

## DOCKETED

<b>Docket Number:</b>	09-AFC-06C
<b>Project Title:</b>	Blythe Solar Power Project - Compliance
<b>TN #:</b>	201027
<b>Document Title:</b>	Michael R. Lozeau Comments: LIUNA Comments on Staff Assessment - Part A for the Proposed Blythe Solar Power Project (09-AFC-6C)
<b>Description:</b>	N/A
<b>Filer:</b>	System
<b>Organization:</b>	Michael R. Lozeau
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	10/23/2013 2:07:50 PM
<b>Docketed Date:</b>	10/23/2013

*Comment Received From: Michael R. Lozeau*

*Submitted On: 10/23/2013*

*Docket Number: 09-AFC-06C*

**LIUNA Comments on Staff Assessment - Part A for the Proposed Blythe Solar Power Project (09-AFC-6C)**

*Additional submitted attachment is included below.*



T 510.836.4200  
F 510.836.4205

410 12th Street, Suite 250  
Oakland, Ca 94607

www.lozeaudrury.com  
michael@lozeaudrury.com

October 23, 2013

California Energy Commission  
Dockets Unit, MS-14  
Docket No. 09-AFC-7C  
1516 Ninth Street  
Sacramento, CA 95814-5512

Re: LIUNA Comments on Staff Assessment - Part A for the Proposed Blythe Solar Power Project (09-AFC-6C)

Dear Commissioner Douglas, Commissioner Hochschild, and Hearing Officer Renaud,

Thank you for this opportunity to comment on the California Energy Commission's ("CEC") Staff Assessment - Part A for the Proposed Blythe Solar Power Project ("Staff Assessment" or "SA"). These comments are submitted on behalf of Laborers International Union North America, Local 1184 ("LIUNA Local 1184") and its numerous members who reside in Riverside County, California. We are submitting along with these comments a petition to intervene, pursuant to 20 California Code of Regulations ("CCR") § 1207(c), in order to have our expert's comments given the weight of testimony. We also are in receipt of Part B of the Staff Assessment and look forward to submitting focused comments on that document as well by the November 8 comment deadline.

Members of LIUNA Local 1184 live, work, and recreate in the vicinity of the Project site. These members will suffer the impacts of a poorly executed or inadequately mitigated Project, just as would the members of any nearby homeowners association, community group, or environmental group. Indeed, construction workers will suffer many of the most significant impacts from the Project as currently proposed, such as PM10 pollution emissions and accompanying Valley Fever risks from the Project. Therefore, LIUNA Local 1184 and its members have a direct interest in ensuring that the Project is adequately analyzed and that its environmental and public health impacts are mitigated to the fullest extent feasible.

The CEC's certified regulatory program and the Staff Assessment must comply with the policies and substantive standards set forth in CEQA. *Env'tl. Prot. Info. Ctr. v. Johnson* (1985) 170 Cal.App.3d 604, 620. The main purpose of the Staff Assessment is to inform interested persons and the Commission of the environmental consequences

of the Project. 20 CCR § 1742.5(c). The Staff Assessment should be guided by CEQA's two primary policy goals. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. 14 Cal. Code Regs. ("CEQA Guidelines") § 15002(a)(1). "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the environmental impact report ("EIR"), or in this instance, the Staff Assessment, 'protects not only the environment but also informed self-government.'" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564. The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal. App. 4th 1344, 1354 ("Berkeley Jets"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810. This role is particularly important for the Staff Assessment given the number and scale of solar and wind projects being proposed and built in Riverside County and throughout southeastern California.

Second, CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring "environmentally superior" alternatives and all feasible mitigation measures. CEQA Guidelines § 15002(a)(2) and (3); see also *Berkeley Jets*, 91 Cal. App. 4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. The EIR and the CEC's Staff Assessments serve to provide agencies and the public with information about the environmental impacts of a proposed project and to "identify ways that environmental damage can be avoided or significantly reduced." Guidelines §15002(a)(2). If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns." Pub.Res.Code § 21081; 20 C.C.R. § 1755(c)-(d); 14 Cal.Code Regs. § 15092(b)(2)(A) & (B). The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding. *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 732 (Cal. App. 5th Dist. 1990).

We have prepared these comments with the assistance of environmental consultant Petra Pless, D.Env. Dr. Pless's comments are attached hereto as Exhibit A and are incorporated herein in their entirety. Although the dramatic changes to the previously approved thermal solar facility have significantly reduced the environmental impacts of that 1,000 MW project, the newly proposed solar photovoltaic facility remains a very large project with significant air quality impacts, especially during the four-year long construction phase. The Riverside County portion of the Mojave Desert Air Quality Management District is designated as non-attainment for state PM10 and ozone standards. SA, p. 4.1-25. Dr. Pless's review has turned up a number of concerns relating to the Staff Assessment's discussion of the significance of impacts resulting from the Project's emission during construction of PM10 and ozone precursors. Dr.

Pless' analysis confirms that, contrary to the Assessment's conclusion that these impacts will be less than significant with the implementation of the recommended conditions of certifications, the Project's emissions of these criteria air pollutants will contribute significantly to existing exceedances of the applicable air quality standards and remain significant. Accordingly, Dr. Pless recommends additional mitigation measures to be added as conditions of certification for the Project, including requiring condition of certification AQ-SC4 to be applied at the boundary of the project area and requiring temporary shutdown of construction whenever the air quality monitoring already required by condition of certification Worker Safety 8(2) shows PM10 concentrations in excess of 50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) when comparing downwind to upwind measurements.

LIUNA Local 1184 recognizes that the development of renewable energy is critical for the reduction of greenhouse gas emissions. Renewable energy is essential to forestall the worst consequences of climate change and to help the state of California meet its ambitious GHG emissions reductions goals. LIUNA Local 1184 supports the development of renewable energy production, including the development of solar power generation through both appropriately sited solar power utilities and distributed solar power generation. All solar power projects must be properly sited and carefully planned to minimize impacts on the environment. Renewable energy projects should avoid displacing prime farmland, be constructed and operated in order to avoid exacerbating PM10 and ozone pollution problems, avoid exposing workers and residents to dangerous Valley Fever spores, avoid impacts to sensitive species and their habitat, and be sited in proximity to electricity consumers to reduce the costs and impacts associated with new transmission corridors. Only by maintaining the highest standards in these and other ways can renewable energy production be truly sustainable. In regard to air pollution impacts, although the proposed Project does include some effective mitigation measures, given the scope of the PM10 and ozone problems in Riverside County and the extensive grading and other ground-disturbing activities required to build a project of this size, additional feasible conditions including additional construction shutdown triggers should be added in order for the CEC to support a conclusion that the Project will not have a significant impact on air quality or otherwise justifying a finding of overriding considerations.

**THE STAFF ASSESSMENT FAILS TO ACKNOWLEDGE THE PROJECT'S SIGNIFICANT AIR POLLUTION AND HEALTH IMPACTS EVEN AFTER APPLICATION OF STAFF'S RECOMMENDED MITIGATION MEASURES.**

Although the Project, as revised, will result in significantly less air pollution than the original thermal solar project, its construction nevertheless is projected to emit substantial amounts of criteria pollutants, including PM10 and NOx. Despite the anticipated high levels of emissions, the Staff Assessment concludes that "while there would be adverse CEQA air quality impacts during construction they are expected to be less than significant after implementation of the applicant's stipulated and staff's

recommended mitigation measures.” SA, p. 4.1-24. See also p. 4.1-20 (“Staff has determined that the proposed conditions of certification would mitigate all construction air quality impacts of the proposed project to less than significant levels pursuant to CEQA”). These conclusions err as a matter of law and are not based on evidence. The Project’s emissions – **after mitigations are applied** – exceed applicable air quality standards and, in the case of ozone precursors, the applicable CEQA significance thresholds published by the Mojave Desert Air Quality Management District (“MDAQMD”), indicating that a significant air pollution impact will result from the Project, despite staff’s recommended mitigations. Although the Staff Assessment acknowledges the existing air quality conditions at the site, it does not apply those conditions when assessing the Project’s air quality impacts. The Staff Assessment also overlooks a number of available and feasible mitigation measures that should be added as conditions for the Project. Lastly, the Staff Assessment fails to address the findings that the CEC must consider in order to approve the Project when significant air quality impacts remain after implementation of all feasible mitigation measures.

**1. The Staff Assessment’s Evaluation of the Impact of the Project’s Particulate Matter Emissions Fails to Rely on Staff’s Updated Background Concentrations.**

The Staff Assessment identifies existing background concentrations at the Project site for criteria air pollutants. SA, Air Quality Table 4, p. 4.1-10, and Air Quality Table 5, p. 4.1-13. However, in assessing the impacts of the Project’s emissions, the Staff Assessment instead relies on stale data from the analysis of the previous thermal project. Applying staff’s updated background concentrations as well as the modeling done for the Project, Dr. Pless demonstrates that the Project’s emissions of PM<sub>10</sub> will violate the applicable 24-hour and annual PM<sub>10</sub> standards. Pless Comment, pp. 2-4. As Dr. Pless explains:

While construction emissions of PM<sub>10</sub> would be 26 percent lower on a short-term basis, total **24-hour PM<sub>10</sub>** impacts resulting from construction of the Modified BSPP (165 µg/m<sup>3</sup>) increase substantially compared to the Approved BSPP (126 µg/m<sup>3</sup>) because of substantially increased background concentrations (133 compared to 83 µg/m<sup>3</sup>). Project impacts (32 µg/m<sup>3</sup>) would continue to contribute significantly to existing exceedances of the most stringent annual ambient air quality standard of 50 µg/m<sup>3</sup> with resulting maximum total concentrations estimated at more than three times (330 percent) the standard.

Pless Comments, p. 4. The same result applies when assessing the annual PM<sub>10</sub> standard. Again, Dr. Pless explains the Staff Assessment’s error:

On an **annual PM<sub>10</sub>** basis, while emissions would be 32 percent lower and background concentrations decreased from 30.5 to 23.2 µg/m<sup>3</sup>, project

impacts ( $2.7 \mu\text{g}/\text{m}^3$ ) would contribute substantially to total impacts ( $25.9 \mu\text{g}/\text{m}^3$ ) and existing exceedances of the most stringent ambient air quality standard for this pollutant ( $20 \mu\text{g}/\text{m}^3$ ) resulting in total maximum annual PM10 concentrations of 129 percent of the standard.

*Id.* Dr. Pless's analysis is substantial evidence that blindly relying upon the air quality modeling conducted for the previously approved thermal project is an abuse of discretion because it ignores current background concentrations as recommended by staff and fails to apply a justifiable rationale for assuming the new Project will have less PM10 impacts than the previously approved thermal project.

Based on the updated background pollutant concentrations, the Staff Assessment also understates the significance of the Project's PM2.5 emissions. Pless Comments, p. 4. Although just below violating the PM2.5 standard, the impact of the Project's PM2.5 emissions is essentially the same as the previous, much larger thermal project. *Id.*

In order for the Staff Assessment to provide an accurate assessment of the need for and adequacy of conditions of certification, the Assessment must provide an accurate analysis of the Project's significant contribution to violations of the PM10 standards. Staff should revise the Assessment to acknowledge the significant impact that will result from the Project's emission of PM10.

**2. The Staff Assessment's Conclusion that the Impact of the Project's Particulate Matter Emission's are Mitigated to Less than Significant Levels is not Supported by an Adequate Discussion or Substantial Evidence.**

The Staff Assessment cannot justify its conclusion that the five recommended mitigation measures would reduce the impacts of the Project's emissions of PM10 and ozone formation to less than significant levels.

The Staff Assessment and its underlying modeling incorporate all of the mitigations recommended in the Staff Assessment to address PM10 emissions. SA, p. 4.1-29; Pless Comment, p. 5. Despite the presence of those measures, the modeling still results in large exceedances of the PM10 standards. Dr. Pless explains the conflict between the Assessment's calculated emissions and its conclusion of no significant PM10 impact:

neither [the thermal EIS nor the SA] contains a comparison of emissions "before" and "after" implementation of the proposed conditions of certification. The estimates presented in both documents are "mitigated" emissions and incorporate all of the Applicant's proposed mitigation measures. Review of these mitigation measures shows that they

incorporate virtually all of CEC staff's proposed conditions of certification for fugitive dust control and neither addresses the substantial amounts of ozone precursor emissions from on-road vehicles. Therefore, the SA's conclusions regarding significance of emissions and impacts "after" implementation of its proposed conditions of certification are unsupported.

Pless Comments, p. 5. As a result, the Staff Assessment's conclusion that PM10 emissions will be less than significant after implementation of mitigation is not supported by any evidence or quantitative determination.

As for ozone impacts, the Staff Assessment acknowledges that construction activities would likely contribute to significant adverse ozone impacts. Staff recommends measure AQ-SC5 which requires controls for diesel off-road construction equipment. SA, pp. 4.1-33 – 4.1-34. Staff then concludes that ozone impacts will be less than significant. SA, p. 4.1-24. Staff's conclusion is not supported by the record.

First, because there is no Project-specific modeling for ozone impacts (SA, p. 4.1-23), it is incumbent upon the CEC to apply the MDAQMD's adopted CEQA thresholds of significance for ozone precursors. The Staff Assessment ignores the applicable thresholds of significance. For this reason alone, staff's conclusion that the Project's ozone emissions will be less than significant is not supported by evidence.

MDAQMD has published formal CEQA thresholds of significance for criteria pollutants. MDAQMD, California Environmental Quality Act (CEQA) And Federal Conformity Guidelines (Feb. 2009) ("MDAQMD Guidelines") (attached as Exhibit B). "Under CEQA, the Mojave Desert Air Quality Management District (District) is an expert commenting agency on air quality and related matters within its jurisdiction or impacting on its jurisdiction." *Id.*, p. 2. The CEQA thresholds apply throughout MDAQMD's jurisdiction, including the Project site. *Id.*, p. 3. The significance thresholds for NOx are 25 tons/year and 137 pounds per day. *Id.*, p. 10.<sup>1</sup> MDAQMD unequivocally states that "[a]ny project is significant if it: 1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 6...." *Id.*, p. 9 (emphasis added).

The Project's post-mitigation NOx emissions greatly exceed the MDAQMD's significance threshold. For NOx, each day of construction, the Project's "Power Block On-road Equipment" is calculated to emit 333.3 lbs/day. SA, p. 4.1-16. Access road construction will emit 211.84 lbs/day. *Id.* Emissions from on-site construction equipment are estimated at 122.5 lbs/day. *Id.* Annually, more than one and a half times as much NOx will be emitted from the Project's "Power Block On-road Equipment" as is determined to be significant by MDAQMD – 39.7 tons versus 25 tons. *Id.*, p. 4.1-

---

<sup>1</sup> Also of note, MDAQMD has established significance thresholds for PM10 of 15 tons/year and 82 pounds per day. *Id.* The significance thresholds for PM2.5 also are 15 tons/year and 82 pounds per day. *Id.*



17. Thus, according to the MDAQMD Guidelines, impacts of the Project's ozone precursor emissions will be significant.

In the absence of any other expert thresholds published for the air basin, MDAQMD's thresholds of significance are conclusive levels above which a project will have significant environmental impacts. The California Supreme Court has made clear the substantial importance that air districts' significance thresholds play in providing substantial evidence of significant adverse impacts. *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 327 ("As the [South Coast Air Quality Management] District's established significance threshold for NOx is 55 pounds per day, these estimates [of NOx emissions of 201 to 456 pounds per day] constitute substantial evidence supporting a fair argument for a significant adverse impact"). See also *Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 960 (County applies BAAQMD's "published CEQA quantitative criteria" and "threshold level of cumulative significance"); *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 110-111 ("A 'threshold of significance' for a given environmental effect is simply that level at which the lead agency finds the effects of the project to be significant"). Because this evidence is not disputed by the existing record, the Staff Assessment's conclusion that the Project's NOx emissions will have less than significant impacts is not based on evidence.

Second, staff's mitigation only applies to off-road diesel-powered construction equipment and does not address the significant ozone precursor emissions from the numerous on-road vehicles that will be needed for the Project's construction. Pless Comment, p. 8. Applying the MDAQMD thresholds, the Project's on-road vehicles alone will emit 333.3 tons/day of NOx, exceeding the MDAQMD's daily NOx significance threshold by a factor of almost two and a half. *Id.* Similarly, on-road vehicles alone will exceed the annual NOx threshold established by the MDAQMD by more than one and a half - 39.7 tons/year vs. 25 tons/year. *Id.* And although measure AQ-SC5 would reduce the ozone precursor emissions from off-road diesel equipment as compared to your average construction fleet, those sources will still only further exceed the MDAQMD significance threshold. *Id.*, p. 9.

In addition to exceeding that threshold, the Staff Assessment's ozone mitigation exempts all off-road construction equipment with a rating of less than 50 hp and all equipment on site for less than 10 days. SA, p. 4.1-33 – 4.1-35. However, the emissions used in the Staff Assessment's calculations assume all equipment is subject to EPA Tier 3 emission factors. Pless Comments, p. 8. Thus, rather than reduce emissions, the mitigation may very well permit increased emissions compared to those reported in the Staff Assessment tables for these smaller or more temporary diesel engines.

In addition to ignoring the applicable ozone precursor thresholds, the Staff Assessment also fails to analyze "[w]hether the proposed project is likely to conform

with applicable federal, state, and Mojave Desert Air Quality Management District (MDAQMD or District) air quality laws, ordinances, regulations and standards (Title 20, California Code of Regulations, section 1744 (b)).” SA, p. 4.1-2. In particular, Air Quality Table 1 lists MDAQMD’s rules that the Staff Assessment purportedly examines. SA, p. 4.1-3 (“Staff’s analysis examines the project’s compliance with these requirements” including “Rules 401, 402, and 403 Nuisance, Visible Emissions, Fugitive Dust.” See *id* (acknowledging that Rules 401, 402 and 403 “would be applicable to the construction period of the project”). However, when one actually reviews the Assessment’s “analysis” of Laws, Ordinances, Regulations and Standards (“LORS”), the only mention is of Rule 401 and, even then, only a truncated version of the reach of that rule. No discussion, examination, or analysis of Rules 402 and 403 are included in the Staff Assessment.

The Assessment mentions Rule 401, describing it as follows:

**Rule 401 - Visible Emissions.** This rule limits visible emissions from emissions sources, including fugitive dust emission sources. Compliance with this rule is expected and applies to the Modified BSPP project’s mobile sources only.

SA, p. 4.1-29 (emphasis supplied). The SA’s summary does not do justice to the actual terms of the Rule or its broad scope not only to mobile sources but any source (including for example, soils exposed by the Project’s construction activities). Rule 401 provides:

A person shall not discharge into the atmosphere from ***any single source of emission whatsoever*** any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

- (a) As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- (b) Of such opacity as to obscure an observer’s view to a degree equal to or greater than does smoke described in subsection (a) of this rule.

MDAQMD, Rule 401. The Staff Assessment does not evaluate whether the Project, including staff’s proposed mitigation can possibly meet Rule 401’s opacity standard. Indeed, the Staff Assessment’s proposed mitigations include a measure that is designed to violate Rule 401’s standard. AQ-SC4 appears to excuse visible dust plumes from any additional controls unless they are observed “off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner or (B) 200 feet beyond the centerline of the construction of linear facilities.” SA, p. 4.1-32. Rule 401 applies throughout the site, not just within 400 feet of an off-site structure. Given that the nearest resident may be as far as a half-mile away from the nearest Project boundary, looking for and reacting to plumes at far flung structures would encourage violations of Rule 401 rather than compliance. See SA, p. 4.6-6 (“a

mobile home located approximately 2,500 feet west of the nearest project site boundary"); Commission Decision, p. 451 (Sept. 23, 2010) ("Two residences are located within one mile of the proposed site"). And because the Project likely will violate Rule 401, the Staff Assessment's conclusion that air quality impacts will not be significant is again unsupported by the evidence.

For these reasons, the Staff Assessment's conclusion that the recommended conditions of certifications will reduce the Project's PM10 and ozone precursor emissions to less than significant levels is not supported by evidence. Staff should revise the air quality analysis to incorporate the above omissions and recirculate it for public comment with proposed additional mitigation measures that one could conclude would eliminate any significant air pollution impacts of the Project.

### **3. The Staff Assessment Fails to Describe Adequately the Project's Decommissioning Component for One to Evaluate the Potential Impacts from Particulate Emissions during That Phase.**

The previous project may only have operated for 30-years. Commission Decision, p. 22. Decommissioning of the Project is expected in approximately 40 years. SA, p. 4.4-14. See *also* SA, p. 4.1-24 ("[e]ventually the facility would close, either at the end of its useful life or due to some unexpected situation such as a natural disaster or catastrophic facility breakdown"); p. 4.1-73. The Staff Assessment says almost nothing about the components of any decommissioning activities at the end of the Project's life. The entirety of the Staff's Assessment description of decommissioning is the following:

When the facility closes, all sources of air emissions would cease to operate and thus impacts associated with those emissions would no longer occur. The only other expected emissions would be equipment exhaust and fugitive particulate emissions from the dismantling activities. These activities would be of a much shorter duration than construction of the proposed project, equipment are assumed to have much lower comparative emissions due to technology advancement over time, and fugitive dust emissions would be required to be controlled in a manner at least equivalent to that required during construction. Therefore, while there would be adverse CEQA air quality impacts during decommissioning, they are expected to be less than significant.

SA, p. 4.1-24. And, although the proposed measures include the eventual preparation of a closure plan, that deferred mitigation does not cure, only emphasizing, the absence of any description of closure activities in the Assessment or any effort to identify actual mitigation measures that would apply to that phase of the Project. *Id.*, p. 4.9-105. The future Closure Plan to be worked out with BLM long after the Project is approved and built, does not inform the public of the reasonable details of that Project component, including the waste generated and amount of soil disturbances. As a result, the Staff

Assessment does not allow the public or decisionmakers to evaluate this project component.

CEQA requires agencies to describe the “whole of an action” which is being approved, including all components and future activities that are reasonably anticipated to be part of the project. See CEQA Guidelines § 15378(a). See *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1452-1453. This includes, but is not limited to “later phases of the project, and any secondary, support, or off-site features necessary for its implementation.” See CEQA Guidelines, App. G. Courts have held that a decommissioning plan is “simply the final phase of the overall usage of the land” and must be considered with the construction and operational phases. *Nelson v. County of Kern* (2010) 190 Cal.App.4th 252, 272. A complete project description is necessary to ensure informed decision making and meaningful public comments.

In addition to describing the whole of an action, including any decommissioning component, the Staff Assessment must also set forth the mitigation measures that would be applied to that phase of the Project. The formulation of mitigation measures generally cannot be deferred until after certification of the EIR and approval of a project. Guidelines, section 15126.4(a)(1)(B) states, “[f]ormulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way.”

“A study conducted after approval of a project will inevitably have a diminished influence on decisionmaking. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA.” *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 307. “[R]eliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA’s goals of full disclosure and informed decisionmaking; and[,] consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment.” *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 92. Although deferral of the specifics of mitigation measures may be permissible where the agency commits itself to mitigation and identifies the mitigation alternatives to be considered, analyzed, and possibly incorporated in the mitigation plan, where, as here, feasible dust control, waste disposal measures, and other mitigations already should be apparent, the CEC cannot defer to some unspecified future plan to be developed by the applicant. *Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1275.) “[A] lead agency’s adoption of an EIR’s proposed mitigation measure for a significant environmental effect that merely states a ‘generalized goal’ to mitigate a significant effect without committing to any specific criteria or standard of performance violates CEQA by improperly deferring the formulation and adoption of enforceable mitigation measures. *City of San Diego v. Bd. of Trs. of the Cal. State Univ.*, 2011 Cal. App. LEXIS 1562, 88 (Cal. Ct. App. 2011);

*San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 670; CBE, 184 Cal.App.4th at p. 93.

The Staff Assessment's failure to describe decommissioning activities precludes informed decisionmaking and meaningful public comment. Decommissioning activities may include soil erosion and sediment control measures, grading, removal of roads, soil stabilization techniques, and removal of hazardous pesticide and rodenticides. In addition, for the agricultural parcels removed by the Project, returning the nutrient content of the soil may require at least three years of cover crop rotations. See Letter from Mathew Hagemann, SWAPE, to Robyn Purchia, Adams, Broadwell, Joseph & Cardozo re: Comments on the Draft Environmental Impact Report for the Pioneer Green Energy Project, Kern County, California, p. 5 (Jan. 3, 2013) and House Agricultural Consultants, Comments on same, pp. 8-10 (Jan. 3, 2013) (attached as Exhibit C). Given that the CEC's own rules specifically require a discussion of how facility closure will be accomplished in the power plant application, there is no reason a reasonably detailed discussion of this phase of the Project should not be described and evaluated in the Staff Assessment. 20 Cal. Admin. Code § 2001, *et seq.* (Appendix B). Indeed, the fact that Measure Soil and Water-10 requires the Closure Plan only one-year after the Project is operational demonstrates that there is no reason to delay disclosing that plan and evaluating it as part of this approval process. SA, p. p. 4.9-105.

Likewise, air quality impacts during the decommissioning phase will be as or potentially more significant than the impacts that will occur during construction. As discussed above, particulate matter and ozone precursor emissions during decommissioning likely will be significant and unavoidable if the Project proceeds. By failing to identify the specific mitigation measures to be applied during that phase of the Project, the Staff Assessment fails to comply with CEQA's disclosure requirements.

**4. Because the Project's Particulate Matter and NOx Emissions Even With the Current Proposed Mitigations Continue to have a Significant Environmental Impact, Additional Feasible Mitigation Measures Must be Added to the Certification Conditions.**

Because the Project's particulate matter and NOx emissions remain significant even with the application of the currently proposed mitigation measures, the CEC must add more feasible mitigation measures to eliminate these impacts. A lead agency may not conclude that an impact is significant and unavoidable without requiring the implementation of all feasible mitigation measures to reduce the impacts of a project to less than significant levels. CEQA Guidelines §§ 15126.4, 15091. As the MDAQMD Guidelines state, "[a] significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation." MDAQMD Guidelines p. 10. Only once no feasible mitigations are available may an agency resort to making a finding that no additional, feasible mitigation is available and that the benefits of the

project outweigh its unavoidable significant adverse environmental effects. 20 CCR § 1755(c)-(d); Pub. Res. Code § 21081; 14 CCR § 15092(b)(2)(A) & (B). The CEC regulations incorporate this requirement as follows:

- (c) The commission shall not certify any site and related facilities for which one or more significant adverse environmental effects have been identified unless the commission makes both of the following findings:
  - (1) With respect to matters within the authority of the commission, that changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant environmental effects identified in the proceeding.
  - (2) With respect to matters not within the commission's authority but within the authority of another agency, that changes or alterations required to mitigate such effects have been adopted by such other agency, or can and should be adopted by such other agency.
- (d) If the commission cannot make both the findings required under subsection (c), then it may not certify the project unless it specifically finds both of the following:
  - (1) That specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the application proceeding; and
  - (2) That the benefits of the project outweigh the unavoidable significant adverse environmental effects that may be caused by the construction and operation of the facility.

20 CCR § 1755(c)-(d).

Additional feasible mitigation measures exist to address the Project's yet to be mitigated emissions of particulate matter and ozone precursors.

MDAQMD's rules suggest a number of additional mitigation measures that are feasible and necessary to further mitigate the Project's excessive air pollution emissions during its four-year construction phase. The Staff Assessment at 4.1-3 identifies the applicability of MDAQMD Rule 403 to the Project. As mentioned above, the Staff Assessment ignores MDAQMD's Rule 403. Rule 403 provides in relevant part:

- (a) A person shall not cause or allow the emissions of fugitive dust from any transport, handling, construction or storage activity so that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. (Does not apply to emissions emanating from unpaved roadways open to public travel or farm roads. This exclusion shall not apply to industrial or commercial facilities)....
- (c) A person shall not cause or allow particulate matter to exceed 100 micrograms per cubic meter when determined as the difference between upwind

and downwind samples collected on high volume samplers at the property line for a minimum of five hours....

(e) Subsections (a) and (c) shall not be applicable when the wind speed instantaneously exceeds 40 kilometers (25 miles) per hour, or when the average wind speed is greater than 24 kilometers (15 miles) per hour. The average wind speed determination shall be on a 15 minute average at the nearest official air-monitoring station or by wind instrument located at the site being checked.

MDAQMD, Rule 403.

With regard to Rule 403(a), this rule makes clear that any CEC conditions prohibiting visible plumes or implementing air pollution limits must be applied at the Project's property line. Thus, as discussed above, AQ-SC4's focus on off-site structures appears inconsistent with this prohibition, as well as Rule 401. See Pless Comment, p. 7. AQ-SC4 should be clarified to require its additional dust control measures and possible shutdown whenever a visible plume is observed at the project's property line, rather than some off-site structure. See *supra*, pp. 8-9; Pless Comments, p. 7.

With regard to Rule 403(c), the Staff Assessment does recommend requiring upwind and downwind monitoring and establishes a PM10 standard of no increase in PM10 levels greater than 50  $\mu\text{g}/\text{m}^3$  that is more protective than Rule 403(c)'s standard. LIUNA supports that recommended monitoring. SA, p. 4.14-31 (Worker Safety-8(2)). However, given the unmitigated PM10 and ozone impacts of the project and the need to minimize workers' exposure to fungal spores causing Valley Fever, the proposed monitoring should be accompanied by a temporary shutdown condition whenever the Staff recommended PM10 level is exceeded, along the lines of the AQ-SC4 shutdown process set forth in the Staff Assessment at pages 4.1-32 – 4.1-33. See Pless Comment, p. 7.

With regard to Rule 403(e), although this rule provides relief from Rules 403(a) and 403(c) during very high wind events, the logical corollary to that concession to the forces of nature is that construction and vehicle activity at the site should not be occurring during high wind events. Pless Comments, p. 7. Staff does not discuss the air pollution impact scenarios that will result when construction activities at the Project occur in high wind events. Rule 403(e) provides an objective standard of an average 15 mph wind speed for determining when wind velocity risks air quality violations and when construction activity should be suspended. Pless Comments, p. 7.

The staff also should consider and include mitigations for the NO<sub>x</sub> and ROG emissions from on-road vehicles. The applicant should be required to establish natural-gas powered shuttle buses with pick-up locations in the three towns where workers likely will lodge or reside – Blythe, Indio, and Ehrenberg, Arizona. Pless Comments, pp.

9-10. See SA, p. 4.8-15. If implemented properly, this mitigation would substantially reduce ROG emissions from worker vehicles, a significant source of ozone precursors.

As for on-road, diesel powered vehicles associated with the Project, staff should include one of the following mitigation conditions. A condition should require that ninety percent of the truck carriers used by the Project shall be Environmental Protection Agency SmartWay partners. See Pless Comment, p. 10. Staff could include a temporary variance from this percentage due to specified circumstances not created by the applicant. Alternatively, the Project should also establish a condition that all on-road diesel powered vehicles shall be equipped with CARB certified Tier 3 pollution control equipment (as set forth in <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>), capable of achieving at least 85% reduction in particulate matter and 25% reduction in nitrogen oxide emissions (or better).

These additional measures should be included as certification conditions. To the extent the CEC believes any of these measures are infeasible, that finding must be supported by substantial evidence and accompanied by the CEC's finding of overriding considerations. 20 CCR § 1755(c)-(d).

## **CONCLUSION**

For the foregoing reasons, LIUNA Local 1184 and its members living in Riverside County and areas near the Project urge Staff to make substantive changes to the Staff Assessment's analysis of the Project's air quality impacts, including the additional conditions of certification recommended above. LIUNA Local 1184 appreciates this opportunity to comment and looks forward to your responses.

Sincerely,

*Original signed by*

Michael R. Lozeau  
Lozeau Drury LLP  
Attorneys for LIUNA Local 1184



# EXHIBIT A

**Pless Environmental, Inc.**

440 Nova Albion Way, Suite 2  
San Rafael, CA 94903  
(415) 492-2131 voice  
(815) 572-8600 fax

**BY EMAIL**

October 23, 2013

Michael R. Lozeau  
Lozeau | Drury LLP  
410 12th Street, Suite 250  
Oakland, CA 94607  
*michael@lozeaudrury.com*

*Re: Review of Staff Assessment for Amendment to Blythe Solar Power Project (09-AFC-6C)*

Dear Mr. Lozeau,

Per your request, I have reviewed the Staff Assessment (“SA”) for the Amendment to the Blythe Solar Power Project (“BSPP”) published by the California Energy Commission (“CEC”)<sup>1</sup> as the lead agency under the California Environmental Quality Act (“CEQA”). The BSPP was licensed by the CEC in 2010 as a 1,000-megawatt (“MW”) solar thermal power-generating facility on 7,043 acres utilizing parabolic trough technology.<sup>2</sup> The owner of BSPP, NextEra Blythe Solar Energy Center, LLC (“Applicant”), proposes to change the solar thermal power-generating technology of the previously certified BSPP (“Approved BSPP”) to photovoltaic (“PV”) technology (reduce the physical size to 4,070 acre, and reduce the amount of electricity generated to a maximum of 485 MW (to be built in four phases)<sup>3</sup> (“Modified BSPP”). The SA provides an assessment of this proposed technology change.<sup>4</sup>

CEC staff concludes that “with the adoption of proposed conditions of certification, the proposed modified BSPP would comply with all applicable laws,

---

<sup>1</sup> CEC, Blythe Solar Power Project, Amendment to the Blythe Solar Power Project, Staff Assessment – Part A, CEC-700-2013-004-FSA-PTA, Docket No. 09-AFC-6C, September 2013; available at [http://docketpublic.energy.ca.gov/PublicDocuments/09-AFC-06C/TN200629\\_20130927T120253\\_Blythe\\_Solar\\_Power\\_Project\\_Staff\\_Assessment\\_Part\\_A\\_Corrected.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/09-AFC-06C/TN200629_20130927T120253_Blythe_Solar_Power_Project_Staff_Assessment_Part_A_Corrected.pdf).

<sup>2</sup> SA, p. 2-1.

<sup>3</sup> SA, p. 2-1 and 2-2.

<sup>4</sup> SA, p. 1-2.

ordinances, regulations, and standards and would not result in any significant CEQA air quality impacts.”<sup>5</sup> I respectfully disagree.

## 1. Modeled Impacts on Air Quality

Construction of the Modified BSPP over a 48-month period would result in combustion emissions from off-road construction equipment and on-road vehicles including haul trucks and construction worker vehicles used for site grading, excavation, and construction of on-site and off-site structures and linears (new transmission line, water pipeline and access road) as well as fugitive dust emissions associated with these activities.<sup>6</sup> The SA presents the percentage decrease in on-site “mitigated maximum annual daily construction emission estimates” for the Modified BSPP compared to the Approved BSPP. The SA finds that emissions of nitrogen oxides (“NO<sub>x</sub>”), sulfur oxides (“SO<sub>x</sub>”), carbon monoxide (“CO”), and volatile organic compounds (“VOCs”) would decrease by more than 80 percent or on a daily basis and more than 50 percent on an annual basis. Emissions of particulate matter equal to or smaller than 10 and 2.5 micrometers (“PM<sub>10</sub>” and “PM<sub>2.5</sub>”) would decrease by more than 25 percent and 50 percent, respectively.<sup>7</sup>

The SA evaluates the significance of project construction impacts assuming the ambient air quality modeling conducted for the Approved BSPP remains equally applicable to the Modified BSPP stating that since “the same earth grading techniques and types of construction equipment would be used in both cases, the modeling scenarios would be essentially the same, but with lower emissions.” The SA summarizes that for the Approved BSPP, “the modeling analysis demonstrated compliance with applicable air quality standards for all pollutants except PM<sub>10</sub>, which was exceeded because the background value was already well over the California standards. Since the Applicant is not proposing changes to any PM<sub>10</sub>-related mitigation measures, staff agrees that PM<sub>10</sub> modeling is not necessary for the modified project.” Further, the SA summarizes that “NO<sub>2</sub> and PM<sub>2.5</sub> impacts for the Approved BSPP project were close (ninety-nine percent) to the applicable short-term (1-hour and 24-hour, respectively) standards.” The SA finds that since “the maximum daily emissions for the Modified BSPP project of NO<sub>x</sub> and PM<sub>2.5</sub> reflect a decrease of eighty percent and fifty three percent, respectively ... compared to the Approved BSPP project, it is safe to assume that the modeling analyses using the same conservative assumptions would show the Modified BSPP project to be in compliance with these standards by a wider margin. Therefore, impacts would remain less than significant with

---

<sup>5</sup> SA, p. 1-6.

<sup>6</sup> SA, p. 4.1-15.

<sup>7</sup> SA, p. 4.1-15 and Air Quality Tables 6 and 7.

implementation of the mitigation measures as required by Energy Commission Conditions of Certification AQ-SC1 through AQ-SC5. Since the Applicant is not proposing changes to any NO<sub>x</sub> or PM<sub>2.5</sub> related mitigation measures, staff agrees that NO<sub>2</sub> modeling is not necessary.”<sup>8</sup> I disagree with the SA’s assumptions and approach to determining the significance of construction emissions for the Modified BSPP.

While all estimated pollutant emissions for construction of the Modified BSPP are estimated to be lower than those for the Approved BSPP, impacts of these emissions on air quality must be assessed in the context of the current air quality at the project site, *i.e.*, by comparing the sum of modeled project impacts plus the existing background concentration of pollutants to current ambient air quality standards. While no ambient air quality standards have been promulgated that are more stringent than those assumed in CEC’s certification of the Approved BSPP, it cannot be assumed that pollutant background concentrations in the area have remained the same since evaluation of the Approved BSPP. The conclusions regarding impacts on air quality for construction of the Approved BSPP relied on background concentrations for 2004 to 2009.<sup>9</sup> The SA presents updated background concentrations for 2008 to 2012<sup>10</sup> for the Modified BSPP but fails to take the logical step of assessing modeled concentrations in light of these updated background concentrations. Comparison of these CEC staff-recommended background concentrations for the Approved BSPP and Modified BSPP shows that, while some pollutant background concentrations decreased, others substantially increased, as summarized in attached Table A-1. For example, 1-hour CO concentrations increased from 2,645 to 3,450 micrograms per cubic meter (“ $\mu\text{g}/\text{m}^3$ ”), 24-hour PM<sub>10</sub> increased from 83 to 133  $\mu\text{g}/\text{m}^3$ , 24-hour PM<sub>2.5</sub> increased from 20.5 to 26.3  $\mu\text{g}/\text{m}^3$ , 1-hour sulfur dioxide (“SO<sub>2</sub>”) increased from 23.6 to 28.7  $\mu\text{g}/\text{m}^3$ , and 24-hour SO<sub>2</sub> increased from 13.1 to 18.4  $\mu\text{g}/\text{m}^3$ .

I computed total impacts for the Modified BSPP for each pollutant by reducing the respective modeled project impacts for the Approved BSPP by accounting for the percent decrease in on-site construction emissions calculated by the SA and adding CEC staff-recommended updated background concentrations for 2008 to 2012. The results are shown in attached Table A-1.

The results indicate that the total **1-hour NO<sub>2</sub>** impact (Modified BSPP plus background) would indeed be well below (17 percent) the most stringent ambient air

---

<sup>8</sup> SA, p. 4.1-20.

<sup>9</sup> CEC, Blythe Solar Power Project, Revised Staff Assessment, June 2010, CEC-700-2010-004 REV1, Docket No. 09-AFC-6, (hereinafter “2010 RSA”), Air Quality Table 4, p. C.1-11; available at <http://energy.ca.gov/2010publications/CEC-700-2010-004/CEC-700-2010-004-REV1.PDF>.

<sup>10</sup> SA, Air Quality Table 4, p. 4.1-10, and Air Quality Table 5, p. 4.1-13.

quality standard for this pollutant, a safe margin for concluding that emissions from construction of the Modified BSPP would not result in an exceedance of the short-term standard for NO<sub>2</sub>. Thus, CEC staff's conclusion with respect to total NO<sub>2</sub> impacts, while relying on an incorrect approach, is correct.

However, for demonstrating compliance with the most stringent **24-hour PM2.5** standard, the results are not as clear-cut. While project impacts are estimated to decrease from 14.4 to 6.8 µg/m<sup>3</sup>, background concentrations in the area increased from 20.5 to 26.3 µg/m<sup>3</sup>. As a result, total 24-hour PM2.5 impacts are computed at 94 percent of the most stringent ambient air quality standard, not quite as wide a margin of safety as that for 1-hour NO<sub>2</sub>. Thus, while CEC staff's conclusion that 24-hour PM2.5 impacts would likely remain below the most stringent ambient air quality standard turns out to be correct, the impacts from construction of the Modified BSPP are only marginally (5 percent) lower than those estimated for the Approved BSPP (99 percent of standard).

While construction emissions of PM10 would be 26 percent lower on a short-term basis, total **24-hour PM10** impacts resulting from construction of the Modified BSPP (165 µg/m<sup>3</sup>) increase substantially compared to the Approved BSPP (126 µg/m<sup>3</sup>) because of substantially increased background concentrations (133 compared to 83 µg/m<sup>3</sup>). Project impacts (32 µg/m<sup>3</sup>) would continue to contribute significantly to existing exceedances of the most stringent annual ambient air quality standard of 50 µg/m<sup>3</sup> with resulting maximum total concentrations estimated at more than three times (330 percent) the standard. On an **annual PM10** basis, while emissions would be 32 percent lower and background concentrations decreased from 30.5 to 23.2 µg/m<sup>3</sup>, project impacts (2.7 µg/m<sup>3</sup>) would contribute substantially to total impacts (25.9 µg/m<sup>3</sup>) and existing exceedances of the most stringent ambient air quality standard for this pollutant (20 µg/m<sup>3</sup>) resulting in total maximum annual PM10 concentrations of 129 percent of the standard.

## 2. Impacts after Implementation of Proposed Conditions of Certification

The SA recognizes that PM10 emissions from construction would contribute to existing exceedances of ambient air quality standards.<sup>11</sup> However, in assessing the CEQA significance of PM10 impacts, the SA commits the same error as the 2010 RSA in that it assumes that its proposed conditions of certification would reduce impacts to a level below significance. Similarly, CEC staff considers NO<sub>x</sub> and VOC construction emissions to be potentially significant in light of the existing ozone nonattainment status for the project site area but concludes that with implementation of proposed mitigation measures construction impacts would not contribute substantially to

---

<sup>11</sup> SA, p. 4.1-20.

exceedances of ozone standards. Specifically, the SA states that “[if] left unmitigated, the Modified BSPP projects construction activities would likely contribute to significant CEQA adverse PM10 and ozone impacts. Staff recommends AQ-SC1 to AQ-SC5 to mitigate these potential impacts.”<sup>12</sup> I disagree that implementation of the proposed conditions of certification AQ-SC1 to AQ-SC5 would reduce the adverse PM10 and ozone impacts during construction to less than significance.

Like the 2010 RSA, the SA contains no quantitative demonstration of the effectiveness of the proposed conditions of certification in mitigating estimated emissions. In other words, neither document contains a comparison of emissions “before” and “after” implementation of the proposed conditions of certification. The estimates presented in both documents are “mitigated” emissions which incorporate all of the Applicant’s proposed mitigation measures.<sup>13</sup> Review of these mitigation measures shows that they incorporate virtually all of CEC staff’s proposed conditions of certification for fugitive dust control and neither addresses the substantial amounts of ozone precursor emissions from on-road vehicles. Therefore, the SA’s conclusions regarding significance of emissions and impacts “after” implementation of its proposed conditions of certification are unsupported.

#### **a) Fugitive Dust Emissions**

Specifically, the Applicant’s mitigated emission estimates for construction of the Modified BSPP presented in the SA assume:

- A combined control efficiency of 81 percent for fugitive dust PM10 and PM2.5 emissions from paved and unpaved roads as a result of limiting vehicle speeds to 25 miles per hour (“mph”) and watering roads twice per day.<sup>14</sup>
- A 50 percent control efficiency for fugitive dust emissions of PM10 and PM2.5 from wind erosion of storage piles due to watering twice per day.<sup>15</sup>

---

<sup>12</sup> SA, p. 4.1-29.

<sup>13</sup> SA, p. 4.1-15, and 2010 RSA, p. C.1-17.

<sup>14</sup> NextEra Blythe Solar Energy Center, LLC, Blythe Solar Power Project, Revised Petition for Amendment, Appendix E, Air Quality and Greenhouse Gas Construction and Operations and Maintenance Emissions and Screening Health Risk Assessment Results and Construction Schedule and Equipment Use Information, April 2013 (hereinafter “Revised PFA Appx. E”); available at [http://energy.ca.gov/sitingcases/blythe\\_solar/pv\\_amendment/rev-amendment/BSPP\\_Revised\\_PTA\\_Appendices.pdf](http://energy.ca.gov/sitingcases/blythe_solar/pv_amendment/rev-amendment/BSPP_Revised_PTA_Appendices.pdf). (See Table 4 “Emission Factors for Fugitive Dust Particulate Matter Emissions from On-Site Motor Vehicles on Unpaved Surfaces.” (See heading “Control Efficiency” and Footnote c “Combined control efficiency for limiting vehicle speed to 15 mph (57%, from SCAQMD CEQA mitigation measures, Table XI-A) and watering twice per day (54%, from SCAQMD CEQA mitigation measures, Table XI-A)...”.)

- A moisture content of 15 percent for frequently watering exposed surfaces during soil handling and bulldozing, scraping and grading to reduce emissions of fugitive dust emissions of PM10 and PM2.5.<sup>16</sup>

The SA provides several conditions of certification intended to reduce fugitive dust particulate matter emissions that were not quantified by the Applicant including tire washing and installation of gravel ramps to reduce trackout and covering or wetting materials and maintaining at least one foot of freeboard on haul trucks. In addition, daily sweeping of on-site paved roads may reduce emissions to some extent. The only requirement that is more stringent than assumed by the Applicant is to stabilize unpaved roads with a non-toxic soil stabilizer or soil weighting agent as they are being constructed<sup>17</sup> instead of watering twice daily. Based on the same recommendations by the South Coast Air Quality Management District (“SCAQMD”) that the Applicant relied on, the combined control efficiency of limiting vehicle speeds to 15 mph and road stabilization can be estimated at 93 percent<sup>18</sup>, a 12 percent reduction over the Applicant’s combined control efficiency of 81 percent. However, because fugitive dust PM10 emissions from on-site motor vehicle travel, both on paved and unpaved roads, account for less than 10 percent of total PM10 emissions, this emission reduction would not substantially reduce impacts on air quality. The major contributor to fugitive dust particulate matter emissions, *i.e.*, earth work including soil handling, storage pile wind erosion, and bulldozing, scraping, and grading cannot be further reduced short of shutdown measures because increased watering would make the site and materials unworkable. Thus, PM10 fugitive dust emissions would likely remain significant after implementation of all conditions of certification.

#### *Recommendations for Enhancing Fugitive Dust Mitigation*

The SA identifies Rules 401 (Visible Emissions), 402 (Nuisance), and 403 (Fugitive Dust) promulgated by the Mojave Desert Air Quality Management District (“MDAQMD”) as applicable to the construction period of the Modified BSPP.<sup>19</sup>

---

<sup>15</sup> Revised PFA Appx. E. (See Table 6 “Earthwork Fugitive PM Emission Factors.” (See reduction from watering of 50% for “Storage Pile Wind Erosion” and Footnote b “For daily water applicati[o]n rate of 1,703 gallons/acre....”))

<sup>16</sup> Revised PFA Appx. E. (“See Table 6 “Earthwork Fugitive PM Emission Factors.” (See Moisture content of 15% in tables for “Soil Handling” and “Bulldozing, Scraping, and Grading” and footnotes “The assumed moisture content is based on frequent watering of exposed surfaces. Assumed no control efficiency for watering so as to not double c[ount].”))

<sup>17</sup> SA, Condition of Certification AQ-S3.b.

<sup>18</sup>  $1 - (1 - 0.57)(1 - 0.84) = 0.93$ .

<sup>19</sup> SA, p. 4.1-3.

These rules contain several requirements that are not reflected by the SA's proposed conditions of certification. In order to assure implementation and compliance with MDAQMD rules, I recommend that the SA incorporate these requirements as conditions of certification. Further, in light of the significant emissions of fugitive dust PM10 emissions that would occur during the four-year construction period of the Modified BSPP, I recommend the following revisions and amendments to the SA's proposed conditions of certification.

MDAQMD Rule 403(a) stipulates that fugitive dust emissions from any transport, handling, construction or storage activity may not remain visible in the atmosphere beyond the property line of the emission source. Yet, condition of certification AQ-SC4 (Dust Plume Response Requirement) specifies measures when observations indicate that "visible dust plumes ... have the potential to be transported ... off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner..." This condition appears to substantially relax the requirements of MDAQMD Rule 403, which explicitly requires compliance at the property line. Given that the nearest resident may be as far as a half mile away from the nearest Project boundary<sup>20</sup>, this condition does not guarantee compliance with Rule 403(a) and may interfere with condition of certification WORKER SAFETY-8(2), which requires that PM10 concentrations determined as the difference between upwind and downwind samples collected on high volume samplers "as close to the property line as feasible" may not exceed 50 µg/m<sup>3</sup>.

Condition of certification AQ-SC4, Step 3, requires temporary shutdown of construction activities in case intensified application of existing mitigation measures or additional dust suppression methods would not result in abatement of visible dust plumes within one hour. MDAQMD Rule 403(e) provides relief from the above discussed requirements when the wind speed instantaneously exceeds 25 miles per hour ("mph") or when the wind speed averaged over 15 minutes exceeds 15 mph. The logical corollary to this requirement appears to be that construction and vehicle activity at the site should cease during high wind events so as not to add to adverse conditions. MDAQMD Rule 403(e) appears to provide an objective standard for determining when winds are likely to result in adverse impacts on air quality and when construction activity should be suspended. Thus, I recommend that CEC staff consider amending condition of certification AQ-SC4 (Dust Plume Response Requirement), to specify that the dust abatement and temporary shutdown requirements laid out in Step 1 through 3 of this measure apply at the wind speeds specified in MDAQMD Rule 403(e) and also when PM10 concentrations per WORKER SAFETY-8(2) exceed 50 µg/m<sup>3</sup>.

---

<sup>20</sup> See SA, p. 4.6-6. ("... a mobile home located approximately 2,500 feet west of the nearest project site boundary.")



**b) Combustion Exhaust Emissions**

For combustion emissions, the Applicant's mitigated emission estimates for construction of the Modified BSPP presented in the SA assume:

- Use of construction equipment complying with U.S. Environmental Protection Agency Tier 3 exhaust emission standards.<sup>21</sup>

The SA finds that construction activities would likely contribute to significant adverse ozone impacts and proposes condition of certification AQ-SC5 to reduce exhaust emissions from construction equipment.<sup>22</sup> While this condition is extensive and would likely reduce equipment exhaust emissions substantially compared to a typical unrestricted construction fleet in California, it would not restrict Project emissions to less than significant levels for CEQA purposes.

First, and most importantly, the proposed condition of certification addresses only emissions from diesel-fueled construction equipment. However, on-road vehicles including haul trucks and construction worker vehicles would also emit substantial amounts of ozone precursors, especially NO<sub>x</sub>, estimated at up to 333.3 pounds per day ("lb/day") and 39.7 tons per year ("ton/year"). These emissions would not be reduced by the proposed condition for off-road construction equipment. One way to assess the significance of emissions is to model resulting concentrations in air; however, because ozone is a regional pollutant, emissions cannot be easily modeled on a project basis. The other way to assess significance is to compare emissions to quantitative significance thresholds established by the local air district. As indicators to assess whether construction emissions would contribute significantly to ozone concentrations, the Mojave Desert Air Quality Management District ("MDAQMD") provides daily and annual CEQA significance thresholds for NO<sub>x</sub> emissions of 137 lb/day and 25 tons/year, respectively.<sup>23</sup> On-road vehicle exhaust emissions, which are not (and cannot reasonably be) mitigated by the proposed conditions of certification, would exceed the MDAQMD's daily NO<sub>x</sub> significance threshold by a factor of almost two and a half<sup>24</sup> and the annual NO<sub>x</sub> significance threshold by a factor of more than one and a

---

<sup>21</sup> Revised PFA Appx. E. (See Table 1 "Construction Equipment Emission Factors." (See heading "Model Year" and Footnote a "Earliest model year required to meet at least Tier 3 emission standards."))

<sup>22</sup> SA, p. 4.1-29.

<sup>23</sup> MDAQMD, California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, Table 6, p. 10; available at <http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=1806>.

<sup>24</sup> (333.3 lb/day) / (137 lb/day) = 2.43.

half.<sup>25</sup> Mitigated exhaust emissions from construction equipment would further contribute to this exceedance. Thus, contrary to the SA's conclusion, ozone precursor emissions would contribute substantially to existing exceedances of the ozone standards even after implementation of the proposed conditions of certification.

Second, the proposed condition of certification exempts all off-road construction equipment with a rating of 50 hp or less and all equipment on site for a less than 10 days (considered "not practical"). The Applicant's emission estimates assume U.S. Environmental Protection Agency ("EPA") Tier 3 emission factors for all equipment regardless of horsepower. Thus, emissions for equipment with 50 hp or less may be substantially underestimated. Further, equipment on site for less than 10 days may include equipment such as graders or scrapers which may be very old. A study of construction equipment in California found that the average useful life, *i.e., the age at which half of the equipment of a given model year has been retired*, varies from 10 to 32 years.<sup>26</sup> Older equipment may have very high emissions which would disproportionately contribute to project construction emissions and which are not accounted for in the SA's assessment of short-term impacts on air quality. I recommend that CEC staff eliminate these exemptions or prepare revised emission estimates.

#### *Recommendations for Additional Feasible Mitigation*

Construction worker commuter vehicles contribute a substantial portion of total VOC emissions during construction. For example, during the month with estimated maximum VOC emissions from power block on-road equipment (40.4 lb/day<sup>27</sup> or 887.9 lb/month<sup>28</sup>), Month 22, construction worker vehicles contribute 75 percent.<sup>29</sup> These emissions by far exceed those of the estimated maximum on-site construction equipment VOC emissions, also during Month 22, of 14.9 lb/day or 328.5 lb/month.<sup>30</sup> To reduce emissions of these ozone precursors, I suggest that CEC staff require the

---

<sup>25</sup>  $(39.7 \text{ ton/year}) / (25 \text{ ton/year}) = 1.59$ .

<sup>26</sup> Union of Concerned Scientists, Digging up Trouble, The Health Risk of Construction Pollution in California, November 2006, p. 4; available [http://www.ucsusa.org/assets/documents/clean\\_vehicles/digging-up-trouble.pdf](http://www.ucsusa.org/assets/documents/clean_vehicles/digging-up-trouble.pdf).

<sup>27</sup> SA, Air Quality Table 6, p. 4.1-16.

<sup>28</sup> *Ibid* and Revised PFA Appx. E. (See Table 18-b "Off-site Construction ROG Emissions Sum[mary]" for "Month 22.")

<sup>29</sup> [off-site worker commute car VOC emissions: (fence mobilization: 0.00) + (civil improvements – grading: 76.2) + (PV panel construction: 420.7) + (substation building water tank construction: 52.5) + (testing & commissioning: 118.1) lb/month] / (total off-site motor vehicle VOC emissions: 887.9 lb/month) = 0.752.


<sup>30</sup> Revised PFA Appx. E. (See Table 15-b "On-site Construction ROG Emissions Sum[mary]" for "Month 22.")

Applicant to establish natural-gas powered shuttle buses with pick-up locations in the three towns where construction workers will likely lodge or reside, *i.e.*, Blythe and Indio in California and Ehrenberg in Arizona.<sup>31</sup> This requirement could substantially reduce VOC emissions from construction worker commuter vehicles.

Further, to reduce combustion exhaust emissions from other on-road vehicles during construction of the Modified BSPP such as concrete rucks, delivery trucks, cabling trucks, electrical trucks, structural steel trucks, etc., I suggest that CEC staff evaluate the feasibility of requiring a) that ninety percent of the truck carriers contracted by the Applicant be EPA SmartWay partners<sup>32</sup> or b) that the Applicant contract with truck carriers whose on-road diesel powered vehicles are equipped with California Air Resources Board ("CARB")-certified Tier 3 pollution control equipment, capable of achieving at least 85 percent reduction in particulate matter and 25 percent reduction in nitrogen oxide emissions.<sup>33</sup>

If you have any questions regarding the above comments, please give me a call at (415) 492-2131 or e-mail at [petra.pless@gmail.com](mailto:petra.pless@gmail.com).

With best regards,



Petra Pless, D.Env.

---

<sup>31</sup> See SA, p. 4.8-15.

<sup>32</sup> EPA, SmartWay; <http://www.epa.gov/smartway/>.

<sup>33</sup> CARB, Diesel Certifications, Verification Procedure - Currently Verified; <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>.

Table A-1: Comparison of maximum total impacts on air quality during Approved BSPP construction as presented in the 2010 RSA and based on updated background concentrations and percent emission reduction as presented in the SA for the Modified BSPP

Pollutant		Most Stringent Ambient Air Quality Standard ( $\mu\text{g}/\text{m}^3$ )	Maximum Approved BSPP Construction Impacts (from 2010 RSA, Table 10, p. C.1-23)				Maximum Modified BSPP Construction Impacts (calculated as indicated in notes below)				
			Approved BSPP Project Impact ( $\mu\text{g}/\text{m}^3$ )	1998-2009 Background ( $\mu\text{g}/\text{m}^3$ )	Approved BSPP Total Impact ( $\mu\text{g}/\text{m}^3$ )	Percent of Standard	Emission Reduction <sup>a</sup> Modified BSPP vs. Approved BSPP	Modified BSPP Project Impact <sup>b</sup> ( $\mu\text{g}/\text{m}^3$ )	2008-2012 Background <sup>c</sup> ( $\mu\text{g}/\text{m}^3$ )	Modified BSPP Total Impact <sup>d</sup> ( $\mu\text{g}/\text{m}^3$ )	Revised Percent of Standard <sup>e</sup>
NO <sub>2</sub>	1-hour	339	335.9	N/A	335.9	99%	83%	57.1	N/A	57.1	17%
	Annual	57	4.3	19	23.3	41%	86%	0.6	17	17.6	31%
CO	1-hour	23,000	1,068.7	2,645	3,714	16%	88%	128.2	3,450	3,578	16%
	8-hour	10,000	423.6	877	1,301	13%	90%	42.4	744	786	8%
PM <sub>10</sub>	24-hour	50	43	83	126	<b>252%</b>	26%	32	133	165	<b>330%</b>
	Annual	20	3.9	30.5	34.4	<b>172%</b>	32%	2.7	23.2	25.9	<b>129%</b>
PM <sub>2.5</sub>	24-hour	35	14.4	20.5	34.9	99%	53%	6.8	26.3	33.1	94%
	Annual	12	0.6	8.7	9.3	77%	56%	0.3	7.2	7.5	62%
SO <sub>2</sub>	1-hour	665	3.4	23.6	27.0	4%	89%	0.4	28.7	29.1	4%
	3-hour	1,300	2.3	15.6	17.9	1%	89%	0.3	15.6	15.9	1%
	24-hour	105	0.6	13.1	13.7	13%	89%	0.1	18.4	18.5	18%
	Annual	80	0.01	3.5	3.5	4%	54%	0.00	2.9	2.9	4%

Shaded values indicate apparent calculation errors in the 2010 RSA (for 8-hour CO, the 2010 RSA calculates a total impact of 901  $\mu\text{g}/\text{m}^3$  and 9 percent of standard; for 3-hour SO<sub>2</sub>, the 2010 RSA calculates a total impact of 17.3  $\mu\text{g}/\text{m}^3$ , resulting in the same percent of standard). **Bolded** percentages indicate exceedance of air quality standards.

- a SA, Air Quality Table 6, p. 4.1-16, for short-term ambient air quality standards and Air Quality Table 7, p. 4.-17, for annual ambient air quality standards.
- b **Modified BSPP Project Impact** ( $\mu\text{g}/\text{m}^3$ ) calculated as: **Approved BSPP Project Impact** from 2010 RSA ( $\mu\text{g}/\text{m}^3$ )  $\times$  **Emission Reduction** from SA (%).
- c SA, Air Quality Table 5, p. 4.1-13.
- d **Modified BSPP Total Impact** ( $\mu\text{g}/\text{m}^3$ ) calculated as: **Modified BSPP Project Impact** ( $\mu\text{g}/\text{m}^3$ ) + **2008-2012 Background** from SA ( $\mu\text{g}/\text{m}^3$ ).
- e **Revised Percent of Standard** calculated as: **Modified BSPP Total Impact** / **Most Stringent Ambient Air Quality Standard**.

## **Petra Pless, D.Env.**

440 Nova Albion Way, #2  
San Rafael, CA 94903  
(415) 492-2131 phone  
(815) 572-8600 fax  
petra.pless@gmail.com

Dr. Pless is a court-recognized expert with over 20 years of experience in environmental consulting conducting and managing interdisciplinary environmental research projects and preparing and reviewing environmental permits and other documents for U.S. and European stakeholder groups. Her broad-based experience includes air quality and air pollution control; water quality, water supply, and water pollution control; biological resources; public health and safety; noise studies; California Environmental Quality Act ("CEQA"), Clean Air Act ("CAA"), and National Environmental Policy Act ("NEPA") review; industrial ecology and risk assessment; and use of a wide range of environmental software.

### **EDUCATION**

Doctorate in Environmental Science and Engineering (D.Env.), University of California  
Los Angeles, 2001

Master of Science (equivalent) in Biology, Technical University of Munich, Germany, 1991

### **PROFESSIONAL HISTORY**

Pless Environmental, Inc., Principal, 2008–present

Environmental Consultant, Sole Proprietor, 2006–2008

Leson & Associates (previously Leson Environmental Consulting), Kensington, CA,  
Environmental Scientist/Project Manager, 1997–2005

University of California Los Angeles, Graduate Research Assistant/Teaching Assistant, 1994–1996

ECON Research and Development, Environmental Scientist, Ingelheim, Germany, 1992–1993

Biocontrol, Environmental Projects Manager, Ingelheim, Germany, 1991–1992

### **REPRESENTATIVE EXPERIENCE**

#### **Air Quality and Pollution Control**

Projects include CEQA/NEPA review; CAA attainment and non-attainment new source review; prevention of significant deterioration ("PSD") and Title V permitting; control technology analyses (BACT, LAER, RACT, BARCT, BART, MACT); technology evaluations and cost-effectiveness analyses; criteria and toxic pollutant and greenhouse gas emission inventories; emission offsets; ambient and source monitoring; analysis of emissions estimates and ambient air pollutant concentration modeling. Some typical projects include:

- Critically reviewed and prepared technical comments on the air quality, biology, noise, water quality, and public health and safety sections of CEQA/NEPA documents for numerous

commercial, residential, and industrial projects (e.g., power plants, airports, residential developments, retail developments, university expansions, hospitals, refineries, slaughterhouses, asphalt plants, food processing facilities, printing facilities, mines, quarries, and recycling facilities) and provided litigation support in a number of cases filed under CEQA.

- Critically reviewed and prepared technical comments on the air quality and public health sections of the Los Angeles Airport Master Plan (Draft, Supplement, and Final Environmental Impact Statement/Environmental Impact Report) for the City of El Segundo. Provided technical comments on the Draft and Final General Conformity Determination for the preferred alternative submitted to the Federal Aviation Administration.
- Prepared comments on proposed PSD and Title V permit best available control technology (“BACT”) analysis for greenhouse gas emissions from a proposed direct reduced iron facility in Louisiana.
- Prepared technical comments on the potential air quality impacts of the California Air Resources Board’s *Proposed Actions to Further Reduce Particulate Matter at High Priority California Railyards*.
- For several California refineries, evaluated compliance of fired sources with Bay Area Air Quality Management District Rule 9-10. This required evaluation and review of hundreds of source tests to determine if refinery-wide emission caps and compliance monitoring provisions were being met.
- Critically reviewed and prepared technical comments on draft Title V permits for several refineries and other industrial facilities in California.
- Evaluated the public health impacts of locating big-box retail developments in densely populated areas in California and Hawaii. Monitored and evaluated impacts of diesel exhaust emissions and noise on surrounding residential communities.
- In conjunction with the permitting of several residential and commercial developments, conducted studies to determine baseline concentrations of diesel exhaust particulate matter using an aethalometer.
- For an Indiana steel mill, evaluated technology to control NO<sub>x</sub> and CO emissions from fired sources, including electric arc furnaces and reheat furnaces, to establish BACT. This required a comprehensive review of U.S. and European operating experience. The lowest emission levels were being achieved by steel mills using selective catalytic reduction (“SCR”) and selective non-catalytic reduction (“SNCR”) in Sweden and The Netherlands.
- For a California petroleum coke calciner, evaluated technology to control NO<sub>x</sub>, CO, VOCs, and PM<sub>10</sub> emissions from the kiln and pyroscrubbers to establish BACT and LAER. This required a review of state and federal clearinghouses, working with regulatory agencies and pollution control vendors, and obtaining and reviewing permits and emissions data from other similar facilities. The best-controlled facilities were located in the South Coast Air Quality Management District.
- For a Kentucky coal-fired power plant, identified the lowest NO<sub>x</sub> levels that had been permitted and demonstrated in practice to establish BACT. Reviewed operating experience of European, Japanese, and U.S. facilities and evaluated continuous emission monitoring data. The lowest NO<sub>x</sub> levels had been permitted and achieved in Denmark and in the U.S. in Texas and New York.

- In support of efforts to lower the CO BACT level for power plant emissions, evaluated the contribution of CO emissions to tropospheric ozone formation and co-authored report on same.
- Critically reviewed and prepared technical comments on applications for certification (“AFCs”) for numerous natural-gas fired, solar, biomass, and geothermal power plants in California permitted by the California Energy Commission. The comments addressed construction and operational emissions inventories and dispersion modeling, BACT determinations for combustion turbine generators, fluidized bed combustors, diesel emergency generators, etc.
- Critically reviewed and prepared technical comments on draft PSD permits for several natural gas-fired power plants in California, Indiana, and Oregon. The comments addressed emission inventories, greenhouse gas emissions, BACT, case-by-case MACT, compliance monitoring, cost-effectiveness analyses, and enforceability of permit limits.
- For a California refinery, evaluated technology to control NO<sub>x</sub> and CO emissions from CO Boilers to establish RACT/BARCT to comply with BAAQMD Rule 9-10. This required a review of BACT/RACT/LAER clearinghouses, working with regulatory agencies across the U.S., and reviewing federal and state regulations and State Implementation Plans (“SIPs”). The lowest levels were required in a South Coast Air Quality Management District rule and in the Texas SIP.
- In support of several federal lawsuits filed under the federal Clean Air Act, prepared cost-effectiveness analyses for SCR and oxidation catalysts for simple cycle gas turbines and evaluated opacity data.
- Provided litigation support for a CEQA lawsuit addressing the adequacy of pollution control equipment at a biomass cogeneration plant.
- Prepared comments and provided litigation support on several proposed regulations including the Mojave Desert Air Quality Management District Rule 1406 (fugitive dust emission reduction credits for road paving); South Coast Air Quality Management District Rule 1316, San Joaquin Valley Air Pollution Control District Rule 2201, Antelope Valley Air Quality Management District Regulation XIII, and Mojave Desert Air Quality Management District Regulation XIII (implementation of December 2002 amendments to the federal Clean Air Act).
- Critically reviewed draft permits for several ethanol plants in California, Indiana, Ohio, and Illinois and prepared technical comments.
- Reviewed state-wide average emissions, state-of-the-art control devices, and emissions standards for construction equipment and developed recommendations for mitigation measures for numerous large construction projects.
- Researched sustainable building concepts and alternative energy and determined their feasibility for residential and commercial developments, *e.g.*, regional shopping malls and hospitals.
- Provided comprehensive environmental and regulatory services for an industrial laundry chain. Facilitated permit process with the South Coast Air Quality Management District. Developed test protocol for VOC emissions, conducted field tests, and used mass balance methods to estimate emissions. Reduced disposal costs for solvent-containing waste streams by identifying alternative disposal options. Performed health risk screening for air toxics

emissions. Provided permitting support. Renegotiated sewer surcharges with wastewater treatment plant. Identified new customers for shop-towel recycling services.

- Designed computer model to predict performance of biological air pollution control (biofilters) as part of a collaborative technology assessment project, co-funded by several major chemical manufacturers.
- Experience using a wide range of environmental software, including air dispersion models, air emission modeling software, database programs, and geographic information systems.

### **Water Quality and Pollution Control**

Experience in water quality and pollution control, including surface water and ground water quality and supply studies, evaluating water and wastewater treatment technologies, and identifying, evaluating and implementing pollution controls. Some typical projects include:

- Evaluated impacts of on-shore oil drilling activities on large-scale coastal erosion in Nigeria.
- For a 500-MW combined-cycle power plant, prepared a study to evaluate the impact of proposed groundwater pumping on local water quality and supply, including a nearby stream, springs, and a spring-fed waterfall. The study was docketed with the California Energy Commission.
- For a 500-MW combined-cycle power plant, identified and evaluated methods to reduce water use and water quality impacts. These included the use of zero-liquid-discharge systems and alternative cooling technologies, including dry and parallel wet-dry cooling. Prepared cost analyses and evaluated impact of options on water resources. This work led to a settlement in which parallel wet dry cooling and a crystallizer were selected, replacing 100 percent groundwater pumping and wastewater disposal to evaporation ponds.
- For a homeowner's association, reviewed a California Coastal Commission staff report on the replacement of 12,000 linear feet of wooden bulkhead with PVC sheet pile armor. Researched and evaluated impact of proposed project on lagoon water quality, including sediment resuspension, potential leaching of additives and sealants, and long-term stability. Summarized results in technical report.

### **Applied Ecology, Industrial Ecology and Risk Assessment**

Experience in applied ecology, industrial ecology and risk assessment, including human and ecological risk assessments, life cycle assessment, evaluation and licensing of new chemicals, and fate and transport studies of contaminants. Experienced in botanical, phytoplankton, and intertidal species identification and water chemistry analyses. Some typical projects include:

- Conducted technical, ecological, and economic assessments of product lines from agricultural fiber crops for European equipment manufacturer; co-authored proprietary client reports.
- Developed life cycle assessment methodology for industrial products, including agricultural fiber crops and mineral fibers; analyzed technical feasibility and markets for thermal insulation materials from natural plant fibers and conducted comparative life cycle assessments.
- For the California Coastal Conservancy, San Francisco Estuary Institute, Invasive *Spartina* Project, evaluated the potential use of a new aquatic pesticide for eradication of non-native, invasive cordgrass (*Spartina spp.*) species in the San Francisco Estuary with respect to water



quality, biological resources, and human health and safety. Assisted staff in preparing an amendment to the Final EIR.

- Evaluated likelihood that organochlorine pesticide concentrations detected at a U.S. naval air station are residuals from past applications of these pesticides consistent with manufacturers' recommendations. Retained as expert witness in federal court case.
- Prepared human health risk assessments of air pollutant emissions from several industrial and commercial establishments, including power plants, refineries, and commercial laundries.
- Managed and conducted laboratory studies to license pesticides. This work included the evaluation of the adequacy and identification of deficiencies in existing physical/chemical and health effects data sets, initiating and supervising studies to fill data gaps, conducting environmental fate and transport studies, and QA/QC compliance at subcontractor laboratories. Prepared licensing applications and coordinated the registration process with German environmental protection agencies. This work led to regulatory approval of several pesticide applications in less than six months.
- Designed and implemented database on physical/chemical properties, environmental fate, and health impacts of pesticides for a major multi-national pesticide manufacturer.
- Designed and managed experimental toxicological study on potential interference of delta-9-tetrahydrocannabinol in food products with U.S. employee drug testing; co-authored peer-reviewed publication.
- Critically reviewed and prepared technical comments on applications for certification for several natural-gas fired, solar, and geothermal power plants and transmission lines in California permitted by the California Energy Commission. The comments addressed avian collisions and electrocution, construction and operational noise impacts on wildlife, risks from brine ponds, and impacts on endangered species.
- For a 180-MW geothermal power plant, evaluated the impacts of plant construction and operation on the fragile desert ecosystem in the Salton Sea area. This work included baseline noise monitoring and assessing the impact of noise, brine handling and disposal, and air emissions on local biota, public health, and welfare.
- Designed research protocols for a coastal ecological inventory in Southern California; developed sampling methodologies, coordinated field sampling, determined species abundance and distribution in intertidal zone, and conducted statistical data analyses.
- Designed and conducted limnological study on effects of physical/chemical parameters on phytoplankton succession; performed water chemistry analyses and identified phytoplankton species; co-authored two journal articles on results.

### **PRO BONO ACTIVITIES**

Founding member of "SecondAid," a non-profit organization providing tsunami relief for the recovery of small family businesses in Sri Lanka. ([www.secondaid.org](http://www.secondaid.org).)

### **PUBLICATIONS & RECOMMENDATIONS**

Available upon request.

# EXHIBIT B



**MDAQMD**

# California Environmental Quality Act (CEQA)

And

## Federal Conformity

## Guidelines

February 2009

Planning and Rule Making Section  
Surveillance Section

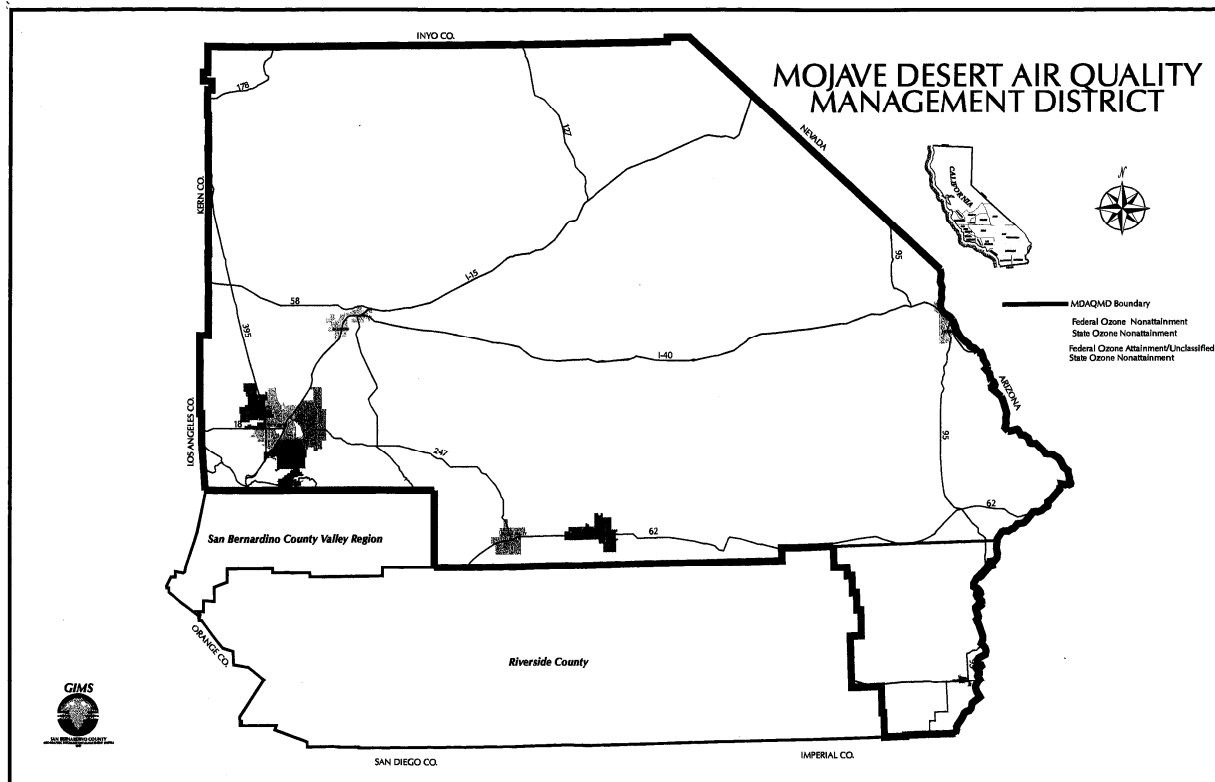
## Table of Contents

Background.....	2
Recommended Environmental Setting Elements.....	5
Recommended Impacts Discussion Elements .....	8
Recommended Substantiation Discussion Elements .....	9
Significance Thresholds.....	9
District Contacts.....	10
Appendix A – Basic Definitions of Major Air Pollutants .....	12

## Background

Under CEQA, the Mojave Desert Air Quality Management District (District) is an expert commenting agency on air quality and related matters within its jurisdiction or impacting on its jurisdiction. Under the Federal Clean Air Act the District has adopted federal attainment plans for ozone and PM<sub>10</sub>. The District has dedicated assets to reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan. These Guidelines are intended to assist persons preparing environmental analysis or review documents for any project within the jurisdiction of the District by providing background information and guidance on the preferred analysis approach.

### Map 1 - District Boundaries



***Jurisdiction***

The District has jurisdiction over the desert portion of San Bernardino County and the far eastern end of Riverside County (please refer to Map 1). This region includes the incorporated communities of Adelanto, Apple Valley, Barstow, Blythe, Hesperia, Needles, Twentynine Palms, Victorville, and Yucca Valley. This region also includes the National Training Center at Fort Irwin, the Marine Corps Air Ground Combat Center, the Marine Corps Logistics Base, the eastern portion of Edwards Air Force Base, and a portion of the China Lake Naval Air Weapons Station.

***Non-attainment Designations and Classification Status***

The United States Environmental Protection Agency and the California Air Resources Board have designated portions of the District non-attainment for a variety of pollutants, and some of those designations have an associated classification. Please refer to Table 1 for a chart of these designations and classifications.

**Table 1 - Designations and Classifications**

<b>Ambient Air Quality Standard</b>	<b>AVAQMD</b>	<b>MDAQMD</b>
One-hour Ozone (Federal) – standard has been revoked, this is historical information only	Non-attainment; classified Severe-17	Non-attainment; classified Severe-17 (portion of MDAQMD outside of Southeast Desert Modified AQMA is unclassified/attainment)
Eight-hour Ozone (Federal 84 ppb)	Non-attainment; classified Severe-17	Non-attainment; classified Severe-17 (portion of MDAQMD outside of Western Mojave Desert Ozone Non-attainment Area is unclassified/attainment)
Eight-hour Ozone (Federal 75 ppb)	Non-attainment (expected)	Non-attainment (expected)
Ozone (State)	Nonattainment; classified Extreme	Non-attainment; classified Moderate
PM <sub>10</sub> (Federal)	Unclassified	Non-attainment; classified Moderate (portion of MDAQMD in Riverside County is unclassified, and the portion in the Searles Valley is attainment)
PM <sub>2.5</sub> (Federal)	Unclassified/attainment	Unclassified/attainment
PM <sub>2.5</sub> (State)	Unclassified	Non-attainment (portion of MDAQMD outside of Western Mojave Desert Ozone Non-attainment Area is unclassified/attainment)
PM <sub>10</sub> (State)	Non-attainment	Non-attainment
Carbon Monoxide (State and Federal)	Attainment	Attainment
Nitrogen Dioxide (State and Federal)	Attainment/unclassified	Attainment/unclassified

<b>Ambient Air Quality Standard</b>	<b>AVAQMD</b>	<b>MDAQMD</b>
Sulfur Dioxide (State and Federal)	Attainment/unclassified	Attainment/unclassified
Lead (State and Federal)	Attainment	Attainment
Particulate Sulfate (State)	Unclassified	Attainment
Hydrogen Sulfide (State)	Unclassified	Unclassified (Searles Valley Planning Area is non-attainment)
Visibility Reducing Particles (State)	Unclassified	Unclassified

### ***Attainment Plans***

The District has adopted a variety of attainment plans for a variety of non-attainment pollutants. Please refer to Table 2 for a chart of these attainment plans.

**Table 2 – MDAQMD Attainment Plans**

<b>Name of Plan</b>	<b>Date of Adoption</b>	<b>Standard(s) Targeted</b>	<b>Applicable Area</b>	<b>Pollutant(s) Targeted</b>	<b>Attainment Date*</b>
1991 Air Quality Attainment Plan	26-Aug-91	State one hour ozone	San Bernardino County portion	NO <sub>x</sub> and VOC	1994
Reasonable Further Progress Rate-Of-Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO <sub>x</sub> and VOC	2007
Post 1996 Attainment Demonstration and Reasonable Further Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO <sub>x</sub> and VOC	2007
Searles Valley PM <sub>10</sub> Plan	28-Jun-95	Federal daily and annual PM <sub>10</sub>	Searles Valley Planning Area	PM <sub>10</sub>	1994
Mojave Desert Planning Area Federal Particulate Matter Attainment Plan	31-Jul-95	Federal daily and annual PM <sub>10</sub>	Mojave Desert Planning Area	PM <sub>10</sub>	2000
Triennial Revision to the 1991 Air Quality Attainment Plan	22-Jan-96	State one hour ozone	Entire District	NO <sub>x</sub> and VOC	2005
Attainment Demonstration, Maintenance Plan, and Redesignation Request for the Trona Portion of the Searles Valley PM <sub>10</sub> Non-attainment Area	25-Mar-96	Federal daily and annual PM <sub>10</sub>	Searles Valley Planning Area	PM <sub>10</sub>	N/A

<b>Name of Plan</b>	<b>Date of Adoption</b>	<b>Standard(s) Targeted</b>	<b>Applicable Area</b>	<b>Pollutant(s) Targeted</b>	<b>Attainment Date*</b>
2004 Ozone Attainment Plan (State and Federal)	26-Apr-04	Federal one hour ozone	Entire District	NO <sub>x</sub> and VOC	2007
Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area)	9-Jun-08	Federal eight hour ozone (84 ppb)	Western Mojave Desert Non-attainment Area (MDAQMD portion)	NO <sub>x</sub> and VOC	2021

\*Note: A historical attainment date given in an attainment plan does not necessarily mean that the affected area has been re-designated to attainment; please refer to Table 1.

### ***Rules and Regulations***

The District maintains a set of Rules and Regulations to improve air quality and maintain good air quality. Please contact the District to obtain a copy of the District rulebook, or visit [www.mdaqmd.ca.gov/rules\\_plans/rules\\_plans.htm](http://www.mdaqmd.ca.gov/rules_plans/rules_plans.htm) .

## **Recommended Environmental Setting Elements**

### ***Air Quality Data***

The District gathers a variety of air quality data from a variety of monitoring sites (from the USMC AGCC site on contract). Table 3 details the data available from the District for each monitoring site.

**Table 3 - Available Air Quality Data**

<b>Site</b>	<b>Address</b>	<b>Pollutants</b>	<b>Dates</b>
Barstow	225 E. Mountain View	O <sub>3</sub> , NO <sub>x</sub> , CO, PM <sub>10</sub>	5/1/80 to present
Hesperia	17288 Olive	O <sub>3</sub> , PM <sub>10</sub>	1/2/86 to present
Lucerne Valley	8560 Aliento Road	PM <sub>10</sub>	6/1/89 to present
Phelan	Beekley Road	O <sub>3</sub>	1/1/88 to present
Trona	Market Street	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , H <sub>2</sub> S, PM <sub>10</sub>	8/1//80 to 2/13/93
Trona	Athol Street	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , H <sub>2</sub> S, PM <sub>10</sub>	1/25/93 to 3/1997
Trona	Telescope	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , H <sub>2</sub> S, PM <sub>10</sub> (Hi-Vol and TEOM)	4/1997 to present
Twentynine Palms	Adobe	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, PM <sub>10</sub>	8/1/80 to 12/2005
USMC AGCC Twentynine Palms	Bldg 700	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, PM <sub>10</sub> (TEOM)	1/2006 to present
Victorville	County Fairgrounds	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, TSP	8/1980 to 12/1985

Site	Address	Pollutants	Dates
Victorville	Eighth Street	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, TSP	1/1985 to 12/1989
Victorville	County Fairgrounds	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, PM <sub>10</sub>	1/1990 to 4/1991
Victorville	Amargosa Road	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, PM <sub>10</sub>	4/1991 to 12/1999
Victorville	Park Avenue	O <sub>3</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, PM <sub>2.5</sub> (dual co-located), PM <sub>10</sub> (Hi-Vol and TEOM)	1/2000 to present

### ***Meteorological Data***

A variety of meteorological data is available from the District for several monitoring sites throughout the District. Table 4 contains a list of monitoring sites and the data available for each site.

**Table 4 - Available Meteorological Data**

Site	Address	Data	Dates
Barstow	225 E. Mountain View	Wind speed (hourly average and peak), wind direction, temperature, barometric pressure	1/1988 to present
Hesperia	17288 Olive Street	Wind speed (hourly average and peak), wind direction, temperature, barometric pressure	1/1988 to present
Phelan	Beekley Road	Wind speed (hourly average and peak), wind direction, temperature	1/88 to present
Trona	Athol Street	Wind speed (hourly average and peak), wind direction, pressure, temperature	2/1993 to 3/1997
Trona	Telescope	Wind speed (hourly average and peak), wind direction, pressure, temperature	4/1997 to present
Twentynine Palms	W. Adobe	Wind speed (hourly average and peak), wind direction, pressure, temperature	1/1988 to 12/2005
USMC AGCC Twentynine Palms	Bldg. 700	Wind speed (hourly average and peak), wind direction, pressure, temperature	1/2006 to present
Victorville	Amargosa Road	Wind speed (hourly average and peak), wind direction, pressure, temperature, solar radiation	4/91 to 12/1999



Site	Address	Data	Dates
Victorville	Park Avenue	Wind speed (hourly average and peak), wind direction, pressure, temperature, solar radiation	1/2000 to present

### ***Topography and Climate Discussion***

The District covers the majority of the Mojave Desert Air Basin (MDAB). The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevadas in the north by the Tehachapi Pass (3,800 ft elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 ft). The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriels by the Cajon Pass (4,200 ft). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley).

The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 ft) between the San Bernardino and San Jacinto Mountains.

During the summer the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. As can be seen from Table 5, the MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWbh), to indicate at least three months have maximum average temperatures over 100.4° F.

**Table 5 - MDAB Average Precipitation and Evaporation History**

Location	Precipitation (inches)	Precipitation (days)	Evaporation (inches)	Length of Observations (years)
Trona	3.82	16		48
Randsburg	5.89	23		48
China Lake	4.42			34
Goldstone Echo	5.42	20		23
Daggett Airport	3.87	23		48

<b>Location</b>	<b>Precipitation (inches)</b>	<b>Precipitation (days)</b>	<b>Evaporation (inches)</b>	<b>Length of Observations (years)</b>
Barstow Fire	4.60	23		16
Barstow CIMIS	5.10	27	70	22
Granite Mountain	5.76	22		5
Victorville CIMIS	7.30	29	63	15
Mitchell Caverns	10.41	32		38
Mountain Pass	7.63	28		41
Parker Reservoir	5.38	24		48
Needles Airport	4.55	23		48
Twentynine Palms	3.95	19		48
Blythe Airport	3.57	17		48
Iron Mountain	3.40	19		48

## **Recommended Impacts Discussion Elements**

### ***Direct Impacts***

Direct impacts are the result of the project itself (from its construction and operation), in the form of project activity and trips generated by the project. For example, in the case of a subdivision project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), housing use activity (natural gas consumption) and trips to and from the housing (vehicle exhaust, tire wear) represent direct impacts. In the case of a new mine project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), material handling (drilling, blasting, transfers, crushing, screening, bagging), operational emissions (wind erosion, vehicle travel, vehicle exhaust, tire wear), and employee/customer/delivery travel (vehicle exhaust, tire wear) represent direct impacts.

### ***Indirect Impacts***

Indirect impacts are the result of changes that would not occur without the project. In the case of a subdivision project, indirect impacts on the surrounding community can be generated in many ways: nearby construction of roadways (or roadway modifications) and other infrastructure to support the subdivision, construction and operation of new commercial/retail establishments, changes in traffic/circulation patterns that result in increased congestion/delays, etc. In the case of a new mine project, indirect impacts can be generated by nearby construction of infrastructure to support the mine, housing constructed and/or occupied by mine employees, changes in traffic/circulation patterns that result in increased congestion/delays, etc.

### ***Cumulative Impacts***

Cumulative impacts are similar to direct and indirect impacts of the project, which the project contributes to. In the case of a subdivision project, a given project has a cumulative impact with all other subdivision projects, from the standpoint of each type of impact (cumulative construction emissions, residential natural gas consumption, solvent use, transportation

emissions, congestion, etc.). Similarly, a new mine project has a cumulative impact with all other mining projects, from the standpoint of each type of impact (cumulative construction emissions, diesel equipment emissions, blasting emissions, fugitive emissions, transportation, congestion, etc.).

### ***Conformity Impacts***

A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan).

### ***Sensitive Receptor Land Uses***

Residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated using significance threshold criteria number 4 (refer to the significance threshold discussion):

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

### **Recommended Substantiation Discussion Elements**

For projects applying the emissions-based significance thresholds, project emissions quantification is required. In addition the environmental documentation must include support for the quantification methodology used, including emission factors, emission factors source, assumptions, and sample calculations where necessary. For projects using a calculation tool such as URBEMIS, the support section must specify the inputs and settings used for the evaluation.

### **Significance Thresholds**

Any project is significant if it:

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 6; and/or,
2. Generates a violation of any ambient air quality standard when added to the local background;\* and/or,

3. Does not conform with the applicable attainment or maintenance plan(s)<sup>1,\*</sup> and/or,
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.\*\*

\* *These significance thresholds are not applicable to all projects. Contact the District to clarify whether your project should be evaluated under these thresholds. In general, the emissions comparison (criteria number 1) is sufficient.*

‡ *Refer to the Sensitive Receptor discussion above*

A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation. Note that the emission thresholds are given as a daily value and an annual value, so that multi-phased project (such as project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

**Table 6 – Significant Emissions Thresholds**

<b>Criteria Pollutant</b>	<b>Annual Threshold (tons)</b>	<b>Daily Threshold (pounds)</b>
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO <sub>x</sub> )	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO <sub>x</sub> )	25	137
Particulate Matter (PM <sub>10</sub> )	15	82
Particulate Matter (PM <sub>2.5</sub> )	15	82
Hydrogen Sulfide (H <sub>2</sub> S)	10	54
Lead (Pb)	0.6	3

## District Contacts

If an address is not listed, use the general address for the District, to the attention of the listed individual.

Mojave Desert Air Quality Management District General	(760) 245-1661 x2574 14306 Park Avenue Victorville, CA 92392-2310
Rulebook	Vilma Landsman (760) 245-1661 x6728
Air Quality and Meteorological Data	Paul “Tony” Malone (760) 245-1661 x1956
CEQA and Conformity	Alan De Salvio (760) 245-1661 x6726
Permitting	Barbara Weese (760) 245-1661 x1882

<sup>1</sup> A project is deemed to not exceed this threshold, and hence not be significant, if it is consistent with the existing land use plan. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not exceed this threshold.



## **Appendix A – Basic Definitions of Major Air Pollutants**

Technical and/or legal definitions exist for many of these pollutants, depending on context. The following definitions are for general, introductory purposes only:

**Carbon Dioxide (CO<sub>2</sub>)** – Common product of combustion. Not a criteria pollutant, but considered an important “greenhouse gas.” Important on a national or global scale.

**Carbon Monoxide (CO)** – Common product of incomplete combustion. A criteria pollutant with state and federal standards. Not a primary photochemical reaction compound, but involved in photochemical reactions. Dissipates rapidly, and is therefore only important on a local scale near sources.

**Criteria Pollutants** – Those air pollutants specifically identified for control under the Federal Clean Air Act (currently six: carbon monoxide, nitrogen oxides, lead, sulfur oxides, ozone and particulates).

**Lead (Pb)** – A heavy metal, present in the environment mainly due to historical use in motor vehicle fuel. Primarily associated with lead smelting operations. A criteria pollutant with state and federal standards. Primarily of concern near sources.

**Oxides of Nitrogen (NO<sub>x</sub>)** – Common product of combustion in the presence of nitrogen. Includes NO<sub>2</sub>, which is a criteria pollutant with state and federal standards. Locally and regionally important due to its involvement in the photochemical formation of ozone.

**Oxides of Sulfur (SO<sub>x</sub>)** – Common product of combustion in the presence of sulfur. Associated primarily with diesel and coal burning. Includes SO<sub>2</sub>, a criteria pollutant with state and federal standards. Primarily of concern near sources.

**Ozone (O<sub>3</sub>)** – A gas mainly produced by a photochemical reaction between reactive organic gases and oxides of nitrogen in the presence of sunlight (also produced by molecular oxygen in the presence of ultraviolet light or electrical discharge). A strong oxidant that is damaging at ground level but necessary at high altitude (in the stratosphere, where it absorbs dangerous ultraviolet light). Also considered an important greenhouse gas. A criteria pollutant with state and federal standards.

**Particulate Matter (TSP or PM<sub>30</sub>)** – Solid or liquid matter suspended in the atmosphere, excluding water. Includes aerosols and droplets that form in the atmosphere. Locally and regionally important.

**Reactive/Volatile Organic Compounds/Gases (ROG, VOC, NMOG, NMOC)** – A portion of total organic compounds or gases, excludes methane, ethane and acetone (due to low photochemical reactivity). “ROG” is generally used by the California Air Resources Board, “VOC” is generally used by the United States Environmental Protection Agency, but all four terms are interchangeable for most uses. Regionally important due to its involvement in the photochemical reaction that produces ozone.

**Respirable Particulate Matter (coarse or PM<sub>10</sub>, and fine or PM<sub>2.5</sub>)** – That portion of particulate matter that tends to penetrate into the human lung. The subscript refers to aerodynamic diameter. Criteria pollutants with state and federal standards. Locally and regionally important.

**Total Organic Compounds/Gases (TOC or TOG)** – Compounds containing at least one atom of carbon, except carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and metallic carbonates. Primarily methane in the atmosphere, a “greenhouse gas.”

# EXHIBIT C



Technical Consultation, Data Analysis and  
Litigation Support for the Environment

2503 Eastbluff Dr., Suite 206  
Newport Beach, California 92660

Matt Hagemann, P.G, Ch.G.  
Tel: (949) 887-9013  
Email: [mhagemann@swape.com](mailto:mhagemann@swape.com)

January 3, 2013

Robyn Purchia  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080-7037

**Subject: Comments on the Draft Environmental Impact Report for the Pioneer Green Energy Project, Kern County, California**

---

Dear Ms. Purchia:

We have reviewed the November 2012 Draft Environmental Impact Report (DEIR) for the Pioneer Green Energy Project (Project). The Project proposes to build the four solar power generating facilities on three sites in the western Kern County, California. The facilities will generate 125 megawatts of power on 720 acres:

- Wildwood Solar (Site 1): 35 megawatts, 240 acres, 165,5000 panels
- Pumpjack Solar (Site 2): 20 megawatts, 160 acres, 94,500 panels; and
- Rio Bravo Solar (Site 3): 70 megawatts, 320 acres, 331,000 panels (DEIR, p. 3-2).

**7-P2**

Wildwood Solar will be located four miles east of the town of Lost Hills. Pumpjack and Rio Bravo Solar will be located seven miles west of the community of Buttonwillow.

We have reviewed the DEIR for issues associated with hazards and hazardous materials. The DEIR fails to disclose baseline environmental conditions which may pose significant risks to construction workers and off-site receptors during Project construction. A revised DEIR should be prepared to disclose, evaluate and mitigate these impacts.

**HAZARDS AND HAZARDOUS MATERIALS**

The DEIR and its associated documents do not adequately describe baseline conditions at the three Project sites. Potential health risks to construction workers and neighboring residents from the following potential sources of contamination are not evaluated:

**7-Q2**

- Pesticides in Project site soils from historical agricultural use;



- Hydrogen sulfide in Project site soils; and
- Potential use of rodenticides on the Project site.

A revised DEIR should be prepared to discuss and evaluate these sources of contamination. Any potential risks to construction workers and off-site receptors, such as nearby residents, should be analyzed and mitigated as necessary.

#### Pesticides in Project site soils from historical agricultural use

##### 1. Baseline conditions at the Project site are not disclosed

The DEIR states that Site 1 is located on land that was previously farmed and that Sites 2 and 3 are former farmland. The DEIR also states that pesticides, herbicides, and associated metals may be present in the near surface soils at residual concentrations because of the historical agricultural operations at these sites (DEIR, p. 4.8-4). Site 1 was used to grow alfalfa, wheat, barley, corn, and cotton (DEIR, pp. 4.2-2, 4.2-3, 4.4-11, 4.10-1). Sites 2 and 3 were used to grow cotton and dry forage crops (DEIR, p. 4.10-3). No discussion of the types of pesticides that may have used in association with these agricultural activities is included in the DEIR.

We have conducted our own review into the pesticides that may have been used on the Project sites. Data from the California Department of Pesticide Regulation (DPR) show that pesticides such as chlorpyrifos and bifenthrin were used on Site 1.<sup>1</sup> Chlorpyrifos is an organophosphate pesticide and exposure can overstimulate the nervous system and cause dizziness, nausea, and confusion.<sup>2</sup> Dermal contact of bifenthrin can result in tingling, itching, burning, and numbness of skin.<sup>3</sup>

DPR data also show that almond orchards were located on all three sites and this information is corroborated by historical images in Google Earth. Arsenic is known to have been applied historically as a pesticide in orchards. According to the U.S. EPA, soils at fruit orchards may contain high levels of arsenic.<sup>4</sup> Arsenic is a known human carcinogen and even short-term inhalation of arsenic dust can cause gastrointestinal effects.<sup>5</sup>

Cultivation of row crops on the Project site may have involved the use of organochlorine pesticides, including Dieldrin, 4, 4'-DDE, and 4, 4'-DDT. Former agricultural lands in the area of the Project have been investigated for the presence of these pesticides<sup>6</sup> which may persist in soil

<sup>1</sup> See Attachment A

<sup>2</sup> EPA, *Chlorpyrifos Facts* (Jan. 2002), available at [http://www.epa.gov/oppsrrd1/REDs/factsheets/chlorpyrifos\\_fs.htm](http://www.epa.gov/oppsrrd1/REDs/factsheets/chlorpyrifos_fs.htm)

<sup>3</sup> National Pesticide Information Center, *Bifenthrin Technical Fact Sheet*, available at <http://npic.orst.edu/factsheets/biftech.pdf>

<sup>4</sup> EPA, *Human Health*, available at <http://water.epa.gov/drink/info/well/health.cfm>

<sup>5</sup> EPA, *Arsenic Compounds*, available at <http://www.epa.gov/ttn/atw/hlthef/arsenic.html>

<sup>6</sup> [http://www.envirostor.dtsc.ca.gov/public/profile\\_report.asp?global\\_id=60000381](http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=60000381)

for hundreds of years despite being banned in the 1970s.<sup>7</sup> The U.S. EPA has determined organochlorine pesticides, such as Dieldrin, 4, 4'-DDE, and 4, 4'-DDT, to be probable human carcinogens. DDT is also known to affect the nervous system.<sup>8</sup>

7-Q2

The Phase I Environmental Site Assessments (ESAs) prepared for the three sites do not disclose any pesticide use information. In fact, the Phase I ESAs make no reference at all to the fact that pesticides have been used on the site and may exist in residual concentrations in site soils.

2. Phase I ESA findings are inconsistent with similar investigations; Project construction may impact human health

The Phase I ESAs, included as Appendix K to the DEIR, do not classify the historical agricultural usage of the Project sites as a recognized environmental condition (REC) and therefore do not recommend soil sampling to determine if residual pesticide concentrations are present in Project site soils. This finding is in contrast with other investigations in Kern County:

- A 19-acre site, located 11 miles east of Site 1, was used for agricultural purposes from 1946. A Phase I ESA prepared for the site states that pesticides, in association with historical agricultural use may be present in site soils. The Phase I ESA identifies this as a REC and recommends that site soils should be sampled for organochlorine pesticides.<sup>9</sup> Soil sampling results, included in a PEA, showed elevated levels of pesticides and contaminated soil was removed from the site.<sup>10</sup>
- A 36-acre site, located 24 miles east of Site 2 and 3, was used for agricultural purposes since 1956. The site was used to grow cotton, beans, wheat, carrots, alfalfa, and corn. The Phase I ESA identified the historical agricultural use as a REC and recommended that soil sampling should be conducted to determine residual concentrations of pesticides in site soils. The Phase I ESA also recommends that any contamination soil should be removed.<sup>11</sup>
- A 62-acre site, located 25 miles east of Sites 2 and 3, was used to grow almonds, cotton, and alfalfa. A Phase I ESA completed for the site identified the potential for pesticides in site soils, specifically organochlorine pesticides, due to historical agricultural use as a

7-R2

<sup>7</sup> Agency for Toxic Substances and Disease Registry, *Toxicological Profile for DDT, DDE, and DDD*, <http://www.atsdr.cdc.gov/toxprofiles/tp35.pdf>, p. 3

<sup>8</sup> ToxFAQs, *DDT, DDE, DDD*, <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=80&tid=20>

<sup>9</sup> Phase I Environmental Site Assessment for Proposed Expansion of Wasco Union High School, available at [http://www.envirostor.dtsc.ca.gov/regulators/deliverable\\_documents/8777699112/06-11892%20PH%201%20WUSD%205th%20&%20Palm%20Report.pdf](http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/8777699112/06-11892%20PH%201%20WUSD%205th%20&%20Palm%20Report.pdf), p. 15

<sup>10</sup> Removal Action Certification Form for Wasco High School, available at [http://www.envirostor.dtsc.ca.gov/regulators/deliverable\\_documents/8489759147/Wasco%20Cert..pdf](http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/8489759147/Wasco%20Cert..pdf), p. 2

<sup>11</sup> Phase I Environmental Site Assessment for Rosedale Union School District, Southwest corner of Noriega Rd. & Wegis Rd., available at [http://www.envirostor.dtsc.ca.gov/regulators/deliverable\\_documents/6659377872/Wegis%20ES\\_Phase%201\\_050\\_105\\_Report.pdf](http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/6659377872/Wegis%20ES_Phase%201_050_105_Report.pdf), pp. 1, 2



REC.<sup>12</sup>. DTSC required a PEA to be completed which showed that pesticides were present in low levels in site soils.<sup>13</sup>

Nearby sites with similar land use histories (past agricultural use and cultivation of same crops) were tested for organochlorine and other pesticides. Therefore, residual concentrations of carcinogenic and toxic pesticides may be present in site soils.

Sampling should be conducted to determine if pesticides used on Project soils in association with agricultural activities may be present in concentrations that may pose risks to construction workers and nearby residents. Project construction will involve ground-disturbing activities such as grading, excavation, trenching, and vegetation clearance (DEIR, p. 4.5-12). Dust generated from these activities can expose construction workers to any residual concentrations of pesticides. Nearby residents may also be exposed to pesticides through dermal contact with windblown dust. One residence is located 0.25 miles to the east and two other residences are located one mile to the south of Site 1.

7-R2

Soil sampling, under a Phase II investigation, should be conducted. Sampling results should be compared to human health screening levels (such as Environmental Screening Levels<sup>14</sup> and California Human Health Screening Levels<sup>15</sup>) and discussed in a revised DEIR. If concentrations exceed screening levels, mitigation methods to minimize exposure to construction workers and nearby residents must be implemented, including mandatory issuance of respirators, onsite dust monitoring, and fence-line dust monitoring. Exposure via dermal contact should be evaluated and mitigated.

#### Hydrogen sulfide in Project site soils

2.4 to 2.9 billion barrels of produced water was released at Sites 2 and 3 as surface discharge in basins near the site (Phase I ESAs for Pumpjack and Rio Bravo Sites, p. ii). Produced water is water that is brought up to the surface during oil or gas production. Produced water may include water from the reservoir and water injected into the formation. This water contains any chemicals used during the treatment and production process. Major constituents of concern in produced water are

7-S2

<sup>12</sup>Preliminary Environmental Assessment Workplan, Kern High School District, Proposed High School #6, available at [http://www.envirostor.dtsc.ca.gov/regulators/deliverable\\_documents/4299514591/PEA%20Workplan%20Final%2010.09.02.pdf](http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/4299514591/PEA%20Workplan%20Final%2010.09.02.pdf), Phase I ESA, p. 13

<sup>13</sup>Preliminary Endangerment Assessment Report, For 62-acre Proposed High School Site, Kern High School District, available at [http://www.envirostor.dtsc.ca.gov/regulators/deliverable\\_documents/7134399235/PEA%20Final%2002.13.03%20.pdf](http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/7134399235/PEA%20Final%2002.13.03%20.pdf), p. 35

<sup>14</sup> California Regional Water Quality Control Board, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, available at [http://www.waterboards.ca.gov/sanfranciscobay/water\\_issues/available\\_documents/ESL\\_May\\_2008.pdf](http://www.waterboards.ca.gov/sanfranciscobay/water_issues/available_documents/ESL_May_2008.pdf)

<sup>15</sup> CalEPA, *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*, available at <http://www.calepa.ca.gov/brownfields/documents/2005/CHHSLsGuide.pdf>

oil and grease, salt content, chemical additives, and normally occurring radioactive material.<sup>16</sup> Produced water also contains hydrogen sulfide.<sup>17</sup>

Hydrogen sulfide accumulates in low-lying areas and can migrate into soil.<sup>18</sup> Therefore, hydrogen sulfide from past oilfield operations near Sites 2 and 3, in addition to the potential presence of hydrogen sulfide from discharge of produced water, may exist in Project site soils. Other CEQA documents prepared for projects on or near oilfields have noted that hydrogen sulfide is a concern:

- A Phase I ESA conducted for a site 24 miles to the east of Sites 2 and 3 identifies that oilfield activities have occurred on the site and hydrogen sulfide from oilfield activities may be present in site soils. A soil gas survey, to collect and analyze subsurface gases for hydrogen sulfide, was recommended in 2005.<sup>19</sup> In 2007, seven soil borings were advanced at 5, 12, 14, 15, 18, 25, 40, 42, and 45 feet and tested for hydrogen sulfide.<sup>20</sup>
- A Phase II ESA for a school site in Beverly Hills, CA noted the presence of oilfield gases in the area and tested for hydrogen sulfide. Twenty-three soil gas samples were collected at up to 10 feet in depth and tested for hydrogen sulfide.<sup>21</sup>
- A Phase I ESA was conducted for a project proposed to be located on the Los Angeles City Oil Field. Ten samples were collected at a depth of three to five feet for a soil vapor survey and tested for hydrogen sulfide.<sup>22</sup>

7-S2

The World Health Organization states that even short-term inhalation exposure to hydrogen sulfide can result in respiratory, neurological, and ocular effects in humans.<sup>23</sup> Exposure at low concentrations, even at the parts per million (ppm) levels, can lead to headaches, dizziness, and upset stomach.<sup>24</sup> Skin and eye contact can result in painful dermatitis and burning eyes.<sup>25</sup>

<sup>16</sup> Department of Energy, The National Energy Technology Laboratory, *Produced Water Management Information System*, available at <http://www.netl.doe.gov/technologies/pwmis/intropw/index.html>

<sup>17</sup> International Journal of Low-Carbon Technologies, *Produced Water Treatment Technologies*, available at <http://ijlct.oxfordjournals.org/content/early/2012/07/04/ijlct.cts049.full.pdf+html>, p. 3/21

<sup>18</sup> Earthworks, Hydrogen Sulfide, available at <http://responsiblegold.com/HydrogenSulfide.cfm>

<sup>19</sup> Phase I Environmental Site Assessment for Rosedale Union School District, Southwest corner of Noriega Rd. & Wegis Rd., available at [http://www.envirostor.dtsc.ca.gov/regulators/deliverable\\_documents/6659377872/Wegis%20ES\\_Phase%201\\_050\\_105\\_Report.pdf](http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/6659377872/Wegis%20ES_Phase%201_050_105_Report.pdf), p. 3

<sup>20</sup> Preliminary Environmental Assessment Report for Rosedale Union School District, Southwest corner of Noriega Rd. & Wegis Rd., available at [http://www.envirostor.dtsc.ca.gov/regulators/deliverable\\_documents/9371686637/Page%2023%20PEA%20Report.pdf](http://www.envirostor.dtsc.ca.gov/regulators/deliverable_documents/9371686637/Page%2023%20PEA%20Report.pdf)

<sup>21</sup> Phase II Environmental Site Assessment, Proposed Science and Technology Center, Beverly Hills High School, available at [http://www.bhusd.org/ourpages/departments/SEC-EF/PhaseII/ESA\\_Final.pdf](http://www.bhusd.org/ourpages/departments/SEC-EF/PhaseII/ESA_Final.pdf), p. 3

<sup>22</sup> LARWQCB, Supplemental Environmental Site Assessment, Former Shell Service Station, available at [http://63.199.216.6/larwqcb\\_new/ust/pp/ust\\_ppdoc/d20\\_1304W2street.pdf](http://63.199.216.6/larwqcb_new/ust/pp/ust_ppdoc/d20_1304W2street.pdf), p. 10

<sup>23</sup> World Health Organization, *Hydrogen Sulfide: Human Health Aspects*, available at <http://www.who.int/ipcs/publications/cicad/en/cicad53.pdf>

<sup>24</sup> <http://el.erdc.usace.army.mil/workshops/04/un-wots/kaluschue.pdf>



Because hydrogen sulfide may be present in site soils, the Project may cause significant impacts to public health. Earth-moving activities during Project construction may release the hydrogen sulfide in soil and expose workers. The Occupational Safety and Health Administration (OSHA) has a set a maximum exposure limit of 20 ppm. A soil gas survey should be completed for Sites 2 and 3 and results should be compared to the OSHA limit, to be included in a Phase II ESA. If concentrations exceed the OSHA threshold, feasible engineering controls to reduce exposure must be implemented.

7-S2

The Phase I ESAs fail to disclose the potential for pesticide residuals and the potential for hydrogen sulfide gas in the soils. A Phase II ESA investigation, to conduct sampling for pesticides and a soil gas survey for hydrogen sulfide, should be completed. Results should be disclosed and evaluated in a revised DEIR. Any mitigation, if necessary, should be included to ensure that impacts to construction workers and nearby residents are minimized.

#### Potential use of rodenticide at the Project sites

The Project's lifetime is expected to be from 20-35 years at which point the Project sites will be decommissioned and returned to their pre-development conditions (DEIR, p. 3-33). Activities associated with decommissioning four separate solar plants and potentially harmful impacts to workers from these activities are not addressed in the DEIR. The DEIR only states that the Applicant will work with Kern County to create a decommissioning plan (DEIR, p. 3-33).

Decommissioning activities may include soil erosion and sediment control measures, grading, removal of roads, restoration of the nutrient content of the soil, and soil stabilization techniques. Pesticides and rodenticides, to control rodents and weeds, may be applied on Project sites' soils during Project operation. Many of the compounds used as pesticides including Warfarin, a common pesticide used for rodent control. Warfarin can lead to suppression of liver function and damage to blood vessels. Acute exposure can lead muscle and joint pain, nausea, vomiting, diarrhea, and even paralysis, blindness, and death.<sup>25</sup> Ground-disturbing activities during decommissioning may expose workers to these chemicals and adversely affect human health. In addition, if residual pesticides from past agricultural use on the Project sites are not remediated prior to Project construction, workers may again be at risk during decommissioning activities.

7-T2

A revised DEIR needs to be prepared that analyzes the potential for decommissioning activities to worker health. A decommissioning plan, to identify all activities that will take place during decommissioning, should be completed and approved by the County prior to Project construction. The Applicant should show that all potentially significant impacts to workers from decommissioning are adequately evaluated and will be mitigated as necessary.

<sup>25</sup> Agency for Toxic Substances & Disease Registry, *Medical Management Guidelines for Hydrogen Sulfide*, available at <http://www.atsdr.cdc.gov/mmg/mmg.asp?id=385&tid=67>

<sup>26</sup> Occupational Safety and Health Administration, *Occupational Safety and Health Guideline for Warfarin*, available at <http://www.osha.gov/SLTC/healthguidelines/warfarin/recognition.html>

**CONCLUSION**

Based on our review of Project documents with data gathered from the California Department of Pesticide Regulation, the U.S. EPA, the World Health Organization, and other Phase I ESAs prepared for areas with similar land use histories, it is our opinion that the DEIR fails to describe baseline conditions at the Project site. The DEIR fails to disclose, analyze, and mitigate the Project's impacts on public health. We recommend that the County prepare a revised DEIR and revised Phase I ESAs to adequately identify and evaluate all potential impacts to human health from Project construction. The revised DEIR should include appropriate and effective mitigation measures to minimize impacts to human health.

**7-T2**

Sincerely,



Matt Hagemann, P.G., C.Hg.



Uma Bhandaram

**ATTACHMENT A**

12/14/12

Calpip Data - HTML

Query returned the following data:

There are 21 records returned.

YEAR	DATE	COUNTY NAME	COMTRS	SITENAME	PRODUCT NAME	POUNDS PRODUCT APPLIED	CHEMICAL NAME	POUNDS CHEMICAL APPLIED	AMOUNT TREATED	UNIT TREATED	AERIAL GROUND INDICATOR
2010	12-JUL-10	KERN	15M26S22E35	ALFALFA (FORAGE-FODDER) (ALFALFA HAY)	LOCK-ON INSECTICIDE	163.9969	CHLORPYRIFOS	37.5552901	75	A	A
2010	08-MAR-10	KERN	15M26S22E35	ALFALFA (FORAGE-FODDER) (ALFALFA HAY)	LORSBAN 4E-HF	89.6994	CHLORPYRIFOS	37.4046498	75	A	A
2010	08-MAR-10	KERN	15M26S22E35	ALFALFA (FORAGE-FODDER) (ALFALFA HAY)	LORSBAN 4E-HF	89.6994	CHLORPYRIFOS	37.4046498	75	A	A
2010	08-MAR-10	KERN	15M26S22E35	ALFALFA (FORAGE-FODDER) (ALFALFA HAY)	LORSBAN 4E-HF	45.4235	CHLORPYRIFOS	18.9415995	38	A	A
2010	27-JUL-10	KERN	15M26S22E35	ALFALFA (FORAGE-FODDER) (ALFALFA HAY)	LORSBAN ADVANCED	44.4026	CHLORPYRIFOS	17.84096468	38	A	A
2010	27-JUL-10	KERN	15M26S22E35	ALFALFA (FORAGE-FODDER) (ALFALFA HAY)	LORSBAN ADVANCED	87.6835	CHLORPYRIFOS	35.2312303	75	A	A
2010	17-AUG-10	KERN	15M26S22E35	ALFALFA (FORAGE-FODDER) (ALFALFA HAY)	LORSBAN ADVANCED	87.6835	CHLORPYRIFOS	35.2312303	75	A	A
2010	07-MAY-10	KERN	15M26S22E35	ALMOND	ABBA 0.15 EC	76.5787	ABAMECTIN	1.4549963	75	A	G
2010	07-MAY-10	KERN	15M26S22E35	ALMOND	ABBA 0.15 EC	37.7788	ABAMECTIN	.7177972	37	A	G
2010	12-JUL-10	KERN	15M26S22E35	ALMOND	BRIGADEWSB INSECTICIDE/MITICIDE	75	BIFENTHRIN	7.5	75	A	G
2010	11-JUL-10	KERN	15M26S22E35	ALMOND	BRIGADEWSB INSECTICIDE/MITICIDE	37	BIFENTHRIN	3.7	37	A	G
2010	11-JUL-10	KERN	15M26S22E35	ALMOND	BRITZ 415 SUPREME SPRAY OIL	259.5128	PETROLEUM OIL UNCLASSIFIED	258.7342616	37	A	G

[http://cdpr.ca.gov/pub/outgoing/calpip/825068778304\\_121213163655.html](http://cdpr.ca.gov/pub/outgoing/calpip/825068778304_121213163655.html)

1/2



12/14/12

Calpip Data - HTML

2010	12- JUL- 10	KERN	15M26S22E35	ALMOND	BRITZ 415 SUPREME SPRAY OIL	526.0395	PETROLEUM OIL, UNCLASSIFIED	524.4613815	75	A	G
2010	19- FEB- 10	KERN	15M26S22E35	ALMOND	MILLER NU-FILM-P	13.7192	N/A	N/A	37	A	A
2010	19- FEB- 10	KERN	15M26S22E35	ALMOND	MILLER NU-FILM-P	27.9142	N/A	N/A	75	A	A
2010	01- MAR- 10	KERN	15M26S22E35	ALMOND	ROVRAL 4 FLOWABLE	44.4688	IFRODIONE	18.4990208	37	A	A
2010	01- MAR- 10	KERN	15M26S22E35	ALMOND	ROVRAL 4 FLOWABLE	90.0901	IFRODIONE	37.4774816	75	A	A
2010	19- FEB- 10	KERN	15M26S22E35	ALMOND	VANGARD WG	11.56	CYPRODINIL	8.67	37	A	A
2010	19- FEB- 10	KERN	15M26S22E35	ALMOND	VANGARD WG	23.44	CYPRODINIL	17.58	75	A	A
2010	12- JUL- 10	KERN	15M26S22E35	ALMOND	ZEAL MITICIDE(1)	14.0625	ETOXAZOLE	10.125	75	A	G
2010	11- JUL- 10	KERN	15M26S22E35	ALMOND	ZEAL MITICIDE(1)	6.9375	ETOXAZOLE	4.995	37	A	G

See/Save tab-delimited text file [here](#).

HOUSE  
AGRICULTURAL  
CONSULTANTS

*Providing expertise in agricultural science,  
management, and appraisal since 1977*

Comments on Selected  
Agricultural Issues of Pioneer  
Green Solar Project  
Kern County, California

House Agricultural Consultants  
1105 Kennedy Place, Suite 1  
Davis, California 95616  
+1 530 753 3361  
([www.houseag.com](http://www.houseag.com))

The revision number of this report is 4133. The publishing date of this report is 2012-12-31.  
This report supercedes any previous version having a smaller revision number or older publishing date than shown above.

**Table of contents**

**1 Introduction ..... 5**

1.1 Purpose of this study ..... 5

1.2 Subject property ..... 5

1.3 Authorization ..... 5

1.4 Report author ..... 5

1.5 Scope of work ..... 5

1.6 Consultant’s qualifications ..... 6

**2 Comments ..... 7**

2.1 Indirect impacts to neighboring parcels ..... 7

2.1.1 Adjoining agricultural parcels ..... 7

2.1.2 Impacts to agricultural neighbors ..... 7

2.1.2.1 Dust ..... 7

2.1.2.2 Rodents ..... 7

2.1.2.3 Weeds ..... 8

2.2 Decommissioning of the solar facilities ..... 8

2.2.1 Site restoration plan should address anticipated degradation of soil  
quality during project ..... 8

2.2.1.1 Salinification ..... 8

2.2.1.2 Compaction ..... 9

2.2.1.3 Loss of organic matter ..... 9

2.2.2 Require a soil reclamation plan ..... 9

2.3 Certification ..... 10

**3 Appendix: Consultant’s qualifications and resume ..... 11**

HOUSE AGRICULTURAL CONSULTANTS

4

*Pioneer Green Solar Kern County*

HOUSE AGRICULTURAL CONSULTANTS

Introduction

5

## 1 Introduction

### 1.1 Purpose of this study

The purpose of this study is to comment on the document *Draft Environmental Impact Report, SCH 2012011025, Volume 1, Pioneer Green Solar Project by Pioneer Green Solar II, LLC* (DEIR) by the Kern County Planning and Community Development Department, issued in November, 2012.

### 1.2 Subject property

The property that is the subject of this report is located at three separate sites and is composed of the following Kern County Assessor's parcels:

Site:	Name:	Kern Co. APN:	Acre size:	Location:
1	Wildwood Solar I	058-292-10	160	Lost Hills
1	Wildwood Solar II	058-292-06	80	Lost Hills
2	Pumpjack	099-230-12	160	Buttonwillow
3	Rio Bravo	099-230-11 & -12	320	Buttonwillow

These properties has been proposed by Pioneer Green Solar as the sites for the installation of solar power generation plants that would operate year-round and produce up to 125 MW of energy.

### 1.3 Authorization

These comments, prepared by House Agricultural Consultants (hereinafter "HAC" or "Consultant") are authorized under contract by Robyn Purchia, Adams Broadwell Joseph & Cardozo, South San Francisco, California.

7-U2

### 1.4 Report author

Gregory House is the author of these comments. My résumé is included in the appendices to this report.

### 1.5 Scope of work

In the course of this study we have undertaken or performed the following:

- Examined the *Draft Environmental Impact Report, SCH 2012011025, Volume 1, Pioneer Green Solar Project by Pioneer Green Solar II, LLC* by Kern County Planning and Community Development Department.
- Reviewed California Department of Conservation Farmland Mapping and Monitoring Program, *2008 Field Report, Kern County*, ([http://redirect.conservation.ca.gov/DLRP/fmmp/county\\_info\\_results](http://redirect.conservation.ca.gov/DLRP/fmmp/county_info_results)).
- Researched the soil of the subject properties via the *Soil Survey of Kern County Northwest Part, California* published by the United States Department of Agriculture Natural Resource Conservation Service (USDA-NRCS).

HOUSE AGRICULTURAL CONSULTANTS

- Researched the soil of the subject properties on the USDA-NRCS internet website, (<http://websoilsurvey.nrcs.usda.gov>)
- Examined Google Earth images of the subject properties and surrounding parcels.

## 1.6 Consultant's qualifications

Since 1977, House Agricultural Consultants has provided clients with a wide range of agricultural appraisal, consulting, and management services. Clients include farmers, landowners, institutions, insurance companies, law firms, municipalities, public agencies, non-governmental organizations, and many others. A sample list of clients is included in the appendices to this report.

Gregory House is a qualified expert witness on agricultural viability, crop productivity, and farming practices in California Superior Court, United States Tax Court, and United States Bankruptcy Court. Mr. House has 35 years of experience as an agricultural consultant throughout California and the western states, and over that time he has worked on numerous environmental impact reports and other land evaluation and planning projects involving agriculture, including the use of the LESA model and other analytical tools. He is also a farmer of 30 years. Coco Ranch, the family farm, produces organic apples and other organic tree fruits on 40 acres of land near Dixon, California. Mr. House's résumé is included in the appendices (page 11). Mr. House is credentialed by the American Society of Farm Managers and Rural Appraisers as an Accredited Farm Manager and as an Accredited Rural Appraiser. He is accredited by the American Society of Agronomy as a Certified Professional Agronomist and Certified Crop Advisor. Mr House holds a professional license from the state of California as a Certified General Appraiser, number AG-001999.

**7-U2**

HOUSE AGRICULTURAL CONSULTANTS

Comments

7

## 2 Comments

### 2.1 Indirect impacts to neighboring parcels

The solar project has the potential to adversely impact neighboring agricultural parcels economically and physically.

#### 2.1.1 Adjoining agricultural parcels

Site 1 adjoins irrigated agriculture on its south, east, and approximately one-half of its north side; the remainder of the north and the west appears to be rangeland. The irrigated crops appear to be both row crops and orchards.

Sites 2 and 3 adjoin irrigated agriculture on its north, east and west sides; the south side appears to be rangeland. As with site 1, the neighboring crops of sites 2 and 3 are row crops and orchards.

#### 2.1.2 Impacts to agricultural neighbors

The DEIR does not address in any depth the potential impacts of the project to neighboring agricultural operations.

The key impacts to neighboring agricultural parcels include dust, the potential proliferation of rodents, and the potential proliferation of weeds, all of which might spread from the project site to the neighboring parcels.

##### 2.1.2.1 Dust

The soil of site 1 is composed primarily of *Milham sandy loam, 0 to 2 percent slopes*, rated class I by the USDA Soil Classification System. This soil is placed in Wind Erodibility Group 5 by the USDA Natural Resources Conservation Service, and has the potential to erode 56 tons of topsoil per acre per year under windy conditions.

The soil of sites 2 and 3 is composed primarily of *Panoche clay loam, 0 to 2 percent slopes*, rated class I by the USDA Soil Classification System. This soil is placed in Wind Erodibility Group 7 by the USDA Natural Resources Conservation Service, and has the potential to erode 38 tons of topsoil per acre per year under windy conditions. The wind eroded soil is dust, and will blow onto neighboring properties when wind conditions dictate.

My concern is that the proposed solar project will create dust during construction and afterward by vehicular traffic on the unpaved native-soil surface. Dust is inimical to crops in numerous ways: under severe wind conditions there can be a sand-blasting effect on crop-plant tissues; at lower wind velocities, dust deposition on crop plants leads to reduced photosynthesis and the proliferation of dust-loving pests, principally mites. Mites suck plant juices and can greatly impact the yield of corn, cotton, almonds, and most other crops.

The project should be required to have an adequate dust-control program to mitigate dust likely to be created during construction and during the lifetime of the project.

##### 2.1.2.2 Rodents

Feeding on fruits, nuts, seeds, and seedling crop plants, rodents can be crop pests and create sanitation problems for farm operations. Rodents such as mice, voles, and ground squirrels seek

HOUSE AGRICULTURAL CONSULTANTS

**7-V2**



sheltered spots for their burrows, and it is likely that the Pioneer Green solar project will provide opportunities for these animals to shelter, reproduce, and spread to neighboring farms where food will be available to them. For this reason, Pioneer Green should put a rodent-control program in place and monitor it on a regular basis for effectiveness.

### **2.1.2.3 Weeds**

The solar facilities will be using a considerable amount of water to wash the solar panels, and this wash water as well as rain runoff will percolate into the unpaved soil of the project sites, helping to germinate weeds. Unless controlled, the weeds will reproduce and can easily and naturally spread to neighboring farm properties, causing the agricultural neighbors to spend more time and money controlling weeds on their own properties. For this reason, Pioneer Green should put a weed-control program in place and monitor it on a regular basis for effectiveness.

**7-V2**

## **2.2 Decommissioning of the solar facilities**

In the event that the subject project is decommissioned after 25 or 30 years, it is likely that the subject properties would not immediately return to crop production, especially without soil reclamation. In my experience, restoring soil tilth to severely disturbed and degraded soils is not an immediate process; it will likely take a minimum of three years, and possibly more, to restore the site to its former productivity.

The reclamation as discussed in the DEIR seems to have a plan for recycling and waste but does not address degradation of soil quality that is expected to occur during the project term. The DEIR simply states that “the land would be largely unaltered from its natural state” after the project facility is removed. This however does not take into account the effects of compaction, disturbance by excavation and placement of below-ground support structures, and the loss of soil quality for agriculture over the lifetime of the project.

### **2.2.1 Site restoration plan should address anticipated degradation of soil quality during project**

In my opinion, significant soil quality degradation is likely to occur during the 25- to 30-year project window, including salinification, compaction, and loss of organic matter.

**7-W2**

#### **2.2.1.1 Salinification**

The project solar panels will be washed regularly to maintain adequate light receptivity. My previous research of similar projects in the San Joaquin Valley indicates that the project may require as much as 170,000 gallons of water per acre per year to keep the solar panels clean. Assuming some of the wash water will run off the panels and into the soil underlying the panels, the quality of this wash water should be evaluated for its ultimate effects on the soil.

I understand that the ground water on the project sites is high in chlorides and other salts, with an Electrical Conductivity (EC) of 2.6 to 3.7 (where EC of 3.0 and higher indicates a severe accumulating salinity problem.<sup>1</sup> It is likely that this water running off into the soil will cause an accumulation of salts and lead to increased salinification of the soil.

<sup>1</sup> See Robert Ayers, *Guidelines for Interpreting Water Quality*, *Journal of Irrigation and Drainage*, July, 1977.

HOUSE AGRICULTURAL CONSULTANTS

*Comments*

9

Agricultural irrigation that employs salt-containing water can avoid the buildup of salts in the soil by adding sufficient water in excess of that used by crops to percolate below the root soil and thus leach and remove excess salts. Increasing soil salinity can be prevented by applying more water to the field than can be retained in the crop root zone, forcing leaching to occur. The water percolates downward, carrying the salts, thereby preventing excessive accumulation and future salinity issues. However, applying small amounts of questionable water such as the wash water is not sufficient to leach the applied salts below the root zone in the soil profile. Therefore, under the project's likely water-use regime, salinity problems for the soil may arise as the amount of water that Pioneer Solar will use is insufficient to leach the salts out of the root zone.

The project should therefore use a substitute source of water, or develop a mitigation strategy to avoid salinification of the soil.

**2.2.1.2 Compaction**

The routine traffic required to maintain the solar infrastructure is likely to cause significant soil compaction, which can result in restricted root growth, poor root-zone aeration, decreased drainage, and fertilizer losses through denitrification. Compaction is also likely to aggravate the salinification hazard discussed in section 2.2.1.1 above, by decreasing the pore space and ability of water to percolate down through the soil profile.

**2.2.1.3 Loss of organic matter**

The subject project is also likely to decrease the subject properties' soil organic matter content and decrease the overall biological activity of the soil. Organic matter includes any plant or animal material that returns to the soil and decomposes. In addition to providing nutrients and habitat for organisms living in the soil, organic matter is essential to bind soil particles into aggregates, which enhances water-holding capacity, decreases bulk density and improves overall plant growth. Nutrient exchanges between organic matter, water, and soil are also essential for a highly productive soil.

Typically, solar-facility operation plans do not include any form of plant growth on the industrial grounds. For this reason, the organic matter of the soil is expected to decrease significantly in 25 to 30 years. Restoring soil organic matter to its current level will require at least three years of cover-crop rotations. Given the pivotal role that soil organic matter plays in agricultural production and the fact that restoring organic matter to current conditions will require significant financial investment over several years, the reclamation plan should incorporate strategies and timelines to accomplish this work.

**2.2.2 Require a soil reclamation plan**

The project should require an agriculturally-oriented soil reclamation plan to assess the current baseline agricultural soil condition, to assess how operations and maintenance of the project will impact agricultural productivity after the project is removed, and to assess what methodologies are necessary to restore the site to pre-existing prime-farmland conditions after project decommissioning.

In order to quantitatively assess soil quality and ensure that the reclamation plan will be sufficient to restore the subject property to prime farmland, a standardized methodology should be established and conducted regularly. The USDA NRCS recommends the use of its soil-quality test kit to measure soil chemical, physical, and biological parameters because it is the most direct method

HOUSE AGRICULTURAL CONSULTANTS

**7-W2**

of determining soil productivity potential. The NRCS's soil-quality test kit provides detailed field procedures that will quantitatively and qualitatively establish the following: 1) site characterization; 2) soil respiration; 3) water infiltration; 4) soil bulk density; 5) soil EC; 6) soil pH; 7) soil nitrate; 8) soil aggregate stability; 9) soil slake test; 10) earthworm test; 11) depth of topsoil; and 12) plant rooting depth.<sup>2</sup>

To ensure that the reclamation plan is adequate to restore the subject property to its pre-project quality of prime farmland, these soil-quality parameters should be measured before, during, and following the subject project's decommissioning and removal. The purpose of establishing baseline soil quality parameters is to define the soil's current capacity to perform basic functions. Quantitative monitoring of soil-quality parameters is the best method to ensure that the proposed mitigation methodologies and timelines are based upon actual soil characteristics of the site throughout the subject project's term.

**7-W2**

### 2.3 Certification

I certify that, to the best of my knowledge and belief:

The statements of fact contained in this report are true and correct.

The reported analyses, opinions, and conclusions are limited only by the reported assumptions, and are my personal, unbiased professional analyses, opinions, and conclusions.

I have no present or prospective interest in the property that is the subject of this report, and I have no personal interest or bias with respect to the parties involved.

My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client, the attainment of a stipulated result, or the occurrence of a subsequent event.

This consulting report has been made in conformity with, and is subject to, the requirements of the Professional Code of Ethics and the Standards of Professional Practice of the American Society of Farm Managers and Rural Appraisers, and the American Registry of Certified Professionals in Agronomy, Crops and Soils.

I have not made a personal inspection of the property that is the subject of this report.

I personally prepared the prepared the analyses, conclusions, and opinions set forth in this study and am the author of this report. Mr Henry House assisted with the analysis and writing of this report.



Gregory A. House, AFM, ARA, CPAg

<sup>2</sup> The *Soil Quality Test Kit Guide*, The Soil Quality Institute of the USDA Natural Resources Conservation Service, (<http://soils.usda.gov/sqi>).

HOUSE AGRICULTURAL CONSULTANTS

*Appendix: Consultant's qualifications and resume*

11

### **3 Appendix: Consultant's qualifications and resume**

HOUSE AGRICULTURAL CONSULTANTS

Qualifications  
of  
Gregory A. House

---

Agricultural Consultant  
Agronomist  
Professional Farm Manager  
Rural Appraiser  
Farmer

---

Experience

**Agricultural Consultant**, House Agricultural Consultants, providing agricultural science, economics, management, and appraisal services, 1983–present

**Farmer**, 1987–present. Organic apples, peaches, cherries, apricots, and field crops

**Corporation Secretary & Consulting Agronomist**, Hannesson, Riddle & Associates, Inc., 1977–1983.

Professional Affiliations

- American Society of Farm Managers & Rural Appraisers
- American Society of Agronomy
- Crop Science Society of America
- Soil Science Society of America
- California Certified Organic Farmers
- California Farm Bureau

Accreditations

- Accredited Farm Manager (A.F.M.), American Society of Farm Managers & Rural Appraisers, Certificate #501
- Certified Professional Agronomist (CPAg.), American Registry of Certified Professionals in Agronomy, Crops, & Soils, Ltd. Certificate # 2319
- Certified Crop Advisor (C.C.A.), American Society of Agronomy
- Accredited Rural Appraiser (A.R.A.), American Society of Farm Managers & Rural Appraisers, Certificate #749
- Certified General Appraiser, State of California License # AG 001999

These credentials have continuing education requirements with which I am in compliance.

## Qualifications of Gregory A. House, continued

### Education

- B.S., Crop Ecology, University of California, Davis, 1975, with Honors
- Numerous courses from the University of California Extension in agricultural economics, crop management, real estate, & hazardous waste management
- Courses of the American Society of Farm Managers and Rural Appraisers:
  - Principles of Rural Appraisal
  - Advanced Rural Appraisal
  - Eminent Domain
  - Report Writing School
  - Economics of Farm Management
  - Principles of Farm Management
  - Standards and Ethics
  - Permanent Plantings Seminar
  - Standards and Ethics for Farm Managers
  - ASFMRA Code of Ethics
  - National Uniform Standards of Professional Appraisal Practice
- Courses of the Appraisal Institute:
  - Basic Valuation Procedures
  - Real Estate Statistics and Valuation Modeling
  - Advanced Income Capitalization
  - Valuation of Conservation Easements Certificate Program
  - Condemnation Appraising: Principles and Applications

### Expert Witness Court Testimony

- Superior Court Qualified Expert Witness in the following counties: Alameda, Colusa, Fresno, Madera, Monterey, San Joaquin, San Luis Obispo, Santa Barbara, Santa Cruz, Sonoma, Sutter
- United States Tax Court Qualified Expert Witness
- United States Bankruptcy Court Qualified Expert Witness
- A list of depositions and trial appearances is available upon request

### Qualifications of Gregory A. House, continued

- Guest Lecturer, University of California at Davis, Agricultural Economics Department, Course 140, “Farm Management”, on adoption of new technologies, farm budgeting, cash flow management, cost accounting, etc. (1985–present)
- Guest Lecturer, University of Florida at Gainesville, Vegetable Crops Department, seminar on transition to organic agriculture, (November, 1994)
- Featured Speaker, 1995 Eco-Farm Conference, Asilomar, California , on economics of organic apple production
- Guest Speaker, Community Alliance with Family Farmers, on farm management and agricultural economics, 1996 and 1997
- Instructor, American Society of Farm Managers and Rural Appraisers, Course M-12, “Standards and Ethics for Professional Farm Managers”, March, 1997
- Guest Speaker, American Horticultural Society, “Challenges of Organic Stone Fruit Production”, Sacramento, California, July 2001
- Organizer and Presenter, Going Organic Kickoff Meetings, November 2005 and December 2006
- Master of Ceremonies, California Certified Organic Farmers, Annual Meeting, February, 2006, Sacramento, California
- Featured Speaker, 2012 Eco-Farm Conference, Asilomar, California, “Imitating Natural Systems: Towards an Indigenous Agro-Forestry”

### Publications

- “Principles of Farm Management”, Course M-10, a 40-hour professional credit Internet educational offering of the American Society of Farm Managers & Rural Appraisers
- “Conservation Issues in Agriculture”, a unit of Course M-25, a 15-hour professional credit Internet educational offering of the American Society of Farm Managers & Rural Appraisers
- “A Primer on Organic Agriculture,” an article in *2006 Trends in Agricultural Land and Lease Values*, a publication of the California Chapter of the American Society of Farm Managers & Rural Appraisers
- “Case Study: Using Indigenous Agroforestry Management Techniques to Support Sustainability in Production Agriculture”, a paper-poster presented at Harlan II, An International Symposium on Biodiversity in Agriculture: Domestication, Evolution and Sustainability, September 14-18, 2008, University of California, Davis



## Qualifications of Gregory A. House, continued

### Appointments & Activities

- Instructor, “Principles of Farm Management”, an Internet course of the American Society of Farm Managers and Rural Appraisers, 1996 to 2007
- President, California Chapter American Society of Farm Managers & Rural Appraisers 1994–1995; Secretary-Treasurer, 1984 to 1990
- Board of Directors, Yolo Land Trust, 1993–2001
- Board of Directors, American Red Cross, Yolo County Chapter 1987–1989
- Member, Yolo County Right to Farm Grievance Committee 1992–1995
- Vice Chairman, Management Education Committee, American Society of Farm Managers and Rural Appraisers, 1998–2000 (committee member since 1986)
- Yolo County LAFCo Agricultural Forum LESA subcommittee, 1999
- California Certified Organic Farmers
  - Treasurer of the Board of Directors, 1998–2003
  - Executive Director, 1999-2000
  - Chairman of Certification Committee, Yolo Chapter, 1993-2005
  - Member of the Finance Committee, 1998-current
- CCOF Foundation Going Organic Program, Management Team member and Chapter Leader, 2006-current
- USDA Organic Grant Panel member, 2002
- City of Davis Open Space and Habitat Commission, 2006–current, Chairman 2008-2009
- Member, Fruit Orchard Technical Advisory Group, Filoli Gardens, Woodside, California
- Member, Organic and Sustainable Agriculture Program Steering Committee, University of California Cooperative Extension, Yolo and Solano Counties, California, 2008-current

### Speaking Engagements

- Guest Lecturer, University of California at Davis, Agricultural Economics 145, Farm and Rural Resources Appraisal, on professional farm appraisal (1985–1997)



## House Agricultural Consultants Partial Listing of Clients Served

Allied Insurance Group	Morrison & Foerster
American Farmland Trust	San Francisco, California
Balverne Winery & Vineyards Sonoma County, California	Oakdale Irrigation District
Bank of America	Pajaro Valley Water Management Agency Watsonville, California
Best, Best & Kreiger, LLP Riverside, California	Phillips 66 Company
California Giant Berry Farms	Republic Indemnity Company of America San Francisco, California
California Department of Fish & Game Wildlife Conservation Board	Royal & Sun Alliance
California Department of Justice	Sacramento Valley Conservancy
City of Davis	Sacramento Valley Farm Credit Banks
City of Fairfield	San Andreas Farms Fresno County, California
City of Morgan Hill	San Joaquin Council of Governments
City of Sacramento, City Attorney	San Luis Delta Mendota Water Authority
Continental Casualty Company Chicago, Illinois	Sanwa Bank, N.A. Sacramento, California
County of Solano	Solano Land Trust
County of Yolo	Stanford Management Company Stanford University
Downey, Brand, Seymour & Rohwer Sacramento, California	The Nature Conservancy
Glenn-Colusa Irrigation District	The Prudential Agricultural Group Sacramento, California
Hamel Ranch Partnership Davis, California	The Travelers Insurance Company
Harris Farms, Inc.	The Trust for Public Land
Farmers' Home Administration (U.S.D.A.) Sacramento, California	U. S. Fish & Wildlife Service
Internal Revenue Service, District Counsel San Francisco, California	U. S. Departments of Justice & Treasury
McMahon-Graf Partners Winters, California	University of California, Davis
	Yolo Land Trust
	Wells Fargo Bank, N.A.