected to all of CURE's requests (save one) on the grounds that this information is not reasonably available and not reasonably relevant to the application. These objections cannot be sustained.

The Commission's regulations require applicants to include a detailed analysis of the proposed project's impacts on water resources and a discussion of conformance with water-related LORS.⁷⁸ Therefore, the Commission should require SJS to produce information that is necessary to the Commission's review of the Project and decision on the Application.

**a) CURE's Data Requests Nos. 257, 259 and 261:
Groundwater Impacts**

The basis for CURE's Data Requests 257, 259 and 261 is as follows,

Background: AQUIFER TESTING

Adequate aquifer testing is necessary for the California Energy Commission to adequately analyze whether the Project has a reliable water supply and the Project's impacts on local groundwater supplies. A 72-hour constant rate pumping

⁷⁷ *Id.*

⁷⁸ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(14)(E).

(aquifer) test was performed by the Applicant in February 2009, using the existing on-site production well (“Anderson Test Well”) as a pumping well, and two off-site production wells as observation wells (URS, February 19, 2009). This test was conducted to provide constraints on the suitability of the Anderson Test Well to supply groundwater to the Project, and to evaluate potential impacts of pumping from this well upon local groundwater supplies. The existing Anderson Test Well pump was used during the test. A pumping rate of 900 gallons per minute (gpm) was reported for the test.

Conventional measurements of water level drawdown and recovery were collected, and the resulting data (drawdown versus time elapsed) was analyzed using the Theis “recovery” method (1935). Only one of the two observation wells (located 230 feet west of the pumping well) produced measureable drawdown during the test; the second observation well, roughly one mile southeast of the test well, reportedly did not. The Applicant calculated aquifer transmissivity, hydraulic conductivity and storativity values from their data, and subsequently attempted to predict drawdown in nearby wells following three different scenario time periods of continuous pumping from the Anderson Test Well (1, 10 and 20 years); the Applicant identified 20 years as the total Project duration. Estimates of drawdown in neighboring wells were performed assuming both “ideal” Project groundwater pumping (683 gpm assuming new Coalinga WWTF recycled water supply is available) (as well as “maximum” predicted pumping (1,750 gpm)) to meet Project water demands.

Several uncertainties exist with the Applicant's testing and data analysis methodology, as follows:

- 1) The Theis (1935) analytical method was developed for use in confined aquifers using pumping and observation wells which fully penetrate the aquifer being tested. There is no data presented by the Applicant to support classification of the tested aquifer as being confined; in fact, the reported screen interval for the test well is as shallow as 370 feet bgs, within a zone identified as an unconfined aquifer by the State Department of Water Resources in the Pleasant Valley groundwater basin (DWR web site, www.sjd.water.ca.gov/groundwater/basin_maps). Figure 5 within the Applicant's report suggests some evidence of delayed yield (gravity drainage), a characteristic of unconfined aquifers. Such patterns are often muted on standard Theis log-log data plots. Alternatively plotting the time-drawdown data on semi-log format would better elucidate this aquifer response. Alternative conventional analytical solutions other than the Theis method exist which are known to produce more reasonable estimates of unconfined aquifer yield and behavior (i.e., Neuman; Moench; others).

Drillers logs submitted as part of the "pre-aquifer test" document prepared by the Applicant dated January 23, 2009 ("*San Joaquin 1 & 2 – Anticipated Well Performance*") indicate very long well screen intervals which probably screen multiple aquifers, and thus drawdown data reflects

the “average behavior” of multiple saturated zones of different character (Bennett and Patten, 1962). The reported storativity value reported by the Applicant from the aquifer test (0.001) is actually greater than the range typically observed in confined aquifers (Domenico, 1972; Freeze and Cherry, 1979). Finally, within the *Response To CEC Data Adequacy Requests 08-AFC-12* (Water Resources: Data Adequacy Request #2), the Applicant responds that “the existing on-site <test> well (as currently screened) likely draws water from both the upper and lower water-bearing zones”;

- 2) The Theis (1935) analytical method is recognized as providing best estimates of aquifer response nearer to the pumping well, since it was developed to analyze removal of water from storage and assumes non-steady-state aquifer response (e.g., the well capture zone continuously expands with continued pumping over time) (Domenico, 1972; Butler, 1990; Kruseman and deRidder, 1990); it is less meaningful in estimating aquifer response near the outer fringe of the capture zone, and thus the impact upon neighboring wells located at distance from the test well. The assumption of non-equilibrium behavior also tends to lead to overestimates of long-term aquifer yield, since a given applied pumping stress will yield water from an infinitely-expanding capture zone. Alternative methods, such as Cooper-Jacob, should provide more

reasonable estimates of aquifer behavior for a “real-world” (steady-state) scenario;

- 3) The short distance (230 feet) between the test well and the only observation well with measured drawdown (“State Prison well”) leaves aquifer behavior at distances > 230 feet from the test well undefined; for example, data from this single well could not be used in a conventional Cooper-Jacob analysis of distance versus drawdown to obtain a meaningful capture zone radius for the test well under any pumping scenario. As such, the Theis “spreadsheet model” employed by the Applicant to predict water level drawdowns greater than 230 feet from the Test Well has large uncertainties.

The well log provided for the Anderson test well indicates the bottom of the well screen interval at 980 feet bgs. The State DWR Bulletin 118 Update (2003) indicates that the typical base of the fresh water aquifer system within the Pleasant Valley Groundwater Basin is 1,150 feet bgs. Thus, by definition, the test well is probably partially penetrating, which can produce deviation from radial flow during pumping and excess drawdown relative to the “ideal” fully-penetrating well scenario assumed by most conventional aquifer-test analysis techniques (Hantush, 1961; Neuman, 1974). Furthermore, the aquifer thickness used by the Applicant (February 19, 2009) to estimate hydraulic conductivity (530 feet) is total well screen length and not true saturated thickness; this artificially small thickness value yields erroneously elevated estimates of hydraulic conductivity, which could in turn

lead to overestimates of the test well's ability to supply water to the proposed Project.

Data Request:

257. Please provide supporting evidence that any portion of the tested aquifer is truly confined.

SJS Objections:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

Information in response to Data Request 257 is reasonably available to SJS. Commission regulations require that the applicant's discussion of water impacts include, "all assumptions, evidence, references, and calculations used in the analysis to assess these [the project's] effects."⁷⁹ CURE seeks information supporting SJS's assumed characterization of the Pleasant Valley groundwater basin as confined in order to verify whether the analysis is adequate and applicable to the basin. As such, CURE's request fits squarely into the type of information that applicants are normally required to provide to the Commission. The requested information should also be reasonably available to SJS, because the assumption that the basin is confined dictated SJS's decision to use the Theis analytical method to determine the safe yield of the Pleasant Valley Groundwater Basin.

⁷⁹ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(14)(E)(vii).

The information in response to CURE Data Request 257 is relevant to the Commission's analysis under State law. CEQA provides that the Commission's environmental review identify the "significant environmental effects" of a proposed project.⁸⁰ "Significant effect on the environment" means "a substantial, or potentially substantial, adverse change in the environment."⁸¹ In evaluating the significance of an environmental effect, the lead agency shall consider direct physical changes in the environment which may be caused by the project, as well as any reasonably foreseeable indirect physical changes in the environment which may be caused by the project.⁸² Here, the requested information relates to the direct and indirect but reasonably foreseeable impacts of SJS's proposed groundwater pumping on water supplies and water users in the Pleasant Valley Groundwater Basin. As explained above in Section II.A.2, Fresno County has been declared a natural disaster area due to losses caused by drought. Furthermore, according to Fresno County,

[G]roundwater overdraft is a problem in western Fresno County, especially in Westlands Water District and in the Pleasant Valley Water District near Coalinga, because of limited groundwater recharge, periodic droughts, and inadequate surface water supplies. Long-term recharge is inadequate to maintain water table elevations.⁸³

Finally, SJS's proposal to obtain half of its water needs from a future wastewater treatment facility is uncertain and, in any event, would result in indirect impacts to the groundwater basin. As such, the information requested is necessary to

⁸⁰ Public Res. Code § 21100(b)(1); Cal. Code Regs., tit. 14, §§ 15126(a), 15126.2(a), 15143.

⁸¹ Public Res. Code § 21068.

⁸² Cal. Code Regs., tit. 14, § 15064(d).

⁸³ Fresno County General Plan Background Report, (Oct. 3, 2000), p.7-5.

determine whether the proposed Project may have a potentially significant impact on groundwater resources.

The requested information is also relevant to the Warren-Alquist Act, which requires compliance with LORS, as well as the Commission's decision regarding whether the Project conflicts with any local land use plans or policies under CEQA. State CEQA Guidelines provide that a conflict with any applicable land use plan or policy adopted for the purpose of avoiding or mitigating an environmental effect, such as a general plan, may result in a potentially significant environmental impact.⁸⁴

The Final Environmental Impact Report for the Fresno County General Plan ("General Plan FEIR") finds that future development could result in a demand for water that exceeds existing supply. The General Plan FEIR also finds that future growth will lead to a potentially significant and unmitigatable impact to groundwater resources due to overdraft and adverse effects on groundwater recharge in Fresno County.⁸⁵

The General Plan FEIR projects a net increase in groundwater pumping due to future growth in cities that do not have CVP allocations.⁸⁶ As a result, any projected increase in groundwater pumping would further exacerbate groundwater overdraft conditions in Fresno County.⁸⁷

⁸⁴ Cal. Code Regs., tit.14, Appendix G.

⁸⁵ Fresno County, Final Environmental Impact Report for the County of Fresno General Plan Update 2000, (Feb. 2000), p.4.9-25.

⁸⁶ *Id.*

⁸⁷ *Id.*

The General Plan FEIR proposed to partially mitigate the significant impacts of future growth on groundwater resources under a comprehensive policy to protect and to enhance overall water supplies through water conservation, water recharge programs, and the preparation of water master plans for areas undergoing rapid growth.⁸⁸ These policies require that a sustainable water supply be demonstrated for any proposed change in the intensity of land use; that the detrimental effects of any project on water resources be mitigated; and that efforts to support groundwater recharge be encouraged.⁸⁹ In particular, Policy PF-C.12 forbids approval of new development where adequate sustainable water supply cannot be demonstrated; Policy PF-C.13 limits development in areas identified as having severe groundwater level declines or limited groundwater availability to uses that do not have high water usage or can be served by surface water; and Policy PF-C.16 requires project proponents to bear the cost of adequate mitigation where an intensive land use proposal is shown to be detrimental to the water supplies of the surrounding areas.

The requested information is reasonably relevant and necessary to determine whether the Project is consistent with the Fresno County General Plan, and whether any potential significant impacts to groundwater resources may be adequately mitigated. The requested information is also reasonably relevant and necessary to determine adequate mitigation for any significant impacts to groundwater resources from the Project.

⁸⁸ *Id.*, pp.4.8-28-4.8-29, 4.8-31-32.

⁸⁹ *Id.*, pp.4.8-29, 4.8-17-4.8-22-4.8-23.

Data Request:

259. Please provide comparative analysis of the time-drawdown data using the conventional Cooper-Jacob (“steady-state”) technique for a confined aquifer, Hantush (“leaky semi-confined aquifer”) technique, and unconfined aquifer techniques (Neuman and Moench methods, at a minimum).

SJS Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

CURE incorporates by reference its response regarding Data Request 257. The requested information is also reasonably available to SJS. SJS’s consultant cites to the use of AQTESOLV (2007) for part of the pumping analysis for the “Aquifer Test Analysis,” submitted by SJS on February 19, 2009.⁹⁰ (Exhibit 5.) The Cooper-Jacob, Hantoush techniques and the Neuman and Moench methods are conventional analyses, all of which can be performed using AQTESOLV (2007). The requested analysis may be performed using the same software and the existing data input files, and would require only a small number of keystrokes by the consultant. In fact, SJS may have already performed the requested calculations. According to

⁹⁰ 08-AFC-12, Memorandum from Mike DeSmet and Eddy Teasdale PG to Jason Moore CEG regarding San Joaquin Solar 1&2 -- Aquifer Test Analysis (Feb. 19, 2009), p.5

SJS's response to CURE's Data Request 258, SJS's consultant "used several other analytical methods" in preparing the aquifer test analysis.⁹¹

This requested information is also reasonably necessary to the Commission's decision because SJS has not provided sufficient information regarding the characteristics of the aquifer(s) to enable an analysis of significant impacts.⁹² The requested analytical methods are based upon different assumed aquifer configurations and types (confined, leaky or semi-confined, unconfined), and can produce a wide range of results, and thus a significant range of values, in order to predict safe yield. Until SJS provides sufficient information describing the characteristics of the aquifer(s) (i.e. confined, unconfined, etc.), then the Commission is required to conduct a worst-case analysis of potentially significant impacts on groundwater.

Data Request:

261. Please explain the resultant uncertainties introduced to estimates of long-term aquifer yield and drawdown as a result of the Applicant's test well partial penetration. Please provide all data that supports your answer.

SJS Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

⁹¹ 08-AFC-12, Supplemental Information In Response to Cure Data Request Set #5, (Oct. 5, 2009), Response to Data Request 258.

⁹² SJS's consultant has not provided defensible data nor arguments to demonstrate that the tested aquifer is confined, that only one aquifer was tested (screened), nor stratigraphy of the aquifer in the observation wells (e.g., no well logs were provided).

CURE Response:

CURE incorporates by reference its response regarding Data Request 257. The requested information is reasonably available as one of the many conventional analytical solutions in hydrogeologic and aquifer-testing literature that is used to “correct” pumping tests for the effects of partial well-penetration.

The requested information is also reasonably necessary for a Commission decision on the Application regarding whether adequate, sustainable water supplies exist to meet the Project’s water demand. As explained in the background to CURE’s Data Request, the test well is probably partially penetrating. One of the key assumptions underlying the Theis analytical solution is that the wells involved in the testing fully screen or almost completely screen the tested aquifer. Partially-penetrating test wells can result in deviated (non-radial) flow paths during pumping which do not produce meaningful time-drawdown data for analysis of aquifer yield and behavior. Thus, partially-penetrating test wells do not form a defensible basis for adequacy of water supply from those wells and tested aquifers.

**b) CURE’s Data Requests Nos. 266, 267, 268 and 269:
Groundwater Impacts**

The basis for CURE’s Data Requests 266-269 is as follows,

Background: AQUIFER TESTING

The Applicant’s groundwater analysis is inadequate to evaluate potentially significant impacts on the surrounding aquifer, as required by CEQA. The Applicant reports that “no pump setting depth was available” for the test well on the Project site, and no information regarding transducer depth placement in the

test or observation wells was provided. Furthermore, no well construction details for the two observation wells were provided (URS, February 19, 2009). Vertical spacing of test pumps relative to water level measurement devices during aquifer tests (sounding tubes, pressure transducers, etc.) can significantly influence drawdown measurements due to head loss in large-diameter casings and filter packs, and due to differences in pumping efficiency caused by vertical variations in aquifer yield. This in turn can lead to inaccurate estimates of aquifer transmissivity and water management decisions (Kruseman and deRidder, 1990; Boggs, 2008).

Only two well logs (drillers logs) were provided for review by the Applicant (January 23, 2009 document), and only one of these logs (Anderson Test Well) was from a well involved in the aquifer test. Allowing for inaccuracies or skill differences between drillers preparing the logs, there still appear to be significant stratigraphic discontinuities between the logs, suggestive of aquifer heterogeneities which may significantly affect groundwater flow and sustainability during long-term pumping. Because the two wells for which logs were provided are located “about a mile from each other,” and absence of details for the two observation wells, there is limited data presented by the Applicant from this aquifer test to adequately evaluate the effects of the test well during proposed Project pumping beyond a distance of 230 feet. According to the AFC Figure 5.5-4, there are more than six additional wells within 1.5 miles of the on-site well.

Data Request:

266. Please provide logs for a minimum of six additional nearby wells, spaced at distances greater than 230 feet from the Project site test well.

SJS Objections:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

The requested information is reasonably available to SJS, because Commission regulations require that the applicant provide a detailed description of the hydrologic setting of the project. This discussion should include, at a minimum, “a narrative discussion and on maps . . . groundwater wells within ½ mile if the project will include pumping.”⁹³ The AFC fails to meet this standard. For example, Figure 5.5-4 of the AFC reflects that SJS’s consultant identified at least five wells within 0.5 miles of the Project and one well just outside of the 0.5-mile radius based upon “copies of well logs on file at the local DWR office.”⁹⁴ However, the AFC fails to provide any “narrative discussion” of these wells, as required by the regulations.

CURE seeks basic information regarding the hydrologic setting of the Project because the information provided in the AFC is inadequate. SJS’s failure to survey more than two wells within the Project area, “located about one mile from each other,” does not excuse SJS from conducting the analysis that is required by

⁹³ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(14)(B)(v).

⁹⁴ AFC, p.5.5-11.

Commission regulations or necessary to enable an adequate analysis of significant impacts to groundwater under CEQA.

The information requested is reasonably relevant to the Commission's analysis under CEQA which provides that the environmental document must identify and focus on the "significant environmental effects" of a proposed project.⁹⁵ "Significant effect on the environment" means "a substantial, or potentially substantial, adverse change in the environment."⁹⁶ In evaluating the significance of the environmental effect of a project, the lead agency shall consider direct physical changes in the environment which may be caused by the project, as well as any reasonably foreseeable indirect physical changes in the environment which may be caused by the project.⁹⁷

In addition, Commission regulations demand a robust impact analysis from the applicant; they require applicants to document "all assumptions, evidence, references, and calculations used in the analysis" to assess the Project's potentially significant impacts.⁹⁸ As explained in the background to CURE's data request, the robustness of SJS's analysis is in question because,

Only two well logs (drillers logs) were provided for review by the Applicant (January 23, 2009 document), and only one of these logs (Anderson Test Well) was from a well involved in the aquifer test. Allowing for inaccuracies or skill differences between drillers preparing the logs, there still appear to be significant stratigraphic discontinuities between the logs, suggestive of aquifer heterogeneities

⁹⁵ Public Res. Code § 21100(b)(1); Cal. Code Regs., tit. 14, §§ 15126(a), 15126.2(a), 15143.

⁹⁶ Public Res. Code § 21068.

⁹⁷ Cal. Code Regs., tit. 14, § 15064(d).

⁹⁸ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(14)(E)(vii).

which may significantly affect groundwater flow and sustainability during long-term pumping.⁹⁹

As such, the requested information is relevant and necessary to determine whether the proposed Project may have a potentially significant impact on groundwater resources.

As described in CURE's Response to SJS's Objection to Data Request 257, the requested information is also relevant to the Warren-Alquist Act, which requires compliance with LORS, as well as the Commission's decision regarding whether the Project conflicts with the Fresno County General Plan.

Data Request:

267. Please provide the Applicant's pump test (specific capacity) test data from each of the additional nearby wells.

SJS Objections:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

The information requested is reasonably available to SJS. Commission regulations require that the applicant provide a detailed description of the hydrologic setting of the project. This discussion should include, at a minimum, "a narrative discussion and on maps . . . groundwater wells within 0.5 miles if the

⁹⁹ 08-AFC-12, California Unions for Reliable Energy Data Requests, Set Five, (Sep. 4, 2009), pp.31-32.

project will include pumping.”¹⁰⁰ The AFC fails to meet this standard. For example, Figure 5.5-4 of the AFC reflects that SJS’s consultant identified at least five wells within 0.5 miles of the Project and one well just outside of the 0.5-mile radius based upon “copies of well logs on file at the local DWR office.”¹⁰¹ However, the AFC fails to provide any narrative discussion of these wells.

CURE seeks basic information regarding the hydrologic setting of the Project, because the information provided in the AFC is inadequate. SJS’s failure to survey more than two wells within the Project area, “located about one mile from each other,” does not excuse SJS from conducting the analysis that is required by Commission regulations and CEQA.

The information requested is relevant to the Commission’s analysis under CEQA which provides that the environmental document must identify and focus on the “significant environmental effects” of a proposed project.¹⁰² “Significant effect on the environment” means “a substantial, or potentially substantial, adverse change in the environment.”¹⁰³ In evaluating the significance of the environmental effect of a project, the lead agency shall consider direct physical changes in the environment which may be caused by the project, as well as any reasonably foreseeable indirect physical changes in the environment which may be caused by the project.¹⁰⁴

¹⁰⁰ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(14)(B)(v).

¹⁰¹ AFC, p.5.5-11.

¹⁰² Public Res. Code § 21100(b)(1); Cal. Code Regs., tit. 14, §§ 15126(a), 15126.2(a), 15143.

¹⁰³ Public Res. Code § 21068.

¹⁰⁴ Cal. Code Regs., tit. 14, § 15064(d).

The requested information is also relevant to the adequacy of the Commission's impact analysis under CEQA and under the Commission's regulations. CEQA requires "facts and analysis," as well as sufficient detail "to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project."¹⁰⁵ Similarly, Commission regulations demand a robust impact analysis from the applicant; the applicant must document "all assumptions, evidence, references, and calculations used in the analysis" to assess the Project's potentially significant impacts.¹⁰⁶ This information is required to ascertain whether applicant's conclusions are supported by credible evidence and analyses. As explained in the background to CURE's data request and in CURE's response regarding Data Request 266, the robustness of SJS's analysis is in question here because SJS provided only two well logs, which show aquifer heterogeneities which may significantly affect groundwater flow and sustainability during long-term pumping.¹⁰⁷ As such, the requested information is relevant and necessary to determine whether the proposed Project may have a potentially significant impact on groundwater resources.

As described in CURE's Response to SJS's Objection to Data Request 257, the requested information is also relevant to the Warren-Alquist Act, which requires compliance with LORS, as well as the Commission's decision regarding whether the Project conflicts with the Fresno County General Plan.

¹⁰⁵ *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404-405.

¹⁰⁶ Cal. Code Regs., tit. 20, art. 6, Appendix B(g)(14)(E)(vii).

¹⁰⁷ 08-AFC-12, California Unions for Reliable Energy Data Requests, Set Five, (Sep. 4, 2009), pp.31-32.

Data Request:

268. Please use data requested in Data Request Nos. 259 to 261 to provide a revised conceptual model of the local aquifer system surrounding the proposed Project site (at least 1.5 miles from the on-site test well).

SJS Objections:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

The information requested is reasonably available to SJS. As explained in CURE's responses with regard to Data Requests 259 and 261 above, SJS failed to provide basic information regarding the Project's hydrologic setting and impacts, as required by Commission regulations. The information requested by CURE is the analysis that SJS was required to provide in the first instance, as set forth in Appendix B of the Commission regulations:

- (E)(ii) If the project will pump groundwater, an estimation of aquifer drawdown based on a computer modeling study shall be conducted by a professional geologist and include the estimated drawdown on neighboring wells within 0.5 miles of the proposed well(s), any effects on the migration of groundwater contaminants, and the likelihood of any changes in existing physical or chemical groundwater resources shall be provided.¹⁰⁸

In fact, a comparison of the analysis conducted for this Project and other projects before the Commission shows that SJS's analysis is highly superficial. For

¹⁰⁸ Cal. Code Regs. tit. 20, art. 6, Appendix B(g)(14)(E)(ii).

instance, in the Pico Power Project, the applicant analyzed impacts of pumping to wells by discussing all sixty-five active wells within 0.5 miles of the Project.¹⁰⁹

Therefore, the requested information should be reasonably available to SJS.

The requested information is also relevant to the Commission's analysis under CEQA which provides that the environmental document must identify and focus on the "significant environmental effects" of a proposed project.¹¹⁰

"Significant effect on the environment" means "a substantial, or potentially substantial, adverse change in the environment."¹¹¹ In evaluating the significance of the environmental effect of a project, the lead agency shall consider direct physical changes in the environment which may be caused by the project, as well as any reasonably foreseeable indirect physical changes in the environment which may be caused by the project.¹¹² The requested information is relevant to the Commission's analysis of the significance of the Project's potential impact on groundwater uses within the Pleasant Valley Groundwater Basin.

The requested information is also relevant to the Commission's duty under CEQA to analyze potentially significant impacts, and if such impact exists, to consider feasible mitigation and alternatives that would lessen or eliminate that impact.¹¹³ Specifically, CEQA case-law requires the Commission to determine whether the existing source of water has enough water to serve the project and the

¹⁰⁹ Response to California Energy Commission Staff Data Request 55, Application for Certification for the Pico Power Project, Docket No. 02-AFC-03, Dec. 5, 2002, pp.12-14.

¹¹⁰ Public Res. Code § 21100(b)(1); Cal. Code Regs., tit. 14, §§ 15126(a), 15126.2(a), 15143.

¹¹¹ Public Res. Code § 21068.

¹¹² Cal. Code Regs., tit. 14, § 15064(d).

¹¹³ Pub. Resources Code § 21002; CEQA Guidelines §§ 15126.4, subd. (a), 15126.6, subd. (b).

current users.¹¹⁴ An adequate analysis may show that drawdown due to SJS's proposed pumping activities may potentially result in a significant impact. In that event, the Commission would be required under CEQA to adopt feasible mitigation measures to reduce the impact to a level of insignificance.¹¹⁵

As described in CURE's Response to SJS's Objection to Data Request 257, the requested information is also relevant to the Warren-Alquist Act, which requires compliance with LORS, as well as the Commission's decision regarding whether the Project conflicts with the Fresno County General Plan.

Data Request:

269. Please evaluate and comment on the impacts of the Applicant's revised conceptual model provided in response to Data Request 268 on the results of the aquifer test, and upon the predicted Theis drawdown estimates after 1, 10 and 20 years of continuous pumping from the test well.

SJS Objections:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

CURE incorporates by reference its response to SJS's Objection to Data Request 267.

¹¹⁴ *Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.App.3d 818

¹¹⁵ *Id.*

c) CURE's Data Requests Nos. 270, 271, 272, 273 and 274: Groundwater Impacts

The basis for CURE's Data Requests 270-274 is as follows,

Background: LOCAL WATER BUDGET AND SUSTAINABILITY

Within Section 5.5 of the original Application for Certification (AFC) for the Project (December 1, 2008), the Applicant describes a water balance (budget) for the Pleasant Valley Groundwater Basin (PVB). The Applicant's discussion of available water supply and groundwater extractions borrows heavily from the State DWR Bulletin 118 Update (2003), and is somewhat confusing in that it interleaves discussions of water balance and groundwater extractions from the PVB with those of the adjacent Westside Groundwater Basin to the east. Both groundwater basins have a primary and historical agricultural water use; prior to 1968 the water supply was chiefly from groundwater, which led to severe overdraft of both basins.

Following completion of salient local components of the combined federal Central Valley Project (CVP) and State Water Project (SWP), imported water became available to augment the depleted groundwater supply, leading to water level recovery within both basins from 1968 to 1986. Following 1986, an eight-year drought in California led to restricted CVP imports, increased groundwater pumping, and return to overdraft conditions. During this period, CVP-SWP imports were as low as 25% of full contract allocations. Despite local and temporary precipitation recharge of groundwater levels following heavy storm years in 1995, 1998, and 2004, groundwater levels within PVB have dropped once again, an average of 4 feet annually from 1988 to 2008. Water level maps posted on the State

DWR web site¹¹⁶ indicate significant pumping depressions in the vicinity of the proposed Project site. The Westland Water District, which provides management for the Westside Groundwater Basin, reports between 100 and 200 feet of groundwater level decline between 1994 – 2008 (*Deep Groundwater Conditions Report*, March 2009).

Explanations for the continued water level decline include a combination of extended drought conditions relative to scattered wet years, and legal/political restrictions to availability of CVP-SWP water imports from the embattled San Joaquin-Sacramento Rivers Bay-Delta area. Currently the region is approaching the fifth year of the latest drought period, and current CVP-SWP allocations of imported water are only 40% of full contract limits.¹¹⁷ Because the EIR for the Bay-Delta Conservation Plan (BDCP) is still in preparation and draft review stages, no imminent solution to legal aspects of CVP-SWP water availability seems likely.

In light of past drought and imported water supply restrictions in the PVB, it should be useful and relatively simple to compare local groundwater levels in a number of wells of the PVB to historical groundwater extractions, for purposes of estimating a defensible perennial yield (“operational safe yield”) for the PVB. This type of analysis has been performed by others for the Westside Groundwater Basin for the period between 1949 – 2008 (Westlands Water District *Deep Groundwater Conditions Report*, March 2009), and used to estimate a perennial yield of 200,000 acre-feet per year (AFY) for the Westside Basin. However, no such analysis was

¹¹⁶ www.sjd.water.ca.gov/groundwater/basin_maps

¹¹⁷ State DWR web site: www.water.ca.gov/swpao/deliveries.cfm

presented by the Applicant for the PVB. Furthermore, no perennial yield information for PVB is present within the State DWR Bulletin 118 Update (2003).

Because the size of the Westside Basin is roughly 640,000 acres and that of the PVB roughly one-fourth that size (146,000 acres), the inflow and recharge to the PVB is very likely less than the 200,000 AFY perennial yield of the Westside Basin. Nevertheless, State DWR (2003) reports that up to 104,530 AFY was extracted from the PVB in 1990, during a time of drought; the lion's share of this water (90,000 AFY) was from agricultural pumping. During the same period, aquifer recharge due to irrigation was estimated at 4,000 AFY over 146,000 acres (a fairly low value), for a net PVB groundwater output (withdrawal) of roughly 100,000 AFY. Since the proposed Project acreage is 640 acres, this will result in a net reduction of irrigation recharge of 19 AFY.

The proposed Project is designed as a "zero-discharge" facility, which the Applicant defines as having no direct discharge of system waste water that percolates into groundwater, and design-storm water runoff is equally minor. Limited information provided by the Applicant within the AFC and responses to CEC Data Requests suggest that groundwater extractions have not declined for irrigation use since 1990, and the Pleasant Valley Water District predicts continued similar or higher extractions in the future, owing in part to maturing crops with high consumptive use, such as pistachio trees. Because DWR has determined consistent groundwater level declines since the 1990 estimate, it cannot be stated that the 100,000 AFY figure is within the operational safe yield of the basin.

The proposed Project maximum water use requirement is stated as 2,057 AFY. In previous CEC Data Requests responses, the Applicant has stated that this maximum Project water demand is “...*within the normal range of agricultural irrigation usage for a 640-acre parcel in this area,*” or stated another way, the proposed Project groundwater pumping would be no more than historical agricultural-use pumping, and thus allegedly represent no impairment to the local groundwater basin storage or other groundwater pumpers in the area. This statement might be valid if the perennial yield of the PVB were known; since it is not, there is no comfort zone or baseline for the Applicant’s conclusion. Stated another way, 2,057 AFY may be sustainable if existing imports, extractions and groundwater levels were indicative of a recoverable perennial yield value; the possibility of prolonged drought conditions and restricted CVP-SWP imports only increase this uncertainty. Given this uncertainty, both the “idealized” Project groundwater pumping (683 gpm, assuming new Coalinga WWTF recycled water supply is available) and the “maximum” pumping (1750 gpm, assuming no WWTF water available) may exceed basin tolerance limits (e.g. perennial yield).

Data Request:

270. Please provide the Applicant’s evaluation of perennial yield (operational safe yield) of the PVB that establishes the baseline for the Project’s analysis of the proposed Project water demand impacts.

SJS Objections:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

The requested information is reasonably available to SJS. Commission regulations require applicants to provide in their impact analysis “an estimation of aquifer drawdown . . . [including] the likelihood of any changes in existing physical or chemical conditions of groundwater resources.”¹¹⁸ As such, CURE’s request for an estimate of the perennial yield of the Pleasant Valley Basin is well-within the scope of data that applicants are normally required to include in their application.

The requested information is relevant under CEQA in order to ascertain the environmental baseline against which the Project’s impacts may be measured.¹¹⁹ CEQA guidelines require “a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences . . . [t]he courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.”¹²⁰ CEQA also requires that the Commission’s decisions be made on the basis of facts and not conclusions alone.¹²¹

¹¹⁸ Cal. Code Regs. tit. 20, art. 6, Appendix B(g)(14)(E)(ii).

¹¹⁹ *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.

¹²⁰ *Id.* at 954 (citing Cal. Code Regs, tit.14 § 15151).

¹²¹ *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404.

An adequate description of the environmental baseline, or the perennial yield for the Pleasant Valley Basin, is necessary for an adequate impact analysis. While the AFC states that the perennial yield is 200,000 AFY, that data is for the Westside Basin and not the Pleasant Valley Basin.¹²² The AFC attempts to draw a parallel between the Pleasant Valley Basin and the Westside Basin by stating that “there are many shared hydrology characteristics between these two subbasins due to the political nature of the boundary between them.” However, the AFC provides no further explanation beyond “the political nature of the boundary” for SJS’s assumption that their perennial yields are interchangeable or even comparable.¹²³ At any rate, the AFC also states that the two subbasins have distinct physical characteristics.¹²⁴ Therefore, the requested environmental baseline information is necessary to “provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences,” as required by CEQA.¹²⁵

Data Request:

271. Please provide an evaluation of perennial yield (operational safe yield) of the PVB, in order to establish a defensible baseline for justifying proposed Project water demands, using the following:

- a. Data as far back as 1950, if possible; and

¹²² AFC, p.5.5-4.

¹²³ AFC, p.5.5-3.

¹²⁴ AFC, pp.5.5-5.5-5.

¹²⁵ *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954.

- b. Total basin groundwater extractions from as many pumpers as possible; and
- c. Water level data from a minimum of six (6) wells within a 1.5 mile radius of the proposed Project site.

Historic pumping, CVP-SWP imports and groundwater level data should be readily available from the Pleasant Valley Water District, Westlands Water District, and San Joaquin district office of State DWR in Fresno to provide this required analysis.

SJS Objections:

The Applicant does not have the data requested in Data Request 271. The task of acquiring this information would be time consuming [*sic*], costly and burdensome. The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

The requested information is reasonable available to and inflicts no unfair burden on SJS. The burden of gathering and producing information to substantiate a discussion of “the existing site conditions, the expected direct, indirect, and cumulative impacts due to the construction, operation, and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans” lies

with the applicant.¹²⁶ Specifically, Commission regulations require applicants to provide “a detailed discussion of the hydrologic setting of the project” which includes a discussion of all groundwater wells within 0.5 miles of the Project.¹²⁷

Furthermore, the applicant’s discussion of potential environmental effects must include “all assumptions, evidence, references, and calculations used in the analysis to assess these effects.”¹²⁸ Thus far, SJS’s facts on groundwater uses are limited to the following: (1) aggregate data on groundwater use by industry within the Pleasant Valley and (2) information on potential drawdown with respect to only two of the 36 wells that are known to surround the Project site.¹²⁹ The Commission should reject SJS’s objection, because SJS has failed to conduct the level of investigation that is required by Commission regulations.

Lastly, because the AFC provides aggregate data on groundwater pumping in the Pleasant Valley, at least some of the requested information should already be in SJS’s possession.¹³⁰

The requested information is also relevant under CEQA in order to ascertain the environmental baseline against which the Project’s impacts may be measured.¹³¹ CEQA guidelines require “a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences . . . [t]he courts have

¹²⁶ Cal. Code Regs. tit. 20, art. 6, Appendix B(g)(1).

¹²⁷ Cal. Code Regs. tit. 20, art. 6, Appendix B(g)(14)(B).

¹²⁸ Cal. Code Regs. tit. 20, art. 6, Appendix B(g)(14)(E)(vii).

¹²⁹ AFC, p.5.5-4, Table 5.5-3; *see* AFC, Figure 5.5-4.

¹³⁰ AFC, p.5.5-4, Table 5.5-3.

¹³¹ *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.

looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.”¹³² CEQA also requires that the Commission’s decisions be made on the basis of facts and not conclusions alone.¹³³ SJS has failed to meet this generous standard. Consequently, the AFC relies on the following inadequate analysis and speculative assumption to substantiate its no-impact determination:

Solely based upon comparison of the location of the Project in relation to the neighboring wells, along with the anticipated long term decline in the Project reliance on groundwater, it is not currently anticipated that the Project groundwater usage will adversely impact groundwater levels or quality in the surrounding area.¹³⁴

This level of analysis is inadequate because it fails to “provide decisionmakers with *information* which enables them to make a decision which intelligently takes account of environmental consequences,” as required by CEQA.¹³⁵ SJS failed to provide sufficient information on groundwater uses in the Project’s vicinity. It is uncertain if and when wastewater from the future City of Coalinga waste water treatment facility will be made available for the Project. CURE’s request seeks information that is necessary for the Commission’s analysis of Project impacts and development of appropriate mitigation to reduce any significant impacts to a level of insignificance.

As described in CURE’s Response to SJS’s Objection to Data Request 257, the requested information is also relevant to the Warren-Alquist Act, which requires

¹³² *Id.* at 954 (citing Cal. Code Regs, tit.14 § 15151).

¹³³ *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404.

¹³⁴ AFC, p.5.5-12.

¹³⁵ *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954 (emphasis added).

compliance with LORS, as well as the Commission's decision regarding whether the Project conflicts with the Fresno County General Plan.

Data Request:

272. Please explain the effects of foreseeable future continued drought and climate change conditions on availability and sustainability of future groundwater extractions in the PVB, and their bearing on availability of groundwater to meet proposed Project demands. Please provide as probability values and quantitative estimates of uncertainty in support of your answer. Data for this analysis may be found via the State DWR, AWWA, ACWA, US Geological Survey, academic research institutions and/or the National Resources Defense Council. Extrapolations of historic effects from the Westside Basin can be used for comparison.

SJS Objections:

The Applicant has not performed a probability analysis or quantitative estimate of the matters requested by CURE in data request 272. The Applicant does not have the benefit of CURE's crystal ball to know which future drought or climate change conditions are "foreseeable". The Applicant objects to this request on the grounds that the request is vague and that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

CURE's data request is clear; it seeks an analysis from SJS of the effects of foreseeable future continued drought and climate change conditions on availability and sustainability of future groundwater extractions in the PVB. The AFC suggests that SJS agrees uncertainties exist with respect to future water supplies. On page 5.5-4 of the AFC, SJS states that "the present-day groundwater flow system is in a transient state and is adjusting to the stresses placed upon it in the past and present." The AFC also identifies the "large downward hydraulic head gradient" due to excessive groundwater pumping in the Project area by other parties due to reduced CVP-SWP imports and drought, as exhibited by continually declining groundwater levels from 1988 through 2008.

Furthermore, the requested information is required by CEQA and the California Supreme Court's decision in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412 (*Vineyard*). On the question of certainty of future water supplies, the Court in *Vineyard* held that, "[d]ecision makers must, under the law [CEQA], be presented with sufficient facts to evaluate the pros and cons of supplying the amount of water that the [project] will need."¹³⁶ According to the Court, "when even a full discussion leaves some uncertainty regarding actual availability of the anticipated future water sources, CEQA requires some discussion of possible replacement sources or alternatives to

¹³⁶ *Vineyard Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 431 (citations omitted).

use of the anticipated water, and of the environmental consequences of those contingencies.”¹³⁷

A full discussion would, for example, include uncertainties in future water supplies due to climate change. According to the Draft 2009 California Climate Adaptation Strategy prepared by the California Natural Resources Agency, the effects of climate change are likely to bring additional challenges to water management in California due to more frequent and persistent droughts, higher temperatures, and changes in precipitation patterns.¹³⁸ The Commission’s Draft 2009 Integrated Policy Report also finds that changes in the environment may impact the availability of water supplies for renewable energy.¹³⁹

Future water supply uncertainty due to shortages and climate change is at the forefront of California’s current regulatory environment. Therefore, it is highly surprising that SJS is unfamiliar with these topics. The requested information is the type of analysis that is expressly required by law and unquestionably relevant to the decisions that the Commission will have to make on the Application. Therefore, the Commission should deny SJS’s objection and require SJS to respond to CURE’s request.

Data Request:

273. Please provide the Applicant’s evaluation of the potential effect of continued restricted imported water supplies to PVB via the CVP-SWP system, as a

¹³⁷ *Id.* at 432.

¹³⁸ California Natural Resources Agency, 2009 California Climate Adaptation Strategy Discussion Draft, p.82.

¹³⁹ California Energy Commission, Draft 2009 Integrated Energy Policy Report (Sep. 2009), pp.79-80.

result of Bay-Delta legal decisions, CEQA process and uncertainties. Please assume that future restrictions may be even less than the prevailing 40% allocation. Extrapolations from the conditions in the adjacent Westside Basin may be useful, but should not form the sole basis for the evaluation.

SJS Objections:

The Applicant has not undertaken an evaluation of the potential effect of speculative future possible restrictions to PVB as a result of unspecified legal decisions or other unidentified uncertainties. Therefore, the Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

CURE incorporates by reference its response to SJS's Objection to Data Request 272.

Data Request:

274. If the Applicant disagrees that future restrictions may be even less than the current 40% allocation, please demonstrate how the effect of continued restricted imported water supplies to the PVB will impact A) the Project and B) the groundwater basin, based on the Applicant's scenario of future CVP-SWP allocations during the proposed 20-year Project duration. Please justify your allocations based the Applicant's information and analysis of possible future drought and political scenarios.

SJS Objections:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

CURE Response:

CURE incorporates by reference its response to SJS's Objection to Data Request 272.

d) CURE's Data Requests No. 278: Groundwater Impacts

The basis for CURE's Data Request 278 is as follows,

Background: SIMULATIONS OF WELL PUMPING EFFECT

The Applicant responded to CEC Data Request No. 13 for a computer modeling study by stating that "Submission of the neighboring well aquifer test information should satisfy the data adequacy need for groundwater well yield/aquifer analysis." This response apparently pre-dated the submission of the Applicant's Aquifer Test report dated February 19, 2009.

Within its subsequent Aquifer Test report, the Applicant attempted to predict drawdown in nearby wells following three different scenario time periods of continuous pumping from the Test Well (1, 10 and 20 years); the Applicant identified 20 years as the total Project duration. Estimates of drawdown in neighboring wells were performed using a spreadsheet model based upon the Theis (1935) analytical solution, assuming both "ideal" Project groundwater pumping (680 gpm) as well as "maximum" pumping (1,750 gpm) to meet Project water demands.

The “maximum” pumping scenario assumes that recycled wastewater from a planned new Coalinga treatment facility will not be available to the Project. These simulations are not adequate to address reliability of groundwater supply to meet Project demands for the following reasons:

- 1) The Theis (1935) analytical method was developed for use in confined aquifers using pumping and observation wells which fully penetrate (screen) the aquifer being tested. There is no data presented by the Applicant to support classification of the tested aquifer as being either partially or exclusively confined. Furthermore, data submitted by the applicant and within the public domain indicates that the test well only partially penetrates the saturated zone, and likely screens multiple saturated zones separated by aquitards.
- 2) No log nor construction details were provided for the single observation well used in the test; continuity of stratigraphic units and saturated zone(s) between the test well and observation well therefore cannot be accurately constrained. As such, reliability of the resultant drawdown data from the test does not justify selection of the Theis analytical method to simulate effects of future pumping from the test well.
- 3) Within its February 19, 2009 report, the Applicant provided a log of only one other agricultural supply well in the vicinity of the proposed Project area. This log exhibits significant differences from the aquifer test well, and suggests considerable heterogeneities within the aquifer materials,

not atypical of alluvial sediments of the west-central San Joaquin Valley groundwater basin (Davis et al, 1959; Page, 1986; State DWR, 2003).

Such heterogeneities are not accounted for within the Theis spreadsheet analytical model utilized for the simulations of drawdown.

- 4) The Theis (1935) analytical method is recognized as providing best estimates of aquifer response nearer to the pumping well, since it was developed to analyze removal of water from storage and assumes non-steady-state aquifer response (e.g., the well capture zone continuously expands with continued pumping over time) (Domenico, 1972; Butler, 1990; Kruseman and deRidder, 1990); it is less meaningful in estimating aquifer response near the outer fringe of the capture zone, and thus not an ideal tool to evaluate the potential impacts upon neighboring wells located at greater distances from the test well.

Because no more than one observation well was used in the Applicant's aquifer test, a conventional Cooper-Jacob steady-state analysis of drawdown vs. distance cannot be employed as an alternative to the Theis method for estimating the test well capture zone radius, and its impact on nearby pumping wells.

Furthermore, the Theis-method simulations do not account for potential interference due to groundwater pumping by other local parties, with which the Project pumping effects would obviously compete. This uncertainty is driven by the absence of a reliable estimate of perennial yield for the Pleasant Valley Groundwater Basin (PVB) (refer to Data Request Nos. 270 and 271).

On page 5.5-4 of the AFC, the applicant states that “the present-day groundwater flow system is in a transient state and is adjusting to the stresses placed upon it in the past and present.” The AFC also identifies the “large downward hydraulic head gradient” due to excessive groundwater pumping in the Project area by other parties due to reduced CVP-SWP imports and drought, as exhibited by continually declining groundwater levels from 1988 through 2008. The very nature of these comments by the Applicant, coupled with the discussion above, strongly support the need for development and application of a more robust conceptual and numerical groundwater model for at least the northern portion of the PVB where the proposed Project is located.

Data Request:

278. Responses to Data Request No. 277 notwithstanding, as an alternative to the simple Theis analytical method, please develop a robust three-dimensional conceptual and numerical groundwater flow model for the northern portion of the PVB where the proposed SJS 1 & 2 Project is to be located, to simulate effects of Project groundwater withdrawals on neighboring pumpers and planned PVWD groundwater recharge facilities. Please use some form of conventional and reasonably available commercial software, such as WHI Visual Modflow© (version 3.1 or greater) or an equivalent. If an existing groundwater flow model has been developed for the Project area and is available and not subject to proprietary use restrictions, that may be

considered for the simulations. The following conditions should be met by any such model used or developed:

- A. Please adhere to prevailing Standard Guides developed by the American Society for Testing and Materials (ASTM) for developing, calibrating, verifying and performing sensitivity analyses of groundwater flow models, as well as defining initial model conditions and boundary conditions.
- B. A model domain of not less than six square miles, centered on the proposed Project extraction well(s), should be used.
- C. In order to avoid “forced” boundary condition behavior, model boundaries should be set so as to not coincide with geologic or suspected hydrogeologic boundaries, such as the Guijarral Hills to the north, Kreyenhagen Hills to the west, or the subsurface Kettleman Hills anticline across Polvadero Gap east of the Project site.
- D. Horizontal discretization (gridding) of the domain should be constructed so as to have as many grid-centered wells as possible. Grid dimensions need not be any finer than necessary to reasonably simulate heads produced by the number of pumping wells or recharge sites presently in the domain, and new wells or recharge sites reasonably expected to be installed within the domain within the expected duration of the proposed Project.

- E. Vertical discretization should include as many discrete layers as are adequate for representation of the different physical properties and flow behavior of all significant aquifers and aquitards identified within the domain from review of local well logs. As many well logs as illustrated on Figure 5.5-4 of the AFC should be used as possible, in addition to an adequate number of wells east of Polverado Gap within the Westside Groundwater Basin to simulate the potential boundary condition in that area. The bottom layer of the discretized domain should include the base of the fresh water zone. Layer discretization should be able to lead to reasonable simulations of well capture zones developed due to preferential flow pathways in zones of higher hydraulic conductivity (something that a simplified Theis analysis cannot achieve).
- F. Static (non-pumping) water-level data should be used from as many local wells as possible for steady-state model calibration. It is recommended that heads measured during historic periods of maximum CVP-SWP imported water to PVB (and minimal groundwater pumping) be considered for steady-state calibration.
- G. Recovery data from the February 2009 aquifer test may be used for transient model calibration, but only if uncertainties with the “State Prison” test observation well can be resolved (e.g., aquifer stratigraphy and well construction details). Transient calibration should

comparatively also involve heads measured from as many idle (non-pumping) wells as possible during historic periods of heavy groundwater pumping in other wells, although such a condition may not have ever existed. Nevertheless, a comprehensive review of local area wells should be performed to evaluate whether or not this is feasible.

- H. Assignment of “no-flow” and “constant head” boundary conditions in particular should only be used with extreme prejudice, and be well-justified from suitable historic data.
- I. Following a reasonable effort at model calibration, the model should initially be verified by pumping simulations of the Applicant’s aquifer test well using rates and time periods similar to those used for the previous Theis simulations, with all other wells in the domain set for non-pumping conditions. Subsequent model verification should be performed using those same Project test well extraction rates, in addition to other wells in the domain set to achieve cumulative extractions comparable to historic maximum pumping periods recorded in the PVB.
- J. If model calibration and verification efforts provide reasonable results, please use the model to verify PVB perennial yield.
- K. Please perform conventional sensitivity and uncertainty analyses for the model.

SJS Objections:

The Applicant is not in possession of a robust three-dimensional conceptual and numerical groundwater flow model for the northern portion of the PVB. Therefore, the Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant. Under the Commission's discovery rules, the Applicant has no obligation to perform analyses of this nature and complexity at the request or direction of CURE.

CURE Response:

SJS objects on the ground that the requested information is not reasonably available to SJS. Specifically, SJS states that it is not in possession of a robust three-dimensional conceptual and numerical groundwater flow model for the northern portion of the PVB. However, and as discussed above, SJS has also been unable to provide the very basic information that is required by Commission regulations and necessary for the Commission's and Intervenor's review of the Project's potential impacts to groundwater resources under CEQA. The requested information seeks facts, analysis, and conclusions from SJS that would be sufficient to determine the hydrologic setting of the Project, its potentially significant environmental impacts on groundwater resources in the Pleasant Valley Basin, and any mitigation measures that may be necessary to reduce those impacts to a level of insignificance. SJS should either provide responses to previous data requests in order to explain the basis for SJS's analysis of groundwater impacts, or provide, as an alternative, a three-dimensional conceptual and numerical groundwater flow

model for the northern portion of the PVB where the proposed SJS 1 & 2 Project is to be located. A valid analysis is critical to the Commission's decision regarding the proposed Project.

III. CONCLUSION

All of the information requested by CURE is relevant and reasonably necessary to make a decision on SJS's AFC. The information is critical to a basic understanding of the Project's impacts on public health and air quality and water resources. The information is also critical to determining the need for and adequacy of mitigation measures under CEQA. In addition, much of the information is relevant to findings that the Commission must make under the Warren-Alquist Act. Without the requested information, the public, the parties, and the Commission will have insufficient information to assess the significant impacts of SJS's proposed Project.

Dated: October 26, 2009

Respectfully submitted,

_____/s/_____
Tanya A. Gulesserian
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Attorneys for CALIFORNIA UNIONS
FOR RELIABLE ENERGY

DECLARATION OF SERVICE

I, Bonnie Heeley, declare that on October 26, 2009, I served and filed copies of the attached CALIFORNIA UNIONS FOR RELIABLE ENERGY PETITION TO COMPEL PRODUCTION OF INFORMATION IN RESPONSE TO CURE DATA REQUESTS, SET FIVE. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at http://www.energy.ca.gov/sitingcases/sjsolar/SJSOLAR_POS.PDF. The document has been sent (1) electronically, and (2) via US Mail by depositing in the US Mail at South San Francisco, CA, with first-class postage thereon full prepaid and addressed as provided on the attached Proof of Service list to those addresses NOT marked "email preferred." It was sent for filing to the Energy Commission by sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address shown on the attached Proof of Service list.

I declare under penalty of perjury that the foregoing is true and correct.
Executed at South San Francisco, California, on October 26, 2009.

_____/s/_____
Bonnie Heeley

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STATE OF CALIFORNIA
California Energy Commission

In the Matter of:

The Application for Certification
for the San Joaquin Solar 1 and 2 Hybrid
Power Plant Project

Docket No. 08-AFC-12

CALIFORNIA UNIONS FOR RELIABLE ENERGY
DATA REQUESTS, SET FIVE

September 4, 2009

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Attorneys for the CALIFORNIA
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The following data requests are submitted by California Unions for Reliable Energy. Please provide your responses as soon as possible, but no later than October 5, 2009, to each of the following people:

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Please identify the person who prepared your responses to each data request. If you have any questions concerning the meaning of any data requests, please let us know.

San Joaquin Solar (“SJS”) 1 & 2

CURE Data Requests Set #5

PROJECT DESCRIPTION

Background: SPECIFICATIONS FOR FLUIDIZED BED COMBUSTORS

It appears that the Project would use bubbling fluidized bed combustors (“BFBs”) manufactured by EPI.¹ The Applicant has not yet provided vendor specifications for the Project’s BFBs.

Data Requests:

206. Please provide EPI vendor specifications for the fluidized bed combustors that will be installed at the Project.

Background: BIOMASS FUEL SUPPLY

The Applicant’s Response to Data Request Workshop Action Items claims that 135,000 acres of orchards and vineyards along the I-5 corridor within 50 miles of the proposed Project would potentially produce an average of 5 million bone dry tons of biomass waste annually. According to the Applicant, this amount would be more than ten times the total fuel requirements of the Project, which would support the Applicant’s expectation that the average one-way delivery distance of agricultural biomass will be 35 miles. This information is inconsistent with the Biomass Fuel Supply Review for the Project provided in the AFC, Appendix A-4, which determined that agriculture-sourced biomass material within and tributary to the Fuel Supply Area amounts to only 645,188 bone dry tons per year (without cow manure).² Furthermore, the Fuel Supply Area represents a 75-mile radius of the Coalinga site and the tributary sources may originate from as far away as San Francisco, San Mateo, Santa Clara, Santa Cruz, Alameda, Contra Costa, and Sacramento counties.³

¹ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, “Combustor Startup Emission Estimations, Table 1587 (from EPI), BFB Cold Start-up Sequence.”

² AFC, Appx. A-4, Table 5, p. 12.

³ AFC, Appx. A-4, p. 6.

Data Requests:

207. Please demonstrate how the 5 million bone dry tons annually of biomass waste from orchards and vineyards in the Applicant's Response to Data Request Workshop Action Items was derived.
208. Please discuss the discrepancy between the supply estimate of 5 million bone dry tons of agriculture-sourced biomass provided in the Applicant's Response to Data Request Workshop Action Items and the supply estimate of 645,188 bone dry tons per year of agriculture-sourced biomass (without cow manure) determined by the Biomass Fuel Supply Review for the Project provided in the AFC, Appendix A-4.

Background: BIOMASS FUEL MIX

The Applicant indicated that the anticipated fuel mix for the Project to be at least 50 percent agricultural wood waste and up to 50 percent municipal green waste.⁴ The Applicant did not specify whether this 50/50 fuel mix is anticipated on an annual average basis or on a continuous basis. Because emissions of criteria air pollutants and toxic air contaminants vary depending on the composition of the fuel mix, it is important to maintain the fuel mix for which emission calculations have been prepared.

Data Requests:

209. Please specify whether the proposed fuel mix of "at least 50 percent agricultural wood waste and up to 50 percent municipal green waste" is anticipated on an annual average basis or on a continuous basis.
210. Please indicate whether the Applicant would accept a Condition of Certification requiring no less than 50 percent agricultural wood waste in the biomass fuel for the Project at any given time on a continuous basis.

Background: BIOMASS FUEL DELIVERY DISTANCE

The AFC states that SJS 1 & 2 are expected to utilize approximately 450,000 bone dry tons per year ("BDT/year") of biomass fuels in the biomass combustors with an anticipated mix of locally available fuels of 50 percent

⁴ Applicant's 3rd Response to CEC Data Request Set #1, July 13, 2009, Response to Data Request #80.

agricultural wood waste and 50 percent municipal green wastes.⁵ The AFC predicts that there are sufficient fuel supplies to meet the proposed Project's needs based on the assumption that 2.2 million tons of biomass fuel are available annually within, and tributary to, the San Joaquin Fuel Study Area.⁶

According to the Biomass Fuel Supply Review provided with the AFC, the majority of available municipal green wastes sources from metropolitan areas are tributary to the San Joaquin Fuel Study Area (364,350 BDT/year tree trimmings and 835,030 BDT/year urban wood waste) rather than locally available within the San Joaquin Fuel Study Area, *i.e.* within a 75-mile radius of Coalinga (59,000 BDT/year tree trimmings and 208,000 BDT/year urban wood waste).⁷ Based on the location of the metropolitan centers discussed in the Biomass Fuel Supply Review, the average one-way delivery distance for urban wood waste originating from metropolitan areas tributary to the San Joaquin Fuel Study Area is approximately 184 miles.⁸ Yet, the Applicant assumes only an average one-way distance of 60 miles for urban wood waste.⁹

Data Requests:

211. Please state whether the Project will rely on urban wood waste sourcing from metropolitan centers tributary to the San Joaquin Fuel Study Area. Please document your assumptions.
212. If the Project will rely on urban wood waste sourcing from metropolitan areas tributary to the San Joaquin Fuel Study Area, please provide what percentage of the Project's fuel demand would be met by non-local sources, *i.e.* sources located farther than 60 miles from Coalinga.
213. Please demonstrate the basis for assuming that the average one way delivery distance for urban wood waste is 60 miles.

⁵ AFC, p. 3-5.

⁶ AFC, pp. 3-5 – 3-6.

⁷ AFC, Appendix A-4, Tables 3 and 4, pp. 8-9.

⁸ See AFC, Appendix A-4, p. 9. Santa Clara is approximately 180 miles from Coalinga; Santa Cruz is approximately 183 miles from Coalinga; San Francisco is approximately 200 miles from Coalinga; San José is approximately 150 miles from Coalinga; Alameda is approximately 186 miles from Coalinga; Contra Costa is approximately 180 miles from Coalinga; Sacramento is approximately 199 miles from Coalinga; San Mateo is approximately 192 miles from Coalinga. $(183+200+150+186+180+199+192+180)/8 = 183.75$.

⁹ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, p. AIR-15.

Background: BIOMASS COMBUSTOR FEED RATE

The Applicant's emissions estimates are based on a biomass feed rate of 46,360 pounds per hour ("lb/hr") per combustor and 75 percent capacity.¹⁰ Elsewhere, the Applicant indicates that the maximum wood firing rate for each combustor is 53,847 lb/hr.¹¹

Data Requests:

214. Please specify the maximum feed rate for the Project's biomass combustors.
215. Please discuss why emissions estimates were based on a biomass feed rate of 46,360 lb/hr for each combustor and 75 percent capacity rather than the maximum firing rate for the combustors of 53,847 lb/hr and 75 percent capacity. If necessary, please revise the emissions estimates for the biomass combustors based on the correct biomass feed rate and 75 percent capacity.

Background: ANNUAL BIOMASS FUEL REQUIREMENT

The Applicant repeatedly indicates that annual biomass fuel requirements for the facility would be approximately 450,000 BDT/year based on 75 percent capacity.¹² However, information provided elsewhere suggests that the annual biomass fuel requirements may be considerably higher.

In response to CURE's Data Request #12 the Applicant indicated a biomass feed rate for the combustors of 46,350 lb/hr. Based on this combustor feed rate and the average as-fired moisture content of a 50/50 mix of urban wood waste and agricultural wood waste of 19.25 percent,¹³ the Project would require approximately 492,000 BDT/year at 75 percent capacity.¹⁴

¹⁰ See, for example, AFC p. 3-5 or 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project 3rd Response to CEC Data Request Set #1, July 13, 2009, Response to CEC Data Request #82.

¹¹ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, "Combustor Startup Emission Estimations, Table 1587 (from EPI), BFB Cold Start-up Sequence."

¹² See, for example, AFC p. 3-5 or 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project 3rd Response to CEC Data Request Set #1, July 13, 2009, Response to CEC Data Request #82.

¹³ $(46,360 \text{ lb/hr biomass feed rate}) \times (8,760 \text{ hr/year}) \times (0.75 \text{ capacity factor}) \times (4 \text{ boilers}) / (2,000 \text{ lbs/ton}) \times (1 - 19.25\% \text{ moisture content of 50/50 mix of urban wood waste and agricultural wood waste}) = 491,905 \text{ BDT/year.}$

¹⁴ $(46,360 \text{ lb/hr biomass feed rate}) \times (8,760 \text{ hr/year}) \times (0.75 \text{ capacity factor}) \times (4 \text{ boilers}) / (2,000 \text{ lbs/ton}) \times (1 - 19.25\% \text{ moisture content of 50/50 mix of urban wood waste and agricultural wood waste}) = 491,905 \text{ BDT/year.}$

Elsewhere, the Applicant indicates that the maximum wood firing rate for each combustor is 53,847 lb/hr.¹⁵ Based on this combustor feed rate and the average as-fired moisture content of a 50/50 mix of urban wood waste and agricultural wood waste of 19.25 percent,¹⁶ the Project would require approximately 571,000 BDT/year at 75 percent capacity.¹⁷

Data Requests:

216. Please demonstrate the annual biomass fuel requirements for the Project at 75 percent capacity (450,000 vs. 492,000 vs. 572,000 bone dry tons per year) using the appropriate combustor feed rate determined in response to Data Requests Nos. 214 and 215. Please be specific regarding the assumed fuel mixture and average moisture content of the biomass fuel.

ALTERNATIVES

Background: COMBUSTION TECHNOLOGY ALTERNATIVES

It appears that the Project would use bubbling fluidized bed combustors (“BFBs”).¹⁸ The AFC’s Alternatives Analysis does not contain a discussion of alternative combustion technologies for biomass such as the use of circulating fluidized bed combustors (“CFBs”) or two-state combustion with gasifiers.

Data Requests:

217. Please provide a discussion of alternative combustion technologies including circulating fluidized bed combustors (“CFBs”) or biomass gasifiers.

¹⁵ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, “Combustor Startup Emission Estimations, Table 1587 (from EPI), BFB Cold Start-up Sequence.”

¹⁶ $(46,360 \text{ lb/hr biomass feed rate}) \times (8,760 \text{ hr/year}) \times (0.75 \text{ capacity factor}) \times (4 \text{ boilers}) / (2,000 \text{ lbs/ton}) \times (1 - 19.25\% \text{ moisture content of 50/50 mix of urban wood waste and agricultural wood waste}) = 491,905 \text{ BDT/year.}$

¹⁷ $(53,847 \text{ lb/hr biomass feed rate}) \times (8,760 \text{ hr/year}) \times (0.75 \text{ capacity factor}) \times (4 \text{ boilers}) / (2,000 \text{ lbs/ton}) \times (1 - 19.25\% \text{ moisture content of 50/50 mix of urban wood waste and agricultural wood waste}) = 571,346 \text{ BDT/year.}$

¹⁸ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, “Combustor Startup Emission Estimations, Table 1587 (from EPI), BFB Cold Start-up Sequence.”

Background: ALTERNATIVE FUELS

The Applicant stated in response to CURE Data Requests Nos. 44 and 45 that the Project has no intention of ever using rail ties, tires, or municipal solid waste as fuel and that the municipal green waste fuel may include construction/demolition wood, pallets, or “miscellaneous residential and commercial wood waste.”¹⁹ The response did not indicate what kind of waste materials could be contained in “miscellaneous residential and commercial wood waste.”

Data Requests:

- 218. Please indicate whether the Applicant would be willing to accept a Condition of Certification prohibiting the use of rail ties, tires, and municipal solid waste as fuel.
- 219. Please discuss the potential waste materials contained in “miscellaneous residential and commercial wood waste.” Please indicate whether these could potentially include pre-separated paper or cardboard as fuel.
- 220. Please indicate whether the Applicant would be willing to accept a Condition of Certification prohibiting the use of pre-separated paper and cardboard as fuel.

AIR QUALITY

Background: BIOMASS DELIVERY EMISSIONS

In its July 13, 2009 response to California Energy Commission Staff Data Request Set #1, the Applicant included a discussion of baseline conditions for determining emissions from the current use of biomass in San Joaquin Valley. Baseline conditions include emissions from the trucks that deliver biomass to existing power plants and from the common practice of open burning of agricultural waste.²⁰ Agricultural waste may include rice stubble and straw, chaff, prunings from a variety of fruit and nut trees, vine canes, and materials from removal of orchards and vineyards. The Applicant also provided an estimate of net project

¹⁹ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #3, August 26, 2009, Responses to Data Requests #44 and #45.

²⁰ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, p. AIR-14.

impacts on emissions in the San Joaquin Valley Air Pollution Control District, based in part on the Project's impact on the average distance of one-way truck deliveries of biomass under continued open burning practices, and net project impacts on such distances if open burning practices are to be discontinued following implementation of San Joaquin Valley Air Pollution Control District, Rule 4103.²¹

Data Requests:

221. Please explain how the addition of the Project would impact total miles traveled for delivery of fuel for biomass within the San Joaquin Valley Air Pollution Control District.
222. Given that Rule 4103 applies only to agricultural waste, please substantiate your conclusion that the 60 miles average driving distance for urban wood waste truck deliveries would remain unchanged with the addition of this Project.

Background: EMISSIONS OF NITROUS OXIDE AND METHANE FROM BIOMASS COMBUSTORS

Fluidized bed combustion is well known to produce considerable emissions of nitrous oxide ("N₂O") and methane ("CH₄") both potent greenhouse gases. Emissions of N₂O and CH₄ depend mainly on the type of fuel, type of fluidized bed combustors (bubbling vs. circulating), combustion temperature, and control equipment configuration (SCR, SNCR, aqueous ammonia vs. urea, etc.). Combustion temperature has the largest effect on N₂O emissions and shows an opposite effect to emissions of NO_x. Numerous investigations have demonstrated that while lower bed temperatures reduce NO_x emissions, they result in increasing N₂O emissions.²²

The Applicant's revised greenhouse gas emission estimates in Appendix AQ-2 to the 3rd Response to CEC Data Requests Set #1 ("San Joaquin 1&2 Solar Hybrid Project Total Operational Emissions") do not account for emissions of N₂O and CH₄ from the fluidized bed combustors. The California Climate Action Registry General Reporting Protocol indicates that typical emission factors for electric power generation from wood are on the order of 0.009 and 0.07 pounds per million BTU ("lb/MMBtu") for N₂O and CH₄, respectively.²³ N₂O and CH₄ emission factors for the

²¹ *Id.*

²² *For example*, Simon N. Oka, Fluidized Bed Combustion, Marcel Dekker, Inc., New York, 2004, pp. 556-557.

²³ California Climate Action Registry, General Reporting Protocol, Version 3.1, January 2009, Table C.8, p. 103.

Project may be higher due to the fluctuating combustion temperatures when the biomass combustors are shut off during the day or ramp up in the evening.

Data Requests:

223. Please provide N₂O and CH₄ emission factors for the Project's biomass combustors for the various types of fuel mixes and combustion temperatures. Please document all your assumptions.
224. Please provide estimates of annual carbon dioxide-equivalent emissions of N₂O and CH₄ for the Project biomass combustors. Please document all your assumptions.

Background: FUGITIVE DUST EMISSIONS FROM VEHICLE TRAVEL ON PAVED ROADS

The Applicant provided revised construction emission estimates with the 3rd Response to CEC Data Requests Set #1 including entrained road dust emissions from vehicle travel on off-site paved roads. The revised emissions estimates for entrained road dust from vehicle travel on on-site and off-site paved roads are based on an empirical predictive emission factor equation contained in the U.S. EPA's Compilation of Air Pollutant Emission Factors ("AP-42"), Section 13.2.1 "Paved Roads." This predictive emission factor equation, Equation 1, is based on a number of factors including the average vehicle weight of all vehicles traveling the road and the silt loading value of the roads traveled.

The Applicant's emissions estimates incorrectly calculated separate emission factors for three vehicle classes (heavy truck, medium truck, and personal commuting vehicle) rather than one emission factor for the entire fleet of vehicles traveling specific roads. AP-42 states explicitly: "It is important to note that Equation 1 calls for the average weight of all vehicles traveling the road. For example, if 99 percent of traffic on the road are 2 ton cars/trucks while the remaining 1 percent consists of 20 ton trucks, then the mean weight "W" is 2.2 tons. More specifically, *Equation 1 is not intended to be used to calculate a separate emission factor for each vehicle weight class. Instead, only one emission factor should be calculated to represent the "fleet" average weight of all vehicles traveling the road.*"²⁴

Emissions estimated with Equation 1 are directly proportional to the fleet-average vehicle weight traveling on a road and the number of miles traveled. Because the Applicant's entrained road dust emissions estimates are based on a

²⁴ AP-42, Section 13.2.1, Paved Roads, November 2006, p. 13.2.1-4, *emphasis added*.

considerably higher percentage of annual vehicle miles traveled by light-weight automobiles (89.3 percent) and a lower percentage of annual vehicle miles traveled by medium- and heavy-weight trucks (4.5 percent and 6.2 percent, respectively) than is typically found on the roads and freeways tributary to the Project site, these emissions are considerably underestimated.²⁵ For example, the percentage of annual vehicle miles traveled by trucks on Interstate 5 at the Route 198 junction is 30.94 percent of the total annual vehicle miles traveled.²⁶ The Applicant's emission calculations attribute only 10.7 percent of vehicle miles traveled to medium and heavy trucks.

Furthermore, the Applicant's emission estimates for off-site paved roads are based on one silt loading value only, 0.035 grams per square meter ("g/m²") for major roads (arterials). The silt loading value for rural roads, such as the tributary roads to the Project site, is considerably higher at 1.6 g/m².²⁷ Thus, the revised emissions estimated for entrained road dust from vehicle travel on local roads are underestimated.

Data Requests:

225. Please revise the entrained road dust emissions estimates for vehicle travel on off-site paved roads based on emission factors for the fleet-average weight of all vehicles traveling the respective roads tributary to the Project site (rather than based on emissions factors for each vehicle class) and the appropriate silt loading factors. Please calculate emissions for vehicle travel for each road type, *i.e.*, freeway, major arterials, collector, local, and rural roads tributary to the Project site.

²⁵ From 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-1, Construction Emission Calculations, June 29, 2009, "Worker Delivery/Commuting Emissions, Travel on Paved Surfaces."

Vehicle Type	VMT/year	Percentage
Heavy trucks	391,160	4.5%
Medium trucks	545,160	6.2%
Personal commuting vehicles	7,792,400	89.3%
Total	8,728,720	100.0%

²⁶ State of California, Department of Transportation, 2007 Annual Average Daily Truck Traffic on the California State Highway System, September 2008, p. 20; <http://traffic-counts.dot.ca.gov/truck2007final.pdf>.

²⁷ California Air Resources Board, Emission Inventory, Section 7.8 – SJV, Entrained Paved Road Dust, Paved Road Travel, June 2006; <http://www.arb.ca.gov/ei/areasrc/PMSJVPavedRoadMethod2003.pdf>.

**Background: PARTICULATE MATTER EMISSIONS FROM WET
SURFACE AIR COOLERS**

The Applicant's Response to Data Request Workshop Action Items dated August 26, 2009 provides revised estimates for particulate matter drift emissions from the wet surface air coolers ("WSACs").²⁸ The Applicant's response does not clarify whether the estimated particulate matter emissions, indicated as "PM," are PM10 or total PM. The Applicant's response further does not clarify whether the revised emission estimates for particulate matter drift were accounted for in the ERC offset package submitted to the SJVAPCD on August 21, 2009.

The most recent (August 26, 2009) revision of WSAC drift emissions is based on a drift eliminator control of 0.0005 percent. The prior (August 21, 2009) revision of WSAC drift emissions is based on a considerably lower drift eliminator control of 0.0002 percent. The Applicant did not provide an explanation why the drift eliminator control was revised from 0.0002 percent to 0.0005 percent.

Data Requests:

- 226. Please clarify whether the estimates of particulate matter ("PM") emissions from the WSACs provided with the Applicant's Response to Data Request Workshop Action Items dated August 26, 2009 are PM10 or total PM.
- 227. Please provide an updated summary of on-site operational emissions from the SJS 1&2 Project that accounts for the revised WSAC drift emissions of PM10 based on a 0.0005 percent drift eliminator control provided with the Applicant's Response to Data Request Workshop Action Items dated August 26, 2009.
- 228. Please disclose whether the revised particulate matter drift emissions from the WSACs provided with Applicant's Response to Data Request Workshop Action Items dated August 26, 2009 are accounted for in the ERC offset package provided to SJVAPCD on August 21, 2009.
- 229. Please discuss why the WSAC drift eliminator control was revised from 0.0002 percent (WSAC emission estimate dated August 21, 2009) to 0.0005 percent (WSAC emission estimate dated August 26, 2009).

²⁸ Applicant's Response to Data Request Workshop Action Items, August 26, 2009, "Revised WSAC Drift Calculation."

Background: HEAT TRANSFER FLUID SYSTEM FUGITIVE VOC EMISSIONS

In response to CURE Data Request No. 86, the Applicant estimated fugitive emissions of VOCs from the heat transfer fluid (“HTF”) system at approximately 1.7 tons per year.²⁹ The Applicant did not specify whether this estimate accounted for fugitive VOC emissions of HTF from one or from both plants of the SJS 1&2 Project.

Data Requests:

230. Please clarify whether the emissions estimate of 1.7 tons per year of fugitive VOC from the heat transfer fluid system provided by the Applicant in response to CURE Data Request No. 86 accounts for fugitive HTF emissions from one or both plants of the SJS 1&2 Project.
231. Please provide an updated summary of on-site operational emissions from the SJS 1&2 Project that accounts for fugitive VOC emissions from the heat transfer fluid system.

Background: MITIGATION FOR MOBILE SOURCE EMISSIONS

The CEC’s AFC process for permitting of power plants is functionally equivalent to the process for other projects under the California Environmental Quality Act (“CEQA”). Under CEQA, many large stationary sources with considerable emissions attributable to mobile sources are required to implement stringent mitigation measures. For example, the proposed Liberty Quarry in Riverside County would be required to implement a number of mitigation measures to mitigate mobile source emissions. Emissions from off-site mobile sources at the proposed Liberty Quarry would amount to 58.1 tons/year NO_x, 9.5 tons/year PM₁₀, and 3.8 tons/year PM_{2.5}. In comparison, the SJS 1&2 Project would generate emissions from off-site mobile sources of 20.25 NO_x, 18.75 tons/year PM₁₀, and 3.22 tons/year PM_{2.5}.³⁰ To mitigate emissions from mobile sources, the Liberty Quarry would implement a Clean Air Truck program whereby the Applicant would either retrofit or replace 130 heavy-duty diesel-fueled truck engines when the

²⁹ Applicant’s Supplemental Information in Response to CURE Data Request Set #3, August 26, 2009, Response to Data Request #86.

³⁰ 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, “San Joaquin 1&2 Solar Hybrid Project Total Operational Emissions.”

proposed quarry first opens for operation. The Liberty Quarry Applicant would work with trucking firms to identify and retrofit these trucks prior to initiating permanent plant operations. The engine retrofits (diesel particulate filters and NO_x catalysts) will reduce individual truck emissions of PM₁₀ by about 85 percent and NO_x emissions by up to 40 percent, depending on the technology used for the retrofit. The Liberty Quarry Applicant plans to replace some of the engines with model year 2007 or newer engines rather than retrofitting existing engines. Engine replacement results in emission reductions of PM₁₀ by 90 to 96 percent (depending on the age of the replaced engine) and NO_x by 95 percent or more from older engines.³¹ Here, the Applicant for the SJS 1&2 Project does not propose any mitigation for the emissions from mobile sources. A Clean Air Truck program, as proposed for the Liberty Quarry, is equally feasible for the Project to mitigate the substantial mobile source emissions associated with transporting biomass to the Project site.

Data Requests:

232. Please discuss potential mitigation measures to mitigate the Project's mobile source emissions, including the feasibility of a "Clean Air Truck" program (retrofit and replacement of trucks owned by trucking firms delivering biomass) such as proposed by the Liberty Quarry Applicant.

PUBLIC HEALTH

Background: COMBUSTION OF CONSTRUCTION AND DEMOLITION WOOD

The Applicant indicated that the municipal green waste fraction of the biomass fuel used for the Project may contain construction/demolition ("C&D") wood.³²

Construction waste originates from construction, repair, or remodeling of residential, commercial, and industrial buildings and typically consists of a variety of building products such as roofing, gypsum wallboard, and wood products. Construction waste wood typically consist of wood scraps from dimensional lumber, siding, laminates, flooring (potentially stained), laminated beams, and moldings

³¹ County of Riverside, Draft Environmental Impact Report No. 475, Liberty Quarry, Surface Mining Permit No. 213, SCH No. 20077061104, July 2009, Mitigation Measure AQ-3j, p. 3.2-52.

³² 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #3, August 26, 2009, Response to Data Request #44.

(potentially painted). Demolition waste originates from the destruction of buildings or other structures. Typical constituents include aggregate, concrete, wood, paper, metal, insulation, glass, and other building materials, which are frequently contaminated with paints, including lead paints.

As a result, C&D wood waste may be contaminated with a variety of hazardous chemicals including heavy metals such as copper, chromium, arsenic, cadmium, lead, mercury, zinc, and beryllium, and organic contaminants such as creosote, pentachlorophenol, dioxin, polychlorinated biphenyls, polycyclic aromatic hydrocarbons, solvents, and volatile organic compounds.³³ Incineration results in volatilization of metals during combustion and accumulation of metals in ash, which may result in health and environmental impacts.³⁴ Inorganic arsenic compounds are mainly used to preserve wood. Copper-chromium-arsenic (“CCA”) is a major arsenic-based treatment chemical used to preserve wood. Although no longer used in the U.S. for residential uses, it is still used in industrial applications. Wood preservatives, especially CCA, accounted for most of the arsenic consumption in U.S. until about 2004. As a result, a large quantity of arsenic-treated wood is currently in use and is present in significant amounts in C&D waste. Its presence in the disposal sector is predicted to increase heavily in the near future. Thus, a critical element in minimizing air emissions, especially toxic air contaminants, is the elimination of CCA-treated and pentachlorophenol-treated (“penta-treated”) wood and the minimization of painted wood and fines in the C&D wood waste.³⁵

The separation of wood products from C&D debris for beneficial uses depends on the type and origin of debris. Typically, construction debris is more easily separated than demolition debris. No statewide standards for the content of C&D waste exist and most waste management firms rely on their own standards and specifications to remove the majority of the contaminants and non-burnables from the C&D waste.

Due to concerns regarding the release of hazardous substances, several states have restricted or banned the use of C&D wood waste as fuel for biomass plants and other purposes. For example, New Hampshire has banned the use of C&D debris regardless of whether it is clean, unadulterated waste from construction sites or pressure-treated and painted wood, for example, from demolition activities. The

³³ Ellen Moyer, Ph.D., P.E., Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM’s May 2006 Report, December 20, 2007;
<http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>.

³⁴ Florida Center for Solid and Hazardous Waste Management, Final Report of Evaluation of Thermal Processes for CCA Wood Disposal in Existing Facilities, May 15, 2006;
<http://combustcca.ees.ufl.edu/FCSHWM%20Report-CCA%20Thermal%20Processes.pdf>.

³⁵ Ellen Moyer, Ph.D., P.E., Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM’s May 2006 Report, December 20, 2007;
<http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>.

State of Massachusetts has implemented a moratorium on use of C&D waste. The City of Portland, Oregon, prohibits any use, including combustion, of painted or pressure-treated woods except in “incidental” quantities.³⁶ The Maine Department of Environmental Protection has published detailed specifications limiting the permissible fraction of non-combustible materials, plastics, CCA-treated wood, fines, and asbestos in C&D wood waste and specifying fuel quality standards for arsenic, lead, and PCBs in blended biomass fuel.³⁷

Data Requests:

233. Please indicate the maximum percentage of C&D wood waste anticipated in the municipal green waste used for fuel at the Project. Please indicate how this maximum percentage would be monitored.
234. Please provide specifications for C&D wood waste that fuel suppliers must meet to ensure that the majority of contaminants and non-burnables are removed from the C&D waste.
235. Please describe the testing and sampling procedures for the fuel at both the C&D processing facility and at the Project to assure that the fuel quality will be maintained.

Background: TOXIC AIR CONTAMINANT EMISSIONS FROM BIOMASS COMBUSTION

Toxic air contaminant emissions from biomass combustion in fluidized bed boilers are dependent on the fuel type and the type of combustor (bubbling vs. circulating fluidized bed combustors). The Applicant estimated toxic air contaminant emissions from biomass combustors using emission factors provided by the equipment vendor, EPI, and emission factors provided by the SJVAPCD for a similar biomass facility, the Mendota Biomass Power Plant.³⁸ The Applicant did not provide information for the conditions under which these emission factors were derived (e.g., load, combustion temperature, control equipment, fuel mix including C&D wood, etc.). Further, emission factors determined at the Mendota Biomass

³⁶ Ron Kotrba, The Politics of ‘Dirty’ Wood, Biomass Magazine, April 2009; http://www.biomassmagazine.com/article.jsp?article_id=2539&q=&page=all, accessed September 1, 2009.

³⁷ Maine Department of Environmental Protection, Maine Solid Waste Management Rules: Chapter 418, Beneficial Use of Solid Wastes, June 16, 2006, pp. 13-14.

³⁸ Applicant’s 3rd Response to CEC Data Request Set #1, July 13, 2009, Response to Data Request #80.

Power Plant which uses circulating fluidized bed combustors (“CFBs”)³⁹ are likely not applicable to the Project’s bubbling fluidized bed combustors (“BFBs”).⁴⁰ CFBs and BFBs operate over different temperature ranges resulting in considerably different emissions of air pollutants.

Data Requests:

236. Please provide vendor specifications for the fluidized bed combustors that will be installed at the Project including toxic air contaminant emission factors.
237. Please provide source tests for the Mendota Biomass Power Plant for toxic air contaminant emissions including a description under which these emissions were measured (load, fuel mix including specification of the fraction of C&D wood, combustion temperature, control equipment, etc.).
238. Please discuss how the toxic air contaminant emission factors measured at the Mendota Biomass Power Plant are applicable for the Project given that the Mendota Biomass Power Plant uses circulating fluidized bed combustors and the Project would use bubbling fluidized bed combustors.
239. Please provide emission factors for toxic air contaminant emissions measured at a plant with bubbling fluidized bed combustors and under similar conditions (load, fuel mix, combustion temperature, control equipment, etc.) as proposed for the Project.
240. Please indicate whether the Applicant would be willing to install a continuous dioxin/furan emission monitoring device at the Project.

Background: TOTAL PETROLEUM HYDROCARBONS DIESEL

TPH-d concentration in soil at the Project site significantly exceeds agency screening levels for protection of workers under industrial and construction scenarios. A Phase II Environmental Investigation,⁴¹ was prepared in June 2009 in response to CEC Data Request No. 146. The Phase II report, included as Appendix B to the applicant’s response to Data Requests Set No. 1, states:

³⁹ See, AFC, Appendix A-4, p. 18.

⁴⁰ See, 08-AFC-12, San Joaquin Solar 1 & 2 Hybrid Project, 3rd Response to CEC Data Request Set #1, July 13, 2009, Attachment AQ-2, Operational Emission Calculations, July 10, 2009, “Combustor Startup Emission Estimations, Table 1587 (from EPI), BFB Cold Start-up Sequence.”

⁴¹ Report of Phase II Environmental Investigation. Response to DATA Request #146, Data Set #1, San Joaquin Solar Hybrid Power Stations 1 & 2 (08-AFC-12), Coalinga, California. URS Corporation. June 1, 2009.

four soil samples (SJS-11A through SJS-11D) were collected from the ground surface (0 to 1 foot bgs) near the diesel-fuel AST and pesticide mixing ASTs on the southwest corner of the site. The four samples were composited by the laboratory in accordance with standard methods.⁴²

In reporting the lab results of this sampling location, the Phase II states that in the AST area “TPH-d were detected in the composite sample at a concentration of 23,000 ug/kg.”⁴³ The Phase II concludes that “[t]he concentration of TPH in the composite sample (23,000 ug/kg) is not considered a health concern under any property use scenario.”⁴⁴

The Analytical Report, which was attached to the Phase II report as Attachment A (Laboratory Analytical Report and Chain-of-Custody Form), indicates the following detection of TPHd⁴⁵:

Client Sample Number: SJS-11-A-D (composite)

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
TPH as Diesel	23000	100	20		mg/kg

The citation in the Phase II report is in error. As shown above, the TPH-d concentration in soil was reported by the laboratory in the units of milligrams per kilogram (mg/kg), not micrograms per kilogram (ug/kg). The result cited in the Phase II report (23,000 ug/kg) is 1000 times less than the actual lab result of 23,000,000 ug/kg (23,000 mg/kg) for the sample analyzed (SJS-11-A-D). Therefore, the conclusion made in the Phase II report, that TPH is not a health hazard, is erroneous.

In fact, TPH-d at 23,000 mg/kg (23,000,000 ug/kg) greatly exceeds California Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs) for TPH-d as summarized in the table below⁴⁶:

⁴² *Id.*, pp. 2-3.

⁴³ *Id.*, p. 3.

⁴⁴ *Id.*, p. 4.

⁴⁵ *Id.*, Attachment A, p. 2 of 16.

⁴⁶ *Id.*, Attachment A (sampling locations and analytical results).

Exposure Scenario for TPH – middle distillates (TPHd)⁴⁷	ESL (mg/kg)
Commercial/Industrial Land Use (Shallow Soils, <3m bgs; Groundwater is Current or Potential Source of Drinking Water)	83
Commercial/Industrial Land Use (Shallow Soils, <3m bgs; Groundwater is Not Current or Potential Source of Drinking Water)	180
Commercial/Industrial Worker Exposure	450
Construction/Trench Worker Exposure	4,200
TPHd concentration in soil sample composite SJS-11-A-D	23,000

The TPH-d soil concentration of 23,000 mg/kg is nearly 5.5 times greater than the ESL for construction/trench worker exposure of 4,200 mg/kg and is more than 50 times greater than the ESL for commercial/industrial worker exposure of 450 mg/kg. The Commercial/Industrial Worker Exposure scenario refers to the exposure level expected to be encountered by future employees at the Site. The Construction/Trench Worker Exposure refers to exposure level encountered by construction workers or utility trench workers who are expected to come into periodic contact with contaminants in deep soils.⁴⁸

The laboratory-reported TPH-d soil concentration of 23,000 mg/kg is clearly a significant source of potential hazard to construction workers upon site preparation which will involve land disturbance, including grading and excavation, of 640 acres.⁴⁹ The composite sample that returned the 23,000 mg/kg TPH-d result was collected in an area of numerous visible stains around the ASTs.

⁴⁷ Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. California Regional Water Quality Control Board. San Francisco Bay Region. Interim Final – November 2007 (Revised May 2008). Tables A, K-2, and K-3.
http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf

⁴⁸ Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. California Regional Water Quality Control Board. San Francisco Bay Region. Interim Final – November 2007 (Revised May 2008). P. 6-10.
http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf

⁴⁹ San Joaquin Solar 1 & 2 Hybrid Project. Application for Certification 08-AFC-12. Prepared for Martifer Renewables Solar Thermal LLC by URS Corporation. November 2008. p. 5.4-12.
<http://www.energy.ca.gov/sitingcases/sjsolar/documents/applicant/afc/index.php>

Please note that the AFC made no mention of the TPH-d soil contamination in Sections 5.4, Soils, 5.15, Hazardous Materials Handling, 5.16, Public Health and Safety, 5.17, Worker Safety, or elsewhere. In fact, the AFC made this erroneous statement:⁵⁰

While there is no documented contamination at the site, site preparation and Project construction may potentially involve excavation of contaminated soils.⁵¹

Data Requests:

241. Please explain whether the TPH-d detected was at a concentration of 23,000 mg/kg or 23,000 ug/kg. In other words, please confirm the correct concentration for TPH-d.
242. Please provide a comparison of the TPH-d sample concentrations to regulatory agency screening levels.

Background: TOXAPHENE

Toxaphene concentrations in soil at the Project site exceed regulatory screening levels for industrial land use and construction scenarios. The Phase II Environmental Investigation states,

The following OCPs [organochlorine pesticides] were detected in the surface soil samples collected from the area identified as being used historically for agriculture: [...] Toxaphene was detected in each of the ten samples analyzed at concentrations ranging from 600 to 3,100 ug/kg.⁵²

The Phase II report acknowledges that “Toxaphene detected in three samples was present at concentrations above the commercial/industrial CHHSL of 1,800 ug/kg.”⁵³ However, the report concludes,

⁵⁰ San Joaquin Solar 1 & 2 Hybrid Project. Application for Certification 08-AFC-12. Prepared for Martifer Renewables Solar Thermal LLC by URS Corporation. November 2008. <http://www.energy.ca.gov/sitingcases/sjsolar/documents/applicant/afc/index.php>

⁵¹ AFC, p. 5.4-12.

⁵² Report of Phase II Environmental Investigation. Response to Data Request #146, Data Set #1, San Joaquin Solar Hybrid Power Stations 1 & 2 (08-AFC-12), Coalinga, California. URS Corporation. June 1, 2009, p. 3.

⁵³ *Id.*, p. 4.

If the average concentration of toxaphene detected in the samples collected from the area of historical agricultural use is considered (1,432 ug/kg), it is below the commercial/industrial CHHSL for this compound.⁵⁴

The soil concentrations in three of the 10 samples collected range from 2.4 mg/kg (Sample SJS-08 and SJS-10) to 3.1 mg/kg (Sample SJS-09) and exceed the ESL and California Human Health Screening Levels (CHHSL) for commercial/industrial land use as well as the ESL under the commercial/industrial worker exposure scenario. The RWQCB ESLs and the CHHSLs for toxaphene are summarized in the table below:⁵⁵

Exposure Scenario for Toxaphene⁵⁶	ESL (mg/kg)
Commercial/Industrial Land Use (Shallow Soils, <3m bgs; Groundwater is Current or Potential Source of Drinking Water/ Groundwater is Not Current or Potential Source of Drinking Water)	0.00042
Commercial/Industrial Worker Exposure	1.8
Construction/Trench Worker Exposure	22
California Soil Human Health Screening Levels for Toxaphene⁵⁷	CHHSL (mg/kg)
Commercial/Industrial Land Use	1.8
Toxaphene concentration in soil samples	2.4 – 3.1

The Commercial/Industrial Worker Exposure scenario refers to the exposure level expected to be encountered by future employees at the Site. The Construction/Trench Worker Exposure refers to exposure level encountered by construction workers or utility trench workers who are expected to come into periodic contact with contaminants in deep soils.⁵⁸

⁵⁴ *Id.*

⁵⁵ *Id.*, Attachment A.

⁵⁶ Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. California Regional Water Quality Control Board. San Francisco Bay Region. Interim Final – November 2007 (Revised May 2008). Tables A, K-2, and K-3.
http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf

⁵⁷ Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties. California Environmental Protection Agency. January 2005.
<http://www.calepa.ca.gov/brownfields/documents/2005/CHHSLsGuide.pdf>

⁵⁸ Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. California Regional Water Quality Control Board. San Francisco Bay Region. Interim Final –

In reporting the toxaphene data, the Phase II investigation averaged the ten toxaphene soil sample results and concluded that the toxaphene did not pose a risk. Use of average is generally only allowed under agency oversight where a sufficient number of samples has been collected under an approved work plan. In this case, only ten samples were collected at the 80-acre site, significantly less than Department of Toxic Substances Control (“DTSC”) guidance which states that for an area between 61 and 100 acres, a minimum of 25 composite samples are needed.⁵⁹ Therefore, use of an averaging technique would not likely be accepted by an agency based on the density of the sample data.

The error in the use of an average for soil concentrations of toxaphene is further illustrated by examining the data collected. As shown in Attachment A, Samples SJS-08, SJS-09, and SJS-10 which exceed the ESLs and CHHSLs, are located between 1,000 and 4,000 feet from samples which do not exceed the ESLs. For example, sample SJS-09 with the highest concentration of toxaphene, 3,100 mg/kg, is 4,000 feet away from sample SJS-03 with the lowest concentration, 600 mg/kg. From a practical standpoint, workers that would excavate or otherwise come into contact with soil at these locations would not be subject to average concentrations. They would be exposed to the actual concentrations that were detected. Typically, these areas of elevated soil concentrations are known as hotspots and would require excavation of contaminated soil and confirmatory sampling to document complete removal of the contaminated soil.

Data Requests:

243. Please evaluate individual, rather than average, toxaphene soil exceedences of ESLs and CHHSLs in determining whether they would pose a risk to site workers and if they would constitute hotspots that would require excavation, removal, and confirmatory sampling.

Background: VOLUNTARY CLEANUP AGREEMENT

Site-wide investigation and risk assessment is needed for the Project site under a voluntary cleanup agreement. Given the ESL and CHHSL exceedences of TPH-d and toxaphene in the soil, regulatory agency notification is required to ensure proper response and protection of human health. The CHHSL guidelines state:

November 2007 (Revised May 2008). P. 6-10.

http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf

⁵⁹ Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision). California Department of Toxic Substances Control, California Environmental Protection Agency. August 26, 2002. <http://www.dtsc.ca.gov/Schools/upload/interim-ag-soils-guidance.pdf>

comparison [of available site data] to CHHSLs may show that a site does not pose an unacceptable health risk to residential users, or it may show that additional investigation is warranted.⁶⁰

The guidelines further state:

Decisions for or against additional actions should always be made in coordination with the overseeing regulatory agency.⁶¹

Notification of regulatory agencies is also necessary to ensure that sampling is conducted appropriately and to ensure proper analysis of the data, including the use of statistical techniques and comparison to screening levels.

The AFC does not explain whether the Applicant plans to submit an application to the voluntary cleanup program to ensure the identification of cleanup goals that are protective of construction workers and future employees safety and to provide for the oversight of safe excavation of the Project site. Fresno County, Department of Public Health, Division of Environmental Health is the local Certified Unified Program Agency (CUPA) responsible for implementing a unified hazardous materials and hazardous waste management regulatory program.⁶² The agency provides oversight of businesses that

- Require Hazardous Materials Business Plans;
- Require California Accidental Release Prevention Plans or Federal Risk Management Plans;
- Operate Underground Storage Tanks;
- Operate Aboveground Storage Tanks;
- Generate Hazardous Waste(s);
- Have Onsite Treatment of Hazardous Waste(s)/Tiered Permits.⁶³

Fresno County Hazardous Materials Business Plan Program indicates that a Business Plan must be submitted by businesses that handle a hazardous material, or a mixture containing a hazardous material, in quantities equal to or greater

⁶⁰ Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties. California Environmental Protection Agency. January 2005. p. 2-5.
<http://www.calepa.ca.gov/brownfields/documents/2005/CHHSLsGuide.pdf>

⁶¹ Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties. California Environmental Protection Agency. January 2005. p. 2-5.
<http://www.calepa.ca.gov/brownfields/documents/2005/CHHSLsGuide.pdf>

⁶² Fresno County, Environmental Health, Certified Unified Program Agency (CUPA).
<http://www.fresnocountycupa.com/>

⁶³ Fresno County, Environmental Health, Certified Unified Program Agency (CUPA). Hazardous Materials Business Plan Program. <http://www.fresnocountycupa.com/>

than, among others, 55 gallons of a liquid.⁶⁴ Current conditions at the Project site fulfill this condition since there are five ASTs at the Site, each with a capacity of 500 gallons or more.

According to the Phase I Environmental Site Assessment,⁶⁵ five Aboveground Storage Tanks (ASTs) are located near the southwestern corner of the Site:

Number of ASTs	Capacity	Material	Comments
2	2000 gal	Poly	Used for storage of groundwater and mixing with fertilizer and/or pesticides prior to pumping into the irrigation system. Reportedly installed between 2005 and 2006.
2	500 gal	Poly	Used for storage of groundwater and mixing with fertilizer and/or pesticides prior to pumping into the irrigation system. Reportedly installed between 2005 and 2006.
1	2000 gal	Steel	Used to store diesel fuel for the irrigation pumps. Reportedly installed in 2006.

As discussed above, the Fresno County CUPA is responsible for regulating businesses that operate aboveground storage tanks.⁶⁶ According to Fresno County, Hazardous Material Business Plans have not been submitted, as required for these tanks.⁶⁷

⁶⁴ Fresno County, Environmental Health, Certified Unified Program Agency (CUPA). Hazardous Materials Business Plan Program. <http://www.fresnocountycupa.com/>

⁶⁵ Phase I Environmental Site Assessment: San Joaquin Solar Hybrid Power, Stations 1&2, Assessor's Parcel Nos. 85-030-57s and 85-030-58s, West Jayne Avenue, Coalinga, California. Prepared For Spinnaker Energy, Inc. by URS Corporation. June 12, 2008, p. 5-2. Included in the AFC as Appendix M.

⁶⁶ Fresno County, Environmental Health, Certified Unified Program Agency (CUPA). <http://www.fresnocountycupa.com/>

⁶⁷ Cindy Sauls, R.E.H.S., Environmental Health Specialist III, Fresno County Department of Public Health, Environmental Health Division – CUPA Program. Personal communication. August 27, 2009.

Additionally, the Aboveground Petroleum Storage Act requires the preparation of a Spill Prevention Control and Countermeasure Plan (SPCC).⁶⁸ A SPCC Plan is required when an owner or facility have ASTs with an aggregate storage capacity equal to or greater than 1,320 gallons of petroleum. The Site has a 2,000-gallon diesel storage tank, which would require the preparation of a SPCC.

Generally, pesticide contamination is addressed by DTSC. Further investigation is necessary to investigate and remove soil in excess of ESLs and CHHSLs at the Site under an agreement with DTSC. The AFC does not explain whether the Applicant will submit an application for a Voluntary Cleanup Agreement with DTSC to ensure that the Project will meet regulatory approval for the intended development. Without such an agreement, the Project could be subject to delay due to regulatory inquiries. A Voluntary Cleanup Agreement for further Site assessment and cleanup should include consideration of the following in a work plan for further sampling under agency oversight:

- Sample density – sample locations and an appropriate sample density in the former agricultural areas and the area of the ASTs should be determined in consultation with the oversight agency;
- Sample depth – samples were only collected at one depth interval (1 foot bgs); further sampling should be conducted at intervals approved by the oversight agency;
- Data analysis methods – statistical methods used to evaluate the data should be approved by the oversight agency; and
- Cleanup goals and method of cleanup for soil contaminants should be established by the oversight agency.

A soil management plan should be prepared to ensure protection of construction workers and nearby sensitive receptors from dust that may be generated during excavation and grading, including for patients at the Coalinga State Hospital, located at 24511 West Jayne Avenue, adjacent to the western site boundary.

Data Requests:

244. Please document if notification of Fresno County or the Regional Water Quality Control Board (RWQCB) is required under the Aboveground Storage Tank program requirements.
245. Please explain whether the Applicant intends to seek a Voluntary Cleanup Agreement with DTSC.

⁶⁸ California Environmental Protection Agency Unified Program Fact Sheet. December 2007. Aboveground Petroleum Storage Act, Assembly Bill 1130 (Laird), Chaptered October 13, 2007. <http://www.calepa.ca.gov/CUPA/Aboveground/FactSheetAPSA.pdf>

- 246. Please provide any agency communication regarding whether site assessment is conducted to regulatory standards.
- 247. Please provide records of communication with Fresno County CUPA program to document regulation of the ASTs by the County.
- 248. Please provide the Applicant's Soil Management Plan to ensure protection of nearby sensitive receptors from inhalation of dust-borne contaminants.

Background: PESTICIDES, EROSION AND SEDIMENT CONTROL, AND SWPPP

The Applicant prepared a Draft Erosion and Sediment Control Plan for the Project.⁶⁹ However, the plan makes no mention of past pesticide use at the Site and potential impacts on runoff due to pesticides. It also provides no consideration to the TPH-d found at the Site.

The Applicant also prepared a Storm Water Pollution Prevention Plan (SWPPP) for the Project.⁷⁰ While the SWPPP refers to the presence of pesticides at the Site, it does not mention that soil is contaminated with pesticides and does not offer Site-specific BMPs to address the contamination. It also does not make any reference to the TPH-d found at the Site and its potential impact on stormwater and receiving waters.

Data Requests:

- 249. Please provide a revised comprehensive and Site-specific Erosion and Sediment Control Plan that incorporates pesticide and TPH-d data.
- 250. Please explain the effectiveness of the construction and post-construction BMPs in mitigating erosion and runoff of TPH-d- and pesticide-contaminated soils. Please document any assumptions.

⁶⁹ Draft Erosion And Sediment Control Plan for San Joaquin Solar 1 & 2 Hybrid Power Project, Fresno County. Prepared for Martifer Renewables Solar Thermal LLC, San Diego, CA by URS Corporation. June 30, 2009.

⁷⁰ Storm Water Pollution Prevention Plan for San Joaquin Solar 1 & 2 Hybrid Power Project, Fresno County. Prepared for Martifer Renewables Solar Thermal LLC, San Diego, CA by URS Corporation. July 14, 2009

HAZARDOUS WASTE

Background: HEAVY METALS IN SCRUBBER WASTE AND BAGHOUSE FILTER DUST

The Project would combust C&D wood waste, which may contain heavy metals such as copper, chromium, arsenic, cadmium, lead, mercury, zinc, and beryllium.⁷¹ Heavy metals contained in the combustor exhaust gas would precipitate in the scrubbers and/or condense onto particles which are captured in the baghouse fabric filters. The resulting contamination of scrubber waste and baghouse filter dust with heavy metals may necessitate their disposal as hazardous wastes.

Data Requests:

251. Please estimate the Project's annual average quantity of scrubber waste and baghouse filter dust that would need to be disposed of as hazardous waste due to contamination with heavy metals such as copper, chromium, arsenic, cadmium, lead, mercury, zinc, and beryllium.

WATER RESOURCES

Background: WATER DEMAND FOR WET SURFACE AIR COOLERS

The Project's wet surface air coolers ("WSAC") would require an average annual water usage of 1,443 gallons per minute ("gpm") based on a maximum total dissolved solids ("TDS") content of 1,850 mg/liter and 5 cycles of concentration.⁷²

Data Request:

252. Please discuss whether the TDS content in the WSAC makeup water could be reduced to permit an increase in the number of cycles of concentration, thereby reducing the Project's water demand for cooling.

⁷¹ Ellen Moyer, Ph.D., P.E., Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM's May 2006 Report, December 20, 2007; <http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>.

⁷² Applicant's Response to Data Request Workshop Action Items, August 12, 2009, Table 5.5-6 "Water Usage Rates."

**Background: WATER SUPPLY AND WASTEWATER TREATMENT
FACILITY ANNEXATION**

The AFC states that the average daily water requirement for the Project operation is 1,330 gpm.⁷³ The AFC further provides that the future City of Coalinga Wastewater Treatment Facility (“WWTF”), proposed to be constructed on 477 acres at the intersection of West Jayne Avenue and Alpine Avenue, will provide the majority of the Project’s water needs.⁷⁴ The AFC states that effluent from the WWTF is expected to be available by June 2011.⁷⁵

At the Data Responses and Issues Resolution Workshop, the Applicant stated that it entered into a Letter of Intent with the City of Coalinga for the delivery of up to a million gallons of recycled water per day from the WWTF.⁷⁶ Staff requested further information regarding water supply reliability, including the proposed schedule of construction of the WWTF. In the Applicant’s Data Request Workshop Action Items Response, the Applicant re-framed the issue of water supply reliability – i.e., is there any evidence that the WWTF will provide a reliable water supply to the Project and, if so, how much? – into the Applicant’s phrasing of the issue – i.e., whether the Project will have a redundant water supply. The Applicant then claimed the request is irrelevant and provided a responses regarding “temporary” outages.⁷⁷ The Applicant did not provide a proposed construction schedule for the WWTF. However, this information is necessary to determine the Project’s expected impacts on water resources, including whether the Project may have a potentially significant impact on groundwater resources.

The City of Coalinga published a Program Final Environmental Impact Report (“FEIR”) for its Wastewater Treatment Plant Program in April 2006.⁷⁸ The Program FEIR considers the construction of the WWTF, in addition to several other components of the Wastewater Treatment Plant Program. According to the FEIR, before the WWTF can proceed, an application must be submitted to the Fresno Local Agency Formation Commission (“LAFCo”) and the WWTF site must be annexed to the City of Coalinga.⁷⁹

⁷³ AFC, p. 5.5-12.

⁷⁴ AFC, p. 5.5-9-10.

⁷⁵ AFC, p. 5.5-10.

⁷⁶ *See also* AFC, Appendix E-1.

⁷⁷ Data Request Workshop Action Item Response (Aug. 26, 2009), p. 11.

⁷⁸ Final Program Environmental Impact Report, Coalinga Wastewater Treatment Plant (Apr. 2006), p. I-1.

⁷⁹ *Id.*

Data Requests:

- 253. Please provide the status of the WWTF annexation application to the Fresno LAFCo.
- 254. Please provide a schedule of construction for the proposed WWTF.
- 255. Please state whether the Applicant would agree to a Condition of Certification that limits the Project's reliance on groundwater.

Background: AQUIFER TESTING

Adequate aquifer testing is necessary for the California Energy Commission to adequately analyze whether the Project has a reliable water supply and the Project's impacts on local groundwater supplies. A 72-hour constant rate pumping (aquifer) test was performed by the Applicant in February 2009, using the existing on-site production well ("Anderson Test Well") as a pumping well, and two off-site production wells as observation wells (URS, February 19, 2009). This test was conducted to provide constraints on the suitability of the Anderson Test Well to supply groundwater to the Project, and to evaluate potential impacts of pumping from this well upon local groundwater supplies. The existing Anderson Test Well pump was used during the test. A pumping rate of 900 gallons per minute (gpm) was reported for the test.

Conventional measurements of water level drawdown and recovery were collected, and the resulting data (drawdown versus time elapsed) was analyzed using the Theis "recovery" method (1935). Only one of the two observation wells (located 230 feet west of the pumping well) produced measureable drawdown during the test; the second observation well, roughly one mile southeast of the test well, reportedly did not. The Applicant calculated aquifer transmissivity, hydraulic conductivity and storativity values from their data, and subsequently attempted to predict drawdown in nearby wells following three different scenario time periods of continuous pumping from the Anderson Test Well (1, 10 and 20 years); the Applicant identified 20 years as the total Project duration. Estimates of drawdown in neighboring wells were performed assuming both "ideal" Project groundwater pumping (683 gpm assuming new Coalinga WWTF recycled water supply is available) (as well as "maximum" predicted pumping (1,750 gpm)) to meet Project water demands.

Several uncertainties exist with the Applicant's testing and data analysis methodology, as follows:

- 1) The Theis (1935) analytical method was developed for use in confined aquifers using pumping and observation wells which fully penetrate the aquifer being tested. There is no data presented by the Applicant to

support classification of the tested aquifer as being confined; in fact, the reported screen interval for the test well is as shallow as 370 feet bgs, within a zone identified as an unconfined aquifer by the State Department of Water Resources in the Pleasant Valley groundwater basin (DWR web site, www.sjd.water.ca.gov/groundwater/basin_maps). Figure 5 within the Applicant's report suggests some evidence of delayed yield (gravity drainage), a characteristic of unconfined aquifers. Such patterns are often muted on standard Theis log-log data plots. Alternatively plotting the time-drawdown data on semi-log format would better elucidate this aquifer response. Alternative conventional analytical solutions other than the Theis method exist which are known to produce more reasonable estimates of unconfined aquifer yield and behavior (i.e., Neuman; Moench; others).

Drillers logs submitted as part of the "pre-aquifer test" document prepared by the Applicant dated January 23, 2009 ("*San Joaquin 1 & 2 – Anticipated Well Performance*") indicate very long well screen intervals which probably screen multiple aquifers, and thus drawdown data reflects the "average behavior" of multiple saturated zones of different character (Bennett and Patten, 1962). The reported storativity value reported by the Applicant from the aquifer test (0.001) is actually greater than the range typically observed in confined aquifers (Domenico, 1972; Freeze and Cherry, 1979). Finally, within the *Response To CEC Data Adequacy Requests 08-AFC--12* (Water Resources: Data Adequacy Request #2), the Applicant responds that "the existing on-site <test> well (as currently screened) likely draws water from both the upper and lower water-bearing zones";

- 2) The Theis (1935) analytical method is recognized as providing best estimates of aquifer response nearer to the pumping well, since it was developed to analyze removal of water from storage and assumes non-steady-state aquifer response (e.g., the well capture zone continuously expands with continued pumping over time) (Domenico, 1972; Butler, 1990; Kruseman and deRidder, 1990); it is less meaningful in estimating aquifer response near the outer fringe of the capture zone, and thus the impact upon neighboring wells located at distance from the test well. The assumption of non-equilibrium behavior also tends to lead to overestimates of long-term aquifer yield, since a given applied pumping stress will yield water from an infinitely-expanding capture zone. Alternative methods, such as Cooper-Jacob, should provide more reasonable estimates of aquifer behavior for a "real-world" (steady-state) scenario;
- 3) The short distance (230 feet) between the test well and the only observation well with measured drawdown ("State Prison well") leaves

aquifer behavior at distances > 230 feet from the test well undefined; for example, data from this single well could not be used in a conventional Cooper-Jacob analysis of distance versus drawdown to obtain a meaningful capture zone radius for the test well under any pumping scenario. As such, the Theis “spreadsheet model” employed by the Applicant to predict water level drawdowns greater than 230 feet from the Test Well has large uncertainties.

The well log provided for the Anderson test well indicates the bottom of the well screen interval at 980 feet bgs. The State DWR Bulletin 118 Update (2003) indicates that the typical base of the fresh water aquifer system within the Pleasant Valley Groundwater Basin is 1,150 feet bgs. Thus, by definition, the test well is probably partially penetrating, which can produce deviation from radial flow during pumping and excess drawdown relative to the “ideal” fully-penetrating well scenario assumed by most conventional aquifer-test analysis techniques (Hantush, 1961; Neuman, 1974). Furthermore, the aquifer thickness used by the Applicant (February 19, 2009) to estimate hydraulic conductivity (530 feet) is total well screen length and not true saturated thickness; this artificially small thickness value yields erroneously elevated estimates of hydraulic conductivity, which could in turn lead to overestimates of the test well’s ability to supply water to the proposed Project.

Data Requests:

256. Does the data from the drillers logs submitted as part of the “pre-aquifer test” screen multiple aquifers?
257. Please provide supporting evidence that any portion of the tested aquifer is truly confined.
258. Please provide justification that the Theis (1935) recovery method is suitable as a stand-alone analytical method for assessment of aquifer behavior during the lifetime of the proposed Project in light of DWR’s identification of the aquifer as unconfined.
259. Please provide comparative analysis of the time-drawdown data using the conventional Cooper-Jacob (“steady-state”) technique for a confined aquifer, Hantush (“leaky semi-confined aquifer”) technique, and unconfined aquifer techniques (Neuman and Moench methods, at a minimum).
260. Please explain the effect of the Applicant’s test well partial penetration on the estimates of aquifer behavior.
261. Please explain the resultant uncertainties introduced to estimates of long-term aquifer yield and drawdown as a result of the Applicant’s test well partial penetration. Please provide all data that supports your answer.

Background: AQUIFER TESTING

The Applicant’s groundwater analysis is inadequate to evaluate potentially significant impacts on the surrounding aquifer, as required by CEQA. The Applicant reports that “no pump setting depth was available” for the test well on the Project site, and no information regarding transducer depth placement in the test or observation wells was provided. Furthermore, no well construction details for the two observation wells were provided (URS, February 19, 2009). Vertical spacing of test pumps relative to water level measurement devices during aquifer tests (sounding tubes, pressure transducers, etc.) can significantly influence drawdown measurements due to head loss in large-diameter casings and filter packs, and due to differences in pumping efficiency caused by vertical variations in aquifer yield. This in turn can lead to inaccurate estimates of aquifer transmissivity and water management decisions (Kruseman and deRidder, 1990; Boggs, 2008).

Only two well logs (drillers logs) were provided for review by the Applicant (January 23, 2009 document), and only one of these logs (Anderson Test Well) was from a well involved in the aquifer test. Allowing for inaccuracies or skill differences between drillers preparing the logs, there still appear to be significant stratigraphic discontinuities between the logs, suggestive of aquifer heterogeneities

which may significantly affect groundwater flow and sustainability during long-term pumping. Because the two wells for which logs were provided are located “about a mile from each other,” and absence of details for the two observation wells, there is limited data presented by the Applicant from this aquifer test to adequately evaluate the effects of the test well during proposed Project pumping beyond a distance of 230 feet. According to the AFC Figure 5.5-4, there are more than six additional wells within 1.5 miles of the on-site well.

Data Requests:

262. Please provide information regarding transducer depth placement in the test well.
263. Please provide information regarding transducer depth placement in each of the observation wells.
264. Please provide well construction details for the two observation wells.
265. Please provide any well logs, other than the two provided, that the Applicant used to support its analysis.
266. Please provide logs for a minimum of six additional nearby wells, spaced at distances greater than 230 feet from the Project site test well.
267. Please provide the Applicant’s pump test (specific capacity) test data from each of the additional nearby wells.
268. Please use data requested in Data Request Nos. 259 to 261 to provide a revised conceptual model of the local aquifer system surrounding the proposed Project site (at least 1.5 miles from the on-site test well).
269. Please evaluate and comment on the impacts of the Applicant’s revised conceptual model provided in response to Data Request 268 on the results of the aquifer test, and upon the predicted Theis drawdown estimates after 1, 10 and 20 years of continuous pumping from the test well.

Background: LOCAL WATER BUDGET AND SUSTAINABILITY

Within Section 5.5 of the original Application for Certification (AFC) for the Project (December 1, 2008), the Applicant describes a water balance (budget) for the Pleasant Valley Groundwater Basin (PVB). The Applicant’s discussion of available water supply and groundwater extractions borrows heavily from the State DWR Bulletin 118 Update (2003), and is somewhat confusing in that it interleaves discussions of water balance and groundwater extractions from the PVB with those

of the adjacent Westside Groundwater Basin to the east. Both groundwater basins have a primary and historical agricultural water use; prior to 1968 the water supply was chiefly from groundwater, which led to severe overdraft of both basins. Following completion of salient local components of the combined federal Central Valley Project (CVP) and State Water Project (SWP), imported water became available to augment the depleted groundwater supply, leading to water level recovery within both basins from 1968 to 1986. Following 1986, an eight-year drought in California led to restricted CVP imports, increased groundwater pumping, and return to overdraft conditions. During this period, CVP-SWP imports were as low as 25% of full contract allocations. Despite local and temporary precipitation recharge of groundwater levels following heavy storm years in 1995, 1998, and 2004, groundwater levels within PVB have dropped once again, an average of 4 feet annually from 1988 to 2008. Water level maps posted on the State DWR web site⁸⁰ indicate significant pumping depressions in the vicinity of the proposed Project site. The Westland Water District, which provides management for the Westside Groundwater Basin, reports between 100 and 200 feet of groundwater level decline between 1994 – 2008 (*Deep Groundwater Conditions Report*, March 2009).

Explanations for the continued water level decline include a combination of extended drought conditions relative to scattered wet years, and legal/political restrictions to availability of CVP-SWP water imports from the embattled San Joaquin-Sacramento Rivers Bay-Delta area. Currently the region is approaching the fifth year of the latest drought period, and current CVP-SWP allocations of imported water are only 40% of full contract limits.⁸¹ Because the EIR for the Bay-Delta Conservation Plan (BDCP) is still in preparation and draft review stages, no imminent solution to legal aspects of CVP-SWP water availability seems likely.

In light of past drought and imported water supply restrictions in the PVB, it should be useful and relatively simple to compare local groundwater levels in a number of wells of the PVB to historical groundwater extractions, for purposes of estimating a defensible perennial yield (“operational safe yield”) for the PVB. This type of analysis has been performed by others for the Westside Groundwater Basin for the period between 1949 – 2008 (Westlands Water District *Deep Groundwater Conditions Report*, March 2009), and used to estimate a perennial yield of 200,000 acre-feet per year (AFY) for the Westside Basin. However, no such analysis was presented by the Applicant for the PVB. Furthermore, no perennial yield information for PVB is present within the State DWR Bulletin 118 Update (2003).

Because the size of the Westside Basin is roughly 640,000 acres and that of the PVB roughly one-fourth that size (146,000 acres), the inflow and recharge to the

⁸⁰ www.sjd.water.ca.gov/groundwater/basin_maps

⁸¹ State DWR web site: www.water.ca.gov/swpao/deliveries.cfm

PVB is very likely less than the 200,000 AFY perennial yield of the Westside Basin. Nevertheless, State DWR (2003) reports that up to 104,530 AFY was extracted from the PVB in 1990, during a time of drought; the lion's share of this water (90,000 AFY) was from agricultural pumping. During the same period, aquifer recharge due to irrigation was estimated at 4,000 AFY over 146,000 acres (a fairly low value), for a net PVB groundwater output (withdrawal) of roughly 100,000 AFY. Since the proposed Project acreage is 640 acres, this will result in a net reduction of irrigation recharge of 19 AFY.

The proposed Project is designed as a "zero-discharge" facility, which the Applicant defines as having no direct discharge of system waste water that percolates into groundwater, and design-storm water runoff is equally minor. Limited information provided by the Applicant within the AFC and responses to CEC Data Requests suggest that groundwater extractions have not declined for irrigation use since 1990, and the Pleasant Valley Water District predicts continued similar or higher extractions in the future, owing in part to maturing crops with high consumptive use, such as pistachio trees. Because DWR has determined consistent groundwater level declines since the 1990 estimate, it cannot be stated that the 100,000 AFY figure is within the operational safe yield of the basin.

The proposed Project maximum water use requirement is stated as 2,057 AFY. In previous CEC Data Requests responses, the Applicant has stated that this maximum Project water demand is "*...within the normal range of agricultural irrigation usage for a 640-acre parcel in this area,*" or stated another way, the proposed Project groundwater pumping would be no more than historical agricultural-use pumping, and thus allegedly represent no impairment to the local groundwater basin storage or other groundwater pumpers in the area. This statement might be valid if the perennial yield of the PVB were known; since it is not, there is no comfort zone or baseline for the Applicant's conclusion. Stated another way, 2,057 AFY may be sustainable if existing imports, extractions and groundwater levels were indicative of a recoverable perennial yield value; the possibility of prolonged drought conditions and restricted CVP-SWP imports only increase this uncertainty. Given this uncertainty, both the "idealized" Project groundwater pumping (683 gpm, assuming new Coalinga WWTF recycled water supply is available) and the "maximum" pumping (1750 gpm, assuming no WWTF water available) may exceed basin tolerance limits (e.g. perennial yield).

Data Requests:

270. Please provide the Applicant's evaluation of perennial yield (operational safe yield) of the PVB that establishes the baseline for the Project's analysis of the proposed Project water demand impacts.

271. Please provide an evaluation of perennial yield (operational safe yield) of the PVB, in order to establish a defensible baseline for justifying proposed Project water demands, using the following:
- a. Data as far back as 1950, if possible; and
 - b. Total basin groundwater extractions from as many pumpers as possible; and
 - c. Water level data from a minimum of six (6) wells within a 1.5 mile radius of the proposed Project site.

Historic pumping, CVP-SWP imports and groundwater level data should be readily available from the Pleasant Valley Water District, Westlands Water District, and San Joaquin district office of State DWR in Fresno to provide this required analysis.

272. Please explain the effects of foreseeable future continued drought and climate change conditions on availability and sustainability of future groundwater extractions in the PVB, and their bearing on availability of groundwater to meet proposed Project demands. Please provide as probability values and quantitative estimates of uncertainty in support of your answer. Data for this analysis may be found via the State DWR, AWWA, ACWA, US Geological Survey, academic research institutions and/or the National Resources Defense Council. Extrapolations of historic effects from the Westside Basin can be used for comparison.
273. Please provide the Applicant's evaluation of the potential effect of continued restricted imported water supplies to PVB via the CVP-SWP system, as a result of Bay-Delta legal decisions, CEQA process and uncertainties. Please assume that future restrictions may be even less than the prevailing 40% allocation. Extrapolations from the conditions in the adjacent Westside Basin may be useful, but should not form the sole basis for the evaluation.
274. If the Applicant disagrees that future restrictions may be even less than the current 40% allocation, please demonstrate how the effect of continued restricted imported water supplies to the PVB will impact A) the Project and B) the groundwater basin, based on the Applicant's scenario of future CVP-SWP allocations during the proposed 20-year Project duration. Please justify your allocations based the Applicant's information and analysis of possible future drought and political scenarios.

Background: IMPACTS ON WATER BANKING FACILITY

In 2006, the San Luis & Delta-Mendota Water Authority developed the *Westside Integrated Water Resources Plan*, which is available from these agencies,

as well as the Westlands Water District. This is the most current comprehensive water management strategy document for the Westside Groundwater Basin, including potential impacts on agricultural groundwater pumping from drought- and Bay-Delta-imposed water supply restrictions. However, the Applicant apparently did not review nor use this document within their water supply assessment for the proposed Project.

In addition to containing useful background information for evaluation of the Data Request Nos. 272, 273 and 274 discussed above, this document also identifies that the Pleasant Valley Water District (PVWD) is planning a 5000 AFY water banking facility located along Chino-Zapato Creek one mile south of the proposed San Joaquin Solar Hybrid (SJS 1 & 2) Project. The banking project would ultimately involve negotiated contracts with several “water bankers” who would store their purchased water at this facility during wet years and/or years of increased CVP-SWP available allocations. The proposed SJS 1 & 2 Project groundwater extractions are proximal enough to this water banking site such that parties to the water banking agreement may potentially be impacted by proposed SJS 1 & 2 extractions, and vice-versa.

Data Request:

- 275. Please explain the Project’s potential impacts on the PVWD water banking facility planned one mile south of the proposed Project.
- 276. Once a suitable perennial yield evaluation is completed for the PVB, augmented by probable uncertainties in water supply due to climate and Bay-Delta constraints, please perform an assessment of the potential impacts of SJS 1 & 2 groundwater extractions on the planned PVWD water banking facility.

Background: SIMULATIONS OF WELL PUMPING EFFECT

The Applicant responded to CEC Data Request No. 13 for a computer modeling study by stating that “Submission of the neighboring well aquifer test information should satisfy the data adequacy need for groundwater well yield/aquifer analysis.” This response apparently pre-dated the submission of the Applicant’s Aquifer Test report dated February 19, 2009.

Within its subsequent Aquifer Test report, the Applicant attempted to predict drawdown in nearby wells following three different scenario time periods of continuous pumping from the Test Well (1, 10 and 20 years); the Applicant identified 20 years as the total Project duration. Estimates of drawdown in neighboring wells were performed using a spreadsheet model based upon the Theis (1935) analytical solution, assuming both “ideal” Project groundwater pumping (680

gpm) as well as “maximum” pumping (1,750 gpm) to meet Project water demands. The “maximum” pumping scenario assumes that recycled wastewater from a planned new Coalinga treatment facility will not be available to the Project. These simulations are not adequate to address reliability of groundwater supply to meet Project demands for the following reasons:

- 1) The Theis (1935) analytical method was developed for use in confined aquifers using pumping and observation wells which fully penetrate (screen) the aquifer being tested. There is no data presented by the Applicant to support classification of the tested aquifer as being either partially or exclusively confined. Furthermore, data submitted by the applicant and within the public domain indicates that the test well only partially penetrates the saturated zone, and likely screens multiple saturated zones separated by aquitards.
- 2) No log nor construction details were provided for the single observation well used in the test; continuity of stratigraphic units and saturated zone(s) between the test well and observation well therefore cannot be accurately constrained. As such, reliability of the resultant drawdown data from the test does not justify selection of the Theis analytical method to simulate effects of future pumping from the test well.
- 3) Within its February 19, 2009 report, the Applicant provided a log of only one other agricultural supply well in the vicinity of the proposed Project area. This log exhibits significant differences from the aquifer test well, and suggests considerable heterogeneities within the aquifer materials, not atypical of alluvial sediments of the west-central San Joaquin Valley groundwater basin (Davis et al, 1959; Page, 1986; State DWR, 2003). Such heterogeneities are not accounted for within the Theis spreadsheet analytical model utilized for the simulations of drawdown.
- 4) The Theis (1935) analytical method is recognized as providing best estimates of aquifer response nearer to the pumping well, since it was developed to analyze removal of water from storage and assumes non-steady-state aquifer response (e.g., the well capture zone continuously expands with continued pumping over time) (Domenico, 1972; Butler, 1990; Kruseman and deRidder, 1990); it is less meaningful in estimating aquifer response near the outer fringe of the capture zone, and thus not an ideal tool to evaluate the potential impacts upon neighboring wells located at greater distances from the test well.

Because no more than one observation well was used in the Applicant’s aquifer test, a conventional Cooper-Jacob steady-state analysis of drawdown vs. distance cannot be employed as an alternative to the Theis method for estimating

the test well capture zone radius, and its impact on nearby pumping wells. Furthermore, the Theis-method simulations do not account for potential interference due to groundwater pumping by other local parties, with which the Project pumping effects would obviously compete. This uncertainty is driven by the absence of a reliable estimate of perennial yield for the Pleasant Valley Groundwater Basin (PVB) (refer to Data Request Nos. 270 and 271).

On page 5.5-4 of the AFC, the applicant states that “the present-day groundwater flow system is in a transient state and is adjusting to the stresses placed upon it in the past and present.” The AFC also identifies the “large downward hydraulic head gradient” due to excessive groundwater pumping in the Project area by other parties due to reduced CVP-SWP imports and drought, as exhibited by continually declining groundwater levels from 1988 through 2008. The very nature of these comments by the Applicant, coupled with the discussion above, strongly support the need for development and application of a more robust conceptual and numerical groundwater model for at least the northern portion of the PVB where the proposed Project is located.

Data Requests:

277. In light of the comments above, please explain why pumping simulations based upon only the simplified Theis analytical method were chosen to predict proposed Project impacts on local water supply.
278. Responses to Data Request No. 277 notwithstanding, as an alternative to the simple Theis analytical method, please develop a robust three-dimensional conceptual and numerical groundwater flow model for the northern portion of the PVB where the proposed SJS 1 & 2 Project is to be located, to simulate effects of Project groundwater withdrawals on neighboring pumpers and planned PVWD groundwater recharge facilities. Please use some form of conventional and reasonably available commercial software, such as WHI Visual Modflow© (version 3.1 or greater) or an equivalent. If an existing groundwater flow model has been developed for the Project area and is available and not subject to proprietary use restrictions, that may be considered for the simulations. The following conditions should be met by any such model used or developed:
 - A. Please adhere to prevailing Standard Guides developed by the American Society for Testing and Materials (ASTM) for developing, calibrating, verifying and performing sensitivity analyses of groundwater flow models, as well as defining initial model conditions and boundary conditions.

- B. A model domain of not less than six square miles, centered on the proposed Project extraction well(s), should be used.
- C. In order to avoid “forced” boundary condition behavior, model boundaries should be set so as to not coincide with geologic or suspected hydrogeologic boundaries, such as the Guijarral Hills to the north, Kreyenhagen Hills to the west, or the subsurface Kettleman Hills anticline across Polvadero Gap east of the Project site.
- D. Horizontal discretization (gridding) of the domain should be constructed so as to have as many grid-centered wells as possible. Grid dimensions need not be any finer than necessary to reasonably simulate heads produced by the number of pumping wells or recharge sites presently in the domain, and new wells or recharge sites reasonably expected to be installed within the domain within the expected duration of the proposed Project.
- E. Vertical discretization should include as many discrete layers as are adequate for representation of the different physical properties and flow behavior of all significant aquifers and aquitards identified within the domain from review of local well logs. As many well logs as illustrated on Figure 5.5-4 of the AFC should be used as possible, in addition to an adequate number of wells east of Polvadero Gap within the Westside Groundwater Basin to simulate the potential boundary condition in that area. The bottom layer of the discretized domain should include the base of the fresh water zone. Layer discretization should be able to lead to reasonable simulations of well capture zones developed due to preferential flow pathways in zones of higher hydraulic conductivity (something that a simplified Theis analysis cannot achieve).
- F. Static (non-pumping) water-level data should be used from as many local wells as possible for steady-state model calibration. It is recommended that heads measured during historic periods of maximum CVP-SWP imported water to PVB (and minimal groundwater pumping) be considered for steady-state calibration.
- G. Recovery data from the February 2009 aquifer test may be used for transient model calibration, but only if uncertainties with the “State Prison” test observation well can be resolved (e.g., aquifer stratigraphy and well construction details). Transient calibration should comparatively also involve heads measured from as many idle (non-pumping) wells as possible during historic periods of heavy groundwater pumping in other wells, although such a condition may

not have ever existed. Nevertheless, a comprehensive review of local area wells should be performed to evaluate whether or not this is feasible.

- H. Assignment of “no-flow” and “constant head” boundary conditions in particular should only used with extreme prejudice, and be well-justified from suitable historic data.
- I. Following a reasonable effort at model calibration, the model should initially be verified by pumping simulations of the Applicant’s aquifer test well using rates and time periods similar to those used for the previous Theis simulations, with all other wells in the domain set for non-pumping conditions. Subsequent model verification should be performed using those same Project test well extraction rates, in addition to other wells in the domain set to achieve cumulative extractions comparable to historic maximum pumping periods recorded in the PVB.
- J. If model calibration and verification efforts provide reasonable results, please use the model to verify PVB perennial yield.
- K. Please perform conventional sensitivity and uncertainty analyses for the model.

Dated: September 4, 2009

Respectfully submitted,

_____/s/_____
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DECLARATION OF SERVICE

I, Bonnie Heeley, declare that on September 4, 2009, I served and filed copies of the attached California Unions for Reliable Energy Data Requests, Set Five. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at http://www.energy.ca.gov/sitingcases/sjsolar/SJSOLAR_POS.PDF. The document has been sent (1) electronically, and (2) via US Mail by depositing in the US Mail at South San Francisco, CA, with first-class postage thereon full prepaid and addressed as provided on the attached Proof of Service list to those addresses NOT marked "email preferred." It was sent for filing to the Energy Commission by sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address shown on the attached Proof of Service list.

I declare under penalty of perjury that the foregoing is true and correct.
Executed at South San Francisco, California, on September 4, 2009.

_____/s/_____
Bonnie Heeley

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STATE OF CALIFORNIA

**Energy Resources Conservation
and Development Commission**

In the Matter of:)
)
Application for Certification for the)
San Joaquin Solar 1 and 2 Hybrid Power Plant)
)
San Joaquin Solar 1 and 2 LLC)

Docket No. 08-AFC-12

**OBJECTIONS TO DATA REQUESTS
OF
CALIFORNIA UNIONS FOR RELIABLE ENERGY,
SET 5**

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STATE OF CALIFORNIA

**Energy Resources Conservation
and Development Commission**

In the Matter of:)	
)	
Application for Certification for the)	
San Joaquin Solar 1 and 2 Hybrid Power Plant)	Docket No. 08-AFC-12
)	
<u>San Joaquin Solar 1 and 2 LLC</u>)	

**OBJECTIONS TO DATA REQUESTS
OF
CALIFORNIA UNIONS FOR RELIABLE ENERGY,
SET 5**

On September 4, 2009, San Joaquin Solar 1 LLC and San Joaquin Solar 2 LLC, collectively referred to as San Joaquin Solar or “Applicant”, received California Unions for Reliable Energy (“CURE”) *Data Requests, Set 5*. Set 5 is one of five sets of Data Requests tendered by CURE. CURE has tendered to date 278 Data Requests, which includes subparts totaling more than 300 distinct requests. CURE has tendered approximately twice the number of requests submitted by Staff.

In addition to the specific grounds set forth below in reference to specific questions and as we explained in our response to CURE's Set 4 data requests, Applicant objects to CURE's data requests on the grounds that they are calculated to harass, burden, and oppress Applicant and delay Applicant's Application for Certification (“AFC”). Should CURE file any motion in reference to any outstanding request to CURE, the California Energy Commission (“Commission”) should relieve the Applicant from responding to the data requests or severely

limit the responses required by the Applicant. Justifications for this objection are set forth below.

1) CURE's goal is labor organizing under the National Labor Relations Act and not legitimate CEQA or other objectives within the Commission's jurisdiction.

CURE engages in a pattern and practice of Commission intervention to promote labor organizing objectives of CURE's member unions rather than for legitimate objectives under CEQA or Commission regulations. The Applicant submits that a full investigation of CURE's activities will demonstrate that where projects that are the subject of applications for certification are covered by CURE construction labor agreements, CURE does not and will not take any action within Commission jurisdiction to negatively impact the review or processing of the covered projects. CURE only takes negative action such as the service of burdensome and oppressive data requests like the ones at issue here when applicants cannot or do not enter construction labor agreements in what CURE considers to be a sufficient time period before or shortly after filing the AFC. This practice calls into question the legitimacy of CURE's intervention and justifies severely curtailing and restricting CURE's rights in proceedings like this one where but for failed organizing objectives, there would be no or little CURE activity. Failure to curtail and severely restrict CURE merely emboldens the organization and motivates it to become more entrenched in resistance to the AFC and the Project covered by the AFC.

2) CURE's labor organizing is illegal and, despite the Applicant's efforts to meet and resolve the labor issues with CURE, CURE is using the Commission to coerce the Applicant to engage in illegal activity.

a. *CURE is a labor organization.* CURE is comprised of officials from the California State Building & Construction Trades Council ("Council") and a small number of local mechanical building and construction trades unions in California representing

workers in the construction industry. CURE's president, Robert Balgenorth, is also the president of the Council. CURE's attorney who negotiates labor agreements with Commission applicants is the legal counsel in this matter before the Commission, Adams Broadwell Joseph & Cardozo. Consistent with CURE's pattern and practice of labor organizing through the Commission, after Applicant filed its AFC in this matter, CURE and its legal counsel initiated efforts to seek construction labor agreements for the Project. Finalizing construction labor agreements as demanded by CURE appears to be the only way Applicant will cause CURE to cease or limit its data requests and other activity in this proceeding.

b. *The Applicant is prohibited from entering construction labor agreements sought by CURE in return for CURE's cooperation before the Commission.* The Commission should sustain the Applicant's objection in view of the fact that the Applicant does not have legal standing to satisfy CURE's organizational goals to avoid further adverse action in the permitting proceeding. Applicant does not have legal standing to enter the construction labor agreements demanded by CURE under the National Labor Relations Board decision in *Glens Falls Building and Construction Trades Council*, 350 NLRB No. 42 (July 31, 2007) (*Indeck II*). The *Indeck II* case concluded that several construction industry unions violated the NLRA by coercing a project owner to sign a project labor agreement for construction similar to what CURE has demanded of the Applicant in this case. The construction labor agreement at issue in *Indeck II* was rendered void and unenforceable as an illegal agreement. Illegal construction labor agreements could expose owners who sign them to liability under federal labor law and other jurisprudence. Therefore, entering into the labor agreements that CURE demands, in order to settle any issues and/or eliminate CURE's intervention

activity in this proceeding, could subject Applicant to legal exposure under federal labor law and possibly other jurisprudence.

c. *The Applicant made an effort to appease CURE and relieve the Commission and the Applicant from CURE's activities.* The Commission should sustain the Applicant's objection in view of the fact that Applicant has attempted to meet and resolve any issues with CURE in good faith, including the representation that the Applicant will retain union contractors who may lawfully execute agreements with CURE for labor. Representatives from Applicant met with CURE's legal counsel in July. At that time, Applicant stated that it intended to use Union labor on the Project, but that the Applicant did not have legal standing to enter into labor agreements for construction under the NLRB's decision in *Indeck II*. CURE demanded that Applicant secure union contractors immediately. Applicant explained that it cannot secure contractors prior to certification and financing of the Project. Nonetheless, CURE has continued to interfere in the AFC process. Under these circumstances, Applicant is highly prejudiced by CURE's actions in this proceeding whereas there is little harm to CURE if its actions in this matter are restricted to more reasonable participation

d. Notwithstanding the fact that CURE's data requests are not intended to serve any legitimate purpose under CEQA or the Commission rules, the Applicant has acted, at considerable expense, to provide requested data that is reasonably available to the Applicant and reasonably necessary for the Commission to reach a decision on the Application.

Section 1716 of the Commission's regulations (Cal. Code Regs., tit. 20 § 1716) contains the basic framework for information exchanges between parties in licensing proceedings: “A party may request from an Applicant ... information which is reasonably available to

the Applicant which is relevant to the application proceedings or reasonably necessary to make any decision on the ...application.” (Cal. Code of Regs., tit. 20 § 1716(b).) The Applicant may then answer or object to the request. The Applicant hereby objects to those requests that do not meet this standard.

In addition to the general objections set forth above, the Applicant objects to those specific data requests that request information that is not reasonably available to San Joaquin Solar. The Applicant also objects to those data requests that are not relevant to the proceeding and reasonably necessary to make any decision on the Application. Finally, the Applicant objects to those data requests that ask the Applicant to prepare or revise analyses based on specifications, assumptions or speculations provided by CURE. The Applicant believes that the analyses it has prepared are sufficient for its Application. CURE is free to disagree and it may, if it so desires, prepare its own calculations or estimates regarding any relevant issue. However, CURE should not confuse the discovery phase with the evidentiary phase of this proceeding. As noted in a recent ruling by the Committee in the Carlsbad Energy Center proceeding, "The provision of 'information' by the Applicant or any other party includes data and other objective information available to it. The answering party is not, however, required to perform research or analysis on behalf of the requesting party."¹ This is particularly true where the requested research or analysis is intended to harass or burden the Applicant and serves no legitimate purpose under CEQA or the Commission rules. While the Committee also recognized that the line between discoverable data and undiscoverable analysis and research is dependent on the particulars of a request and cannot be drawn with precision, San Joaquin Solar submits that CURE's request for new or revised analyses have crossed far beyond the line of discoverable data.

¹ Committee Ruling On Intervenor Center For Biological Diversity's Petition To Compel Data Responses, Application For Certification For The Carlsbad Energy Center, Docket No, 07-Afc-6, December 26, 2008.

Except as noted below, the Applicant will respond to CURE's data requests Set 5 on or before October 5, 2009. There are, however, specific questions in Set 5 to which the Applicant objects. Pursuant to Title 20, California Code of Regulations, Section 1716(f), Applicant hereby objects to CURE's Data Requests 221, 223 through 225, 232, 236, 237, 239, 242 through 244, 246, 249, 253, 254, 257, 259, 261, 266 through 274, and 278.

The Applicant's specific objections are set forth below.

SPECIFIC OBJECTIONS

Data Request 221

Please explain how the addition of the Project would impact total miles traveled for delivery of fuel for biomass within the San Joaquin Valley Air Pollution Control District.

Objection:

The Applicant has not calculated the total number of miles traveled for delivery of fuel of biomass within the San Joaquin Valley Air Pollution Control District. Therefore, the Applicant objects to this request on the grounds that the requested information is not reasonably available to the Applicant. In addition, the requested information is not reasonably necessary to make a decision on this Application.

Data Request 223

Please provide N₂O and CH₄ emission factors for the Project's biomass combustors for the various types of fuel mixes and combustion temperatures. Please document all your assumptions.

Objection:

The Applicant has not calculated N₂O and CH₄ emission factors for "various types" of fuel mixes and combustion temperatures. The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 224

Please provide estimates of annual carbon dioxide-equivalent emissions of N₂O and CH₄ for the Project biomass combustors. Please document all your assumptions.

Objection:

The Applicant has not estimated the annual carbon dioxide-equivalent emissions of N₂O and CH₄ for the Project biomass combustors. The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 225

Please revise the entrained road dust emissions estimates for vehicle travel on off-site paved roads based on emission factors for the fleet-average weight of all vehicles traveling the respective roads tributary to the Project site (rather than based on emissions factors for each vehicle class) and the appropriate silt loading factors. Please calculate emissions for vehicle travel for each road type, i.e., freeway, major arterials, collector, local, and rural roads tributary to the Project site.

Objection:

As the Applicant will explain in its response to Data Request 225, the Applicant does not accept CURE's assertion that the entrained road estimates were incorrectly calculated. Therefore, the Applicant objects to this request to revise the estimates on the grounds that the information is not reasonably available to the Applicant and that the information is not relevant.

Data Request 232

Please discuss potential mitigation measures to mitigate the Project's mobile source emissions, including the feasibility of a "Clean Air Truck" program (retrofit and replacement of trucks owned by trucking firms delivering biomass) such as proposed by the Liberty Quarry Applicant.

Objection:

As set forth in the Applicant's response to CEC Data Requests 24, the mobile source emissions of the project do not constitute a significant impact. In the absence of significant impacts, mitigation measures are not required. Therefore, a discussion of "potential mitigation measures" is not reasonably necessary to any decision the Commission must make on this Application.

Data Request 236

Please provide vendor specifications for the fluidized bed combustors that will be installed at the Project including toxic air contaminant emission factors.

Objection:

The Applicant is unsure what is meant by "vendor specifications". The Applicant has provided in the Application and in response to CEC Staff Data Requests, many specifications for the fluidized bed combustors from the vendor including fuel requirements, heat and energy production, criteria pollutant and air toxic contaminant emission factors, etc. If CURE is requesting the vendor specifications for the fluidized bed combustors such as equipment dimensions or materials of construction, these are not available until the final design is completed. Therefore, the Applicant objects to the question on the grounds that it is vague and the information is not reasonably available to the Applicant.

Data Request 237

Please provide source tests for the Mendota Biomass Power Plant for toxic air contaminant emissions including a description under which these emissions were measured (load, fuel mix including specification of the fraction of C&D wood, combustion temperature, control equipment, etc.).

Objection:

The Applicant is not in possession of the source tests for the Mendota Biomass Power Plant. The Applicant objects to the question on the grounds that the information is not reasonably available to the Applicant. If CURE desires this information, it is free to request the information from the Mendota Project or the Air District.

Data Request 239

Please provide emission factors for toxic air contaminant emissions measured at a plant with bubbling fluidized bed combustors and under similar conditions (load, fuel mix, combustion temperature, control equipment, etc.) as proposed for the Project.

Objection:

The Applicant is not in possession of the requested information. The Applicant objects to the request on the grounds that the information is not reasonably available to the Applicant.

Data Request 242

Please provide a comparison of the TPH-d sample concentrations to regulatory agency screening levels.

Objection:

The Applicant understands that this information will be included in a Phase 2 ESA that we expect will be completed and docketed in October 2009.

Data Request 243

Please evaluate individual, rather than average, toxaphene soil exceedences of ESLs and CHHSLs in determining whether they would pose a risk to site workers and if they would constitute hotspots that would require excavation, removal, and confirmatory sampling.

Objection:

The Applicant understands that this information will be included in a Phase 2 ESA that we expect will be completed and docketed in October 2009.

Data Request 244

Please document if notification of Fresno County or the Regional Water Quality Control Board (RWQCB) is required under the Aboveground Storage Tank program requirements.

Objection:

The Applicant objects to this request on the grounds that the “documentation” is not reasonably available to the Applicant.

Data Request 246

Please provide any agency communication regarding whether site assessment is conducted to regulatory standards.

Objection:

The Applicant objects to the question on the grounds that it is vague. We do not know what CURE intends by the phrases “any agency communication”, “site assessment” or “regulatory standards.”

Data Request 249

Please provide a revised comprehensive and Site-specific Erosion and Sediment Control Plan that incorporates pesticide and TPH-d data.

Objection:

A draft DESCP was submitted with the response to CEC data Requests on July 14, 2009 and a revised draft DESCP was submitted on August 21, 2009. The Applicant objects to CURE’s request to revise this plan again on the grounds that the information is not reasonably available to

the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 253

Please provide the status of the WWTF annexation application to the Fresno LAFCo.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application. The proposed WWTF is not the subject of this Application. If CURE seeks information regarding the WWTF, CURE may ask LAFCO.

Data Request 254

Please provide a schedule of construction for the proposed WWTF.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 257

Please provide supporting evidence that any portion of the tested aquifer is truly confined.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 259

Please provide comparative analysis of the time-drawdown data using the conventional Cooper-Jacob (“steady-state”) technique for a confined aquifer, Hantush (“leaky semi-confined

aquifer”) technique, and unconfined aquifer techniques (Neuman and Moench methods, at a minimum).

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 261

Please explain the resultant uncertainties introduced to estimates of long-term aquifer yield and drawdown as a result of the Applicant’s test well partial penetration. Please provide all data that supports your answer.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 266

Please provide logs for a minimum of six additional nearby wells, spaced at distances greater than 230 feet from the Project site test well.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 267

Please provide the Applicant’s pump test (specific capacity) test data from each of the additional nearby wells.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 268

Please use data requested in Data Request Nos. 259 to 261 to provide a revised conceptual model of the local aquifer system surrounding the proposed Project site (at least 1.5 miles from the on-site test well).

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 269

Please evaluate and comment on the impacts of the Applicant's revised conceptual model provided in response to Data Request 268 on the results of the aquifer test, and upon the predicted Theis drawdown estimates after 1, 10 and 20 years of continuous pumping from the test well.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 270

Please provide the Applicant's evaluation of perennial yield (operational safe yield) of the PVB that establishes the baseline for the Project's analysis of the proposed Project water demand impacts.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 271

Please provide an evaluation of perennial yield (operational safe yield) of the PVB, in order to establish a defensible baseline for justifying proposed Project water demands, using the following:

- a. Data as far back as 1950, if possible; and*
- b. Total basin groundwater extractions from as many pumpers as possible; and*
- c. Water level data from a minimum of six (6) wells within a 1.5 mile radius of the proposed Project site.*

Objection:

The Applicant does not have the data requested in Data Request 271. The task of acquiring this information would be time consuming, costly and burdensome. The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 272

Please explain the effects of foreseeable future continued drought and climate change conditions on availability and sustainability of future groundwater extractions in the PVB, and their

bearing on availability of groundwater to meet proposed Project demands. Please provide as probability values and quantitative estimates of uncertainty in support of your answer. Data for this analysis may be found via the State DWR, AWWA, ACWA, US Geological Survey, academic research institutions and/or the National Resources Defense Council. Extrapolations of historic effects from the Westside Basin can be used for comparison.

Objection:

The Applicant has not performed a probability analysis or quantitative estimate of the matters requested by CURE in data request 272. The Applicant does not have the benefit of CURE's crystal ball to know which future drought or climate change conditions are "foreseeable".

The Applicant objects to this request on the grounds that the request is vague and that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application

Data Request 273

Please provide the Applicant's evaluation of the potential effect of continued restricted imported water supplies to PVB via the CVP-SWP system, as a result of Bay-Delta legal decisions, CEQA process and uncertainties. Please assume that future restrictions may be even less than the prevailing 40% allocation. Extrapolations from the conditions in the adjacent Westside Basin may be useful, but should not form the sole basis for the evaluation.

Objection:

The Applicant has not undertaken an evaluation of the potential effect of speculative future possible restrictions to PVB as a result of unspecified legal decisions or other unidentified uncertainties. Therefore, the Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 274

If the Applicant disagrees that future restrictions may be even less than the current 40% allocation, please demonstrate how the effect of continued restricted imported water supplies to the PVB will impact A) the Project and B) the groundwater basin, based on the Applicant's scenario of future CVP-SWP allocations during the proposed 20-year Project duration. Please justify your allocations based the Applicant's information and analysis of possible future drought and political scenarios.

Objection:

The Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant nor reasonably relevant to any decision the Commission must make on this Application.

Data Request 278 and All Subparts

Responses to Data Request No. 277 notwithstanding, as an alternative to the simple Theis analytical method, please develop a robust three-dimensional conceptual and numerical groundwater flow model for the northern portion of the PVB where the proposed SJS 1 & 2 Project is to be located, to simulate effects of Project groundwater withdrawals on neighboring pumpers and planned PVWD groundwater recharge facilities. Please use some form of conventional and reasonably available commercial software, such as WHI Visual Modflow© (version 3.1 or greater) or an equivalent. If an existing groundwater flow model has been developed for the Project area and is available and not subject to proprietary use restrictions, that may be considered for the simulations. The following conditions should be met by any such model used or developed:

- A. Please adhere to prevailing Standard Guides developed by the American Society for Testing and Materials (ASTM) for developing, calibrating, verifying and performing*

sensitivity analyses of groundwater flow models, as well as defining initial model conditions and boundary conditions.

- B. A model domain of not less than six square miles, centered on the proposed Project extraction well(s), should be used.*
- C. In order to avoid “forced” boundary condition behavior, model boundaries should be set so as to not coincide with geologic or suspected hydrogeologic boundaries, such as the Gujarral Hills to the north, Kreyenhagen Hills to the west, or the subsurface Kettleman Hills anticline across Polvadero Gap east of the Project site.*
- D. Horizontal discretization (gridding) of the domain should be constructed so as to have as many grid-centered wells as possible. Grid dimensions need not be any finer than necessary to reasonably simulate heads produced by the number of pumping wells or recharge sites presently in the domain, and new wells or recharge sites reasonably expected to be installed within the domain within the expected duration of the proposed Project.*
- E. Vertical discretization should include as many discrete layers as are adequate for representation of the different physical properties and flow behavior of all significant aquifers and aquitards identified within the domain from review of local well logs. As many well logs as illustrated on Figure 5.5-4 of the AFC should be used as possible, in addition to an adequate number of wells east of Polvadero Gap within the Westside Groundwater Basin to simulate the potential boundary condition in that area. The bottom layer of the discretized domain should include the base of the fresh water zone. Layer discretization should be able to lead to reasonable simulations of well capture zones developed due to preferential flow pathways in zones of higher hydraulic conductivity (something that a simplified Theis analysis cannot achieve).*

- F. Static (non-pumping) water-level data should be used from as many local wells as possible for steady-state model calibration. It is recommended that heads measured during historic periods of maximum CVP-SWP imported water to PVB (and minimal groundwater pumping) be considered for steady-state calibration.*
- G. Recovery data from the February 2009 aquifer test may be used for transient model calibration, but only if uncertainties with the “State Prison” test observation well can be resolved (e.g., aquifer stratigraphy and well construction details). Transient calibration should comparatively also involve heads measured from as many idle (non-pumping) wells as possible during historic periods of heavy groundwater pumping in other wells, although such a condition may not have ever existed. Nevertheless, a comprehensive review of local area wells should be performed to evaluate whether or not this is feasible.*
- H. Assignment of “no-flow” and “constant head” boundary conditions in particular should only be used with extreme prejudice, and be well-justified from suitable historic data.*
- I. Following a reasonable effort at model calibration, the model should initially be verified by pumping simulations of the Applicant’s aquifer test well using rates and time periods similar to those used for the previous Theis simulations, with all other wells in the domain set for non-pumping conditions. Subsequent model verification should be performed using those same Project test well extraction rates, in addition to other wells in the domain set to achieve cumulative extractions comparable to historic maximum pumping periods recorded in the PVB.*
- J. If model calibration and verification efforts provide reasonable results, please use the model to verify PVB perennial yield.*
- K. Please perform conventional sensitivity and uncertainty analyses for the model.*

Objection:

The Applicant is not in possession of a robust three-dimensional conceptual and numerical groundwater flow model for the northern portion of the PVB. Therefore, the Applicant objects to this request on the grounds that the information is not reasonably available to the Applicant. Under the Commission's discovery rules, the Applicant has no obligation to perform analyses of this nature and complexity at the request or direction of CURE.

Dated: September 24, 2009

Respectfully submitted,

ELLISON, SCHNEIDER & HARRIS L.L.P.

By  _____

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Attorneys for San Joaquin Solar 1 and 2 LLC

STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

Application for Certification for the)	
San Joaquin Solar 1 and 2 Hybrid Power Plant)	Docket No. 08-AFC-12
)	
<u>San Joaquin Solar 1 and 2 LLC</u>)	

PROOF OF SERVICE

I, Karen A. Mitchell, declare that on September 24, 2009, I served the attached
OBJECTIONS TO DATA REQUESTS OF CALIFORNIA UNIONS FOR RELIABLE ENERGY,
SET 5 via electronic and U.S. mail to all parties on the attached service list.

I declare under the penalty of perjury that the foregoing is true and correct.



Karen A. Mitchell

SERVICE LIST
08-AFC-12

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**SAN JOAQUIN SOLAR 1 & 2 HYBRID
PROJECT
12-AFC-08**

**Supplemental Information
In Response To Cure Data Request Set #5**

October 5, 2009



1615 Murray Canyon Road, Suite 1000
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URS Project No.27658033

San Joaquin Solar 1 & 2 Hybrid Project
Supplemental Information
In Response to CURE Data Request Set #5
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Data Request 206: Please provide EPI vendor specifications for the fluidized bed combustors that will be installed at the Project.

Response: The applicant has provided many specifications for the fluidized bed combustors from EPI. The vendor specifications for the fluidized bed combustors such as equipment dimensions or materials of construction are not finalized but a preliminary general arrangement is shown in the attached figure.

Data Request 207: Please demonstrate how the 5 million bone dry tons annually of biomass waste from orchards and vineyards in the Applicant's Response to Data Request Workshop Action Items was derived.

Response: The approximate acreage of orchards and vineyards is sourced from CSU Stanislaus, Endangered Species Recovery Program. The amount of green biomass produced per acre was based on the San Joaquin Valley Unified Air Pollution Control District Draft Feasibility Study Open Burning Biomass Incentive (attached), which estimated 2-3 truckloads (50-75 tons) of green biomass is produced per acre. To be conservative the lower number was used. A moisture content of 26% was assumed to convert to bone dry tons.

Data Request 208: Please discuss the discrepancy between the supply estimate of 5 million bone dry tons of agriculture-sourced biomass provided in the Applicant's Response to Data Request Workshop Action Items and the supply estimate of 645,188 bone dry tons per year of agriculture-sourced biomass (without cow manure) determined by the Biomass Fuel Supply Review for the Project provided in the AFC, Appendix A-4.

Response: The estimated value of biomass potentially produced from the orchard and vineyard crops located within 50 miles of SJS was based on the biomass yield presented in the SJVAPCD report referenced in response number 207. The Biomass Fuel Supply Review also uses a yield of 36 BTG (approximately 50 green tons) per acre for nut orchards and specifies this yield is expected during orchard removal activities. The Fuel Study assumes approximately 4% of total orchard acres are removed per year, the APCD report did not make this distinction so there is a discrepancy in the estimated biomass produced annually from orchards.

Data Request 209: Please specify whether the proposed fuel mix of "at least 50 percent agricultural wood waste and up to 50 percent municipal green waste" is anticipated on an annual average basis or on a continuous basis.

Response: The fuel mix of at least 50 percent agricultural wood waste and up to 50 percent municipal green waste is expected on an annual average basis.

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 210: Please indicate whether the Applicant would accept a Condition of Certification requiring no less than 50 percent agricultural wood waste in the biomass fuel for the Project at any given time on a continuous basis.

Response: No the applicant would not accept a condition of certification regarding the fuel blend, because in any given hour the fuel may be any combination of municipal green waste or agricultural wood waste, or either individually.

Data Request 211: Please state whether the Project will rely on urban wood waste sourcing from metropolitan centers tributary to the San Joaquin Fuel Study Area. Please document your assumptions.

Response: The origin of urban wood waste has not been finalized since purchase agreements are not in place. Priority for locally supplied fuel will be given. SJS is expected to accept urban wood waste from metropolitan centers within or in tributaries to the Fuel Study area.

Data Request 212: If the Project will rely on urban wood waste sourcing from metropolitan areas tributary to the San Joaquin Fuel Study Area, please provide what percentage of the Project's fuel demand would be met by non-local sources, i.e. sources located farther than 60 miles from Coalinga.

Response: As stated in response to number 211, the origin of urban wood waste has not been finalized since purchase agreements are not in place, as such the percentage of fuel originating from non-local sources is unknown.

Data Request 213: Please demonstrate the basis for assuming that the average one way delivery distance for urban wood waste is 60 miles.

Response: Biomass fuel supply contracts have not been executed at this time. Priority will be given to fuel sources located closest to the site. Based on transportation costs, it is a reasonable assumption that the average delivery distance will be approximately 60 miles.

Data Request 214: Please specify the maximum feed rate for the Project's biomass combustors.

Response: From the data provided by the biomass combustor vendor, EPI, the maximum feed rate is anticipated to occur during full load operation combusting 100% urban wood waste with an ambient temperature of 30F, for a feed rate of 54,846 lb/hour per combustor or 219,384 lb/hour for all four combustors.

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 215: Please discuss why emissions estimates were based on a biomass feed rate of 46,360 lb/hr for each combustor and 75 percent capacity rather than the maximum firing rate for the combustors of 53,847 lb/hr and 75 percent capacity. If necessary, please revise the emissions estimates for the biomass combustors based on the correct biomass feed rate and 75 percent capacity.

Response: The maximum biomass feed rate of 54,846 lb/hour per combustor or 219,384 lb/hour for all four combustors, for full load combustion of 100% urban wood waste with an ambient temperature of 30F, does not necessarily relate to the maximum potential emissions from the combustors. The maximum emissions from the combustors were analyzed for all short-term impacts and occurred during full load operations combusting 100% urban wood waste, but with different ambient temperatures. The maximum emissions for CO, SO₂ and NO_x occurred with an ambient temperature of 60F, for PM₁₀ and PM_{2.5} they occurred with an ambient temperature of 30F, and for VOC they occurred with an ambient temperature of 90F.

The annual biomass feed rate and associated emissions were estimated based on a fuel mix consisting of 50 percent agricultural wood waste and 50 percent municipal green waste at a 75% operating capacity. No emissions estimates need to be revised.

Data Request 216: Please demonstrate the annual biomass fuel requirements for the Project at 75 percent capacity (450,000 vs. 492,000 vs. 572,000 bone dry tons per year) using the appropriate combustor feed rate determined in response to Data Requests Nos. 214 and 215. Please be specific regarding the assumed fuel mixture and average moisture content of the biomass fuel.

Response: The annual fuel requirement for the entire SJS1&2 is based on the use of a fuel mix consisting of 50 percent agricultural wood waste and 50 percent municipal green waste at a 75% operating capacity, is 609,170 tons per year as received (not bone dry). This annual fuel requirement was used in calculations to estimate fugitive emissions from material handling and mobile emissions from truck deliveries.

Assuming a 19.25% moisture content of the fuel equates to approximately 492,000 bone dry tons per year.

Data Request 217: Please provide a discussion of alternative combustion technologies including circulating fluidized bed combustors ("CFBs") or biomass gasifiers.

Response: Please see the attachment to response to CURE data Request Set #3, dated Aug 26, 2009 for a discussion on biomass gasifiers (section 5.2) and circulating fluidized bed combustors (pages 35, 38 and 41).

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 218: Please indicate whether the Applicant would be willing to accept a Condition of Certification prohibiting the use of rail ties, tires, and municipal solid waste as fuel.

Response: As stated in the Response to CURE data Request Set #3, dated Aug 26, 2009, response number 45 the Applicant has no intention of using these fuels. However, the applicant will not accept a condition of certification specifically prohibiting their use since compliance with other emissions limitations will preclude the use of these fuels.

Data Request 219: Please discuss the potential waste materials contained in "miscellaneous residential and commercial wood waste." Please indicate whether these could potentially include pre-separated paper or cardboard as fuel.

Response: Biomass fuel supply contracts have not been executed at this time. The intended fuel mix will include urban wood waste and residential green waste from local municipalities. As such, pre-separated paper and cardboard will not be targeted as a specific fuel source; however, potential materials contained in the urban wood waste and residential green waste fuel streams may include paper and cardboard products.

Data Request 220: Please indicate whether the Applicant would be willing to accept a Condition of Certification prohibiting the use of pre-separated paper and cardboard as fuel.

Response: The applicant will not accept a condition of certification specifically prohibiting the use of pre-separated paper and cardboard as fuel.

Data Request 221: Please explain how the addition of the Project would impact total miles traveled for delivery of fuel for biomass within the San Joaquin Valley Air Pollution Control District.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 222: Given that Rule 4103 applies only to agricultural waste, please substantiate your conclusion that the 60 miles average driving distance for urban wood waste truck deliveries would remain unchanged with the addition of this Project.

Response: Urban wood waste and agricultural waste are considered two separate “streams” in the biomass material market. Limitations on the open burning of agricultural wood waste is not be expected to impact the average driving distance for urban wood waste deliveries.

Data Request 223: Please provide N₂O and CH₄ emission factors for the Project’s biomass combustors for the various types of fuel mixes and combustion temperatures. Please document all your assumptions.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 224: Please provide estimates of annual carbon dioxide-equivalent emissions of N₂O and CH₄ for the Project biomass combustors. Please document all your assumptions.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 225: Please revise the entrained road dust emissions estimates for vehicle travel on off-site paved roads based on emission factors for the fleet-average weight of all vehicles traveling the respective roads tributary to the Project site (rather than based on emissions factors for each vehicle class) and the appropriate silt loading factors. Please calculate emissions for vehicle travel for each road type, i.e., freeway, major arterials, collector, local, and rural roads tributary to the Project site.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 226: Please clarify whether the estimates of particulate matter (“PM”) emissions from the WSACs provided with the Applicant’s Response to Data Request Workshop Action Items dated August 26, 2009 are PM₁₀ or total PM.

Response: The emissions estimated from the WSACs are total PM, although it was conservatively assumed that all PM released from the cooling towers would be PM₁₀.

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 227: Please provide an updated summary of on-site operational emissions from the SJS 1&2 Project that accounts for the revised WSAC drift emissions of PM₁₀ based on a 0.0005 percent drift eliminator control provided with the Applicant's Response to Data Request Workshop Action Items dated August 26, 2009.

Response: The total on-site operational emissions from the SJS 1&2 Project, including the WSAC emissions based on a 0.0005 percent drift eliminator control, are presented in Table DR-227.

TABLE DR-227 MAXIMUM ANNUAL OPERATIONAL EMISSIONS FROM THE SJS 1&2 PROJECT

	Maximum Annual Emission Rate (ton/yr)					
	NO _x	CO	VOC	SO ₂	PM ₁₀	PM _{2.5}
Onsite Emission Sources						
Stationary Sources						
Combustion Emissions						
Fluidized Bed Combustors with Natural Gas Burners	49.03	111.40	17.37	50.28	100.75	100.75
Emergency Generators	0.169	0.093	0.026	0.0001	0.005	0.005
Fire Water Pumps	0.141	0.075	0.021	0.0001	0.004	0.004
WSAC					6.19	6.19
Fugitive Emissions						
Biomass, Limestone and Ash Handling Fugitive Dust					0.090	0.019
Heat Transfer Fluid Leakage			1.7			
<i>Total Onsite Stationary Source Emissions</i>	<i>49.34</i>	<i>111.57</i>	<i>19.12</i>	<i>50.28</i>	<i>107.03</i>	<i>106.96</i>
Mobile Sources						
Combustion Emissions						
Biomass Handling Equipment	0.20	0.15	0.03	0.0003	0.02	0.02
Water Trucks (Cleaning Solar Mirrors & Dust Control)	0.01	0.01	0.001	0.00002	0.0008	0.0007
Worker Vehicles - Travel Onsite	0.03	0.10	0.009	0.00022	0.0045	0.0038
Delivery Trucks - Travel & Idling Onsite	2.30	1.00	0.475	0.002	0.096	0.091
Fugitive Emissions						
Water Trucks (Cleaning Solar Mirrors & Dust Control)					0.67	0.07
Worker Vehicles - Travel Onsite					0.08	0.01
Delivery Trucks - Travel Onsite					5.18	0.77
<i>Total Onsite Mobile Source Emissions</i>	<i>2.53</i>	<i>1.26</i>	<i>0.51</i>	<i>0.00</i>	<i>6.04</i>	<i>0.96</i>
Total Onsite Emissions	51.87	112.82	19.63	50.28	113.07	107.92

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 228: Please disclose whether the revised particulate matter drift emissions from the WSACs provided with Applicant's Response to Data Request Workshop Action Items dated August 26, 2009 are accounted for in the ERC offset package provided to SJVAPCD on August 21, 2009.

Response: The revised WSAC particulate matter emissions have been provided to SJVAPCD and are accounted for in their most recent estimation of project related ERC requirements.

Data Request 229: Please discuss why the WSAC drift eliminator control was revised from 0.0002 percent (WSAC emission estimate dated August 21, 2009) to 0.0005 percent (WSAC emission estimate dated August 26, 2009).

Response: The design engineer decided that the very low drift eliminator control of 0.0002 percent had not been proven in practice for the type of WSACs to be used at SJS 1&2, thus the proven technology of using a drift eliminator control of 0.0005 percent was the preferred technology.

Data Request 230: Please clarify whether the emissions estimate of 1.7 tons per year of fugitive VOC from the heat transfer fluid system provided by the Applicant in response to CURE Data Request No. 86 accounts for fugitive HTF emissions from one or both plants of the SJS 1&2 Project.

Response: The fugitive VOC emissions from the heat transfer fluid system of 1.7 tons per year are from the entire SJS 1&2 Project.

Data Request 231: Please provide an updated summary of on-site operational emissions from the SJS 1&2 Project that accounts for fugitive VOC emissions from the heat transfer fluid system.

Response: Table DR-227 presents the maximum annual on-site operational emissions from the SJS 1&2 Project, and it contains the fugitive VOC emissions from the heat transfer fluid system.

Data Request 232: Please discuss potential mitigation measures to mitigate the Project's mobile source emissions, including the feasibility of a "Clean Air Truck" program (retrofit and replacement of trucks owned by trucking firms delivering biomass) such as proposed by the Liberty Quarry Applicant.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 233: Please indicate the maximum percentage of C&D wood waste anticipated in the municipal green waste used for fuel at the Project. Please indicate how this maximum percentage would be monitored.

Response: Biomass fuel supply contracts have not been executed at this time therefore the maximum percentage of C&D wood waste is unknown. Details such as managing the various components of urban wood waste will be determined during contract negotiations.

Data Request 234: Please provide specifications for C&D wood waste that fuel suppliers must meet to ensure that the majority of contaminants and non-burnables are removed from the C&D waste.

Response: Biomass fuel supply contracts have not been executed at this time therefore the specifications for the fuel supply is unknown. Details such as managing the various components of urban wood waste will be determined during contract negotiations.

Data Request 235: Please describe the testing and sampling procedures for the fuel at both the C&D processing facility and at the Project to assure that the fuel quality will be maintained.

Response: Biomass fuel supply contracts have not been executed at this time therefore the testing and sampling procedures for the fuel supply is unknown. Details such as this will be determined during contract negotiations.

Data Request 236: Please provide vendor specifications for the fluidized bed combustors that will be installed at the Project including toxic air contaminant emission factors.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 237: Please provide source tests for the Mendota Biomass Power Plant for toxic air contaminant emissions including a description under which these emissions were measured (load, fuel mix including specification of the fraction of C&D wood, combustion temperature, control equipment, etc.).

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

San Joaquin Solar 1 & 2 Hybrid Project
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Data Request 238: Please discuss how the toxic air contaminant emission factors measured at the Mendota Biomass Power Plant are applicable for the Project given that the Mendota Biomass Power Plant uses circulating fluidized bed combustors and the Project would use bubbling fluidized bed combustors.

Response: As stated in the attachment to response to CURE data Request Set #3, dated Aug 26, 2009, "the fundamental difference between bubbling-bed and circulating-bed boilers is the fluidization velocity (higher for circulating)." The fluidization velocity has no appreciable impact on the air toxic emissions, which are mainly determined by the fuel composition. Additionally, the SJVAPCD provided these emission factors to the Applicant as representative of the technology to be used at the project facility.

Data Request 239: Please provide emission factors for toxic air contaminant emissions measured at a plant with bubbling fluidized bed combustors and under similar conditions (load, fuel mix, combustion temperature, control equipment, etc.) as proposed for the Project.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 240: Please indicate whether the Applicant would be willing to install a continuous dioxin/furan emission monitoring device at the Project.

Response: The applicant is not willing to install a continuous dioxin/furan emission monitoring device at the SJS 1&2 Project.

Data Request 241: Please explain whether the TPH-d detected was at a concentration of 23,000 mg/kg or 23,000 ug/kg. In other words, please confirm the correct concentration for TPH-d.

Response: Review of the analytical report indicates that the concentration of TPH-D is reported in mg/kg and not ug/kg as indicated in the text of the June 1, 2009 report. Despite this inconsistency in the report, the areas of TPH-containing soil are di minimis, and the Applicant will work with DTSC to determine the affected area and the proper response based on the Phase II testing results.

**San Joaquin Solar 1 & 2 Hybrid Project
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08-AFC-12**

Data Request 242: Please provide a comparison of the TPH-d sample concentrations to regulatory agency screening levels.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 243: Please evaluate individual, rather than average, toxaphene soil exceedences of ESLs and CHHSLs in determining whether they would pose a risk to site workers and if they would constitute hotspots that would require excavation, removal, and confirmatory sampling.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 244: Please document if notification of Fresno County or the Regional Water Quality Control Board (RWQCB) is required under the Aboveground Storage Tank program requirements.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 245: Please explain whether the Applicant intends to seek a Voluntary Cleanup Agreement with DTSC.

Response: As discussed with DTSC, a Voluntary Cleanup Agreement will be contingent on the findings of the Phase II report expected to be docketed in October 2009.

Data Request 246: Please provide any agency communication regarding whether site assessment is conducted to regulatory standards.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 247: Please provide records of communication with Fresno County CUPA program to document regulation of the ASTs by the County.

Response: No communication regarding ASTs has occurred since the project includes no ASTs containing petroleum. Existing ASTs located on the site are the responsibility of the property owner and will be removed prior to site mobilization.

San Joaquin Solar 1 & 2 Hybrid Project
Supplemental Information
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08-AFC-12

Data Request 248: Please provide the Applicant's Soil Management Plan to ensure protection of nearby sensitive receptors from inhalation of dust-borne contaminants.

Response: The applicant has not prepared a Soil Management Plan. If required by CEC certification requirements or Fresno County development permit requirements, the applicant will prepare a Soil Management Plan. Currently, the draft Drainage, Erosion, and Sediment Control Plan (DESCP), construction Stormwater Pollution Prevention Plan (SWPPP), draft Industrial SWPPP, and Air Quality Construction Mitigation Plan (AQCMP) are the only known requirements from the CEC that are required to address this concern.

Data Request 249: Please provide a revised comprehensive and Site-specific Erosion and Sediment Control Plan that incorporates pesticide and TPH-d data.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 250: Please explain the effectiveness of the construction and post-construction BMPs in mitigating erosion and runoff of TPH-d and pesticide-contaminated soils. Please document any assumptions.

Response: The DESCP, draft Construction Stormwater Pollution Prevention Plan (SWPPP), and draft Industrial SWPPP provide a list of BMPs suggested for use on the site. These plans will be updated prior to construction and operation to address any remaining TPH-d and pesticide contaminated soils onsite.

Data Request 252: Please discuss whether the TDS content in the WSAC makeup water could be reduced to permit an increase in the number of cycles of concentration, thereby reducing the Project's water demand for cooling.

Response: The project's process water treatment system and recycle capacity is currently designed for the maximum number of cycles of concentration based upon the current plant cooling process.

Data Request 253: Please provide the status of the WWTF annexation application to the Fresno LAFCo.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

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Data Request 254: Please provide a schedule of construction for the proposed WWTF.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 255: Please state whether the Applicant would agree to a Condition of Certification that limits the Project's reliance on groundwater.

Response: The Applicant does not agree to a Condition of Certification that limits the Project's reliance on groundwater.

Data Request 256: Does the data from the drillers logs submitted as part of the "pre-aquifer test" screen multiple aquifers?

Response: The term "pre-aquifer test" is not understood. The State of California well completion report for the Anderson Well pumped during aquifer testing as described in the 2/19/09 URS technical memo indicates that the materials encountered in the aquifer underlying the site ranged in texture from clay to gravel-sized particles which is consistent with the highly lenticular alluvial deposits described for the Pleasant Valley subbasin in California's Groundwater Bulletin 118. Division of the more permeable zones encountered into separate aquifers is a question of scale, as recent work has described the Central Valley as one continuous heterogeneous aquifer system (Claudia C. Faunt, editor, 2009. Groundwater Availability of the Central Valley Aquifer, California. USGS Professional Paper 1766).

Data Request 257: Please provide supporting evidence that any portion of the tested aquifer is truly confined.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

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Data Request 258: Please provide justification that the Theis (1935) recovery method is suitable as a stand-alone analytical method for assessment of aquifer behavior during the lifetime of the proposed Project in light of DWR's identification of the aquifer as unconfined.

Response: The Theis equation with all its assumptions, is derived for confined aquifers; however if the drawdown in monitoring wells does not exceed 25% of the saturated thickness, the equation can be applied to unconfined aquifers, with certain adjustments. For draw downs that are less than 10% of the aquifers pre-pumping thickness (which was the case for the aquifer test described in the 2/19/09 URS technical memo), it is not necessary to adjust the recorded drawdown since the error introduced by using the Theis equation is small. Several other analytical methods were used during analysis of the aquifer test; however the Theis method provided the best match and was therefore considered most appropriate for the analysis.

Data Request 259: Please provide comparative analysis of the time-drawdown data using the conventional Cooper-Jacob ("steady-state") technique for a confined aquifer, Hantush ("leaky semi-confined aquifer") technique, and unconfined aquifer techniques (Neuman and Moench methods, at a minimum).

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 260: Please explain the effect of the Applicant's test well partial penetration on the estimates of aquifer behavior.

Response: The amount of drawdown is relatively small compared to the penetration of the aquifer by the pumping well which limits the potential for impact of partial penetration on estimates of aquifer behavior.

Data Request 261: Please explain the resultant uncertainties introduced to estimates of long-term aquifer yield and drawdown as a result of the Applicant's test well partial penetration. Please provide all data that supports your answer.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

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Data Request 262: Please provide information regarding transducer depth placement in the test well.

Response: Drawdown data for the Anderson Well pumped during the aquifer testing were measured using an airline (not a transducer) as described in the 2/19/09 URS technical memo.

Data Request 263: Please provide information regarding transducer depth placement in each of the observation wells.

Response: The transducers in the Coalinga State Hospital Well (Observation Well #1) and Anderson Agricultural Well (Observation Well #2) as described in the 2/19/09 URS technical memo were set approximately 75 feet and 27 feet below static water level respectively prior to the aquifer test.

Data Request 264: Please provide well construction details for the two observation wells.

Response: Well logs provided by the California Department of Water Resources for the area surrounding the Anderson Well are representative of aquifer conditions, but cannot be definitively attributed to a specific existing well.

Data Request 265: Please provide any well logs, other than the two provided, that the Applicant used to support its analysis.

Response: Additional well logs (outside of the property boundary) are not available as public information through the Department of Water Resources or local agencies, and cannot be provided.

Data Request 266: Please provide logs for a minimum of six additional nearby wells, spaced at distances greater than 230 feet from the Project site test well.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 267: Please provide the Applicant's pump test (specific capacity) test data from each of the additional nearby wells.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

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Data Request 268: Please use data requested in Data Request Nos. 259 to 261 to provide a revised conceptual model of the local aquifer system surrounding the proposed Project site (at least 1.5 miles from the on-site test well).

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 269: Please evaluate and comment on the impacts of the Applicant's revised conceptual model provided in response to Data Request 268 on the results of the aquifer test, and upon the predicted Theis drawdown estimates after 1, 10 and 20 years of continuous pumping from the test well.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 270: Please provide the Applicant's evaluation of perennial yield (operational safe yield) of the PVB that establishes the baseline for the Project's analysis of the proposed Project water demand impacts.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 271: Please provide an evaluation of perennial yield (operational safe yield) of the PVB, in order to establish a defensible baseline for justifying proposed Project water demands, using the following:

- a. Data as far back as 1950, if possible; and
- b. Total basin groundwater extractions from as many pumpers as possible; and
- c. Water level data from a minimum of six (6) wells within a 1.5 mile radius of the proposed Project site.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

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Data Request 272: Please explain the effects of foreseeable future continued drought and climate change conditions on availability and sustainability of future groundwater extractions in the PVB, and their bearing on availability of groundwater to meet proposed Project demands. Please provide as probability values and quantitative estimates of uncertainty in support of your answer. Data for this analysis may be found via the State DWR, AWWA, ACWA, US Geological Survey, academic research institutions and/or the National Resources Defense Council. Extrapolations of historic effects from the Westside Basin can be used for comparison.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 273: Please provide the Applicant's evaluation of the potential effect of continued restricted imported water supplies to PVB via the CVP-SWP system, as a result of Bay-Delta legal decisions, CEQA process and uncertainties. Please assume that future restrictions may be even less than the prevailing 40% allocation. Extrapolations from the conditions in the adjacent Westside Basin may be useful, but should not form the sole basis for the evaluation.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 274: If the Applicant disagrees that future restrictions may be even less than the current 40% allocation, please demonstrate how the effect of continued restricted imported water supplies to the PVB will impact A) the Project and B) the groundwater basin, based on the Applicant's scenario of future CVP-SWP allocations during the proposed 20-year Project duration. Please justify your allocations based the Applicant's information and analysis of possible future drought and political scenarios.

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

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Data Request 275: Please explain the Project's potential impacts on the PVWD water banking facility planned one mile south of the proposed Project.

Response: Some drawdown would be expected one mile south of the proposed Project under likely groundwater pumping scenarios considered in the 2/19/09 URS technical memo regarding aquifer testing. Drawdown of banked water would be expected even without the proposed project due to irrigation wells currently operating within the area described. Regardless, PVWD board member and Project-site property owner indicates that nothing is happening at this point within the PVWD with respect to banking of water.

Data Request 276: Once a suitable perennial yield evaluation is completed for the PVB, augmented by probable uncertainties in water supply due to climate and Bay-Delta constraints, please perform an assessment of the potential impacts of SJS 1 & 2 groundwater extractions on the planned PVWD water banking facility.

Response: There is insufficient data to evaluate perennial yield for the PVB. PVWD board member and Project-site property owner indicates that nothing is happening at this point within the PVWD with respect to banking of water.

Data Request 277: In light of the comments above, please explain why pumping simulations based upon only the simplified Theis analytical method were chosen to predict proposed Project impacts on local water supply.

Response: The Theis method is considered an adequate analytical method as a screening tool for this project because the primary goal of the aquifer test described in the 2/19/09 URS technical memo was to model predicted drawdown for surrounding wells due to the Project. Only two observation wells were available for the aquifer test, so the solution is validated within a limited radial distance of the pumping well. Analytical models solve one equation of groundwater flow at a time, and the results (i.e. drawdown) can then be applied to points in the surrounding aquifer (such as a neighboring well). Given the limitations of the aquifer test, the Theis method is considered an appropriate method to predict what impact the Project might have on local groundwater conditions

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Data Request 278: Responses to Data Request No. 277 notwithstanding, as an alternative to the simple Theis analytical method, please develop a robust three-dimensional conceptual and numerical groundwater flow model for the northern portion of the PVB where the proposed SJS 1 & 2 Project is to be located, to simulate effects of Project groundwater withdrawals on neighboring pumpers and planned PVWD groundwater recharge facilities. Please use some form of conventional and reasonably available commercial software, such as WHI Visual Modflow® (version 3.1 or greater) or an equivalent. If an existing groundwater flow model has been developed for the Project area and is available and not subject to proprietary use restrictions, that may be considered for the simulations. The following conditions should be met by any such model used or developed:

Response: Please see Objections To Data Requests Of California Unions For Reliable Energy, Set 5, dated September 24, 2009.

Data Request 278A: Please adhere to prevailing Standard Guides developed by the American Society for Testing and Materials (ASTM) for developing, calibrating, verifying and performing sensitivity analyses of groundwater flow models, as well as defining initial model conditions and boundary conditions.

Response: See above response to Data Request 278.

Data Request 278B: A model domain of not less than six square miles, centered on the proposed Project extraction well(s), should be used.

Response: See above response to Data Request 278.

Data Request 278C: In order to avoid “forced” boundary condition behavior, model boundaries should be set so as to not coincide with geologic or suspected hydrogeologic boundaries, such as the Guajarral Hills to the north, Kreyenhagen Hills to the west, or the subsurface Kettleman Hills anticline across Polvadero Gap east of the Project site.

Response: See above response to Data Request 278.

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Data Request 278D: Horizontal discretization (gridding) of the domain should be constructed so as to have as many grid-centered wells as possible. Grid dimensions need not be any finer than necessary to reasonably simulate heads produced by the number of pumping wells or recharge sites presently in the domain, and new wells or recharge sites reasonably expected to be installed within the domain within the expected duration of the proposed Project.

Response: See above response to Data Request 278.

Data Request 278E: Vertical discretization should include as many discrete layers as are adequate for representation of the different physical properties and flow behavior of all significant aquifers and aquitards identified within the domain from review of local well logs. As many well logs as illustrated on Figure 5.5-4 of the AFC should be used as possible, in addition to an adequate number of wells east of Polverado Gap within the Westside Groundwater Basin to simulate the potential boundary condition in that area. The bottom layer of the discretized domain should include the base of the fresh water zone. Layer discretization should be able to lead to reasonable simulations of well capture zones developed due to preferential flow pathways in zones of higher hydraulic conductivity (something that a simplified Theis analysis cannot achieve).

Response: See above response to Data Request 278.

Data Request 278F: Static (non-pumping) water-level data should be used from as many local wells as possible for steady-state model calibration. It is recommended that heads measured during historic periods of maximum CVP-SWP imported water to PVB (and minimal groundwater pumping) be considered for steady-state calibration.

Response: See above response to Data Request 278.

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Data Request 278G: Recovery data from the February 2009 aquifer test may be used for transient model calibration, but only if uncertainties with the “State Prison” test observation well can be resolved (e.g., aquifer stratigraphy and well construction details). Transient calibration should comparatively also involve heads measured from as many idle (non-pumping) wells as possible during historic periods of heavy groundwater pumping in other wells, although such a condition may not have ever existed. Nevertheless, a comprehensive review of local area wells should be performed to evaluate whether or not this is feasible.

Response: See above response to Data Request 278.

Data Request 278H: Assignment of “no-flow” and “constant head” boundary conditions in particular should only used with extreme prejudice, and be well-justified from suitable historic data.

Response: See above response to Data Request 278.

Data Request 278I: Following a reasonable effort at model calibration, the model should initially be verified by pumping simulations of the Applicant’s aquifer test well using rates and time periods similar to those used for the previous Theis simulations, with all other wells in the domain set for non-pumping conditions. Subsequent model verification should be performed using those same Project test well extraction rates, in addition to other wells in the domain set to achieve cumulative extractions comparable to historic maximum pumping periods recorded in the PVB.

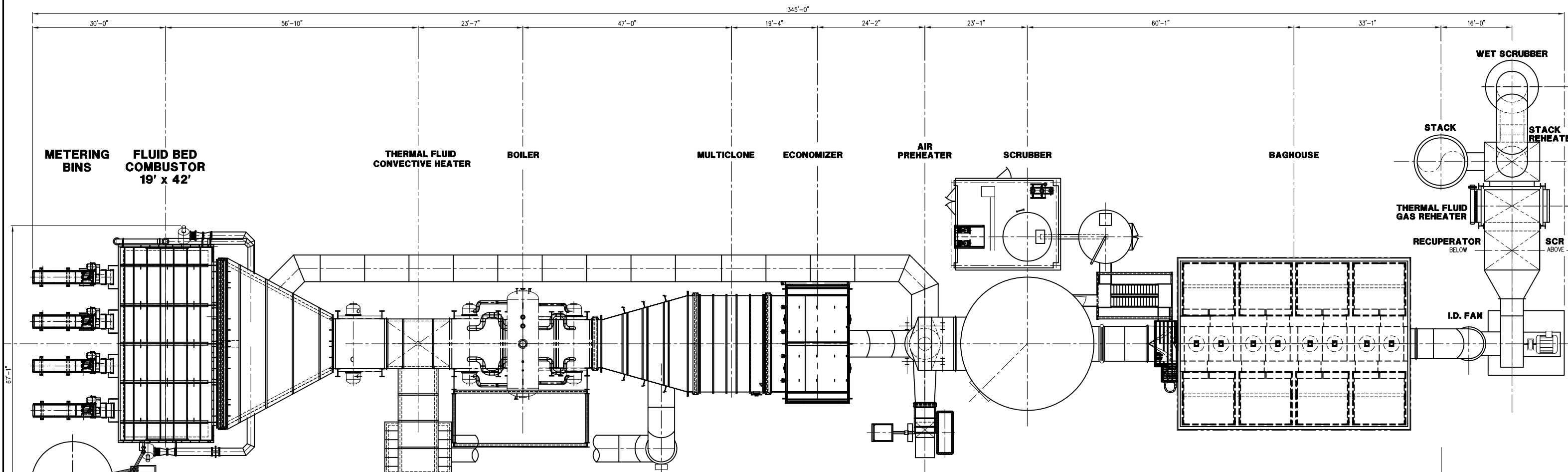
Response: See above response to Data Request 278.

Data Request 278J: If model calibration and verification efforts provide reasonable results, please use the model to verify PVB perennial yield.

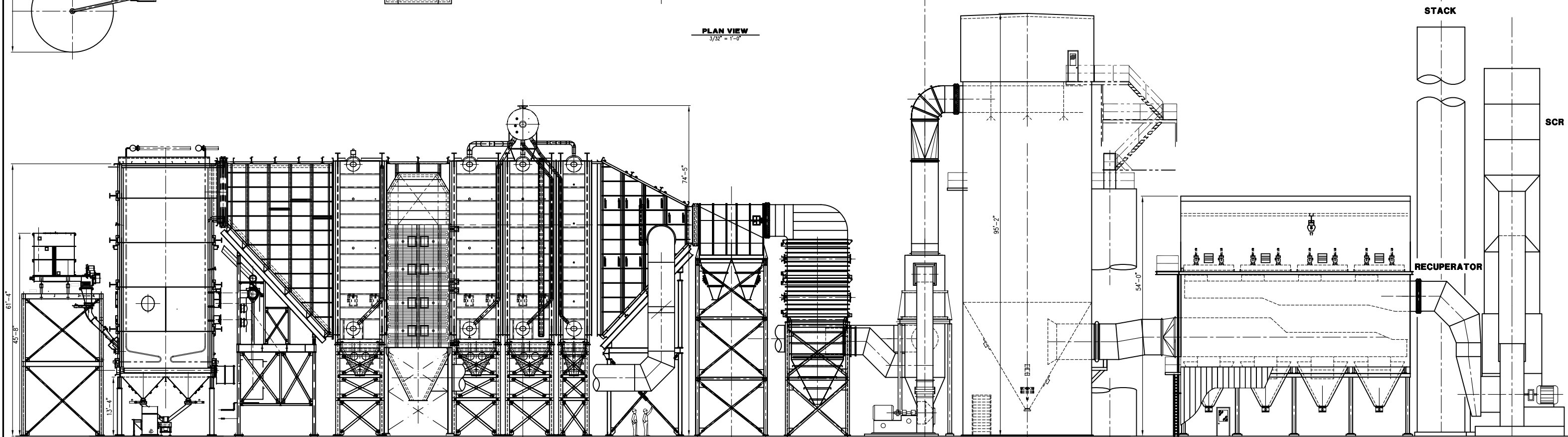
Response: See above response to Data Request 278.

Data Request 278K: Please perform conventional sensitivity and uncertainty analyses for the model.

Response: See above response to Data Request 278.



PLAN VIEW
3/32" = 1'-0"



ELEVATION VIEW
3/32" = 1'-0"

CONCEPTUAL ARRANGEMENT
EQUIPMENT SHOWN REPRESENTS
PRELIMINARY LAYOUT AND IS
SUBJECT TO CHANGE UPON FINAL DESIGN

REVISIONS				
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STATE OF CALIFORNIA
California Energy Commission

In the Matter of:

The Application for Certification
for the San Joaquin Solar 1 and 2 Hybrid
Power Plant Project

Docket No. 08-AFC-12

CALIFORNIA UNIONS FOR RELIABLE ENERGY
PETITION TO COMPEL PRODUCTION OF INFORMATION
IN RESPONSE TO CURE DATA REQUESTS, SET FOUR

October 14, 2009

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I. INTRODUCTION

The Commission has stressed that when a project presents unusual challenges, it expects the applicant and Staff to thoroughly analyze a project's potential impacts as required by the California Environmental Quality Act ("CEQA").¹ Thus, the relevant scope of discovery, and the decisions that the Commission will be required to make in its evaluation, will vary with the complexity and novelty of the project under review. Although the Commission is required to conduct a thorough analysis of every application before it, the need for a proper analysis is underscored here because this Application is for the first solar thermal-biomass hybrid electric generating facility in the State.²

Section 1716(b) of the Commission's regulations gives *any party* the right to request from the applicant any information that is reasonably available and relevant to the application proceedings or reasonably necessary to make any decision on the application.³ The Commission's discovery procedures require the applicant to provide a response to a data request if "the information sought appears to be reasonably available, relevant, or necessary for [the Commission] to reach *any* decision in [the] proceeding."⁴

On August 24, 2009, California Unions for Reliable Energy ("CURE") served its fourth set of data requests on the Applicant, San Joaquin Solar 1 and 2 LLCs

¹ Committee Order Responding to CURE's Motion to Compel Production of Information, In the Matter of the Application for Certification for the Carrizo Energy Solar Farm, Docket No. 07-AFC-08 (Dec. 3, 2008), pp.2-3.

² California Energy Commission, Press Release "Review starts for solar thermal-biomass facility," (Mar. 11, 2009).

³ Cal. Code Regs., tit., § 1716(b).

⁴ Committee Ruling re: CVRP Petition to Compel Production of Documents, Docket No. 99-AFC-3 (Nov. 21, 2000), p.1 (emphasis added).

(“SJS”), pursuant to section 1716(b). (Exhibit 1.) On September 14, 2009, SJS served objections to seventeen data requests. (Exhibit 2.) SJS served partial responses to CURE’s fourth set of data requests on September 23, 2009. (Exhibit 3.)

CURE requested information that relates to the direct, indirect and cumulative environmental impacts of the San Joaquin Solar 1 and 2 Hybrid Power Plant Project (“Project”) under Commission regulations, the California Environmental Quality Act (“CEQA”),⁵ and the Warren-Alquist Act.⁶ This information relates to the Commission’s analysis of the Project’s potentially significant impacts to agricultural lands, worker safety, and threatened species. Without this information, the Commission will not have all of the information necessary to evaluate the Project.⁷ In addition, CURE will be unable to exercise its right to fully participate in this proceeding and to provide meaningful input into the Commission’s licensing process.

CURE respectfully submits this petition pursuant to section 1716(f) of the Commission’s regulations to compel the production of information that is relevant, reasonably available and, in some cases, within the sole control of SJS.⁸ For the reasons that follow, the Commission should find SJS’s objections meritless and compel SJS to provide the information sought. CURE respectfully requests an

⁵ Pub. Res. Code § 21000 *et seq.*

⁶ Pub. Res. Code § 25500 *et seq.*

⁷ *Concerned Citizens of Costa Mesa, Inc., v. 32nd District Agricultural Association* (1986) 42, Cal.3d 929, 936 (“CEQA compels an interactive process of assessment of environmental impacts and responsive project modification which must be genuine. It must be open to the public, premised upon a full and meaningful disclosure of the scope, purposes, and effect of a consistently described project, with flexibility to respond to unforeseen insights that emerge from the process This process helps demonstrate to the public that the agency has in fact analyzed and considered the environmental implications of its action.”(citations omitted)).

⁸ Cal. Code Regs., tit. 20, § 1716(f).

order directing SJS to provide the information requested in Data Requests 100, 101, 102, 103(2), 104(2), 125, 171, 173, 174, 189, and 191.

II. DISCUSSION

Any party to an AFC proceeding may “request from the applicant any information reasonably available to the applicant which is relevant to the ... proceedings or reasonably necessary to make any decision on the ... application.”⁹ At least three sources define the type of information that is relevant and reasonably necessary to make a decision on SJS’s AFC. First, Commission regulations identify the preliminary scope of environmental information that must be produced by SJS before the Commission can determine that an application is “data adequate.”¹⁰ Second, CEQA requires sufficient facts and analysis for the Commission to identify potentially significant environmental impacts and devise feasible mitigation measures for significant adverse direct, indirect, and cumulative impacts of the project.¹¹ Third, the Warren-Alquist Act requires that the Commission determine the project’s conformity with other laws, ordinances, regulations and standards (“LORS”), and assure that the public’s health and safety will be protected prior to issuing a license.¹² Information related to any of these requirements is unquestionably relevant and necessary for the Commission’s review of SJS’s AFC.

⁹ Cal. Code Regs., tit. 20, § 1716(b) (emphasis added).

¹⁰ Cal. Code Regs., tit. 20, art. 6, Appendix B.

¹¹ Pub. Resources Code §§ 21080(d)-(f), 21081.6, 21082.2; Cal. Code Regs., tit.14,§15151.

¹² Pub. Resources Code § 25500.

A. SJS's Objections Lack Merit

SJS raises general and specific objections to CURE's data requests. For the second time in this proceeding, SJS has accused CURE, by way of a general objection, of engaging in illegal labor practices by virtue of its participation in this proceeding.¹³ SJS raises several specific grounds for objection, chief among which is that the data sought by CURE is not reasonably available to SJS.¹⁴ SJS's objections lack merit. Our response to SJS's general objection is provided below,¹⁵ followed by our response to SJS's specific objections.

i. SJS's General Objection Conflicts with its own AFC and Commission Precedent

SJS objects to CURE's data requests claiming that, after SJS filed its AFC, CURE initiated efforts to seek labor agreements for the Project. SJS alleges that CURE's "objective" as an intervener in this matter is to obtain a project labor agreement.¹⁶ While SJS's accusation is certainly a provocative effort at distracting the Commission from the environmental issues in the case, SJS's objection is contradicted by its own prior representations to the Commission and the actual sequence of events. Most importantly, the Commission should not accept SJS's

¹³ SJS first raised its general objection in its Objection to Data Requests of California Unions for Reliable Energy Set 4. SJS raised the same objection in its Response to CURE in Applicant's Response to CURE's Motion to Compel Set 3, which it served on October 1, 2009.

¹⁴ See generally 08-AFC-12, Objections to Data Requests of California Unions for Reliable Energy, Set 4 (Sep. 14, 2009).

¹⁵ CURE's response also addresses SJS's general objections raised in its Response to CURE's petition to compel production of information in response to CURE's third set of data requests. (CURE's Reply to San Joaquin Solar 1 and 2, LLC's Response to CURE's Petition to Compel Production of Information in Response to CURE Data Requests, Set Three, Docket No. 08-AFC-12 (Oct. 2, 2009) p.1.))

¹⁶ Objections to Data Requests of California Unions for Reliable Energy Set 4, Docket No. 08-AFC-12, (Sep. 14, 2009) ("SJS Objections"), p.5.

invitation to delve into matters of labor relations that are not part of the Commission's responsibility or expertise, and should not attempt to divine CURE's "objective" any more than it tries to divine the "objective" of the myriad of other participants in Commission proceedings.

In November 2008, SJS filed its AFC with the Commission. In the AFC itself, **SJS** expressly stated that it would seek a Project Labor Agreement in order to address the construction workforce needs of the project:

SJS 1&2 LLC and the local union will enter into a project labor agreement (PLA) to ensure that a sufficient supply of skilled craft workers is available at the Project to perform construction related activities.¹⁷

Thus, from the very beginning, SJS made clear that *it* sought and would enter into a Project Labor Agreement for the Project. SJS's claim that "CURE and its legal counsel initiated efforts to seek labor agreements"¹⁸ conflicts with its own AFC.

Furthermore, SJS's claim that "CURE only takes negative action...when applicants cannot or do not enter construction labor agreements in what CURE considers to be a sufficient time period before or shortly after filing the AFC" is also belied by the facts in this very case. On April 2, 2009, approximately three weeks after the AFC was deemed complete, CURE filed a petition to intervene in the certification process.¹⁹ On April 24, 2009, the Committee granted CURE's petition to intervene.²⁰ CURE then began reviewing the AFC and filed its first set of data

¹⁷ AFC, p.3-25.

¹⁸ SJS Objections, p.4.

¹⁹ Petition to Intervene by California Unions For Reliable Energy, Docket No. 08-AFC-12 (Apr. 2, 2009).

²⁰ Committee Order Granting Petition to Intervene, Docket No. 08-AFC-12 (Apr. 24, 2009).

requests on May 28, 2009. All of this took place in the context of SJS's own publicly stated intention to enter into a labor agreement.

Subsequently, CURE received an invitation from SJS to meet with company management regarding labor matters. While CURE accepted the invitation, CURE continued to review the AFC and filed its second set of data requests on July 14, 2009. As acknowledged by SJS,²¹ it was not until July 16, 2009 that CURE met, for the first time, with SJS in response to its invitation. CURE's participation in this proceeding was already well underway prior to discussion of labor matters with company management and in the context of SJS's own publicly stated intention to enter into a labor agreement. Thus, the timeline makes SJS's accusations untenable.

More importantly, while offering no evidence to support the idea that CURE's participation before the Commission has been anything other than appropriate, SJS appears to invite the Commission into an arena that is wholly beyond its authority: namely labor relations. SJS is attempting to transform normal discussions between labor and management into something sinister. Such discussions are typical business negotiations, which like many business negotiations, are irrelevant to the Commission's proceeding.

This proceeding is not the first time that the Commission has been invited into this arena. In 2004, Robert L. Balgenorth, CURE's Chairman, responded to

²¹ SJS Objections, p.5.

accusations by Republican Assembly members on the very same topic.²² In 2008, in the Carrizo Energy Solar Farm proceeding, Ausra attempted to avoid its obligations to produce environmental information by raising labor issues. CURE responded to Ausra's accusations.²³ The Committee in its order *granting* CURE's motion to compel in that proceeding dismissed the accusations in one sentence:

In considering the present Motion, we have disregarded the rhetorical elements of the pertinent filings and have evaluated whether the information sought appears to be reasonably available, relevant, or necessary for us to reach a decision in this proceeding.²⁴

As then, this is not a subject that is appropriate for the Commission.

As to the matter of participation in Commission proceedings, CURE, along with any other interests that seek to participate, can petition to intervene and raise issues within the Commission's jurisdiction. To suggest that the Commission should attempt to divine the "objective" of a participant instead of the merits of the claims raised is inconsistent with the Commission's obligations under the Warren-Alquist Act, and would lead the Commission into a morass of irrelevant speculation. Is the "objective" of a neighboring property owner protesting the air pollution, noise and traffic of a project to preserve the value of the property? Is the "objective" of a farmer protesting a project drawing water from the same aquifer to preserve the farmer's ability to grow crops? Is the "objective" of a City's protesting the visual

²² Letter from Robert L. Balgenorth, CURE Chairman, to Chairman William Keese and Commissioners, Re: California Unions for Reliable Energy, August 24, 2004. (Exhibit 4.)

²³ California Unions for Reliable Energy Motion to Compel Production of Information, In the Application for Certification for the Carrizo Energy Solar Farm, Docket No. 07-AFC-08 (October 24, 2008).

²⁴ Committee Order Responding to CURE's Motion to Compel Production of Information, In the Application for Certification for the Carrizo Energy Solar Farm, Docket No. 07-AFC-08 (December 3, 2008), p.2.

impact of a coastal project to transform the beachfront property to create greater economic development? Each of these objectives is valid, but simply irrelevant for the Commission. The Commission's review process depends on the analysis and input of stakeholders and other interested parties, whatever the objective for their participation.

ii. CURE's Environmental and Economic Interests Are Relevant

Although irrelevant, CURE has no reluctance to discuss its "objective." CURE intervened in the proceeding to protect its environmental and economic interests. Because CURE is a coalition of unions whose members construct and operate power plants in California, the project directly affects the union members' immediate economic interests.

The project also affects the union members' long-term economic and environmental interests. When a project proposes to degrade area wage standards, degrade air quality, and squander limited available water and emissions offsets, it is entirely appropriate that labor unions closely scrutinize the project.

Environmental degradation jeopardizes future jobs by causing construction moratoriums, depleting limited emissions offsets, using limited fresh and ground water, and putting other stresses on the environmental carrying capacity of the state. This reduces future employment opportunities. In contrast, well designed projects that reduce environmental impacts of electricity generation improve long-term economic prospects. Union members are concerned about projects that cause serious environmental harm without providing countervailing economic benefits.

This Project clearly demonstrates the potential effects of a poorly designed project or a project with inadequate mitigation. The Project is the first hybrid biomass-solar facility to come before the Commission, and as such it presents novel issues regarding the transportation and burning of biomass, the use of scarce groundwater, and potential environmental trade-offs in renewable energy generation. Thus, if the impacts are not adequately mitigated, the area will not be able to support further renewable energy development. This is precisely the type of proceeding that should have active public participation to assist the Commission in making well-informed decisions on renewable energy development. This Project is a classic example of how inadequate environmental analysis and mitigation could adversely impact the environment, the economic interests of construction workers and California's renewable energy goals.

iii. SJS's Objections are the Equivalent of a SLAPP Suit

SJS boldly accuses CURE of engaging "in a pattern and practice of Commission intervention to promote labor organizing objectives of CURE's member unions rather than for legitimate objectives under CEQA or Commission regulations."²⁵ SJS also suggests that the Commission should "severely curtail[] and restrict[] CURE's rights in proceedings like this one..."²⁶ The only possible reason for SJS to make these accusations and refer to CURE, its unions, its workers, its president, and its counsel in an objection to a data request is an

²⁵ Objections to Data Requests of California Unions for Reliable Energy Set 4, Docket No. 08-AFC-12 (Sep. 14, 2009), p.3.

²⁶ Objections to Data Requests of California Unions for Reliable Energy Set 4, Docket No. 08-AFC-12 (Sep. 14, 2009), p.3.

attempt to intimidate. This type of behavior is not allowed in California courts, and it should not be allowed in the Commission's proceedings.

The California Legislature has acted to halt litigation tactics aimed at punishing individuals for exercising their first amendment rights. Section 425.16 of the California Code of Civil Procedure, commonly known as the "anti-SLAPP" provision, creates a special motion procedure to strike a lawsuit filed "against a person arising from any act of that person in furtherance of the person's right of petition or free speech under the United States or California Constitution in connection with a public issue."²⁷ An "act in furtherance" of these rights includes the following:

(1) [A]ny written or oral statement or writing made before a legislative, executive, or judicial proceeding, or any other official proceeding authorized by law; (2) any written or oral statement or writing made in connection with an issue under consideration or review by a legislative, executive, or judicial body, or any other official proceeding authorized by law; (3) any written or oral statement or writing made in a place open to the public or a public forum in connection with an issue of public interest; (4) or any other conduct in furtherance of the exercise of the constitutional right of free speech in connection with a public issue or an issue of public interest.²⁸

CURE's participation in the Energy Commission's certification process and the review and approval processes of other public agencies related to the Project are acts in furtherance of CURE's constitutional rights of petition and free speech. The sole purpose of SJS's tactics is to intimidate CURE and impair CURE's ability to

²⁷ Code Civ. Proc. § 425.16(b).

²⁸ Code Civ. Proc. § 425.16(e).

represent its members' interests, *i.e.*, to interfere with CURE's constitutionally protected rights.

This Commission has a long, exemplary record of encouraging public participation. It should show no tolerance for attempts to curtail public participation.

iv. CURE Has A Long Record of Environmental Achievement

SJS's claims that "[f]inalizing the project labor agreement...is the only way [SJS] will cause CURE to cease or limit its data requests and other activity in this proceeding."²⁹ SJS provides no evidence to support its claim because the claim is simply false. When CURE participates in a proceeding, CURE does not "cease or limit its data requests and other activity" when a project labor agreement is finalized. As the Commission well knows, CURE consistently seeks resolution of its environmental issues on the merits.

The Commission has once before performed an investigation of CURE's record of involvement in Commission proceedings. The anticlimactic conclusion of that investigation was that "CURE, like most intervenors, has its own set of issues and concerns that it wants addressed in siting cases."³⁰ These concerns are no less legitimate than any other party's concerns, including an applicant's. The Commission also noted that "CURE has been as effective as other sophisticated intervenors in raising issues of concern with proposed projects, seeking project

²⁹ *Id.* at p.4.

³⁰ Letter from Robert L. Therkelsen, Executive Director of the California Energy Commission to Matt Tennis Legislative Director of Associated Builders and Contractors of California (Oct. 26, 2004), p.5.

changes in response to its concerns, and presenting its perspective in the proceedings.”³¹ Finally, in response to protests regarding the costs and delay incident to responding to CURE’s data requests – protests similar to those raised by SJS in this proceeding – the Commission’s simple retort was that “answering data requests from parties is a normal aspect of a power plant siting case.”³² Such logic applies here.

CURE seeks information that is relevant to the Commission’s decision in this proceeding under Commission regulations, CEQA, and the Warren-Alquist Act. CURE’s long record of environmental achievement in Commission proceedings is well documented. CURE’s participation in this proceeding continues CURE’s demonstrated commitment to making environmental improvements to California power plants.

Beginning in 1997, CURE advocated for lowering the nitrogen oxides (“NOx”) emission rate from gas-fired power plants. In the first post-deregulation AFC (97-AFC-01), the High Desert Power Project proposed a NOx emission rate of 4.0 parts per million (“ppm”). In the next AFC (97-AFC-02), Calpine proposed a NOx emission rate of 3.5 ppm. CURE presented expert testimony, including vendor guarantees, supporting lower emission rates. As part of comprehensive settlements with both project developers, they agreed to emission rates of 2.5 ppm. CURE continued to pursue the issue, and in our agreements with the developers of the Three Mountain project and the Elk Hills project, the NOx emission rate was

³¹ *Id.* at p.4.

³² *Id.*

lowered to 2.0 ppm. Now, every application starts with the premise that it must meet this limit. While CURE was not solely responsible for this achievement, as it required persuading EPA to support these limits, it is fair to say that CURE played a major part in this dramatic reduction in NOx emissions.

Similarly, the early AFCs did not propose oxidation catalysts. This equipment reduces toxic and other organic emissions, as well as emissions of carbon monoxide (“CO”). In the Sunrise AFC (98-AFC-04), CURE vigorously argued that an oxidation catalyst should be required to reduce toxic acrolein emissions. CURE submitted extensive expert testimony. The applicant and CEC staff opposed CURE, and the CEC did not require an oxidation catalyst. However, shortly thereafter, the staff asserted that an oxidation catalyst should be required for the Metcalf project, and it has been standard equipment since that time.

CURE was also the first to raise the applicability of State Water Resources Control Board Resolution 75-58 regarding the use of fresh water for power plant cooling. Concerned with the use of Delta water for cooling for the High Desert Power Project, CURE cited Resolution 75-58 as establishing a hierarchy for the use of water resources in power plant cooling. We did not get a favorable response. However, though fulfillment was a long time in coming, the Commission’s 2003 Integrated Energy Policy Report relied on it to establish the Commission’s policy on using fresh water for power plant cooling.³³

³³ 2003 Integrated Energy Policy Report, California Energy Commission, Docket No: 02-IEP-1, Pub Bo. 100-03-019 (December 2003), pp.39-41.

This record of environmental achievement by labor unions has not gone unrecognized. In June 2005, CURE's chair, Bob Balgenorth, was honored by the California League of Conservation Voters with the Byron Sher Environmental Leadership award.³⁴

CURE's environmental achievements are also explained in a 2005 report published by the Planning and Conservation League entitled *Everyday Heroes Protect the Air We Breathe, the Water We Drink, and the Natural Areas We Prize: Thirty-Five Years of the California Environmental Quality Act*.³⁵ In an article entitled *CEQA Cleans Up California's Power Plants*, the CEC is commended for inviting community organizations such as CURE to use the authority derived from CEQA to require mitigation for significant air quality impacts from construction and operation of power plants.

CURE's participation in some of the Commission's proceedings has been a major factor in achieving these and many other environmental improvements in California power plants.

v. CURE Does Not Seek An Illegal Project Labor Agreement

SJS states in its objection that it does not have legal standing to enter into a project labor agreement and that "entering into the labor agreements that CURE demands, in order to settle any issues and/or eliminate CURE's intervention activity in this proceeding, could subject [SJS] to legal exposure" under various

³⁴ <http://www.ecovote.org/laborandenvironment/>

³⁵ *Everyday Heroes Protect the Air We Breathe, the Water We Drink, and the Natural Areas We Prize: Thirty-Five Years of the California Environmental Quality Act*, Planning and Conservation League, Project Manager and Acting Executive Director: Karen Douglas (2005).

laws.³⁶ Consequently, SJS requests that the Commission “sustain [SJS’s] objection...to avoid further adverse action in the permitting proceeding.”³⁷

These statements are baffling, since it was SJS, not CURE that said in the AFC that SJS sought a project labor agreement. Neither CURE nor any of its participating unions has sought or will seek any illegal agreements of any sort. In fact, SJS acknowledges that CURE proposes a legal agreement by securing a union contractor.³⁸ The fact that nearly all of the power plants built in California during the past decade have been built using project labor agreements amply demonstrates that legal agreements are the norm.

For these reasons, the Commission should overrule SJS’s general objection. SJS should be compelled to provide the requested information, which is reasonably available and both relevant and necessary to a full assessment of the issues in this proceeding.

B. SJS’s Specific Objections to CURE’s Data Requests Lack Merit

The Committee in the Carlsbad Energy Center proceeding noted that the production of “information” by the applicant includes data and other objective information available to it.³⁹ Although the answering party is not required to perform research or analysis on behalf of the requesting party, the “line between discoverable data and undiscoverable analysis and research is dependent on the

³⁶ SJS Objections, p.4.

³⁷ SJS Objections, p.4.

³⁸ SJS Objections, p.5.

³⁹ Committee Ruling on Intervenor Center for Biological Diversity’s Petition to Compel Data Responses, Application for Certification for the Carlsbad Energy Center, Docket, No. 07-AFC-6, December 26, 2008.

particulars of a request and cannot be drawn with precision.”⁴⁰ Thus, in evaluating the request, the Committee in Carlsbad Energy Center considered four factors:

1. The relevance of the information;
2. Whether the information is available to the applicant, or from some other source, and whether it has already been provided in some form;
3. Whether the request is for data, analysis, or research; and
4. The burden on the applicant to provide the data.⁴¹

If the applicant refuses to provide the requested information, the requesting party “may petition the committee for an order directing the responding party to supply such information.”⁴²

SJS should provide responses to CURE’s data requests, because, as shown below, CURE’s data requests are relevant, the information sought should be reasonably available to SJS because it is required by Commission regulations and, for that same reason, exact no unfair burden on SJS.

**i. CURE’s Data Request Nos. 100, 101, 102, 103(2), 104(2)⁴³:
Quantification and Assessment of Agricultural Impacts**

Information regarding significant impacts to agriculture is particularly necessary in this case. The Applicant claims that there will not be significant impacts to biological resources because the Project site *is currently in*

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.* at § 1716(g).

⁴³ Since CURE inadvertently duplicated the numbering of data requests 100 through 104, SJS marked the duplicate numbers as 100(2), 101(2), 102(2), 103(2), and 104(2). As a result, CURE will now refer to these data requests accordingly.

agriculture use. However, the County of Fresno stated on October 13, 2009 that the Project site “*is currently not in agricultural use.*”⁴⁴

CURE’s data requests attempt to resolve this fundamental discrepancy. Either there may be significant impacts to agriculture or significant impacts to biological resources. The Commission needs to know which.

According to the AFC, SJS proposes to remove 640 acres from agricultural use. The AFC says the Project would lead to the conversion of farmland of local importance to non-agricultural uses which conflicts with the existing Williamson Act contract on the Project site.⁴⁵ However, the AFC does not include an analysis of significant impacts to agriculture.

In contrast is the County’s proposal to allow a CEQA exemption for cancellation of the Williamson Act contract for 468.88 acres on the basis that the Project site is currently *not* in agricultural use and that the CEC will evaluate significant agricultural impacts in this proceeding. CURE seeks to resolve the discrepancy by obtaining information clearly describing the current use of the property and information supporting SJS’s assertion that the Project would not result in significant impacts to agriculture.

CURE’s data requests 100, 101 and 102 request information necessary to establish the *environmental baseline* for evaluating potentially significant impacts to agriculture under CEQA. Similarly, CURE’s data requests 103(2) and 104(2)

⁴⁴ Fresno County, Agricultural Land Conservation Committee Staff Report, Agenda Item No. 2 (October 13, 2009). (Exhibit 5.)

⁴⁵ AFC, p.5.4-13.

request information necessary to evaluate *significant impacts* to agriculture and are necessary in order to identify appropriate mitigation measures.

It may be possible that information provided in response to one of these data requests would be responsive to another request. The basis for these requests is to resolve the inconsistencies in the AFC and between SJS and the County, to obtain information supporting SJS' assumptions regarding the environmental baseline, to obtain the required analysis of potentially significant agricultural impacts, and to obtain information to enable identification of feasible mitigation measures.

The basis for CURE's Data Requests 100, 101 and 102 is as follows:

Background: ENVIRONMENTAL SETTING

The AFC's description of current land uses on the Project site is overbroad and inconsistent. An accurate description of the environmental baseline is necessary for an adequate analysis of potentially significant impacts. For example, the AFC states that the Project site is currently active farmland recently cleared and planted with wheat and pistachios, including cotton, safflower and garlic.⁴⁶ The AFC also states that the majority of the Project site is actively cultivated at this time, with pistachio and wheat cultivation in progress.⁴⁷ However, a portion of the Project site is not in agricultural production.⁴⁸ In addition, the Project site is bare due to recent plowing.⁴⁹ Finally, with respect to the land use baseline for the

⁴⁶ AFC, p.5.6-1.

⁴⁷ AFC, p.5.6-5.

⁴⁸ AFC, p.5.4-1 ("The northeastern corner of the site was previously used for oil exploration.")

⁴⁹ AFC, p.5.6-4.

Project's proposed transmission corridor, the AFC states that "the majority of the proposed transmission line alignment is comprised of orchards and row crops."⁵⁰

Data Request

100. Please provide documentation supporting the AFC's statement on page 5.6-1 that the Project site is recently planted with wheat and pistachios, including cotton, safflower and garlic.

SJS Objection

The referenced AFC statement was based on oral communications with the property owners. The Applicant has requested "documentation" from the owner's of the Project site and will provide it, if it is reasonably available. However, to the extent that the "documentation" is not available, the Applicant objects to this request on the grounds that the "documentation" is not reasonably available to the Applicant. The Applicant also objects on the grounds that the information is not reasonably necessary for the Commission to make a decision on the Application.

CURE's Response

Data Request 100 requests information that should be reasonably available to SJS. SJS is working with the owner of the proposed Project site to develop a power plant on the site. SJS is also working with the owner of the Project site to apply for a cancellation of the Williamson Act contract on 468.88 acres. SJS has obtained enough information to state in the AFC that the Project site is recently

⁵⁰ AFC, p.5.6-5.

planted with wheat, pistachios, cotton, safflower and garlic. Therefore, documentation supporting this information should be reasonably available to SJS.

Furthermore, Data Request 100 requests information relevant to the Commission's duty under CEQA to determine whether a proposed project could have a potentially significant impact on agriculture and to identify potential mitigation measures.⁵¹ CEQA Guidelines, Appendix G specifically provides that a project may have a potentially significant impact to agriculture if it "involves changes to the existing environment" that could result in "conversion of farmland to nonagricultural use," as in this case. As explained above, in light of the inconsistencies in the AFC and from Fresno County, the extent to which the Project site is recently planted is relevant to the Commission's duty under CEQA to set forth an adequate description of the environmental baseline and an adequate analysis of potentially significant impacts to agriculture.

Data Request

101. Please explain the AFC's statement on page 5.6-5 that a "majority of the Project site is actively cultivated at this time" by describing the number and location of acres actively cultivated at this time.

SJS Response

The Property has been tilled in 2009 and is planted seasonally. The number of acres actively planted varies depending on the season. Currently, pistachio trees are planted and cultivated on over 150 acres of the project site. It is appropriate to

⁵¹ Pub. Resources Code § 21002; CEQA Guidelines §§ 15126.4, subd. (a), 15126.6, subd. (b).

consider the entire site is planted periodically, and seasonal plantings occur on portions of the site.

CURE Response

SJS's response is incomplete. Data Request 101 requests information relevant to the Commission's duty under CEQA to analyze potentially significant impacts on agriculture, and if such impact exists, to consider feasible mitigation and alternatives that would lessen or eliminate that impact.⁵² The AFC states that a majority of the Project site is actively cultivated at this time. SJS explained in response to CURE Data Request 103 that "[m]ajority means more than 50%."⁵³ CURE's data request seeks a description of the number and location of acres actively cultivated at this time. However, SJS only provides information regarding approximately 150 acres of a 680 acre Project site, much less than 50%. Moreover, SJS failed to describe the location of acres actively cultivated at this time.

Data Request

102. Please provide documentation reflecting the last date of planting of each crop type at the Project site. The response should provide the year and month.

SJS Response

The Applicant does not have such documentation of the "last date" of planting of "each crop type." The Applicant objects to the question on the grounds that the information is not reasonably available to the Applicant and that the information is not reasonably relevant to any decision the Commission must make on this

⁵² Pub. Resources Code § 21002; CEQA Guidelines §§ 15126.4, subd. (a), 15126.6, subd. (b).

⁵³ SJS Response to CURE Set 4, Response to CURE Data Request 103.

Application. We are not aware of any Commission decision that has discussed, much less made findings, concerning the last date of planting of each crop type on a proposed project site.

CURE Response

Data Request 102 requests information that should be reasonably available to SJS. SJS is working with the owner of the proposed Project site to develop a power plant and to apply for cancellation of a Williamson Act contract on the Project site. SJS has obtained enough information to state that the majority of the Project site is actively cultivated at this time, with pistachio and wheat cultivation in progress.⁵⁴ However, SJS also stated that a portion of the Project site is not in agricultural production.⁵⁵ Therefore, documentation supporting SJS's assumptions regarding agriculture should be reasonably available to SJS.

Furthermore, Data Request 102 requests information relevant to the Commission's duty under CEQA to determine whether a proposed project could have a potentially significant impact on agriculture and, if such impact exists, to consider feasible mitigation and alternatives that would lessen or eliminate that impact.⁵⁶ CEQA Guidelines, Appendix G specifically provides that a project may have a potentially significant impact to agriculture if it "involves changes to the existing environment" that could result in "conversion of farmland to nonagricultural use," as in this case. Like Data Requests 100 and 101, the basis for Data Request 102 is to resolve the discrepancies in the AFC and between SJS's and

⁵⁴ AFC, p.5.6-5.

⁵⁵ AFC, p.5.4-1 ("The northeastern corner of the site was previously used for oil exploration.")

⁵⁶ Pub. Resources Code § 21002; CEQA Guidelines §§ 15126.4, subd. (a), 15126.6, subd. (b).

the County's characterization of the Project site by obtaining information clearly describing the current use of the property. Here, the last date of planting of each crop type at the Project site would provide information regarding the environmental baseline to enable an analysis of impacts to that baseline, as required under CEQA.

The basis for CURE's data request 103(2) and 104(2) is as follows:

Background: IMPACTS TO AGRICULTURAL USES

Under CEQA, the lead agency is required to determine whether a proposed project could have a potentially significant impact on agriculture, and if such impact exists, to consider feasible mitigation and alternatives that would lessen or eliminate that impact.⁵⁷ CEQA Guidelines, Appendix G provides that a project may have a potentially significant impact to agriculture if it, 1) conflicts with existing zoning for agricultural use or a Williamson Act contract; (2) involves changes to the existing environment that, because of their location or nature, could result in conversion of farmland to nonagricultural use; or (3) converts prime farmland or farmland of statewide importance to nonagricultural uses.

The Fresno County Planning Code provides that, in order to obtain a conditional use permit, a finding must be made that the proposed use will have no adverse effect on abutting property or the permitted use thereof.⁵⁸ The Williamson Act was passed to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses.

⁵⁷ Pub. Resources Code § 21002; CEQA Guidelines §§ 15126.4, subd. (a), 15126.6, subd. (b).

⁵⁸ Fresno County Zoning Ordinance, § 873(F).

In addition, the California Agricultural Land Evaluation and Site Assessment Model (“LESA”), created by the California Department of Conservation, provides a specific threshold of significance to determine the Project’s impacts on agricultural lands.⁵⁹ The Department of Conservation developed LESA to provide lead agencies with a methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process.⁶⁰ LESA evaluation factors include two land evaluation measures regarding soil resource quality and four site assessment factors, including a project’s size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. The project score then becomes the basis for making a determination of a project’s potential significance.⁶¹

The AFC states that land uses in all four directions from the Project site and within the Project site are predominantly in agricultural production.⁶² The AFC further provides that lands directly north of the site, some parcels to the east of the Project site, and 171.12 acres within the Project site are zoned for exclusive agricultural use.⁶³ The Applicant explains that the remaining 468.88 acres of the Project site are under Williamson Act contract.⁶⁴

⁵⁹ See e.g. Final Program Environmental Impact Report, Coalinga Wastewater Treatment Plant (Apr. 2006), p.V-55.

⁶⁰ Pub. Resources Code § 21095.

⁶¹ See e.g. 6-AFC-5C, Final Staff Assessment Panoche Energy Project (Sep. 20, 2007), p.4.5-1.

⁶² AFC, p.5.9-5.

⁶³ See AFC, p.5.9-1.

⁶⁴ San Joaquin Solar 1 & 2 Hybrid Project Supplemental Information in Response to CURE Data Request Set #2, Response to Data Request No. 30. The contract was executed on January 2, 1971 between Standard Oil Company of California and the County of Fresno. San Joaquin Solar 1 & 2

If approved, the Project would remove 640 acres from agricultural use: 171.12 acres currently zoned for exclusive agricultural use and 468.88 acres from the Williamson Act program. The Soils Section of the AFC admits that the Project will lead to the conversion of farmland of local importance to non-agricultural uses and will conflict with the existing Williamson Act contract,⁶⁵ but does not cite to any LESA analysis or otherwise analyze significant impacts to agriculture. Nor does the Soils Section provide mitigation for significant impacts to agriculture. The Land Use section of the AFC states that the land will be taken out of agricultural production, but also does not analyze significant impacts to agriculture.⁶⁶ Furthermore, the Land Use section summarily concludes that the Project will not create significant impacts to surrounding lands and that renewable energy is a “tradeoff” that is “an inherent form of mitigation.”⁶⁷

Data Request

103(2). Please provide an analysis of the Project’s impacts on agriculture.

SJS Response

Please see AFC section 5.9.1.3.2 Agricultural Williamson Act Lands for a discussion of the cancellation process and fees and mitigation for removal of Williamson Act lands from agricultural use. The project will remove 640 acres of

Hybrid Project Supplemental Information in Response to CURE Data Request Set #2, Attachment DR-32.

⁶⁵ AFC, p.5.4-13.

⁶⁶ AFC, p.5.9-12.

⁶⁷ AFC, p.5.9-12.

non-prime farmland from productive capacity, of which approximately 469 acres are currently under a Williamson Act contract.

CURE Response

SJS's Response is non-responsive as it does not provide an analysis of the Project's impacts on agriculture. AFC section 5.9.1.3.2 is merely a description of the Williamson Act cancellation process. The purported land use analysis section of the AFC does not even begin until section 5.9.2. Furthermore, even within section 5.9.2, the AFC merely states that land will be taken out of agricultural production, but ***does not analyze*** significant impacts to agriculture.⁶⁸ Similarly, the Soils Section of the AFC admits that the Project will lead to the conversion of farmland of local importance to non-agricultural uses and will conflict with the existing Williamson Act contract⁶⁹ but does not cite to any LESA analysis, or otherwise analyze significant impacts to agriculture. Instead, both the Land Use and Soils sections of the AFC conclude that no significant agricultural impacts will occur and no mitigation is necessary.⁷⁰

Data Request

104(2). Please provide the LESA score for the 640 acres that will be withdrawn from agricultural use as a result of the Project and the analysis that supports the score obtained.

⁶⁸ AFC, p.5.9-12.

⁶⁹ AFC, p.5.4-13.

⁷⁰ See, *i.e.*, AFC, p.5.9-12.

SJS Objection

The Applicant has not calculated the “LESA” score. The Applicant objects to the question on the grounds that the information is not reasonably available to the Applicant and would require the Applicant to conduct analyses for CURE. The Applicant also objects to the question on the grounds that the information is not reasonably relevant to any decision the Commission must make on this Application.⁷¹

CURE Response

Data Request 104(2) requests information relevant to the Commission’s duty under CEQA to determine whether a proposed project could have a potentially significant impact on agriculture and, if such impact exists, to consider feasible mitigation and alternatives that would lessen or eliminate that impact.⁷² The California Department of Conservation created the LESA model as a specific threshold of significance to determine project impacts on agricultural lands under CEQA.⁷³ LESA was intended to provide CEQA lead agencies with a methodology to ensure that significant effects on the environment from agricultural land conversions are quantitatively and consistently considered in environmental review processes.⁷⁴ Therefore, the information is undeniably relevant to the Commission’s

⁷¹ Objections to Data Requests of California Unions for Reliable Energy Set 4 (Sep. 14, 2009), p.9 (08-AFC-12).

⁷² Pub. Resources Code § 21002; CEQA Guidelines §§ 15126.4, subd. (a), 15126.6, subd. (b).

⁷³ See, e.g., Final Staff Assessment Panoche Energy Project, Docket No. 6-AFC-5C (Sep. 20, 2007), p.4.5-1.

⁷⁴ Pub. Resources Code § 21095.

decisions regarding the significance of the loss of 640 acres of farmland of local importance and appropriate mitigation for the loss.⁷⁵

Furthermore, Data Request 104(2) requests information that should be reasonably available to SJS. Commission regulations governing the content requirements for applications require applicants to include an analysis of the “direct, indirect, and cumulative effects on agricultural land uses.”⁷⁶ In addition, as recently as September 2009 in the Draft Staff Report for Interim Guidance for Desert Renewable Energy Project Development, Energy Commission and other agency staff recommended that project developers for proposed renewable energy projects prepare a LESA analysis:

On privately-owned lands, assess the impacts of the proposed project on agriculture, farmland, and grazing operations through the use of the California [LESA] model. Develop feasible measures to reduce the significance of impacts. Project developers should avoid when possible, the conversion of Prime Farmland, Unique Farmland or farmland of Statewide Importance, or lands under a current Williamson Act contract.⁷⁷

Finally, Energy Commission staff used a LESA analysis to analyze agricultural impacts for the Panoche Energy Project – also in Fresno County – and for the Coalinga Wastewater Treatment Plant near the SJS Project site.⁷⁸ Therefore, the requested analysis is within the reasonable scope of information that applicants should provide to enable the Commission to

⁷⁵ See Pub. Resources Code §§ 21002, 21002.1(a), 21081, 21100(b)(3); Cal. Code Regs., tit.14, §§ 15126.4(a)(1), 15091(a).

⁷⁶ Cal. Code Regs., tit. 20, art. 6, Appendix B (g)(3)(D)(iii).

⁷⁷ California Energy Commission, Draft Status Report, Interim Guidance for Desert Renewable Energy Project Development (Sep. 2009), p.17.

⁷⁸ See Final Program Environmental Impact Report, Coalinga Wastewater Treatment Plant (Apr. 2006), p.V-55; Final Staff Assessment Panoche Energy Project (Sep. 20, 2007) (6-FC-5C), p.4.5-1.

adequately evaluate and mitigate potentially significant agricultural impacts under CEQA.

For the above reasons, the Commission should find SJS's grounds for objection meritless and compel SJS to provide a response to CURE's Data Request No. 100, 101, 102, 103(2) and 104(2).

ii. CURE's Data Request No. 125: Heat Transfer Fluid (HTF) Spills and Leaks

The basis for CURE's data request 124 is as follows:

Background: HEAT TRANSFER FLUID SOIL CONTAMINATION

The AFC states that HTF is a hazardous waste, but does not state whether the Applicant will treat HTF contaminated soil as hazardous waste. Page 5.4-10 of the AFC states that the amount of contaminated soil from HTF spills should not exceed 20 cubic yards in a 3-month period. The AFC proposes to use a 2 acre parcel in the common area for temporary storage of contaminated soil until it is transported off-site.⁷⁹ The AFC states that in areas of potential HTF contamination, the runoff will be diverted to the lined evaporation ponds.⁸⁰

Data Request

125. Please provide the number of hours in which HTF leaks would be abated following detection.

⁷⁹ AFC, p. 5.14-10.

⁸⁰ AFC, p. 5.5-15.

SJS Objection

The Applicant has no idea what this question means. The Applicant objects to the question on the ground that it is vague.

CURE Response

Data Request 125 is clear and straightforward. The request seeks information on SJS's response plan in the event of HTF leaks. The request is relevant to the Commission's analysis of environmental and public health impacts from HTF leaks under CEQA.⁸¹ Furthermore, Commission regulations require applicants to include in the application "the protocol that will be used in modeling potential consequences of accidental releases that could result in off site impacts"⁸² and "[a] discussion of measures proposed to reduce the risk of any release of hazardous materials."⁸³ The Warren-Alquist Act requires the Commission to identify:

(a) Specific provisions relating to the manner in which the proposed facility is to be designed, sited, and operated in order to protect environmental quality and assure public health and safety;

...

(d)(1) Findings regarding the conformity of the proposed site and related facilities with ... public safety standards and the applicable air and water quality standards, and with other relevant local, regional, state, and federal standards, ordinances, or laws.⁸⁴

SJS states in its response to CURE's fourth set of data requests that, "in the solar fields, prompt clean up and appropriate BMPs will keep the HTF segregated

⁸¹ See, e.g., Victorville 2 Hybrid Power Project, Final Commission Decision, Docket No. 07-AFC-01 (Jul. 2008), p. 150,

⁸² Cal. Code Regs., tit. 20, art. 6, Appendix B (g)(10)(D).

⁸³ Cal. Code Regs., tit. 20, art. 6, Appendix B (g)(10)(F).

⁸⁴ *Id.* at § 25523.

from *stormwater*.”⁸⁵ Therefore, SJS appears to understand that HTF is a hazardous contaminant that must be contained. Although SJS provided some information regarding its plans to mitigate stormwater contamination from HTF spills, SJS has inexplicably failed to do the same for potential soil contamination and for worker exposure to impacted soils.

Recent operational experience suggests that HTF spills in solar fields may pose potentially significant environmental impacts on soil and water quality if untreated. The most recent compliance reports submitted for the Luz Solar Partners III through VII SEGS facility in Kramer Junction, California indicate that in January and February of 2006, unanticipated releases of HTF generated “approximately 30-40 cubic yards of HTF-impacted soils.”⁸⁶

In 2007, approximately 125-130 cubic yards of HTF-impacted soils were generated over a period of six months at Kramer Junction as a result of unanticipated releases.⁸⁷ The largest of these released approximately 1,000 gallons of HTF into the solar fields.⁸⁸

To date, SJS has failed to provide any information regarding its plans for responding to accidental leaks and spills of HTF.⁸⁹

⁸⁵ San Joaquin Solar 1&2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #4, Docket No. 08-AFC-12 (Sep. 23, 2009), Response to Data Request 133 (emphasis added).

⁸⁶ FPL, Energy, First Semester 2006 Bioremediation Monitoring Report Luz Solar Partners III-VII Ltd. SEGS III Through VII Facilities Boron, California (Jul. 2006), p.2.

⁸⁷ *Id.*, p.1.

⁸⁸ *Id.*

⁸⁹ See Applicant’s Draft Industrial Stormwater Pollution Prevention Plan, Docket No. 08-AFC-12, p. 3-4.

The information is also reasonably available to SJS because, according to the company, its spill volumes and frequency estimates are based on its operational experience at the SEGS facilities.⁹⁰ The requested information is also available only to SJS because it pertains to SJS' plans for impact mitigation.

iii. CURE's Data Request Nos. 171, 173, 174

The basis for CURE's data requests 171, 173 and 174 is as follows:

Background: IMPACTS TO SMALL MAMMAL SPECIES

Several small mammal species with special-status listing have the potential to occur in the Project study area.⁹¹ Applicant's supplemental information provides that "protocol" small mammal trapping surveys were conducted, and although the AFC provides a small mammal report that summarizes the results of small mammal trapping conducted along the transmission line routes, the objectives and justification for the work were not provided.⁹²

The northern transmission line corridor will be approximately six miles long.⁹³ However, the transects established for small mammal trapping only extended about two miles along the northern transmission line route and about one mile along the southern transmission line route.⁹⁴ As a result, they did not constitute a robust sampling design and may not have yielded a representative capture of the species present along the transmission line routes.

⁹⁰ San Joaquin Solar 1&2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #4, Docket No. 08-AFC-12 (Sep. 23, 2009), Response to Data Request 123.

⁹¹ AFC, Appendix F-2.

⁹² See AFC: Bio Tech Report, pp.ES-1, 3-4.

⁹³ AFC, p.5.6-1.

⁹⁴ AFC: Summary Report of Small Mammal Trapping along Two Proposed Transmission Line Corridors for the San Joaquin Solar 1 and 2 Project, Figure 3.

The small mammal trapping report does not describe the habitat(s) associated with the small mammals that were captured. Without any description of habitat at each site, conclusions (other than what animals were captured) remain qualitative and speculative.

Data Requests

- 171. Please cite the protocol used for the small mammal trapping study.
- 173. Please provide justification for why only the western portions of the transmission line routes were sampled.
- 174. Please describe and quantify the habitat variables associated with each trap site.

SJS Responses

Response 171: Please refer to the small mammal trapping report that was provided as an appendix to the biological resource technical report.

Response 173: Please refer to the small mammal trapping report that was provided as an appendix to the biological resource technical report.

Response 174: Please refer to the small mammal trapping report that was provided as an appendix to the biological resource technical report.

CURE Response

CURE compels responses to Data Requests 171, 173 and 174 because SJS's responses are inadequate. SJS directs CURE to the same small mammal trapping report for which CURE sought clarification. However, as stated in CURE's basis for

these requests, the information requested by CURE is not contained within the small mammal trapping report.

By virtue of its responses, SJS admits that Data Requests 171, 173 and 174 seek information that is reasonably available to the applicant, which is relevant to the application or reasonably necessary for the Commission to make a decision on the application. The requested information should be reasonably available to SJS because SJS has already indicated that the company has this information. Specifically, the AFC states that the small mammal trapping surveys were conducted pursuant to protocol.⁹⁵ SJS decided to survey only 3 of the approximate 13 miles of the proposed transmission line alignments.⁹⁶ SJS' consultants decided to extend the transects established for small mammal trapping for approximately two miles along the northern transmission line route and approximately one mile along the southern transmission line route.⁹⁷ Therefore SJS, or its consultants, should be able to provide the basis for the decision to conduct the trappings as described.

Furthermore, since SJS surveyed a total of three miles along the southern and northern transmission line route alignments, SJS should be able to provide the habitat variables associated with each trap site.

⁹⁵ Biological Resources Technical Report for the San Joaquin Solar Power Generating Facility, Fresno County, CA, Docket No. 08-AFC-12 (Jan. 22, 2009), p.2-2.

⁹⁶ The Project transmission line corridor will be approximately six miles long, and the southern transmission line alignment would turn north for approximately 0.6 miles to connect with the Gates Substation. AFC, p.5.6-1 and Figure 1.2-4.

⁹⁷ AFC: Summary Report of Small Mammal Trapping along Two Proposed Transmission Line Corridors for the San Joaquin Solar 1 and 2 Project, Figure 3.

The requested information is relevant to the Commission’s duty under CEQA to analyze potentially significant impacts to biological resources. CEQA requires this level of specificity in order to ascertain the environmental baseline against which the Project’s impacts may be measured.⁹⁸ CEQA guidelines require “a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences . . . [t]he courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.”⁹⁹ CEQA also requires that the Commission’s decisions be made on the basis of facts and not conclusions alone.¹⁰⁰

The requested information is also relevant under the Warren-Alquist Act. The California Endangered Species Act (“CESA”) provides for the protection and management of plant and animal species listed as threatened or endangered, or designated as candidates for such listing.¹⁰¹ CESA requires consultation between the California Department of Fish and Game (“CDFG”) and other state agencies to ensure that projects do not jeopardize the continued existence of threatened or endangered species or habitats essential for the continued survival of any threatened and endangered species. Any mitigation proposed by SJS and accepted as a condition of certification by the Committee must mitigate potential “take” of protected species under CESA.

⁹⁸ *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.

⁹⁹ *Id.* at 954 (citing Cal. Code Regs, tit.14 § 15151).

¹⁰⁰ *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404.

¹⁰¹ Cal. Fish and Game Code §§ 2050-2098.

Several small mammal species with special-status listing have the potential to occur in the Project study area and the proposed transmission line alignments. These include the San Joaquin (Nelson's) antelope squirrel, San Joaquin pocket mouse, short-nosed kangaroo rat, and Tulare grasshopper mouse.¹⁰² Therefore, information regarding the likelihood of their occurrence is relevant to the Commission's basic assessment of the biological baseline.

Lastly, the information is reasonably necessary for a Commission decision. SJS surveyed only 3 of the approximate 13 miles of the proposed transmission line alignments. The transects established for small mammal trapping only extended about two miles along the northern transmission line route and about one mile along the southern transmission line route. As a result, they did not constitute a robust sampling design and may not have yielded a representative capture of the species present along the transmission line routes. Relatively intensive trapping surveys at several historically occupied sites concluded that most populations of short-nosed kangaroo rats are small, fragmented, and widely scattered.¹⁰³ Similarly, research confirmed that populations of the San Joaquin antelope squirrel are small, isolated, and in some cases exist in marginal habitat.¹⁰⁴ Without a description of the habitat(s) at each trapping site, conclusions (other than what animals were captured) remain qualitative and speculative.

¹⁰² AFC, Appendix F-2.

¹⁰³ U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR. 319, pp.

¹⁰⁴ Harris, J.H., and D.M. Stearns. 1991. Population density and census methods, habitat relationships and home range of the San Joaquin Antelope Squirrel, 1988-89. Nongame Bird and Mammal Sec. Rep. 91-02, 37 pp. California Department of Fish and Game.

iv. CURE's Data Request No. 189: Characterization of Vegetation Communities

The basis for CURE's data request 189 is as follows:

Background: CHARACTERIZATION OF VEGETATION COMMUNITIES

DISTURBED VALLEY SALTBUSH SCRUB/NON-NATIVE GRASSLAND MOSAIC

The Applicant delineated 165.1 acres of Disturbed Valley Saltbush Scrub/Non-Native Grassland along the northern transmission line route and 32.2 acres along the southern route.¹⁰⁵ The AFC states that Valley Saltbush Scrub is typically characterized by open, gray- or blue-green chenopod scrubs (10-40% cover).¹⁰⁶ The AFC further states that because the Valley Saltbush Scrub habitat that is present in the proposed transmission line alignment is sparsely distributed within the non-native grassland community, it is considered disturbed.¹⁰⁷

Data Request

189. Please characterize the Applicant's referenced disturbance within the Valley Saltbrush Scrub habitat present in the Project study area by discussing the features that make it disturbed (e.g. roads, recent agricultural activity, off-road vehicle use) and quantifying the level(s) of disturbance.¹⁰⁸

¹⁰⁵ AFC: Bio Tech Report, p.3-1.

¹⁰⁶ AFC: Bio Tech Report, p.3-2.

¹⁰⁷ *Id.*

¹⁰⁸ California Unions for Reliable Energy Data Requests, Set Four, Docket No. 08-AFC-12 (Aug. 24, 2009), p.27.

SJS Objection

The applicant objects to the question on the grounds that (1) it is vague (CURE does not explain what it means by ‘quantifying the level of disturbance,’ [sic] (2) such calculations are not reasonably available to the Applicant, and (3) this level of specificity is not necessary for the Commission to make a decision on this Application.¹⁰⁹

CURE Response

Data Request 189 is clear and straightforward. CURE requests information supporting SJS’s statement in the AFC that the Valley Saltbush Scrub habitat is considered “disturbed.”¹¹⁰ The information sought includes a discussion of the features that make it disturbed and a quantification of the levels of disturbance. To quantify is to make explicit the logical quantity or “to determine or express the quantity of” a thing.¹¹¹ For example, “the majority of the Project site is actively cultivated at this time.”¹¹²

The information is also reasonably available to SJS. SJS’s suggestion that calculations are not reasonably available ignores that the request also seeks information explaining SJS’s conclusion that the habitat is “disturbed.” Furthermore, SJS’s argument is tantamount to an admission that SJS failed to perform the analysis required by Commission regulations. An application for certification must provide “a regional overview and discussion of terrestrial and

¹⁰⁹ Objections to Data Requests of California Unions for Reliable Energy, Set 4, Docket No. 08-AFC-12 (Sep. 14, 2009), p.14.

¹¹⁰ *Id.*

¹¹¹ Webster’s New World Dictionary 1099 (3rd College Ed. 1988).

¹¹² AFC, p.3-2.

aquatic biological resources, with a particular attention to sensitive biological resources within ten (10) miles of the project;”¹¹³ “[a] discussion of the biological resources at the proposed project site . . . [which] shall address the *distribution of vegetation community types*;”¹¹⁴ and “a description and results of all field studies and seasonal surveys used to provide biological baselines information about the project site.”¹¹⁵ Finally, SJS cannot genuinely justify that the information is not reasonably available, because SJS was able to provide the type of information that CURE seeks elsewhere in its application. For instance, the Biological Resources Technical Report provides,

Areas are designated as disturbed flood channels if the channel has been artificially cleared or disturbed, or if the channel is dominated by nonnative trees and lacks any native riparian component.

Tamarisk dominates the banks of the open channel in the Project area where the Zapato Creek crosses the transmission line alignment south of West Jayne Avenue.¹¹⁶

SJS cannot arbitrarily choose when to comply with Commission regulations.

Although SJS has provided some information regarding Valley Saltbrush Scrub, the conclusions made in the AFC regarding the distribution of Valley Saltbrush Scrub along the transmission line alignment appear to be in conflict: Valley Saltbrush Scrub is by nature sparsely distributed, yet the AFC defines the habitat as disturbed because Valley Saltbrush Scrub is sparsely distributed. SJS then refuses to define “disturbed.” Thus, Data Request 189 seeks clarification.

¹¹³ Cal. Code Regs., tit. 20, art. 6, Appendix B (g)(13)(A).

¹¹⁴ *Id.* at Appendix B (g)(13)(C) (emphasis added).

¹¹⁵ *Id.* at Appendix B (g)(13)(D).

¹¹⁶ Biological Resources Technical Report for the San Joaquin Solar Power Generating Facility, Fresno County, CA, Docket No. 08-AFC-12 (Jan. 22, 2009), p.3-3.

Lastly, the information requested is relevant to the Commission's duty under CEQA to analyze potentially significant impacts to biological resources. CEQA requires this level of specificity in order to ascertain the environmental baseline against which the Project's impacts may be measured.¹¹⁷ CEQA guidelines require "a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences . . . [t]he courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure."¹¹⁸ CEQA also requires that the Commission's decisions be made on the basis of facts and not conclusions alone.¹¹⁹

The requested information is also relevant under the Warren-Alquist Act. CESA provides for the protection and management of plant and animal species listed as threatened or endangered, or designated as candidates for such listing.¹²⁰ CESA requires consultation between CDFG and other state agencies to ensure that projects do not jeopardize the continued existence of threatened or endangered species or habitats essential for the continued survival of any threatened and endangered species. Any mitigation proposed by SJS and accepted as a condition of certification by the Committee must mitigate potential "take" of state-threatened species under CESA.

¹¹⁷ *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 952.

¹¹⁸ *Id.* at 954 (citing Cal. Code Regs, tit.14 § 15151).

¹¹⁹ *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404.

¹²⁰ Cal. Fish and Game Code §§ 2050-2098.

Information on the type(s) and level(s) of habitat disturbance in the Project area is necessary to make inferences about the presence, abundance, and distribution of the special-status species that may be impacted by the Project. For example, the AFC states that the LeConte's thrasher, a species of special concern, and the threatened San Joaquin antelope squirrel are likely to be present in the Project area where suitable habitat, such as grassland or saltbrush with moderate scrub cover, is present.¹²¹ The LeConte's thrasher is known to be vulnerable to off-road vehicle activity, other disturbance, and removal of shrubs for agricultural or other development.¹²² Elimination of shrubs and soil erosion resulting from heavy livestock grazing can reduce the carrying capacity of the San Joaquin antelope squirrel.¹²³ However, the species may be able to maintain a viable population on moderate-to-severely degraded land as long as certain shrub species are present.¹²⁴ Therefore, the information requested is relevant and reasonably necessary for the Commission to make a decision on the AFC.

v. CURE's Data Request No. 191: Identification of Vegetation Along the Zapato Creek Bank

The basis for CURE's data request 191 is as follows:

¹²¹ AFC, pp. 5.6-11 and 5.6-13.

¹²² Remsen, J. V., Jr. 1978. Bird species of special concern in California. Calif. Dep. Fish and Game, Sacramento. Wildl. Manage. Admin. Rep. No. 78-1. p.54.

¹²³ U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR. p.319.

¹²⁴ *Id.*

Background: CHARACTERIZATION OF VEGETATION COMMUNITIES

NON-VEGETATED CHANNEL

The Applicant delineated 2.4 acres of Non-Vegetated Channel along the northern transmission line route and 20.1 acres along the southern route.¹²⁵ The AFC indicates non-vegetated channels or floodways are unvegetated or sparsely vegetated drainages outside of the area of tidal influence.¹²⁶ The AFC classifies the portions of Zapato Chino Creek within the Project study area as Open (or Non-Vegetated) Channel.¹²⁷ However, the creek banks are characterized as being dominated by tamarisk, with non-native grasses and cottonwood trees also present.¹²⁸ In subsequent portions of the AFC, the creek is characterized as having riparian habitat.¹²⁹ As a result, it appears inappropriate to classify vegetation along the creek as “Non-Vegetated Channel.”

AGRICULTURAL LANDS

The AFC characterizes the entire 640-acre Project site as Agricultural Lands¹³⁰ that were bare (at the time of surveys) due to recent plowing, except in small areas of the Project site that appear to be access areas.¹³¹ As a result, focused special-status species surveys were not conducted on the Project site.¹³² The statement that the entire Project site is (or was) bare (except small areas) is not supported by imagery available through Google Earth and Google Maps “Street

¹²⁵ AFC: Bio Tech Report, p.3-1.

¹²⁶ *Id.*

¹²⁷ AFC: Bio Tech Report, p.3-3.

¹²⁸ *Id.*

¹²⁹ AFC: Bio Tech Report, p.4-5.

¹³⁰ AFC: Bio Tech Report, p.3-2.

¹³¹ AFC: Bio Tech Report, p.3-1.

¹³² AFC: Bio Tech Report, p.2-2.

View.”¹³³ In particular, there appear to be several areas within the Project site that have characteristics similar to areas the AFC classifies as Non-Native Grassland/Saltbrush Scrub.

Data Request

191. Please characterize the vegetation along the creek bank in the Applicant’s Project study area such that its ecological values can be inferred. In particular, please provide:
- a. The height range of tamarisk trees.
 - b. The height range of cottonwood trees.
 - d. [*sic*] The relative abundance of tamarisk trees to cottonwood trees
 - e. The density and distribution of trees along the creek banks.
 - f. The approximate minimum, maximum and mean distance trees extend from the bank.

SJS Objection

The Applicant objects to question 191 and its various subparts on the grounds that the request requires a level of specificity that is not reasonably necessary for the Commission to make a decision on this Application. This degree of “characterization” is not reasonably available to the Applicant without significant additional fieldwork and would serve no purpose other than to harass and burden the Applicant. If CURE believes that the height of a tamarisk tree is relevant to the Commission’s decision on this Application, it may measure the tree itself.

¹³³ Images taken 31 Jul 2009.

CURE Response

The requested information is relevant because it is necessary for the Commission's analysis of the Project's potentially significant impacts under CEQA.¹³⁴ CEQA requires "facts and analysis," as well as sufficient detail "to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project."¹³⁵ An adequate characterization of riparian habitat along the Zapato Chino Creek within the Project study area is necessary to assess the presence of suitable habitat for the Swainson's hawk, a state threatened species.

Over 85% of documented Swainson's hawk nest trees in the Central Valley have been found in riparian systems.¹³⁶ Swainson's hawks will nest in lone trees, groves, or mature riparian forest.¹³⁷ Cottonwood trees are commonly used for nesting,¹³⁸ but Swainson's hawks are known to nest in tamarisk and a variety of other tree species.¹³⁹ Because Swainson's hawk nests are associated with a variety of riparian conditions, additional information on the heights of the trees in the Project area is necessary to infer whether they could support nesting.

The height range of tamarisk and cottonwood trees is significant because

¹³⁴ 20 Cal. Code Regs. art. 6, Appendix B(g)(13)(E)(i); *id.* B(g)(13)(A); *see* Public Res. Code, § 15151.

¹³⁵ *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404-405.

¹³⁶ Schlorff, R. W. and P.H. Bloom. 1983. Importance of riparian systems to nesting Swainson's Hawks in the Central Valley of California. pp. 612- 618. In: R.E. Warner and K.M. Hendrix (Eds.). *California Riparian Systems* (University of Ca. Davis, Sept. 17-19, 1981). University of California Press, Berkeley.

¹³⁷ California Department of Fish and Game. 1993. 5-year status review: Swainson's hawk (*Buteo swainsoni*). Available at: nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=3096.

¹³⁸ *Id.*

¹³⁹ Department of Fish and Game, Biogeographic Data Branch. 2009. California Natural Diversity Database. Version 3.1.0. Updated 01 Aug 2009.

studies have documented Swainson's hawks nests occurring in trees at heights ranging from 3.5 to 27.1 meters¹⁴⁰ and 12.6 to 25 meters.¹⁴¹ If the trees in the Project area are within these observed height ranges, one can infer they could support nesting Swainson's hawks. Information on the density and distribution of trees along the creek banks, and the approximate minimum, maximum, and mean distance trees extend from the bank is necessary to make inferences on the abundance and distribution of Swainson's hawk nesting habitat in the Project area.

Swainson's hawks require large, open expanses of suitable foraging habitat adjacent or close to suitable nesting habitat for successful reproductive performance.¹⁴² The abundance and spatial distribution of riparian forest as well as high-quality foraging habitat are both critical determinants of territory suitability.¹⁴³ As such, the requested information is highly relevant to the discussion of the biological baseline within the Project impact area and the Commission's decisions regarding the Project's potential impacts on the Swainson's hawk.

The requested information is also relevant under the Warren-Alquist Act. CESA provides for the protection and management of plant and animal species listed as threatened or endangered, or designated as candidates for such listing.¹⁴⁴ The Act requires consultation between CDFG and other state agencies to ensure

¹⁴⁰ Bechard, M. J. 1983. Food supply and the occurrence of brood reduction in Swainson's hawk. *Wilson's Bulletin* 95(2): 233-242.

¹⁴¹ California Department of Fish and Game. 1993. 5-year status review: Swainson's hawk (*Buteo swainsoni*). Available at: nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=3096.

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ Cal. Fish and Game Code §§ 2050-2098.

that projects do not jeopardize the continued existence of threatened or endangered species or habitats essential for the continued survival of any threatened and endangered species. Any mitigation proposed by SJS must address the potential take of protected species under CESA.

SJS's objection that CURE's request is too burdensome and intended to harass is meritless. SJS has not yet undertaken any investigation of Project impacts on the Swainson's hawk. Commission regulations require applicants to include "a regional overview and discussion of terrestrial and aquatic biological resources, with particular attention to sensitive biological resources within ten (10) miles of the project."¹⁴⁵ Commission regulations further provide that the applicant's "discussion shall address the distribution of vegetation community types, denning and nesting sites, population concentrations, migration corridors, breeding habitats, and other appropriate biological resources."¹⁴⁶ Applicants must also include in the application "[a] description and results of all field studies and seasonal surveys used to provide biological baseline information about the project site."¹⁴⁷ The AFC fails to include this information.

Thus far, SJS has provided insufficient facts and analysis to justify its conclusion that impacts to the Swainson's hawk are not anticipated. For example, CURE's fourth set of data requests explained that the AFC incorrectly states that there are no historical Swainson's hawk sightings in the vicinity of the Project site. CURE explained that at least two active Swainson's hawk nests have been

¹⁴⁵ Cal. Code Regs., tit.20, art. 6, Appendix B(g)(13)(A).

¹⁴⁶ Cal. Code Regs., tit.20, art. 6, Appendix B(g)(13)(C).

¹⁴⁷ Cal. Code Regs., tit.20, art. 6, Appendix B(g)(13)(D).

documented within 10 miles of the Project site. These two potentially active nests were detected by CDFG in 2005.¹⁴⁸

SJS then responded to CURE that “the Applicant recently discovered that two nest sites were described in the CNDDDB report.”¹⁴⁹ However, to date, SJS has refused to provide an updated Sensitive Species Locations map that depicts the two potentially active nest locations documented by CDFG.¹⁵⁰ In fact, SJS has not yet consulted with CDFG regarding the presence of potential Swainson’s hawk habitat within the Project study area.¹⁵¹ Thus, the information sought in Data Request 191 is relevant and necessary in order for the Commission to obtain basic information regarding potentially suitable habitat for the Swainson’s hawk within the Project impact area.

III. CONCLUSION

All of the information requested by CURE is relevant and reasonably necessary to make a decision on SJS’s AFC. The information is critical to a basic understanding of the environmental baseline that is required to enable an analysis of the Project’s impacts. The information is also critical to determining impacts and the adequacy of mitigation measures under CEQA. In addition, much of the information is critical to findings that the Commission must make under the Warren-Alquist Act. Without the requested information, the public, the parties,

¹⁴⁸ San Joaquin Solar 1&2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #4, Docket No. 08-AFC-12 (Sep. 23, 2009), Response to Data Request 185.

¹⁴⁹ San Joaquin Solar 1&2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #4, Docket No. 08-AFC-12 (Sep. 23, 2009), Response to Data Request 184 (emphasis added).

¹⁵⁰ *Id.*

¹⁵¹ San Joaquin Solar 1&2 Hybrid Project, Supplemental Information in Response to CURE Data Request Set #4, Docket No. 08-AFC-12 (Sep. 23, 2009), Response to Data Request 186.

and the Commission will have insufficient information to assess the impacts of SJS's proposed Project.

Dated: October 14, 2009

Respectfully submitted,

_____/s/_____

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DECLARATION OF SERVICE

I, Bonnie Heeley, declare that on October 14, 2009, I served and filed copies of the attached CALIFORNIA UNIONS FOR RELIABLE ENERGY PETITION TO COMPEL PRODUCTION OF INFORMATION IN RESPONSE TO CURE DATA REQUESTS, SET FOUR. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at http://www.energy.ca.gov/sitingcases/sjsolar/SJSOLAR_POS.PDF. The document has been sent (1) electronically, and (2) via US Mail by depositing in the US Mail at South San Francisco, CA, with first-class postage thereon full prepaid and addressed as provided on the attached Proof of Service list to those addresses NOT marked "email preferred." It was sent for filing to the Energy Commission by sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address shown on the attached Proof of Service list.

I declare under penalty of perjury that the foregoing is true and correct.
Executed at South San Francisco, California, on October 14, 2009.

_____/s/_____
Bonnie Heeley

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TECHNICAL MEMORANDUM

TO: Jason Moore, PG, CEG
FROM: Mike DeSmet and Eddy Teasdale, PG
DATE: February 19, 2009
SUBJECT: San Joaquin Solar 1&2 – Aquifer Test Analysis

DOCKET

08-AFC-12

DATE Feb 19 2009

RECD. MAR 20 2009

INTRODUCTION

This technical memorandum summarizes aquifer testing and analysis conducted by URS Corporation (URS) using existing agricultural irrigation wells located at a site approximately 5 miles west of Interstate 5 near Coalinga, California at the proposed San Joaquin Solar 1&2 Hybrid Power Plant. The aquifer test was conducted to address data adequacy requests dated December 23, 2008 related to the Application for Certification (AFC) for the proposed facility. The objective of the test was to evaluate the aquifer characteristics in order to estimate well yield and the affects long-term pumping may have on other wells in the vicinity of the proposed site

URS understands that during average daily operation of the proposed project, recycled water from a nearby wastewater treatment facility will supply up to 650 to 700 gallons per minute (gpm) (approximately 1,000,000 gallons per day) of process water, and the well located on the proposed project site would be required to supply 630 to 680 gpm of process water under average conditions. To meet the estimated maximum daily usage rates additional groundwater usage may be required on a temporary basis.

TEST WELL

The test well used for pumping is referenced as the Anderson Well and is located on the site as shown on Figure 1. According to the State of California Well Completion Report, the test well was drilled in 2006 and is constructed of 16-inch (in.) diameter steel casing to a total depth of 980 feet (ft) below ground surface (bgs) (Figure 2). Blank well casing, with a wall thickness of 0.312 in., was installed from ground surface to 370 ft bgs. The well screen is 16-in. diameter with a slot size of 0.070 in. and a wall thickness of 0.312 in. Well screen was installed at depths ranging from 378 ft bgs to 858 ft bgs and 939 ft bgs to 980 ft bgs; separated by blank well casing as described above.

The pump currently installed in the well was used for the test. No pump setting depth was available, but the pump is rated for 350 horsepower (hp) at 1,700 revolutions per minute (rpm). Well construction details were not available for either of the observation wells used during the test, but static water levels were similar which indicates that the wells are completed within the same aquifer.

OBSERVATION WELLS

Two observation wells located in proximity of the site were monitored during pumping of the test well (Figure 1). Observation Well #1 (Coalinga State Hospital well) is located to the west of the site



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approximately 230 feet from the test well. It is our understanding that the hospital no longer uses the well as it obtains potable water through the municipal water district. Observation Well #2 (Anderson Agricultural well) is located approximately 1 mile southeast of the test well.

PRE-TEST WATER-LEVEL MONITORING

As requested by the CEC, URS conducted baseline water-level monitoring prior to starting the aquifer test. Water-levels were monitored on February 5, 2009 to provide an evaluation of the variability of water levels that could affect water levels during the aquifer test. The static water level measured in the test well was 321 ft bgs. The static water levels in Observation Wells 1 & 2 were 321 ft bgs and 327 ft bgs, respectively. Water levels in the three wells were measured using a electronic water level indicator. Water levels were also measured in the test well using an airline pressurized with nitrogen.

Based on the results of monitoring, the variability in water-level elevations appears to be minor and are not considered to be a factor in evaluation of the pump test data.

AQUIFER TEST PROCEDURE

A constant-rate aquifer test was conducted to evaluate the aquifer characteristics. The test involves pumping a well at a known rate and monitoring water levels in observation wells and the test well. Measurements from observation wells during pumping and recovery provide the most reliable information with respect to the aquifer parameters of Transmissivity (T) and storativity (S). The estimation of these parameters can be used to estimate changes in water levels (head) as a result of pumping for a period of time (t).

The Anderson Well and Coalinga State Hospital well currently contains pumps, piping and motors at the ground surface, which made measuring the depth to water challenging. A combination of manual water-level measurements, data logging pressure transducers and pressure gauge measurements were used to monitor water levels in the test well and observation wells before and during the test. Groundwater levels in the test well were manually measured throughout the aquifer test using an airline pressurized with nitrogen. Following the start of the aquifer test, leaks were noted in the airline, therefore, the pressure readings are not considered to be accurate and reliable. Manual water-level measurements were collected in the observation wells using a 500-foot electronic water level indicator for the first 21 hours into the test, when mechanical difficulties made it inoperable. Pressure transducers having a pressure rating of 30 pounds per square inch (psi) were installed in each of the observation wells. The timers in each transducer/data logger unit were synchronized with a portable computer timer for uniform timing. Throughout the test, both data loggers were programmed to a linear data collection scale using a 1-minute interval between readings.

Flow rate and totalizer readings from the flow meter installed in the discharge pipe of the test well were recorded concurrently with each manual water level measurement collected at the well. Groundwater discharged during the test was used to irrigate fields adjacent to the pumping well.

AQUIFER TEST RESULTS

The constant rate aquifer test began at 10:19 a.m. on February 10, 2009. The test well was pumped at a constant rate of approximately 900 gpm for 72 hours. Static water level in the test well was measured at 94 psi (corresponding to a water depth of approximately 322.86 ft bgs) prior to starting the pump.

Static water levels were measured in the observation wells immediately prior to the start of the test. The static water level in the Coalinga State Hospital well (Observation Well #1) was measured at 321.31 ft bgs. The static water level in the Anderson Agricultural well (Observation Well #2) was measured at 327.03 ft bgs. These static water levels were consistent with background static water levels measured in the wells the preceding week.

The constant-rate aquifer test was concluded at 10:15 a.m. on February 13, 2009, at which time manual water-level measurement began during the recovery phase. The measurements were collected for approximately 2.5 hours, when the water level in the test well recovered to approximately 95 percent of its original pre-test water level. The water-level measurements were collected over the same time intervals as those collected during the pumping phase. Water-level recovery in the observation wells was monitored using pressure transducers until groundwater levels in each well recovered to greater than 95 percent of pre-test static water levels. Field datasheets are provided as Appendix A. Pumping water level plots for the test well and Observation Wells 1 & 2 are provided as Appendix B.

Maximum drawdown in the test well was approximately 55.44 ft after 4,316 minutes, although most drawdown from pumping occurred within a few hundred minutes of the start of the test. There was approximately 6 feet of drawdown in Observation Well #1 located 230 ft west of the pumping well soon after the test began and there was 9.57 ft of drawdown in Observation Well #1 when pumping stopped. No discernable drawdown attributable to pumping of the test well was observed in Observation Well #2 located a mile southeast of the pumping well.

AQUIFER TEST ANALYSIS METHODS

The drawdown and recovery data collected during the aquifer test from Observation Well #1 were analyzed using AQTESOLV (Duffield, 2007), a software package that is used to match type-curves from various analytical solutions to estimate aquifer Transmissivity (T), hydraulic conductivity (k), and storativity (S). The method used for analyzing the data sets presented herein consisted of Theis (1935) and Theis Recovery (1935) for transient flow. Note that the calculations do not provide unique solutions and parameter results are likely to be within a range of values.

AQUIFER TEST ANALYSIS RESULTS

Based on the curve matching, a transmissivity of 13,840 square feet per day (ft^2/day) (Figure 3) was estimated for the Anderson Well #1. A transmissivity of 11,280 ft^2/day is estimated for Observation Well #1 (Figure 4).

In addition, a Theis Recovery plot was prepared showing water-level recovery data for Observation Well #1 (Figure 5) located 230 feet west of the test well. Using the recovery data, a transmissivity of 10,770

ft²/day was estimated. The Theis recovery plot is generally considered more representative of aquifer characteristics; therefore, 10,770 ft²/day is considered a reasonable estimate of the transmissivity for this aquifer.

The storativity (S) of the aquifer based on the Observation Well recovery data is estimated to be 0.001 which is reasonable for a typical confined aquifer system in the Central Valley (Poland, 1961).

ESTIMATED DRAWDOWN DUE TO PUMPING

Estimated groundwater production from the Anderson Well to support the project will be approximately 391 to 422 acre feet per year (afy) based on a continuous pumping rate of 630 to 680 gpm. A spreadsheet was developed using the Theis (1935) equation to estimate the impact the Anderson Well would have on water-levels (heads) in the site vicinity. To estimate the potential effect of pumping, two scenarios were considered: pumping the test well at 680 and at 1,750 gpm, respectively. The lower pumping rate is the groundwater supply needs assuming a supply of reclaimed water. The higher rate is a worst-case scenario in the case that no reclaimed water is available for an extended period to support the project. The resulting drawdown associated with these pumping rates was estimated following 1, 10 and 20 years. Twenty years is the considered life of the project.

The potential effects of pumping from the test well on the site vicinity can be estimated using the Theis solution to the equation for transient groundwater flow using the following results from the aquifer test for Observation Well #1:

- The initial transmissivity (T) is considered to be 10,770 ft²/day. Based on the distance from static water level (321 feet bgs) to the bottom of the test well screen interval (980 feet bgs) the estimated effective aquifer thickness (b) is considered to be 530 ft. The hydraulic conductivity (K) value is estimated to be 20.3 ft/day based on the relationship $T=Kb$.
- Transmissivity of the aquifer is reduced due to previous aquifer dewatering.
- The Andersen Well is screened in the middle aquifer unit in this area. The estimated storativity for this aquifer is approximately 0.001.

This estimate of the 1, 10 and 20 year water-level drawdown takes into account variations in aquifer transmissivity due to dewatering from the pumping well. The drawdown for each time interval is calculated and subsequently, the saturated thickness is recalculated and a new transmissivity value is determined for the next time interval.

The calculated drawdown for 1, 10 and 20 year periods pumping at 680 gpm is presented on Figure 6. The calculated drawdown for 1, 10 and 20 year periods pumping at 1,750 gpm is presented on Figure 7.

SUMMARY AND CONCLUSIONS

The analyses presented herein indicate that groundwater production of approximately 680 gpm continuous flow (about 422 acre-feet/year) from the Andersen Well would be expected to produce less



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than 10 ft of decrease in head in the aquifer within about 2,000 ft of the Andersen Well and will not significantly impact any existing nearby wells. It is estimated that the radial extent of the 10-foot drawdown impact is approximately 600 ft after 1 year, 1,500 ft after 10 years and 2,000 ft after 20 years. Based on the Theis analysis and the approximate locations of the two neighboring wells as located by URS, no wells receiving groundwater from the regional aquifer will be impacted by more than 20 ft of drawdown after 20 years of continuous pumping from the proposed Anderson Well at 680 gpm. Pumping the Andersen Well at higher rates if recycled water was not available would produce greater drawdown in nearby wells.

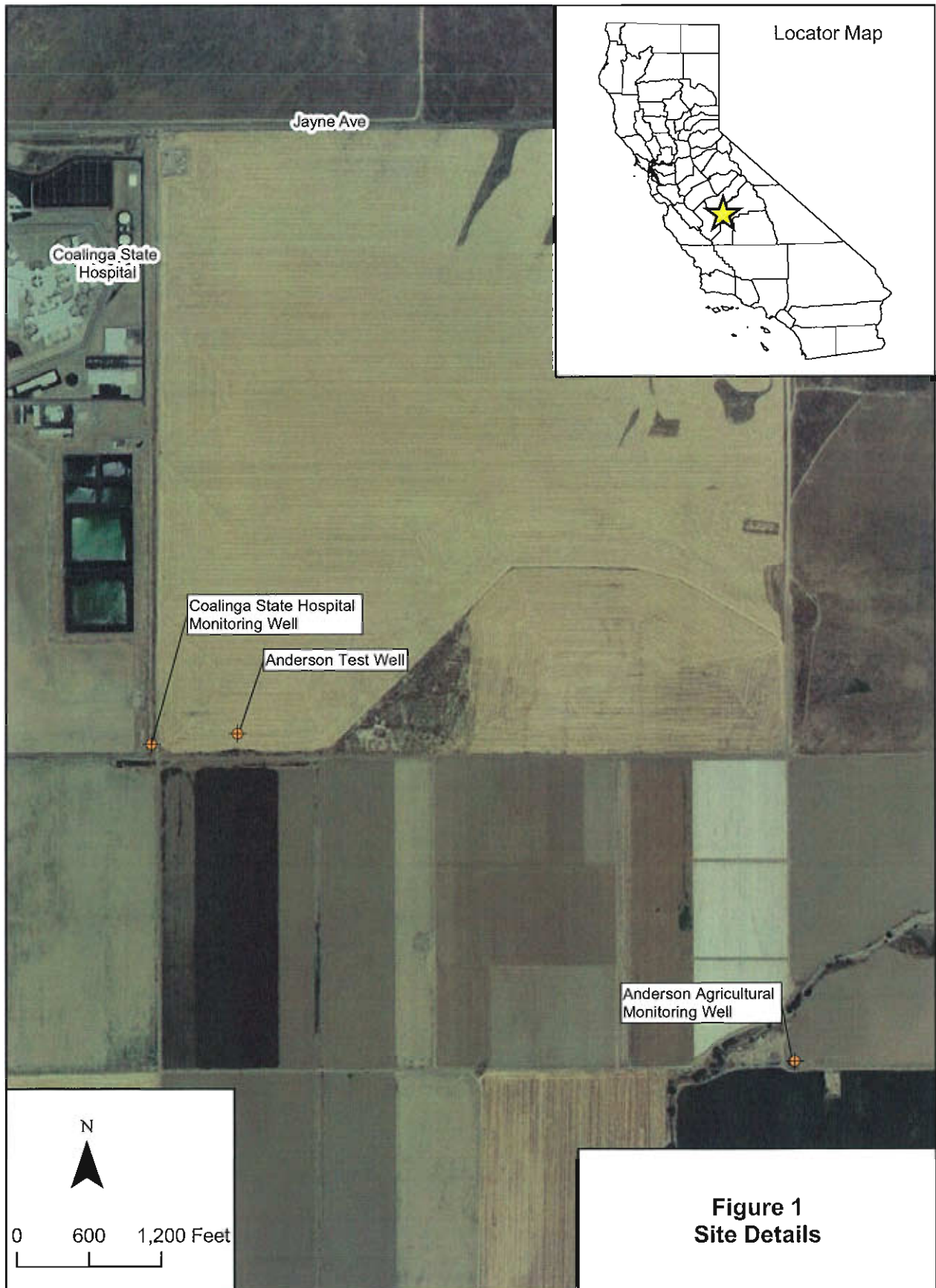
REFERENCES

- Duffield, Glenn M., 2007 AQTESOLV for Windows. Version 4.02. HydroSOLVE, Inc., Distributed by Geraghty & Miller Modeling Group, Reston, VA.
- Poland, J.F., 1961. The coefficient of storage in a region of major subsidence caused by compaction of an aquifer system. U.S Geological Survey Professional Paper 424-B, p B52-B54.
- Theis, C.V., 1935. The relation between the lowering of piezometric surface and the rate and duration of discharge of a well using ground-water storage. Trans. Am. Geophys. Union, v. 16, p. 519-524.

ATTACHMENTS:

- Figure 1 – Site Map (including approximate well locations)
 - Figure 2 – Well Completion Report – Anderson Well
 - Figure 3 – Anderson Pumping Well (Drawdown)
 - Figure 4 – Observation Well #1 - Coalinga State Hospital Well (Drawdown)
 - Figure 5 – Observation Well #1 - Coalinga State Hospital Well (Recovery)
 - Figure 6 – Well Impact Analysis (680 gpm)
 - Figure 7 – Well Impact Analysis (1750 gpm)
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- Appendix A – Aquifer Testing Field Data Sheets (Constant- Rate Test)
 - Appendix B – Pumping Test Water Level Graphs

FIGURES



ORIGINAL
File with DWRSTATE OF CALIFORNIA
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

Page 1 of 1

Owner's Well No. **MOURAN #1**No. **EO-38695**Date Work Began **6/28/06**, Ended **7/14/06**Local Permit Agency **FRESNO COUNTY**Permit No. **WP-0026516**Permit Date **3/27/06**

DWR USE ONLY — DO NOT FILL IN	
STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APR/MS/OTHER	

GEOLOGIC LOG			WELL OWNER	
ORIENTATION (✓) <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> ANGLE _____ (SPECIFY)	DRILLING METHOD REVERSE	FLUID WATER	Name WT MOURAN	
DEPTH FROM SURFACE FL TO FL	DESCRIPTION <i>Describe material, grain, size, color, etc.</i>		Mailing Address P.O. BOX 835	CA 93210
0 8	BROWN TOP SOIL		CITY COALINGA	STATE CA ZIP 93210
8 217	BROWN CLAY - TRACE SAND		Address JAYNE AVE BY PRISON	
217 345	BROWN CLAY & 1/8" GRAVEL		City COALINGA CA 93210	
345 386	BROWN CLAY		County FRESNO	
386 784	BROWN CLAY & GRAVEL		APN Book 085 Page 030 Parcel 57	
784 805	BROWN CLAY		Township 21 S Range 16 E Section 3	
805 928	BROWN CLAY & GRAVEL		Latitude _____	
928 1000	BROWN GRITTY CLAY		DEG. MIN. SEC. _____	
			LOCATION SKETCH	ACTIVITY (✓) <input checked="" type="checkbox"/> NEW WELL
				<input type="checkbox"/> MODIFICATION/REPAIR — Deepen — Other (Specify) _____
				<input type="checkbox"/> DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")
			PLANNED USES (✓) <input checked="" type="checkbox"/> WATER SUPPLY	
			<input type="checkbox"/> Domestic <input type="checkbox"/> Public <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial	
			MONITORING _____	
			TEST WELL _____	
			CATHODIC PROTECTION _____	
			HEAT EXCHANGE _____	
			DIRECT PUSH _____	
			INJECTION _____	
			VAPOR EXTRACTION _____	
			SPARGING _____	
			REMEDIATION _____	
			OTHER (SPECIFY) _____	
TOTAL DEPTH OF BORING 1000 (Feet)			WATER LEVEL & YIELD OF COMPLETED WELL	
TOTAL DEPTH OF COMPLETED WELL 980 (Feet)			DEPTH TO FIRST WATER ? (FL) BELOW SURFACE	
			DEPTH OF STATIC WATER LEVEL _____ (FL) & DATE MEASURED _____	
			ESTIMATED YIELD _____ (GPM) & TEST TYPE _____	
			TEST LENGTH _____ (hrs.) TOTAL DRAWDOWN _____ (FL)	
			May not be representative of a well's long-term yield.	

DEPTH FROM SURFACE FL TO FL	BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE FL TO FL	ANNULAR MATERIAL TYPE			
		TYPE (✓)	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)		CE- MENT (✓)	BEN- TONE (✓)	FIL (✓)	FILTER PACK (TYPE/SIZE)
0 40	42	<input checked="" type="checkbox"/>	STEEL	30	280		0 40	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
0 370	28	<input checked="" type="checkbox"/>	STEEL	18	312		40 1000				
370 858	28	<input checked="" type="checkbox"/>	STEEL	16	312	.070 X 32					
858 939	28	<input checked="" type="checkbox"/>	STEEL	18	312						
939 980	28	<input checked="" type="checkbox"/>	STEEL	18	312	.070 X 32					

ATTACHMENTS (✓) <input checked="" type="checkbox"/> Geologic Log <input type="checkbox"/> Well Construction Diagram <input type="checkbox"/> Geophysical Log(s) <input type="checkbox"/> Soil/Water Chemical Analysis <input type="checkbox"/> Other _____ ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.	CERTIFICATION STATEMENT I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief. NAME Farm Pump and Irrigation (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED) P.O. Box 1477 ADDRESS _____ Signed _____ WEST OR ILLINOIS AUTHORIZED REPRESENTATIVE	SHAFTER _____ CA 93263 CITY _____ STATE _____ ZIP _____ DATE SIGNED 07/13/06 C-57 LICENSE NUMBER 602148 C-57
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DWR 122 RKV, 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM.

Figure 2

Anderson Well Completion Report

 Figure 2
 Anderson Well Completion Report

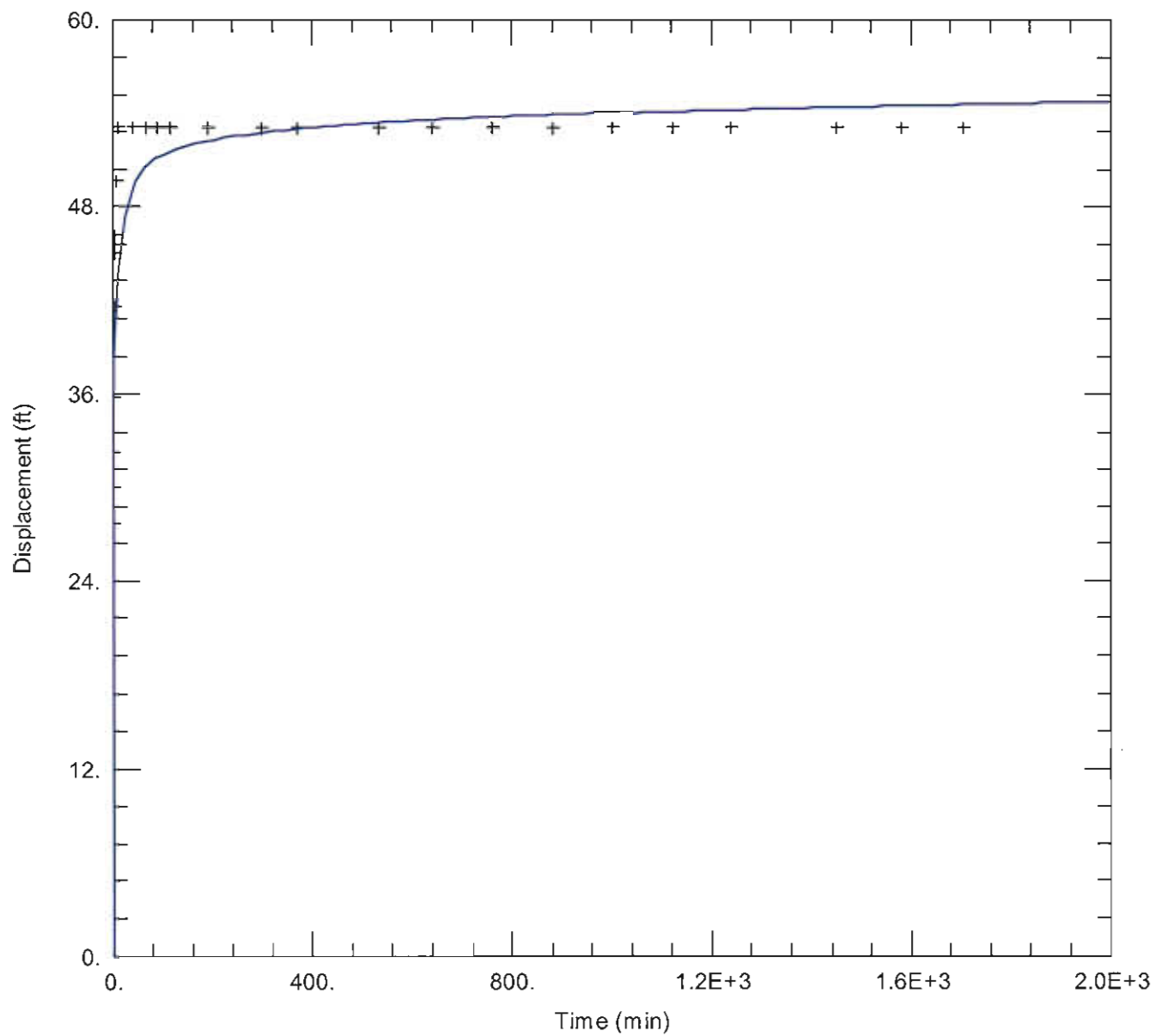


Figure 3. Anderson Pumping Well (Drawdown)

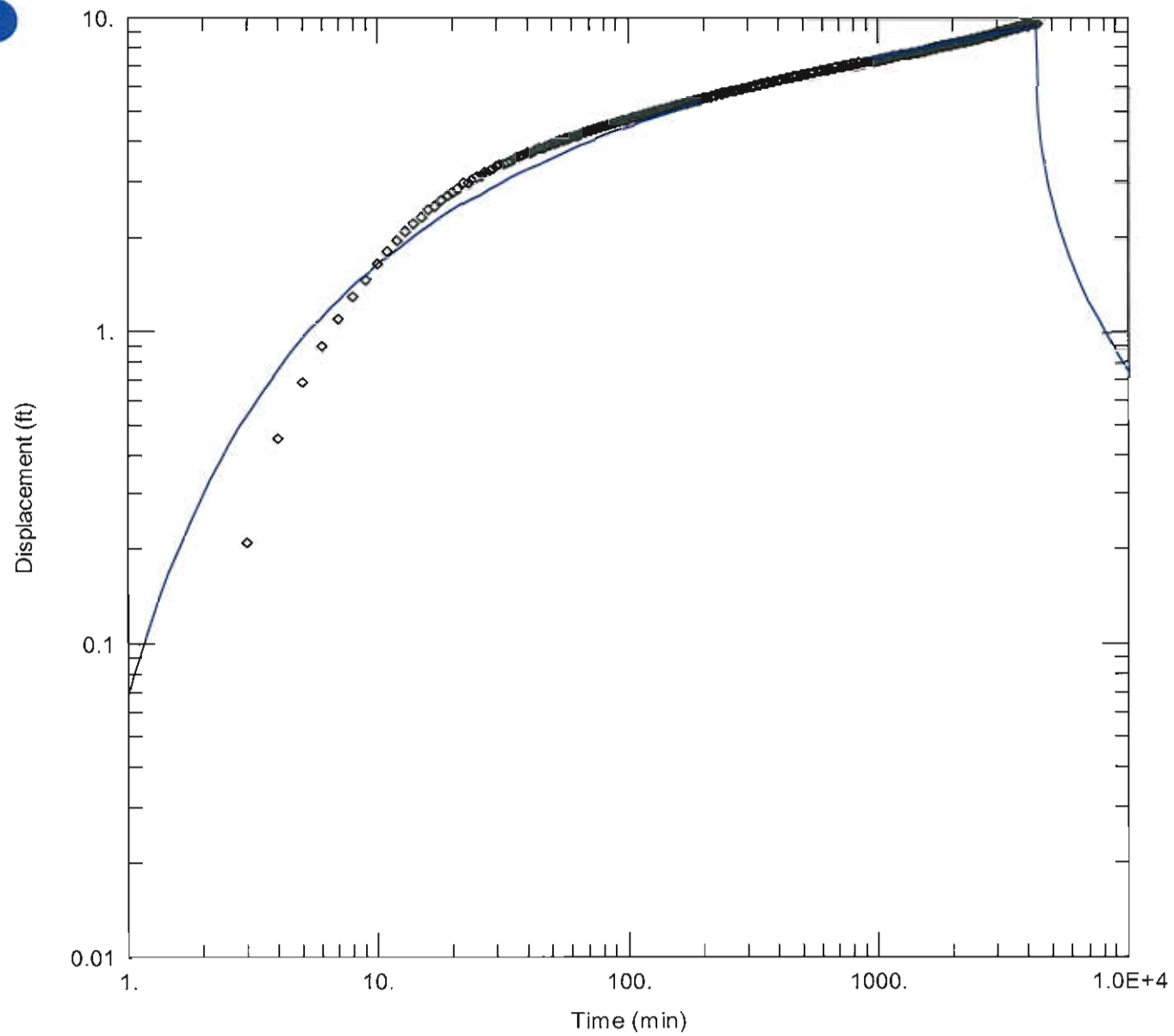


Figure 4. Observation Well #1, Coalinga State Hospital (Drawdown)

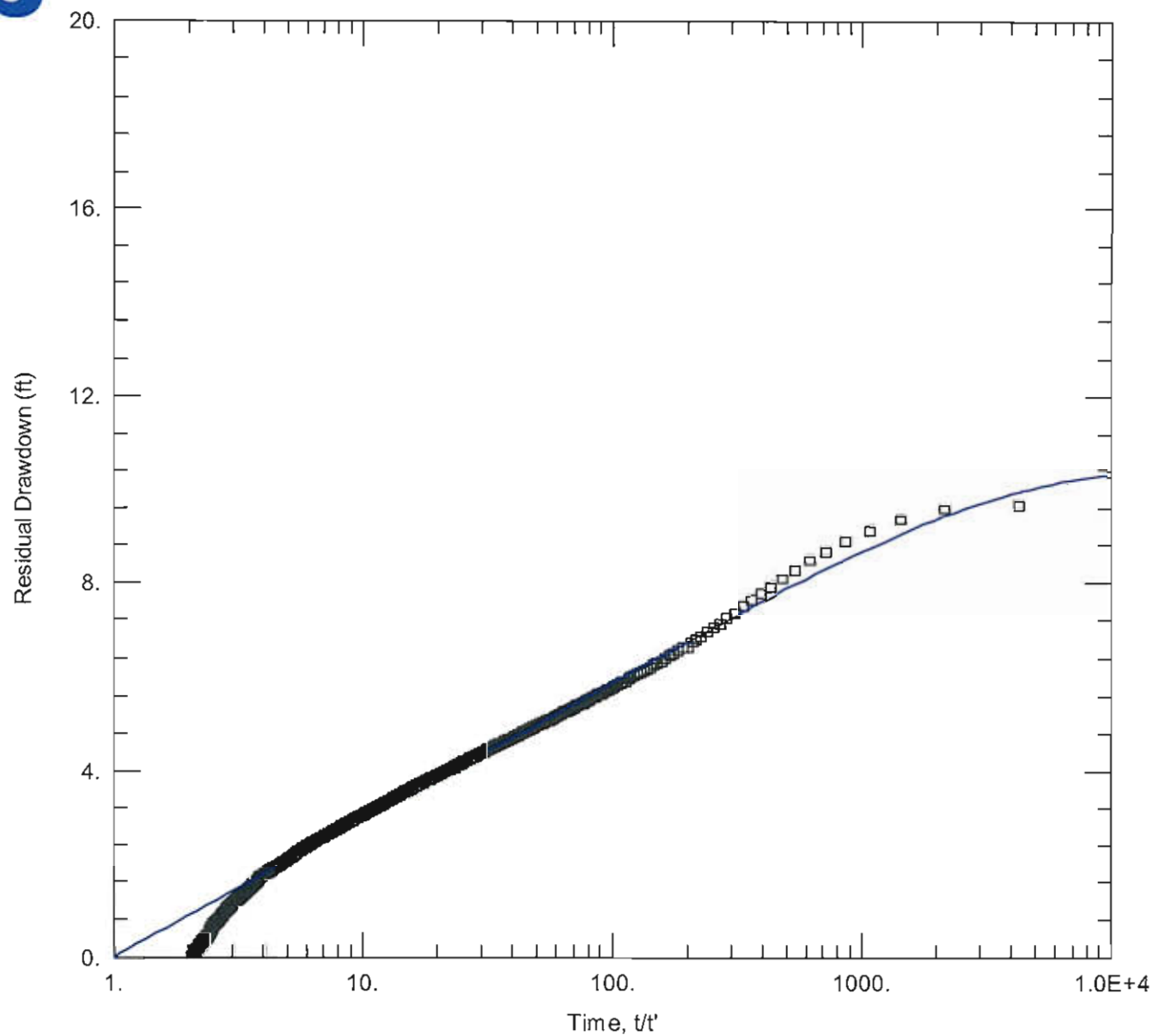


Figure 5. Observation Well #1, Coalinga State Hospital (Recovery)

Estimated Drawdown at Varying Distances

Based On Theis Equation. $Q = 680$ gpm

Pumping Period = 1, 10 and 20 years.

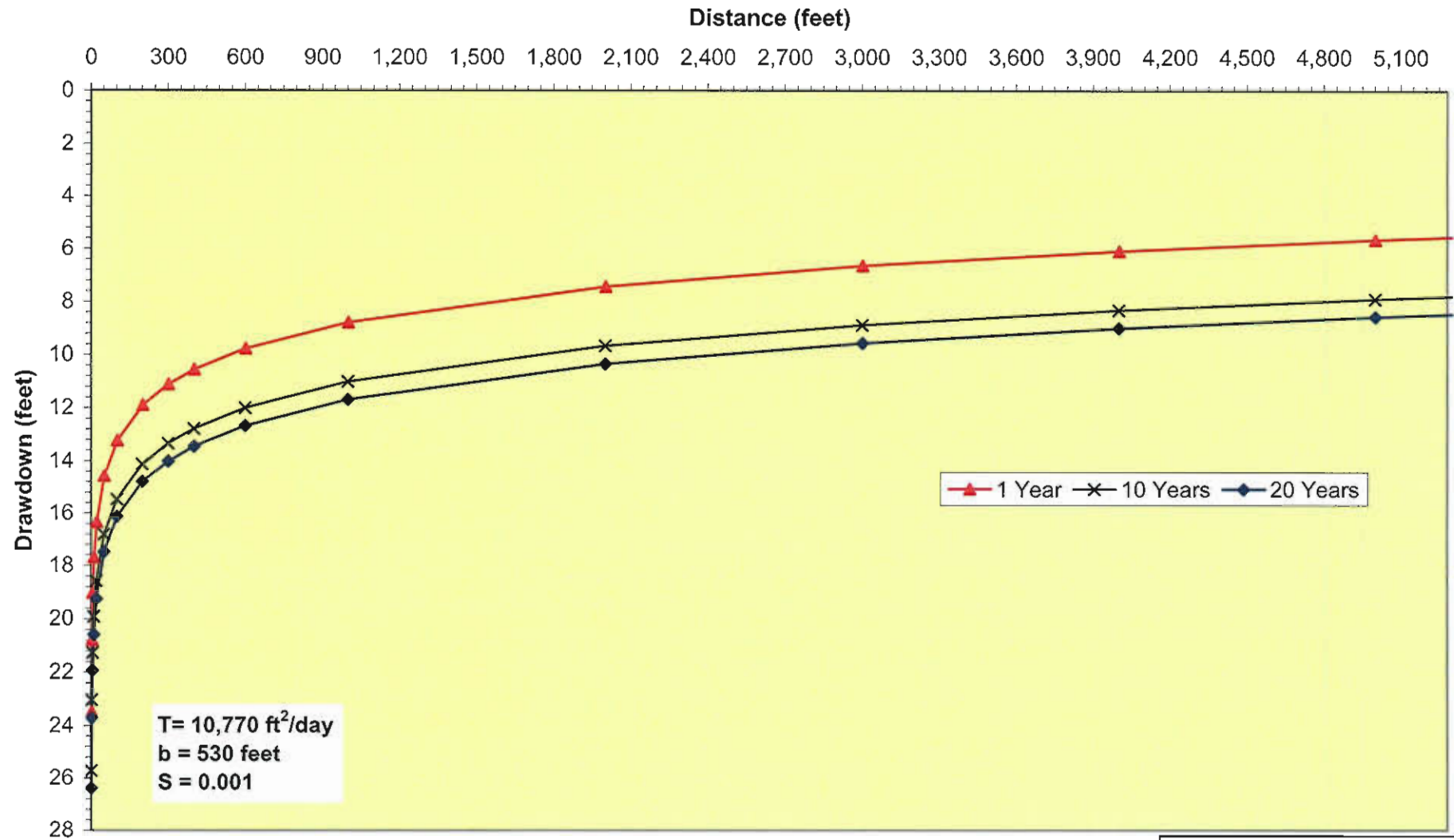
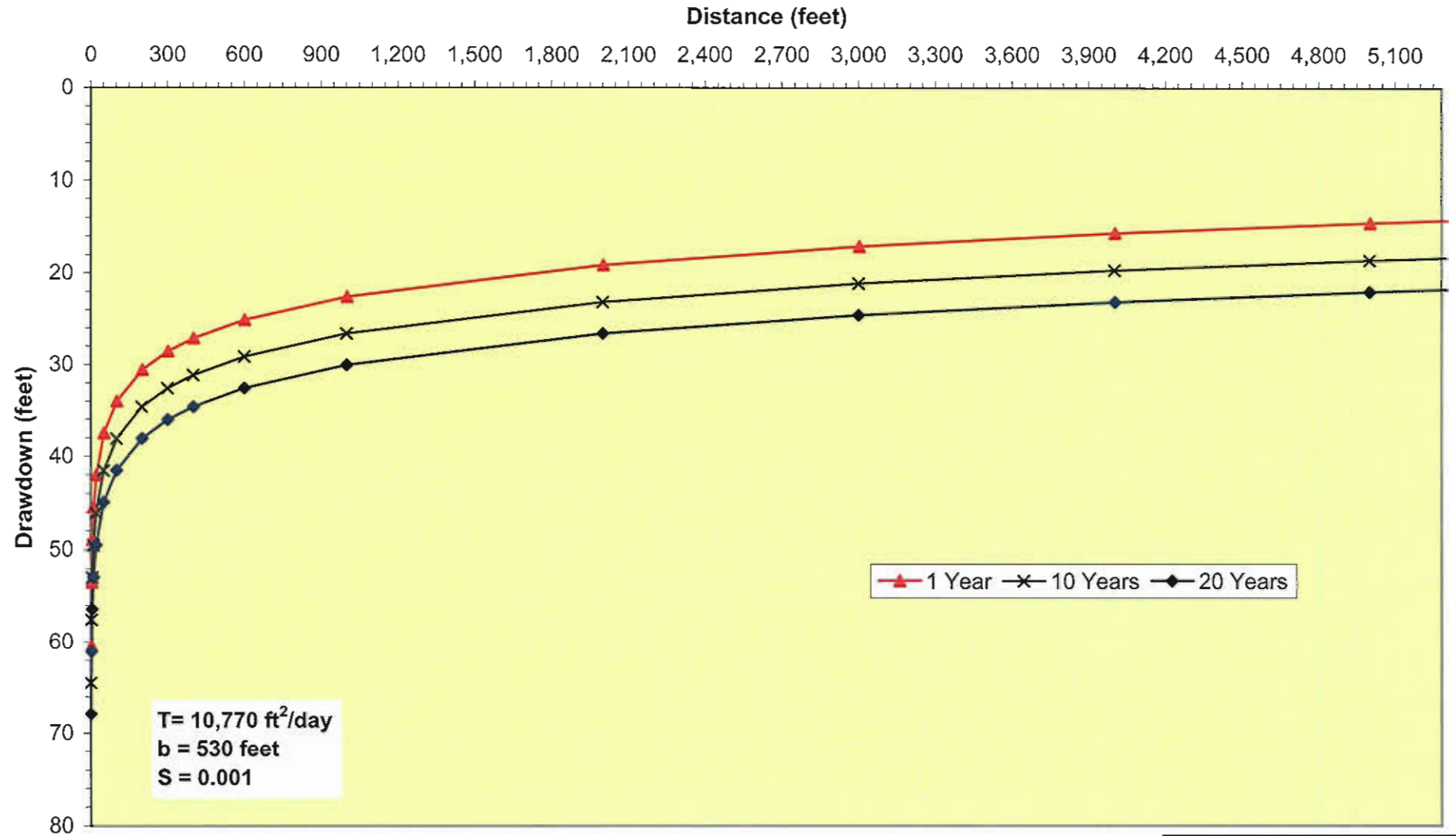


Figure 6
Estimated Drawdown
Anderson Well

Estimated Drawdown at Varying Distances

Based On Theis Equation. $Q = 1750$ gpm

Pumping Period = 1, 10 and 20 years.



APPENDIX A

(Anderson Test Well)
CONSTANT RATE AQUIFER FIELD TEST DATA FORM

Page 1 of 4

Project: <u>Anderson Ae Well Pump Test</u>	Initial Airline Pressure (psi): <u>92.5</u>	Calculated Static Water Level: <u>322.86</u>
Project No.:	Total Length of Airline (feet): <u>540</u>	
Well Location: <u>Coalinga, CA</u>	Well No.: <u>Test Well</u>	Measuring Point: <u>Air line</u>
Well Diameter: <u>16"</u>	Measured By: <u>MJD / RN</u>	Elevation Measuring Point:
Pump Setting: <u>Unknown</u>	Pump On: Date <u>10 Feb 09</u> Time: <u>1017</u>	Available Drawdown:
Screen Interval(s):	Pump Off: Date <u>13 Feb 09</u> Time: <u>1015</u>	Initial Totalizer Reading: <u>291803 ACFT x .001</u>
How discharge was measured: <u>Flowmeter</u>	Duration of Aquifer Test: <u>72 Hours</u>	Final Totalizer Reading: <u>302752 ACFT x .001</u>

Time of Measurement	Time Since Pumping Started (t) (minutes)	Recovery Time (t') (minutes)	u'	Air line Pressure Reading (psi)	Total Length of Air line (feet)	Correction (feet)	(-540) Calculated Water Level (feet)	Drawdown (feet)	Discharge (gpm)	Specific Capacity (gpm/ft)	AC-FT x .001 Totalizer Reading (gallons)	Remarks
1019:45	0			92.5	540	217.14	326.2 322.86	0			291863	SWL
1020:45	1			82		189.42	350.58	27.72				Bad PSIs
1021:	2			81		187.11	352.89	30.03				-need to
1021:15	2.25			80.5		185.95	354.045	31.185				pressure
1021:30	2.5			80		184.8	355.2	32.34				line each
1022	3			78.5		181.335	358.665	35.805				time.
1022:30	3.5			76		175.56	364.44	41.58				@ 1040
1023	4			74.5		172.095	367.905	45.045	1100			
1024	5			74.25		171.518	368.4825	45.6225				
1025	6			74		170.94	369.00	46.2	900			
1026	7			72.5		167.475	372.525	49.665				
1027	8			70.5		162.855	377.145	54.285				
1028	9			70		161.7	378.3	55.44				
1029	10			71.5 71.5		164.01	375.99	53.13	900		291883	
1030	11			71.5 71.5		164.01	375.99	53.13				
1040				58					900		291910	leaking air line

(Anderson Test Well)
CONSTANT RATE AQUIFER TEST FIELD DATA FORM

Page 2 of 4
Project No. AND AG WELL
Date 16 FEB 09

ACRE FEET x 0.001

Time of Measurement	Time Since Pumping Started (t) (minutes)	Recovery Time (t') (minutes)	t/t'	Airline Pressure Reading (psi)	Total Length of Airline (feet)	Correction (feet)	Calculated Water Level (feet)	Drawdown (feet)	Discharge (gpm)	Specific Capacity (gpm/ft)	Totalizer Reading (gallons)	Remarks
1051				79					900			
1059	40			71		164.01	375.99	53.13				
1125	66			71		164.01	375.99	53.13	900	16.94		
1150	91			71		164.01	375.99	53.13	875	16.47	292075	
1215	116			71		164.01	375.99	53.13	875	16.47	292138	
1330	191			71		164.01	375.99	53.13	900	16.94		
1510	297			71		164.01	375.99	53.13	900	16.94	292613	
1630	371			71		164.01	375.99	53.13	900	16.94	292802	
1910	531			70		161.7	378.3	55.44	850	16.00	293213	
2100	641			70		161.7	378.3	55.44	875	16.47	293485	
2300	761			70		161.7	378.3	55.44	900	16.94	293787	
FEB 11 2009 0100	881			70		161.7	378.3	55.44	900	16.94	294093	
0302	1003			69		159.39	380.61	57.75	875	16.47	294397	
0502	1123			69		159.39	380.61	57.75	900	16.94	294698	
0700	1241			68		157.08	382.92	60.00	900	16.94	294996	
1031	1452			71		164.01	375.99	53.13	900	16.94	295534	
1240	1581			71		164.01	375.99	53.13	900	16.94	295867	
1445	1706			71		164.01	375.99	53.13	900	16.94	296191	
1834	1935			70.5		162.855	377.145	54.285	900	16.8458	296778	
2100	2081			70		161.7	378.3	55.44	900	16.94	297146	SL = 16.23
FEB 12 2009 0100	2321			70.5		162.855	377.145	54.285	900	16.8458	297754	SL = 16.58
0502	2563			70		161.7	378.3	55.44	900	16.94	298362	16.23
1028	2889			70		161.7	378.3	55.44	900	16.94	299193	16.23

2805 - 9402
1365 - 8.335

0.044 ft./hr.

Page 3 of 4
Project No. AND AG WEN
Date 12 FEB 09

[illegible]

Continued on Pg. 4

2765832.00100

CONSTANT RATE AQUIFER TEST FIELD DATA FORM

Page 4 of 4
 Project No. AND AB well
 Date 13 Feb 09

Time of Measurement	Time Since Pumping Started (t) (minutes)	Recovery Time (t') (minutes)	t/t'	Airline Pressure Reading (psi)	Total Length of Airline (feet)	Correction (feet)	Calculated Water Level (feet)	Drawdown (feet)	Discharge (gpm)	Specific Capacity (gpm/ft)	Totalizer Reading (gallons)	Remarks
1015	4316			70	540	161.7	378.3	55.44	950	17.14	302752	
1017		1 2		82		189.42	350.58	27.72				Well off @ 1015
1018		2 3		92		212.52	327.48	4.62				
1019		3 4		94		217.14	322.80	0				
1020		4 5		82		212.52	350.58	44.62				
1021		5 6		89		205.59	334.41	11.55				
1022		6 7		89		205.59	334.41	11.55				
1023		7 8		89		205.59	334.41	11.55				
1024		8 9		89		205.59	334.41	11.55				
1025		9 10		89		205.59	334.41	11.55				
1030		14 15		89		205.59	334.41	11.55				
1035		20		90		207.9	332.1	9.24				
1040		25		90		207.9	332.1	9.24				
1045		30		90		207.9	332.1	9.24				
1050		35		90.25		208.478	331.522	8.663				
1055		40		90.25		208.478	331.522	8.663				
1100		45		90		207.9	332.1	9.24				
1115		60		90		207.9	332.1	9.24				
1130		75		91		210.21	329.79	6.93				
1145		90		92		212.52	327.48	4.62				
1200		105		91		210.21	329.79	6.93				
1240		145		92		212.52	327.48	4.62				

(Hospital Monitoring Well)

AQUIFER CONSTANT-RATE TEST DATA

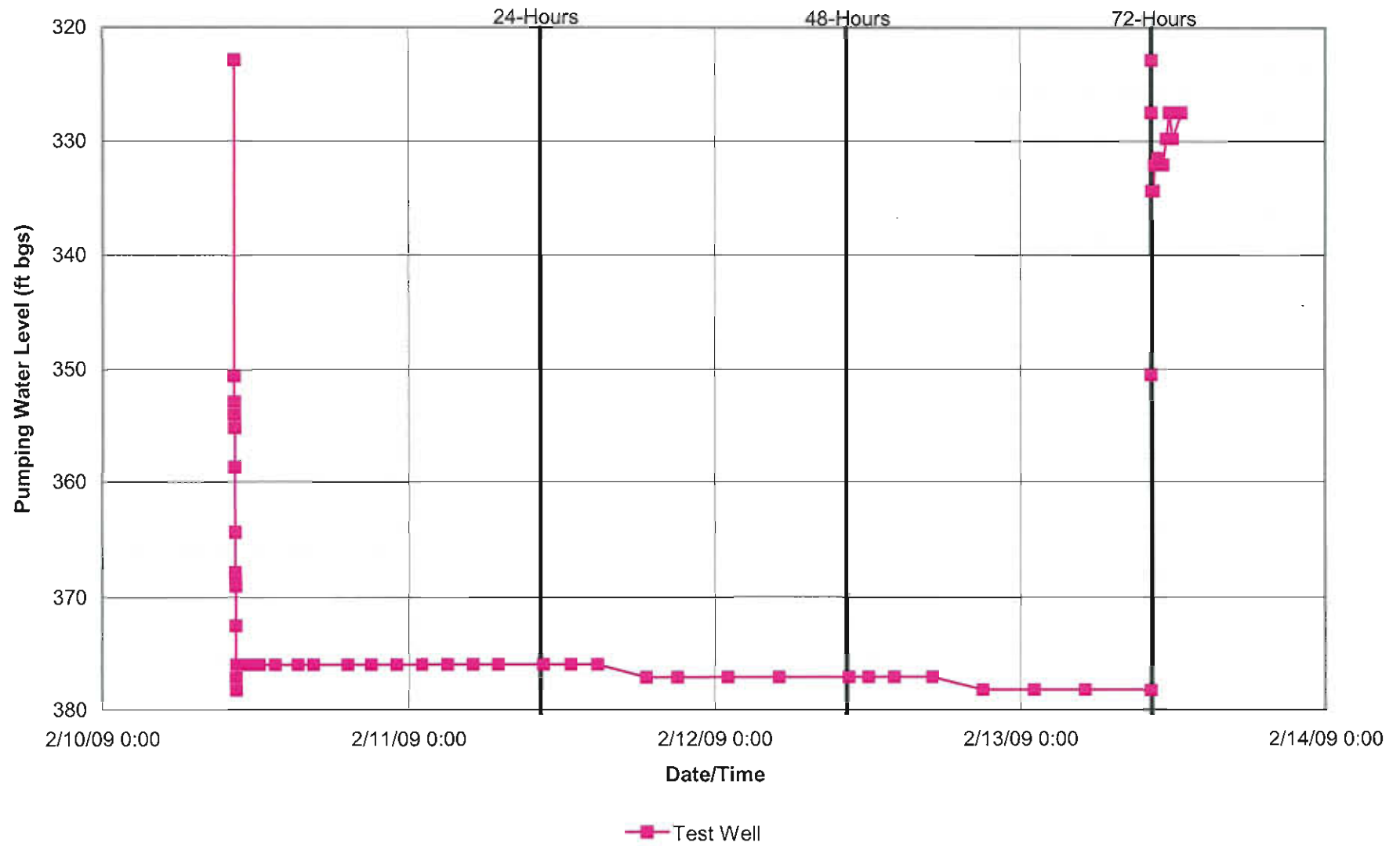
Project: <u>Anderson Hy Well Test</u>				Project No.:				Static Water Level (feet bls): <u>321.31</u>			
Well Location: <u>Coolidge, CA</u>				Well No.: <u>Coolidge Hospital MW</u>				Measuring Point: <u>Opening of Pump</u>			
Well Diameter: <u>16"</u>				Measured By: <u>MJD</u>				Elevation Measuring Point (feet bls):			
Pump Setting:				Pump On: Date <u>10 Feb 09</u>		Time: <u>1019</u>		Available Drawdown:			
Screen Interval(s):				Pump Off: Date <u>13 Feb 09</u>		Time: <u>1015</u>		Distance From Pumping Well: <u>220 feet</u>			
How Q Measured: <u>in line flow meter</u>				Duration of Aquifer Test: <u>72 hours</u>				Initial Totalizer Reading:			

Time of Measurement	Time Since Pumping Started (t) (minutes)	Recovery Time (t') (minutes)	t/t'	Sounder Reading (feet)	Correction (feet)	Water Level (feet)	Drawdown (feet)	Discharge (gpm)	Specific Capacity (gpm/ft)	Totalizer Reading (gallons)	Remarks
<u>0835</u>				<u>321.31</u>	<u>321.31</u>		<u>0</u>				<u>SWL</u>
<u>1109</u>				<u>325.60</u>			<u>4.29</u>				
<u>1147</u>				<u>326.22</u>			<u>4.91</u>				
<u>1217</u>				<u>326.52</u>			<u>5.21</u>				
<u>1323</u>				<u>327.07</u>			<u>5.76</u>				
<u>1521</u>				<u>327.62</u>			<u>6.31</u>				
<u>1624</u>				<u>327.84</u>			<u>6.53</u>				
<u>1802</u>				<u>328.24</u>			<u>6.93</u>				
<u>1907</u>				<u>328.28</u>			<u>6.97</u>				
<u>2105</u>				<u>328.52</u>			<u>7.21</u>				
<u>2308</u>				<u>328.80</u>			<u>7.49</u>				
<u>0105</u>				<u>328.97</u>			<u>7.66</u>				
<u>0308</u>				<u>329.11</u>			<u>7.80</u>				
<u>0505</u>				<u>329.20</u>			<u>7.89</u>				
<u>0702 - FOUND SOUNDER HAD UNSPOOLED & BROKEN OFF OF REEL</u>											

[illegible]

APPENDIX B

San Juan Solar Hydrid 1 & 2 Aquifer Test
Pumping Well Data



San Juan Solar Hybrid 1 & 2 Aquifer Test
Monitoring Well Data

