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California Energy Commission
Docket Unit
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **PALEN SOLAR I, LLC'S INITIAL COMMENTS ON THE STAFF ASSESSMENT/DRAFT ENVIRONMENTAL IMPACT STATEMENT DOCKET NO. (09-AFC-7)**

Enclosed for filing with the California Energy Commission is the original of **PALEN SOLAR I, LLC'S INITIAL COMMENTS ON THE STAFF ASSESSMENT/ DRAFT ENVIRONMENTAL IMPACT STATEMENT**, for the Palen Solar Power Project (09-AFC-7).

Sincerely,

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STATE OF CALIFORNIA

Energy Resources
Conservation and Development Commission

In the Matter of:	**DOCKET NO. 09-AFC-7**
Application for Certification for the PALEN SOLAR POWER PROJECT	**PALEN SOLAR I, LLC'S INITIAL COMMENTS ON THE STAFF ASSESSMENT/DRAFT ENVIRONMENTAL IMPACT STATEMENT**

Palen Solar I, LLC (PSI) hereby submits initial comments on the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) published on March 19, 2010 for the Palen Solar Power Project (PSPP). Subsequent to the SA/DEIS workshop in April 2010, PSI offers these comments so that the parties can be the more productive in light of the modified scheduling order. Comments to the Biological Resources section will be provided later under separate cover. PSI will submit final comments on the SA/DEIS before the end of the Comment period. In these initial comments, PSI provides proposed resolution of issues to Staff and BLM for consideration.

Suggested additions are shown in ***bold italics*** and suggested deletions are shown in ~~strikethrough.~~

For clerical correction and ease to Staff and BLM, we are suggesting the following global corrections to descriptions of the various components of the project that are repeated throughout the SA/DEIS. These corrections, for the most part, reflect areas where the descriptions do not reflect supplemental information already provided to the CEC in the form of data responses or official Supplements, but also include project refinements and clarifications:

- Any reference to "applicants" should be replaced with "applicant" or PSI.
- The disturbance area will be revised from 2,970 acres to reflect the final transmission line route, temporary construction power line, the 161 kV line relocation, and telecommunication line.
- Construction water needs should be increased from 1,500 acre-feet (af) to 5,750 af

This submittal includes three Attachments (Attachments 1, 2 and 3) to describe a number of relatively minor updates to the Project: Attachment 1 is a red line/strikethrough markup of the Project Overview provided in the SA/DEIS; Attachment 2 presents evaluations of the environmental implications of these modifications and Staff's final analysis should reflect these changes; and Attachment 3 contains comments on the Preliminary Determination of Compliance (PDOC).

EXECUTIVE SUMMARY

Page B.1-3, Second Paragraph

The PSPP is identified as two adjacent, independent units each with a generating capacity of 250 MW. The SA/DEIS should clarify that this capacity is a nominal rating as follows:

> PSPP is comprised of two, nominally rated 250 MW power blocks. The performance of each power block will vary with solar radiation and ambient temperature levels. At optimal solar radiation and low air cooled condenser back pressure (low ambient temperatures), the steam turbine-generator can produce 272 MW gross. As ambient temperature increases, the cooling effectiveness of the air cooled condenser decreases, causing the back pressure on the steam turbine to rise and, correspondingly, lowering steam turbine output. Parasitic loads also vary in relation to ambient temperature, due to the increasing power requirement for the large air cooled condenser and cooling plant auxiliary equipment. At an ambient temperature of 96°F, the steam turbine generator will produce 264 MW and plant parasitic load will be approximately 29 MW providing a net-to-grid power block rating of approximately 235 MW. Conversely, on a cool winter day with optimal solar radiation, the steam turbine-generator will produce 272 MW, plant parasitic load will be approximately 28 MW and the net-to-grid power block rating will be approximately 244 MW.

PROJECT DESCRIPTION

Page B.1-11, Section B.1.4.2, Transmission Line Route

This section of the SA/DEIS indicates that the transmission line route is not yet finalized. The route for the gen-tie line between the PSPP site and the two remaining options for SCE's Red Bluff Substation location have been selected and are shown in Figure Trans-1. The final location for Red Bluff is expected to be determined in the DEIS for the First Solar Desert Sunlight Project. The required biological resources and cultural resources surveys for this route are underway and results will be reported when they are available later this spring.

ALTERNATIVES

Page B.2-9, Sections B.2.4.1 and B.2.4.2, Project Objectives

Staff should include the following objective of the Project and this discussion and consider whether the alternatives carried forward meet this objective.

The state and federal governments are moving rapidly toward a policy of clustering renewable energy development within areas, or zones, rather than permitting that development to be spread across the State. Coequal goals in this effort are: minimizing environmental impact, maximizing renewable energy production, minimizing sprawl, and reducing infrastructure investment to bring the power to market, thus reducing overall costs to ratepayers.

The Palen Solar Power Project is located within an area that has been selected by two key planning efforts to be a priority area for renewable energy development based on the area's resource quality, transmission access, and lack of significant biological resources. Those two key planning efforts are the Renewable Energy Transmission Initiative, or RETI, and proposed Solar Energy Study Areas (SESAs) identified by the Department of Energy and Bureau of Land Management's Solar Energy Development Programmatic Environmental Impact Statement (PEIS) process.

The State's RETI process was initiated in 2007 and is focused on identifying renewable energy development zones and planning the transmission to access those zones. The SESA process within the PEIS is focused on designating zones in which renewable energy projects could be permitted on an expedited basis. Finally, the Desert Renewable Energy Conservation Plan (DRECP) process is focused on gathering data and mapping priority biological areas and wildlife movement corridors. Each of these planning efforts will ultimately be combined to provide the basis to implement a policy in which renewable energy development is concentrated in certain geographic areas.

In addition, co-locating multiple solar thermal power plants minimizes disturbance across the region. By co-location, there is an "economy of scale" that allows the design to utilize shared/common facilities for multiple power plants (e.g., offices, construction laydown areas, solar array assembly facilities, warehouses and maintenance facilities). Further, co-located facilities minimize regional disturbance to natural and visual resources by reducing the need for additional transmission corridors, and by reducing the need for other infrastructure such as water wells and/or water pipelines, natural gas pipelines, temporary laydown areas and temporary/permanent access roads that would be required if the units were developed at separate locations. Co-located facilities also consolidate impacts of lighting, noise, and human presence at a single location rather than introducing them to multiple environments. Finally, consolidated facilities also geometrically reduce edge effects compared to individual plants on separate sites. For the PSPP, boundaries with adjacent undisturbed areas is reduced by 30 percent (replacing two plants that each have a 6.3-mile outer perimeter, for a combined total outer perimeter of 12.6 miles, with two contiguous plants having a combined outer perimeter of 9.8 miles).

Page B.2-13, Second Bullet

This bullet addresses Staff's view that the project would result in cumulative residual impacts after mitigation of all direct and indirect impacts for all resources areas except Visual Resources, which Staff concludes is unmitigatable. Staff does not address the benefit of co-locating two solar thermal units which addresses the very fragmentation that Staff relies on to determine that the Project contributes to a cumulatively considerable impact with other future solar projects. In that regard, the PSPP has mitigated its impact by engaging in such co-location and avoiding further fragmentation. PSI requests that Staff expand its analysis to document the benefit of such co-location.

Page B.2-13, Third Bullet

The SA/DEIS states that because the US Army Corps of Engineers (USACE) has not issued a finding of whether or not it would take jurisdiction over the ephemeral drainages under Section 404 of the Clean Water Act, Staff cannot conclude the project would comply with that act. While PSI has submitted substantial data indicating that such ephemeral drainages are not "Waters of the United States", Staff could simply complete its analysis now, requiring a Section 404 permit be obtained from the USACE should the USACE ultimately be determined to have jurisdiction and require a permit. Staff has already determined the project impacts to these drainages under both CEQA and NEPA and therefore can require a simple condition of certification requiring PSI to either obtain the 404 permit or provide proof that such a permit is not required. Therefore, in the unfortunate event that the Corps does not respond to PSI's request for concurrence that the ephemeral drainages are not "Waters of the United States" prior to publication of the Addendum or Errata to the SA/DEIS and the Final EIS (SAA/FEIS) PSI requests Staff adopt such a condition in the SAA/FEIS.

Page B.2-24, Second and Third Paragraphs

SA/DEIS repeatedly refers to BSPP and the Blythe Mesa Alternative. These references should be replaced with references to the PSPP and the North of Desert Center Alternative.

Page B.2-63 – B.2-64, Section B.2.8.2, Distributed Solar Technology, Distributed Solar Thermal Systems

In this Section the SA/DEIS indicates that the Andasol 1 power plant in Spain generates 50 MW on approximately 127 acres. The Applicant would like to clarify that the mirror area of Andasol 1 is approximately 127 acres, however, the power plant covers nearly 500 acres. Additionally, Andasol 1 is one of three co-located 50 MW solar thermal power plants developed and engineered by the Solar Millennium Group. As a 50 MW plant, Andasol 1 is not distributed generation.

Page B.2-64, Section B.2.8.2, Distributed Solar Technology, Project Objectives

In this section, the SA/DEIS concludes that distributed solar technology would meet the CEC's Project Objectives. The objectives that are controlling are the objectives of the applicant. PSI could not deliver 500 MW of competitive renewable energy to a utility through a distributed system which would require coordination with thousands of owners and an extremely complex system of transmission of electricity

AIR QUALITY

Page C.1-1, Second Paragraph

The SA/DEIS uses a threshold of significance for fugitive emissions that is derived from the significance thresholds for a Prevention of Significant Deterioration (PSD) Permit. However, as Staff points out these thresholds clearly do not apply to the PSPP and therefore should not be used as thresholds of significance under either CEQA or NEPA. Specifically use of the PSD threshold for CEQA and NEPA purposes in this manner is not appropriate for a number of reasons:

- Fugitive emissions are not counted towards PSD applicability unless the source is one of the 28 listed source categories. Construction is not one of the listed categories. Thus, while PSD could apply to Project construction sources, the emissions evaluated for PSD applicability would not include fugitive dust.
- Based on the Project construction plan as proposed in the August 2009 AFC and subsequent CEC filings by the Applicant, Project construction emissions (without fugitive dust) do not exceed PSD thresholds.
- PSD applicability is evaluated based on controlled emissions and the PSPP includes emission controls. Thus, it is inappropriate for Staff to speculate on the outcome of a PSD evaluation of a (hypothetical) unmitigated Project.

In Section C.1.3.4 Staff states that PSD thresholds would only apply to operations (we agree with this statement). Therefore, it is inconsistent to imply that PSD thresholds should be used as significance criteria for construction emissions under NEPA.

Page C.1-16, Project Emissions

The second paragraph of this section should be revised as shown below due to the changes in the construction plan as outlined in the Project refinements described in Attachment 2.

> Combustion emissions would result from the off-road construction equipment, including diesel construction equipment used for site grading, excavation, and construction of onsite structures; water and soil binder spray trucks used to control construction dust emissions; ***and off-road construction equipment used at the onsite batch plant***. Fuel combustion emissions also would result from exhaust from on-road vehicles, including heavy duty diesel trucks used to deliver materials, other on-road diesel trucks used during construction, and worker personal vehicles and pickup trucks used to transport workers to and from and around the construction site. Fugitive dust emissions would result from site grading/excavation activities; construction of power plant facilities, roads, and switchyard; ***the use of an onsite batch plant***; the installation of the new transmission line, the new gas pipeline, and the new onsite water pipelines; and vehicle travel on paved and unpaved roads. ***There will also be emissions associated with the use of the onsite fuel depot.***

Page C.1-17, Air Quality Table 6 and Air Quality Table 7

The emissions data summarized in these tables need to be modified due to the changes in the construction plan as outlined in the Project refinements described in Attachment 2.

Air Quality Table 6
PSPP Construction – Maximum Annual Emissions (lbs/day)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Construction Emissions						
Main Power Block (entire project)						
Off-road Equipment Exhaust	1,412.15	165.52	670.28	60.83	55.96	3.09
On-road Equipment Exhaust	36.74	2.69	17.22	1.21	1.11	0.05
Asphaltic Paving	--	0.00	--	--	--	--
Fugitive Dust from Paved Roads	--	--	--	5.24	0.89	--
Fugitive Dust from Unpaved Roads	--	--	--	585.25	124.09	--
Fugitive Dust from Construction Activities	--	--	--	691.68	143.87	--
Batch Plant Emissions	***17.86***	***1.30***	***9.84***	***17.48***	***17.48***	***0.03***
Fuel Depot		***6.17***				
Subtotal - Power Block Onsite Emissions	***1,466.75*** ~~1,448.89~~	***175.68*** ~~168.21~~	***697.34*** ~~687.50~~	***1361.70*** ~~1,344.22~~	***343.40*** ~~325.92~~	***3.17*** ~~3.13~~
Power Block On-Road Equipment (offsite)	330.06	78.79	852.08	149.72	36.18	1.37
Access Road Construction (offsite)	73.42	6.76	35.86	25.95	7.57	0.14
Transmissions Line Constriction (offsite)	19.30	2.91	30.21	12.01	3.21	0.06

Air Quality Table 7
PSPP Construction – Maximum Annual Emissions (ton/yr)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Construction Emissions						
Main Power Block (entire project)						
Off-road Equipment Exhaust	164.32	19.53	82.28	7.53	7.01	0.36
On-road Equipment Exhaust	4.90	0.31	2.05	0.16	0.15	0.01
Asphaltic Paving		0.03				
Fugitive Dust from Paved Roads	--	--	--	0.64	0.11	--
Fugitive Dust from Unpaved Roads	--	--	--	71.14	15.17	--
Fugitive Dust from Construction Activities	--	--	--	73.33	15.08	--
Batch Plant Emissions	***2.14***	***0.16***	***1.18***	***2.30***	***2.30***	***0.00***
Fuel Depot		***1.13***				
Subtotal - Power Block Onsite Emissions	***171.37*** ~~169.23~~	***21.16*** ~~19.87~~	***85.51*** ~~84.33~~	***155.10*** ~~152.80~~	***39.83*** ~~37.53~~	**0.37**
Power Block On-Road Equipment (offsite)	36.82	9.00	95.73	16.9	4.19	0.16
Access Road Construction (offsite)	0.81	0.07	0.39	0.29	0.08	0.00
Transmissions Line Constriction (offsite)	0.90	0.17	1.84	0.60	0.23	0.16

Page C.1-18, Project Operations, Stationary Source Emissions

The bullet list of equipment found in this section should be revised as shown below due to the changes in the operation plan as outlined in the Project refinements described in Attachment 2.

- One two-cell cooling tower; Circulation rate of 6,034 gallons per minute, 2000 milligrams per liter Total Dissolved Solids (TDS), drift eliminator with drift losses of less than or equal to 0.0005%, max run time of ***24*** ~~16~~ hrs/day and ***8,760*** ~~3,700~~ hrs/year.

- One HTF ~~expansion~~/ullage system; VOC control efficiency of 98% from the carbon adsorption system, limited to 0.75 lb/hr or 1.5 lb/day, operation is estimated at 2 hours per day and 400 hrs/year.

- ***One Fuel Depot consisting of one 500 gallon gasoline tank and two 10,000 gallon diesel tanks.***

Page C.1-18, Mobile Emission Sources

As provided in the AFC, the SA/DEIS describes a mirror washing schedule of 18 events per year. As described in the Data Responses, it is now expected that there will be up to 78 wash events per year. Modified emissions calculations are included in Attachment 2. The text of bullet point 2 of this section should be revised as shown below.

- Mobile emissions sources required for operation and maintenance were estimated by the applicant based on vehicle miles traveled (VMT) and operating hours. For example, a mirror washing cycle or event can be completed in ***three*** ~~10~~ days, which would allow for approximately ***78*** ~~36~~ washing events per year, but it was assumed that washing would only be required once ***per week*** ~~a month~~ during October through March and twice a ***week*** ~~month~~ during April through September, for a total of ***78*** ~~18~~ washing events per year (AECOM 2010a, DR-AIR-15). Each mobile source has different basis for emissions estimates as provided in the applicant's revised emission estimate spreadsheets (AECOM 2010a).

Page C.1-19, Air Quality Table 8 and Air Quality Table 9

The emissions data summarized in these tables need to be modified due to the changes in the operating equipment and operating hours as outlined in the Project refinements described in Attachment 2.

Air Quality Table 8
PSPP Operations - Maximum Daily Emissions (lbs/day)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Operation Emissions						
Auxiliary Boilers	10.30	4.64	64.84	9.28	9.28	10.48
Emergency Fire Pump Engines	3.77	0.20	3.44	0.20	0.20	0.01
Emergency Generators	58.70	3.09	33.47	1.93	1.93	0.06
Auxiliary Cooling Towers	---	---	---	***1.45*** ~~0.97~~	***1.45*** ~~0.97~~	---
HTF Vents	---	3.00	---	---	--	---
HTF Piping Fugitives	---	8.76	---	---	--	---
Onsite Maintenance Vehicles	***0.86*** ~~1.13~~	***0.09*** ~~0.12~~	***0.56*** ~~0.61~~	***310.06*** ~~305.97~~	***65.76*** ~~64.89~~	0.01
Fuel Depot	***---***	***0.45***	***---***	***---***	***--***	***---***
Subtotal of Onsite Emissions	***73.63*** ~~**73.9**~~	***20.22*** ~~**19.81**~~	***73.20*** ~~**72.36**~~	***322.92*** ~~**318.35**~~	***78.61*** ~~**77.27**~~	10.56
Offsite Emissions						
Delivery Vehicles	39.16	2.89	11.02	2.95	2.11	0.04
Employee Vehicles	9.06	9.49	90.28	18.70	8.75	0.14
Subtotal of Offsite Emissions	**48.22**	**12.38**	**101.3**	**21.65**	**10.86**	**0.18**

Total Maximum Daily Emissions	***121.85*** ~~**122.12**~~	***32.60*** ~~**32.19**~~	***174.50*** ~~**173.66**~~	***344.57*** ~~**340**~~	***89.47*** ~~**88.13**~~	**10.74**

Air Quality Table 9
PSPP Operations - Maximum Annual Emissions (tons/yr)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Operation Emissions						
Auxiliary Boilers	***0.67*** ~~0.64~~	***0.30*** ~~0.29~~	***2.27*** ~~2.18~~	***0.60*** ~~0.58~~	***0.60*** ~~0.58~~	***0.68*** ~~0.28~~
Emergency Fire Pump Engines	0.09	0.00	0.09	0.00	0.00	0.00
Emergency Generators	1.47	0.08	0.84	0.05	0.05	0.00
Auxiliary Cooling Towers	---	---	---	***0.26*** ~~0.11~~	***0.26*** ~~0.11~~	---
HTF Vents	---	0.30	---	---	--	---
HTF Piping Fugitives	---	1.60	---	---	--	---
Onsite Maintenance Vehicles	***0.10*** ~~0.14~~	***0.01*** ~~0.01~~	***0.07*** ~~0.08~~	***831.31*** ~~42.77~~	***6.64*** ~~4.28~~	***0.00*** ~~0.05~~
Fuel Depot		0.08				
Subtotal of Onsite Emissions	***2.34*** ~~**2.27**~~	***2.29*** ~~**2.28**~~	***3.26*** ~~**3.14**~~	***32.24*** ~~**19.06**~~	***7.56*** ~~**4.63**~~	***0.69*** ~~**0.29**~~
Offsite Emissions						
Delivery Vehicles	1.46	0.11	0.41	0.11	0.08	0.00
Employee Vehicles	1.65	1.73	16.48	3.41	1.60	0.02
Subtotal of Offsite Emissions	***8.3*** ~~**3.11**~~	***0.61*** ~~**1.84**~~	***2.32*** ~~**16.89**~~	***0.62*** ~~**3.52**~~	***0.44*** ~~**1.68**~~	***0.01*** ~~**0.022**~~
Total Maximum Daily Emissions	***7.06*** ~~**5.38**~~	***5.69*** ~~**4.12**~~	***15.53*** ~~**20.03**~~	***76.44*** ~~**22.58**~~	***10.03*** ~~**6.31**~~	***0.05*** ~~**0.312**~~

Page C.1-22 Air Quality Table 10

The summary of modeling results shown in Table 10 should be revised as shown below to reflect the engineering refinements discussed in Attachment 2. Because all of the modeled impacts have changed, for clarity, a completely revised table is shown; the table as it appears in the SA/DEIS should be replaced in its entirety.

Air Quality Table 10
Maximum Project Construction Impacts

Pollutant	Averaging Period	Concentrations (μg/m^3)				
		AERMOD Result	Ambient Background[2]	Total [3,4]	CAAQS	NAAQS
NO_2 [1]	1-hr	397.03	N/A	397.0	339	--
	Annual	4.90	19.0	23.9	57	100
CO	1-hr	574.84	2,300	2,874.8	23,000	40,000
	8-hr	281.53	944	1,225.5	10,000	10,000
PM10	24-hr	51.88	83.0	134.9	50	150
	Annual	3.55	30.5	34.1	20	--
PM2.5	24-hr	14.49	20.5	35.0	--	35
	Annual	1.32	8.7	10.0	12	15
SO_2	1-hr	1.71	47.2	48.9	665	--
	3-hr	1.33	31.2	32.5	--	1,300

Pollutant	Averaging Period	Concentrations ($\mu g/m^3$)				
		AERMOD Result	Ambient Background[2]	Total [3,4]	CAAQS	NAAQS
	24-hr	0.42	13.1	13.5	105	365
	Annual	0.0108	4.0	4.0	--	80

[1] Modeled NO_2 concentrations as determined with the OLM. Time-matched ambient background is included in the AERMOD Result for 1-hour NO_2.

[2] Data from the Palm Springs monitoring station is used for all pollutants with the exception of SO_2, which are from the Victorville monitoring station.

[3] Modeled concentration plus ambient background.

[4] Result reflects 10-hour days from March through September and 8-hour days from October through February for all sources, with some sources remaining active during night hours as described in Section 2.3

The modeling results for the Project with refinements are slightly different than the modeling results for the Project as it is presented in the AFC; however, the conclusions reached in the SA/DEIS remain valid and appropriate.

Page C.1-24 Air Quality Table 11

The summary of modeling results shown in Table 11 should be revised as shown below to reflect the engineering refinements discussed in Attachment 2. Because all of the modeled impacts have changed, for clarity, a completely revised table is shown; the table as it appears in the SA/DEIS should be replaced in its entirety.

Air Quality Table 11
Project Operation Emission Impacts

Pollutant	Averaging Period	Concentrations ($\mu g/m^3$)				
		AERMOD Result	Ambient Background[2]	Total [3]	CAAQS	NAAQS
NO_2 [1]	1-hr CAAQS	139.72	175.2	314.9	339	--
	1-hr NAAQS	171.55	N/A	171.55	--	188
	Annual	0.03	19.0	19.0	57	100
CO	1-hr	183.53	2,300	2,483.5	23,000	40,000
	8-hr	73.89	944	1,017.9	10,000	10,000
PM10	24-hr	14.11	83.0	97.1	50	150
	Annual	1.84	30.5	32.3	20	--
PM2.5	24-hr	2.45	20.5	23.0	--	35
	Annual	0.39	8.7	9.1	12	15
SO_2	1-hr	3.11	47.2	50.3	665	--
	3-hr	2.13	31.2	33.3	--	1,300
	24-hr	0.23	13.1	13.3	105	365
	Annual	0.0084	4.0	4.0	--	80

[1] Modeled NO_2 concentrations as determined with the OLM. See section 3.5 for discussion of modeling for 1-hour NO_2 NAAQS.

[2] Palm Springs monitoring station data is used for all pollutants with the exception of SO_2, which are from the Victorville monitoring station.

[3] Modeled concentration plus ambient background.

The modeling results for the Project with refinements are slightly different than the modeling results for the Project as it is presented in the AFC; however, the conclusions reached in the SA/DEIS remain valid and appropriate.

Page C.1-24, Third Paragraph Operation Modeling Analysis

In this section, Staff concludes: "however, in light of the existing PM10 and ozone non-attainment status for the project site area, staff considers the operation NOx, VOC, and PM emissions to be potentially CEQA significant and recommends that the off-road equipment NOx and VOC emissions be mitigated pursuant to CEQA." PSI disagrees that any new emissions of non-attainment pollutants/precursors are automatically "significant" under CEQA.

For example, with respect to PM10 emissions, PSI provided an analysis regarding the Project's effect on the background PM10 levels to determine if the project is likely to cause or contribute to a violation of an ambient air quality standard. The current status of this part of the Mojave Desert Air Basin as non-attainment for PM10 (for CAAQS) is because of natural conditions, i.e., high winds rather than local industrial sources. Although the area is currently designated non-attainment for PM10, PSI demonstrated that the PSPP will reduce existing wind blown fugitive dust emissions that are the source of current air quality problems. PSI's modeling of the PSPP's PM10 emissions shows that the PSPP does not cause an exceedance of the applicable ambient air quality standards. It is only when added to the background concentrations, which currently exceed the standards, that the result is over the standards. Therefore, the fact that the background concentrations will be lower once the PSPP is operating is relevant. A thorough evaluation was provided to Staff in January 2010 in response to DR-AIR-2 that quantified the substantial reduction in the baseline emissions that would occur with project implementation, Staff neglected to consider the reduction in PM10 from wind erosion in its analysis.

For these reasons, the PSI does not agree with Staff's conclusion that the PSPP will have significant air quality impacts simply because it emits non-attainment pollutants.

Page C.1-26, Cooling Tower Emissions

The emissions data listed in this section needs to be modified due to the changes in the cooling tower operating hours as outlined in the Project refinements described in Attachment 2. Please revise the emission limits as shown below:

- PM10/PM2.5: 0.03 lb/hour, ***0.64*** ~~0.48~~ lb/day, ***0.12*** ~~0.06~~ ton/year

Page C.1-26, Third Bullet, Operation Mitigation

In this section, Staff suggests that PSI's proposed electric vehicles as mitigation. PSI did not propose such mitigation, and because other applicants have found the use of electric vehicles in the existing solar fields to be not feasible, such mitigation is not warranted. Further, the Conditions of Certification do not list electric vehicles as mitigation hence PSI requests that references to this mitigation be deleted from this section.

Page C.1-27, Third Paragraph, Operation Mitigation

Staff proposes a leak detection and repair (LDAR) program for the HTF piping and system. This requirement goes well beyond current, accepted industry design practice and therefore LDAR is unnecessary for the PSPP. PSI believes daily inspections and recording the amount of HTF replaced are more than sufficient for this system. An LDAR program is a relatively costly program that is without demonstrated control effectiveness in a solar field application. HTF is an expensive fluid and thus it is in the PSI's best interest to minimize leaks without a requirement for LDAR monitoring and reporting. Implementation of an LDAR program would cause emissions from additional vehicle use for inspections and use of a manlift to reach many of the components. Further, the SCAQMD has no rule that would require LDAR for this type of project and SCAQMD has not requested LDAR for the PSPP.

Based on this reasoning, we have proposed changes to Condition of Certification **AQ-SC9** shown later in this letter to remove the LDAR requirements related to monitoring leaks.

Page C.1-28, PM2.5 Impacts

In this section, Staff discusses NOx and SOx contribution to PM2.5 formation. The discussion includes information regarding the potential affect of ammonia available in the ambient environment to participate in conversion of the precursors to PM2.5. However, since the discussion states that no actual data are available to make a determination in this region, this aspect of the discussion is speculative, inconclusive and unnecessary and hence should be revised or deleted.

Page C.1-44, Section C.1.11, Noteworthy Public Benefits

This section should be expanded to acknowledge that the PSPP would provide regional air quality benefits by displacing other conventional fossil fueled generation including the least efficient and highest polluting facilities. The Project is an instrumental part of California's commitment to combating climate change and reducing dependence on fossil fuels.

Renewable energy facilities, such as PSPP, are needed to meet California's mandated renewable energy goals. While the local area air quality public benefit from reducing regional PM10 background resulting from the proposed project is difficult to quantify, it would indirectly reduce criteria pollutant emissions within the Southwestern U.S. by reducing fossil fuel–fired generation. These goals are discussed further below:

- **Greenhouse Gas Emissions Reduction –** The electricity generated by each nominal 250 MW unit of the Blythe Solar Power Project will offset the emission of two hundred thousand tons of greenhouse gasses in the electricity sector annually, which is equivalent to removing 35,000 cars from the road each year.[1] The AB 32 Scoping Plan estimated that an electricity portfolio that is comprised one full third by renewable energy resources in 2020 would reduce statewide greenhouse gas emission by 21.3 million metric tons.

[1] This estimate is based off of WECC CAMX egrid emissions for the entire grid. Compared to a baseload natural gas plant, the offset is higher – about one-quarter megaton and 40,000 cars. Compared to a gas fired peaker, the offset is even higher – about 300,000 tons and more than 50,000 cars off the road each year.

- **33% RPS by 2020 –** The Renewable Energy Transmission Initiative estimates that the renewable net short to achieve 33% renewable by 2020 is approximately 60,000 gigawatt-hours in 2020. The electricity produced by each nominal 250 MW plant will contribute 1% to this overall total goal in 2020.
- **Resource Adequacy Contribution –** Utilities are currently required to procure 115% of their peak load under resource adequacy rules. It is further expected that 100% of the project will count towards Southern California Edison's resource adequacy requirements.
- **Offset of criteria pollutants –** The electricity generated by each PSPP nominal 250 MW unit would offset the emission of 170 tons of oxides of nitrogen and 146 tons of sulfur dioxide annually if produced by a conventional, fossil-fueled power plant.

Pages C.1-45 and 46, Condition of Certification AQ-SC3

Condition of Certification AQ-SC3 requires that the Air Quality Construction Mitigation Plan (AQCMP) prevent all fugitive plumes from leaving the Project. This requirement presumes that a dust plume leaving the site is a significant impact. This is not the correct threshold of significance as the mere existence of a plume is in and of itself is not an impact. PSI requests the following modification to set a reasonable standard that can be achieved during construction activities in the desert environment.

In addition, PSI proposes a modification to Item b. of the Air Quality Construction Mitigation Plan to clarify that it can use a soil stabilizer that can also prevent weed growth during construction as long as the soil stabilizer would not impact off-site vegetation within areas that will not be disturbed during construction.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the BLM's Authorized Officer and CPM in each Monthly Compliance Report that demonstrates compliance with the Air Quality Construction Mitigation Plan (AQCMP) mitigation measures for the purposes of minimizing fugitive dust emission creation from construction activities and preventing all fugitive dust plumes from ~~leaving the project~~ ***impacting offsite sensitive receptors or interfering with traffic***. Any deviation from the AQCMP mitigation measures shall require prior BLM Authorized Officer and CPM notification and approval.

b. All unpaved construction roads and unpaved operational site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting agent that can be determined to be as efficient as or more efficient for fugitive dust control than ARB approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation ***to undisturbed offsite areas***. All other disturbed areas in the project and linear construction sites shall be watered as frequently as necessary during grading; and after active construction activities shall be stabilized with a

nontoxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods, in order to comply with the dust mitigation objectives of Condition of Certification **AQ-SC4**. The frequency of watering can be reduced or eliminated during periods of precipitation.

Page C.1-48, Condition of Certification AQ-SC5

Condition of Certification AQ-SC5 provides for requirements to reduce emissions from diesel fired construction equipment, some of which are very onerous for a construction project of this scope. PSI requests the following modifications to the amount of idle time permitted (Item b.2) and the number of days that construction equipment can be on site before the equipment is required to meet Tier 3 standards (Item e).

b. 2. The construction equipment is intended to be on site for ~~5~~***10*** days or less.

e. All diesel heavy construction equipment shall not idle for more than ~~five~~***ten*** minutes. Vehicles that need to idle as part of their normal operation (such as concrete trucks) are exempted from this requirement.

Page C.1-49, Condition of Certification AQ-SC7

In addition, PSI proposes a modification to the condition specifying the use of non-toxic soil stabilizers to clarify that it can use a soil stabilizer that can also prevent weed growth during operation as long as the soil stabilizer would not impact off-site vegetation within undisturbed areas.

AQ-SC7 The project owner shall provide a site Operations Dust Control Plan, including all applicable fugitive dust control measures identified in the verification of **AQSC3** that would be applicable to minimizing fugitive dust emission creation from operation and maintenance activities and preventing all fugitive dust plumes from ~~leaving the project site~~ ***impacting offsite sensitive receptors or interfering with traffic***; that:

The site operations fugitive dust control plan shall include the use of durable non-toxic soil stabilizers on all regularly used unpaved roads and disturbed offroad areas, or alternative methods for stabilizing disturbed off-road areas, within the project boundaries, and shall include the inspection and maintenance procedures that will be undertaken to ensure that the unpaved roads remain stabilized. The soil stabilizer used shall be a non-toxic soil stabilizer or soil weighting agent that can be determined to be as efficient as or more efficient for fugitive dust control than ARB approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation ***to undisturbed offsite areas***.

Pages C.1-50 and C.1-51, Condition of Certification AQ-SC9

As discussed above for Page C.1-27, PSI disagrees with the requirement for an LDAR program as outline in items B, C, D, E and G of AQ-SC9. LDAR programs are typically reserved for oil refineries and chemical plants characterized by high pressure, high temperature streams of highly volatile organic liquids and gases. These conditions do not exist in this solar thermal plant; the HTF used in this plant has a low volatility, is used in low pressure piping, and although the operating temperature is 750°F, the temperature is relatively low when compared to the material's boiling point. PSI expects that performing visual inspection of the solar field on a regular basis and recordation of the amount of HTF replaced in the system will be an adequate method to spot HTF leaks. If leaking, HTF will be visible as a mist or leaks dripping on the ground, and hence an instrumented monitor to detect invisible gases such as one would use in a refinery is not necessary. The LDAR program required by this condition is not cost effective and has not been demonstrated to reduce emissions in solar field applications. Therefore, PSI requests deletion of items B, C, D, E, and G in AQ-SC9.

PSI also disagrees with the AQ-SC9, item H, requirement for pressure sensing equipment in the HTF loops to detect major ruptures. This requirement goes well beyond current, accepted industry design practice. Leak detection at solar thermal plants is currently accomplished by employing visual inspection throughout the solar field on a daily basis, which would detect small leaks occurring at ball joints or other connections. PSI does not believe there is an adequate leak detection system currently available that employs pressure sensing devices on such a large volume system. The pressure decay would likely be slow after a failure so the presumption of quick action of any isolation valve is probably incorrect. Depending on where the leak is located, the header pressure will continue to supply pressure to the loops so the pressure sending system may not be able to detect it. Regardless, operators must inspect everything daily, and a mechanical integrity program will be in place at the PSPP that is aimed at preventing such leaks.

PSI proposes incorporating the proven concept of "Leak before Break" which is accepted by the U.S. Nuclear Regulatory Commission and the German reactor safety commission. It has been shown that unstable crack growth in qualified piping would not occur or cause catastrophic leaks. This approach reasonably concludes that catastrophic breaks and leaks are of very low probability for the following reasons:

1. The HTF piping is of stainless and carbon steel construction with high integrity and strength characteristics that are not susceptible to unstable crack propagation or catastrophic failure. Cracks do not propagate rapidly, if at all.
2. HTF piping is certified to ensure proper material properties, predictable characteristics, and manufacturing integrity.
3. PSI will design to B31.3 criteria, including adherence to seismic requirements.
4. HTF piping will be all welded construction using qualified welding procedures, qualified welders and materials.
5. The HTF system will be hydrostatically tested and inspected prior to operation.
6. The HTF system is not susceptible to corrosion, high fatigue, water hammer, or creep.
7. Temperatures and pressures in the HTF system are moderate (e.g., not in the creep range).
8. PSI is committed by AQ-SC9 to inspections of relief valves; control devices, etc. once every operating period and will also inspect the HTF piping in a similar manner and frequency.

9. HTF is not hypergolic, pyrophoric, nor listed as a hazardous material, and the auto ignition temperature is 612 degrees C, hence, small leaks will not affect public safety. We are committed by AQ-SC9 to an inspection program and logging of HTF replacement quantities.

In the current system design, an HTF leak would occur slowly, and would be quickly detected by the facility's daily inspection program. Such leaks would be repaired immediately before any large leak or failure can occur. Therefore, we propose the following changes to Condition AQ-SC-9:

AQ-SC9 The project owner shall establish an inspection and maintenance program to determine, repair, and log leaks in the HTF piping network and expansion tanks. Inspection and maintenance program and documentation shall be available to the CPM ***and AO*** upon request.

Verification: The project owner shall establish an inspection and maintenance ***plan and program*** that at a minimum includes the following:

A. All pumps, compressors and pressure relief devices (pressure relief valves or rupture disks) shall be electronically, audio, or visually inspected once every operating period.

~~B. All accessible valves, fittings, pressure relief devices (PRDs), hatches, pumps, compressors, etc. shall be inspected quarterly using a leak detection device such as a Foxboro OVA 108 calibrated for methane.~~

~~C. VOC leaks greater than 100-ppmv shall be tagged (with date and concentration) and repaired within seven calendar days of detection.~~

~~D. VOC leaks greater than 10,000-ppmv shall be tagged and repaired within 24-hours of detection.~~

~~E. The project owner shall maintain a log of all VOC leaks exceeding 10,000-ppmv, including location, component type, and repair made.~~

~~F~~***B.*** The project owner shall maintain record of the amount of HTF replaced on a monthly basis for a period of five years.

~~F. Any detected leak exceeding 100-ppmv and not repaired in 7-days and 10,000-ppmv not repaired within 24-hours shall constitute a violation of the District's Authority to Construct (ATC)/Permit to Operate (PTO).~~

~~G. Pressure sensing equipment shall be installed that will be capable of sensing a major rupture or spill within the HTF network.~~

~~H. Pressure sensing equipment shall be installed that will be capable of sensing a major rupture or spill within the HTF network.~~

The inspection and maintenance plan shall be submitted to the CPM for review and approval at least 30 days before taking delivery of the HTF. The project owner shall make the site available for inspection of HTF

piping Inspection and Maintenance Program records and HTF system equipment by representatives of the District, ARB, ~~and~~ the ~~Energy Commission~~ ***CPM and the AO.***

Section C.1.12.2 District Conditions

This section contains the District-required conditions. Generally, these conditions mirror the conditions set forth in the Preliminary Determination of Compliance (PDOC). PVI submitted comments to the SCAQMD in March 2010 and we request that those comments be incorporated in the Final DOC and incorporated by the Staff; thus we have not repeated those comments herein (See Attachment 3).

Page C.1-58, Section C.1.13

In the conclusions presented in this section, Staff restates as bullet point #1 that construction PM10 emissions in excess of PSD emissions thresholds could be considered a significant impact. However, this is inconsistent with the listed NEPA significance criteria that states PSD thresholds only apply to operations emissions, and hence this bullet point should be deleted.

Bullet point #6 indicates that Staff found it necessary to propose an LDAR program (AQ-SC9) in order to ensure that emissions from HTF leaks were adequately controlled. As noted above, PSI disagrees with the need for this program, and hence this bullet point should be deleted.

BIOLOGICAL RESOURCES

As noted above, PSI's comments to the Biological Resources will be provided later this week, under separate cover.

CULTURAL RESOURCES

Page C. 3-71, Section 3.5.3

Staff has determined site SMP-H-1032 to be an eligible resource, citing it as Hank Brown's original road blazed in 1856 to establish the base meridian. Staff notes the location of Brown's/Gruendike's well "documented in numerous maps and documents over the years" as a basis for this assessment. PSI requests further information about what maps and documents were referenced. Maps and documents inspected for the survey did not identify the road as Brown's Road, or Airport Beacon Road (as noted in a footnote).

Page C. 3-82 to C. 3-83, Section 3.5.3

On Page C. 3-82, Section 3.5.3, Staff identifies the PSPP as part of the Prehistoric Trails Network/Historic District. Staff cites evidence of this as the location of the Halchidhoma Trail in the broader Chuckwalla Valley. Furthermore, prehistoric resources within and outside the PSPP are assumed to be contributors to the District. Staff notes, "loci included springs (and the dry lakes when they were not dry), food and materials resource areas, and ceremonial sites (geoglyphs, rock alignments, petroglyphs)," as destinations within the District. PSI requests further clarification on how these districts are defined and the resource attributes Staff anticipates will be included, as the age of assumed-eligible contributing resources is not currently known.

Page C. 3-83, Section 3.5.3

In the previous section (3.4.3), staff determined that two historic roads are eligible for the CRHR and NRHP and, further, assumed that 36 resources (6 prehistoric, 30 historic) are eligible for the CRHR and NRHP.

Staff identifies also resources in the PSPP as "having the potential to contribute to the broader DTC/C-AMA Cultural Landscape/Historic District," while noting that the boundaries for the district have not been defined. PSI requests further clarification on how these districts are defined and the resource attributes Staff anticipates will be included.

In Section C.3.5.4, Staff identifies two cultural landscapes as assumed-eligible historic districts. Staff suggests that PSI interpret and mitigate any contributors to the two cultural landscapes/historic districts described in Section C.3.5.4, including additional research and/or preparation of nominations for inclusion to the NRHP and the CRHR. However, Staff does not identify the boundaries of the landscapes, nor does Staff specify the contributors to those landscapes. PSI requests further clarification on how these districts are defined and the resource attributes Staff anticipates will be included.

Page C.3-86, Section 3.5.4

Staff referenced the BSPP. PSI assumes that the reference was intended to be to PSPP.

The Applicant requests that CEC staff coordinate their Conditions of Certification with the BLM. For example,

1) make the Cultural Resources Monitoring and Mitigation Plan (CRMMP) a document that is tiered to the Historic Properties Treatment Plan (HPTP);
2) phase mitigation requirements so construction can start in portions of the project prior to all mitigation measures have been completed;
3) work with BLM staff on mitigation requirements - there has been discussion of incorporating mitigation measures other than data recovery; and
4) work with BLM to have one Worker Training Program, one set of cultural resources monitoring requirements, and one set of discovery protocols for each project.

HAZARDOUS MATERIALS

Page C.4-21, Condition of Certification HAZ-1

A revised list of Hazardous Materials to be used at the PSPP is in preparation and will be provided to the CEC when it is completed.

Page C.4-22, Condition of Certification HAZ-4

Staff assessed the properties of HTF and reviewed the record of its use at SEGS Stations 8 and 9 at Harper Lake, California. As a result of this review, Staff has recommended the placement of additional isolation valves in the HTF pipe loops throughout the solar array, which is postulated to add to the safety and operational integrity of the system by allowing a loop to be closed if a leak develops in a ball joint, flex-hose, or pipe. To this end, Staff proposes Condition HAZ-4, which requires the project owner to install manually and remotely operated isolation valves in the HTF pipe loops such that the volume of a total loss of HTF from the isolated loop will not exceed 600 gallons, and Condition of AQ-SC9,

item H, which requires that pressure sensing equipment be installed that is capable of sensing a major rupture or spill within the HTF network.

PSI has several objections to this Condition. First, HAZ-4 would result in a substantial parasitic electrical burden on the PSPP and would require a significant design change from the current industry standard, which specifies the use of manually-controlled valves on the loops at the headers only. The proposed HTF loops contain about 1,250 gallons of HTF, which is the current standard. The 600-gallon volume of HTF stated in the Condition represents the volume in a loop of various older solar collector designs from the late eighties and early nineties. Since then, the modern more efficient solar collector HTF loops contain about twice as much fluid. While we agree that isolation capacity should be provided for each loop; the HTF loops should reflect the modern design standard of 1,250 gallons, rather than the older, 600-gallon capacity as proposed by the CEC.

Further, the use of remotely operated isolation valves in HTF headers does not represent a current industry design standard. Remotely operated isolation valves are extremely expensive and are not demonstrably effective in isolating a pipe break, and would be difficult to implement on a small bore line coming off a pumped header. Current operating solar thermal plants (e.g., Harper Lake SEGS) do not have this requirement. Their maintenance program has been successful at preventing leaks since they perform daily inspections of the system. The Applicant believes that these remotely operated valves do not add substantially to safety or control.

HAZ-4 The project owner shall place an adequate number of isolation valves in the Heat Transfer Fluid (HTF) pipe loops so as to be able to isolate a solar panel loop in the event of a leak of fluid such that the volume of a total loss of HTF from that isolated loop will not exceed ~~600~~ ***1,250*** gallons. These valves shall be actuated manually ~~and remotely~~. The engineering design drawings showing the number, location, and type of isolation valves shall be provided to the CPM for review and approval prior to the commencement of the solar array construction.

Pages C.4-23 - 24, Condition of Certification HAZ-6

PSI assumes that the “hazardous materials transport vendors” referred to in item 8 applies to the propane vendors. Therefore, we request that this requirement be made explicit. Furthermore, PSI believes that the requirements for the entire solar field are more appropriate to a facility that stores chemicals in quantities of concern for Homeland Security. Unlike a facility with large quantities of explosive materials, like ammonia, the PSPP will not store chemicals that would require the same level of security. For this reason, PSI believes it more appropriate to modify the condition as follows:

7. a statement(s) (refer to sample, **Attachment C**), signed by the owners or authorized representative of ~~hazardous materials~~ ***propane*** transport vendors, certifying that they have prepared and implemented security plans in compliance with 49 CFR 172.802, and that they have conducted employee background investigations in accordance with 49 CFR Part 1572, subparts A and B;

9. additional measures to ensure adequate perimeter security consisting of either:

   A. security guard(s) present 24 hours per day, 7 days per week; **or**

   B. power plant personnel on site 24 hours per day, 7 days per week,

   and

   the CCTV able to view 100% of the ~~entire solar array fenceline~~ perimeter ***entrance gates and the power block areas***

   or breach detectors **or** on-site motion detectors along the ~~entire solar array~~ ***power block*** fenceline.

LAND USE, RECREATION AND WILDERNESS

Page C.6-1 Summary of Conclusions , Paragraph 3

PS1 disagrees with the staff's conclusion that the use for electric generation of a 40 acre private parcel designated OS-RUR, W-2 within the project site is an inconsistent use under the County's General Plan and Eastern Riverside County Land Use Plan. Notably dismissed from staff's conclusion is that the W-2 zone is consistent with power generation under the General Plan and that communications with the Riverside County Planning Department gives every indication that the actual "generally inconsistent" designation on the Land Use / Zoning Matrix is not an absolute preclusion but necessarily envisions exceptions; in fact, the Planning Department has already indicated that utility scale solar power plants OS-RUR, W-2 are consistent with the General Plan and the Vision Statements and Goals set forth in the General Plan relative to the Open Space policies and the development of renewable resources in Riverside County.

Page C.6-6, Riverside County General Plan

Similar to the above, the staff assertion of inconsistency of the 40 acre parcel as related to the General Plan is an incorrect assumption of the application of what the local governing body actually affords to solar facilities in the Open Space-Rural land use element**.**

Page C.6-28, Section C.6.8.5, Conclusion

The SA/DEIS Land Use section presents a set of specific criteria for assessing Project land use impacts on Wilderness and Recreation". Staff concludes that the Project would have a significant and unavoidable CEQA impact under Wilderness and Recreation Condition B. However, Condition B is entirely about Wilderness Study Areas which do not apply to the PSPP. PSI believes that the reference was intended to be to Wilderness and Recreation C, which relates to impacts on "scenic, biological, cultural, geological, or other important resource value of federal, state, local, or private recreational facilities or wilderness areas."

Assuming that Staff's intent was to find that the Project has "significant and unavoidable CEQA impact in terms of Wilderness and Recreation, PSI disagrees with that conclusion. However, because the finding encompasses a variety of topical areas ("scenic, biological, cultural or other important resource value"), PSI feels that potential Project impacts in this range of topics are best addressed in the individual discussions of those topical areas in this letter, not in the Land Use section. For that reason, with respect to Project impacts, no further comment is provided beyond PSI's disagreement with Staff's characterization of Project impacts on Wilderness and Recreation.

PSI also disagrees with the SA/DEIS statement that the "incremental effects of the proposed project, when combined with the effects of the other projects within the geographical scope of the cumulative analysis would substantially reduce a scenic and biological important resource of value, and may substantially reduce an important cultural resource of value." The Project expects to fully mitigate its impacts on biological resources and cultural resources through the finally adopted versions of measures identified in the biological resources section of the SA/DEIS and in the cultural resources Programmatic Agreement that currently is being developed. If Project impacts are mitigated, how can it be considered to contribute (other than minimally) to a substantial cumulative impact in these areas?

With respect to visual resources, PSI acknowledges that numerous renewable energy projects cumulatively would change the visual character of portions of the California desert. However, PSI does not agree that this would necessarily "substantially reduce" a valuable scenic resource. As noted in the AFC, the presence of renewable energy facilities (such as the PSPP) could conflict with BLM Interim Visual Resources Management (VRM) Class III management objectives, but BLM's designation of the I-10 corridor as a utility corridor conflicts with and may preclude literal interpretation and strict adherence to such management objectives. Also, viewers of renewable energy facilities may find visually interesting facilities (including the PSPP) that will contribute to important societal goals i.e., providing renewable energy and reducing greenhouse gases.

NOISE AND VIBRATION

Pages C.7-18 and 19, Condition of Certification NOISE-4

Condition NOISE-4 establishes a requirement for mitigation if noise levels during operation exceed an average of 42 dBA L_{eq} at the nearby LT monitoring location

As discussed in the AFC, the 42 dBA Leq is the modeled plant operational daytime average hourly noise level, which when added to the measured daytime average hourly noise level of 43 dBA Leq, the resultant noise level is 43 dBA Leq. The County daytime noise limit at a residence is 55 dBA. Therefore, the anticipated daytime plant noise with ambient noise is substantially less than the County threshold (by 12 dBA). Also the increase in ambient with plant noise is less than the CEC threshold for a significant noise impact of an increase of up to 5 dBA. Since the ambient is 43 dBA, an increase of up to 48 dBA would be below the CEC impact significance threshold.

Noise-4 implies if the plant noise exceeds the "above value" (42 dBA Leq) mitigation measures are required to reduce noise levels to this limit (42 dBA Leq). The limit to be met is the County's limit of 55 dBA, and up to 5 dBA increase over ambient (43 dBA), which would be 48 dBA. The more stringent of the two is the ambient-plus- 5 dBA threshold and thus we request that Condition Noise-4 be revised such that mitigation would be required if daytime noise levels exceed 48 dBA or mitigation is required to reduce the plant noise such that the level at LT is below 48 dBA.

NOISE-4 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the operation of the project will not cause the noise levels due to plant operation alone, during the daytime hours of 7 a.m. to 10 p.m. to exceed an average of ~~**42**~~ **48** dBA Leq measured at or near monitoring location LT.

Page C. 7-19, Condition of Certification NOISE-6

Staff included Condition of Certification NOISE-6 as a means to ensure compliance with PSI's original understanding of the Riverside County Noise Ordinance. Upon a closer reading of the ordinance, it is clear that limitation on construction hours applies ONLY to that construction that would take place within ¼ mile of a residence. The only residence that would be within ¼ mile would be the residence located north of the property boundary. A small portion of the solar field construction along the northern edge of the property could be subject to the ordinance. However, construction within the rest of the site including all of the construction within the power blocks would not be within ¼ mile of any residence. Therefore, PSI recommends the following changes to Condition of Certification NOISE-6 For example, PSI believes that solar collector assembly work within the assembly building would have to be conducted 24 hours per day to meet the construction schedule. In addition, to provide a more comfortable work environment, PSI would like to allow for certain other activities to be conducted at night, such as concrete pours, pulling wire and welding.

NOISE-6 Heavy equipment operation and noisy construction work relating to any project features ***within ¼ mile of an existing residence*** shall be restricted to the times delineated below, unless a special permit has been issued by the County of Riverside:

Mondays through Fridays: June through September: 6 a.m. to 7 p.m.
October through May: 6 a.m. to 6 p.m. Saturdays: 9 a.m. to 5 p.m.
Sundays and Federal holidays: No Construction Allowed

Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

SOIL AND WATER RESOURCES

Page C.9-4, Section C. 9.4, Fourth Paragraph

To supply the needed quantity of water and inconsideration of the proposed change in the construction water volume (see Condition-SOIL&WATER- 4 below) and based on the uncertainty in well yield due to the limited number of well tests performed to date, PSI proposes to install and operate up to 10 wells on site. The wells will be located within the power blocks and elsewhere within the solar fields to provide primary and secondary water supply to the Project. This is an increase in the number of on-site wells compared to the number proposed in the AFC. The implications for the Project impact analysis of the change in the number of proposed wells, along with the change in the proposed construction water volume is addressed in Attachment 2.

The Project's water needs will be met by use of groundwater pumped from ~~one of two~~ **up to 10** wells on the plant site. Water for domestic uses by Project employees ~~also~~ will be provided by onsite groundwater treated to potable water standards.

It is expected that supply wells located in the power blocks and elsewhere in the solar fields will adequately serve the Project on a rotating basis. Additional wells will be installed up to the total of 10 to provide redundancy, and inherent backup in the water supply in the event of outages or maintenance of the primary production wells.

Page C.9-46, Mitigation

This section should be revised to analyze the use of evaporation ponds for waste disposal instead of presenting a crystallizer and offsite disposal as the only option. Please see Attachment 2 for a description of the evaporation ponds that PSI proposes to support Project waste disposal and for the implications of this change on the analysis of Project impacts.

Page C.9-38 and C.9-39, Section C.9.4.2 Assessment of Impacts and Discussion of Mitigation – Offset of Water Supply

In their assessment of water balance (page C.9-22), Staff concluded that the CVGB has a positive water balance (Soil and Water Resources Table 6). They further concluded that Project alone would have an insignificant impact to the CVGB because proposed Project pumping would not exceed net average recharge to the basin (page C.9-38). They further conclude (page C.9-2) that cumulatively, pumping associated with the foreseeable projects would place the CVGB into overdraft. However, consistent with PSI's analysis, Staff concludes that the Project's relatively small contribution to the cumulative impact is less than cumulatively considerable.

Staff reaches the conclusion that Project pumping could affect recharge to the down-gradient Palo Verde Mesa Groundwater Basin (PVMGB) (pages C.9-2 and C.9-38), although considering the location of the Project and its water use, the impact on PVMGB recharge would be less than significant. This is further supported by Staff through the results of the modeling completed for the Genesis project (page C.9-39); the Genesis modeling showed that proposed PSPP pumping may reduce underflow to the PVMGB by 32 acre feet per year (afy) for 33 years, and as such, the reduction in such inflow would induce more flow to the PVMGB from the Colorado River. There are several inconsistencies in the analysis that suggest that the Project would not induce more flow from the Colorado River into the PVMGB:

1.) Staff concluded that the Project alone and cumulatively induced an insignificant impact to the CVGB. Data provided in the AFC showed that pumping from the Project alone would induce a water level change of 0.03 and 0.12 inches (depending upon the assumption of storage). This change is simply too small to significantly affect the underflow from the CVGB to the PVMGB.

2.) Geochemical and water level data from the PVMGB (see April 19, 2010 PVSI comment letter on the SA/DEIS for the Blythe Solar Power Project), show that there are other sources of water to the PVMGB including mountain front recharge, and that this recharge contributes significantly to the sources of water on the Mesa. Additionally, groundwater flow lines would suggest that groundwater is recharged by sources of water other than the Colorado River.

3.) Lastly, the presumption that a reduction in inflow from the CVGB would induce more flow from the Colorado River presumes that the river is an infinite source of water, which is simply not the case. The hydraulic heads in the PVMGB reflect equilibrium conditions including recharge from the Colorado River and other sources and discharge from wells and drains. Reducing the recharge from the CVGB would not induce more flow from the River; rather the groundwater basin would find a new equilibrium which would be reflective of a change in the water levels. Given the small change predicted by the WorleyParsons groundwater model in the Genesis Solar Energy Project CEC proceedings, it is not likely that the change would perceptible. Hypothesizing that the River would simply discharge more water because of the change in recharge is not borne out, as evidenced in the variability in water levels with the PVMGB.

Page C.9-41 and C.9-42, Section C.9.4.2 Assessment of Impacts and Discussion of Mitigation - Subsidence

Staff has requested that subsidence monitoring (Condition-SOIL&WATER-17) be included even though they stated this condition is a remote possibility (page C.9-41). The groundwater modeling of the proposed pumping wells provided in response to a Staff data request (March 9, 2010) showed a short-term drawdown during the pumping for the construction water supply of about 12 feet when water supply was apportioned to four wells operating within each power block for a period of 3 years. The drawdown to the 1-foot contour was not predicted to extend beyond the Project right-of-way (ROW) during construction (see Figure DR-207a-rev1). Subsequently, pumping for the operational supply induced a similar result with less drawdown around the pumping well and a larger cone-of-depression predicted with the 1-foot contour extending just outside the ROW (see Figure DR-207b-rev1).

These modeling results support the Staff conclusion that the possibility of subsidence is remote as the model predicted between about 11 and 12 feet of drawdown during construction and at the end of operation adjacent to the water supply wells. This is simply not enough and too localized a cone-of-depression to induce subsidence. Given the conclusion by Staff, and the supporting evidence that subsidence is highly unlikely, the request for subsidence monitoring appears to be unwarranted.

Page C.9-75 and C.9-78, Section C.9.10.1, Colorado River Water

Staff concludes that pumping of groundwater at the site could require an entitlement from the US Bureau of Reclamation (Bureau) to use Colorado River Water. Staff completely ignores the significant precedent within the Commission Decisions and recent Orders. Recently in the Genesis Solar Energy Project, (09-AFC-8) the Committee issued a Decision and Scoping Order directly on point. Staff relies on a portion of that Decision and Scoping Order relating to Commission water policy (Page C.9-87) but ignores the portion of that same Decision and Scoping Order where the Committee found after briefs and hearing that the Accounting Surface is not an applicable law, ordinance, regulation or standard (LORS). The Decision and Scoping Order is also entirely consistent with prior Commission Decisions. In both the Blythe Energy Project (99-AFC-8) and the Blythe Energy Project Phase II (02-AFC-1) the Commission after evidentiary hearings and briefs, concluded that pumping water was not subject to the requirement to obtain an entitlement from the Bureau and those projects were authorized to pump 20 times the volume of groundwater proposed by the PSPP. Therefore, Staff has ample precedent, clear Commission direction and physical evidence to conclude that the PSPP would not require an entitlement to use Colorado River Water as the Accounting Surface, which is the sole legal authority upon which Staff relies, has not been adopted and is not an applicable LORS. As described in the Data Adequacy Supplement and in responses to Data Requests, PSI may pursue legal protection from a future law that may require an entitlement in the future. However, this activity should not be required as part of the either the ROW or CEC License.

Page C.9-91, Condition of Certification SOIL&WATER-3

PSI requests the following changes to Condition SOIL&WATER-3:

SOIL&WATER-3 The Project owner proposes to construct and operate ~~up to two~~ ***up to 10 (ten)*** onsite groundwater ~~production~~ ***water supply*** wells that produce groundwater from the Chuckwalla Valley Groundwater Basin (CVGB). The Project owner shall ensure that the water supply wells are completed in accordance with all applicable state and local water well construction permits and requirements. Prior to initiation of well construction activities, the Project owner shall submit for review and comment a well construction packet to the County of Riverside and fees normally required for the county‘s well permit, with copies to both the AO and CPM. The Project shall not construct a well or extract and use groundwater ***until a permit has been issued by the County*** and both the AO and CPM provide approval to construct and operate the well. ***Wells permitted and installed as part of pre-construction field investigations that subsequently are planned for use as project water supply wells require AO and CPM approval prior to their use to supply water to the project.***

Post Well Installation. The Project owner shall provide documentation ***as required under the County***

permit conditions to both the AO and CPM that the well has been properly completed. In accordance with California's Water Code section 13754, the driller of the well shall submit to the DWR a Well Completion Report for each well installed. The Project owner shall ensure the Well Completion reports are submitted. The Project owner shall ensure compliance with all county water well standards and ***the County permit*** requirements for the life of the wells and shall provide the AO and CPM with two (2) copies each of all monitoring or other reports required for compliance with the County of Riverside water well standards and operation requirements, as well as any changes made to the operation of the well.

Verification: The Project owner shall do all of the following:

A. No later than 60 days prior to the construction of the onsite groundwater production wells, the Project owner shall submit to both the AO and CPM a copy of the water well construction packet submitted to the County of Riverside.

B. No later than 30 days prior to the construction of the onsite groundwater production wells, the Project owner shall submit a copy of written concurrence received from the County of Riverside that the proposed well construction activities comply with all county well requirements and meet the requirements established by the county's water well permit program. ***The AO and CPM shall provide approval to the project owner of the well location and operation within 10 days of receipt of the well permit.***

C. No later than 60 days after installation of each well at the Project site, the Project owner shall ensure that the well driller submits a Well Completion Report to the DWR with a copy provided to both the AO and CPM. The Project owner shall submit to both the AO and CPM together with the Well Completion Report a copy of well drilling logs, water quality analyses, and any inspection reports. ***Additionally no later than 60 days after installation of each well the Project owner shall submit documentation to the AO, CPM, and the CRBRWQCB that well drilling activities were conducted in compliance with Title 23, California Code of Regulations, Chapter 15, Discharges of Hazardous Wastes to Land, (23 CCR, sections 2510 et seq.) and that any onsite drilling sumps used for Project drilling activities were removed in compliance with 23 CCR section 2511(c).***

D. During well construction and for the operational life of the well, the Project owner shall submit two copies each to the AO and CPM of any proposed well construction or operation permit changes within 10 days of submittal to or receipt from the County of Riverside.

E. ~~No later than 15 days after completion of the onsite groundwater production wells, the Project owner shall submit documentation to BLM's Authorized Officer, the CPM, and the CRBRWQCB that well drilling activities were conducted in compliance with Title 23, California Code of Regulations, Chapter 15, Discharges of Hazardous Wastes to Land, (23 CCR, sections 2510 et seq.) requirements and that any onsite drilling sumps used for Project drilling activities were removed in compliance with 23 CCR section 2511(c).~~

Page C.9-92, Condition of Certification SOIL&WATER-4

As the Project engineering design process has continued to progress since publication of the AFC, PSI has developed more accurate site civil survey data. The improved surveying data has led to an increase in the amount of earthwork required for the PSPP site and consequently to an increase in the volume of water that will be required for uses such as soil compaction and dust control during the Project construction period. The revised water use estimate is 5,750 acre feet (af) over the Project's 39-month construction period. Please see Attachment 2 for an analysis of the implications of this change on the analysis of Project water resources impacts. PSI requests that Condition SOIL&WATER-4 be modified as follows:

SOIL&WATER-4: The proposed Project's use of groundwater during construction shall not exceed ~~480~~ ***5,750*** af during the 39 months of construction and 300 afy during operation.

Pages C.9-93-96, Condition of Certification SOIL&WATER-5

PSI requests the following changes to Condition SOIL&WATER-5

SOIL&WATER-5: The Project owner shall submit a Groundwater Monitoring, Mitigation and Reporting Plan to both the AO and CPM for review and approval ***in advance of construction activities and prior to the operation of onsite groundwater supply wells***. The Groundwater Monitoring, Mitigation and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels and water quality. Monitoring shall include pre-construction, construction, and Project operation water use. The primary objective for the monitoring is to establish pre-construction and Project related groundwater level and water quality trends that can be quantitatively compared against observed ~~and simulated~~ trends near the Project pumping wells and near potentially impacted existing wells.

A. Prior to Project Construction

1. Monitoring shall commence to establish preconstruction base-line conditions. The monitoring ~~plan and~~ network shall include onsite and offsite water supply wells ~~of monitoring wells may make use of existing wells in the basin~~ that would satisfy the requirements for the monitoring program**.** ***The monitoring network shall be defined by the groundwater model developed for the AFC as the area predicted to show a water level change of 5 feet or more at the end of construction and at the end of operation. Identify additional wells will be located outside of this area to serve as background monitoring wells. Abandoned wells, or wells no longer in use, that are accessible and provide reliable water level data within the potentially impacted area may also be included as part of the monitoring network. A site reconnaissance will be performed to identify wells that could be accessible for monitoring. As access to these wells is available, historic water level, water quality, well construction and well performance information shall be obtained for both pumping and non-pumping conditions.***

2. As access allows, ~~C~~collect measure groundwater levels from the off-site and on-site wells ***within the network and background wells*** ~~and collect and analyze groundwater samples for TDS, nitrates, ammonia and other constituents as required as part of the CRBRWQCB requirements~~ to provide baseline groundwater levels for ***pre-Project trend analysis***. ~~and water quality concentrations for both on-site and off-site wells. Groundwater samples shall be analyzed by a California Certified Analytical Laboratory.~~

3. Construction water level maps ~~Map TDS data and groundwater levels within the PVMGB~~ from the groundwater data collected prior to construction. Update trend plots and statistical analyses, as data is available.

B. During Construction:

1. Collect water levels ~~and water quality concentrations~~ within the monitoring network on a quarterly basis throughout the construction period and at the end of the construction period. Perform statistical trend analysis for water levels ~~and the water quality data~~. Assess the significance of an apparent trend and estimate the magnitude of that trend.

C. During Operation:

1. On a quarterly basis for the first five years of operation, collect water level measurements ~~and water quality data~~ from the wells identified in the groundwater monitoring program to evaluate operational influence from the Project. Quarterly operational parameters (i.e., pumping rate) of the water supply wells shall be monitored. Additionally, quarterly groundwater use in the PVMGB shall be estimated.

2. On an annual basis, perform statistical trend for water levels and the water quality data. Analysis of the significance of an apparent trend shall be determined and the magnitude of that trend estimated. Based on the results of the statistical trend analyses, the Project owner shall determine if the Project pumping has induced a drawdown in the water supply at a level of 5 feet or more below the baseline trend.

3. If water levels have been lowered ***below 5 feet*** from the pre-site operational trends, and monitoring data provided by the Project owner show these water level changes are different from background trends and are caused by Project pumping, then the Project owner shall provide mitigation to the well owner(s) if impacted. Mitigation shall be provided if the both the AO and CPM's inspection of the well monitoring data confirms changes to water levels and water level trends relative to measured pre-project water levels, and the well (private owners well in question) yield has been lowered by ***5 feet or more*** Project pumping. The type and extent of mitigation shall be determined by the amount of water level decline and site specific well construction and water use characteristics. The mitigation of impacts shall be determined as follows:

a. If Project pumping has lowered water levels ***by 5 feet or more*** from the background trend and is can be shown and increased pumping lifts, increased energy costs shall be calculated. Payment or reimbursement for the increased costs shall be provided at the option of the affected well owner ***on an annual basis***.

b. If groundwater monitoring data indicate Project pumping has lowered water levels below the top of the well screen, and the well yield is shown to have decreased by 10% or more ***of the pre-Project*** ~~initial~~ ***average seasonal*** yield, compensation shall be provided for the diagnosis and maintenance to treat and remove encrustation from the well screen. Reimbursement shall be provided at an amount equal to the customary local cost of performing the necessary diagnosis and maintenance for well screen encrustation.

Should the well yield reductions be reoccurring, the Project owner shall provide payment or reimbursement for periodic maintenance throughout the life of the Project. If with treatment the well yield is incapable of meeting 110% of the well owner's maximum daily demand, dry season demand, or annual demand the well owner should be compensated by reimbursement or well replacement as described under Condition 3.c.

~~Should well yield reductions be reoccurring, the Project owner shall provide payment or reimbursement for either periodic maintenance throughout the life of the Project or, if treatment is anticipated to be required more frequently than every 3-5 years, replacement of the well.~~

c. If Project pumping has lowered water levels to significantly impact well yield or cause casing collapse, payment or reimbursement of an amount equal to the cost of deepening or replacing the well shall be provided to accommodate these effects. Payment or reimbursement shall be at an amount equal to the customary local cost of deepening the existing well or constructing a new well. The demand for water, which determines the required well yield, shall be determined on a per well basis using well owner interviews and field verification of property conditions and water requirements compiled as part of the pre-project well reconnaissance. Well yield shall be considered significantly impacted if it is incapable of meeting ***110*** ~~150~~% of the well owner's maximum daily demand, dry-season demand, or annual demand – assuming the pre-Project well yield documented by the initial well reconnaissance met or exceeded these yield levels. ~~For already low-yielding wells identified prior to Project construction, a reduction due solely to Project pumping of 10% or more below the pre-project yield shall be considered a significant impact. The contribution of Project pumping to observed decreases in observed well yield shall be determined using the groundwater monitoring data collected.~~

d. Electrical cost reimbursement – If the pumping water level falls below a depth of 5 feet from ***the background trend*** ~~an average of the baseline measurements~~ **and** ***is shown to be caused by the Project pumping***, the well owner shall be compensated by the Project owner for the additional electrical costs commensurate with the additional lift required to pump. The water level in the well will be assessed relative to the pumping rate established during the pre-site development period.

e. The Project owner shall notify all owners of the impacted wells within one month of both the AO and CPM approval of the compensation analysis for increased energy costs.

f. Pump lowering – In the event that groundwater is lowered to an extent where pumps are exposed but well screens remain submerged the pumps shall be lowered to maintain production in the well. All costs associated with lowering pumps shall be borne by the Project owner.

g. Deepening of wells – If the groundwater is lowered enough that well screens are exposed, pump lowering is not an option. In this case, the wells shall be deepened or new wells constructed. All costs associated with deepening existing wells or constructing new wells shall be borne by the Project owner.

4. After the first five-year operational and monitoring period both the AO and CPM shall evaluate the data and determine if the monitoring program water level measurements ~~and water quality sampling frequencies~~ should be revised or eliminated. Revision or elimination of any monitoring program elements shall be based on the consistency of the data collected. The determination of whether the monitoring program should be revised or eliminated shall be made by the both the AO and CPM.

5. At the end of every subsequent five-year monitoring period, the collected data shall be evaluated by the both the AO and CPM and they shall determine if the sampling frequency ~~and water quality sampling~~ should be revised or eliminated.

6. During the life of the Project, the Project owner shall provide to the both the AO and CPM all monitoring reports, complaints, studies and other relevant data within 10 days of being received by the Project owner.

Verification: The Project owner shall do all of the following:

1. ***At least 60 days prior to operation of the site groundwater supply wells*** ~~Project construction~~, the Project owner shall submit to the both the AO and CPM, the Groundwater Monitoring, Mitigation and Reporting Plan, that will include ~~a comprehensive report presenting all~~ the data and information required in item A above. ***The AO and CPM will provide comments to the plan 15 days following submittal, and the final plan shall be approved 15 days prior to operation of the site groundwater supply wells.***

2. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of the report data and interpretations.

3. During Project construction, the Project owner shall submit to the both the AO and CPM quarterly reports presenting all the data and information required in item B above. ***The quarterly reports shall be provided 30 days following the end of the quarter.***

4. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of the report data and interpretations.

5. ***No later than March 31 of each year of construction or*** 60 days prior to Project operation, the Project owner shall provide to the both the AO and CPM for review and approval, documentation showing that any mitigation to private well owners during Project construction was satisfied, based on the requirements of the property owner as determined by the both the AO and CPM.

6. During Project operation, the Project owner shall submit to the both the AO and CPM, applicable quarterly and annual reports presenting all the data and information required in item C above. ***Quarterly reports shall be submitted to the AO and CPM 30 days following the end of the quarter. The 4th quarter report shall serve as the annual report, and will be provided on January 31 in the following year.***

7. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of report data and interpretations, calculations, and assumptions used in development of any reports.

8. The Project owner shall provide mitigation as described in item C.3 above, if the both the AO and CPM's inspection of the monitoring information confirms changes to water levels and water level trends relative to measured pre-project water levels, and well yield has been lowered by Project pumping. The type and extent of mitigation shall be determined by the amount of water level decline and site specific well construction and water use characteristics. The mitigation of impacts will be determined as set forth in item C.3 above.

9. If mitigation includes monetary compensation, the Project owner shall provide documentation to the both the AO and CPM that compensation payments have been made by March 31 of each year of Project operation or, if lump-sum payment are made, payment is made by March 31 following the first year of operation only. Within 30 days after compensation is paid, the Project owner shall submit to the both the AO and CPM a compliance report describing compensation for increased energy costs necessary to comply with the provisions of this condition.

10. After the first five year operational and monitoring period, the Project owner shall submit a 5 year monitoring report to both the AO and CPM that submits all monitoring data collected and provides a summary of the findings. Both the AO and CPM will determine if the water level measurements and water quality sampling frequencies should be revised or eliminated.

Page C.9-97, Condition of Certification SOIL&WATER-8

The Verification to this Condition of Certification requires submittal of a Revised Project Drainage Report no less than 30 days after the CEC issues the License. PSI requests this be modified consistent with other conditions that measure the verification timeline "prior to" an activity such as mobilization or construction. We request the Verification be modified as follows.

Verification: The Project owner shall submit a Revised Project Drainage Report with the 30% Grading and Drainage Plans to both the AO and CPM for their review and comments 30 days ***prior to construction*** ~~after project certification~~. The owner will address comments provided by both the AO and CPM until approval of the report is issued. All comments and concepts presented in the approved Revised Project Drainage Report with the 30% Grading and Drainage Plans will be included in the final Grading and Drainage Plans. The Revised Project Drainage Report and 30% Grading and Drainage Plans shall be approved by both the AO and CPM.

Page C.9-99, Condition of Certification SOIL&WATER-10

The Project slopes are designed 3:1, and as designed are sufficient to allow tortoise access up and down the slope and therefore the condition should be revised eliminating the requirement for a 4:1 slope. Revision of the design to 4:1 would not significantly improve the ingress and egress of tortoise movement, although it would increase the grading volume, disturbance area, and concomitantly the construction water supply. The

increase in water requirement relative to the minor change in tortoise access is not warranted.

Pages C.9-99 - 100, Condition of Certification SOIL&WATER-11

PSI recommends the following modification to this condition to more accurately reflect the current design.

E. Earthen berms used on the outside of collector channels to guide flow to discreet points of discharge into a channel ~~shall not~~ ***may*** be utilized in lieu of soil cement on the outside bank of collector channels. ~~Offsite flows shall discharge directly into collector channels~~. ***If earthen berms are utilized, the discreet points of discharge shall be protected against erosion by the use of soil cement.***

Page C.9-103, Condition of Certification SOIL&WATER-14

This condition is redundant as a Decommissioning Plan is already required by Condition of Certification **BIO-22.**

Pages C.9-103 - 104

This condition assumes that the project's use of any groundwater in the Chuckwalla Valley Basin would result in impacts to the Colorado River located approximately 35 miles from the Project site. Furthermore, Staff has therefore required mitigation in the same amount as if the PSPP were drawing its water directly from the Colorado River. Staff provides no analysis to support this contention. At best, Staff's analysis identifies that the project ***could*** extract groundwater that otherwise could be contributing to the underflow from the Chuckwalla Valley Groundwater Basin to the Palo Verde Water Basin. Staff ignores PSI's groundwater investigation report and analysis and therefore the mitigation proposed by Staff in this condition is unwarranted and not based on science. On that basis this condition should be deleted.

Staff should not unilaterally make policy affecting the rights of the holder of an overlying groundwater right in a basin that is neither adjudicated nor in overdraft, and is not hydrologically connected to the Colorado River in such a manner that use of the right would result in real and measurable impacts during the life of the project. Staff's contention that all water used must be mitigated has therefore set a standard that one molecule of water pumped is an impact that must be mitigated. This is not scientifically based and is bad policy. The PSPP is using water efficiently, has reduced the amount of water to the lowest amount feasible with dry cooling and will put the poor quality groundwater to its highest and best beneficial use of creating electricity from a renewable source.

Draft Bureau of Reclamation (July 2008) regulations 43 CFR Part 415.11(a) state, "A well located within the accounting surface portion of the River Aquifer will considered to pump water that is replaced by the lower Colorado River if the static water elevation in the well is less than or cannot be distinguished from the elevation of the accounting surface at the well site". Groundwater below the PSPP is measured at a depth of about 185 feet below the ground surface (bgs). This static water level is about 175 feet above the accounting surface. Additionally, the numerical groundwater modeling performed in support of the

AFC (January 6, 2010 – Data Response) showed that during pumping for the construction and operational water supply, water would only be drawn down between about 11 and 12 feet. Given that the static and pumping water level are well above the accounting surface, by comparison to the definition proposed under Part 415.11(a), a well pumping at the Project site by definition would not be considered to be pumping water that is replaced by water drawn from the lower Colorado River.

Lastly, the condition requires that mitigation be provided for the entire operational volume of the Project (10,520 acre-feet). This request seems to be contrary to the Staff conclusions that the Project's pumping will not significantly affect the water balance (page C.9-22) is not cumulatively considerable (page C.9-2), and would not be anticipated to significantly impact the underflow to the PVMGB (C.9-38). Further, Staff notes that the modeling conducted by WorleyParsons indicates that the Project pumping would only change the underflow to the PVMGB by 32 afy over 33 years (a total of 1,056 acre-feet) or about 10% of the volume for which the condition specifies mitigation. Given the Staff conclusions that the Project would not significantly impact CVGB supply and the marginal, if any impact to the PVMGB, this condition should be deleted.

Pages C.9-105-106, Condition of Certification SOIL&WATER-17

As noted above in the PSI comment on SA/DEIS pages C.9-41 and -42, this condition requesting subsidence monitoring has been included even though Staff acknowledges that subsidence is a remote possibility (page C.9-41). Groundwater modeling has indicated that short-term drawdown during construction and at the end of operation would be about 11 to 12 feet, and that the 1 foot drawdown contour would not extend outside the ROW during construction and would extend just outside the ROW during operation. This is simply not enough and too localized a cone-of-depression to induce subsidence. Given the conclusion by Staff, and the supporting evidence that subsidence is highly unlikely, the request for subsidence monitoring appears to be unwarranted and Condition SOIL&WATER-17 should be deleted.

Pages C.9-106 – 108, Condition of Certification SOIL&WATER-18

This Soil and Water Condition is attendant to SOIL&WATER-15 by providing a mechanism to evaluate the quantity of water diverted from the Colorado River by Project pumping. As described in our comments on SOIL&WATER-15, there is no evidence provided that groundwater drawn below the Project site is related to the Colorado River. Further, the static water level below the site is 175 feet above the accounting surface, and the drawdown in wells operating during construction and operation predicted by the model is between 7 and 12 feet. By the draft definition proposed under Part 415.11(a), a well pumping at the Project site would be considered not to be pumping water that is replaced by water drawn from the lower Colorado River if the static water level were above the proposed accounting surface.

Because there has been no basis provided by Staff to connect the groundwater below the PSPP to the Colorado River, and because the static and pumping water levels will be well above the proposed accounting surface (see Condition-15), PSI requests that Condition SOIL&WATER-17 be deleted.

Page C.9-109, Conclusions, Last Bullet

Staff states that it cannot complete its analysis until it receives, ”A finding by the USACOE of whether the ephemeral drainages on the Project site are jurisdictional waters of the U.S.” PSI has outlined in its Jurisdictional Determination Report why the drainages are not jurisdictional waters of the U.S. Notwithstanding that analysis, Staff can easily conclude that the project would comply with Section 404 of the Clean Water Act by including a condition that the project owner shall obtain a Section 404 permit prior to filling of any jurisdictional Waters of the U.S. if such permit is required by the USACE. The verification could include the requirement for the project owner to either produce the permit or a determination that no permit is required from the USACE. That determination is simply not needed now and this approach is consistent with the CEC Decisions issued in the last few decades.

TRAFFIC AND TRANSPORTATION

Pages C.10-26 - 27, Condition of Certification TRANS-4

This condition requires coordination between PSI and Nextera on a traffic control plan. PSI recommends the following modification as it cannot control the schedule of a project owned by another company.

1. Consult with the applicants for Genesis and Blythe to ***the extent feasible and if actual construction traffic overlaps to***:

VISUAL RESOURCES

“Staff concludes that these visual impacts would be significant in terms of three of the four criteria of California Environmental Quality Act (CEQA) Appendix G, and could not be mitigated to less than significant levels and would thus result in significant and unavoidable impacts under CEQA.” However, the CEC visual analysis process is highly dependent on photographs of existing conditions and accompanying photographic simulations. The SA/DEIS analysis is based on very crude Google Earth-based simulations (perspective views of the Project site without simulations of Project facilities), with the following statement in each KOP impact discussion. “This perspective was prepared because an appropriate visual simulation was not available at the time this SA/DEIS was prepared.” The SA/DEIS does not utilize or even acknowledge that additional simulations were requested of the applicant in Data Requests and were submitted to the CEC on January 13, 2010 while the SA/DEIS was in early stages of preparation.

The SA/DEIS analysis does not provide a sound technical basis for its conclusions. Without photographs and photographic simulations of Project facilities (which were provided to the CEC/BLM in January 2010 as noted above), there is no professional, technical analysis/data to serve as an objective basis for discussion and conclusion about Project visual resources impacts and appropriate Conditions of Certification.

Condition VIS-4 requires slatted fencing along the north and south boundaries of the Project site because of “glint and glare/”bright spots” concerns. Such fencing would serve no useful purpose and is inconsistent with the optics leading to the production of glare from

the mirror array. The production of glare from the mirror array or in more accurate terminology, specular reflection, is not due to direct reflection of the sun by the parabolic mirror , but is due to three sources of light of much lower intensity:

- The reflection of incoming light from a small linear area along the front of the Heat Collection Element (HCE) that is normal (perpendicular) to the sun and intercepts and reflects a small portion of the incoming sunlight.

- Direct reflection of light from metal components of the parabolic mirror array such as connectors along the HCE tube and structural elements.

- Light that is first refracted and scattered by the glass tube of the HCE that then strikes the mirror and is subsequently reflected outward in a columnar beam, but at a greatly reduced intensity.

Specular reflection must obey the Law Refection derived from Snell's Law, in which the incoming and outgoing light rays form the same angle of incidence from the normal to the reflecting surface. The mirror arrays at all solar thermal plants using the parabolic mirror technology are aligned north-south to allow east-west tracking of the sun. The normals for any given HCE tube are thus east and west of the solar array, and thus, reflections can only occur to the east and west.

The only time specular reflection can occur from the PSPP mirror array and be visible by a ground level observer is when the observer is to the east or west of the mirror, the sun is low on the horizon and to the back of the observer and slightly over the observer's shoulder, and the observer is looking at the point where a perpendicular line from the observer to the HCE intersects the HCE. This means that the glare will not be observable from I-10 to the south of the PSPP. Because of the presence of 25-foot tall wind fences on the east and west sides of the solar fields, the glare also will not be observable from travelers westbound or eastbound on I-10 to as they approach the PSPP from either direction.

For a properly situated ground level observer, the only time glare might be visible is in the first few hours after sunrise, or before sunset, when the sun is low on the horizon. However, for the PSPP, the general public will only be exposed to the potential specular reflections when located to the east of the mirror arrays. As the sun rises in the sky during the morning and the mirrors begin tracking the sun, Snell's Law will not allow a ground level observer to observe the reflection. It is important to reiterate that the reflection (glare) is specular reflection from the HCE tube with lesser amounts of scattered and refracted light, not reflection of the sun from the parabolic mirror, which does not occur

Figure Visual-1 presents a comparison of glare from the Kramer Junction SEGS facility in a photograph taken by Merlyn Paulson of AECOM, and the SADEIS photo attributed to Michael Clayton & Associates. The photograph by Mr. Paulson is one of about 200 taken on the same day and represents the photograph with the most intense glare spot. The CEC picture presents a glare that is considerably more intense than in the AECOM photographs. The most plausible explanation for the non-representativeness of the CEC photo is that the CEC photo is over-exposed. If an over-exposure did occur, the light sensor would have been saturated with the result that the apparent size of the glare spot is much larger than actually existed.

The CEC photo was taken from Highway 395 near sunrise looking west, as demonstrated by the horizontal pointing of the mirror and includes a broad expanse of dark pavement in the foreground. The early morning hour indicates relatively low light conditions, as does the relatively dark sky. Because the actual glare spot is small in the frame of the picture, it is unlikely to affect the weighted exposure algorithm in the camera and thus the exposure by the camera will be overly influenced by the dark foreground. If the person taking the photograph in such a difficult exposure situation does not adjust the camera settings for the difficult exposure, the autoexposure mode of the camera will likely result in a wide aperture setting based on the general low light and dark foreground. This likely happened with the CEC photograph, resulting in a wider aperture than appropriate for the element in the photograph of interest – the glare spot - with a resulting overexposure of the glare. As a result, the glare is out of proportion from what actual occurred.

In addition, the wider aperture will allow more flare in the lens and reflections from the mirror. Note that close examination of Paulson's photo taken with a proper exposure setting contains a small amount of flare around the glare point. An overexposed image would be expected to have considerably more flare in the resultant picture, as is observable in the CEC photo. The probable overexposure and flare in the CEC photo result in an intense spot of light not representative of actual viewing conditions.

The photograph by Paulson was taken with a Nikon D200 camera in shutter priority mode, with the below exposure settings:

Width: 3872 pixels
Height: 2592 pixels
Date: 04/25/2009 8:43:53 A.M.
Camera: Nikon D200
Software: 2.0
Shutter: 1/80
Aperture: f 32.0
Max Aperture: f4.9
Exposure: Shutter priority
Exposure Bias: 0.0
Focal Length: 70.00mm
ISO Speed: 100
Sensing: One-chip color area
Brightness: 0.0

Pages C.12-39 - 40, Condition of Certification VIS-2

This condition requires revegetation consistent with Condition of Certification BIO-8 but includes the substation which will be constructed, owned and operated by Southern California Edison (SCE) and therefore permitted by the California Public Utilities Commission (CPUC). Therefore we request the reference to siting of the substation be deleted from the condition.

Page C.12-41, Condition of Certification VIS-4

For the reasons discussed above in the PSI comment concerning page C.12-1, this condition should be deleted.

Pages C.12-42 - 43, Condition of Certification VIS-5

This condition requires various design components be incorporated but incorporation of these costly measures, according to Staff, will not reduce the visual impacts to less than significant levels. Since Staff believes a Finding of Override is required to License this project, there seems to be no impact or LORS-related reason to incur the costs to implement Condition of Certification VIS-5 and it should be deleted.

It should be noted that most of the design concepts mentioned in the Condition are embodied in other disciplines/Conditions (e.g., retain as much vegetation as possible, use vegetation for screening when possible); some are obvious and already planned (minimize number of buildings and combine functions). The key elements of mitigation for Visual Resources are presented in the other Visual Conditions ((surface treatment, lighting, revegetation, and glare reduction). There is no adequate justification for a possible additional elaborate design review process, particularly one that is largely redundant with other disciplines and mitigation measures.

WASTE MANAGEMENT

Page C.13-31, Condition of Certification WASTE-7

As Staff correctly identifies, there is no applicable LORS that would require the PSPP to comply with this condition. Additionally, with the incorporation of Condition of Certification WASTE-11 the PSPP will not impact local landfills and therefore this condition is not necessary to mitigate any PSPP caused impact. Thus, Condition WASTE-7 should be deleted.

Page C.13-32 and 33, Condition of Certification WASTE-9

PSI is cognizant that HTF-affected soils will be characterized as hazardous or non hazardous waste prior to determination of whether the material can be treated at the LTU or must be removed for off-site disposal. Therefore, HTF-affected soils will be relocated to a temporary staging area in the LTU and characterized consistent with U.S. Environmental Protection Agency (EPA) protocols. Soil samples of HTF-affected soil will be collected in accordance with the EPA's current version of the manual "Test Methods for Evaluating Solid Waste" (SW-846) and the waste material will be characterized in accordance with State and Federal requirements. Soil samples will be analyzed for HTF constituents (Biphenyl and Diphenyl Ether) using modified EPA Method Modified 8015 as indicated by Staff. If the soil is characterized as a hazardous waste (e.g., at a site specific level likely to be on the order of 10,000 mg/kg or greater), the impacted soils will be transported from the site by a licensed hazardous waste hauler for disposal at a licensed hazardous waste landfill or treatment storage and disposal facility (TSDF).

Based on the classification practice and management of a similar waste stream at the Kramer Junction Solar Electric Generating System (SEGS) facility in Kern County, the DTSC issued a letter dated April 4, 1995, stating that soil contaminated with HTF "poses an insignificant hazard" and classifies the waste as non-hazardous for soils with a concentration of less than 10,000 mg/kg HTF pursuant to CCR Title 22, Section 66260.200(f). Given the formulation of HTF has not changed significantly since this determination, it is anticipated that future waste characterization at BSPP will yield a similar result. However, DTSC has indicated that classification of Project HTF-contaminated soils as hazardous or non-hazardous is a site-specific decision that will be made by DTSC.

All HTF-affected soil classified as a hazardous waste will be removed for the site for proper off-site disposal; therefore the material in the LTU will be managed as a non-hazardous "designated waste" as defined in CCR Title 23, Chapter 15, Section 2522. Based on waste discharge requirements for similar sites, soil containing HTF in concentrations less than 100 mg/kg will not be regulated as a waste and could be reused as fill on site.

Based on the historical information available from long operating solar facilities utilizing similar technology and materials and an understanding of the properties of HTF, precedent has been set for the management of HTF-affected soils. As such PSVI feels that certain elements of **WASTE-9** are onerous and unnecessary with respect to some of the reporting requirements and recommends the condition be revised as follows:

WASTE-9 The project owner shall submit to the CPM, AO and DTSC for approval the applicant's assessment of whether the HTF contaminated soil is considered hazardous or non-hazardous under state regulations. HTF-contaminated soil that exceeds the hazardous waste levels must be disposed of in accordance with California Health and Safety Code (HSC) Section 25203. HTF contaminated soil that does not exceed the hazardous waste levels may be discharged into the land treatment unit (LTU). For discharges into the LTU, the project owner shall comply with the Waste Discharge Requirements contained in the Soil & Water Resources section of this document.

Verification: The project owner shall document all releases and spills of HTF ~~as described in Condition of Certification WASTE-9~~ ***and report only those that are 42 gallons or more, the CERCLA reportable quantity***, as required in the Soil & Water Resources section of this document. Cleanup and temporary staging of HTF contaminated soils shall be conducted in accordance with the approved Operation Waste Management Plan required in Condition of Certification of WASTE-8. The project owner shall sample HTF-contaminated soil from CERCLA reportable incidents involving 42 gallons or more in accordance with the United States Environmental Protection Agency's (USEPA) current version of "Test Methods for Evaluating Solid Waste" (SW-846). Samples shall be analyzed in accordance with USEPA Method 8015 or other method to be reviewed and approved by DTSC, the CPM and AO.

Within ~~14~~***28*** days of an HTF spill the project owner shall provide the results of the analyses and their assessment of whether the HTF-contaminated soil is considered hazardous or non-hazardous to DTSC and the CPM and AO for review and approval.

If DTSC and the CPM and AO determine the HTF-contaminated soil is considered hazardous it shall be disposed of in accordance with California Health and Safety Code (HSC) Section 25203 and procedures outlined in the approved Operation Waste Management Plan required in Condition of Certification **WASTE-8** and reported to the CPM and AO in accordance with Condition of Certification **WASTE-10**.

If DTSC and the CPM and AO determine the HTF-contaminated soil is considered nonhazardous it shall be retained in the LTU and treated on-site in accordance with the Waste Discharge Requirements contained within in the Soil & Water Resources section of this document.

WORKER SAFETY

Page C.14-32 and 33, Conditions of Certification WORKER SAFETY-7 and 8

PSI is meeting with the Riverside County Fire Department in the next few weeks to discuss an agreement with the RCFD. PSI recommends the following modification to this condition:

WORKER SAFETY-8 The project owner shall ***either (1) reach an agreement with the Riverside County Fire Department regarding funding the RCFD for personnel support necessary for the PSPP or*** (2) provide an annual payment of $100,000 to the RCFD for the support of three fire department staff commencing with the date of site mobilization and continuing annually thereafter on the anniversary until the final date of decommissioning.

TRANSMISSION SYSTEM ENGINEERING

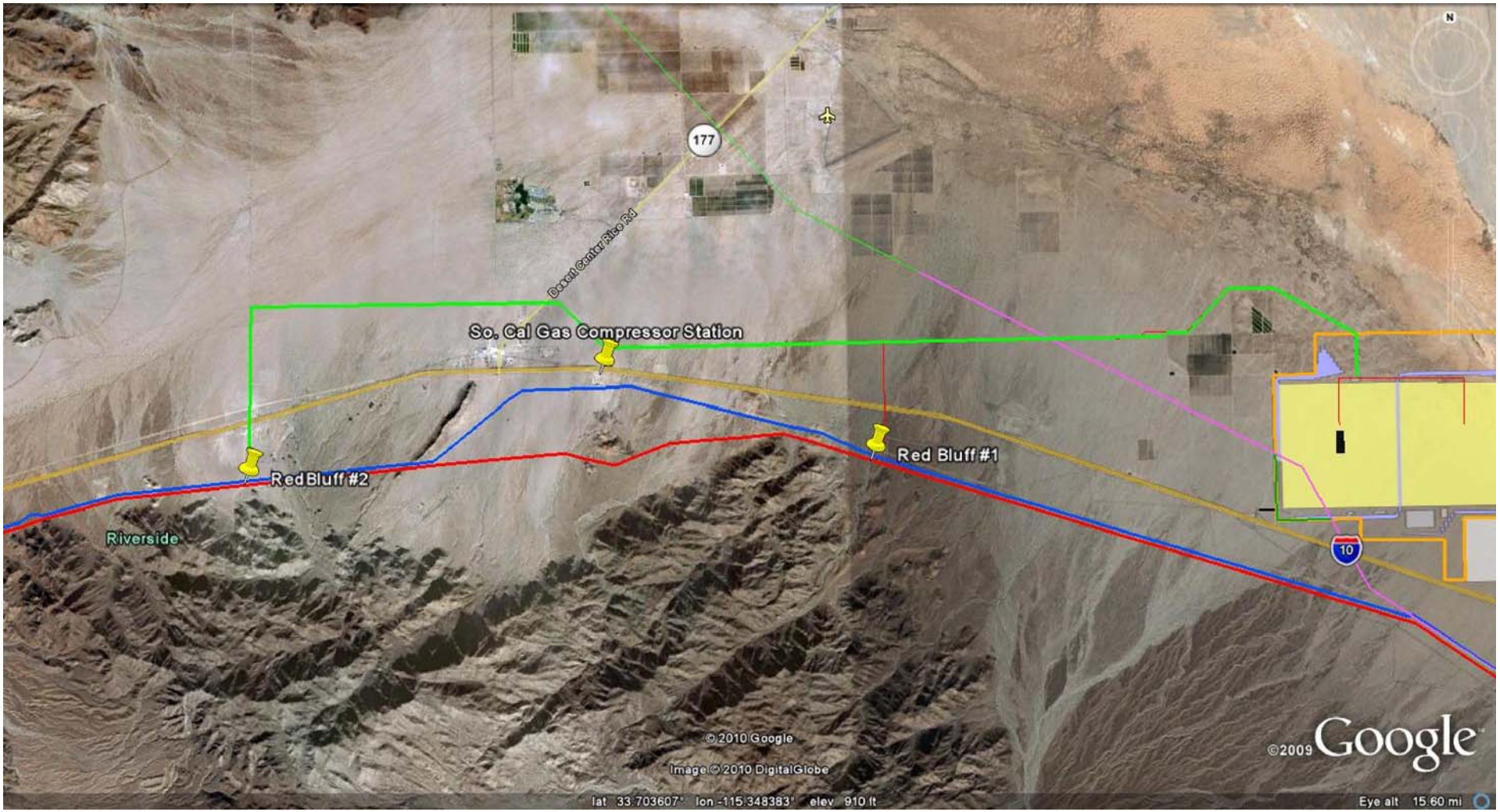
The Phase Two Study from CAISO is expected to be released by July 2, 2010 for the Transition Cluster. Solar Millennium, SCE, and the CAISO are discussing the possible release of a plan of service additional information in May 2010. However, a final decision has not been made by CAISO regarding the May release.

Dated: May 4, 2010

/original signed/

_____

Scott A. Galati
Counsel to Solar Millennium



Map Location

Palen Solar Power Project

Figure Trans-1
Proposed Palen Transmission Line Routings

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *PALEN SOLAR POWER PLANT PROJECT*

Docket No. 09-AFC-7

PROOF OF SERVICE
(Revised 4/19/10)

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*indicates change

DECLARATION OF SERVICE

I, Ashley Y. Garner, declare that on May 4, 2010, I served and filed copies of the attached **PALEN SOLAR I, LLC'S INITIAL COMMENTS ON THE STAFF ASSESSMENT/ DRAFT ENVIRONMENTAL IMPACT STATEMENT,** dated **May 4, 2010**. 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/solar_millennium_palen]

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

__X__ sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery;

__X__ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

__X__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-7
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

_____// Original Signed //_____

Ashley Y. Garner

ATTACHMENT 1

STAFF ASSESSMENT SECTION B.1
DESCRIPTION OF THE PROPOSED PROJECT:

APPLICANT UPDATE

B.1 - DESCRIPTION OF THE PROPOSED PROJECT

Alan Solomon

B.1.1 INTRODUCTION

On August 24, 2009, the California Energy Commission received an Application For Certification (AFC) from Palen Solar I[1] (applicant) to construct and operate the Palen Solar Power Project (PSPP) in Riverside County. On October 26, 2009, a Supplement to the AFC was received and evaluated by staff. Subsequently, at the Energy Commission's November 18, 2009 Business Meeting, the AFC was deemed complete, beginning staff's analysis of the proposed project.

The proposed project site includes one privately-owned 40-acre parcel, which has been incorporated into the proposed eastern solar field. The remainder of the PSPP facilities would be entirely on Federal land. The applicant is seeking a right-of-way grant for approximately 5,200 acres of land administered by the Bureau of Land Management (BLM). The disturbance area for ~~C~~construction and operation of the project ~~would disturb a total of~~is currently about 2,970 acres, but will be revised accordingly to reflect the final transmission line, temporary construction power line and telecommunications line~~.~~

B.1.2 DESCRIPTION

PSPP would consist of two adjacent, independent, and identical units of 250 megawatt (MW) nominal capacity each for a total nominal capacity of 500 MW.

The proposed project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750°F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

Each of the two solar field systems operates under the control of its Field Supervisor Controller (FSC), which is a computer located at each plant's ~~in the central~~ control room.

The FSC collects information from each Solar Collector Assembly~~ies~~ (SCA) and issues instructions to the SCA's. ~~I Some of i~~ts functions include deploying the solar field during the day when weather and facility availability permit, and stowing~~s~~ it at night and during high winds (in high wind conditions, the solar field must be stowed).

A weather station located in each ~~the~~ power block ~~areas~~ provides real-time measurements of weather conditions that affect the solar field operation. Radiation data is used to determine the performance of the solar field.

[1] Chevron Energy Solutions and Solar Millennium have a joint development agreement. Chevron Energy Solutions applied for the Right of Way for Palen Solar Power Project. To facilitate the permitting of the Palen Solar Power Project (PSPP), the Applicant is requesting that the CEC issue one License to a Project- specific company. The company for PSPP is Palen Solar I, LLC a wholly ~~owned subsidiary of Solar Millennium and~~ the single Applicant for the PSPP.

The FSC communicates all relevant conditions to the plant's distributed control system (DCS). The DCS coordinates and integrates power block, HTF system, and solar field operation.

B.1.2.1 INDIVIDUAL COMPONENTS OF THE PROPOSED PROJECT

Solar Collector Assemblies - The project's SCAs are oriented north-south to rotate east-west to track the sun as it moves across the sky throughout the day. The SCAs collect heat by means of linear troughs of parabolic reflectors, which focus sunlight onto a straight line of heat collection elements (HCEs) welded along the focus of the parabolic "trough".

Parabolic Trough Collector Loop - Each of the collector loops consist of two adjacent rows of SCAs, each row is about 1,300 feet long. The two rows are connected by a crossover pipe. HTF is heated in the loop and enters the header, which returns hot HTF from all loops to the power block where the power generating equipment is located.

Mirrors - The parabolic mirrors to be used in the Project are low-iron glass mirrors. Typical life spans of the reflective mirrors are expected to be 30 years or more.

Heat Collection Elements - The HCEs of the two solar plants are comprised of a steel tube surrounded by an evacuated glass tube insulator. The steel tube has a coated surface, which enhances its heat transfer properties with a high absorptivity for direct solar radiation, accompanied by low emissivity.

Glass-to-metal seals and metal bellows are incorporated into the HCE to ensure a vacuum-tight enclosure. The enclosure protects the coated surface and reduces heat losses by acting as an insulator.

HTF System - In addition to the HTF piping in the solar field, each of the two HTF systems includes ~~two~~ three elements: 1) the HTF heat exchanger, (2) the HTF expansion vessel and overflow vessel, and ~~2~~3) the HTF ullage system. Rather than a fired HTF heater, a heat exchanger would be installed to assist in ensuring system temperature stays above 54ºF (12ºC). The HTF heat exchanger is an unfired unit that utilizes steam from the auxiliary boiler as the heating medium. The HTF expansion and overflow vessel are required to accommodate the volumetric change that occurs when heating the HTF to the operating temperature.

During plant operation, HTF would degrade into components of high and low boilers (substances with high and low boiling points). The low boilers are removed from the process through the ullage system. HTF is removed from the HTF surge tank and flashed, leaving behind high boilers and residual HTF. The flashed vapors are condensed and collected in the ullage system.

Solar Steam Generator System - At each of the two units, the SSG system transfers the sensible heat from the HTF to the feedwater. The steam generated in the SSG is piped to a Rankine-cycle reheat steam turbine. Heat exchangers are included as part of the SSG system to preheat and boil the condensate, superheat the steam, and reheat the steam.

Steam Turbine Generator - The STG receives steam from the SSG. The steam expands

through the STG turbine blades to drive the steam turbine, which then drives the generator, converting mechanical energy to electrical energy. Each of the Project's STGs would be a three-stage casing type with high pressure (HP) intermediate pressure (IP), and low pressure (LP) steam sections. The STG is equipped with the following accessories:

- Steam stop and control valves,
- Gland seal system,
- Lubricating and jacking oil systems,
- Thermal insulation, and
- Control instrumentation.

Operation of the Solar Fields

At each solar field, a DCS containing several automation units controls the HTF and steam loops and all auxiliary plant systems, and determines the appropriate operating sequences for them. It also monitors and records the primary operating parameters and functions as the primary interface for system control.

The DCS communicates with all subsystem controls, including electrical system equipment, steam cycle controllers, variable frequency drives and balance-of-plant system controllers via serial data communication. It receives analog and digital inputs/outputs from all instruments and equipment not served directly by dedicated local controllers. The DCS controls both the steam and HTF cycles directly, operating rotating equipment via relevant electrical panels. It includes a graphical user interface at an operator console in the main control room. Day-to-day, the following operation modes would occur in the HTF system:

- Warm up,
- Solar field mode (heat transfer from solar field to power block),
- Shutdown, and
- Freeze protection.

Warm up

Usually in the morning, the warm up mode brings the HTF flow rate and temperatures up to their steady state operating conditions. It does this by positioning all required valves, starting the required number of HTF main pumps for establishing a minimum flow within the solar field and tracking the solar field collectors into the sun.

At the beginning of warm up at each of the units, HTF is circulated through a bypass around the power block heat exchangers until the outlet temperature reaches the residual steam temperature in the heat exchangers. HTF is then circulated through the heat exchangers and the bypass is closed. As the HTF temperature at the solar field outlet continues to rise, steam pressure builds up in the heat exchangers until the minimum turbine inlet conditions are reached, upon which the turbine can be started and run up to speed. The turbine is synchronized and loaded according to the design specification until its power output matches the full steady state solar field thermal output.

Solar Field Control Mode

The DCS enters solar field control mode automatically after completing warm-up mode. It regulates the flow by controlling the HTF main pump speeds to maintain the design solar field outlet temperature.

~~Several~~ HTF pumps would generally be operated in parallel, at the speed required to provide the required flow in the field. If the thermal output of the solar field is higher than the design capacity of the steam generation system, collectors within the solar field are de-focused to maintain design operating temperatures.

Shutdown

If the minimal thermal input to the turbine required by the project's operating strategy cannot be met under the prevalent weather conditions, then shutdown is indicated. Operators would track all solar collectors into the stow position, reduce the number of HTF main pumps to a minimum, and stop the HTF flow to the power block heat exchangers.

HTF Freeze Protection

At each unit, a freeze protection system would be used to prevent freezing of the HTF piping systems when the solar plant is shut down. Since the HTF freezes at a relatively high temperature (54°F or 12°C), HTF would be routinely circulated at low flow rates throughout the solar field using hot HTF from the storage vessel as a source. This circulation of the warm HTF overnight typically provides adequate freeze protection. During those few of the coldest winter nights where circulation alone is insufficient to provide adequate freeze protection, the auxiliary boiler, which will typically run at 25 percent capacity overnight to provide steam for the STG steam seals, will be utilized at 100 percent capacity to provide steam to an HTF heat exchanger to further heat the HTF.

Major Project Components

The major components and features of the proposed project include:

- Power Block Unit #1 (east);
- Power Block Unit #2 (west);
- Access road from existing I-10 Corn Springs Road exit to onsite office;
- Office and parking;
- Land Treatment Unit (LTU) for bioremediation/land farming of HTF-contaminated soil;
- Warehouse/maintenance building and laydown area;
- Onsite transmission facilities, including central internal switchyard;
- Dry wash rerouting; and
- Groundwater wells used for water supply.

The two power blocks are identical in design. The descriptions below apply to ~~both~~ power blocks in both units. Major components of ~~the~~ each power block include:

- Steam generation heat exchangers;
- HTF overflow and expansion vessels;
- One HTF freeze protection heat exchanger

- One auxiliary boiler;
- One steam turbine-generator (STG);
- One generator step up transformer (GSU);
- Air Cooled Condenser (ACC);
- One ~~small~~ wet cooling tower for ancillary equipment;
- Water filter system and ~~C~~clarifier system;
- Combination firewater/clarified water tank;
- Reverse Osmosis (RO) reject water surge tank;
- Potable ~~W~~water ~~S~~system;
- Demineralized Water System;
- Demineralized ~~w~~Water ~~t~~Tank;
- High pH Reverse Osmosis (HERO) waste water recovery system;
- Recoverd water surge tank
- Evaporation waste stream pond(s)
- Water~~,~~ and HTF pipelines exiting the power block;
- One above ground, propane storage tank;
- Operations and maintenance buildings; and
- Transmission and telecommunications lines exiting the power block.

Fuel Supply and Use

The auxiliary boiler would be fueled by propane. Propane would be delivered to the plant site via truck from a local distributor and stored in 18,000-gallon above ground tanks (one in each power block). The estimated propane usage per unit for normal operations is 8 MMBtu/hr overnight and 34 MMBtu/hr for one half-hour during startup each morning. The boiler will run at 100% load overnight when supplemental HTF freeze protection is needed, which is estimated at 100 hours per year.

Water Supply and Use

The project would be dry cooled. The project's primary~~limited~~ water uses include solar mirror washing, feedwater makeup, fire water supply, onsite domestic use, and cooling water for auxiliary equipment, heat rejection.~~n, and dust control~~.

Water Requirements

The average ~~total~~ water requirement for each of the two power plants is estimated to be about ~~300~~ 150 acre feet per year (afy) for a total of 300 afy, which corresponds to an average flow rate of about 188 gallons per minute (gpm), based on pumping 24 hours per day, 350 days per year.~~.~~ Usage rates during operation would vary during the year and would be higher in the summer months when the peak maximum flow rate could be as much as about 50% higher (about 275 gpm).

Water Source and Quality

The project water needs would be met by use of groundwater pumped from ~~one of two~~ up to ten wells on the plant site. Water for domestic uses by project employees would also be provided by onsite groundwater treated to potable water standards.

It is expected that ~~two~~ new water supply wells in ~~the power blocks of~~ the project site would

adequately serve the entire project. ~~A second~~Multiple well~~s~~ would provide redundancy and backup water supply in the event of outages or maintenance of ~~the~~ one or more of the other~~first~~ well~~s~~.

Solar Mirror Washing Water

At each solar field, to facilitate dust and contaminant removal, water from the ~~primary desalination~~D~~d~~emineralization process~~, reverse osmosis (RO) water,~~ would be ~~used to~~ spray~~ed on the ~~clean the~~~~ solar collectors for cleaning. The collectors would be cleaned once or twice per week, determined by the reflectivity monitoring program. This mirror washing operation would be done at night and involves a water truck spraying treated water on the mirrors in a drive-by fashion. The applicant expects that the mirrors would be washed weekly in winter and twice weekly from mid spring through mid fall. Because the mirrors are angled down for washing, water does not accumulate on the mirrors; instead, it would fall from the mirrors to the ground and, due to the small volume, is expected to soak in with no appreciable runoff. Any remaining rinse water from the washing operation would be expected to evaporate on the mirror surface. The treated water production facilities would be sized to accommodate the solar mirror washing demand of about 114 afy.

Cooling Systems

The power plant includes two cooling systems: 1) the air-cooled steam cycle heat rejection system and, 2) the closed cooling water system for ancillary equipment cooling:

Steam Cycle Heat Rejection System

The cooling system for heat rejection from the steam cycle consists of a forced draft air-cooled condenser, or dry cooling system. At each power block, the dry cooling system receives exhaust steam from the LP section of the STG and condenses it to liquid for return to the SSG.

Auxiliary Cooling Water System

The auxiliary cooling water systems use~~s~~ ~~small~~ a wet cooling tower~~s~~ for cooling plant equipment, including the STG lubrication oil cooler, the STG generator cooler, steam cycle sample coolers, large pumps, etc. The water ~~picks up heat~~is warmed by from the various equipment items being cooled and rejects the heat to the cooling tower. This auxiliary cooling system would allow critical equipment such as the generator and HTF pumps to operate at their design ratings during hot summer months when the project's power output is most valuable. An average of 73,000 gallons of water per day (82 afy) would be consumed by the auxiliary cooling water system; the maximum rate of consumption is 112,000 gallons per day ~~(125 afy)~~ in summer.

Waste Generation and Management

Project wastes would be comprised of non-hazardous wastes including solids and liquids and lesser amounts of hazardous wastes and universal wastes. The non-hazardous solid waste primarily would consist of construction and office wastes, as well as liquid and solid wastes from the water treatment system. The non-hazardous solid wastes would be trucked to the nearest Class II or III landfill. Non-hazardous liquid wastes would consist primarily of domestic sewage~~,~~ and ~~reusable~~waste water streams such as RO system reject water, boiler blowdown, and auxiliary cooling tower blowdown. A septic tank and leach field system would

be installed to manage domestic sewage. All other waste streams will be either recycled or sent to the evaporation pond(s).

Wastewater

The PSPP would produce ~~two~~ four primary wastewater streams:

- Non-reusable sanitary wastewater produced from administrative centers and operator stations.
- Non-reusable cooling tower blowdown
- Partially recyclable boiler blowdown (to be used as cooling tower makeup)
- Reusable ~~streams including: blowdown from the cooling tower for the ancillary equipment heat rejection system,~~ RO and demineralized reject water~~, and boiler blowdown~~ that will be sent to a HERO type system, or concentrated to minimize waste streams to the evaporation ponds.

Sanitary wastewater production is based on ~~would consist of~~ domestic water use. Maximum domestic water use is expected to be less than 166,000 gallons per month (5,500 gallons per day). It is anticipated that the wastewater would be consistent with domestic sanitary wastewater and would have Biological Oxygen Demand and Total Suspended Solids in the range of 150 to 250 mg/L.

Wastewater Treatment

Sanitary wastes would be collected for treatment in septic tanks and disposed via leach fields located at the two power blocks as well as at the administration and warehouse areas. Smaller septic systems would be provided for the control room buildings to receive sanitary wastes at those locations. Based on the current estimate of 5,500 gallons of sanitary wastewater production per day, a total leach field area of approximately 11,000 square feet would be required spread out among three or more locations.

In a typical wet cooled power plant, water is cycled in the cooling tower until the concentration of chemical constituents rises to levels where it becomes unusable (e.g. typically five to ten cycles of concentration) and it is blown down as a waste stream. Dilute waste streams such as boiler blow downs and some RO concentrates may be fed to the cooling tower and further concentrated; this design practice helps reduce the total waste water flow that then must be sent to an evaporation pond or other treatment ~~method~~system. While dry cooling the power cycle significantly reduces the overall water usage of a plant, it ~~remove~~eliminates the~~ise~~ cooling tower recycle option that helps minimize waste flows from the remaining water processes. The auxiliary wet cooling tower is too small to concentrate the remaining water flows.

The three plant waste water streams, cooling tower blowdown, boiler blow down, and RO/ Demineralizer water rejects will be recycled as much as possible to the High pH Reverse Osmosis system for recovery. The HERO system will recover 70% or more (depending on water quality) of this waste stream and greatly limit the size of the required evaporation pond. Some waste water sources such as cooling tower blowdown or boiler blowdown in certain cases may not be able to be recovered in the HERO system and would be sent directly to the evaporation pond.

The waste water system will require two 4 acre evaporation ponds per power block. Two ponds were selected for reliability. The plant will operate using one pond for approximately 24 months, and then switch the second pond. Approximately 18 months is required for one pond to evaporate and be ready for use again. If a pond requires maintenance or solids removal, the plant can still operate with the other pond. The evaporation ponds will be double-lined and covered with narrow-mesh netting to prevent access by ravens and migratory birds in accordance with applicable regulations.

Construction Wastewater

Sanitary wastes produced during construction would be held in chemical toilets and transported offsite for disposal by a commercial chemical toilet service. Any other hazardous wastewater produced during construction such as equipment rinse water would be collected by the construction contractor in Baker tanks and transported off site for disposal in a manner consistent with applicable regulatory requirements.

On-Site Land Treatment Unit

The two solar fields to be installed at the Project would ~~share the same~~require LTUs to bioremediate or land farm soil contaminated from releases of HTF. The bioremediation unit would be designed in accordance with Colorado River Basin Regional Water Quality Control Board (RWQCB) requirements and is expected to comprise an area ~~3.673 acres~~ of about 4 acres per solar plant, or 8 acres total. The bioremediation facility would utilize indigenous bacteria to metabolize hydrocarbons contained in non-hazardous HTF contaminated soil. A combination of nutrients, water, and aeration facilitates the bacterial activity where microbes restore contaminated soil within 2 to 4 months. The California Department of Toxic Substances Control (DTSC) has determined for a similar thermal solar power plant that soil contaminated with up to 10,000 mg/kg of HTF is classified as a non-hazardous waste. However, the DTSC has further indicated that site-specific data would be required to provide a classification of the waste. Soil contaminated with HTF levels of between 100 and 1,000 mg/kg would be land farmed at the LTU, meaning that the soil would be aerated but no nutrients would be added.

Other Non-Hazardous Solid Waste

Non-hazardous solid wastes may be generated by construction, operation, and maintenance of the project which are typical of power generation facilities. These wastes may include scrap metal, plastic, insulation material, glass, paper, empty containers, and other solid wastes. Disposal of these wastes would be accomplished by contracted solid refuse collection and recycling services.

Hazardous Solid and Liquid Waste

Limited hazardous wastes would be generated during construction and operation. During construction, these wastes may include substances such as paint and paint- related wastes (e.g., primer, paint thinner, and other solvents), equipment cleaning wastes and spent batteries. During project operation, these wastes may include used oils, hydraulic fluids, greases, filters, spent cleaning solutions, spent batteries, and spent activated carbon. Both construction and operation-phase hazardous waste would be recycled and reused to the maximum extent possible. All wastes that cannot be recycled and any waste remaining after recycling would be disposed of in accordance with all applicable laws, ordinances,

regulations and standards (LORS).

Hazardous Materials Management

There would be a variety of hazardous materials used and stored during construction and operation of the project. Hazardous materials that would be used during construction include gasoline, diesel fuel, oil, lubricants, and small quantities of solvents and paints. All hazardous materials used during construction and operation would be stored onsite in storage tanks/vessels/containers that are specifically designed for the characteristics of the materials to be stored; as appropriate, the storage facilities would include the needed secondary containment in case of tank/vessel failure. Aboveground carbon steel tanks (300 gallons) also would be used to store diesel fuel at each power block. Secondary containment would be provided for these tanks.

Fire Protection

Fire protection systems are provided to limit personnel injury, property loss, and project downtime resulting from a fire. The systems include a fire protection water system, foam generators, carbon dioxide fire protection systems, and portable fire extinguishers. The location of the project is such that it would fall under the jurisdiction of the Riverside County Fire Department.

Firewater would be supplied from the one million-gallon clarified~~treated~~ water ~~(permeate)~~ storage tanks located at each of the two power blocks on the site. One electric and one diesel- fueled backup firewater pump, each with a capacity of 5,000 gpm, would deliver water to the fire protection piping network.

The piping network would be configured in a loop so that a piping failure can be quickly isolated with shutoff valves without interrupting water supply to other areas in the loop. Fire hydrants would be placed at intervals throughout the project site that would be supplied with water from the supply loop. The water supply loop would also supply firewater to a sprinkler deluge system at each unit transformer, HTF expansion tank and circulating pump area and sprinkler systems at the steam turbine generator and in the administration building. Fire protection for each solar field would be provided by zoned isolation of the HTF lines in the event of a rupture that results in a fire.

Telecommunications and Telemetry

The project would have telecommunications service from the telecommunications service provider who serves the Desert Center area. Voice and data communications would be provided by a new twisted pair telecommunications cable. The routing for this cable will follow the routing of the redundant telecommunications line from the project to the Red Bluff Substation. The routing for both of these lines will exit the project site in the right-of-way for the site access road, cross under I-10 west of the Corn Springs Road interchange and proceed to the microwave repeating tower approximately 700 feet south of the freeway. The routing of the redundant telecommunications line to the SCE Red B~~b~~luff S~~s~~ubstation will then be hung on the existing 12.47 kV SCE line that feeds the microwave tower and carried to the Red B~~b~~luff ~~s~~Substation. Wireless telecom equipment will be used to support communication with staff dispersed throughout the project site. The project would utilize electronic telemetry systems to control equipment and facilities operations for the site.

Lighting System

The project's lighting system would provide operations and maintenance personnel with illumination in normal and emergency conditions. AC lighting would be the primary form of illumination, but DC lighting would be included for activities or emergency egress required during an outage of the plant's AC system.

HTF Leak Detection

Leak detection of HTF would be accomplished in various ways. Visual inspection throughout the solar field on a daily basis would detect ~~small~~ leaks occurring at ball joints or other connections. ~~;~~ ~~a~~Additionally, the configuration of the looped system allows different sections of the loops to be isolated. Isolation valves will be installed such that each HTF loop section can be contained in the unlikely event of a major rupture in the HTF piping.

Detection of large leaks is being proposed by using remote pressure sensing equipment and remotely-actuated ~~operating~~ valves to allow for isolation of large ~~areas~~ sections of the ~~loops~~ large-bore header piping in the solar field. ~~Details of the design would be developed in the design detail process.~~

Water Storage Tanks

In each power block there would be two major covered water tanks: one 1,000,000-gallon Service/Fire Water storage tank and one 120,000-gallon Demineralized Water storage tank. A much smaller RO Reject water tank would also be provided. Several other small water system surge tanks will also be installed in between various steps in the water treatment process. Water storage tanks would be vertical, cylindrical, field-erected steel tanks supported on foundations consisting of either a reinforced concrete mat or a reinforced concrete ring wall with an interior bearing layer of compacted sand supporting the tank bottom.

Roads, Fencing, and Security

There is an existing highway exit near the southwest boundary of the proposed project site. Access to the project would be via a new, 24-foot wide paved access road starting at the existing Corn Springs Road north of I-10. It is anticipated that no improvements to I-10 would be needed.

Only a small portion of the overall plant site would be paved, primarily the site access road, the service roads to the power blocks, and portions of the power block (paved parking lot and roads encircling the STG and SSG areas). The remaining portions of the power block would be gravel surfaced. In total, the power block would be approximately 18.4 acres with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface in order to prevent rock damage from mirror wash vehicle traffic; an approved dust suppression coating would be used on the dirt roadways within and around the solar field. Roads and parking areas located within the power block area and adjacent to the administration building and warehouse would be paved with asphalt.

The project solar field and support facilities perimeter would be secured with a combination of chain link and wind fencing. Chain link metal-fabric security fencing, 8 feet tall, with one-foot barbed wire or razor wire on top would be installed along the north and south sides of the facilities. Thirty-foot tall wind fencing, comprised of A- frames and wire mesh, would be

installed along the east and west sides of each solar field. Tortoise exclusion fencing would be included. Controlled access gates would be located at the site entrance. The proposed drainage channels would be outside the plant facilities and the security fencing but still within the project ROW.

Drainage and Earthwork

The existing topographic conditions of the Project plant site show an average slope of approximately one foot in ~~330~~75 feet (~~0.3~~1.33%) toward the northeast.

The applicant filed a Streambed Alteration Agreement for the purposes of altering the terrain and installing channels. This application is currently being reviewed.

B.1.3 CONSTRUCTION

Project construction is expected to occur over a total of 39 months. Project construction would require an average of 566 employees over the entire 39-month construction period, with manpower requirements peaking at approximately 1,140 workers in Month 17 of construction. The construction workforce would consist of a range of laborers, craftsmen, supervisory personnel, support personnel, and management personnel.

Temporary construction parking areas would be provided within the power plant site adjacent to the laydown area. The plant laydown area would be utilized throughout the build out of the two solar units. The construction sequence for power plant construction includes the following general steps:

- *Site Preparation:* this includes detailed construction surveys, mobilization of construction staff, grading, and preparation of drainage features. Grading for the solar field, power block, and drainage channels would be completed during the first 24 months of the construction schedule.

- *Linears:* this includes the site access road, telecommunication line, temporary construction power line and transmission line. The site access road and telecommunication line would be *constructed* during the first 6 months of the construction schedule in conjunction with plant site preparation activities. The transmission and telecommunications lines would be constructed during the first 18 months of the construction schedule.

- *Foundations:* this includes excavations for large equipment (ACC, STG, SSG, GSU, etc.), footings for the solar field, and ancillary foundations in the power block.

- *Major Equipment Installation:* once the foundations are complete the larger *equipment* would be installed. The solar field components would be assembled in an onsite erection facility and installed on their foundations.

B.1.3.1 CONSTRUCTION WATER

Construction water requirements cover all construction related activities including:

- Dust control for areas experiencing construction work as well as mobilization and demobilization,
- Dust control for roadways,
- Water for grading activities associated with both cut and fill work,
- Water for soil compaction in the utility and infrastructure trenches,
- Water for soil compaction of the site grading activities,
- Water for stockpile sites,
- Water for the various building pads, and
- Water for concrete pours on site.
- Concrete batch plant operations

The predominant use of water would be for grading activities.~~, which would have a steady rate of work each month. The grading schedule for the site has been spread to cover the total construction period. This would mean that water use would be steady and without definable peaks.~~ Average water use at the site is estimated to be about ~~440~~1,619,899 gallons (about ~~1.3~~4.97 acre-feet) per ~~working~~ calendar day. Total construction water use for the duration of the Project is estimated to be about ~~1,500~~5,750 acre-feet. Construction water would be sourced from onsite wells. Potable water during construction would be brought onsite in trucks and held in day tanks.

B.1.3.2 CONCRETE BATCH PLANT

With the estimated concrete volume of approximately 125,000 cubic yards per solar plant, an onsite batch would be utilized to provide concrete for the solar fields and power block foundations and pads. The batch plant would have a production capacity of 150 cubic yards per hour and operate 10 hours per day, 5 days a week. Night operation of the batch plant will likely be required to overcome the difficulty of performing concrete placement in extremely high ambient temperatures. It would consist of a series of storage bins and piles, conveyors, mixers, ice storage and chipper, and would include a 75 kW power supply (with diesel generator if needed) and provision for dust control. Concrete would be transported from the batch plant to the placement area via a fleet of 8 concrete trucks. The batch plant would be movable and would be deployed to the current area of work at the power blocks or main warehouse area.

B.1.3.3 FUEL DEPOT

A fuel depot would be constructed to refuel, maintain, and wash construction vehicles, and would occupy an area of approximately 75 feet x 150 feet. It would consist of a fuel farm with two each 2000-gallon on-road vehicle diesel tanks, two 8,000-gallon off-road vehicle diesel tanks, one 500-gallon gasoline tank, and a wash water holding tank. The fuel farm would include secondary spill containment, a covered maintenance area, also with secondary containment, and a concrete pad for washing vehicles.

B.1.3.4 Construction Power

Construction power will be provided to the site by Southern California Edison (SCE). Two alternative sources of construction power are being investigated. Both sources feed from the 12.47 kV distribution system in Desert Center on Rice Road. The first alternative would be a new 12.47 kV line built within the surveyed transmission ROW from Rice Road down to the project site. The second alternative, would be a new 12.47 kV line built within the surveyed 230 kV transmission line right-of-way from Rice Road back to the project site. This line would be built as a combination of new 12.47 line or hung on the new 230 kV transmission line towers that bring the single circuit 230 kV line back to the project site. The project will include construction of a 12.47 kV internal distribution system and step down transformers to provide power as needed to construction operations.

B.1.4 OPERATION AND MAINTENANCE

While electrical power is to be generated only during daylight hours, PSPP would be staffed 24 hours a day, 7 days per week. A total estimated workforce of 134 full time employees would be needed with both units operating.

B.1.4.1 TRANSMISSION SYSTEM

The PSPP facility would be connected to the SCE transmission system at ~~the~~ SCE's new Red Bluff substation. Currently, there are two locations proposed ~~planned~~ by SCE for the substation. The new single circuit, 230 kV generation tie line from PSPP to the proposed substation will be approximately 7.5 to 15~~10~~ miles, depending upon which site is selected ~~west of the proposed project site~~.

B.1.4.2 TRANSMISSION LINE ROUTE

~~Although the route has not been finalized, the gen-tie line is expected to proceed west from~~The single circuit 230 kV generation tie line will exit the northwest corner of the PSPP and travel west and south through BLM lands~~,~~ crossing the I-10 and proceeding south into SCE's planned Red Bluff substation. A map is attached showing the gen-tie route to both the possible locations of Red Bluff.

B.1.4.3 EXISTING SCE DISTRIBUTION LINE

There is an existing Southern California Edison 161-kV Eagle Mountain-Blythe power line which runs in a northwesterly direction across the southwest portion of the proposed project site. The applicant is working with SCE to relocate the SCE line within the BLM ROW. ~~try to accommodate both the solar facilities and the SCE line within the BLM ROW~~.

B.1.5 CLOSURE, DECOMMISSIONING AND RESTORATION

The planned operational life of the project is 30 years, but the facility conceivably could operate for a longer or shorter period depending on economic or other circumstances. If the project remains economically viable, it could operate for more than 30 years. However, if the facility were to become economically non-viable before 30 years of operation, permanent closure could occur sooner. In any case, a Closure, Decommissioning and Restoration Plan would be prepared and put into effect when permanent closure occurs.

The procedures provided in the decommissioning plan would be developed to ensure compliance with applicable LORS, and to ensure public health and safety and protection of the environment. The Decommissioning Plan would be submitted to the CEC and BLM for review and approval prior to a planned closure.

ATTACHMENT 2

ENVIRONMENTAL EVALUATION OF PROJECT UPDATES

Minor Changes to the Palen Solar Power Project

Palen Solar I, LLC (PSI) has made various minor modifications to the Palen Solar Power Project (PSPP) since the Application for Certification (AFC) was submitted in August 2009. These minor changes are not reflected in the March 2010 Staff Assessment/Draft Environmental Impact Statement and reflect further definition of linear facilities and other changes required by other regulatory agencies and our construction team. The following pages briefly describe the various changes and evaluate their environmental implications for the PSPP, i.e., the effects of these changes (if any) on the existing analysis of Project impacts.

The PSPP Project changes discussed below include:

- Addition of an Onsite Concrete Batch Plant During Construction;
- Addition of Evaporation Ponds to process Industrial Wastewater Flows;
- Revision to Construction Water Requirements, Number of Groundwater Wells, and Construction Water Storage Approach
- Finalization of the Gen-Tie Line Route to the Southern California Edision (SCE) Red Bluff Substation;
- Changes to the Layout of Project Facilities;
- Addition of a Temporary Construction Power Line from Offsite;
- Relocation of the Existing SCE 161-kV Power Line;
- Refinement of Daily Construction Schedule;
- Finalization of the Telecommunications Line;
- Revised List of Water Treatment Chemicals, and
- Addition of an Onsite Fuel Depot

ADDITION OF CONCRETE BATCH PLANT

With the anticipated requirement for approximately 125,000 cubic yards of concrete for each of the two solar plants of the PSPP, PSI has decided to include an on-site concrete batch plant to provide a cost-effective and reliable source of concrete for the solar field and power block foundations and pads. The batch plant will have a production capacity of 150 cubic yards per hour and is expected to operate 10 hours per day, five days a week. Night operation of the batch plant will be required to overcome the difficulty of performing concrete placement in extremely high ambient temperatures (see **Refinement of Daily Construction Schedule** below).

The plant will consist of a series of storage bins and sand/aggregate piles, conveyors, ice storage and chipper, and provision for dust control. It requires a 75-kilowatt power supply of line power (or a diesel generator). Concrete will be transported from the batch plant to the on-site placement area(s) via a fleet of eight cement trucks. The proposed batch plant is portable and will be moved to a number of different locations to support current work activities. Likely deployment locations are the two power blocks and the Project's main warehouse area. (See drawing provided at the end of this document of the Temporary Construction Facilities for batch plant location.)

Implications for Project Impact Analysis:

PSI has evaluated the overall elapsed time for a standard ready mix truck to travel from an existing commercial ready mix facility in Blythe to the Project site with allowances for the time required to pass through security, on-road travel and offroad travel within the site and determined that the time exceeds the recommended time between concrete preparation and pour. Thus, PSI has determined that a temporary concrete batch plant will be required onsite for Project construction.

Providing the concrete batch plant onsite does not change the amount of concrete required for Project construction. It merely means that the raw materials (cement, sand, aggregate, etc.), and plant components (storage bins, mixers, etc.) will be delivered to the site rather than having ready mix concrete trucks deliver concrete product from an offsite batch plant location. An onsite batch plant will not disturb land outside the current, surveyed disturbance area boundaries for PSPP.

Air pollutant emissions for the batch plant are estimated using EPA AP-42 emission factors for each individual step in the concrete production process. Emissions are estimated for storage piles (sand, gravel, cement additive), weigh hopper loading, conveyor transfers, silo loading and discharge, and mixer loading. The weigh hopper loading and conveyor transfers for sand and gravel will operate with water sprays for dust emissions control, and both the silo and the mixer loading will operate with baghouse dust controls. Daily emissions are estimated based on a maximum production volume for the batch plant of 150 cubic yards per hours, 10 hours per day, with a total concrete requirement of 125,000 cubic yards per power block.

In addition, the batch plant will require 75-kW of temporary construction power (see **Addition of a Temporary Construction Power Line from Offsite** below) and will require the dedicated operation of one front-end loader. Emissions for the generator, if required, are based on Tier 2 engine emission factors and emissions from the front-end loader are based on the OFFROAD emissions model. Emission estimates for the Batch Plant are shown in Table Air-1. Detailed emission calculations are provided in the spreadsheet titled Batch Plant Emissions provided in Appendix C.

The batch plant emissions were incorporated into the revised ambient air quality modeling that was conducted for the construction phase of the PSPP. Please see the air quality evaluation below under the heading titled "**Revision of Daily Construction Schedule**" below for a discussion of the modeling procedure and results.

Batch plant operations require water and batch plant needs are included in a revised Project construction water volume of 5,750 acre-feet. A separate discussion is provided below of the changes in Project water requirements under the heading **Revision to Construction Water Requirements, Number of Groundwater Wells, and Construction Water Storage Approach).** That section addresses changes to the Chuckwalla Valley Groundwater Basin water balance and cumulative impacts assessment and the potential impact to adjacent water supply wells from increased Project groundwater pumping during construction.

The batch plants, along with the other Project construction activities, would be regulated under Riverside County noise ordinance requirements for construction activities. The County noise ordinance establishes limits for construction activities within ¼ mile of an existing residence. Because batch plant operations would not occur near the boundary of the PSPP site, they also would not occur within ¼ mile of the nearest residence. The County noise ordinance does not limit construction noise levels. Batch plant noise levels would be approximately 90 dBA Leq at 50 feet

(depending on design). The batch plant noise levels are somewhat higher than the construction noise levels addressed at the site boundary in the AFC noise analysis. However, the fact that this source would be located away from the boundary of the remote PSPP site allows greater distance for noise attenuation. Project noise impacts would not be substantially different because of the temporary onsite operation of a concrete batch plant.

With respect to hazardous materials issues, batch plant operations will require use of some low toxicity hazardous materials, such as fly ash and/or calcium chloride. However, the impacts of the temporary use of these materials would not substantially affect Project hazardous materials impacts and they would remain less than significant.

From the waste management perspective, batch plant operations will generate minimum amounts of waste concrete (i.e., daily clean out of cement trucks) and bag house or other dust control equipment particulates. The batch plant will recycle materials (e.g., sand, gravel, and water) wherever possible to minimize the volume of waste. Project waste management impacts would remain less than significant.

The onsite batch plant would eliminate the ready mix concrete truck trips associated an offsite batch plant. This would be offset by truck trips delivering concrete making materials to the site. Overall, Project traffic impacts would be unchanged.

Because no additional land disturbance would result from the onsite batch plant, impacts would be unchanged with respect to biological, cultural, and other natural resources.

ADDITION OF EVAPORATION POND(S) TO MANAGE INDUSTRIAL WASTEWATER FLOWS

As previously proposed, reject water from the Project's water treatment system (reverse osmosis [RO]) concentrate would have been used for on-site dust suppression, however, this approach was found to be problematic by the RWQCB because of their designation of the RO concentrate as a waste stream, which effectively eliminates the option of land disposal. Subsequently, PSI decided to abandon this approach. Instead, after first maximizing the amount of recycling of waste streams through use of the High Efficiency Reverse Osmosis (HERO) system for recovery, PSI has decided to use evaporation ponds to manage on-site industrial waste streams. Ongoing Project design development has determined that waste streams such as blowdown from the small wet auxiliary cooling tower and blowdown from the HTF-to-steam heat exchanger may in certain cases not be recoverable in the HERO system and these streams will be sent to the on-site evaporation pond(s).

PSI plans to construct two 4-acre evaporation ponds in each power block. Two ponds were selected for reliability. The plant will utilize one of the two ponds for approximately 24 months, and then switch to the other. When one pond requires maintenance or solids removal, PSPP can still operate with the other pond. The evaporation ponds will be double-lined and will meet all applicable regulatory requirements for surface impoundments and will be covered with narrow-mesh netting to prevent access by ravens and migratory birds.

Implications for Project Impact Analysis:

The proposed evaporation ponds will disturb no additional land surface areas beyond what was previously analyzed. While the residue in the evaporation ponds represent an additional waste

stream that will require offsite disposal, the volume and infrequency of such disposal would not change the Project's less-than-significant waste management impacts.

A primary concern with evaporation ponds is potential biological resources implications. Incorporation of evaporation ponds into the Project design potentially could modify Project impacts in two ways, both related to the attraction posed by the ponds to avian species. First, the ponds may attract ravens in numbers beyond those afforded by the normal, arid conditions extant in the Project vicinity. A larger raven population increases the potential for predation of juvenile desert tortoises. The ponds also represent an attractant to other migratory and resident avian species. Chemicals present in the evaporation pond water potentially could be harmful to these species. In addition, measures taken to prevent access to water surfaces may themselves put birds at risk.

Biological resources mitigation planning for the PSPP already includes development of a Raven Management Plan. This Plan will be revised to incorporate measures that will be taken to prevent potential adverse effects to desert tortoises as a result of a subsidized raven population. The Plan will entail exclusion netting designed to prevent access to the water surface by ravens. The Raven Management Plan will also detail the measures taken to preclude access to the water surface by other avian species, and to prevent avian species from being harmed in any way by the exclusion devices.

Evaporation ponds, along with the Project's proposed Land Treatment Unit (LTU) have the potential to impact underlying groundwater and surface water quality. A report of waste discharge (ROWD) has been submitted describing the design, operation, management and detection monitoring program for the LTU. At this time, the evaporation pond design is still under development; a complete description of this Project element, including pond design, construction and maintenance, wastewater process and characterization along with a detection monitoring program will be part of the ROWD application to the Colorado River Basin Regional Water Quality Control Board, which is anticipated in May of 2010.

Construction and operation of the evaporation ponds will not affect the type or quantity of hazardous materials used by the PSPP. The waste streams sent to the evaporation ponds will be the same with or without evaporation ponds. At least a portion of the discharge from the Project's auxiliary cooling towers and boilers will be routed to the evaporation ponds. Blowdown that bypasses the HERO and is discharged to the evaporation ponds will still contain solids and other chemicals (e.g., corrosion inhibitor), which means the blow down will be classified as a designated liquid waste. Solids (suspended and total dissolved solids) will be present and unchanged whether the blowdown is routed completely through the HERO or a portion of the blowdown is routed to the HERO and the evaporation ponds. As mentioned above concerning potential water resources impacts, the operator of an evaporation pond is required to submit a Report of Waste Discharge (ROWD) and obtain Waste Discharge Requirements (WDRs) from the RWQCB. The WDR will describe the design criteria, monitoring and sampling protocol, and other management criteria to minimize a release to the environment. The waste volumes associated with periodic cleanout of the dried evaporation pond residues would not significantly affect available disposal facilities.

Onsite evaporation ponds will not have a substantial effect on the Project's air quality impacts. The process of evaporation ponds construction is expected to have minimal effect on Project construction phase air quality impacts. Earthwork (cut and fill, grading, and compaction), and other activities (e.g., truck trips delivering clay for pond liners) associated with pond construction would slightly change Project construction emissions. Air quality impacts of evaporation pond operation would be minimal.

REVISION TO CONSTRUCTION WATER REQUIREMENTS, NUMBER OF GROUNDWATER WELLS, AND CONSTRUCTION WATER STORAGE APPROACH

There has been no change in the Project's plan to supply construction and operation phase water to the Project from onsite wells. The anticipated Project construction water demand is now 5,750 acre-feet (average of ~3.4 million gallons per calendar day over the 39-month construction period). This is an increase from the estimate of 1,500 acre-feet included in the PSPP AFC. Expected water usage during Project operation has not changed. The Project (both solar units) will require a total of approximately 300 acre-feet per year (afy).

To supply the needed quantity of water and inconsideration of the proposed change in the construction water volume and based on the uncertainty in well yield due to the limited number of well tests performed to date, PSI proposes to install and operate up to 10 wells on site. The wells will be located within the Power Block and elsewhere within the Solar Field to provide primary and secondary water supply to the Project. This is an increase in the number of on-site wells compared to the number proposed in the AFC.

Water for construction activities including dust control, soil excavation and compaction, equipment flushing, etc., will be stored onsite in temporary tanks. The temporary tanks are envisioned as "Baker Tanks," which are steel fixed axle tanks /vehicles that can be pulled to the site and set at any convenient location. Upon completion of the Project activity, the tanks are removed from the site in the same manner.

Implications for Project Impact Analysis:

The change in proposed construction water supply represents an increase of about 12 times over the previously estimated volume of about 480 acre-feet per year for 39 months, for a total of approximately 1,500 AF over the entire construction period. The impacts from the change were evaluated using the Cumulative Impacts Assessment spreadsheet (AFC Table 5.17-12 (rev 2)) and the numerical groundwater model provided in the data response of March 12, 2010. The cumulative impacts assessment was modified only changing the construction water volume to the proposed 1,917 acre-feet per year over a 3-year period beginning in 2011. The recharge and discharge elements (i.e., mesa "inflow and "outflow") were not changed over the water balance provided in Table Soil and Water-194-2 (rev1) (see March 2010 submittal [not included as no changes were made to table]) under the assumption that the infiltration would be about 5% of precipitation. The forecast shows that the Project during construction will account for about 68% of the total water used by renewable energy projects proposed in the Chuckwalla Valley Groundwater Basin for an approximately three-year period starting in 2011.

The Project's operational water volume is unchanged and accounts for about 1% to 2% of the total renewable water use, and represents about a 3% to 18% increase in total demand in the Chuckwalla Valley Groundwater Basin under an assumption of no change in the base year inflow and outflow estimates. By comparison, the proposed operational volume represents about 2.4% of the estimated recharge. While the cumulative forecast from all the current and future sources results in a short-term net annual deficit, depending on the assumption of aquifer storage, the cumulative decline across the Chuckwalla Valley Groundwater Basin is between about 0.5 and 2 feet. It would be anticipated that the water level decline would be greater in areas of higher water demand. As noted in the AFC, the proposed water use for the Project alone represents about 0.1% of the available water in storage in the Chuckwalla Valley Groundwater Basin. Given its fractional

contribution to the total water use, the Project does not represent a cumulatively considerable contribution to the water resource impacts to the Chuckwalla Valley Groundwater Basin.

The groundwater model provided in the Data Response submitted March 12, 2010, was revised to reflect an updated volume of construction water supply for the PSPP. Table Soil and Water 207-1 (rev2), "Pumping Schedule for Numerical Groundwater Modeling", was modified to incorporate the change in the construction water volume over the volume proposed in the AFC. For the numerical simulations, the total water volume (5,750 acre-feet) was applied over a 3-year period as a conservative estimate of the construction water impacts as the Project construction period is proposed at 39 months. No other changes were made in the operational water volume (300 acre-feet per year) or aquifer characteristics, or transmissivity zoning as provided for the Data Response (see Figure DR S&W 207-3, March 2010). While the operational volume was not changed, the full volume of water for construction and operation was segregated and applied through pumping wells at four locations within the Project footprint (Figure Soil and Water-1).

The revision to the construction volume was simulated for both the Project Only and Cumulative Impacts scenarios (Run 7 and Run 15 from prior modeling, March 2010). The model configuration and zonation (i.e., distribution) of transmissivity and storage coefficient were not changed over the configurations provided in March 2010 Data Response (i.e., no changes were made to Figure DR S&W 207-3). Run 7 (Project only) and Run 15 (Cumulative Impacts) were updated only with the change to the construction water volume as shown on Table Soil and Water 207-1 (rev2). The transmissivity distribution was not changed from the distribution to provide a comparative assessment between the previous modeling and the updated version with the change in the construction water volume. As noted previously, the transmissivity distribution was mapped in a conservative sense, in that lower range values were applied over larger areas which would tend to produce a larger cone-of-depression. It is important to emphasize that the numerical modeling is a 2-D simulation and as such the transmissivity values are uniformly applied through the model domain and assumed constant through the vertical extent of saturated sediments. This represents a conservative approach to the analysis of water supply and impacts from the Project, as it presumes through-going uniformity of aquifer characteristics that are not documented in the hydrostratigraphy for the Basin. The Basin shows significant heterogeneity and possibly higher transmissive sediments at depth below the Project and in the central portion of the Basin.

The model results are shown in Table DR-Soil and Water 207-2 (rev2). As can be seen in the results, the maximum drawdown occurs at the end of construction (see Figure Soil and Water-2 and Soil and Water-4). During the operational period, the pumping rate drops and is distributed uniformly in the area of the Power Blocks, as such so does the drawdown. It is also noted that at the end of operation, the drawdown is slightly larger than at the middle of operation due to prolonged pumping (see Table DR-Soil and Water 207-2 (rev2)). The impact to adjacent water supply wells was also assessed using the radius of influence from the construction and operational pumping wells to the 5-foot drawdown and 1-foot drawdown contours. The maximum distance at 1 foot drawdown for the Project occurs at the end of operation for either scenario, though there is no drawdown above 5 feet predicted beyond the Project footprint (see Figure Soil and Water-3 and Soil and Water-5). Additionally, during construction no offsite water supply wells are predicted to be affected by project pumping causing a drawdown of 5 feet or more (Figure Soil and Water-2 and Soil and Water-4). The scenarios modeled reveal that no offsite well is expected to be affected to a drawdown of 5-feet or more by the Project pumping.

In a numerical groundwater flow model, inflows and outflows of the model domain can be obtained using the model flow budget for each simulation. The cumulative difference between the inflows

and outflows is the storage change for the aquifer. As can be seen from Table DR-Soil and Water 207-2 (rev2), the largest net storage change occurs at the end of operation for either model scenario. Assuming a total recoverable storage of 15,000,000 acre-ft in the basin (DWR, 1979), the impact of basin storage over the full term of the Project (30 years) is insignificant even for the largest storage change at the end of operation (0.97%).

The numerical modeling files are provided in Appendix Soil and Water-E. which accompanies this submittal.

IDENTIFICATION OF GEN-TIE LINE ROUTE TO THE TWO PROPOSED SCE RED BLUFF SUBSTATION SITE LOCATION OPTIONS

PSI plans to provide a 230-kV transmission line connection to the proposed SCE Red Bluff substation (RBSS). The proposed 230/500-kV RBSS will be constructed, owned, operated, and maintained by SCE. Since there are two RBSS locations currently being considered by SCE, both along the Devers-Palo Verde transmission line corridor, PSI has identified two gen-tie route options that correspond to each of the proposed RBSS locations under consideration by SCE. Both of the RBSS sites are currently under consideration by SCE are located due west of the PSPP site. These two transmission corridor options are shown in Figure Trans-1 and are designated as options RBSS 1 and RBSS 2. The proposed RBSS 1 location is the one nearest to the PSPP site, located approximately three miles west of the PSPP site boundary, and about half a mile south of I-10 along the Devers-Palo Verde 500-kV transmission line corridor. The proposed RBSS 2 site is located farther from PSPP, approximately nine miles west of the PSPP site boundary, and about one mile south of I-10 also along the Devers-Palo Verde 500kV transmission line corridor.

Starting at the PSPP central switchyard metering point located near the northern boundary of the Unit #2 solar field centerline, the proposed PSPP transmission line would run north approximately ¼ mile until it exits the site boundary. At that point it jogs WNW for about a mile, and then runs due west for about a ¼ mile, and then SW for about half a mile. From there it proceeds due west for approximately 2 ½ miles where it reaches a point approximately ¾ mile north of the proposed RBSS 1 site location. The RBSS 2 transmission corridor option would continue to proceed due west from this point. The first option for the proposed transmission line would, therefore, approach RBSS 1 from the east and would tie-in to the 230-kV bus from the northern end of the substation. The alignment of this proposed corridor option would total approximately 5 ¼ miles.

For RBSS 2, the transmission line would continue to proceed due west from the point located ¾ miles directly north of the proposed RBSS 1 site for an additional three miles, where it jogs NW for about ½ mile and then proceeds another 2 ¾ miles to a point approximately one mile directly north of the proposed RBSS 2 site location. Therefore, the transmission line would approach the proposed RBSS 2 substation from the east and then tie-in to the 230-kV bus from the northern end of the substation, as in the RBSS 1 option. The alignment of this proposed route would total approximately 11 ¾ miles.

Either Red Bluff Substation location is expected to occupy a total of approximately 90 acres. Substation components would include an undetermined number of 230-kV and 500-kV lines, 230/500-kV transformer banks, circuit breakers, switchgear, and a microwave tower. A road would be included to provide vehicular access to the substation. The location and length of this road would be contingent upon the final location chosen for the RBSS. Land disturbance would be limited to the actual structure locations, construction staging areas, and access road. The RBSS will

be provided with a perimeter security wall, a minimum of eight feet in height, topped with a minimum of three strands of barbed wire.

Implications for Project Impact Analysis:

Selection of either of these routes between the PSPP plant site and the Red Bluff Substation will not substantially modify previous analyses with respect to air quality or water resources. Previous analyses in these disciplines have included a gen-tie line between PSPP and the RBSS and the differences between the selected route and the routes previously evaluated do not substantially change air emissions or water supply needs. The final selection of RBSS is expected to be identified in Desert Sunlight's DEIS this spring. PSI prefers the eastern option for RBSS due to its closer proximity to the project site and resulting lower cumulative environmental impacts for transmission lines in the area.

With respect to biological resources, portions of the gen-tie line outside the PSPP plant site were located outside the areas surveyed for biological resources in 2009. Full protocol-level biological surveys for these additional areas are currently underway for both of the proposed RBSS transmission line corridor options. It is anticipated that transmission line pole locations and access road construction will result in modest increases in impacts to Sonoran Creosote Bush Scrub and Desert Dry Wash Woodland vegetation. The current surveys will ensure a level of biological resource data that matches that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, portions of the gen-tie line outside the PSPP plant site are outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway in order to ensure a level of cultural resource data matching that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into Project cultural resources evaluation and treatment programs.

With respect to transmission line safety and nuisance impacts, the electromagnetic field (EMF) is a function of the physical configuration of the transmission line and the voltage and current levels. An EMF study was prepared for a line voltage of 230-kV. No significant transmission line-related impacts were identified as a result of the Project studies and, as such, no additional mitigation is required. The double circuit PSPP transmission lines will operate at 230-kV and will have a conductor surface electric field strength significantly below 15 kV per centimeter because of the large ("Bluebird") conductor chosen for the project. Radio frequency interference and audible noise levels are not expected to be a concern during operation of the line.

CHANGES TO POWER BLOCK LAYOUT

Minor refinements have been made to the power block layouts for each of the two plants to be constructed at PSPP. Generally, these updates include a slightly enlarged ACC for improved STG performance in hot weather; adding new, lower capacity water tanks that have a smaller diameter but are slightly taller than described in the AFC; and relocation and expansion of the water treatment area, which has been shifted to make room for the center header. In addition, the entire power block is reversed north to south from the orientation presented in the AFC.

These changes are reflected in attached drawing 2008-045E-PP-001-ALT, Plot Plan Air Cooled Condenser Option (Power Block Layout_ RevE.pdf) for a revised plot plan and power block layout.

Implications for Project Impact Analysis:

The proposed layout changes do not involve disturbance of any previously undisturbed ground surface areas. Thus, they would have no implications for existing analyses related to biological, cultural, or other natural resources. The changes would not substantially affect water use during construction or operation; The relatively minor changes to the sizes and layout of facilities within the PSPP site will not substantially change the existing visual resources impact analysis. Relatively small changes to power block facilities in the interior of the roughly 3,000-acre plant site will be virtually unnoticeable from offsite locations.

The following paragraphs address the air quality implications of several proposed minor changes to the Project's emission sources, source locations, and modeling requirements, including:

- Reconfiguration of the power blocks;
- Increase in hours of operation of the cooling tower;
- Correction to the number of mirror wash events used in the air quality impacts analysis;
- Change to the maintenance vehicle travel within the solar field;
- Elimination of the vehicle travel associated with the use of RO concentrate for dust suppression; and
- Modeling to assess EPA's new 1-hour NO_2 standard (effective date April 12, 2010).

The reconfiguration of the power block by itself would be expected to have a negligible impact to the air quality impacts analysis. Moving an emission source relative to the fence line or other receptors would be expected to change the modeling results at any specific receptor; however, given the distance from the power block to the fence line, any changes in equipment location within the power block would have a negligible impact to a receptor at or beyond the fence line more than 1,000 meters away.

PSI has determined that the wet cooling tower used for heat rejection of the lube oil and generator cooling loops will have to operate 24 hours per day rather than 16 hours per day as was stated in the AFC. PSI expects that the cooling tower will not operate at full capacity during the additional 8 hours per day; however, emissions are estimated based on full load operation. The revised cooling tower emissions are shown in Table Air-2. The ambient air quality modeling analysis has been revised based on the emission increase. Modeling results are discussed and presented below.

The AFC and subsequent Data Request responses contain inconsistent information regarding the frequency of mirror washing; the AFC Project Description stated once per week during the winter months and twice per week during the summer months and the AFC air quality analysis was based on washing once per month during the winter and twice per month during the summer. PSI has confirmed that the AFC Project Description more accurately reflects the anticipated wash schedule. The emission estimates for mirror washing have been revised to reflect the more frequent wash schedule; the emission estimates are shown in Table Air-3. The modeling results have also been revised based on the correct wash schedule; modeling results are discussed and presented below.

PSI has developed a more comprehensive understanding of the maintenance inspection requirements for the solar field and has revised the maintenance vehicle mileage and corresponding emission estimates accordingly. Simply put, the maintenance inspection vehicles would travel perpendicular to the solar troughs and piping in the vicinity of the connectors rather than parallel to the troughs and piping. In this way, the travel distance for inspections and corresponding vehicle emissions are reduced substantially compared to initial estimates; the emission estimates are also shown in Table Air-3.

As noted elsewhere, PSI no longer proposes to use RO concentrate for dust suppression and instead will direct this wastewater stream to the evaporation ponds for disposal. Consequently, water truck use for dust suppression activities will not be required, and the emissions associated with water truck use would not occur. The maintenance vehicle emission estimates shown in Table Air-3 have been revised to eliminate the emissions associated with water truck use, and the ambient air quality modeling results have been revised based on this Project change; modeling results are discussed and presented below.

Finally, EPA has adopted a new ambient air quality standard for a one-hour averaging period for NO_2, effective April 12, 2010. The Applicant has prepared a modeling analysis for the 1-hour NO_2 standard to demonstrate compliance with this requirement.

The worst-case normal operations emissions of the Project ancillary sources were modeled along with vehicular emissions from the solar field maintenance vehicles. The emission rates used in the modeling were adjusted from those presented in the AFC and subsequent Data Request responses as discussed above. As was established in the modeling submitted as part of Attachment DR-AIR-5 to the Data Request responses in January 2010, there are no emissions sources within six miles of the PSPP site that emit more than five tons per year of any criteria pollutant. As a result, no modeling was performed of non-project sources beyond the addition of ambient background concentrations. The maximum modeled concentrations for Project emissions are summed with ambient background concentrations for comparison to the CAAQS/NAAQS in Table Air-4.

As shown in Table Air-4, the total concentrations comprised of maximum modeled impacts plus ambient background concentrations are below the CAAQS/NAAQS for all pollutants with the exception of the 24-hour PM10 CAAQS and NAAQS, and the annual PM10 CAAQS.

For the PM10 impacts, the ambient background already exceeds the standards and Project contributions are relatively small (28 percent and nine percent of the 24-hour and annual PM10 CAAQS, respectively). Note that identifying appropriate background data for use in this analysis is difficult because while the Project site is in a part of Riverside County designated as attainment for PM10, the available background data are from monitoring stations that are located to the west in parts of Riverside County or other counties that are designated non-attainment for PM10. Additionally, the closest monitors are located in urban/industrial / agricultural areas which are unlikely to represent background pollutant concentrations in the Project area which is undeveloped desert.

A discussion of the modeling methodology and the modeling results are provided in the Modeling freport provided as Appendix A to this submittal. An archive of the modeling file is provided as Appendix B to this submittal.

ADDITION OF A TEMPORARY CONSTRUCTION POWER LINE FROM OFFSITE

Construction power will be provided to the site from Southern California Edison. Two alternative sources of construction power are being investigated: a feed from the existing 12.47-kV distribution line that feeds the microwave tower located southwest of the Corn Springs Road interchange (see Figure Palen Telecom and Power Routing 2), and a new 12.47 kV transmission line routed down the project transmission line right-of-way from Desert Center Rice Road. If the 12.47-kV distribution line located near the microwave tower South of I10 is the selected source, then the line will be extended under I-10 and routed into the PSPP site along the site access road. The Project will include construction of a 12.47-kV internal distribution system and step down transformers to provide power as needed to construction operations.

Implications for Project Impact Analysis:

Using temporary line power rather than portable generators lowers Project air quality impacts during construction. Emissions from power line construction would minimally increase emissions. However, installation of the temporary power lines would reduce the need for portable diesel-fueled generators and thus reduce NOx, SOx, VOC, CO and PM10 emissions during the construction period compared to the Project as described in the AFC. Lower air quality impacts are anticipated as a consequence of this Project change.

With respect to biological resources, the temporary construction power line corridor is outside the area surveyed for biological resources in 2009. Full protocol-level biological surveys of the proposed alignments are currently underway. Potential biological impacts are expected to be minimal as this improvement consists of the blading and paving of an existing dirt road segment, approximately one mile in length, and the temporary installation of wooden poles. The current biological surveys will ensure a level of biological resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, the temporary construction power line corridor is outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway. These surveys will ensure a level of cultural resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into the Project's cultural resources evaluation and treatment programs.

RELOCATION OF THE EXISTING SCE 161-KV POWER LINE

There is an existing Southern California Edison (SCE) 161-kV Eagle Mountain-Blythe power line which runs in a northwesterly direction across the southwest portion of the PSPP site. PSI is working with SCE to relocate the SCE line within the BLM ROW. Figure T-Line 1, Palen 161-kV T-Line Relocation, provides an overview of the proposed relocation. The transmission line relocation is part of ongoing Project activities. The AFC identified this relocation as part of the proposed PSPP project. PSI is now making a slight alternation to the route of the relocated line to accommodate one 90-degree turn outside the fenceline rather than two 135-degree turns. This change was recently requested by Southern California Edison.

SCE will be required to remove approximately 6,200 feet of existing conductor, seven 65-foot

H-frame structures, one 65-foot three pole structure, and associated hardware and guying. The relocated power line will require SCE to install approximately 18 65-foot H-frame structures, three 65-foot three pole structures, approximately 8,000 feet of conductor, and associated hardware and guying. Because of the relatively limited size of the project, the temporary equipment and material staging area would be limited to 20 acres. An unimproved spur road would be required to access the relocated transmission line segments and structure locations.

New structure locations would first be graded and/or cleared of vegetation to provide a level and vegetation-free surface for footing and structure construction. Site preparation would also be required for the assembly of the structures to provide a level and vegetation-free area for the laydown, assembly, and erection of the structures. This laydown area would be approximately 150 feet by 75 feet (0.26 acre).

Implications for Project Impact Analysis:

Relocation of the Eagle Mountain-Blythe 161-kV line will not substantially impact air quality or water resources. Emissions associated with installation of power poles would represent a minimal increase in construction emissions and water consumption. The primary areas of concern with respect to the final gen-tie line route are biological and cultural resources because the selected route includes areas not previously surveyed for biological and cultural resources. The impacts to water resources are expected to be minimal given the relatively short run and limited soil compaction required to install the spur road, laydown area, and pole structures.

With respect to biological resources, portions of the 7,900-foot corridor proposed for the relocated line are outside the area surveyed for biological resources in 2009. Full protocol-level biological surveys for these additional areas are currently underway. It is anticipated that transmission line pole locations and access road construction will result in modest increases in impacts to Sonoran Creosote Bush Scrub and Desert Dry Wash Woodland vegetation. The current surveys will ensure a level of biological resource data matching that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, portions of the 7,900-foot corridor are outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway in order to ensure a level of cultural resource data matching that derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into Project cultural resources evaluation and treatment programs.

REFINEMENT OF THE DAILY CONSTRUCTION SCHEDULE

Based on refinements to the Project construction plan, PSI has determined that certain construction activities would have to be conducted at night in order to meet the Project schedule. For instance, it has been determined that concrete pours should be conducted at night; the high ambient temperatures during the daytime hours would jeopardize the quality of the concrete, as concrete cannot be poured if it is too hot.

PSI also believes that solar collector assembly work would have to be conducted 24 hours per day to meet the construction schedule. In addition, to provide a more comfortable work environment,

PSI would like to allow for certain other low-noise construction activities to be conducted at night, including pulling wire and welding. These activities would require operation of the concrete batch plant, generators, light plants, welders, forklifts, possibly small cranes, and miscellaneous other equipment.

Implications for Project Impact Analysis:

The resource areas potentially affected by the requested change in daily work schedule are primarily noise and air quality. Noise impacts potentially could be different because the additional work hours would occur outside normal work hours and include nighttime hours where ambient noise levels are lower than during the day. Also, the impacts of Project emissions on ambient air quality are affected by meteorological conditions. There are calm atmospheric conditions during non-daylight hours including the hours around dawn and dusk that must be taken into account when analyzing the impacts of construction activities in those times of the day.

With respect to noise impacts, PSI is willing to accept a limitation on construction activities outside the already proposed work hours that is consistent with the intent of Riverside County Noise Ordinance. This ordinance prohibits construction activities outside of specified hours within 1/4 mile of an existing residence, and PSI has recommended modification of a Condition of Certification NOISE-6 to make this limitation explicit.

In the AFC and subsequent responses to Staff Data Requests, PSI had proposed to limit construction activities to eight hours per day during the winter months and 10 hours per day during the summer months. Under the original plan, only limited construction activities would occur at night, or during the early morning or late afternoon hours when stable atmospheric conditions prevail. PSI provided ambient air quality modeling to demonstrate that under these circumstances, Project construction would not cause adverse air quality impacts.

Based on a review of the modeling results, the Applicant determined that the majority of the modeled impacts from construction activities were due to the heavy earthwork that would occur near the Project fence line. To evaluate the potential impact of the limited nighttime operations, we have assumed that no earthwork would occur outside of the daytime schedule previously evaluated, and thus emissions from graders, scrapers and dump trucks would not occur. All other construction equipment is assumed to be operational. The emissions from the non-earthwork equipment were evaluated using the modeling approach and methods described in the AFC and DR responses.

The results of the revised construction modeling are shown in Table Air-5. As shown in the table, all impacts, when added to the appropriate ambient backgrounds, are below their respective NAAQS/CAAQS with the exception of 24-hour and annual PM10, and 1-hour NO_2.

In the case of annual PM10 impacts, the maximum modeled annual mean for PM10 exceed the CAAQS when background concentrations are added because the PM10 air quality monitoring station data used for this Project show that the annual PM10 CAAQS is already exceeded in the area where the data were collected. Annual PM10 Project impacts represent only 17.7 percent of the CAAQS for annual PM10 and only 10.4 percent of the total impact to the annual PM10 concentrations when the worst-case background is considered.

For 24-hour PM10, the air quality monitoring station data used for this Project also shows that the CAAQS are already exceeded in the area where the data were collected. Project impacts by themselves are below the NAAQS and exceed the CAAQS on only one 24-hour period out of the

1,095 days modeled. In that instance, the CAAQS is exceeded at 4 receptors with a maximum concentration of 51.88 micrograms per cubic meter ($\mu g/m^3$) compared to the CAAQS of 50 $\mu g/m^3$. The four receptors are directly along the fence line to the north of the construction sources and within the PSPP right-of-way (ROW), with the diffuser area blocking public access to that fence line. Along with the very conservative nature of the modeling, the remoteness of the location and the extreme unlikelihood that the public would be at that location for any amount of time, the PM10 impacts are not expected to pose a risk to public health.

For 1-hour NO_2, a total of 907 hours, or 3.4 percent of the 26,304 hours modeled, indicated impacts which, when added to the maximum ambient background concentration over the most recent three years of available data, exceeded the 1-hour NO_2 CAAQS. As an additional refinement, time-matched background data was added to each modeled impact, and the sum compared to the 1-hour NO_2 CAAQS. The results of those added values are shown in Table Air-5. Of the 907 hours that were examined, it was found that only five hours out of the three-years modeled (less than one percent), when added to their time matched ambient background, would exceed the CAAQS, with a maximum total concentration of 397 $\mu g/m^3$. These impacts occurred on or within 200 meters of the fence line directly to the north of the solar array installation sources after dark. Again, because of the remoteness of the location, the fact that the impacts that exceed the CAAQS occur at night, and the inherently conservative nature of the modeling, the NO_2 impacts are not expected to pose a risk to public health.

Note that identifying appropriate background data for use in this analysis is difficult because while the Project site is in a part of Riverside County designated as attainment for PM10, the available background data are from monitoring stations that are located to the west in parts of Riverside County or other counties that are designated non-attainment for PM10. Additionally, the closest monitors are located in urban / industrial / agricultural areas which are unlikely to represent background pollutant concentrations in the Project area which is undeveloped desert.

Because these results represent the worst-case location for the modeled sources, the limited number of hours (less than one percent of the hours modeled) in which exceedances occur, the limited duration of the construction causing these impacts, the fact that what exceedances do occur do so within the Project ROW, and the liklihood that the background concentrations used in the analysis exceed the actual background levels in the Project area, the adverse impact to the public from construction activities within the constraints outlined in this discussion is expected to be minimal.

FINALIZATION OF THE TELECOMMUNICATIONS LINE

The Project will obtain telecommunications service from the telecommunications service provider that serves the Desert Center area. Voice and data communications would be provided by a new twisted pair telecommunications cable. The routing of this cable will exit the Project site in the right-of-way for the site access road, cross under I-10 west of the Corn Springs Road interchange and proceed to the microwave repeating tower located approximately 700 feet south of the freeway (see Figure Palen Telecom and Power Routing 2). At the microwave tower additional equipment will be installed to connect project communications with the telecom provider's network. Wireless telecom equipment will be used to support communication with Staff dispersed throughout the project site. The project would utilize electronic telemetry systems to control equipment and facilities operations for the site.

Implications for Project Impact Analysis:

The addition of new telecommunications equipment to the PSPP would not substantially change project impacts in any of the topical areas addressed in the AFC. The installation of this line is not expected to have an adverse impact to air quality resources because the construction requirements do not differ significantly from the construction plan and associated emissions presented in the AFC, and there are no operating emissions associated with this equipment.

With respect to biological resources, the telecommunications line corridor is outside the area surveyed for biological resources in 2009. Full protocol-level biological surveys of the proposed alignments are currently underway. Potential biological impacts are expected to be minimal as this improvement consists of trenching and burying the lines in the drainage ditch under the freeway approximately 30 inches deep while taking adequate steps to avoid erosion. The current biological surveys will ensure a level of biological resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. In addition, any necessary additional mitigation provisions will be calculated.

With respect to cultural resources, the telecommunications line corridor is outside the area surveyed for cultural resources in 2009. Cultural resource surveys for these additional areas are currently underway. These surveys will ensure a level of cultural resource data that matches the data derived from the 2009 surveys. Upon completion of these surveys, the results and the related impact analyses will be forwarded to the CEC and other reviewing agencies. The resources encountered will be incorporated into evaluation and treatment programs.

REVISED LIST OF WATER TREATMENT CHEMICALS

Additional water treatment chemicals will be required for the boiler, RO system, clarifier, multimedia filters, and cooling towers. These additional water treatment chemicals (beyond what has already been provided in AFC Table 5.6-3) include soda ash, lime, sodium hypochlorite, coagulant, magnesium chloride, polymer, anti-scalant, sodium bisulfate, corrosion inhibitor, dispersant, sodium hydroxide, scale inhibitor, biodispersant, phosphate, amine, and hydrazine. Currently, detailed engineering changes to the water treatment process are being prepared, and we expect the revised Table 5.6.3 showing all additional process chemicals including quantities, hazardous material and CAS #s, relative toxicity and hazard class, RQ, PEL, storage description and capacity, and storage practices/special handling precautions, etc. will be provided to the CEC.

Implications for Project Impact Analysis:

Listed additional hazardous materials are typical water treatment chemicals; however, hazardous materials, such as sodium hydroxide, in sufficient concentration and quantity may trigger risk management plan or California Accidental Release Prevention requirements. All hazardous materials storage or process vessels will be designed in conformance with applicable American Society of Mechanical Engineers codes. Bulk storage tanks or totes will have secondary containment structures capable of holding the tank or tote volume plus an allowance for precipitation. Concrete containment structures will be coated with a chemical resistant coating to ensure long-term integrity of the containment structure.

As with all other aspects of the PSPP, appropriate safety programs will be developed to address hazardous materials storage and use, emergency response procedures, employee training requirements, hazard recognition, fire safety, first aid/emergency medical procedures, hazardous materials release containment/control procedures, hazard communications training, Personal Protective Equipment training, and release reporting requirements. In short, the additional chemicals on site would not affect Project impacts.

ADDITION OF AN ON-SITE FUEL DEPOT DURING CONSTRUCTION

A fuel depot will be constructed to refuel, maintain, and wash construction vehicles. It will occupy an area of approximately 75 feet x 150 feet and will consist of a fuel farm with two 2000-gallon on-road vehicle diesel tanks, two 8,000-gallon off-road vehicle diesel tanks, one 500-gallon gasoline tank, and a wash water holding tank. Each diesel tank would be subdivided into two compartments, an 8,000-gallon compartment for off-road diesel fuel and a 2,000-gallon compartment for on-road diesel fuel. The fuel farm will include secondary spill containment; a covered maintenance area, also with secondary containment; and a concrete pad for washing vehicles. (Please see the attached Figure Depot-1, Fuel Depot Layout for a generalized layout of the proposed fuel depot.)

Implications for Project Impact Analysis:

The gasoline storage tank is subject to air permit requirements under SCAQMD rules; the diesel tanks are exempt from permit requirements in the SCAQMD pursuant to Rule 219(E)(14)(c).

The emissions from the two 10,000-gallon diesel storage tanks and the 500-gallon gasoline storage tank proposed for PSPP were calculated using EPA's TANKS 4.09D tank emission estimation program and the maximum annual fuel usage during the construction and operational phases of the project. The maximum annual fuel usage was calculated from the CO_2 emissions derived from the OFFROAD2007 and EMFAC2007 models for each equipment and vehicle type used during the construction of the project. The CO_2 emissions were divided by the ARB's default CO_2 emission factor, which is based on the carbon content of the fuel, to estimate the fuel consumption. This method was selected to calculate fuel usage because the OFFROAD2007 model incorporates fuel economy and average load rates into the emission factors, so additional adjustments are not required. To prevent the underestimation of annual emissions, it was assumed that the maximum monthly fuel usage for the construction of the project would occur every month. The maximum annual gasoline and diesel usage from the operation of PSPP was taken from the GHG emissions calculations submitted in the DR responses, using the same method as described for construction. Note that this method would overestimate the fuel throughput and corresponding tank emissions during both construction and operations because some of the equipment is expected to be refueled offsite. Fuel Depot emissions are summarized in Table Air-6. The VOC emissions from these tanks are not expected to cause or contribute to a significant adverse air quality impact.

As noted in the PSPP AFC (page 5.6-12), diesel fuel is the hazardous material with the greatest potential for environmental consequences during Project construction due to the volume of diesel fuel that will be used in construction equipment and the frequent refueling that will be required). When refueling is needed, vehicles will enter a dedicated refueling area where secondary containment is present to minimize the impact to the environment. A dedicated location increases the ability to effectively manage spills, leaks, storage, handling, loading/unloading, and other activities associated with vehicle fueling. Any fuel spilled will be contained and promptly cleaned up

with no contaminated soil generated. If anything, this Project change is expected to decrease the potential for environmental impacts associated with refueling spills.

Figures and Tables

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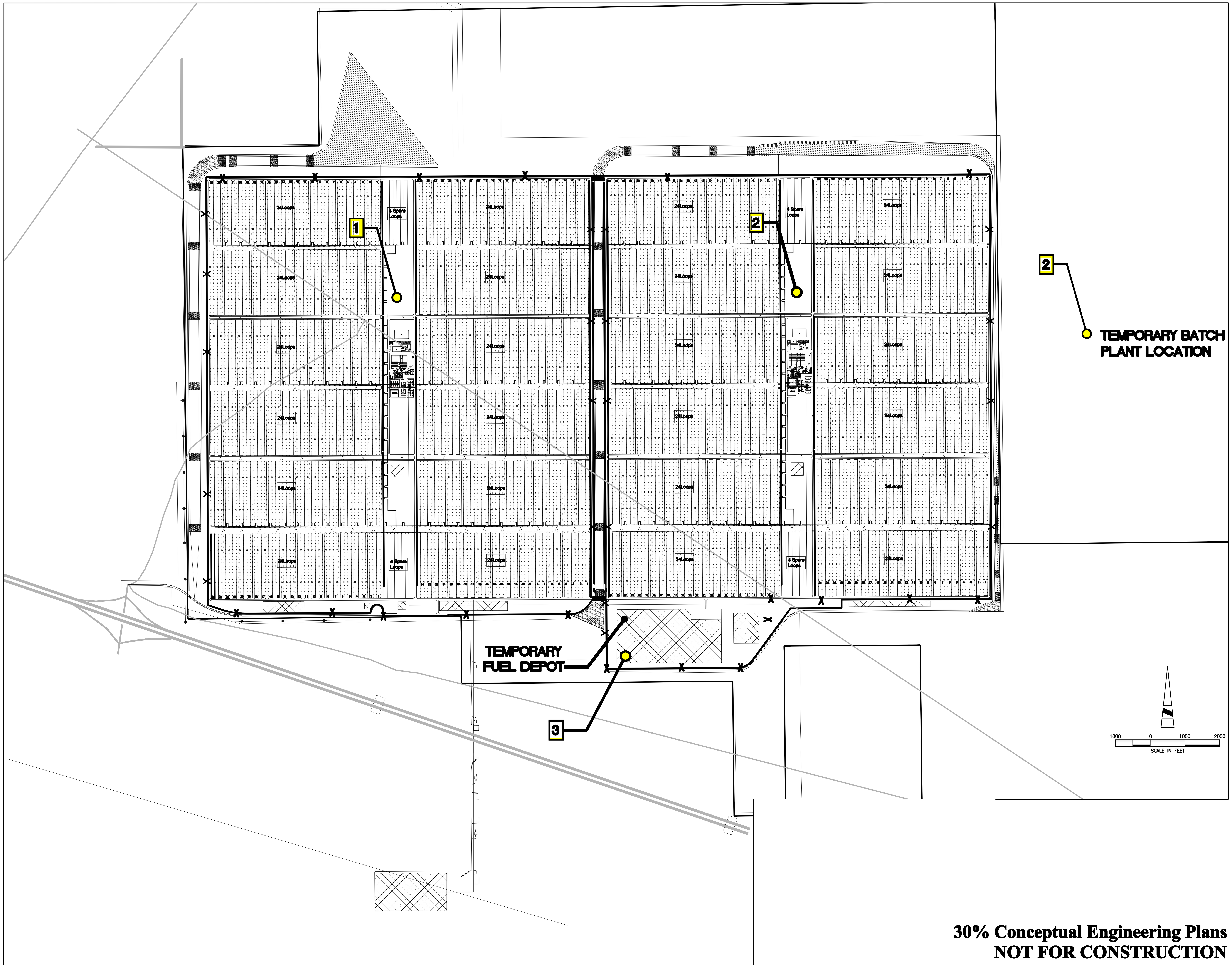
Figures

Tables



30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: APRIL, 2010

AECOM

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Designed: Tomas Gonzales
Checked: Dennis Lucas
Drawn: Tomas Gonzales DTG
Record Drawing by/date: 5-18-09

Revisions:

#	DATE	DESCRIPTION
1	JULY,2009	REV SITE PLAN AND POWER BLOCK PER-FLAGSOL DWG PD1_GEN_ARR_00103-2007

Prepared for:

345 California Street
San Francisco, California 94104

Solar Millennium LLC

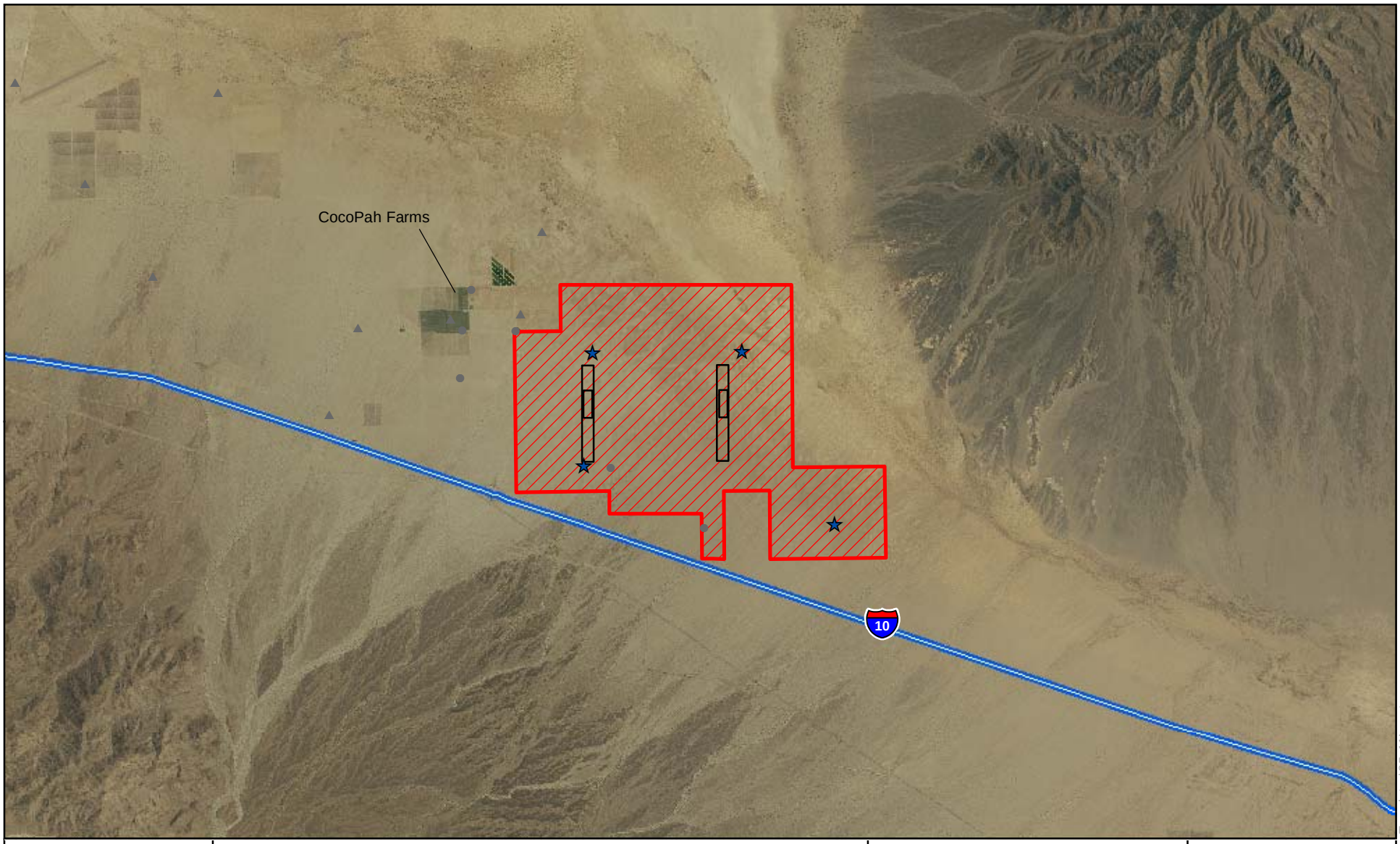
LEGEND:

Palen Solar Power Project

Riverside County, California

TEMPORARY CONSTRUCTION FACILITIES

Date: 4-14-2010
Sheet: 1 of 1



Map Location

Legend

- Project Right-of-Way
- Groundwater Well Location based on Latitude and Longitude in USGS Database
- Groundwater Well Location based on the State Well Number (approximate)
- Location of Pumping Well Used in the Model

1 inch = 8,000 feet

0 6,000 12,000 Feet

Data Sources:
Air Photo, NAIP, 2005
Basemap, (Roads, streams, cities), ESRI

Palen Solar Power Project

Figure Soil and Water-1
Pumping Well Locations

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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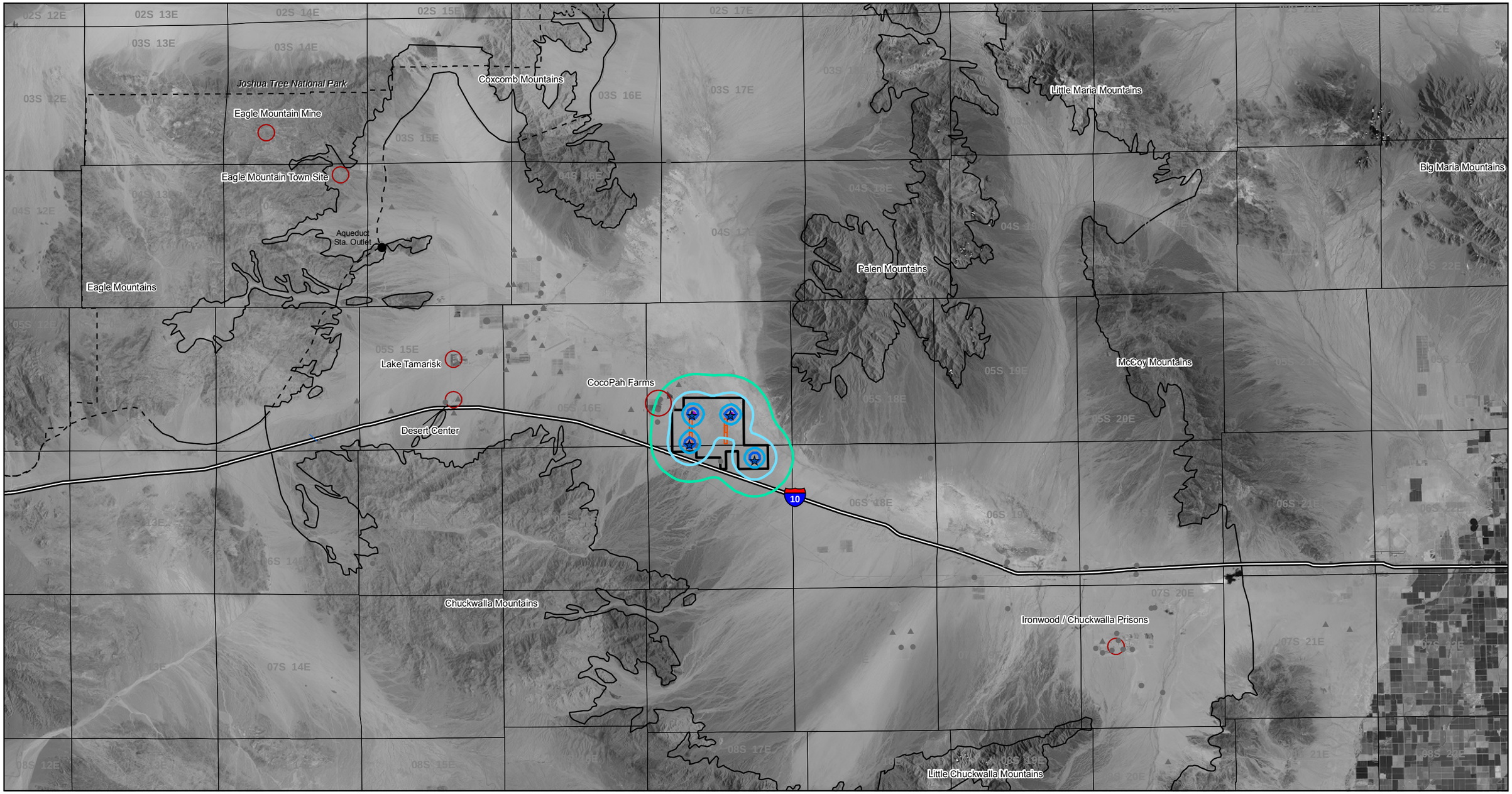

Map Location

Legend

- Project Right-of-Way
- Colorado River Aqueduct
- Colorado River Aqueduct (Dash showing underground interval)
- Chuckwalla Valley Groundwater Basin Boundary
- Freeway
- Geographic/Cultural Area of Interest
- Groundwater Well Location based on Latitude and Longitude in USGS Database
- Groundwater Well Location based on the State Well Number (approximate)
- Location of Pumping Well Used in the Model

Model Predicted Drawdown; Negetive Indicates Reduction In Water Level in Feet

- -0.1
- -1
- -5
- -10
- -20

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County

Water Basins, Department of Water Resources Website groundwater basin map file B118v3NAD27UTM10.zip

N W E S

0 4 8 Miles

1 inch = 21,120 feet

Palen Solar Power Project

Figure Soil and Water-2
Project Only
Revised Construction Water Supply

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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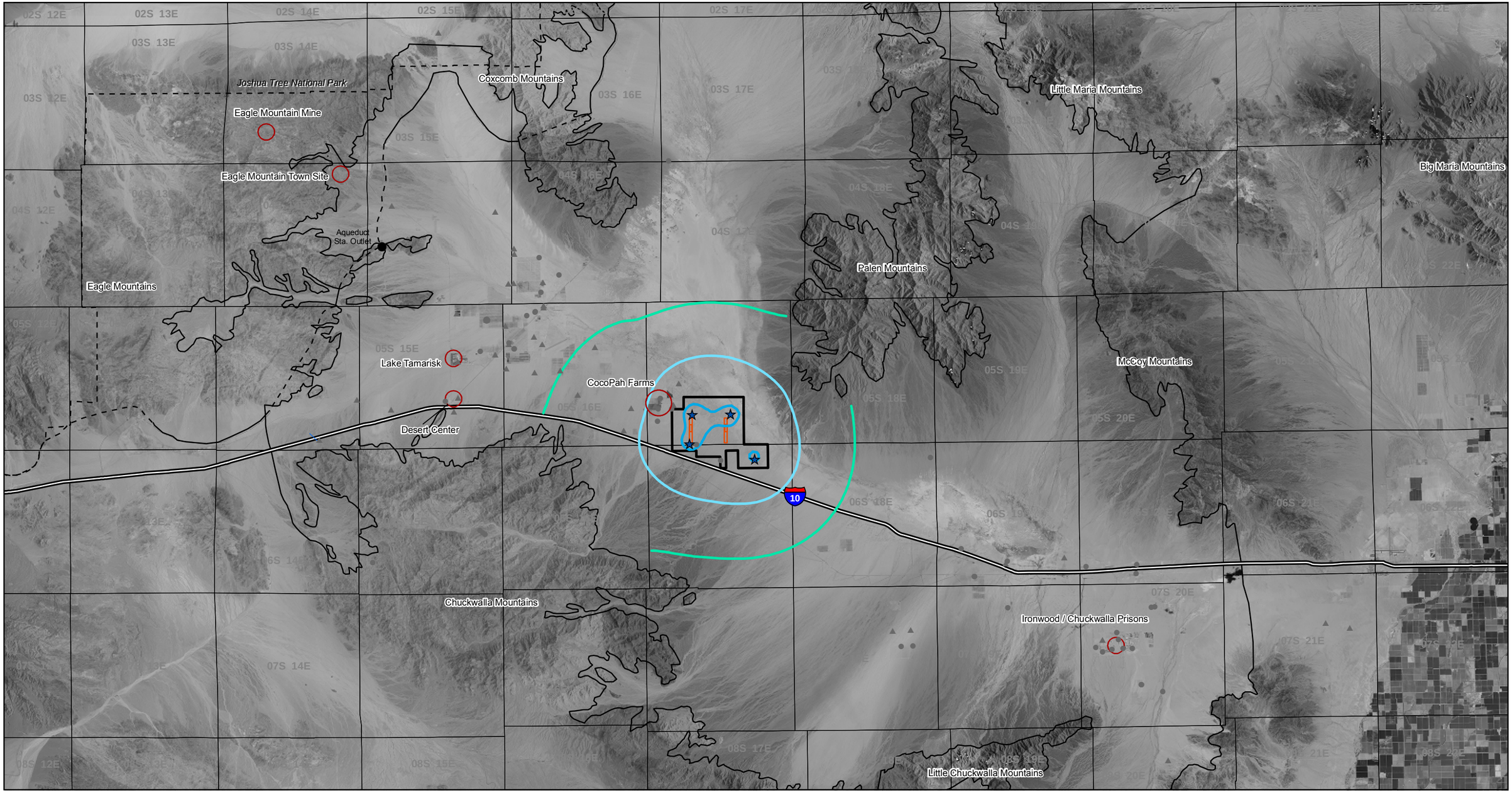

Map Location

Legend

- Project Right-of-Way
- Colorado River Aqueduct
- Colorado River Aqueduct (Dash showing underground interval)
- Chuckwalla Valley Groundwater Basin Boundary
- Freeway
- Geographic/Cultural Area of Interest
- Groundwater Well Location based on Latitude and Longitude in USGS Database
- Groundwater Well Location based on the State Well Number (approximate)
- Location of Pumping Well Used in the Model

Model Predicted Drawdown; Negetive Indicates Reduction In Water Level in Feet

- -0.1
- -1
- -5

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County

Water Basins, Department of Water Resources Website groundwater basin map file B118v3NAD27UTM10.zip

N W E S

0 4 8 Miles

1 inch = 21,120 feet

Palen Solar Power Project

Figure Soil and Water-3
Project Only
Revised Operational
Water Supply
End of 30 Years

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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Joshua Tree National Park
Eagle Mountain Mine
Eagle Mountain Town Site
Aqueduct Sta. Outlet
Eagle Mountains
Coxcomb Mountains
Lake Tamarisk
Desert Center
CocoPah Farms
Palen Mountains
Little Maria Mountains
Big Maria Mountains
McCoy Mountains
Chuckwalla Mountains
Ironwood / Chuckwalla Prisons
Little Chuckwalla Mountains
10

Map Location

Legend

- Project Right-of-Way
- Colorado River Aqueduct
- Colorado River Aqueduct (Dash showing underground interval)
- Chuckwalla Valley Groundwater Basin Boundary
- Freeway
- Geographic/Cultural Area of Interest
- Groundwater Well Location based on Latitude and Longitude in USGS Database
- Groundwater Well Location based on the State Well Number (approximate)
- Location of Pumping Well Used in the Model

Model Predicted Drawdown; Negetive Indicates Reduction In Water Level in Feet
-0.1
-1
-5
-10
-20
-30

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County

Water Basins, Department of Water Resources Website groundwater basin map file B118v3NAD27UTM10.zip

N
W
E
S

0 4 8 Miles

1 inch = 21,120 feet

Palen Solar Power Project

Figure Soil and Water-4
Cumulative Impacts
Revised Construction
Water Supply
End of Palen Construction

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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Joshua Tree National Park
Eagle Mountain Mine
Eagle Mountain Town Site
Aqueduct Sta. Outlet
Eagle Mountains
Coxcomb Mountains
Lake Tamarisk
Desert Center
CocoPah Farms
Chuckwalla Mountains
Palen Mountains
Little Maria Mountains
Big Maria Mountains
McCoy Mountains
Ironwood / Chuckwalla Prisons
Little Chuckwalla Mountains
10

Map Location

Legend

- Project Right-of-Way
- Colorado River Aqueduct
- Colorado River Aqueduct (Dash showing underground interval)
- Chuckwalla Valley Groundwater Basin Boundary
- Freeway
- Geographic/Cultural Area of Interest
- Groundwater Well Location based on Latitude and Longitude in USGS Database
- Groundwater Well Location based on the State Well Number (approximate)
- Location of Pumping Well Used in the Model

Model Predicted Drawdown;
Negetive Indicates Reduction
In Water Level in Feet

- -0.1
- -1
- -5
- -10
- -20
- -30
- -40
- -50
- -100

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County

Water Basins, Department of Water Resources Website groundwater basin map file B118v3NAD27UTM10.zip

N W E S

0 4 8 Miles

1 inch = 21,120 feet

Palen Solar Power Project

Figure Soil and Water-5
Cumulative Impacts
Revised Operational
Water Supply
End of 30 Years

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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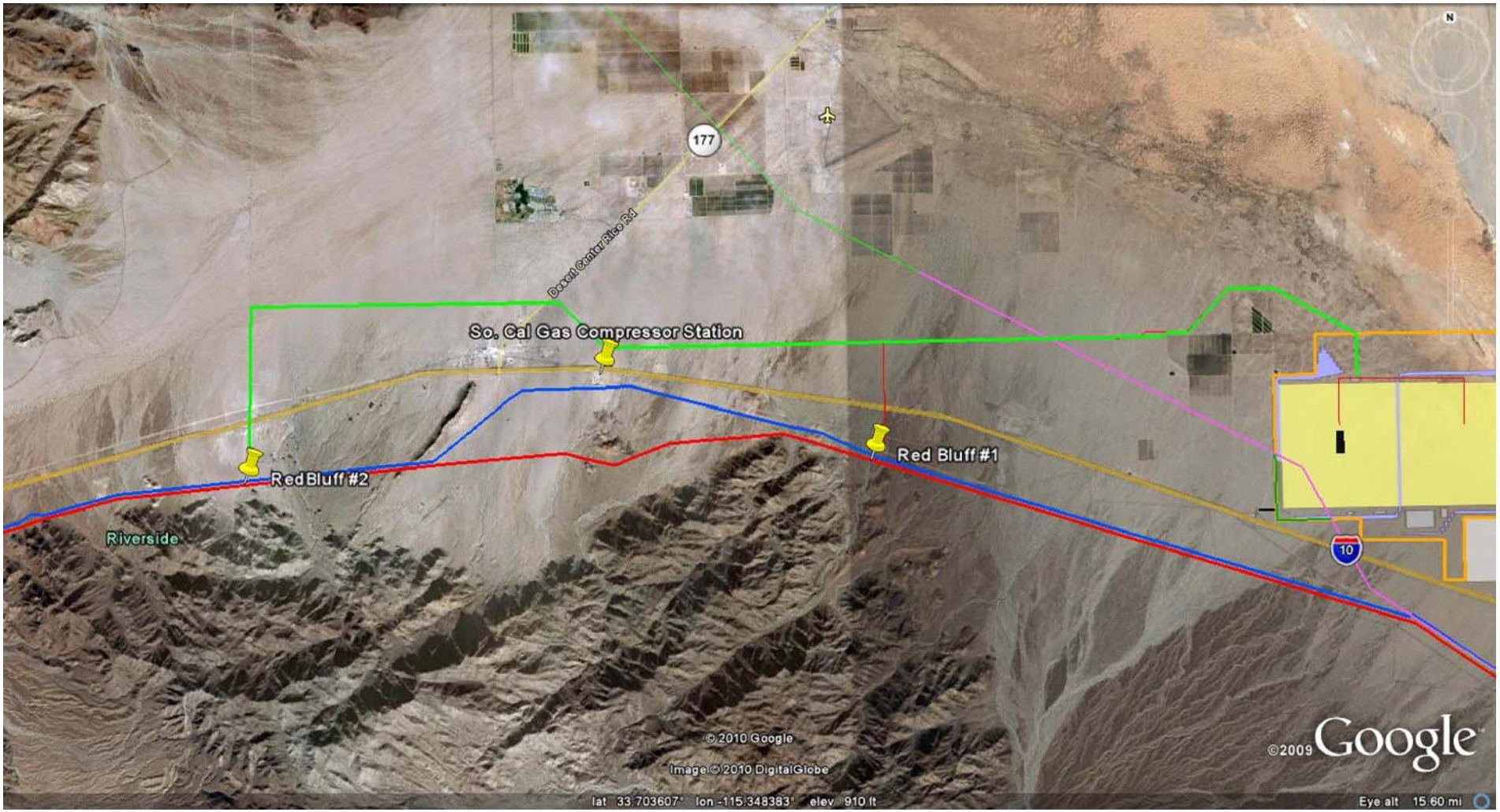

Map Location

Palen Solar Power Project

Figure Trans-1
Proposed Palen Transmission Line Routings

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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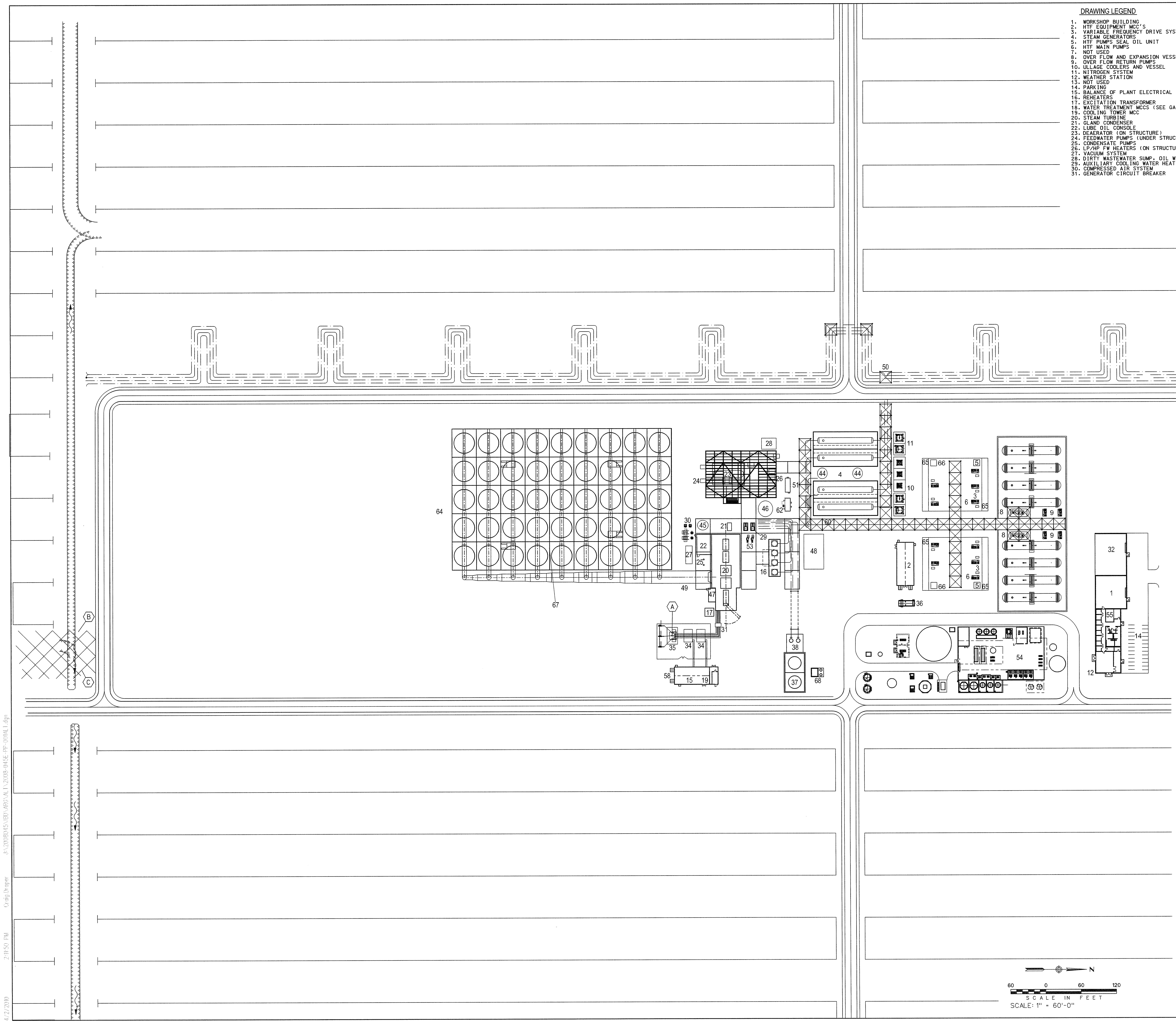
DRAWING LEGEND

1. WORKSHOP BUILDING
2. HTF EQUIPMENT MCC'S
3. VARIABLE FREQUENCY DRIVE SYSTEM
4. STEAM GENERATORS
5. HTF PUMPS SEAL OIL UNIT
6. HTF MAIN PUMPS
7. NOT USED
8. OVER FLOW AND EXPANSION VESSELS
9. OVER FLOW RETURN PUMPS
10. ULLAGE COOLERS AND VESSEL
11. NITROGEN SYSTEM
12. WEATHER STATION
13. NOT USED
14. PARKING
15. BALANCE OF PLANT ELECTRICAL
16. REHEATERS
17. EXCITATION TRANSFORMER
18. WATER TREATMENT MCCS (SEE GA-003ALT)
19. COOLING TOWER MCC
20. STEAM TURBINE
21. GLAND CONDENSER
22. LUBE OIL CONSOLE
23. DEAERATOR (ON STRUCTURE)
24. FEEDWATER PUMPS (UNDER STRUCTURES)
25. CONDENSATE PUMPS
26. LP/HP FW HEATERS (ON STRUCTURE)
27. VACUUM SYSTEM
28. DIRTY WASTEWATER SUMP, OIL WATER SEPARATOR
29. AUXILIARY COOLING WATER HEAT EXCHANGERS
30. COMPRESSED AIR SYSTEM
31. GENERATOR CIRCUIT BREAKER
32. WAREHOUSE
33. NOT USED
34. MAIN AUXILIARY TRANSFORMERS
35. GENERATOR STEP-UP TRANSFORMERS
36. EMERGENCY DIESEL GENERATOR
37. COOLING TOWER
38. CIRCULATING WATER PUMPS
39. FIRE AND SERVICE WATER TANK (SEE GA-003ALT)
40. SERVICE WATER PUMPS (SEE GA-003ALT)
41. NOT USED
42. FIRE PROTECTION PUMPS (SEE GA-003ALT)
43. NOT USED
44. BLOWDOWN TANKS
45. TURBINE DRAINS TANK
46. CONDENSATE DRAINS TANK
47. STG PEECC
48. AUXILIARY BOILER
49. ACC STEAM DUCT
50. HTF PIPING CONNECTION TO SOLAR FIELD
51. SAMPLE PANEL & LAB BUILDING
52. DEMINERALIZED WATER TANK (SEE GA-003ALT)
53. CLOSED CYCLE COOLING WATER PUMPS
54. WATER TREATMENT AREA (SEE GA-003ALT)
55. ADMINISTRATION BUILDING
56. NOT USED
57. NOT USED
58. SUS TRANSFORMER & 480 V BUS
59. DEMINERALIZED WATER PUMPS (SEE GA-003ALT)
60. PIPE RACK
61. NOT USED
62. CHEMICAL FEED CANOPY
63. NOT USED
64. AIR COOLED CONDENSER (ACC)
65. HTF SWITCHYARD
66. HTF PUMPS LUBE OIL UNIT
67. MCC ACCS
68. COOLING TOWER CHEM FEED BUILDING

INTERCONNECT LIST

(A) HV ELECTRICAL - HIGH SIDE TERMINALS OF GSU

(B) NATURAL GAS



- PRELIMINARY -
NOT FOR CONSTRUCTION

CONFIDENTIAL

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CED SMG DES

REV	DESCRIPTION	DWN	CHK	APP	DATE
E	ROTATED STG STEP UP TRANSFORMER AND SHIFTED POWER BLOCK 25'-0" SOUTH, DELETED ITEM 7, 13, 41, 56, 57 AND SIZES FOR INTERCONNECT B & C,	CED	SMG	DES	04-02-10
D	ADDED CT CHEM FEED BUILDING; REVISED ACC	SRH	SMG	DES	11-04-09
C	PRELIMINARY	SRH	SMG	DES	08-10-09
B	PRELIMINARY	SRH	SMG	DES	07-28-09
A	PRELIMINARY	SRH	SMG	DES	07-09-09

SOLAR MILLENNIUM

Palen Solar Power Plant

PLOT PLAN
AIR COOLED CONDENSER OPTION

	by	date
DESIGNED	DES	06-26-09
DRAWN	SRH	06-26-09
CHECKED	---	----
APPROVED	---	----

DRAWING NUMBER

2008-045E-PP-001ALT

Map Location

Palen Solar Power Project

Figure
Palen Telecom and
Power Routing 2

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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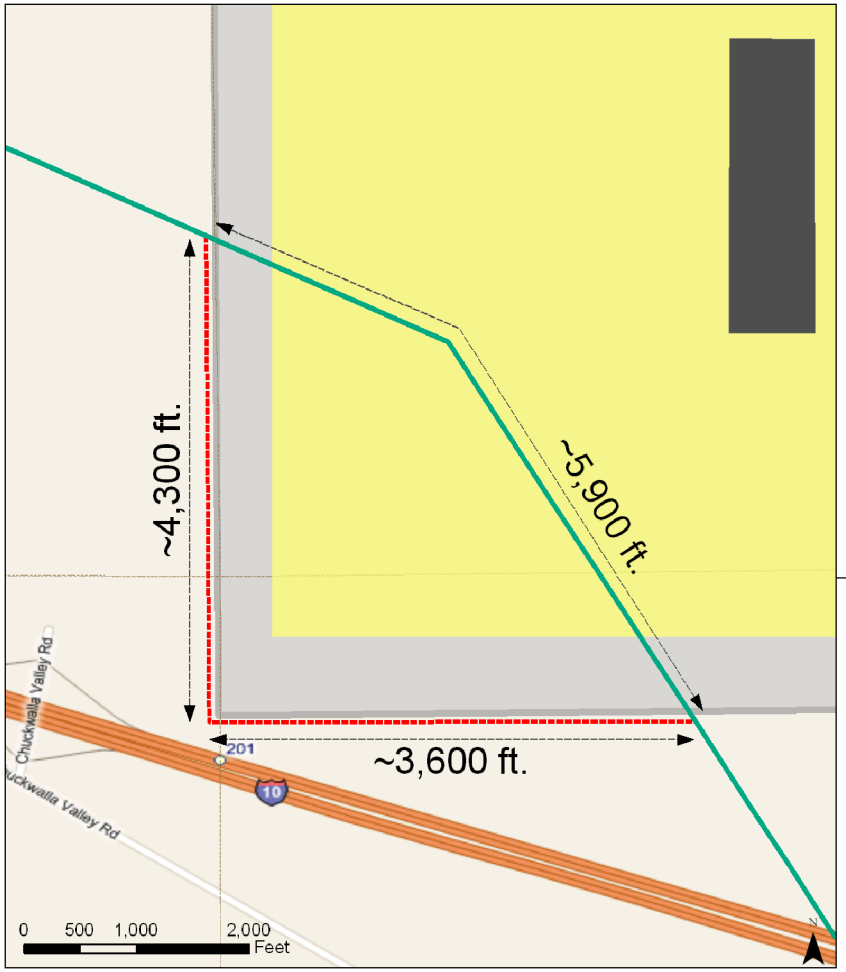

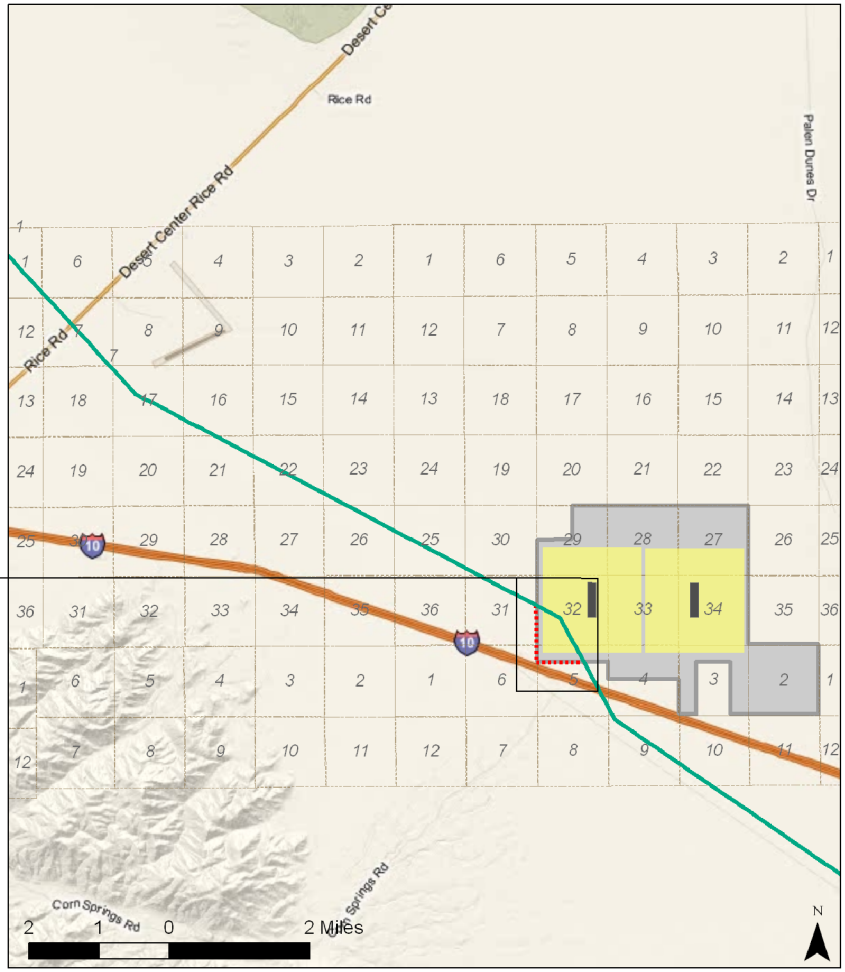

Blythe-Eagle Mtn. 161 kV Line

Proposed Relocation of Blythe-Eagle Mtn. 161 kV Line

Solar Millennium Project Right of Way

Section Boundary

Map Location

Palen Solar Power Project

Figure T-Line 1
Palen 161-k Line
Relocation

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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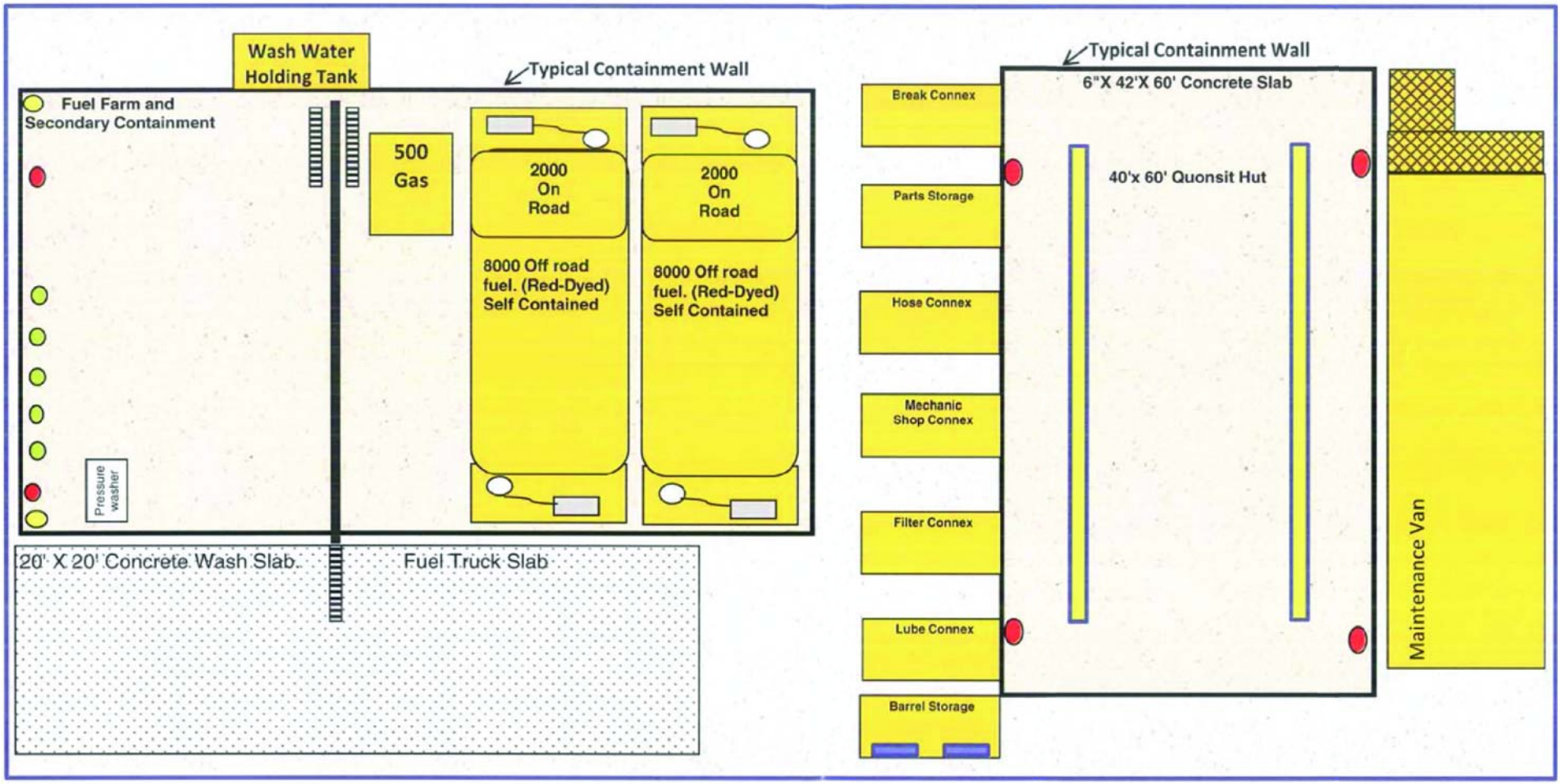

Map Location

Palen Solar Power Project

Figure 1 Depot-1
Fuel Depot Layout

Palen Solar I, LLC

AECOM

Project: 60139694
Date: April 2010

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Table Air-1 Concrete Batch Plant Emissions

Source	Maximum Hourly Emissions				
	NOx	**VOC**	**CO**	**SOx**	**PM10**
	(lb/hr)				
Batch Plant	---	---	---	---	0.029
Storage Piles	---	---	---	---	0.020
Generator	0.591	0.040	0.699	0.002	0.031
Front End Loader	1.195	0.089	0.284	0.002	0.031
Total	**1.79**	**0.13**	**0.98**	**0.00**	**0.110**
Source	**Daily Emissions**				
	NOx	**VOC**	**CO**	**SOx**	**PM10**
	(lb/day)				
Batch Plant	---	---	---	---	0.29
Storage Piles	---	---	---	---	0.47
Generator	5.91	0.40	6.99	0.02	0.31
Front End Loader	11.95	0.89	2.84	0.02	0.31
Total	**17.86**	**1.30**	**9.84**	**0.03**	**1.38**
Source	**Annual Emissions**				
	NOx	**VOC**	**CO**	**SOx**	**PM10**
	(ton/yr)				
Batch Plant	---	---	---	---	0.052
Storage Piles	---	---	---	---	0.085
Generator	0.709	0.048	0.839	0.002	0.037
Front End Loader	1.434	0.107	0.341	0.002	0.038
Total	**2.143**	**0.155**	**1.180**	**0.004**	**0.211**

AFC TABLE 5.17-12 (rev2)
CUMULATIVE WATER BUDGET
CHUCKWALLA GROUNDWATER BASIN
RIVERSIDE COUNTY, CALIFORNIA

PROJECT[1]	PROPONENT	BLM SERIAL ID	TECHNOLOGY	SOURCE	USE	WATER USE - SOLAR and OTHER RENEWABLE PROJECTS (AFY)														COMMENTS
						2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2043	
Chuckwalla Solar I	Chuckwalla Solar I LLC	CA 48808	Photovoltaic (200MW)	Groundwater	Construction	--	20	20	20	--	--	--	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	40	40	40	40	40	40	40	40	40	40	**40**	
Eagle Mountain Soleil [8]	enXco	CA 49491	Photovoltaic (100MW)	Groundwater	Construction	--	--	10	10	--	--	--	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	5	5	5	5	5	5	5	5	5	5	**5**	
Desert Lily Soleil [8]	enXco	CA 49492	Photovoltaic	Groundwater	Construction	--	--	20	20	20	--	--	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	--	5	5	5	5	5	5	5	5	5	**5**	
Solel Mohave Solar Park	Deset Lily	CA 49494	Parabolic Trough (500MW)	Groundwater	Construction	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Project withdrawn. Application rejected (First-In-Line Solar Applications, BLM (12-21-09))
					Operational	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Desert Sunlight Solar Farm	First Solar	CA 48649	Photovoltaic (550MW)	Groundwater	Construction	--	9	9	9	--	--	--	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	**3.8**	
Eagle Mountain Pump Storage	Eagle Crest Energy Company, LLC	PAD/FERC (January 2009)	Pump - Storage (1300MW)	Groundwater	Construction	--	--	--	--	8,066	8,066	8,066	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	--	--	--	1802	1802	1802	1802	1802	1802	1802	**1,802**	
Genesis Solar Energy	Genesis Solar LLC	CA 48880	Parabolic Trough (250MW)	Groundwater	Construction	--	813	813	813	--	--	--	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	
Mule Mountain Solar Project	Bullfrog Green Energy, LLC	CA 49097	Photovoltaic (500MW)	Groundwater or water trucked in for mostly mirror washing	Construction	--	20	20	20	--	--	--	--	--	--	--	--	--	--		Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	0.25	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	**0.7**	
Mule Mountain Soleil	enXco	CA 49488	Photovoltaic (200MW)	Groundwater	Construction	--	--	10	10	--	--	--	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	5	5	5	5	5	5	5	5	5	5	**5**	
Palen Solar Power	Solar Millennium LLC	CA 48810	Parabolic Trough (484MW)	Groundwater	Construction	--	**1917**	**1917**	**1917**	--	--	--	--	--	--	--	--	--	--	**--**	Total construction time remains about the same (38 months). Total water usage during construction (1,872,602,991 gallons) or about **5,750 af**. Operational use remains at 303 afy. Construction water usage averaged over a period of 3 years starting in 2011.
					Operational	--	--	--	--	303	303	303	303	303	303	303	303	303	303	**303**	
TOTAL WATER USE - RENEWABLE PROJECTS (AFY)[2]						0	2,779	2,820	2,820	9,785	9,770	9,770	3,506	3,506	3,506	3,506	3,506	3,506	3,506	**3,506**	
DISCHARGE FROM OTHER SOURCES (AFY)[3]						10,490	10,490	10,490	10,490	10,490	10,490	10,490	10,490	10,490	10,490	10,490	10,490	10,490	10,490	**10,490**	
RECHARGE (AFY)[4]						12,660	12,660	12,660	12,660	12,660	12,660	12,660	12,660	12,660	12,660	12,660	12,660	12,660	12,660	**12,660**	
YEARLY BALANCE (AFY)[5]						2,170	-609	-650	-650	-7,615	-7,600	-7,600	-1,336	-1,336	-1,336	-1,336	-1,336	-1,336	-1,336	**-1,336**	
CUMULATIVE CHANGE (AFY)[6]						2,170	1,561	911	261	-7,353	-14,953	-22,552	-23,888	-25,223	-26,559	-27,894	-29,230	-30,565	-31,901	**-58,611**	
CUMULATIVE BASINWIDE CHANGE IN WATER LEVEL (assuming a storage coefficient of 0.20) (INCHES)[7]						0.2	0.15	0.1	0.0	-0.7	-1.5	-2.2	-2.4	-2.5	-2.6	-2.8	-2.9	-3.0	-3.2	**-5.8**	
CUMULATIVE BASINWIDE CHANGE IN WATER LEVEL (assuming a storage coefficient of 0.05) (INCHES)[7]						0.9	0.6	0.4	0.1	-2.9	-5.9	-8.9	-9.5	-10.0	-10.5	-11.1	-11.6	-12.1	-12.7	**-23.3**	
					Project Use as a percentage of renwable	69.0%	68.0%	68.0%	3.1%	3.1%	3.1%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%	8.6%			
					Proejct use as a percentage of total	14.4%	14.4%	14.4%	1.5%	1.5%	1.5%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%			
					Percent of Demand	18%	18%	18%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%			
					Percent of Recharge	15.1%	15.1%	15.1%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%			

NOTES

1 Chuckwalla Solar I (Chuckwalla Solar I LLC) - Plan of Development, Chuckwalla Solar I, february 2009.
Desert Lily Soleil (enXco5) - Plan of Development, Desert Lily Soleil Project, October 2008.
Desert Lily (Solel) - Plan of Development, Mojave Solar Park/Desert Lily Project, October 2007.
Desert Sunlight Solar Farm (First Solar) - Plan of Development Optisolar, October 2008.
Eagle Mountain Pump Storage Project - Estimates provided from the Eagle Mountain Pumped Storage Project No. 13123 - Final License Application, Eagle Crest Energy Company June 2009 (EIS Table 14).
Genesis Solar Energy (Genesis Solar LLC) - Plan of Development, Genesis Solar Energy Project, June 2009.
Mule Mountain Solar Project (Bullfrog Green Energy, LLC) - Plan of Development, Mule Mountain Solar Project, May 2009
Mule Mountain Soleil (enXco2) - Plan of Development, Mule Mountain Soleil Project, enXco February 2009.
Palen Solar Power Plant - Estimates provided from the AECOM Water, "Water Wastewater Report - Palen Solar Power Project July 2009 (Appendix L).

2 Sum of projected water use by year for the identified renewable energy projects.

3 Discharge from other sources other than solar or renewable energy projects (see Table DR-S&W-194-2 (rev1)). Assumption is that the discharge kept constant over the term of the analysis (30 years).

4 Estimate of recharge from basin water balance provided on Table DR-S&W-194-2 (rev1). Recharge was assumed to be constant over 30 years.

5 Difference between discharge (inclusive of renewable projects and other sources) and recharge.

6 Cumulative difference between recharge and discharge.

7 Change in the regional water level following the equation shown below (Fetter 1988). Negative numbers indicate a decline or reduction in the water level by the amount shown.

8 There is conflict between the CEC and BLM lists as to whether these projects will be permitted. They have been included for completeness though they may well not be part of the cumulative water budget for the Chuckwalla Valley Groundwater Basin.

DEFINITIONS

AFY	Acre feet per year
AF	Acre feet - (325,829 gallons)
FERC	Federal Energy Regulatory Commission
LLC	Limited Liability Corporation
MW	Megawatts

ESTIMATE OF BASINWIDE WATER LEVEL CHANGE

V = A*S*dh
V - volume of water released or taken into storage
A - area of the aquifer (605,000 acres)
S- aquifer storage (assumed to be 0.10)
dh - change in water level (inches)

Table S&W-207-1 (rev2)
PUMPING SCHEDULE FOR CUMULATIVE WATER BUDGET ASSESSMENT
PALEN SOLAR POWER PROJECT

PROJECT[1]	PROPONENT	BLM SERIAL ID	TECHNOLOGY	SOURCE	USE	WATER USE - RENEWABLE PROJECTS (AFY)									COMMENTS [3]
						2010	2011	2012	2013	2014	2015	2016	2017	2018-2043	
Chuckwalla Solar I	Chuckwalla Solar I LLC	CA 48808	Photovoltaic (200MW)	Groundwater	Construction	--	20	20	10	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	5	7	10	10	10	10	**10**	
Eagle Mountain Soleil [1]	enXco	CA 49491	Photovoltaic (100MW)	Groundwater	Construction	--	--	10	10	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09).
					Operational	--	--	--	--	5	5	5	5	**5**	
Desert Lily Soleil [1]	enXco	CA 49492	Photovoltaic	Groundwater	Construction	--	--	20	20	20	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	--	5	5	5	**5**	
Solel Mohave Solar Park [2]	Deset Lily	CA 49494	Parabolic Trough (500MW)	Groundwater	Construction	--	--	--	--	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09). Project Withdrawn.
					Operational	--	--	--	--	--	--	--	--	**--**	
Desert Sunlight Solar Farm	First Solar	CA 48649	Photovoltaic (550MW)	Groundwater	Construction	--	9	9	9	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	3.8	3.8	3.8	3.8	**3.8**	
Eagle Mountain Pump Storage	Eagle Crest Energy Company, LLC	PAD/FERC (January 2009)	Pump - Storage (1300MW)	Groundwater	Construction	--	--	--	--	8,066	8,066	8,066	8,066	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	--	--	--	--	**1,802**	
Genesis Solar Energy	Genesis Solar LLC	CA 48880	Parabolic Trough (250MW)	Groundwater	Construction	--	813	813	813	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	1,644	1,644	1,644	1,644	**1,644**	
Mule Mountain Solar Project	Bullfrog Green Energy, LLC	CA 49097	Photovoltaic (500MW)	Groundwater	Construction	--	20	20	20	--	--	--	--		Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	0.25	0.5	0.7	0.7	0.7	0.7	**0.7**	
Mule Mountain Soleil	enXco	CA 49488	Photovoltaic (200MW)	Groundwater	Construction	--	--	10	10	--	--	--	--	**--**	Updated from CEC email (12-16) transmitting Table "Cumulative Projests - I-10 Corridor" and First-In-Line Solar Applications, BLM (12-21-09)
					Operational	--	--	--	--	5	5	5	5	**5**	
Palen Solar Power (Data Response - March 12, 2010)	Solar Millennium LLC/Chevron	CA 48810	Parabolic Trough (484MW)	Groundwater	Construction	--	480	480	480	--	--	--	--	**--**	PREVIOUSL PROPOSED in the AFC (August 2009)
					Operational	--	--	--	--	303	303	303	303	**303**	

TABLE DR-S&W-207-2 (rev2)
RESULTS FROM PREDICTIVE SIMULATIONS
NUMERICAL GROUNDWATER MODEL
REVISION TO CONSTRUCTION WATER VOLUME
PALEN SOLAR POWER PROJECT
CHUCKWALLA VALLEY GROUNDWATER BASIN
RIVERSIDE, CALIFORNIA

Model Runs[1]	Zone 1[3]		Zone 2[3]		Zone 3[3]		Period of interest	Max drawdown, ft				Change in storage, af[4]
	T, ft2/d	S	T, ft2/d	S	T, ft2/d	S		Well 1	Well 2	Well 3	Well 4	
Run 7	1,000	0.2	6,300	0.2	26,000	0.2	2013	46.59	25.93	46.67	25.96	5,751
							2043	11.66	7.50	11.88	8.46	14,841
Run 15[2]	1,000	0.2	6,300	0.2	26,000	0.2	2013	46.59	25.93	46.67	25.96	8,420
							2043	11.83	7.50	12.15	8.49	146,837

Notes

1 Run 7 is the "Project Only" simulation and Run 15 is the "Cumulative Impacts" Assessment
2 Refer to Table DR-S&W-207-1 (rev2) for the water use schedule for the renewable projects identified in the model
3 Figure DR-S&W-207-3 (March 12, 2010) shows the areal distribution of transmissivities used in the model
4 Model input and output files provided in Attachment A

Table Air-2 Revised Emissions for One Cooling Tower Unit

Pollutant	Hourly Emissions (lb/hr)	Daily Emissions (lb/day)	Annual Emissions (ton/yr)
PM10	0.030	0.725	0.132
PM2.5	0.030	0.725	0.132

Table Air-3 Revised Motor Vehicle Combustion Criteria Pollutant Emissions for the Project

Hourly Emissions (lb/hr)									
Vehicle	**CO**	**VOC**	**NOx**	**SOx**	**Exh. PM10**	**Fug. PM10**	**Diesel PM**	**Exh. PM2.5**	**Fug. PM2.5**
Mirror Wash Truck	0.042	0.008	0.082	0.001	0.002	20.094	0.002	0.002	4.260
Weed Abatement	0.012	0.002	0.024	0.000	0.001	5.853	0.001	0.001	1.241
Soil Stabilizer Application	---	---	---	---	---	---	---	---	---
Maintenance Vehicles	0.015	0.001	0.001	0.000	0.000	12.808	---	0.000	2.715
Total[1]	**0.070**	**0.011**	**0.108**	**0.001**	**0.003**	**38.755**	**0.003**	**0.003**	**8.216**
Daily Emissions (lb/day)									
Vehicle	**CO**	**VOC**	**NOx**	**SOx**	**Exh. PM10**	**Fug. PM10**	**Diesel PM**	**Exh. PM2.5**	**Fug. PM2.5**
Mirror Wash Truck	0.337	0.067	0.660	0.007	0.019	160.750	0.019	0.017	34.082
Weed Abatement	0.098	0.020	0.192	0.002	0.005	46.824	0.005	0.005	9.928
Soil Stabilizer Application	---	---	---	---	---	---	---	---	---
Maintenance Vehicles	0.122	0.004	0.009	0.001	0.001	102.462	---	0.001	21.723
Total[2]	**0.556**	**0.091**	**0.861**	**0.010**	**0.025**	**310.036**	**0.024**	**0.023**	**65.732**
Annual Emissions (lb/yr)									
Vehicle	**CO**	**VOC**	**NOx**	**SOx**	**Exh. PM10**	**Fug. PM10**	**Diesel PM**	**Exh. PM2.5**	**Fug. PM2.5**
Mirror Wash Truck	78.8	15.8	154.4	1.5	4.4	37,615.5	4.4	4.1	7,975.1
Weed Abatement	2.7	0.5	5.3	0.1	0.2	1,279.7	0.2	0.1	271.3
Soil Stabilizer Application	22.8	4.6	44.7	0.4	1.3	10,894.6	1.3	1.2	2,309.8
Maintenance Vehicles	40.3	1.4	3.1	0.4	0.4	12,833.7	---	0.3	2,721.0
Total	**144.5**	**22.2**	**207.5**	**2.4**	**6.2**	**62,623.6**	**5.8**	**5.7**	**13,277.2**

1. Hourly emissions assume that each event has an eight hour work-day period.

2. Daily emissions assume that weed abatement and soil stabilizer application do not occur on the same day. Weed abatement miles are used to calculate daily emissions

Table Air-4: CAAQS/NAAQS Modeling Impacts for Normal Operations

Pollutant	Averaging Period	Concentrations (µg/m3)				
		AERMOD Result	Ambient Background2	Total 3	CAAQS	NAAQS
NO2 1	1-hr CAAQS	139.72	175.2	314.9	339	--
	1-hr NAAQS	171.55	N/A	171.55	--	188
	Annual	0.03	19.0	19.0	57	100
CO	1-hr	183.53	2,300	2,483.5	23,000	40,000
	8-hr	73.89	944	1,017.9	10,000	10,000
PM10	24-hr	14.11	83.0	97.1	50	150
	Annual	1.84	30.5	32.3	20	--
PM2.5	24-hr	2.45	20.5	23.0	--	35
	Annual	0.39	8.7	9.1	12	15
SO2	1-hr	3.11	47.2	50.3	665	--
	3-hr	2.13	31.2	33.3	--	1,300
	24-hr	0.23	13.1	13.3	105	365
	Annual	0.0084	4.0	4.0	--	80

[1] Modeled NO_2 concentrations as determined with the OLM. See section 3.5 for discussion of modeling for 1-hour NO_2 NAAQS.

[2] From Air Quality Table 5 of the PSPP Staff Assessment and Draft EIS. Staff chose the Palm Springs monitoring station for all pollutants with the exception of SO_2, for which Staff chose the Victorville monitoring station.

[3] Modeled concentration plus ambient background.

Table Air-5: NAAQS/CAAQS Analysis for Project Construction

Pollutant	Averaging Period	Concentrations (µg/m3)				
		AERMOD Result	Ambient Background2	Total 3,4	CAAQS	NAAQS
NO2 1	1-hr	397.03	N/A	397.0	339	--
	Annual	4.90	19.0	23.9	57	100
CO	1-hr	574.84	2,300	2,874.8	23,000	40,000
	8-hr	281.53	944	1,225.5	10,000	10,000
PM10	24-hr	51.88	83.0	134.9	50	150
	Annual	3.55	30.5	34.1	20	--
PM2.5	24-hr	14.49	20.5	35.0	--	35
	Annual	1.32	8.7	10.0	12	15
SO2	1-hr	1.71	47.2	48.9	665	--
	3-hr	1.33	31.2	32.5	--	1,300
	24-hr	0.42	13.1	13.5	105	365
	Annual	0.0108	4.0	4.0	--	80

[1] Modeled NO_2 concentrations as determined with the OLM. Time-matched ambient background is included in the AERMOD Result for 1-hour NO_2.

[2] From Air Quality Table 5 of the PSPP Staff Assessment and Draft EIS. CEC Staff chose the Palm Springs monitoring station for all pollutants with the exception of SO_2, for which Staff chose the Victorville monitoring station.

[3] Modeled concentration plus ambient background.

[4] Result reflects 10-hour days from March through September and 8-hour days from October through February for all sources, with some sources remaining active during night hours as described in Section 2.3

Table Air-6 Fuel Depot VOC Emissions

Storage Tank	Tank Throughput (gal/yr)	Emissions		
		Lbs/hr	Lbs/day	Tons/Year
Construction				
Diesel Tank 1	2,548,272	0.003	0.076	0.014
Diesel Tank 2	2,548,272	0.003	0.076	0.014
Gasoline Tank	1,319,112	0.251	6.020	1.099
Total Construction		**0.257**	**6.171**	**1.126**
Operations				
Diesel Tank 1	12,393	0.000	0.012	0.002
Diesel Tank 2	12,393	0.000	0.012	0.002
Total Operation		**0.000**	**0.024**	**0.004**

Appendix A

Air Modeling Evaluation

1.0 Introduction

This evaluation outlines the supplemental modeling performed to demonstrate compliance with ambient air quality standards in response to a number of minor Project refinements.

The newest version of the AERMOD model (version 09292) was applied with a three-year sequential hourly meteorological data set, which is more comprehensive than the one year of meteorological data required under Appendix B of the CEC's Guidelines (CEC 2006) for both the updated normal operations and construction modeling. Configuration of the model sources, the meteorological data used, and the receptor grids used in the modeling remain the same as in the original application and are fully documented in Section 5.2 of the AFC and not repeated here unless they have been modified as noted in the sections below. The Air Dispersion Modeling Archive is included electronically on a CD as Appendix B to this submittal.

2.0 Revised Modeling of PSPP Project Construction

2.1 Modification to the PSPP Construction Modeling

A number of changes were made in the construction modeling to represent design changes to the construction plan originally included in the AFC. These changes include:

- The addition of a concrete batch plant, with associated sources and emissions, to the facility. These sources were added to the modeling as described below.
- The updated construction schedule includes work to be performed outside of the 10-hour daily construction period originally proposed for the March through September months and 8-hour daily construction periods from October through February. As a result, the hourly emission factors were updated for a number of the construction sources to represent nighttime construction[1].
- The ambient background concentrations recommended by Staff in the Staff Assessment and Draft Environmental Impact Statement (March 2010) were adopted for the revised air quality impacts analysis.

The revised detailed emission calculations for construction are provided in the spreadsheet Palen DR Construction Emissions.xlsx, included on the CD for this submittal.

2.2 Concrete Batch Plant

Because of the remoteness of concrete production facilities in the area, the updated construction plan includes the installation of a temporary concrete batch plant at the Project site. The facility includes a cement silo along with a conveyor that runs from aggregate bins up to the top of the load chute for the mixer. Emissions include fugitive emissions from aggregate transfer along with combustion and entrained road dust emissions from front-loader vehicles moving aggregate from piles to the bins for processing into concrete. Additionally, the batch plant includes a generator to supply power for the concrete production process.

Two sources were added to the construction modeling to represent the concrete batch plant. The first was an area source of 100 feet by 100 feet, (30.5 square meters [m^2]) with parameters identical

[1] In this evaluation, "nighttime" is used to mean all hours outside of the daylight construction hours discussed in the AFC. Specifically, for the period of March through September, nighttime refers to those hours between 5:00 P.M. and 7:00 A.M., and for the period of October through February, nighttime refers to those hours between 4:00 P.M. and 8:00 A.M.

to the fugitive sources representing the other aspects of construction: a release height of 2.0 meters (m) was assumed for the fugitive source, and an initial plume height of 15 feet (4.57 m). Following EPA AERMOD guidance (EPA, 2004), the initial area source vertical standard deviation for construction combustion emissions is estimated as the plume depth divided by 2.15, or 2.13 m. The second source added for the batch plant was a point source representing the batch plant generator. This source was placed at the center of the batch plant area with source parameters as shown in Table 2-1 below. Because there will be no solid permanent structures located on site in the vicinity of the batch plant during construction, no GEP analysis to assess building downwash was performed for the generator. There are a number of possible locations for the concrete batch plant over the course of the PSPP construction. For the modeling, the sources were placed along the access road to the south of Power Block #2 to maximize the overlap of impacts with other construction sources in order to model the most conservative construction case as discussed in the AFC Section 5.2. The location of the concrete batch plant and short term modeling construction sources is shown in Figure 2-1.

Table 2-1: Batch Plant Generator Source Parameters.

Parameter	Value
Stack Height (feet)	23
Stack Diameter (feet)	0.75
Exit Temperature (degrees Fahrenheit)	770
Exit Velocity (feet per second)	464.9

2.3 Modifications to the Construction Source Emissions

As described in Section 2.1, the construction schedule now includes work beyond the 10 or 8 hour days described in the original AFC in both the power block areas of the facility as well as the locations where solar panels will be installed. As a result, these nighttime emissions were included in the revised construction modeling. For the short-term modeling, the following sources were assumed to operate during the nighttime hours:

- Solar panel installation sources;
- Power block construction sources; and
- Concrete batch plant sources.

For the annual modeling, the power block and concrete batch plant sources were assumed to oeperate as well. In addition, the percentage of the solar field construction sources representing the solar panel installation operations were assumed to operate during the nighttime hours. These calculations are given in the spreadsheet Palen Construction for Modeling - annual.xls, included in the electronic modeling archive.

2.4 Impacts from PSPP Construction

The results of the revised construction modeling are shown in Table 2-2. As shown in the table, all impacts, when added to the appropriate ambient backgrounds[2], are below their respective NAAQS/CAAQS with the exception of 24-hour and annual PM10, and 1-hour NO_2.

In the case of annual PM10 impacts, the maximum modeled annual mean for PM10 exceed the CAAQS when background concentrations are added because the PM10 air quality monitoring

[2] As noted in Section 2.1, the background concentrations used in the SA/DEIS were used in this analysis.

station data used for this Project show that the annual PM10 CAAQS is already exceeded in the area where the data were collected, i.e., in Palm Springs, California. Annual PM10 Project impacts represent only 17.7 percent of the CAAQS for annual PM10 and only 10.4 percent of the total impact to the annual PM10 concentrations when the worst-case background is considered.

For 24-hour PM10, the air quality monitoring station data used for this Project also shows that the CAAQS are already exceeded in the area where the data were collected. Project impacts by themselves are below the NAAQS and exceed the CAAQS on only one 24-hour period out of the 1095 days modeled. In that instance, the CAAQS is exceeded at four receptors with a maximum concentration of 51.88 micrograms per cubic meter ($\mu g/m^3$) compared to the CAAQS of 50 $\mu g/m^3$. The four receptors are directly along the fence line to the north of the construction sources and within the PSPP right-of-way (ROW), with the diffuser area blocking public access to that fence line. Along with the very conservative nature of the modeling, the remoteness of the location and the extreme unlikelihood that the public would be at that location for any amount of time, the PM10 impacts are not expected to pose a risk to public health.

For 1-hour NO_2, a total of 907 hours, or 3.4 percent of the 26,304 hours modeled, indicated impacts which, when added to the maximum ambient background concentration over the most recent thre years of available data, exceeded the 1-hour NO_2 CAAQS. As an additional refinement, time-matched background data was added to each modeled impact, and the sum compared to the 1-hour NO_2 CAAQS. The results of those added values are shown in Table 2 2. Of the 907 hours that were examined, it was found that only five hours out of the three-years modeled (less than one percent), when added to their time matched ambient background, would exceed the CAAQS, with a maximum total concentration of 397 $\mu g/m^3$. These impacts occurred on or within 200 meters of the fence line directly to the north of the solar array installation sources after dark. Again, because of the remoteness of the location, the fact that the impacts that exceed the CAAQS occur at night, and the inherently conservative nature of the modeling, the NO_2 impacts are not expected to pose a risk to public health.

As was discussed in Section 5.2 of the AFC, identifying appropriate background data for use in this analysis is difficult for the following reasons:

- While the Project site is in a part of Riverside County designated attainment for PM10, the monitors available are all located to the west in parts of Riverside County or other counties that are designated non-attainment for PM10.
- Additionally, the closest monitors are located in urban / industrial / agricultural areas which are unlikely to represent background pollutant concentrations in the Project area.

Because these results represent the worst-case location for the modeled sources, the limited number of hours (less than one percent of the hours modeled) in which exceedences occur, the limited duration of the construction causing these impacts, and the fact that what exceedences do occur do so within the ROW area, the impact to the public from construction emissions is expected to be minimal.

Table 2-2: NAAQS/CAAQS Analysis for Project Construction

Pollutant	Averaging Period	Concentrations (μg/m^3)				
		AERMOD Result	Ambient Background[2]	Total [3,4]	CAAQS	NAAQS
NO_2 [1]	1-hr	397.03	N/A	397.0	339	--
	Annual	4.90	19.0	23.9	57	100
CO	1-hr	574.84	2,300	2,874.8	23,000	40,000
	8-hr	281.53	944	1,225.5	10,000	10,000
PM10	24-hr	51.88	83.0	134.9	50	150
	Annual	3.55	30.5	34.1	20	--
PM2.5	24-hr	14.49	20.5	35.0	--	35
	Annual	1.32	8.7	10.0	12	15
SO_2	1-hr	1.71	47.2	48.9	665	--
	3-hr	1.33	31.2	32.5	--	1,300
	24-hr	0.42	13.1	13.5	105	365
	Annual	0.0108	4.0	4.0	--	80

[1] Modeled NO_2 concentrations as determined with the OLM. Time-matched ambient background is included in the AERMOD Result for 1-hour NO_2.

[2] From Air Quality Table 5 of the PSPP Staff Assessment and Draft EIS. CEC Staff chose the Palm Springs monitoring station for all pollutants with the exception of SO_2, for which Staff chose the Victorville monitoring station.

[3] Modeled concentration plus ambient background.

[4] Results reflect 10-hour work days during construction from March through September and 8-hour days from October through February for all sources, with some sources remaining active during nighttime hours as described in Section 2.3.

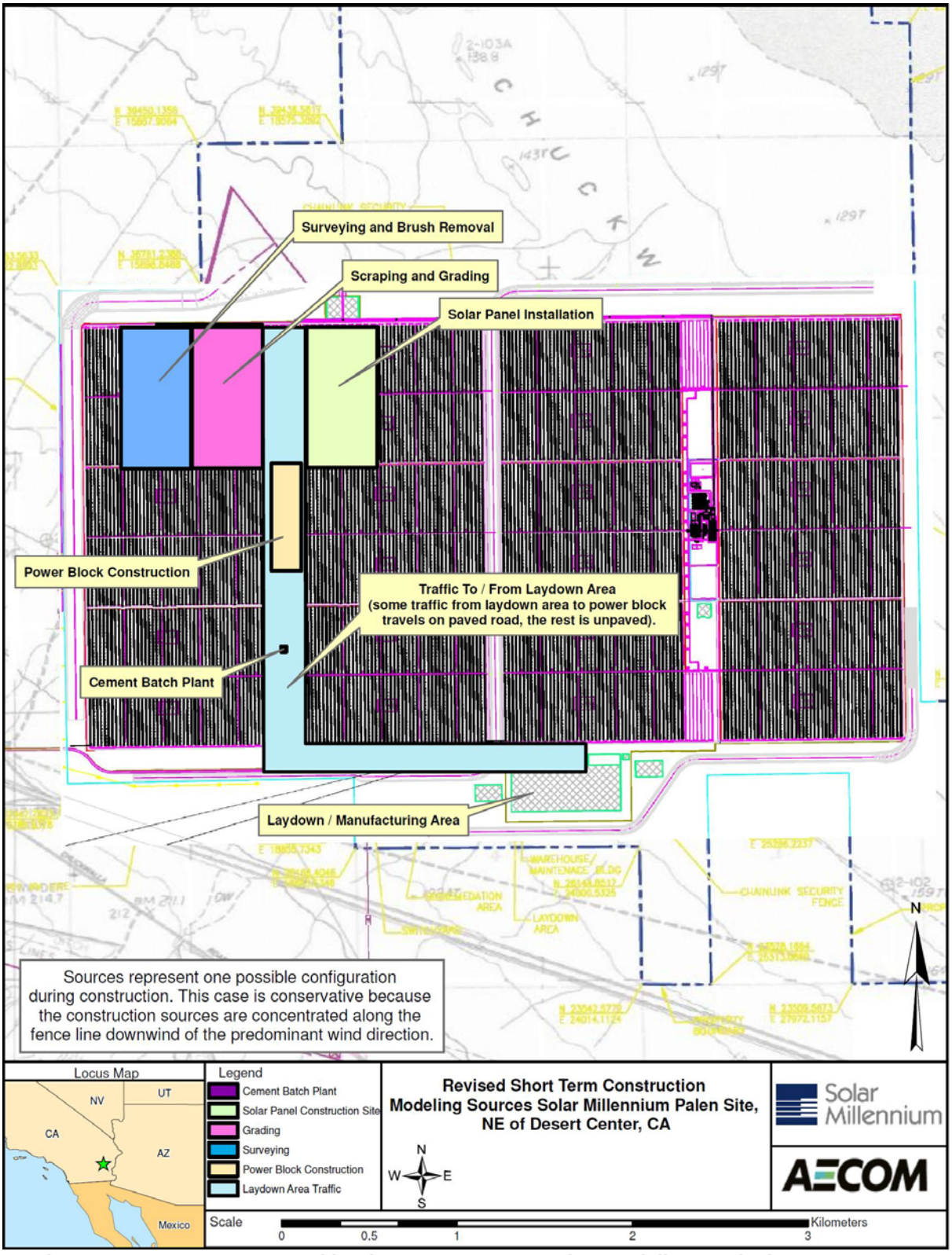

Figure 2-1 Area Sources Used in Short Term Construction Modeling Analysis

3.0 Revised Modeling of PSPP Normal Operations

3.1 Modification to the PSPP Operations Modeling

The following changes were made in the operations modeling to represent design changes to the Site layout and operations emissions originally included in the AFC:

- The site layout of the power blocks has been revised with new equipment locations. The location of power block sources was revised, and a new GEP analysis to assess building downwash was performed.
- The emissions for the solar field mirror washing vehicular traffic were revised to more accurately reflect the mirror cleaning schedule described in the AFC.
- Increase in hours of operation of the cooling tower;
- Change to the maintenance vehicle travel within the solar field;
- Elimination of the vehicle travel associated with the use of Reverse Osmosis (RO) concentrate for dust suppression;
- Modeling to assess EPA's new 1-hour NO_2 standard (effective date April 12, 2010); and
- The ambient background concentrations recommended by Staff in the Staff Assessment and Draft Environmental Impact Statement (March 2010) were adopted for the revised modeling.

Each of these changes is described in more detail below. The revised detailed emission calculations for normal operations are provided in the spreadsheet Palen Operation Emissions.xlsx on the CD in Appendix D of this submittal.

As discussed in Section 3.1, the equipment to be located at the two PSPP power blocks, including the emission sources, have been rearranged. As a result, the source locations were updated in the modeling and a new GEP analysis was performed to determine the effects of downwash due to nearby structures for each emission source. The results of the GEP analysis are shown in Table 3-1. The reconfigured power block is shown in Figure 3-1.

Based on additional information provided by the Project engineers, Solar Millennium has determined that the wet cooling tower used for heat rejection of the lube oil and generator cooling loops will have to operate 24 hours per day rather than 16 hours per day as was stated in the AFC. Solar Millennium expects that the cooling tower will not operate at full capacity during the additional eight hours per day; however, emissions are estimated based on full load operation.

The AFC and subsequent Data Response replies contain inconsistent information regarding the frequency of mirror washing; the project description stated once per week during the winter months and twice per week during the summer months and the air quality analysis was based on washing once per month during the winter and twice per month during the summer. Solar Millennium has confirmed that the information in the project description more accurately reflects the anticipated wash schedule. The emission estimates for mirror washing have been revised to reflect the more frequent wash schedule.

Solar Millennium has developed a more comprehensive understanding of the maintenance inspection requirements for the solar field and has revised the maintenance vehicle mileage and corresponding emission estimates accordingly. Simply put, the maintenance inspection vehicles would travel perpendicular to the solar troughs and piping in the vicinity of the connectors rather than parallel to the troughs and piping. In this way, the travel distance for inspections and corresponding vehicle emissions are reduced substantially compared to initial estimates.

As noted elsewhere, Solar Millennium has decided against using RO concentrate for dust suppression and will direct this wastewater stream to evaporation ponds for disposal. Consequently, water truck use for dust suppression activities using the RO concentrate will not be required, and the emissions associated with this water truck use would not occur. The maintenance vehicle emission estimates have been revised to eliminate the emissions associated with RO concentrate water truck use.

Table 3-1: Revised GEP Analysis for PSPP Power Block Sources

Emission Source	Model Source Name	Stack Height (m)	Controlling Buildings or Structures	Building Height (m)	Projected Width (m)	GEP Formula Height (m)
Auxiliary Boiler #1	AUXBLR1	15.24	Power Unit #1 Air Cooled Condenser	36.58	75.35	91.44
Auxiliary Boiler #2	AUXBOIL2	15.24	Power Unit #2 Air Cooled Condenser	36.58	75.35	91.44
Emergency Generator #1	EMGEN1	3.05	Power Unit #1 Air Cooled Condenser	36.58	86.35	91.44
Emergency Generator #2	EMGEN2	3.05	Power Unit #2 Air Cooled Condenser	36.58	86.35	91.44
Fire-Water Pump #1	FWPMP1	3.05	Power Unit #1 Fire Water Tank	7.32	16.69	18.29
Fire-Water Pump #2	FWPMP2	3.05	Power Unit #2 Fire Water Tank	7.32	16.69	18.29
Cooling Tower #1	COOL1_1-COOL2_1	6.84	Power Unit #1 Air Cooled Condenser	36.58	103.35-108.22	91.44
Cooling Tower #2	COOL1_2-COOL2_2	6.84	Power Unit #2 Air Cooled Condenser	36.58	103.35-108.22	91.44

3.2 Impacts from PSPP Operations

The source configurations for the operations modeling remained the same as in the PSPP AFC modeling with the exception of the changes to the ancillary equipment noted in Section 3.1. The worst-case normal operations emissions of the Project ancillary sources were modeled along with vehicular emissions from the solar field maintenance vehicles. As was established in the modeling submitted as part of Attachment DR-AIR-5 to the Data Request response in January 2010, there are no emissions sources within six miles of the PSPP site that emit more than five tons per year of any criteria pollutant. As a result, no modeling of non-project sources beyond the addition of ambient background concentrations is required. The maximum modeled concentrations for all Project emissions are summed with ambient background concentrations for comparison to the CAAQS/NAAQS in Table 3-2.

Table 3-2: CAAQS/NAAQS Cumulative Modeling Impacts for Normal Operations

Pollutant	Averaging Period	Concentrations ($\mu g/m^3$)				
		AERMOD Result	Ambient Background[2]	Total [3]	CAAQS	NAAQS
NO_2 [1]	1-hr CAAQS	139.72	175.2	314.9	339	--
	1-hr NAAQS	171.55	N/A	171.55	--	188
	Annual	0.03	19.0	19.0	57	100
CO	1-hr	183.53	2,300	2,483.5	23,000	40,000
	8-hr	73.89	944	1,017.9	10,000	10,000
PM10	24-hr	14.11	83.0	97.1	50	150
	Annual	1.84	30.5	32.3	20	--
PM2.5	24-hr	2.45	20.5	23.0	--	35
	Annual	0.39	8.7	9.1	12	15
SO_2	1-hr	3.11	47.2	50.3	665	--
	3-hr	2.13	31.2	33.3	--	1,300
	24-hr	0.23	13.1	13.3	105	365
	Annual	0.0084	4.0	4.0	--	80

[1] Modeled NO_2 concentrations as determined with the OLM. See section 3.5 for discussion of modeling for 1-hour NO_2 NAAQS.

[2] From Air Quality Table 5 of the PSPP Staff Assessment and Draft EIS. Staff chose the Palm Springs monitoring station for all pollutants with the exception of SO_2, for which Staff chose the Victorville monitoring station.

[3] Modeled concentration plus ambient background.

As shown in Table 3-2, the total concentrations comprised of maximum modeled impacts plus ambient background concentrations are below the CAAQS/NAAQS for all pollutants with the exception of the 24-hour PM10 CAAQS and NAAQS, and the annual PM10 CAAQS.

In the case of PM10, the ambient background already exceeds the standards and Project contributions are relatively small (28 percent and 9 percent of the 24-hour and annual PM10 CAAQS, respectively).

3.3 Modeling of the 1-hour NO_2 NAAQS for Normal Operations

On April 12, 2010, the EPA 1-hour NO_2 NAAQS became effective. Per EPA, the form of the standard is stated as follows:

> "On January 22, 2010, EPA announced a new hourly NO_2 standard of 100 ppb based on the 3-year average of the 98th-percentile of the annual distribution of daily maximum 1-hour concentrations. The final rule for the new hourly NAAQS was published in the Federal Register on February 9, 2010, and will be effective on April 12, 2010".(http://www.epa.gov/air/nitrogenoxides/actions.html#jan10)

Because the EPA preferred air dispersion model, AERMOD, does not output results in a format that can be compared to the form of the standard, AECOM has developed an AERMOD post-processor that uses binary output produced by a 1-hour NO_2 AERMOD run and processes the data for

comparison to the 1-hour NO_2 NAAQS. The "POST-1HR" postprocessor performs the following steps:

- Using binary output from AERMOD, the hourly impacts for each receptor for each year processed are read in, and the time-matched ambient background concentration for each hour is added to the modeled impact to produce a total concentration at each receptor for each hour.
- Using the hourly data, the highest total impact at each receptor for each day is then determined. This is the "maximum daily impact" referenced in the form of the standard.
- For each receptor, the 98th percentile of the maximum daily impacts is determined for each year modeled.
- Finally, the 98th percentile of the maximum daily impacts is averaged over the three years modeled to determine the final concentration for comparison to the standard.

AECOM applied the "POST-1HR" post-processor to the PSPP 1-hour NO_2 modeling for normal operations to demonstrate compliance with the 1-hour NO_2 NAAQS.

As shown in Table 3-2, the three-year average of the 98th percentile maximum daily 1-hour NO_2 impacts, including ambient background concentrations, is 171.6 µg/m^3. The maximum contribution by Project sources alone was 96.3 µg/m^3. As the the standard is 100 ppb (188.1 µg/m^3), the cumulative impact of PSPP is below the standard and, therefore, compliance is demonstrated.

The "POST-1HR" post-processor, along with all files used in the processing, will be included in the electronic modeling archive provided in Appendix B of this submittal.

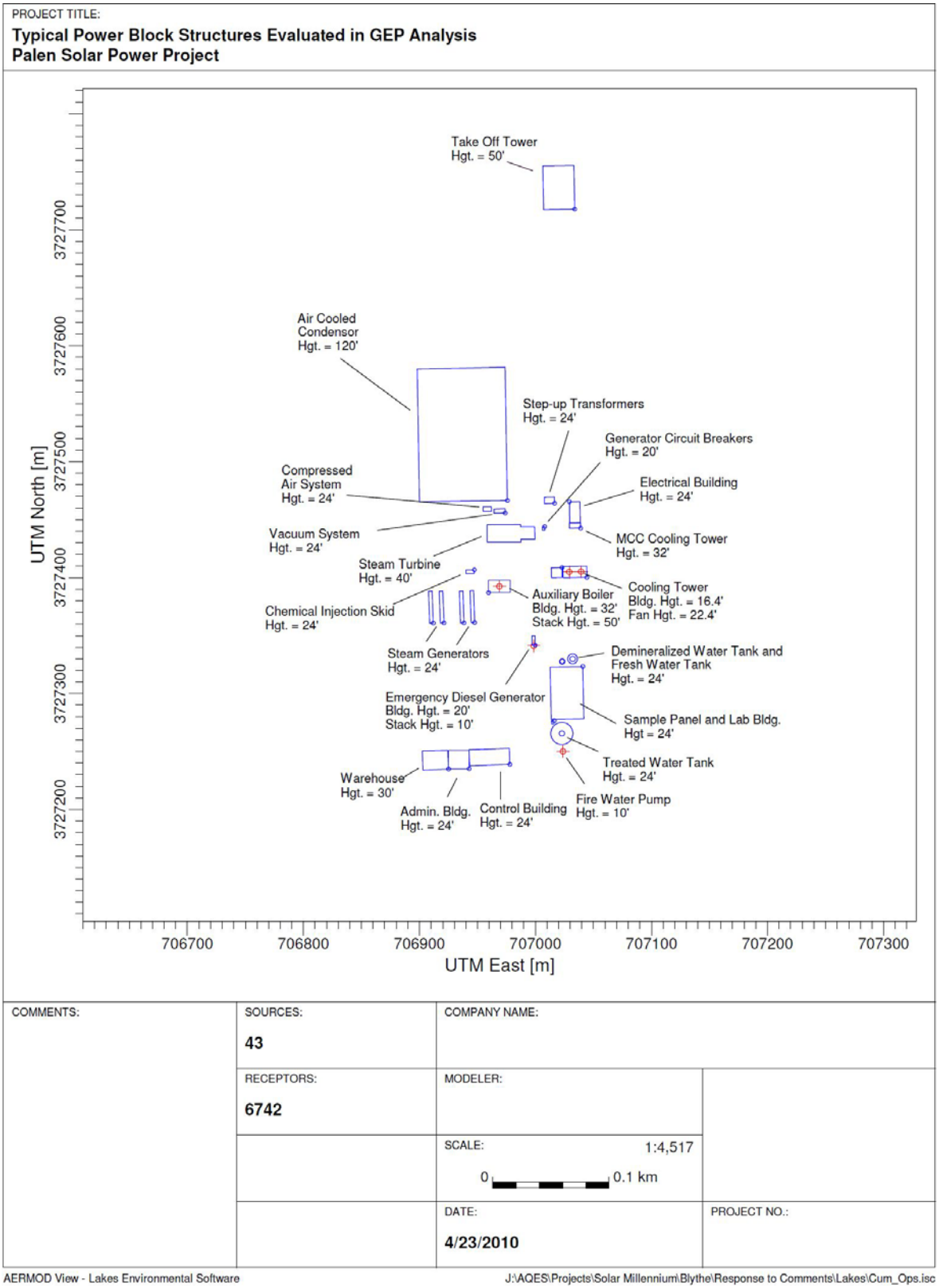

Figure 3-1: Typical Power Block Layout for PSPP Used in GEP Analysis

Appendix B

Air Modeling Files

(See Modeling Files on CD)

Appendix C

Batch Plant Emissions

(See Excel File on CD)

Appendix D

Operations Emissions

(See Excel File on CD)

Appendix E

Water Modeling Files

(See Modeling Files on CD)

ATTACHMENT 3

COMMENTS TO PDOC

March 15, 2010

Mr. Kenneth L. Coats
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Re: Palen Solar Power Project (09-AFC-7) to be located off Corn Springs Road, Desert Center, CA 92239

Dear Mr. Coats,

On behalf of Palen Solar I, LLC, Solar Millennium LLC has reviewed the Preliminary Determinations of Compliance (PDOC) that the South Coast Air Quality Management District (SCAQMD or District) proposes to issue to the Palen Solar Power Project (PSPP). Overall we are pleased with the first draft of the PDOC and have very few comments. However, we believe that revisions and clarifications are appropriate in several instances.

This correspondence provides specific comments related to the individual sections of the PDOC, arranged using the same section numbering shown in the PDOC. The requested revisions are illustrated using underline format for additional language and ~~strikethrough~~ format for text that should be deleted.

COMPANY NAME AND ADDRESS (page 1)

AECOM found two typographical errors in the first section of the PDOC. The name of the Project should read as the Palen Solar Power Project and the owner of the project is Palen Solar I, LLC. Please revise page 1 as follows:

PALEN SOLAR ~~ELECTRIC~~ POWER PROJECT
PRELIMINARY DETERMINATION OF COMPLIANCE

COMPANY NAME AND ADDRESS

Palen Solar ~~Power~~ I, LLC
1625 Shattuck Avenue, Suite 270
Berkeley, CA 94709

EQUIPMENT DESCRIPTION (page 2)

For consistency purposes between the application, AFC and PDOC, we are requesting that the District change the equipment description for several of the permit units, as described below:

- Please revise the description of “fire pump engines” to “fire water pump engine”. This is a consistency issue only.
- Please to change the equipment description of the storage tank permit unit to read Expansion Tank/Overflow Tanks and Ullage system. The reason for this request is two-fold. First, due to

low vapor pressure, we believe that the HTF storage tanks are exempt from permit pursuant to Rule 219(m)(4). Secondly, the vent to atmosphere from the HTF loop is actually the effluent from the Ullage System. The headspace of the expansion and overflow tanks vent through the Ullage system if/when the headspace vents to atmosphere (normally the headspace does not vent). The dimensions associated with the storage tanks are not appropriate for the new equipment description.

- Please add the two carbon adsorption systems to the list of permitted equipment. We understand that when associated with a storage tank, carbon controls can be grouped with the tank as a single permit unit, however, as noted above, since the vent is more closely associated with the Ullage system, this permit unit grouping is not available. These requested changes are reflected as follows:

A/N 506831
INTERNAL COMBUSTION ENGINE, EMERGENCY, 300 BHP, CATERPILLAR, ~~MODEL~~ CARB NO. 9CPXL08.8ESK, LEAN BURN, FOUR CYCLE, TURBOCHARGED AND AFTER COOLED, DRIVING A FIRE WATER PUMP.

A/N 506836
INTERNAL COMBUSTION ENGINE, EMERGENCY, 300 BHP, CATERPILLAR, ~~MODEL~~ CARB NO. 9CPXL08.8ESK, LEAN BURN, FOUR CYCLE, TURBOCHARGED AND AFTER COOLED, DRIVING A FIRE WATER PUMP.

A/N 506829
~~STORAGE TANK~~ EXPANSION TANK, OVERFLOW TANKS AND ULLAGE SYSTEM, HEAT TRANSFER FLUID~~, 15,900 GALLONS, HEIGHT: 22 FEET, DIAMETER: 12 FEET~~, VENTED TO ~~AN~~ ACTIVATED CARBON ADSORPTION SYSTEM ~~WITH TWO CANNISTERS IN SERIES, CAPACITY 2,000 POUNDS~~

A/N 506833
~~STORAGE TANK~~ EXPANSION TANK, OVERFLOW TANKS AND ULLAGE SYSTEM, HEAT TRANSFER FLUID, ~~15,900 GALLONS, HEIGHT: 22 FEET, DIAMETER: 12 FEET,~~ VENTED TO ~~AN~~ ACTIVATED CARBON ADSORPTION SYSTEM ~~WITH TWO CANNISTERS IN SERIES, CAPACITY 2,000 POUNDS~~

A/N XXXXXX
ACTIVATED CARBON ADSORPTION SYSTEM WITH TWO CANNISTERS IN SERIES, CAPACITY 2,000 POUNDS

A/N XXXXXX
ACTIVATED CARBON ADSORPTION SYSTEM WITH TWO CANNISTERS IN SERIES, CAPACITY 2,000 POUNDS

BACKGROUND / HISTORY – Processing Fee Summary (page 3)

In addition to the identical boilers, fire water pump engines and emergency generator engines, PSPP will operate two identical Storage Tank / Ullage Systems and two identical Carbon Adsorption Systems. These devices are eligible for the 50% discount off the original processing fee and should be presented in Table 2. We request that Table 2 be modified as shown below:

Table 2: Summary of Permit Processing Fees for Palen Solar I, LLC

A/N	Submittal Date	Data Adequate	Equipment	Schedule	Processing Fee
TBD	TBD	TBD	Boiler, 35 MMBTU/hr	D	$4,478.51
TBD	TBD	TBD	Boiler, 35 MMBTU/hr	D	$2,239.26
TBD	TBD	TBD	IC Engine, 2,922 BHP, Emergency Power	B	$2,051.52
TBD	TBD	TBD	IC Engine, 2,922 BHP, Emergency Power	B	$1,025.76
TBD	TBD	TBD	IC Engine, 300 BHP, Emergency Fire Water Pump	B	$2,051.52
TBD	TBD	TBD	IC Engine, 300 BHP, Emergency Fire Water Pump	B	$1,025.76
TBD	TBD	TBD	~~Storage Tank~~ Expansion Tank, Overflow Tanks and Ullage System	C	$3,244.91
TBD	TBD	TBD	Expansion Tank, Overflow Tanks and Ullage System	C	$1,622.46
TBD	TBD	TBD	Carbon Adsorption System	C	$3,244.91
TBD	TBD	TBD	Carbon Adsorption System	C	$1,622.46
TBD	TBD	TBD	Land Treatment Unit	D	$4,478.51
				TOTAL:	~~$23,840.66~~ $27,085.58

OPERATING SCHEDULE (page 10)

The operating schedule listed in the PDOC does not match the operating schedule that was last submitted in the project refinements on February 1, 2010 for the auxiliary boilers. The auxiliary boilers will be used for HTF freeze protection as well as startup of the steam turbine. The boilers are each expected to operate 15 hours per day at 25 percent load for standby, two hours per day at full load for start up support, and up to 10 hours per day at full load for HTF freeze protection; however, these three maximum operational cases cannot and would not occur on the same day. The maximum daily operation of each boiler would be limited to 12 hours at full load and 5 hours at 25 percent load. The maximum annual operation is expected to be 600 hours at full load and 4,500 hours a 25 percent load for a total of 5,100 hours of operation.

The auxiliary wet cooling towers are used for cooling plant equipment, including the STG lubrication oil cooler, the STG generator cooler, steam cycle sample coolers, large pumps, etc. This auxiliary cooling system will allow critical equipment such as the generator and HTF pumps to operate at their design ratings during hot summer months when the Project's power output is most valuable. This equipment was not proposed for the steam cycle; PSPP utilizes dry cooling for heat rejection.

We propose that the operating schedule be revised as follows:

- The auxiliary boilers are used for startup of the steam turbine and HTF freeze protection. On a normal operating day, full-load boiler operation for startup will last less than two hours for

start up support and less than 10 hours per day for HTF freeze protection. The boiler can ~~will~~ also be operated ~~approximately~~ up to 15 hours per day in stand-by mode at 25 percent load.

- The cooling tower ~~will operate during the same hours as the solar collectors because the cooling tower~~ is required for ~~the steam cycle~~ auxiliary equipment cooling, estimated at 16 hours per day and 3,700 hours per year

EMISSIONS – Auxiliary Boiler (page 12)

As previously stated, the operating schedule in the PDOC does not properly describe the auxiliary boiler operations. The emissions and emissions calculations need to be updated to reflect the project refinements. Also, the BACT requirement of the use of natural gas is not used in the emissions estimates for the boilers that combust propane fuel and, therefore, we request that that line be deleted from this section. These requested PDOC revisions are shown below:

- Propane will be the only fuel used by the boilers;
- Boilers to be equipped with ultra-low-NOx (9 parts per million by volume [9 ppmv]) burners;
- Maximum daily operation of each boiler is limited to ~~15~~ five hours per day at 25 percent load and ~~two~~ 12 hours per day at full load;
- Annual operation of each boiler is limited to ~~5,000 hours per year with a duty cycle of 10 percent at full load and 90 percent at 25 percent load~~ 600 hours at full load and 4,500 hours a 25 percent load for a total of 5,100 hours of annual operation;
- 100 percent of the PM10 emissions are PM2.5; and
- Maximum controlled emissions are equivalent to maximum uncontrolled emissions because the auxiliary boilers will not utilize add-on controls.

The criteria pollutant emission factors used for the NOx and CO emission estimates are based on the current BACT requirement of ≤ 9 ppmv and ≤ 50 ppmv respectively, each at 3% O_2, dry basis. ~~The BACT Guidelines for Minor Sources indicates no BACT requirement for VOC and the use of natural gas for PM10.~~ The PM10 and VOC emission factors are based on vendor guaranteed emission factors, and the SOx emission factor was taken from the SCAQMD 2008 Annual Emission Report General Instruction Book for external propane combustion. Boiler criteria pollutant emissions for a single boiler are shown in **Table 2** below.

Table 2: Auxiliary Boiler Criteria Pollutant Emissions (One Boiler)

Pollutant	Hourly Emission (lb/hr)	Maximum Hourly (lb/hr)	Maximum Daily (lb/day)	Annual (lb/yr)	30-DA (lb/day)
NOx	~~0.07~~ 0.08	0.39	~~2.24~~ 5.15	~~632~~ 671	~~2.24~~ 5.15
VOC	0.03	0.18	~~1.01~~ 2.32	~~284~~ 302	~~1.01~~ 2.32
CO	~~0.24~~ 0.26	1.31	~~7.56~~ 17.42	~~2,137~~ 2268	~~7.56~~ 17.42
PM10	~~0.06~~ 0.07	0.35	~~2.01~~ 4.64	~~569~~ 604	~~2.01~~ 4.64
PM2.5	~~0.06~~ 0.07	0.35	~~2.01~~ 4.64	~~569~~ 604	~~2.01~~ 4.64
SOx	~~0.03~~ 0.08	0.40	~~2.27~~ 5.24	~~283~~ 682	~~2.27~~ 5.24

Table 3: Auxiliary Boiler Criteria Pollutant Emissions (Two Boilers)

Pollutant	AHU/AHC (lb/hr)	MHU/MHC (lb/hr)	MDU/MDC (lb/day)	AA (lb/yr)	30-DA (lb/day)
NOx	~~0.14~~ 0.15	0.78	~~4.48~~ 10.30	~~1,264~~ 1,341	~~3.51~~ 10.30
VOC	~~0.06~~ 0.07	0.36	~~2.02~~ 4.64	~~568~~ 604	~~1.58~~ 4.64
CO	~~0.48~~ 0.52	2.62	~~15.12~~ 34.84	~~4,274~~ 4,536	~~11.57~~ 34.84
PM10	~~0.12~~ 0.14	0.70	~~4.02~~ 9.28	~~1,138~~ 1,208	~~3.16~~ 9.28
PM2.5	~~0.12~~ 0.14	0.70	~~4.02~~ 9.28	~~1,138~~ 1,208	~~3.16~~ 9.28
SOx	~~0.06~~ 0.16	0.80	~~4.54~~ 10.48	~~566~~ 1,364	~~1.57~~ 10.48

EMISSIONS – Fire Water Pump Engines (page 14)

There is a typographical error in the emissions listed for the fire water pump engines; the PM2.5 emissions and the SOx emissions are switched in both Tables 4 and 5 of the PDOC. We have verified the emission calculations and assumptions used to determine the emissions and we are confident that the emissions presented in the AFC are correct. The revised emissions are presented in Tables 4 and 5.

We also recognize that the 30-Day Average emission limits listed in the PDOC for this permit unit are different than the emissions presented in the AFC. As the difference in emissions has no adverse regulatory consequences to the Project, as footnoted on the bottom of page 14, we accept the District's recommendation for 30-DA emissions from this equipment. Also, please change the name of this unit from fire pump engine to fire water pump engine in the PDOC.

Table 4: Fire Water Pump Engine Criteria Pollutant Emissions (One Engine)

Pollutant	AHU/AHC (lb/hr)	MHU/MHC (lb/hr)	MDU/MDC (lb/day)	AA (lb/yr)	30-DA (lb/day)
NOx	1.07E-02	1.88	1.88	94.16	1.88
VOC	5.66E-04	0.10	0.10	4.96	0.10
CO	9.81E-03	1.72	1.72	85.90	1.72
PM10	5.66E-04	0.10	0.10	4.96	0.10
PM2.5	~~1.89E-05~~ 5.66E-04	~~0.003~~ 0.10	~~0.003~~ 0.10	~~0.17~~ 4.69	~~0.003~~ 0.10
SOx	~~5.66E-04~~ 1.89E-05	~~0.10~~ 0.003	~~0.10~~ 0.003	~~4.96~~ 0.17	~~0.10~~ 0.003

Table 5: Fire Water Pump Engine Criteria Pollutant Emissions (Two Engines)

Pollutant	AHU/AHC (lb/hr)	MHU/MHC (lb/hr)	MDU/MDC (lb/day)	AA (lb/yr)	30-DA (lb/day)
NOx	2.14E-02	3.76	3.76	188.32	0.523
VOC	1.13E-03	0.20	0.20	9.92	0.0276
CO	1.96E-02	3.44	3.44	171.80	0.478
PM10	1.13E-02	0.20	0.20	9.92	0.0276
PM2.5	~~3.78E-05~~ 1.13E-02	~~0.006~~ 0.20	~~0.006~~ 0.20	~~0.34~~ 9.92	~~0.009~~ 0.0276
SOx	~~1.13E-02~~ 3.78E-05	~~0.20~~ 0.006	~~0.20~~ 0.006	~~9.92~~ 0.34	~~0.0276~~ 0.009

EMISSIONS – Emergency Electrical Generator Engines (page 15)

We recognize that the 30-Day Average emission limits listed in the PDOC for this permit unit are different than the emissions listed in the project refinements dated February 1, 2010. As the difference in emissions has no adverse regulatory consequences to the Project, as footnoted on the bottom of page 15, we accept the District's recommendation for 30-DA emissions for this equipment.

EMISSIONS – HTF Ullage System Vent Emissions and Piping Fugitives (page 15)

We are unfamiliar with the notation (R1) and (R2) in the column headers of Table 8 and would like to clarify the presented emissions with the headers presented in the AFC. This revision is shown in the Tables below.

Additionally, PSPP will operate two HTF ullage systems and the component counts for fugitive emissions were presented in the AFC on a per power block basis. We request that a second table be displayed to present the emissions from both HTF Ullage Systems and the piping fugitives from both power plant units

for consistency with format of the PDOC. The revisions to the HTF Ullage System Vent Emissions and Piping Fugitives tables are shown below:

Table 8: HTF System VOC Emissions (One System)

Source	Hourly ~~(R1)~~ Uncontrolled (lb/hr)	Hourly ~~(R2)~~ Controlled (lb/hr)	Max Hourly ~~(R1)~~ Uncontrolled (lb/hr)	Max Hourly ~~(R2)~~ Controlled (lb/hr)	Max Daily ~~(R1)~~ Uncontrolled (lb/day)	Max Daily ~~(R2)~~ Controlled (lb/day)	AA (lb/yr)	30-DA (lb/day)
Ullage System Vent	1.71	0.034	37.50	0.75	75.00	1.50	300	1.50
Piping Fugitives	0.18	0.18	0.18	0.18	4.38	4.38	1,598	4.38
Total	1.89	0.214	37.68	0.93	79.38	5.88	1,898	5.88

Table 9: HTF System VOC Emissions (Two Systems)

Source	Hourly Uncontrolled (lb/hr)	Hourly Controlled (lb/hr)	Max Hourly Uncontrolled (lb/hr)	Max Hourly Controlled (lb/hr)	Max Daily Uncontrolled (lb/day)	Max Daily Controlled (lb/day)	AA (lb/yr)	30-DA (lb/day)
Ullage System Vents	3.42	0.068	75.00	1.50	150.00	3.00	600	3.00
Piping Fugitives	0.36	0.36	0.36	0.36	8.76	8.76	3,196	8.76
Total	3.78	0.43	75.36	1.86	158.76	11.79	3,798.36	11.76

EMISSIONS – Facility Emissions (pages 17 and 18)

The revision to the auxiliary boiler operating schedule and corresponding emissions require the summary of annual emissions to be revised. We have incorporated the District's recommendation on the 30-DA emissions for the fire water pump and emergency generator engines and incorporated these values into the revised 30-DA emissions totals at the bottom of the table.

Table ~~9~~ 10: Annual Criteria Pollutant Emissions (lbs/yr)

Source	Pollutant					
	NOx	VOC	CO	PM10	PM2.5	SOx
Auxiliary Boilers	~~1,263.64~~ 1,341.40	~~568.75~~ 603.75	~~4,273.18~~ 4,536.15	~~1,137.50~~ 1,270.50	~~1,137.50~~ 1,207,50	~~566.75~~ 1364.48
Emergency Fire Water Pump Engines	188.33	9.91	171.81	9.91	9.91	0.33
Emergency Generator Engines	2,934.88	154.46	1673.40	96.54	96.54	3.06
HTF Ullage System Vents	---	600.00	---	---	--	---
HTF Fugitives	---	3,196.36	--	--	--	--
Total (lb/yr)	~~4,386.85~~ 4,464.6	~~4,529.48~~ 4,564.5	~~6,118.39~~ 6,381.3	~~1,234.95~~ 1,314.0	~~1,234.95~~ 1,314.0	~~579.72~~ 1,367.9
Total (TPY)	~~2.19~~ 2.23	~~2.26~~ 2.28	~~3.06~~ 3.19	~~0.622~~ 0.657	~~0.622~~ 0.657	~~0.29~~ 0.68
Facility 30-DA	~~12.183~~ 18.98	~~12.58~~ 16.85	~~17.00~~ 39.97	~~3.46~~ 9.57	~~3.46~~ 9.57	~~1.61~~ 10.49

We recommend revisions to the total TAC emissions presented in Table 10 of the PDOC. The total TAC emissions should also be revised for the operational change to auxiliary boilers and to reflect the increased size of the emergency generator engines from the project refinements. We request to change the column headers of Table 10 to clarify the notation of (R1) and (R2), rename Table 10 as Table 11, and change the name of the fire water pump engine and emergency generator engine for consistency with the PDOC. These revisions are shown in the table below.

Table ~~10~~ 11: TAC Emissions By Emissions Unit

Pollutant	Auxiliary Boiler		Fire Water Pump Engine		Emergency Generator Engine		HTF Ullage Vent		
	Hourly (lb/hr)	Annual (lb/yr)	Hourly (lb/hr)	Annual (lb/yr)	Hourly (lb/hr)	Annual (lb/yr)	Hourly ~~(R1)~~ Uncontrolled (lb/hr)	Hourly ~~(R2)~~ Controlled (lb/hr)	Annual (lb/yr)
7,12-Dimethylbenz(a)anthracene	5.49E-07	~~8.92E-04~~ 9.47E-04	---	---	---	---	---	---	---
Acenaphthene	6.18E-08	~~1.00E-04~~ 1.07E-04	---	---	---	---	---	---	---
Acenaphthylene	6.18E-08	~~1.00E-04~~ 1.42E-04	---	---	---	---	---	---	---
Anthracene	8.24E-08	~~1.34E-04~~ 1.42E-04	---	---	---	---	---	---	---
Benz(a)anthracene	6.18E-08	~~1.00E-04~~ 1.07E-04	---	---	---	---	---	---	---
Benzene	7.21E-05	~~1.17E-01~~ 1.24E-01	---	---	---	---	3.75E+01	7.50E-01	3.00E+02
Benzo(a)pyrene	4.12E-08	~~6.69E-05~~ 7.01E-05	---	---	---	---	---	---	---
Benzo(b)fluoranthene	6.18E-08	~~1.00E-04~~ 1.07E-05	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	4.12E-08	~~6.69E-05~~ 7.01E-05	---	---	---	---	---	---	---
Benzo(k)fluoranthene	6.18E-08	~~1.00E-04~~ 1.07E-04	---	---	---	---	---	---	---
Biphenyl	---	~~---~~	---	---	---	---	3.75E-03	7.50E-05	3.00E-02
Chrysene	6.18E-08	~~1.00E-04~~ 1.07E-04	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	4.12E-08	~~6.69E-05~~ 7.01E-05	---	---	---	---	---	---	---
Dichlorobenzene	4.12E-05	~~6.69E-02~~ 7.01E-02	---	---	---	---	---	---	---
Diesel Particulate Matter	---	~~---~~	9.91E-02	4.96E+00	~~9.91E-02~~ 9.65E-01	~~4.96E+00~~ 4.83E+01	---	---	---
Fluoranthene	1.03E-07	~~1.67E-04~~ 1.78E-04	---	---	---	---	---	---	---
Formaldehyde	2.57E-03	~~4.18E+00~~ 4.44E+00	---	---	---	---	---	---	---
Hexane	6.18E-02	~~1.00E+02~~ 1.07E+02	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	6.18E-08	~~1.00E-04~~ 1.01E-03	---	---	---	---	---	---	---
Naphthalene	2.09E-05	~~3.40E-02~~ 3.61E02	---	---	---	---	---	---	---
Phenanthrene	5.83E-07	~~9.48E-04~~ 1.01E-03	---	---	---	---	---	---	---
Pyrene	1.72E-07	~~2.79E-04~~ 2.96E-04	---	---	---	---	---	---	---

Table ~~10~~ 11: TAC Emissions By Emissions Unit

Pollutant	Auxiliary Boiler		Fire Water Pump Engine		Emergency Generator Engine		HTF Ullage Vent		
	Hourly (lb/hr)	Annual (lb/yr)	Hourly (lb/hr)	Annual (lb/yr)	Hourly (lb/hr)	Annual (lb/yr)	Hourly ~~(R1)~~ Uncontrolled (lb/hr)	Hourly ~~(R2)~~ Controlled (lb/hr)	Annual (lb/yr)
Toluene	1.17E-04	~~1.90E-01~~ 2.01E-01	---	---	---	---	---	---	---
TOTAL:	0.0646	~~104.59~~ 111.42							

PROHIBITORY RULE COMPLIANCE - Rule 410 (page 18)

PSPP will not use a SCR/CO catalyst configuration to control emissions at the facility. Please revise the compliance method of Rule 401 to read:

> This rule limits emissions to an opacity of less than 20 percent (Ringlemann No. 1) , as published by the United States Bureau of Mines. ~~It is unlikely, with the use of SCR/CO catalyst configuration that there will be visible emissions. However, in the unlikely event that visible emissions do occur, anything greater than 20 percent opacity is not expected to last for greater than 3 minutes.~~ During normal operation, no visible emissions are expected. The Project will comply with this rule by employing boilers, heaters, and emergency engines that are equipped with BACT, and by combusting clean fuels. ~~Therefore, compliance with this rule is expected.~~

PROHIBITORY RULE COMPLIANCE - Rule 410 (page 18)

Due to the size change of the emergency generator in the project refinements from 300 bhp to 2,922 bhp, PSPP will need to store a larger of quantity of diesel fuel on site in preparation for emergency conditions. The exact volume of diesel fuel that will be stored on site has not yet be determined. We recommend that the compliance method to Rule 463 read as follows.

> No person is allowed to place, store or hold in any tank with a capacity of 39,630 gallons or greater, any organic liquid having a true vapor pressure of 25.8 millimeters mercury (mmHg) (0.5 pounds per square inch [psi]) absolute or greater under actual storage conditions, and in any tank of more than 75,000 liters (19,815 gallons) capacity, any organic liquid having a true vapor pressure of 77.5 mm Hg (1.5 psi) absolute or greater under actual storage conditions, unless such tank is a pressure tank maintaining working pressures sufficient at all times to prevent organic vapor loss to the atmosphere, or is designed and equipped with an approved vapor control device. The PSPP will have insulating mineral oil (transformers), hydraulic oil (steam turbine and other equipment), and lubricating oil on site, all of which are stored in quantities less than 39,630 gallons and which have a true vapor pressure less than 1 psi at 68°F. The Project also will store diesel, which has a vapor pressure of 0.008 psia (0.40 mm of mercury), on site in ~~300-gallon tanks~~ in quantities less than 39,630 gallons. HTF will be stored in 15,900-gallon tanks. The vapor pressure of HTF is 0.019 mmHg at 80°F. Because these vapor pressures are below prescribed limits for these tank volumes, the Project will comply with this rule.

PROHIBITORY RULE COMPLIANCE - OFFSETS (page 21)

The facility PTE should be updated to reflect the new operating schedule of the auxiliary boilers as shown in Table 11 of the PDOC. However, to be consistent, due to the recommended addition one table, the table number for this table should be revised as well.

Table ~~11~~12: Offset Thresholds

Pollutant	Facility PTE (TPY)	Offset Threshold (TPY)	Comply (Yes/No)
Nitrogen Oxides (NOx)	~~2.19~~ 2.23	4	Yes
Volatile Organic Compounds (VOC)	~~2.26~~ 2.28	4	Yes
Sulfur Oxides (SOx)	~~0.29~~ 0.68	4	Yes
Particulate Matter < 10 microns (PM10)	~~0.62~~ 0.77	4	Yes

Table ~~11~~12: Offset Thresholds

Pollutant	Facility PTE (TPY)	Offset Threshold (TPY)	Comply (Yes/No)
Carbon Monoxide	~~3.06~~ 3.19	29	Yes

PROHIBITORY RULE COMPLIANCE – Rule 1401 (page 22)

The change in the auxiliary boiler emissions affects the Health Risk Assessment results for the facility. Please re-run the HARP mode using the correct emissions data to revise the AQMD modeling results presented in Table 14. Also, the values presented in Table 15 are inconsistent with our HRA results. PSPP does utilize four cooling towers. Since the District's results demonstrate compliance with Rule 1401, our results in Table 15 have no adverse regulatory consequences to the Project. We request that Table 15 be deleted from the PDOC and that second paragraph of the compliance methodology be revised as follows:

> The applicant performed a Tier 4 health risk assessment using Hot Spots Analysis and Reporting Program (HARP). The analysis included an estimate of the MCIR for the nearest residential and commercial receptors, as well as the acute and chronic hazard indices. AQMD modeling staff reviewed the applicant's procedures and concluded that the appropriate modeling parameters were used and were consistent with the AQMD HRA policies and procedures. Modeling staff re-ran the HARP model using the applicant provided data and reproduced the results in Table 14 below. Note that the results in Table 14 are cumulative for the entire facility. ~~Table 15 below shows the applicant's HRA results performed on a permit unit basis.~~ (Note that the emergency engines are exempt from the requirements of Rule 1401 because they are used exclusively for emergencies and will operate less than 200 hours per year)
>
> The results in Table ~~15~~ 14 above are below the Rule 1401 thresholds. Compliance is expected.

PROHIBITORY RULE COMPLIANCE – Rule 1470 (page 23)

PSPP will utilize a total of four stationary diesel-fueled internal combustion engines, two fire water pump engines and two emergency generator engines, at the facility. The third and fourth paragraph of the compliance method of Rule 1470, should be change to reflect the use of multiple engines:

> AQMD will require a condition to limit the maintenance and testing to less than 50 hours per year per engine. ~~This~~ These engines ~~is~~ are expected to meet these requirements.
>
> Paragraph (c)(2)(C) limits hours for maintenance and testing to 50 hours per year for PM10 emissions up to 0.15 gm/bhp-hr, and a maximum of 100 hours per year for PM10 emissions up to 0.01 gm/bhp-hr. Therefore, the engines will comply with paragraph (c)(2)(C). Also part (iv) of paragraph (c)(2)(C) requires that ~~the~~ each engine meet the standards for off road engines in Title 13, CCR, 2423. Each ~~This~~ engine will comply with the 0.15 gm/bhp-hr PM10 emissions requirements of this rule and ~~can~~ therefore each engine can operate for up to a maximum of 50 hours/year for maintenance and testing. Therefore compliance with Rule 1470 is expected.

PROHIBITORY RULE COMPLIANCE – Regulation XVII (page 24)

PSPP is well below the PSD thresholds of Regulation XVII and is not subject to the requirements of the regulation. Additionally, PSPP will not use Combustion Turbine Generators (CTGs) at the facility (appears to be a cut-and-

paste error). We recommend that the second paragraph of the compliance method of Regulation XVII, Prevention of Significant Deterioration, be revised to read:

> Rule 1703(a)(2) requires each permit unit to be constructed using BACT for each attainment air contaminant for which there is a net emissions increase. ~~The BACT requirements for CO as well as the applicant's BACT proposals for the CTGs are listed below: As shown below, the equipment will comply with the PSD BACT requirement for major sources.~~ Rule 1703(a)(2) is not applicable to PSPP, however the applicant has proposed to equip the Project with BACT for CO. The applicant's proposals for BACT for CO are listed below:

PERMIT CONDITIONS - Auxiliary Boiler (pages 25-27)

PSPP will not utilize a combustion turbine at the facility. We request that the auxiliary boiler Condition 4 be revised as follows:

4. The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the ~~turbine~~ boiler during the tests, the identity of the testing lab, a statement from the testing lab certifying the criteria or Rule 304, and a description of all sampling and analytical procedures.

The boilers will be fired exclusively with propane which is stored and purchased in liquid form. We request that fuel use limits of Condition 5 be change from a mmcf basis to a 1,000 gallon basis.

5. The operator shall limit the fuel usage to no more than ~~393 mmcf~~ 660 thousand gallons in any one year. For the purpose of this condition, one year shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each calendar month.

The annual emissions limits for the auxiliary boiler should be revised to reflect the project refinements and we request that the calculation methodology be changed from a mmcf basis to a 1000 gallons basis for consistency with Condition 5. With the a higher heating value of 91.5 MMBtu/1,000 gallon of propane, Condition 10 should be revised as follows:

10. The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSION LIMIT
PM10	~~569~~ 604 LBS IN ANY ONE YEAR
NOx	~~632~~ 671 LBS IN ANY ONE YEAR
SOx	~~283~~ 682 LBS IN ANY ONE YEAR
VOC	~~284~~ 302 LBS IN ANY ONE YEAR

> The operator shall calculate monthly emissions for NOx, VOC, PM10 and SOx using the equation below and the following emission factors: NOx: ~~1.27lb/mmscf~~ 1.02 lb/1,000gal; ~~VOC 0.57 lb/mmcf~~ 0.46lb/1,000gal, ~~PM10: 1.15 lb/mmcf~~ 0.92lb/1,000gal and ~~SOx: 1.30 lb/mmcf~~ 1.03lb/1,000gal.
>
> Yearly Emissions, lb/year = X (E.F.)

Where X = yearly fuel usage in ~~mmscf/year~~ 1,000 gal/year and E.F = emission factor indicated above

As requested in the project refinements, please increase the number of hours to the auxiliary boiler to 5,100 hours per year in Condition 11.

11. The operator shall limit the annual operation of this equipment to no greater than ~~5,000~~ 5,100 hours in any one year.

Condition 12 is essentially identical to Condition 5, and sets no additional requirements. We request that Condition 12 be deleted from the PDOC.

~~12. The operator shall limit the annual operation of this equipment to no more than 172 mmcf in any one calendar year. The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition~~

PERMIT CONDITIONS – Emergency Fire Water Pump Conditions (page 27)

Please change the name to this equipment to Emergency Fire Water Pump Engine.

The emergency fire water pump engine operation and corresponding emissions are limited by the number of hours of operation in Condition 3 and monitored by Condition 4. We feel that the additional requirement to monitor the total fuel usage is redundant and unnecessary to demonstrate compliance. We request that Condition 5 be deleted from the PDOC.

~~5. The operator shall install and maintain a(n) non-resettable totalizing meter to accurately indicated the fuel usage of the engine.~~

The emergency fire water pump engine will only be used to provide fire protection and will not be used to provide electrical power. Please revise Condition 7 as follows:

7. The operator shall operate and maintain this equipment according to the following requirements:

    a. The equipment shall only operate if utility electricity is not available.
    b. This equipment shall only be operated for the primary purpose of ~~providing a backup source of power to drive~~ driving an emergency fire water pump.
    c. This equipment shall only be operated for maintenance and testing, not to exceed 50 hours in any one year.
    ~~d. This equipment shall only be operated under limited circumstances under a Demand Response Program (DRP).~~

PERMIT CONDITIONS – Emergency Electrical Generator (page 28)

The emergency generator engine operation and corresponding emissions are limited by the number of hours of operation in Condition 3 and monitored by Condition 4. We feel that the additional requirement to monitor the total fuel usage is redundant and unnecessary to demonstrate compliance. We request that Condition 5 be deleted from the PDOC.

~~5. The operator shall install and maintain a(n) non-resettable totalizing meter to accurately indicated the fuel usage of the engine.~~

PERMIT CONDITIONS – Storage Tanks (page 28)

For consistency purposes, we would like to change the permit conditions to include the expansion tanks, overflow tanks and ullage system.

Closing

We appreciate your consideration of these comments. If you wish to discuss any of these comments, please contact Russ Kingsley at AECOM at (805)388-3775.

Sincerely,

_____

Alice Harron
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