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BY EMAIL

September 18, 2010

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520 Capitol Mall, Suite 350
Sacramento, CA 95814

Re: Review of Draft Environmental Impact Report for Sierra Pacific Industries Cogeneration Power Project, Shasta County, CA

Dear Mr. Enslow,

Per your request, I have reviewed the Draft Environmental Impact Report ("Draft EIR") for the Sierra Pacific Industries ("SPI" or "Applicant") Cogeneration Power Project ("Project")¹ published by Shasta County ("County") as the lead agency under the California Environmental Quality Act ("CEQA") for potential impacts on the environment.

My qualifications as an environmental expert include a doctorate in Environmental Science and Engineering ("D. Env.") from the University of California Los Angeles. In my professional practice, I have reviewed and commented on numerous CEQA documents for power plants including biomass-fired cogeneration units. My résumé is attached to this letter.

Background

The Applicant is requesting approval of a modification of an existing use permit for the construction and operation of a larger biomass cogeneration power plant at its existing lumber manufacturing facility, Siskiyou Forest Products, located in Shasta County adjacent to the City of Anderson.² The project site, which is owned by SPI, is currently used to manufacture lumber, wood poles, and metal/machinery components; generate power through an existing

¹ Shasta County Department of Resources Management, Draft Environmental Impact Report, Sierra Pacific Cogeneration Power Project, SCH #2009072011, August 2010.

² Draft EIR, p. 2.0-1.

4-Megawatt ("MW") biomass co-generation facility; store and re-distribute manufacturing parts; repair trucks and machinery; and ship wood chips and lumber by truck and rail.³

The Project would consist of the construction and operation of a new cogeneration power facility including a new fuel shed, boiler building, turbine building, cooling tower, electrostatic precipitator, ash silo, and an electric substation on the project site. The new stoker-type boiler would burn biomass fuel including non-treated wood generated by the lumber manufacturing facility on site and regional lumber manufacturing facilities, in-forest materials from SPI-owned or controlled timberlands, and other biomass fuel sources including agricultural crop residues, as well as urban wood waste. The boiler would use natural gas during startup and would generate up to 250,000 pounds of steam per hour during normal operations. The steam would be used to dry lumber in existing kilns and to power a steam turbine. According to the Draft EIR, the steam turbine would drive a generator that would produce up to 31 MW of electricity for on-site use (~7 MW); the remainder (~24 MW) would be sold on the open market to a public utility. The existing 4-MW cogeneration plant would be maintained as a backup facility but would not be permitted to operate simultaneously with the new plant.⁴

³ Draft EIR, p. 2.0-2.

⁴ Draft EIR, pp. 2.0-3 – 2.0-4 and 3.2-70; Appendix B, p. 8.

Comments

As discussed in my comments below, the Draft EIR is deficient and should be revised and recirculated for public review.

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I. The Draft EIR Is Inconsistent with Appendix B, SPI's Permit Application to the Shasta County Air Quality Management District

The Draft EIR states that the analysis in its air quality section was derived from the Authority to Construct and Prevention of Significant Deterioration⁵ permit application ("PSD Report") prepared by Environ International Corporation ("Environ") in February 2010 as part of SPI's application package to the Shasta County AQMD. The Draft EIR states that this PSD Report is included as Appendix B. The Draft EIR further states that the PSD Report was independently peer reviewed by Urban Crossroads, Inc., a firm under contract with De Novo Planning Group, who prepared the Draft EIR under contract to Shasta County. The PSD report was also reviewed for adequacy by the Shasta County AQMD. Both Urban Crossroads and the District determined that the PSD report prepared by Environ was adequate, complete, and suitable for use in the preparation of the Draft EIR.^{6,7} However, review of the Draft EIR and Appendix B shows that information contained in these documents differs considerably and that Appendix B does not support the Draft EIR's air quality section:

- The Draft EIR's project description states that the Project's steam turbine/generator would produce up to 31 MW⁸; in contrast, Appendix B states that the Project would generate a maximum of 23 MW.⁹ During the scoping meeting for the Project, the consultant to SPI also stated that the Project would generate 23 MW of power.¹⁰
- The Draft EIR states that the Project would constitute a major modification [under the federal Clean Air Act] and would require a PSD permit.¹¹ In contrast, Appendix B states that the Project would be a minor modification [under the federal Clean Air Act] and therefore not subject to the PSD requirements.¹²

⁵ The Prevention of Significant Deterioration program under the federal Clean Air Act applies to new major sources or major modifications at existing sources for pollutants the source is located in an area classified as being in "attainment" or "unclassifiable" with the national ambient air quality standards. PSD requires a) installation of Best Available Control Technology ("BACT"); an air quality analysis; an additional impacts analysis; and public involvement.

⁶ Draft EIR, p. 3.2-35.

⁷ Draft EIR, p. 3.2-20.

⁸ Draft EIR, p. 2.0-3 and 3.2-70.

⁹ Draft EIR, Appendix B, p. 3.

¹⁰ Draft EIR, Appendix A, De Novo Planning Group, Scoping Meeting Notes Sierra Pacific Cogeneration Power Plant EIR, July 21, 2009, p. 2.

¹¹ Draft EIR, p. 3.2-12.

¹² Draft EIR, Appendix B, p. 1.

- The Draft EIR requires with Mitigation Measure 3.2-3 that the Shasta County AQMD “withdraw” sufficient emission reduction credits (“ERCs”) banked by SPI to offset the net increases of nitrogen oxides (“NOx”), carbon monoxide (“CO”), particulate matter equal to or smaller than 10 micrometers (“PM10”), and reactive organic gases (“ROG”) generated by operation of the Project.¹³ In contrast, Appendix B states that no offsets are required.¹⁴

Clearly, the Draft EIR is inconsistent with the permit application provided in Appendix B. The Draft EIR should be revised to resolve this discrepancy and provide any updates to Appendix B it relied upon.

II. The Draft EIR Improperly Defers Review

CEQA clearly forbids deferment of review beyond the scope of the environmental review document. Here, the Draft EIR improperly defers review in several instances, including:

- The Draft EIR discloses that the amount of over-excavation of incompetent materials (cut) at the Project site and replacement with recompacted engineered fill material necessary to meet the foundation specifications “is yet to be determined.”¹⁵ Yet, the amount of cut-and-fill is necessary to adequately support the Draft EIR’s analyses. For example, the analysis of construction emissions must include fugitive dust and equipment and haul truck exhaust emissions associated with cut-and-fill activities. Similarly, without knowing the amount of cut that would be transported off-site and the amount of engineered fill that would be transported to the site, the traffic impact analysis for Project construction is incomplete and fails to adequately assess its potential impacts on traffic. Thus, a site preparation plan is mandatory for an adequate evaluation of the impacts of Project construction on air quality and traffic and to determine whether additional mitigation is required. (*See also* Comment IV.A)
- The Draft EIR states that the Project site would be lit during all hours that the sun is not up. The highest light sources would be along the catwalks at the top of the boiler and smoke stack. The Draft EIR further discloses that a specific lighting plan has not yet been developed.¹⁶ Yet, without a lighting plan it cannot be properly evaluated whether the lighting of the tall stack and other structures may be a nuisance to

¹³ Draft EIR, p. 3.2-48.

¹⁴ Draft EIR, Appendix B, p. 10.

¹⁵ Draft EIR, p. 2.0-6.

¹⁶ Draft EIR, p. 2.0-7.

nearly neighbors. Thus, a lighting plan must be part of the Project's CEQA review to determine potential impacts and, if necessary, require adequate mitigation.

- The Draft EIR requires as Mitigation Measure 3.6-1 that prior to issuance of the conditional use permit for the Project a Hazardous Materials Business Plan/Spill Prevention Control and Countermeasures Plan be prepared to avoid spills of common hazardous materials (*e.g.*, petroleum based fuels, oils, lubricants, etc.) and minimize impacts in the event of a spill.¹⁷ These plans must be part of the CEQA document for the reviewer to be able to assess whether Mitigation Measure 3.6-1 is adequate and effective. (*See* also Comment V.)

III. The Draft EIR Fails to Adequately Describe the Project and Fails to Provide Adequate Documentation

Under CEQA, an environmental impact report is legally deficient if it fails to accurately describe the whole of a proposed project. Here, as explained below, the Draft EIR fails to adequately describe the Project and hence, does not comply with CEQA. Further, the Draft EIR fails to provide adequate documentation for the presented analyses and conclusions.

III.A The Draft Fails to Adequately Describe Several Project Components

The Draft EIR states that biomass sources for the Project would include SPI-owned or controlled facilities and timberlands including, woodchips from trees, brush and slash from timber harvest operations or wildland fire fuel reduction projects and agricultural and urban wood wastes including orchard trees/branches, rice hulls, nut shells, tree trimmings, chipped pallets, commercial and residential source separated material programs, and construction debris.¹⁸ The Draft EIR fails to describe whether the biomass would arrive as chips that need no further sizing or whether it would be sized on site. If biomass would be sized on site, emissions associated with sizing biomass must be included in estimates of Project operational emissions.

The Draft EIR further states that biomass would be stored on site in a fuel shed and, if the fuel shed becomes full, excess fuel would be stockpiled at the outdoor fuel pile. The outdoor fuel pile would be maintained by a front end loader or dozer, and would be moved to the fuel shed as necessary to turnover the fuel at least every 30 days.¹⁹ Storage of pre-sized biomass can lead to dry matter losses and changes in moisture content. Biological and chemical degradation and chemical oxidation processes of biomass can result in increased temperatures within the storage piles which can potentially lead to self-ignition. Further,

¹⁷ Draft EIR, p. 3.6-14 and 3.6-13.

¹⁸ *See* Draft EIR, p. 2.0-4.

¹⁹

bacteria and fungi can rapidly grow within the biomass storage pile and potentially pose health risks and generate offending odors. The effects are complex and depend on the particle size, moisture content, and type of the stored biomass and the size and ventilation of the storage piles.²⁰ The Draft EIR does not discuss the storage and handling procedures for the different types of biomass, the effects of storage on biomass, or the potential hazards and generation of odors that may result from storing pre-sized biomass.

The Project's biomass-fired, stoker-type boiler would be equipped with the use of an integral selective non-catalytic reduction ("SNCR") to reduce NOx emissions, which would use anhydrous ammonia as a reagent.²¹ Anhydrous ammonia must be stored in a pressurized tank. The Draft EIR fails to describe the anhydrous ammonia tank, its volume, and how often anhydrous ammonia would be delivered to the site. (*See* also Comment VI.)

The Draft EIR further fails to specify whether the Project would require and operate an emergency generator. If the Project would require an emergency generator, emissions of criteria air pollutants and toxic air contaminants must be included in the emission estimates for Project operations.

III.B The Draft EIR Fails to Provide a Fuel Supply Analysis

The Draft EIR states the Project's boiler would consume 219,000 bone dry tons ("BDT") of biomass annually. The Draft EIR claims that the available annual biomass supply from SPI-owned or controlled facilities at Arcata, Anderson, Shasta Lake, and Red Bluff and timberlands totals 400,000 BDT plus 50,000 BDT from agricultural and urban wood wastes. The Draft EIR further states that SPI's Anderson lumber manufacturing facility currently produces approximately 160,000 BDT of wood waste per year, 60,000 BDT of which are consumed by the existing biomass cogeneration facility, 20,000 BDT are trucked to other biomass power plants and the balance is trucked to other markets (*e.g.*, wood chips to pulp mills). The new Project boiler would consume the entire wood waste generated by SPI's Anderson lumber facility, *i.e.*, 80,000 BDT per year, while the balance of 139,000 BDT per year would be trucked in from other sources.²² The Draft EIR further claims that the balance of biomass would be trucked in from within an average distance of 45 miles.²³

The Draft EIR contains no support for these numbers or any further analysis of the available sources of fuel, the seasonal availability of biomass, the percentages of various types of biomass that would be combusted (*e.g.*, woodchips from trees, brush and slash from timber harvest operations or wildland fire fuel reduction projects, orchard trees/branches, rice hulls,

²⁰ Sjaak Van Loo and Jaap Koppejan, *Handbook of Biomass Combustion and Co-firing*, Earthscan, 2008, pp. 83-85.

²¹ Draft EIR, p. 3.2-36 and Draft EIR, Appendix B, p. 3.

²² Draft EIR, p. 2.0-5.

²³ Draft EIR, p. 3.2-25 .

nut shells, tree trimmings, chipped pallets, commercial and residential source separated material programs, construction and demolition waste, etc.), the distances that would be traveled by the trucks delivering 139,000 BDT per year of biomass to the facility. In fact, the entire fuel supply discussion in the Draft EIR seems to have been copied verbatim without any updates from an equally unsupported permit application submitted to the Shasta County AQMD in 2007.²⁴

In other recent biomass projects, fuel supply has been a contested issue and at least one project has been withdrawn in part over fuel supply issues.^{25,26} It is further unclear whether the Project would result in harvesting of trees for the sole purpose of generating biomass for combustion in the Project's boiler. If this were the case, the harvesting of trees would have to be carefully evaluated in the greenhouse gas analysis for the Project.

The Draft EIR should be revised and recirculated to contain an adequate fuel supply analysis that demonstrates availability of biomass fuels, including the sources of fuel, the seasonal availability, the percentages of various biomass that would be combusted, the type of agricultural and urban wood waste that would be accepted, the distances that would be traveled by the trucks delivering 139,000 BDT per year of biomass to the facility, to the Project, etc.

III.C The Draft EIR Fails to Discuss Wastewater Generation and Disposal

The Project would operate a two-cell cooling tower with a flow rate of 27,600 gallons per minute ("gpm"). To avoid buildup of dissolved minerals, some of the recirculating cooling water must be drawn off and replenished with fresh water. The Draft EIR is silent on the quantity, chemical composition, and fate of the water that is drawn off, the so-called cooling tower blowdown; it is unclear whether the Applicant intends to discharge the blowdown to the Sacramento River or the City's wastewater treatment system, retain it in on-site ponds, or treat it on-site.

²⁴ See Sierra Pacific Industries, Biomass-Fired Cogeneration Project Prevention of Significant Deterioration and Authority to Construct Permit Application, Anderson, California, prepared by: Geomatrix Consultants, Inc., May 2007, p. 5; <http://www.co.shasta.ca.us/departments/resourcegmt/drm/SPI/PSD-ATC%20application.pdf>, accessed September 17, 2010.

²⁵ See, for example, Valley Bio-Energy, Modesto, CA: documents available at www.mid.org/biomass/default.htm and San Joaquin Solar 1&2 Hybrid Power Project, Coalinga, CA: documents available at <http://www.energy.ca.gov/sitingcases/sjsolar/documents/index.html>.

²⁶ Martifer Renewables, Letter to California Energy Commission, Re: San Joaquin Solar 1&2 Hybrid Power Project, 08-AFC-12 - Notice of Withdrawal, June 17, 2010 stating: "We are not able at this time to resolve some of our issues regarding project economics and biomass supply amongst other things;" http://www.energy.ca.gov/sitingcases/sjsolar/documents/applicant/2010-06-17_Notice_of_Withdrawal_TN-57296.pdf, accessed September 16, 2010.

The Draft EIR also fails to provide any information regarding treatment of steam generation (boiler) process water and the quantity, chemical composition, and disposal of wastewater that would be produced by the steam generation process.

III.D The Draft EIR's Analysis of Construction Emissions is Not Adequately Documented

The Draft EIR presents unmitigated *daily* emissions in pounds per day for Project construction in Table 3.2-7 supposedly based on URBEMIS 2007 modeling conducted by De Novo Planning in 2010.²⁷ The Draft EIR fails to provide documentation for these modeling runs. The URBEMIS modeling runs provided in Appendix J to the Draft EIR only present *annual* construction emissions in tons per year, which cannot be readily transform converted into maximum daily emissions because the amount of pollutants emitted during construction can vary greatly depending on the level of activity, the specific operations taking place, the equipment operated, etc. Thus, the daily emissions from construction presented in Table 3.2-7 are not supported by any documentation. Public review of these emissions estimates is therefore not possible requiring acceptance of the emission estimates and the Draft EIR's conclusions in blind faith. (See also Comment IV.A.)

IV. The Draft EIR's Air Quality Impact Analysis Is Flawed and Fails to Adequately Mitigate Significant Impacts

The Draft EIR's air quality impact analysis suffers from a number of flaws and fails to reduce the Project's significant emissions from construction and during operation to the extent feasible as required by CEQA.

IV.A The Draft EIR's Estimates of Construction Emissions Fail to Account for Cut-and-Fill Activities

The Draft EIR presents unmitigated daily construction emissions in Table 3.2-7 and concludes that emissions of CO, sulfur dioxide ("SO₂"), ROG, PM10 and particulate matter equal to or smaller than 2.5 micrometers ("PM2.5") would not exceed the Shasta County AQMD's significance thresholds for construction emissions. While the Draft EIR fails to provide URBEMIS 2007 printouts for *daily* construction emission estimates, the annual estimates provided in Appendix J indicate that the Draft EIR's emission estimates presented in Table 3.2-7 do not include cut-and-fill activities, which would be required for the Project. (See Comments II and III.) Cut-and-fill activities result in considerable emissions of fugitive dust particulate matter both on- and off-site. When these emissions are included, fugitive dust PM10 emissions generated during construction may well exceed the Shasta County AQMD's threshold of significance of 80 pounds per day. Thus, the Draft EIR should be revised to

²⁷ See Draft EIR, footnote to Tale 3.2-7.

include documentation for daily emissions during construction including cut-and-fill activities and, if the threshold is exceeded, include adequate mitigation.

IV.B The Draft EIR Fails to Demonstrate that the Proposed Mitigation Measures Would Reduce the Project's Significant Emissions of NO_x during Construction to a Less than Significant Level and Several Proposed Mitigation Measures Are Vague and Unenforceable

The Draft EIR finds that Project construction would result in equipment and vehicle exhaust emissions of nitrogen oxides ("NO_x") of 50.15 pounds per day, exceeding the Shasta County AQMD's threshold of 25 pounds per day of NO_x pursuant to SCAQAMD Rule 2.1, Part 301 by 100 percent.²⁸ (As discussed in Comment III.C, the Draft EIR fails to support these emission estimates.) The Draft EIR requires implementation of Mitigation Measure 3.2-2 to reduce these significant combustion emissions of NO_x to reduce Project significant impacts on air quality due to combustion emissions from construction equipment and trucks to a less than significant level.²⁹

The Draft EIR fails to provide a quantitative analysis demonstrating that these measures would indeed reduce combustion emissions during Project construction to below the Shasta County AQMD's thresholds and to a less than significant level. The Draft EIR should be revised to include a quantitative analysis of the effectiveness of Mitigation Measure 3.2-2 to demonstrate that it would indeed reduce emissions by 50 percent to a less than significant level.

In addition, several of the proposed measures are vague and unenforceable:

- Mitigation Measure 3.2-2 requires the Applicant's contractor to "Limit the area subject to excavation, grading, and other construction activity at any given time."³⁰ However, the Draft EIR fails provide any guidelines or standards for determining the amount of area allowed to be excavated, graded or constructed at the same time. Without such guidance, this mitigation measure is meaningless.
- Similarly, Mitigation Measure 3.2-2 requires the Applicant's contractor to "Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use."³¹ This measure also fails to provide any guidelines or standards for determining when and how long heavy-duty equipment may be used during construction. Again, this lack of guidance renders this mitigation measure meaningless.

²⁸ Draft EIR, p. 3.2-21.

²⁹ Draft EIR, pp. 3.2-23 – 3.2-24.

³⁰ Draft EIR, p. ES-7.

³¹ *Ibid.*

IV.C The Draft EIR Fails to Include Operational Emissions from All Emission Sources

The Draft EIR presents emission estimates for vehicle emissions associated with trucks delivering biomass and employee vehicle traffic and emissions from normal operation of the biomass boiler and cooling tower.³² However, the Project would include several other sources of emissions including a) combustion emissions from the trucks moving fuel from the existing on-site planer and pole yard across the yard; b) combustion emissions from the front end loader or dozer moving fuel into the fuel shed and maintaining the outdoor fuel pile; c) emissions associated with refueling trucks and equipment on site; d) fugitive dust emissions associated with biomass handling; and e) fugitive dust emissions associated with ash handling and disposal.

The Draft EIR states that additional material handling operations associated with the Project would be enclosed and, as a result, fugitive dust emissions associated with the Project are “expected to be negligible.”³³ In light of the inadequate description of the material handling operations (*see* Comments III.A and **Error! Reference source not found.**), this purely speculative conclusion is not acceptable under CEQA.

The Draft EIR should be revised to include emission estimates for all emission sources and, if necessary, require adequate mitigation.

IV.D The Draft EIR Incorrectly Determines Net Annual Emission Increases Associated with the Project

The Draft EIR presents Project cogeneration unit annual emissions and net annual emission increases associated with the Project based on the annual average heat input rate to the boiler of 425.4 MMBtu/hr and continuous operation (8,760 hours/year).³⁴ This determination is erroneous.

Annual emissions must be based on the boiler’s “potential to emit,” *i.e.*, the maximum heat input (or capacity) of the boiler, not an assumed annual average heat input. Under the federal Clean Air Act, the potential to emit (“PTE”) is defined as “the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, provided the limitation or its effect on emissions is federally enforceable, shall be treated as part of its design.”³⁵ Thus, unless the permit would include a federally enforceable condition restricting

³² Draft EIR, Table 3.2-8, p. 3.2-25, and Table 3.2-9, p. 3.2-26.

³³ Draft EIR, p. 3.2-26.

³⁴ Draft EIR, Table 3.2-9 (*see* footnote 2), p. 3.2-26, and Table 3.2-11, p. 3.2-27.

³⁵ U.S. Environmental Protection Agency, New Source Review, Basic Information, p. A.4; <http://www.epa.gov/nsr/psd.html>.

emissions based on the boiler's *annual average* hourly heat input³⁶, net emissions must be calculated based on the boiler's *maximum* annual hourly heat input. The Draft EIR proposes no such condition. Review of the Permit to Operate issued by the Shasta County AQMD for the existing cogeneration facility shows that annual emission limitations are based on the *maximum* hourly heat input to the boiler.³⁷ Thus, net emission increases must be based on the maximum heat input to the boiler of 468.0 MMBtu/hr. This increases annual emissions from the boiler by 10%.³⁸ Net annual emission increases associated with the Project will be correspondingly higher. The Draft EIR must be revised accordingly and air quality modeling must be performed based on the revised net emission increase.

IV.E The Draft EIR Fails to Identify Significant Impact on Air Quality due to Project Operational Emissions of NO₂ and Fails to Perform All Required Analyses

On February 9, 2010, the U.S. Environmental Protection Agency ("U.S. EPA") published a new 1-hour national ambient air quality standard ("NAAQS") for nitrogen dioxide ("NO₂") at a level of 100 parts per billion ("ppb") (approximately 188 µg/m³).^{39,40} This new standard became effective on April 12, 2010, which means that permits issued under U.S. EPA's PSD rules (40 CFR 52.21) on or after April 12, 2010, must contain a demonstration that allowable emissions from any new major stationary source or major modification will not cause or contribute to a violation of the new 1-hour NO₂ NAAQS. There are no exceptions under 40 CFR 52.21 in this case because the U.S. EPA has not adopted a grandfathering provision applicable to the 1-hour NO₂ NAAQS because, while the short-term standard is new, the pollutant is not.⁴¹

³⁶ $(425.4 \text{ MMBtu/hr}) \times (8,760 \text{ hr/year}) = 3,726,504 \text{ MMBtu/year}$.

³⁷ Shasta County Air Quality Management District, Permit to Operate, Sierra Pacific Industries, Anderson Division, 80,000 lb/hr Wood Fired Boiler (116.4 MMBtu/hr), December 2008, Condition 24, p. 4.

³⁸ $(468.0 \text{ MMBtu/hr}) / (425.4 \text{ MMBtu/hr}) = 1.10$.

³⁹ 75 FR 6474-6537, February 9, 2010.

⁴⁰ The newly promulgated NO₂ standard not only establishes a new one-hour averaging period for the NO₂ NAAQS, but also establishes a new "form" for the one-hour standard as the three-year average of the 98th percentile of the yearly distribution of daily maximum one-hour average concentrations.

⁴¹ U.S. Environmental Protection Agency, Memorandum from Stephen D. Page, Director, to Air Division Directors and Deputies, Regions I - X, Re: Applicability of the Federal Prevention of Significant Deterioration Permit Requirements to New and Revised National Ambient Air Quality Standards, April 1, 2010; <http://www.epa.gov/region7/air/nsr/nsrmemos/psdnaaqs.pdf>, accessed September 17, 2010.

I.A.1 Project Operational Emissions Would Exceed the U.S. Environmental Protection Agency's Interim Significant Impact Level for the 1-hour Federal NO₂ National Ambient Air Quality Standard Requiring Additional Impact Analyses

Neither the Draft EIR nor the PSD Report in the Draft EIR's Appendix B contain a demonstration that Project emissions would not cause or contribute to a violation of the new 1-hour NO₂ NAAQS. In fact, both documents fail to mention the new 1-hour NO₂ NAAQS.

It is U.S. EPA's policy to exempt sources from conducting comprehensive, multisource modeling if their estimated maximum ambient impacts for a given pollutant are less than a so-called significant impact level ("SIL"), a *de minimis* threshold applied to individual facilities that apply for a permit to emit a regulated pollutant in areas that are designated attainment, *i.e.*, that meet the NAAQS for that pollutant.⁴² The state and the U.S. EPA must determine if emissions from that facility would cause the air quality to worsen. The SIL is a measure of whether a source may cause a violation of the PSD increment⁴³ or the NAAQS, or, in other words, would result in a significant deterioration of air quality. If an individual facility or a modification of a facility increases emissions resulting in ambient air quality impacts greater than the established SILs, the permit applicant is required to perform additional analyses to determine if those impacts will be more than the amount of the PSD increment. This analysis combines the impact of the proposed facility when added on to all other sources in the area.

The U.S. EPA has published guidance for determining compliance with the new 1-hour NO₂ NAAQS and has proposed an interim SIL equal to 4% of the 1-hour NAAQS of 100 ppb⁴⁴, *i.e.*, 4 parts per billion ("ppb") or about 8 µg/m³.⁴⁵ The Draft EIR's Class II⁴⁶ air quality impact

⁴² An attainment area is considered to have air quality as good as or better than the national ambient air quality standards as defined in the Clean Air Act. An area may be an attainment area for one pollutant and a non-attainment area for other pollutants.

⁴³ A PSD increment is the amount of pollution an area is allowed to increase. PSD increments prevent the air quality in clean areas from deteriorating to the level set by the NAAQS. The NAAQS is a maximum allowable concentration "ceiling." A PSD increment, on the other hand, is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant. The baseline concentration is defined for each pollutant and, in general, is the ambient concentration existing at the time that the first complete PSD permit application affecting the area is submitted. Significant deterioration is said to occur when the amount of new pollution would exceed the applicable PSD increment. It is important to note, however, that the air quality cannot deteriorate beyond the concentration allowed by the applicable NAAQS, even if not all of the PSD increment is consumed.

⁴⁴ U.S. Environmental Protection Agency, Memorandum from Stephen D. Page, Director, Office of Air Quality Planning and Standards to Regional Air Division Directors, Re: Guidance Concerning the Implementation of the 1-hour NO₂ NAAQS for the Prevention of Significant Deterioration Program, June 29, 2010; <http://snipurl.com/142in9> [www_google_com], accessed September 17, 2010.

⁴⁵ At standard ambient temperature of 25°C: (4 ppb) × (12.187) × (molecular weight of NO₂: 46.01) / (293.15°K) = 7.65 µg/m³.

analysis shows that the Project would result in a maximum increase of 14.0 µg/m³ NO₂ on a 1-hour basis⁴⁷, which exceeds the U.S. EPA-recommended interim 1-hour NO₂ SIL of 8 µg/m³ by almost 80 percent.⁴⁸

Thus, additional impact analyses should be performed including impact analyses on air, ground and water pollution on soils, vegetation, and visibility caused by any increase in emissions of any regulated pollutant from the source or modification under review, and from associated growth. Associated growth is industrial, commercial, and residential growth that will occur in the area due to the source.⁴⁹

I.A.2 The Draft EIR Must Provide a Class I Impact Analyses

PSD guidance requires an analysis of potential impacts on air quality-related values (“AQRVs”) in federal Class I areas within 100 kilometers (62.1 miles) of the proposed site from pollutants emitted by the project subject to PSD review. However, for most applications the Federal Land Managers (“FLMs”) request analyses of AQRV impacts for additional Class I areas within 200 kilometers (124 miles) of the site.

There are four Class I areas within 100 kilometers of the Project site requiring an AQRV analysis and four other areas that are within the expanded range of 200 km as shown in Table 1.

Table 1: Class I areas within 250 kilometers of the Project site

Class I Area	Distance	
	(km)	(miles)
Yolla Bolly-Middle Eel Wilderness Area	57	35
Thousand Lakes Wilderness Area	62	39
Lassen Volcanic National Park	64	40
Caribou Wilderness Area	89	55
Marble Mountain Wilderness Area	116	72
Redwood National Park	147	91
Lava Beds National Monument	148	92
South Warner Wilderness Area	192	119

⁴⁶ Class II areas are essentially the entire country save for areas designated as Class I areas, which are National Parks, Wilderness Areas, and other areas where the smallest PSD increments have been imposed to allow the smallest degree of air quality deterioration. Class II areas have been deemed able to accommodate normal, well-managed industrial growth, and, therefore, have higher PSD increments.

⁴⁷ Draft EIR, Appendix B, Table 4-4, p. 31.

⁴⁸ $(14.0 \text{ µg/m}^3) / (7.65 \text{ µg/m}^3) = 1.8$.

⁴⁹ U.S. Environmental Protection Agency, New Source Review, Basic Information;
<http://www.epa.gov/nsr/psd.html>.

The AQRVs of concern include visibility, soil, flora, fauna, and aquatic resources. The Draft EIR must be revised to include the respective analyses to comply with the PSD requirements under the federal Clean Air Act.

IV.F Combustion of Urban Wood Waste, Railroad Ties, and Tires May Result in Higher Toxic Air Contaminant Emissions than Estimated by the Draft EIR

According to the Draft EIR, the Project would burn only non-treated wood pulp, sawdust and other natural un-treated wood waste that is generated onsite by the existing sawmill operations; agricultural and timber wood wastes; and urban biomass fuel or urban wood waste. The Draft EIR also claims that construction debris will only be used if it is a clean source separated material such as ground up wood that does not include such things as wallboard and general debris or any other treated or painted wood.^{50,51} The Draft EIR, however, fails to include a condition specifying a restriction on materials that can be burned as a mitigation measure for the Project.

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

As a result, construction and demolition (“C&D”) wood waste may be contaminated with a variety of hazardous chemicals including heavy metals such as copper, chromium, arsenic, cadmium, lead, mercury, zinc, and beryllium, and organic contaminants such as creosote, pentachlorophenol, dioxin, polychlorinated biphenyls, polycyclic aromatic hydrocarbons, solvents, and volatile organic compounds.⁵² Incineration results in volatilization of metals during combustion and accumulation of metals in ash, which may result in health and environmental impacts.⁵³

⁵⁰ Draft EIR, p. 2.0-4.

⁵¹ Draft EIR, p. 3.6-13.

⁵² Ellen Moyer, Ph.D., P.E., Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM’s May 2006 Report, December 20, 2007;
<http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>.

⁵³ Florida Center for Solid and Hazardous Waste Management, Final Report of Evaluation of Thermal Processes for CCA Wood Disposal in Existing Facilities, May 15, 2006;
<http://combustcca.ees.ufl.edu/FCSHWM%20Report-CCA%20Thermal%20Processes.pdf>.

A critical element in minimizing air emissions, especially toxic air contaminants, is the elimination of copper-chromium-arsenic (“CCA”)-treated and pentachlorophenol-treated (“penta-treated”) wood and the minimization of painted wood and fines in the C&D wood waste.⁵⁴ CCA is a major arsenic-based treatment chemical used to preserve wood. Although in the U.S. it is no longer used for residential uses, it is still used in industrial applications. Wood preservatives, especially CCA, accounted for most of the arsenic consumption in U.S. until about 2004. As a result, a large quantity of arsenic-treated wood is currently in use and is present in significant amounts in C&D waste. Its presence in the disposal sector is predicted to increase heavily in the near future.

The separation of wood products from C&D debris for beneficial uses depends on the type and origin of the debris. Typically, construction debris is more easily separated than demolition debris. No statewide standards for the content of C&D waste exist and most waste management firms rely on their own standards and specifications to remove the majority of the contaminants and non-burnables from the C&D waste. Limited test data indicate that concentrations of arsenic and dioxin are doubled and quadrupled, respectively, when burning 50 percent C&D wood compared to burning only forest biomass.⁵⁵

Due to concerns regarding the release of hazardous substances, several states have restricted or banned the use of C&D wood waste as fuel for biomass plants and other purposes. For example, New Hampshire has banned the use of C&D debris regardless of whether it is clean, unadulterated waste from construction sites or pressure-treated and painted wood, for example, from demolition activities. The state of Massachusetts has implemented a moratorium on use of C&D waste. The City of Portland, Oregon, prohibits any use, including combustion, of painted or pressure-treated woods except in “incidental” quantities.⁵⁶ The Maine Department of Environmental Protection has published detailed specifications limiting the permissible fraction of non-combustible materials, plastics, CCA-treated wood, fines, and asbestos in C&D wood waste and specifying fuel quality standards for arsenic, lead, and PCBs in blended biomass fuel.⁵⁷

Therefore, the Draft EIR must either impose an enforceable permit condition or identify and analyze toxic air contaminant emissions from the combustion of C&D waste and require

⁵⁴ Ellen Moyer, Ph.D., P.E., Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM’s May 2006 Report, December 20, 2007; <http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>, accessed November 9, 2009.

⁵⁵ Ellen Moyer, Should Construction and Demolition Wood Be Burned? An Evaluation of NESCAUM’s May 2006 Report, December 20, 2007, p. 23; <http://www.mass.gov/Eoeea/docs/doer/gca/aps/apsmoyer.pdf>, accessed November 6, 2009.

⁵⁶ Ron Kotrba, The Politics of ‘Dirty’ Wood, Biomass Magazine, April 2009; http://www.biomassmagazine.com/article.jsp?article_id=2539&q=&page=all, accessed November 9, 2009.

⁵⁷ Maine Department of Environmental Protection, Maine Solid Waste Management Rules: Chapter 418, Beneficial Use of Solid Wastes, June 16, 2006, pp. 13-14.

the Applicant to employ maximum available control technology (“MACT”) to control these emissions.

Further, during the scoping meeting for the Project, a public comment was made that another plant that was approved for biomass burning based on a similar proposal now burns tires, railroad ties, and other carcinogenic materials.⁵⁸ The commentator asked whether the Project’s use permit would be conditioned on not allowing the burning of carcinogenic materials. In response, the consultant stated that such a condition is “something that the County decision makers will determine.”⁵⁹ The Draft EIR claims that urban fuels would not include railroad ties;⁶⁰ however, it fails to identify such a mitigation measure.

The Draft EIR should be revised to require an enforceable permit condition excluding railroad ties and construction and demolition debris from combustion or revise its emission estimates and health risk assessment to include those fuels.

V. The DEIR Fails to Identify and Require Mitigation Measures Available to Reduce the Project’s Emissions of Greenhouse Gases and Associated Significant Impacts on Global Climate Change

The DEIR finds that the Project’s cumulative impacts on climate change due to emissions of greenhouse gases are significant and unavoidable.^{61,62} Despite this conclusion of significance, the Draft EIR failed to require any mitigation whatsoever for the Project’s greenhouse gas emissions. Instead, the Draft EIR makes the conclusory claim that no feasible mitigation measures are available.⁶³ However, the Draft EIR lacks any foundation for this

⁵⁸ The facility in question is presumably the Wheelabrator Shasta Energy Company, Inc., in Anderson, CA, which has been burning railroad ties since 1996.

⁵⁹ Appendix A, De Novo Planning Group, Scoping Meeting Notes Sierra Pacific Cogeneration Power Plant EIR, July 21, 2009, p. 2.

⁶⁰ Draft EIR, p. 2.0-4.

⁶¹ Draft EIR, p. ES-9, Impact 3.3-1, and p. 3.2-72.

⁶² The Draft EIR states that biomass burning may be carbon neutral since it may use biomass material that would otherwise still release GHGs through open burning or decomposition in a landfill. (Draft EIR, p. 3.2-71.) The Draft EIR, however, recognizes that it is impossible to determine whether the Project’s burning of biomass fuel would, in fact, be carbon neutral or carbon positive compared to the potential alternative uses or disposal of the Project’s biomass fuel. (*Id.*) As a result the Draft EIR determines that the Project would likely result in significant greenhouse gas emissions. For example, biomass burning in cogeneration plants would only be carbon neutral compared to decomposition of biomass in landfills on a very long time scale (hundreds of years), if at all. Greenhouse gas emissions resulting from the project, on the other hand, will be felt most significantly in the short term. Given the general consensus that greenhouse gas emissions must be reduced immediately, reduction of greenhouse gas emissions hundreds of years from now will not mitigate the current threat of global climate change. Accordingly, the Draft EIR correctly found that the Project’s greenhouse gas emissions were significant.

⁶³ Draft EIR, pp. ES-9 and 3.2-72.

claim. The Draft EIR fails to identify or evaluate any potential mitigation measures and provides no analysis to support its conclusion that no feasible mitigation measures are available.⁶⁴

The Draft EIR's failure to identify and evaluate potential mitigation measures for greenhouse gas emissions is a prima facie violation of CEQA. CEQA prohibits agencies from approving projects with significant environmental impacts when feasible mitigation measures can substantially lessen or avoid such impacts.⁶⁵ Specifically, an agency is prohibited from approving a project unless it has "[e]liminated or substantially lessened all significant effects on the environment where feasible."⁶⁶ Accordingly, an agency may only adopt a statement of overriding considerations only *after* it has imposed all feasible mitigation measures to reduce a project's impact to less than significant levels.⁶⁷

Contrary to the Draft EIR's assumption, there are many opportunities available for meaningful mitigation of the Project's GHG impacts. Some of these mitigation measures could include replacing all SPI owned haul trucks, on-site trucks, front end loaders or dozers by new energy-efficient models complying with the most stringent U.S. EPA emission limits.

In addition, many off-site mitigation measures are feasible, including:

- (1) **Energy Audits and Retrofits at SPI Facilities:** Mitigation could include offsetting the Project's greenhouse gas emissions through a comprehensive audit of existing facilities owned by the Applicant and processes to identify and implement energy saving measures, including improving the efficiency of existing equipment so that it uses less electricity or burns less fuel. As an example, in September 2007, the California Attorney General's office came to an agreement with ConocoPhillips, by which ConocoPhillips agreed to mitigate greenhouse gas emissions for a planned hydrogen facility by, among other measures, undertaking an energy efficiency audit and carbon emissions audit for all of its California facilities.⁶⁸
- (2) **Community Energy Efficiency Building Retrofits:** Mitigation could include funding programs that provide for energy efficiency retrofits of existing buildings and housings in Shasta County, with a particular focus on rental and low-income housing. Indeed, new proposed power plants already provide mitigation funds for criteria pollutants and should be required to do the same for greenhouse gas emissions. As one example, the

⁶⁴ See Draft EIR, pp. 3.2-59 - 3.2-72 and 4.0-4.

⁶⁵ Pub. Res. Code 21002.

⁶⁶ CEQA Guidelines § 15092(b)(2).

⁶⁷ CEQA Guidelines §§ 15126.4, 15091.

⁶⁸ ConocoPhillips and California Attorney General Settlement Agreement, September 10, 2007); http://ag.ca.gov/globalwarming/pdf/ConocoPhillips_Agreement.pdf, accessed September 17, 2010.

Chula Vista Energy Upgrade Project included \$210,000 worth of mitigation funds “for energy efficiency and related improvements to local homes and business, ... intended to directly benefit the residents potentially most affected by the proposed project.”⁶⁹ These upgrades could include installation of a heat-reflecting “cool roof” and heat-reducing window awnings, high-efficiency air conditioning systems with programmable thermostats, and energy-saving fluorescent lighting fixtures that feature daylight and occupancy sensors.

- (3) **Greening Local Farm Operations:** Mitigation could include funding programs to install anaerobic manure biodigesters to recover methane from animal manure in local farm operations. Methane is over 20 times more effective in trapping heat in the atmosphere than carbon dioxide (“CO₂”).
- (4) **Funding of Carbon Offset Programs:** Mitigation could include providing funds to the Shasta County AQMD, Audubon Society, California Wildlife ReLeaf, or other organizations to fund carbon reduction or sequestration projects. For example, the 2007 ConocoPhillips settlement included an agreement to mitigate and offset greenhouse gas emissions by providing (1) \$7 million to a Bay Area Air Quality Management District to create a fund for carbon offsets, (2) \$200,000 to the Audubon Society for restoration of wetlands in the San Pablo Bay, for purposes of carbon sequestration, and (3) \$2.8 million to California Wildlife ReLeaf for reforestation projects, estimated to sequester 1.5 million metric tons of CO₂ over the lifetime of the forest.

These are just a few examples that could serve as inspiration for mitigation measures to reduce the Project’s significant greenhouse gas emissions.

VI. The Draft EIR Fails to Analyze Potentially Significant Impacts on Public Health and Safety Associated with Transport, Storage, and Use of Anhydrous Ammonia

The Draft EIR states that the Project’s biomass-fired, stoker-type boiler would be equipped with the use of an integral selective non-catalytic reduction (“SNCR”) to reduce NO_x emissions.⁷⁰ In the SNCR process, ammonia is mixed with the exhaust from the combustion device and the NO_x in the exhaust reacts with the introduced ammonia to form nitrogen and water. The reagent is typically injected at the exit of the furnace to mix with the hot flue gases. The reagent can be anhydrous ammonia, aqueous ammonia, or urea dissolved in water.⁷¹ The

⁶⁹ California Energy Commission, Docket No. 07-AFC-4, Chula Vista Energy Upgrade Project, Final Staff Assessment, Addendum, p. 3, September 30, 2008; http://www.energy.ca.gov/sitingcases/chulavista/documents/2008-09-29_FINAL_STAFF_ASSESSMENT_ADENDUM_TN-48266.PDF, accessed September 17, 2010.

⁷⁰ Draft EIR, p. 3.2-36.

⁷¹ Draft EIR, p. 3.2-31.

Draft EIR is silent on which type of ammonia would be used; however, Appendix B to the Draft EIR discloses that the Project's SNCR system would be injected with anhydrous ammonia.⁷²

Anhydrous ammonia is a highly hazardous and toxic chemical, classified by the U.S. Department of Transportation ("DoT") and the Occupational Safety and Health Administration ("OSHA") as a hazardous material and by the U.S. Environmental Protection Agency as an "extremely hazardous substance."⁷³ At low concentrations in air, ammonia irritates the eyes, nose, and throat. At higher concentrations, it causes coughing, bronchial spasms, conjunctivitis, laryngitis, and pulmonary edema, possibly accompanied by a feeling of suffocation. Severe eye damage and death, generally from pulmonary edema, can result from exposures to over 2,000 ppm.⁷⁴ The Draft EIR's hazards and hazardous materials impact analysis, Section 3.6, fails to identify anhydrous ammonia as a hazardous substance and discuss or analyze hazards associated with its transport, storage, and use.

Anhydrous ammonia delivered to the Project site would arrive in pressurized tank trucks and must be stored on site in pressurized steel tanks subject to 29 CFR 1910.111 and built in accordance with ASME Boiler and Vessel Code and rated to 250 pound-force per square inch gauge ("psig") and equipped with protections and sensors. Typically, similarly-sized projects would receive approximately one delivery per month for a total of 50 truckloads per year and would store anhydrous ammonia in one 2,000-gallon pressurized steel tank.⁷⁵

The frequency of accidents involving release of ammonia and the risks of injuries and deaths from ammonia storage, use, and transportation are well known and documented. Review of the Incident Reports Database maintained by the Department of Transportation ("DoT") shows that in the past 10 years numerous incidents related to truck transportation of anhydrous ammonia occurred including one fatality and 88 injuries related to ammonia exposure.⁷⁶ Most recently, on July 5, 2010 in Ohio, a tanker carrying anhydrous ammonia crashed resulting in the death of the driver and release of anhydrous ammonia which forced

⁷² Draft EIR, Appendix B, p. 3.

⁷³ See, for example, Tanner Industries, Storage and Handling of Anhydrous Ammonia, Revised May 1998.

⁷⁴ See, for example, Tanner Industries, Storage and Handling of Anhydrous Ammonia, Revised May 1998; Chemical Industries Association, Guidance for the Large Scale Storage of Fully Refrigerated Anhydrous Ammonia in the UK, June 1997; National Institute for Occupational Safety and Health, Criteria for Recommended Standard, Occupational Exposure to Ammonia, 1974.

⁷⁵ See, for example, Modesto Irrigation District, Initial Study and Proposed Mitigated Negative Declaration, Valley Bio-Energy, LLC, 33-MW Biomass Energy Project, June 8, 2010 (proposed 33-MW biomass-fired, stoker-type boiler with a heat input of 402 MMBtu/hr generating 265,000 pounds per hour steam); http://www.mid.org/biomass/Biomass_Energy_Project_Initial_Study.pdf, accessed September 14, 2010.

⁷⁶ Office of Hazardous Materials Safety, Incident Reports Database Search; <https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/Search.aspx>, accessed September 14, 2010.

evacuation of about 90 people.⁷⁷ On October 29, 2007, a leak of anhydrous ammonia from a ruptured 30,000-gallon storage tank resulted in a large cloud which forced emergency officials to evacuate a local elementary school and local residents in a rural Kentucky community.⁷⁸ On October 31, 2006, a pipe fitting that split suddenly while workers were trying to drain anhydrous ammonia from refrigeration equipment was responsible for the death of a worker in Kansas.⁷⁹ In 1976, in one of the most catastrophic releases in the U.S., a tank truck hauling a load of anhydrous ammonia crashed through a guardrail at a freeway interchange in Houston, Texas, and released its load onto a busy freeway below resulting in five deaths and 200 injured.⁸⁰ These are just a few examples of the frequent accidents involving transportation, use, and storage of anhydrous ammonia.

Anhydrous ammonia is also a key ingredient in the illegal production of methamphetamines ("meth"), a popular drug and significant problem in Siskiyou County as in much of California⁸¹, and is therefore subject to frequent theft, often resulting in accidental releases. The U.S. Environmental Protection Agency ("U.S. EPA") maintains a database with reported ammonia thefts, many of which resulted in accidental releases. The releases occurred when valves were left open as anhydrous ammonia was siphoned off; locks were sawed or broken; anhydrous ammonia was transferred inappropriately into makeshift containers such as propane tanks used on barbeque grills; or the wrong hoses and/or fittings were attached to storage containers, causing leaks and spills that would otherwise not have occurred.⁸² The same accidents could occur at the Project. Thus, a CEQA document for the Project should contain a discussion of preventive measures and personnel instructions that would be implemented to avoid ammonia theft and accidental releases.

⁷⁷ Fox News, Fatal Accident Fuels Fire over Farming Chemical Debate, July 6, 2010; <http://www.fox8.com/news/wjw-ammonia-tanker-fatal-ax-debate-chemical-txt,0,382168.story>, accessed September 14, 2010.

⁷⁸ Nashville News, Dangerous Chemical Leak Contained, October 29, 2007; <http://www.wsmv.com/news/14446396/detail.html>, accessed September 14, 2010.

⁷⁹ The Associated Press, Pipe Fitting Break Blamed for Fatal Accident, November 8, 2006; http://www.cjonline.com/stories/110806/bre_tysonfatal.shtml, accessed September 14, 2010.

⁸⁰ National Transportation Safety Board, Highway Accident Report, Transport Company of Texas, Tractor-Semitrailer (Tank) Collision with Bridge Column and Sudden Dispersal of Anhydrous Ammonia Cargo, I-610 at Southwest Freeway, Houston, Texas May 11, 1976, report adopted: April 14, 1977, NTSB Number: HAR-77/01, NTIS Number: PB-268251; <http://www.nts.gov/publictn/1977/HAR7701.htm>, accessed September 14, 2010; see also: YouTube, Anhydrous Ammonia Accident - Houston Texas 1976; <http://www.youtube.com/watch?v=1OR7A5jWmDs>, accessed September 14, 2010.

⁸¹ See, for example, David Smith, Siskiyou County Daily News, Board Hears Discussion on Meth Issues, August 13, 2010; <http://www.siskiyoudaily.com/news/x297209519/Board-hears-discussion-on-meth-issues>; or National Drug Intelligence Center, California Northern and Eastern Districts Drug Threat Assessment, Methamphetamine, January 2001; <http://www.justice.gov/ndic/pubs/653/meth.htm>, accessed September 14, 2010.

⁸² U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Anhydrous Ammonia Theft, EPA-F-00-005, March 2000.

Several agencies including the U.S. EPA, OSHA, DoT, the Federal Emergency Management Agency (“FEMA”), and local agencies have published guidelines to estimate the consequences of accidents involving ammonia spills.⁸³ Typically, a worst-case spill scenario is specified and downwind ambient concentrations of the spilled material are calculated and compared with benchmark concentrations that pose a health threat to exposed parties.

The impacts of transporting, storing, and using anhydrous ammonia when analyzed in CEQA documents are generally significant.⁸⁴ According to the U.S. EPA Risk Management Plan guidance documents, at a wind speed of 1.5 miles per hour, the release of 7,500 pounds of anhydrous ammonia in 10 minutes time from a pressurized system (*i.e.*, a catastrophic leak, not a faulty valve) will have a plume with a toxic end point 3.2 miles downwind from the site of the leak.⁸⁵ (Anhydrous ammonia liquid (pressurized gas) weighs approximately 5 pounds per gallon, at 60°F. A storage tank has about 85% usable capacity (15% vapor space must be maintained to allow for expansion); thus, a 2,000 gallon tank can store about 8,500 pounds of anhydrous ammonia under pressure.) In other words, anyone between the leak and 3.2 miles downwind could be exposed to dangerous concentrations of anhydrous ammonia. Here, the Verde Vale Elementary School is located only 0.38 miles to the southwest of the proposed cogeneration facility⁸⁶ and several places of worship and hundreds of residences are located within a 3-mile radius of the Project site.

The Project would likely store anhydrous ammonia in a 2,000-gallon tank. Since the California threshold quantity for anhydrous ammonia storage is 500 pounds, a California risk

⁸³ U.S. Environmental Protection Agency, Technical Background Document for Offsite Consequence Analysis For Anhydrous Aqueous Ammonia, Chlorine, and Sulfur Dioxide, April 1999; <http://snipurl.com/142reu> [www_google_com], accessed September 17, 2010; Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency, Handbook of Chemical Hazard Analysis Procedures, Report PB93-158756, 1993; Santa Barbara County Air Pollution Control District, Guidelines for Modeling Accidental Releases of Hazardous Materials, November 1990; American Institute of Chemical Engineers, Guidelines for Chemical Transportation Risk Analysis, 1995.

⁸⁴ For example, the South Coast Air Quality Management District (“South Coast AQMD”) evaluated the hazards of transporting both aqueous and anhydrous ammonia to the Redondo Generating Station’s selective catalytic reduction system. The South Coast AQMD concluded that the consequences and probability of accidents involving anhydrous ammonia were significant and required instead the use of aqueous ammonia and off-peak delivery to mitigate impacts. (South Coast Air Quality Management District, Final Subsequent Environmental Impact Report: Anhydrous Ammonia Storage Tanks Installation at Redondo Generating Station, December 1992.) Many EIRs prepared for reformulated fuels projects at major refineries in California also evaluated the risks of transporting anhydrous ammonia. Most of these EIRs concluded that transportation impacts were significant and imposed mitigation, including stricter hiring policies for drivers, improved driver training, delivery restrictions during adverse weather conditions, enhanced vehicle inspection programs, enhanced vehicle maintenance programs, and off-peak hour transportation and delivery.

⁸⁵ U.S. Environmental Protection Agency, Technical Background Document for Offsite Consequence Analysis For Anhydrous Aqueous Ammonia, Chlorine, and Sulfur Dioxide, April 1999, Table 9; <http://snipurl.com/142reu> [www_google_com], accessed September 17, 2010

⁸⁶ Draft EIR, p. 3.2-6.

management plan (“RMP”) must be prepared by a qualified person and approved by the Shasta County prior to operation of the facility. This RMP must be included in a CEQA document to fully disclose all hazards associated with the Project to the nearby residents and community.

As discussed above, the proposed SNCR can also be operated with aqueous ammonia or urea. Neither of these substances carries the risks associated with anhydrous ammonia and should therefore be considered to avoid any potential significant impacts on public health and safety associated with anhydrous ammonia transport, storage, and use. The Applicant’s 20-MW cogeneration facility in Aberdeen, Washington, for example, operates its SNCR with aqueous ammonia.⁸⁷

VII. Conclusion

As discussed in my comments above, the Draft EIR is deficient because it is inconsistent with the permit application that was submitted to the Shasta County Air Quality Management District; improperly defers review; fails to adequately describe the Project and fails to provide adequate documentation; provides a flawed air quality impact analysis and fails to adequately mitigate significant impacts on air quality and global climate change; and fails to analyze potentially significant impacts on public health and safety associated with transport, storage, and use of anhydrous ammonia. I recommend that the County prepare a revised Draft EIR that addresses the above discussed deficiencies. To avoid the risks associated with anhydrous ammonia, the Draft EIR should require that the Project’s SNCR be operated with aqueous ammonia or urea.

Please feel free to call me at (415) 492-2131 or e-mail at petra@ppless.com if you have any questions about the comments in this letter.

Regards,

A handwritten signature in black ink, appearing to read "Petra Pless". The signature is stylized with a large, sweeping initial "P" and a long, horizontal stroke extending to the right.

Petra Pless, D.Env.

⁸⁷ Washington Department of Ecology, Technical Support Document and Statement of Basis for the Sierra Pacific Industries Aberdeen Cogeneration Facility 2007 Air Operating Permit, issued: July 13, 2007, p. 2; <http://snipurl.com/13mh2v> [www_google_com].