STOEL RIVES LLP
ATTORNEYS AT LAW

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500 Capitol Mall, Suite 1600
Sacramento, California 95814
main 916.447.0700
fax 916.447.4781
www.stoel.com

KIMBERLY J. HELLWIG
Direct (916) 319-4742
kjhellwig@stoel.com

March 8, 2011

VIA PERSONAL DELIVER

Mr. Eric Solorio, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Pio Pico Energy Center (11-AFC-01)
Supplemental Air Quality Modeling Data and Risk Assessment Submitted to the San Diego Air Pollution Control District

Dear Mr. Solorio:

On behalf of Pio Pico Energy Center, LLC, please find enclosed herein additional air quality modeling data as such relates to the application for certification (AFC) for the Pio Pico Energy Center. Included with the enclosed risk assessment and addendum to the AFC is one (1) CD-Rom and one (1) hard drive containing modeling files. Should you have any questions regarding this data, please do not hesitate to contact our office.

Respectfully submitted,

Kimberly J. Hellwig
Paralegal

KJH:jmw
Enclosures
cc: Mr. David Jenkins, Pio Pico Energy Center, LLC
Ms. Maggie Fitzgerald, URS Corporation
Mr. John A. McKinsey, Stoel Rives LLP

Update of Regulatory Setting Section to reflect Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV.

5.2 AIR QUALITY

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5.2.1 Laws, Ordinances, Regulations, and Standards

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5.2.3.3 Local LORS

San Diego Air Pollution Control District Rules and Regulations

Authority: CA Health & Safety Code §40001

Requirements: Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.

Administering Agency: SDAPCD, with CARB oversight.

Prohibitions

The SDAPCD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibition rules that apply to the proposed PPEC project are listed below.

- Rule 50 – Visible Emissions: This rule prohibits any source from discharging any emissions of any air contaminant that is darker in shade than that designated as Number 1 on the Ringelmann Chart for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes.

- Rule 51 – Nuisance: This rule prohibits the discharge from a facility of air contaminants that cause injury, detriment, nuisance, or annoyance to the public, or cause damage to business or property.

- Rule 52 – Particulate Matter Emission Standards: This rule does not apply to stationary internal combustion engines. Rule 53 addresses particulate emissions from such sources. ~~This rule prohibits the discharge from any source of particulate matter in excess of 0.10 grain per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas.~~

- Rule 53 – Specific Air Contaminants: This rule sets the following limits for combustion sources:

    - Sulfur compounds, calculated as SO_2: 0.05% by volume on a dry basis

    - Particulates: 0.10 grains/dscf @ 12% CO_2.

- Rule 55 – Fugitive Dust Control: This rule requires control of dust emissions during construction activities. It prohibits visible dust emissions beyond the property line for periods aggregating more than 3 minutes in any 60-minute period, and minimization and daily removal of roadway dust;

- Rule 62 – Sulfur Content of Fuels: This rule prohibits any stationary source to use any gaseous fuel containing more than 10 grains of sulfur compounds per 100 cubic feet of dry gaseous fuel.

- Rule 69.3 – Stationary Gas Turbines Engines – Reasonable Available Control Technology: This rule limits NOx emissions from a gas turbine to 42 ppmv @15% O_2. The limit does not apply during a startup or shutdown period that does not exceed 120 minutes.

- Rule 69.3.1 – Stationary Gas Turbines Engines – Reasonable Available Retrofit Control Technology: This rule limits NOx emissions from a gas turbine larger than 10 MW to 9 x E/25 ppm @15% O_2, where E is the unit's thermal efficiency.

- Rule 1200 – Toxic Air Contaminants: This rule requires preparation of a health risk assessment, and demonstration that the project will not result in unacceptable health risks (cancer risk > 10 in a million, chronic health index > 1, acute health index > 1).

- Regulation XIV – Title V Operating Permits: this regulation implements the Title V federal operating permit program discussed above under Federal LORS.

All applicable LORS are summarized in Table 5.2-12.

Update of Applicable Rules table to reflect Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV.

TABLE 5.2-12
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS
(REVISED 3/8/2011)

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
Federal					
Clean Air Act (CAA) §160-169A and implementing regulations, Title 42 United States Code (USC) §7470-7491 (42 USC 7470-7491), Title 40 Code of Federal Regulations (CFR) Parts 51 & 52 (40 CFR 51 & 52) (Prevention of Significant Deterioration Program)	Requires prevention of significant deterioration (PSD) review and facility permitting for construction of new or modified major stationary sources of air pollution. PSD review applies to pollutants for which ambient concentrations are lower than NAAQS.	EPA	Issues PSD Permit with conditions limiting emissions	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §171-193, 42 USC §7501 et seq. (New Source Review)	Requires new source review (NSR) facility permitting for construction or modification of specified stationary sources. NSR applies to pollutants for which ambient concentration levels are higher than NAAQS.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §401 (Title IV), 42 USC §7651 (Acid Rain Program)	Requires quantification of NO_2 and SO_2 emissions, and requires operator to hold allowances.	SDAPCD with EPA oversight	Issues Acid Rain permit after review of application	Application to be submitted 18 months prior to start of operation.	§5.2.6.1
CAA §501 (Title V), 42 USC §7661 (Federal Operating Permits Program)	Establishes comprehensive permit program for major stationary sources.	SDAPCD with EPA oversight	Issues Title V permit after review of application	Application to be submitted 12 months after start of operation.	§5.2.6.1
CAA §111, 42 USC §7411, 40 CFR Part 60 (New Source Performance Standards [NSPS])	Establishes national standards of performance for new stationary sources.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1
CAA §112, 42 USC §7412, 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants [NESHAPs])	Establishes national emission standards for hazardous air pollutants.	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.1

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
State					
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.2
H&SC §44300-44384; California Code of Regulations (CCR) §93300-93347 (Toxic "Hot Spots" Act)	Requires preparation and biennial updating of facility emission inventory of hazardous substances; risk assessments.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.2
California Public Resources Code §25523(a); 20 CCR §1752, 2300-2309 (CEC & CARB Memorandum of Understanding)	Requires that CEC's decision on AFC include requirements to assure protection of environmental quality; AFC required to address air quality protection.	CEC	After project review, issues conditions of certification that includes the conditions in the FDOC		§5.2.6.2
Global Warming Solutions Act and other GHG reduction measures	Minimize emissions of GHG from all sources in CA; operator must purchase and surrender GHG allowances	CEC and CARB	After project review, CEC issues conditions of certification requiring reporting of GHG emissions		§5.2.6.2
Local					
California Health & Safety Code (H&SC) §40001 (Air pollution--general)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation II, Rule 10 (Permits required) and Rule 20.5 (Power Plants)	Administers air quality regulation program for power plants	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation II, Rule 20.3 (New Source Review)	Establishes criteria for siting new and modified emission sources.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation XII, Rule 1200 (Toxic Air Contaminants New Source Review)	Establishes procedures for review and control of toxic air contaminants from new sources	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation X, Standards of Performance for New Stationary Sources	Incorporates federal NSPS standards.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
SDAPCD Rules 1401, 1410, and 1412 (Federal permits)	Implements Acid Rain and Title V permit programs	SDAPCD with EPA oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 20.3 (d)(4)	Public Notification Requirement	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Regulation III (Permit Fees)	Permit fees	SDAPCD		Payment of fees required at time of application	§5.2.6.3
SDAPCD Rule 50 (Visible Emissions)	Prohibits visible emissions above certain levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 51 (Nuisance)	Prohibit emissions and other discharges (such as smoke and odors) from specific sources of air pollution in excess of specified levels.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
~~SDAPCD Rule 52 (Particulate Matter)~~	~~Limits emissions of particulate matter~~	~~SDAPCD with CARB oversight~~	~~After project review, issues FDOC/ATC with conditions limiting emissions.~~	~~Agency approval to be obtained before start of construction~~	~~§5.2.6.3~~
SDAPCD Rule 53 (Specific Air Contaminants)	Limits emissions of sulfur compounds and particulates from combustion sources.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 55 (Fugitive Dust Control)	Applies to construction activities. Limits visible emissions beyond property line. Requires minimization of roadway dust.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 62 (Fuel Sulfur)	Limits fuel sulfur content	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 69.3 (Stationary Gas Turbine Engines-RACT)	Limits NOx emissions from new gas turbines.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of	§5.2.6.3

LORS	Purpose	Regulating Agency	Permit or Approval	Schedule and Status of Permit	Conformance (Section)
				construction	
SDAPCD Rule 69.3.1 (Stationary Gas Turbine Engines-RARCT)	Limits NOx emissions from gas turbines.	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.2.6.3
SDAPCD Rule 1200 (Toxic Air Contaminants)	Requires preparation of a health risk assessment. Limits offsite impacts of toxic air contaminants	SDAPCD with CARB oversight	After project review, issues FDOC/ATC with conditions limiting emissions.	Agency approval to be obtained before start of construction	§5.16.2
SDAPCD Regulation XIV (Title V Operating Permits)	Requires application for Title V permit and compliance with permit once issued	SDAPCD with EPA oversight	After application review, issues title V with conditions.	Application to be submitted within 12 months after startup	§5.2.2

Revisions to Environmental Consequences section to reflect new revised modeling using new District meteorological data. Please also see modeling files on CD-ROM.

5.2.4 Environmental Consequences

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5.2.4.14 Commissioning Impacts

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TABLE 5.2-26
MODELED MAXIMUM IMPACTS DURING COMMISSIONING
(REVISED 3/8/2011)

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	Background Concentration (µg/m³)	Total Concentration[1] (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	~~185~~187	154	~~339~~341	188	339
	Annual	--	32	--	NA	NA
SO_2	1-hr	3	45	48	196	655
	3-hr	1	34	35	1300	--
	24-hr	0	10	10	--	105
	Annual	--	8	--	NA	--
CO	1-hr	311	4	315	40,000	23,000
	8-hr	73	2	75	10,000	20.000
PM_{10}	24-hr	3	57	60	150	50
	Annual	--	26.7	--	--	NA
$PM_{2.5}$	24-hr	2.6	45.7	49	35	--
	Annual	--	12.5	--	NA	NA

[1] The total concentration shown in this table is the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.

Table 5.2-26 shows that commissioning emissions will not cause new exceedances of any state or federal air quality standards, with the exception of the state and federal 1-hour NO_2 standards. (Because commissioning is a temporary activity lasting a few weeks at most, the annual standards are not applicable. Commissioning emissions will count toward the limit on annual emissions for the first year of normal operations, so the analysis of annual impacts in Section 5.2.4.15 is applicable to commissioning). The table shows that worst-case background concentrations of PM_{10} are already above the state standard, although they are below the federal standard. The project's 24-hour PM_{10} impacts are lower than the federal significance threshold of 5 µg/m^3 (see Table 5.2-11). The table indicates that commissioning activities may contribute to existing exceedances of the federal 24-hour average $PM_{2.5}$ standard; however, this standard is evaluated based on the three-year average of the 98th percentile concentration and commissioning emissions, as a short-term activity, are not likely to contribute significantly to an exceedance in fact.

Table 5.2.26 indicates that the sum of the worst-case commissioning NO_2 impacts and the worst-case ambient background concentration is greater than the state 1-hour NO_2 standard. In order to demonstrate that commissioning activities will not result in a violation of the state standard,

modeled impacts were paired with the corresponding measured ambient concentrations. Table 5.2-26A shows that all impacts are below the state standard.

TABLE 5.2-26A
COMMISSIONING 1-HOUR STATE STANDARD COMPLIANCE

Modeled Impact[1] (µg/m³)	Hour[2]	Background[3] (µg/m³)	Total Impact (µg/m³)	Compliance with State Standard (339 µg/m³)
186.8	8031620	97.7	284.5	Yes
186.3	8031620	97.7	284.0	Yes
185.6	8031620	97.7	283.3	Yes
185.2	8031620	97.7	282.9	Yes
184.2	8031620	97.7	281.9	Yes
184.0	8031620	97.7	281.8	Yes
186.2	6112719	124.1	310.3	Yes
186.0	6112719	124.1	310.1	Yes
184.8	6112719	124.1	308.9	Yes

1. All 1-Hour Commissioning Modeling Impact (with PVMRM) > 184 ug/m3 among the 3 years modeling
2. The hour in which the modeling impacts > 184ug/m3, the format fo the hour is "YMMDDHH"
3. Corresponding NO2 background data: for each clock hour, the highest 1-hour reading during the calendar month.

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TABLE 5.2-27
SUMMARY OF MODELING RESULTS
(REVISED 3/8/2011)

Pollutant	Averaging Period	Modeled Concentration (µg/m³)			PSD Significant Impact Level (µg/m³)
		Normal Operation	Startup	Inversion Breakup Fumigation[1]	
NO_2	1-hr	27	~~100~~111	2.9	7.5[2]
	Annual	0.3	--	--	1.0
SO_2	1-hr	6	--	0.2	7.8[2]
	3-hr	3	--	0.1	25
	24-hr	1	--	0.1	5
	Annual	<0.1	--	--	1.0
CO	1-hr	26	~~202~~222	5.8	2000
	8-hr	6	~~39~~52	3.0	500
PM_{10}	24-hr	2.6	--	0.2	5
	Annual	0.26	--	--	1
$PM_{2.5}$	24-hr	2.6	--	0.2	1.2
	Annual	0.26	--	--	0.3

Notes:
[1] Inversion breakup fumigation is a short-term phenomenon and does not affect annual impacts.
[2] These are interim SILs and have not been formally adopted by EPA.

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TABLE 5.2-28
SUMMARY OF RESULTS (MODELED MAXIMUM IMPACTS PLUS BACKGROUND)
(REVISED 3/8/2011)

Pollutant	Averaging Time	Maximum Predicted Impact (operating mode) (µg/m³)	Background Concentration (µg/m³)	Total Concentration (Maximum Impact plus Background) (µg/m³)	3 year Average of 98th Percentile of Total Concentration (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)
NO_2	1-hr	~~100~~111 (startup)	154	~~254~~265	~~156~~159	188	339
	Annual	0.3 (normal)	32	32	--	100	57
SO_2	1-hr	6 (normal)	45	51	--	196	655
	3-hr	3 (normal)	34	37	--	1300	--
	24-hr	1 (normal)	10	11	--	--	105
	Annual	<0.1 (normal)	8	8	--	80	--
CO	1-hr	~~202~~222 (shutdown)	4	~~206~~226	--	40,000	23,000
	8-hr	~~39~~52 (shutdown)	2	~~41~~54	--	10,000	20.000
PM_{10}	24-hr	3 (normal)	57	60	--	150	50
	Annual	0.3 (normal)	26.7	30	--	--	20
$PM_{2.5}$	24-hr	2.6 (normal)	45.7	--	~~25.8~~25.9	35	--
	Annual	0.26 (normal)	12.5	12.8	--	15.0	12

[1] 40 CFR 51.165 (b)(2).

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TABLE 5.2-29
SUMMARY OF RESULTS OF DEMONSTRATION OF COMPLIANCE WITH FEDERAL 1-HOUR NO_2 AND 24-HOUR $PM_{2.5}$ STANDARDS
(REVISED 3/8/2011)

Standard	Maximum Predicted Impact (µg/m³)	Maximum Background Concentration (µg/m³)	3 year Average of 98th Percentile of Total Concentration (µg/m³)	NAAQS (µg/m³)
Federal 1-hour NO_2	~~100~~111 (startup)	154	~~156~~159	188
Federal 24-hour PM_{10}	2.6 (normal)	45.7	~~25.8~~25.9	35

Update of Regulatory Compliance Section to reflect Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV.

5.2.6 Consistency with Laws, Ordinances, Regulations, and Standards

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5.2.6.3 Consistency with Local Requirements

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Offsets

SDAPCD Rule 20.3(d)(5)~~1~~ requires that projects with emissions of any federal nonattainment criteria pollutant or its precursors, which exceed major source thresholds (~~operational emissions above~~ 50 tons per year (TPY) of NOx or VOC), be offset with actual emission reductions. The District is a federal nonattainment area only for ozone.~~, 100 TPY of PM_{10} or SOx, provide emission offsets by emission reductions from other sources~~. Based on emissions data presented in Section 5.2.4.4, Operational Emissions, annual emissions of NOx from PPEC would exceed the District's offset trigger of 50 TPY. According to Rule 20.3, NOx offsets need to be provided at a ratio of 1.2:1.

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Prohibitions

The SDAPCD prohibitions for specific types of sources and pollutants are addressed in Regulation IV. The prohibition rules that apply to the proposed PPEC project are listed below.

- Rule 52 – Particulate Matter Emission Standards: This rule ~~prohibits the discharge from any source of particulate matter in excess of 0.10 grain per dry standard cubic foot (0.23 grams per dry standard cubic meter) of gas. The proposed PPEC project will have particulate matter emissions less than 0.23 grams per dry standard cubic meter and will thus comply with this rule.~~does not apply to stationary internal combustion engines. Rule 53 addresses particulate emissions from such sources.

- Rule 53 – Specific Air Contaminants: This rule sets the following limits for combustion sources:

    - Sulfur compounds, calculated as SO_2: 0.05% by volume on a dry basis
    - Particulates: 0.10 grains/dscf @ 12% CO_2.

  The SOx concentration in the turbine exhaust will be less than 0.42 ppm (see Table 5.2-32), or 0.000042 %, which complies with the limit in the rule.

  Particulate emissions from each turbine will be less than 5.5 lb/hr. At low loads, the turbine flow rate will be 236,320 dscfm @ 3.92% CO_2 (see Table G-3.1). The particulate

concentration will be 0.0027 grains/dscf[1] @ 3.92% CO_2, or 0.0083 grains/dscf[2] @ 12% CO_2, which complies with the limit in the rule.

- Rule 55 – Fugitive Dust Control: This rule requires control of dust emissions during construction activities. It prohibits visible dust emissions beyond the property line for periods aggregating more than 3 minutes in any 60-minute period, and minimization and daily removal of roadway dust. Project measures to minimize fugitive dust emissions from construction activities are described in Appendix G-2. These measures include sweeping paved roadways twice daily, as well as other dust minimization measures that will assure compliance.

- Rule 69.3 – Stationary Gas Turbines Engines: Reasonable Available Control Technology: This rule limits NOx emissions from a gas turbine to 42 ppmv @15% O_2. The limit does not apply during a startup or shutdown period that does not exceed 120 minutes. The project's proposed NOx limit of 2.5 ppm will comply with the rule.

- Rule 69.3.1 – Stationary Gas Turbines Engines: Reasonable Available Retrofit Control Technology: This rule limits NOx emissions from a gas turbine larger than 10 MW to 9 x E/25 ppm @ 15% O_2, where E is the unit's thermal efficiency. The project's heat rate is 8,694 Btu (HHV) per kw-hr, which is a thermal efficiency of 39.3%. The allowable NOx limit under this rule is therefore 14.1 ppm @ 15% O_2. The project's proposed NOx limit of 2.5 ppm will comply with the rule.

- Rule 1200 – Toxic Air Contaminants: This rule requires preparation of a health risk assessment, and demonstration that the project will not result in unacceptable health risks (cancer risk > 10 in a million, chronic health index > 1, acute health index > 1). The project will comply with these limits. The health risk assessment is discussed in detail in Section 5.16

- Regulation XIV – Title V Operating Permits: This regulation implements the Title V federal operating permit program discussed above under Federal LORS. An application for a Title V permit will be submitted within 12 months of start of facility operation.

[1] (5.5 lb/hr) / (236,320 dscfm) *(7,000 grains / lb) * (1 hr/60 min) = 0.0027 grains/dscf

[2] The stack oxygen content for the low load case is 14.1%. Adjusting for a CO_2 content of 12% is equivalent to adjusting for stoichiometric combustion, or a stack O_2 concentration of 0%. The equation for calculating that adjustment is as follows: 0.0027 gr/dscf * (20.9 – 0)/(20.9 – 14.1) = 0.0083 grains/dscf @12% CO2.

Update of Health Impact Assessment section to reflect new revised modeling using new District meteorological data. Please also see modeling files on CD-ROM.

5.16 PUBLIC HEALTH

5.16.2 Environmental Consequences

5.16.2.3 Public Health Impact Assessment Approach

TABLE 5.16-5
SUMMARY OF POTENTIAL HEALTH RISKS FROM PROJECT OPERATION
(REVISED 3/8/2011)

Receptor	Carcinogenic Risk (per million)[1]	Cancer Burden	Acute Health Hazard Index	Chronic Health Hazard Index
Maximum Incremental Cancer Risk (MICR) at Point of Maximum Impact (PMI)	0.094	0	--	--
Maximum Exposed Individual at an Existing Residential receptor (MEIR) (assumed to be at the PMI)	0.094	--	~~0.034~~ 0.11	0.011
Maximally Exposed Individual at an Existing Worker receptor (MEIW) (assumed to be at the PMI)[2]	0.014	--	~~0.034~~ 0.11	0.011
Significance Level and SDAPCD Rule 1200 Threshold	10	1.0	1.0	1.0

Notes:
[1]Derived (Adjusted) Method used by San Diego Air Pollution Control District to determine compliance with Regulation 12.
[2]The worker is assumed to be exposed at the work location 8 hours per day, instead of 24; 245 days per year, instead of 365; and for 40 years, instead of 70.

March 8, 2011

sierra research

1801 J Street
Sacramento, CA 95811
Tel: (916) 444-6666
Fax: (916) 444-8373

Ann Arbor, MI
Tel: (734) 761-6666
Fax: (734) 761-6755

Steven Moore
Senior Air Pollution Control Engineer
San Diego Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131-1649

Re: Additional Information for Pio Pico Energy Center
Application No. ADCP-2010-APP-001251

Dear Mr. Moore:

On behalf of Apex Power Group, LLC (Apex), Sierra Research is providing additional information regarding the application for the Pio Pico Energy Center (PPEC), to be located in Otay Mesa, California. This project is subject to Certification by the California Energy Commission.

The District met with the applicant on February 17, 2011, and provided a list of issues that the District needed clarified or addressed in order to make the application complete. These issues are:

- Update of regulatory setting, regulatory compliance section, and applicable rules table to reflect Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV.
- Discussion of status of turbine NESHAPS (Subpart YYYY)
- Justification for, or deletion of, reference to NOx excursions in Table G-5.7.
- Provision of HARP on-ramp transaction files.
- Clarification of which PLOT files were used for HRA
- Need to account for the commissioning hours during the first year in the HRA – different emission rates and dispersion characteristics for commissioning vs routine operations.
- Need to confirm that correct worst-case NOx and CO emission rates were used for modeling for startups/shutdowns/commissioning.

In addition to the items needed to complete the application, the District requested information that would expedite its review of the application. The following issues are also addressed in this submittal:

- Provide GT performance runs with various fuel specifications (these were provided for the Chula Vista site; need to confirm they are applicable to the Otay Mesa site as well).
- The El Cajon and Orange Grove projects should be added to the BACT tables.
- Quantification of fugitive VOC and GHG emissions from the gas compressors and on-site piping.

Finally, dispersion modeling has been rerun using the corrected meteorology files provided by the District in early February. Please substitute the new data disks containing modeling files for the ones that were previously submitted.

Update of Regulatory Sections of the Application for Certification (AFC)

Supplemental information is being provided to the CEC and to the District to ensure that the AFC is complete. The regulatory setting section, regulatory compliance section, and applicable rules table have been revised to address Rules 69.3, 69.3.1, 55, 52/53, 1200 and Regulation XIV. Please see the attached Amendment to the AFC.

Applicability of NESHAPS Subpart YYYY (Stationary Combustion Turbines)

We have confirmed that the AFC states correctly that major source NESHAPS, including subpart YYYY, do not apply to the project because the PPEC is not a major source of HAPs.

Deletion of reference to NOx excursions in Table G-5.7.

The reference to NOx excursions has been removed from Table G-5.7. Please see the attached Amendment to the AFC.

HRA modeling.

The District has requested HARP transaction files for use in its review of the health risk assessment. HARP transaction files are generated by HARP when data are entered using the HARP interface. Because HARP onramp was used to import AERMOD modeling results into HARP, there are no HARP transaction files. The equivalent HARP input files are: *.SRC, *.EMS, *.XOQ files which are generated through HARP onramp, and the AERMOD PLOTS files. These files contain the information that would be contained in a transaction file generated by HARP when using the HARP program for data entry. Please see the files on the enclosed CD-ROM.

Modeling files for each of the three operating scenarios are included in the enclosed CD-ROM. Folders have been labeled to clearly indicate the scenarios that the files represent. Chronic and cancer impacts are based on normal operations. Acute impacts are based on the highest one-hour impacts, which occur under startup/shutdown conditions.

At the District's request, the potential contributions of commissioning activities to the project's health impacts have been assessed. The analysis demonstrates that the rate of exposure at the PMI during commissioning is actually lower than the rate of exposure during normal operations. As a result, using normal operations to assess project impacts is more conservative than including the commissioning period in the dispersion modeling.

Criteria Pollutant Emission Rates During Startups, Shutdowns, and Commissioning

We have confirmed that the emission rates presented in the AFC for each of these operating modes are correct.

GT performance runs with various fuel specifications

These were provided for the Chula Vista site; we have confirmed they are applicable to the Otay Mesa site as well.

The El Cajon and Orange Grove projects should be added to the BACT tables.

These projects have been added to the BACT tables. Please see the attached Amendment to the AFC.

Emissions from Fuel Gas Compressors

At the District's request, we have estimated VOC and GHG emissions from the fuel gas compressors and associated piping. The project will include three natural gas compressors, each powered by an electric motor: two will be in operation when turbines are in operation, and the third will act as an installed spare. Each compressor will be rated at 50% of plant capacity.

Fugitive emissions from the compressors were estimated using EPA's Protocol for Equipment Leak Emission Estimates, November 1995. Emission factors were taken from Table 2-4 (Oil and Gas Production Operations) because that category most closely resembles the project's use of natural gas, and because the emission factors are expressed as total organic compound emissions. The VOC fraction of total organic carbon compound emissions (9.46 wt%) was calculated using the gas composition specified by the District, which assumes a very high VOC content due to importation of LNG. The GHG fraction of total organic carbon compound emissions (91.2 wt%) was calculated using the nominal composition of pipeline natural gas. Current VOC level in pipeline natural gas is 1.5 wt%.

Calculations are shown in the table below.

Fugitive VOC Emissions from Natural Gas Compressor (per compressor)						
Fitting	Number (per compressor)	Emission factor (kg/hr/unit)	Organic Compound Emissions (kg/hr)	Organic Compound Emissions (lb/day)	VOC Emissions (lb/day)	CH_4 Emissions (lb/day
Valves	50	4.50E-03	0.225	2.45	0.23	2.23
Connectors	112	2.00E-04	0.0224	0.24	0.02	0.22
Compressor Seals	3	8.80E-03	0.0264	0.29	0.03	0.26
TOTAL				2.98	0.28	2.72

Please do not hesitate to call me if you have any questions.

Sincerely,

Steve Hill

cc: Gary Chandler, PPEC
David Jenkins, PPEC
Maggie Fitzgerald, URS
John McKinsey, Stoel Rives, LLC

Enclosures

APPENDIX G-4

Modeling Analysis

Table G-4.1

Screening Modeling Inputs

Pio Pico Energy Center (Revised 3/8/2011)

Operating Mode	Ambient Temp deg F	Stack height feet	Stack Diam feet	Stack flow wacfm	Stack Vel ft/sec	Stack Temp deg F	Stack Height meters	Stack Diam Meters	Stack flow m3/sec	Stack Vel m/sec	Stack Temp deg K
				~~733,309~~	~~74.01~~	~~825~~			~~346.13~~	~~22.56~~	~~713.8~~
Startup/shutdown	30	100	14.5	645,580	65.16	820	30.48	4.4196	304.72	19.86	711.2
Hot Peak	110	100	14.5	877,825	88.60	802	30.48	4.4196	414.34	27.01	700.9
Avg Peak	63	100	14.5	913,717	92.22	785	30.48	4.4196	431.28	28.11	691.2
Cold Peak	30	100	14.5	909,632	91.81	754	30.48	4.4196	429.36	27.98	674.0
Hot Low	122	100	14.5	733,309	74.01	825	30.48	4.4196	346.13	22.56	713.8
Avg Low	63	100	14.5	646,428	65.24	831	30.48	4.4196	305.12	19.89	717.2
Cold Low	30	100	14.5	645,580	65.16	820	30.48	4.4196	304.72	19.86	711.2

Operating Mode	NOx lb/hr	CO lb/hr	SOx lb/hr	PM10 lb/hr	NOx g/sec	CO g/sec	SOx g/sec	PM10 g/sec
Startup/Shutdown	26.63	53.51			3.36	6.74		
Hot Peak	7.72	7.52	1.79	5.50	0.97	0.95	0.23	0.69
Avg Peak	8.18	7.97	1.90	5.50	1.03	1.00	0.24	0.69
Cold Peak	8.07	7.86	1.87	5.50	1.02	0.99	0.24	0.69
Hot Low	5.92	5.77	1.38	5.50	0.75	0.73	0.17	0.69
Avg Low	4.94	4.82	1.15	5.50	0.62	0.61	0.14	0.69
Cold Low	4.92	4.79	1.14	5.50	0.62	0.60	0.14	0.69

Table G-4.2

Startup Modeling Inputs

Pio Pico Energy Center (Revised 3/8/2011)

Case	Amb Temp deg F	Stack height feet	Stack Diam feet	Stack flow wacfm	Stack Vel ft/sec	Stack Temp deg F	Stack Height meters	Stack Diam meters	Stack flow m3/sec	Stack Vel m/sec	Stack Temp deg K
~~Hot Low~~	~~122~~	~~100~~	~~14.5~~	~~733,309~~	~~74.01~~	~~825.1~~	~~30.48~~	~~4.42~~	~~346.13~~	~~22.56~~	~~713.8~~
Cold Low	30	100	14.5	645,580	65.16	820	30.48	4.42	304.72	19.86	711.2

Table G-4.4
Screening Modeling Results
Pio Pico Energy Center (Revised 3/8/2011)

Operating Mode/Year	Conc. (ug/m3) NO2 1-hr	Conc. (ug/m3) CO 1-hr	Conc. (ug/m3) SO2 1-hr	Conc. (ug/m3) SO2 3-hr	Conc. (ug/m3) CO 8-hr	Conc. (ug/m3) PM10 24-hr	Conc. (ug/m3) SO2 24-hr	Conc. (ug/m3) NO2 Annual	Conc. (ug/m3) PM10 Annual	Conc. (ug/m3) SO2 Annual
2008 Met Data										
Startup/shutdown	~~100.3~~ 110.5	~~201.6~~ 222.1	0.0	0.0	~~38.9~~ 43.1	0.0	0.0	N/A	N/A	N/A
Hot Peak	25.7	25.0	6.0	2.3	4.8	1.3	0.4	0.25	0.18	0.06
Avg Peak	26.5	25.8	6.2	2.4	5.0	1.3	0.5	0.26	0.18	0.06
Cold Peak	**26.6**	**25.9**	**6.2**	2.4	5.0	1.3	0.5	0.26	0.18	0.06
Hot Low	22.3	21.7	5.2	2.0	4.2	1.5	0.4	0.23	0.22	0.05
Avg Low	20.4	19.9	4.7	1.8	3.9	1.7	0.4	0.22	0.25	0.05
Cold Low	20.4	19.9	4.7	1.8	3.9	1.7	0.4	0.22	0.25	0.05
2007 Met Data										
Startup/shutdown	~~89.0~~ 98.1	~~178.7~~ 192.1	0.0	0.0	~~36.3~~ 39.7	0.0	0.0	N/A	N/A	N/A
Hot Peak	22.7	22.1	5.3	2.1	4.7	1.3	0.4	0.26	0.18	0.06
Avg Peak	23.4	22.8	5.4	2.2	4.9	1.3	0.5	0.27	0.18	0.06
Cold Peak	23.5	22.9	5.5	2.2	4.9	1.3	0.5	0.27	0.18	0.06
Hot Low	19.8	19.3	4.6	1.8	3.9	1.5	0.4	0.22	0.20	0.05
Avg Low	18.1	17.6	4.2	1.7	3.6	1.6	0.3	0.20	0.23	0.05
Cold Low	18.1	17.6	4.2	1.7	3.5	1.6	0.3	0.20	0.23	0.05
2006 Met Data										
Startup/shutdown	~~95.6~~ 110.2	~~192.0~~ 221.4	0.0	0.0	~~47.4~~ 52.2	0.0	0.0	N/A	N/A	N/A
Hot Peak	24.8	24.1	5.8	3.1	5.9	1.9	0.6	0.29	0.21	0.07
Avg Peak	25.8	25.1	6.0	3.2	6.1	1.9	0.6	0.30	0.20	0.07
Cold Peak	25.8	25.1	6.0	**3.2**	**6.2**	1.9	**0.6**	**0.30**	0.21	**0.07**
Hot Low	21.2	20.7	4.9	2.7	5.1	2.3	0.6	0.25	0.23	0.06
Avg Low	20.3	19.8	4.7	2.4	4.7	2.6	0.5	0.23	0.26	0.05
Cold Low	20.3	19.8	4.7	2.4	4.7	**2.6**	0.5	0.23	**0.26**	0.05

APPENDIX G-5

Evaluation of Best Available Control Technology (BACT)

TABLE G-5.1
Recent NOx BACT Determinations for Simple-Cycle Combustion Turbines[1]
(Revised 3/8/2011)

Facility	District	NOx Limit[2]	Averaging Prd	Control Method Used	Date Permit Issued	Source
TID Almond 2 Power Plant	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	2/16/10	FDOC
El Cajon Energy, LLC	SCDAPCD	2.5 ppmvd	1 hr	water injection and SCR	12/11/09	ATC
Miramar Energy Facility II	SDCAPCD	2.5 ppmvd	3 hrs	water injection and SCR	11/4/08	ATC
Orange Grove Energy, LLP	SCDAPCD	2.5 ppmvd	1 hr	water injection and SCR	12/4/08 (FDOC)	CEC Siting Div website
Starwood Midway Firebaugh/Panoche	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	9/5/07 (FDOC)	CEC Siting Div website
EIF Panoche	SJVAPCD	2.5 ppmvd	1 hr	water injection and SCR	7/13/07 (FDOC)	CEC Siting Div website
San Francisco Electric Reliability Project	BAAQMD	2.5 ppmvd	1 hr	water injection and SCR	2/8/06 (FDOC)	CEC Siting Div website
EI Colton	SCAQMD	3.5 ppmvd	3 hrs	water injection and SCR	1/10/03	SCAQMD website
MID Ripon	SJVAPCD	2.5 ppmvd	3 hrs	water injection and SCR	2004	ATC

Note:
1. All projects listed here utilize GE LM6000-model units except Starwood Midway, which utilizes P&W FT8-3 SwiftPacs and EIF Panoche, which uses GE LMS 100 CTGs.
2. All concentrations expressed as parts per million by volume dry, corrected to 15% O_2.

TABLE G-5.4
Summary of BACT Determinations (CEC Decisions)
(Revised 3/8/2011)

Facility/District	Decision Date	Equipment/Rating	NOx Limit/ Control Technology	CO Limit/Control Technology	VOC Limit/Control Technology
TID Almond 2 Power Plant Ceres, CA	December 2010	GE LM6000 Sprint PG 3 turbines, 174 MW	2.5 ppm Ultra-low NOx burners, water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Canyon Power Plant Orange Co., CA	March 2010	GE LM6000 Sprint PC 4 turbines, 200 MW total	2.5 ppm Ultra-low NOx burners, water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Orange Grove Energy, LLP	December 2008	GE LM6000 Sprint PC 2 turbines, 96 MW total	2.5 ppm Ultra-low NOx burners, water injection and SCR	n/a	2.0 ppm Oxidation catalyst
Starwood Power-Midway Fresno Co., CA	January 2008	Pratt & Whitney FT8-3 SwiftPac 2 turbines, 120 MW total	2.5 ppm Water injection and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Panoche Energy Project Fresno Co., CA	December 2007	GE LMS100 4 turbines, 400 MW total	2.5 ppm Water injection and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
San Francisco Electric Reliability Project Power Plant San Francisco Co., CA	October 2006	GE LM6000 Sprint PC 3 turbines, 145 MW total	2.5 ppm Water injection and SCR	4.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst
Niland Power Plant Imperial County, CA	October 2006	GM LM6000 Sprint PC 2 turbines, 93 MW total	2.5 ppm Dry low-NOx burners and SCR	6.0 ppm (3 hour) Oxidation catalyst	2.0 ppm Oxidation catalyst

TABLE G-5.7
Proposed BACT Determinations for PPEC Simple-Cycle Gas Turbines
(Revised 3/8/2011)

Pollutant	Proposed BACT Determination
Nitrogen Oxides	Water injection and SCR system, 2.5 ppmc[a], 1-hour average~~, with excursions under specific conditions~~; no CCS
Sulfur Dioxide	Natural gas fuel (sulfur content not to exceed 0.75 grain/100 scf short-term average, 0.25 grains/100 scf long-term average)
Carbon Monoxide	Good combustion practices and oxidation catalyst, 4.0 ppmc, 1-hour average
VOC	Good combustion practices, 2.0 ppmc, 1-hour average
PM_{10}	Natural gas fuel, 5.5 PM_{10} lbs/hr
$PM_{2.5}$	Natural gas fuel, 5.5 $PM_{2.5}$ lbs/hr
Startup/Shutdown	Best operating practices to minimize startup/shutdown times and emissions
GHGs	LMS 100 simple-cycle gas turbine technology, good combustion practices

Note:
a. ppmc: parts per million by volume, corrected to 15% O_2

APPENDIX G-7

Compliance Demonstration Federal NO_2 and $PM_{2.5}$ Standards

Table G-7.1
Emission Rates and Stack Parameters for Refined Modeling (Revised 3/8/2011)

Case/Year	Stack Height meters	Stack Diam meters	Stack flow m^3/sec	Stack Vel m/sec	Stack Temp deg K	Emission rates, lb/hr		Emission rates, g/s	
						NOx	PM_{10}	NOx	PM_{10}
Averaging Period: One hour Startup NOx									
~~Hot Low~~			~~346.13~~	~~22.56~~	~~713.8~~				
Cold Low	30.48	4.42	414.34	27.01	700.9	26.63	n/a	3.36	n/a
Averaging Period: 24-hour PM2.5									
Cold Low	30.48	4.42	414.34	27.01	700.9	n/a	5.50	n/a	0.69

Table G-7.2
Results of Compliance Demonstration (Revised 3/8/2011)

Pollutant	Averaging Time	Maximum Predicted Impact (operating mode) ($\mu g/m^3$)	Maximum Background Concentration ($\mu g/m^3$)	3 year Average of 98th Percentile of Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-hr	~~79~~111 (startup)	154	~~156~~159	188	339
$PM_{2.5}$	24-hr	2.6 (normal)	45.7	~~25.8~~25.9	35	

APPENDIX P-1

Risk Assessment Tables

Table P-1.1A
Pio Pico Energy Center
Hourly Non-Criteria Pollutant Emissions from Turbines during Startup (per turbine) (Added 3/8/2011)

CAS No.	Pollutant	Emission Factor lb/MMSCF	Source	Emission Factor lb/MMBtu	Turbine Max firing rate MMBtu/hr	Turbine Startup Emissions lbs/hr	Hourly Emission Rate g/sec
7664417	Ammonia	7	SDAPCD Permit	6.87E-03	890.2	6.12E+00	7.71E-01
115071	Propylene	3.86E-01	District workbook	3.78E-04	890.2	9.64E-01	1.22E-01
	Hazardous Air Pollutants (HAPs, federal)						
75070	Acetaldehyde	2.04E-02	0.5*AP-42(1)	2.00E-05	890.2	5.10E-02	6.43E-03
107028	Acrolein	3.27E-03	0.5*AP-42(1)	3.21E-06	890.2	8.18E-03	1.03E-03
71432	Benzene	6.10E-03	0.5*AP-42(1)	5.99E-06	890.2	1.53E-02	1.92E-03
106990	1,3-Butadiene	2.20E-04	0.5*AP-42(7)	2.15E-07	890.2	5.49E-04	6.92E-05
100414	Ethylbenzene	1.63E-02	0.5*AP-42(1)	1.60E-05	890.2	4.08E-02	5.14E-03
50000	Formaldehyde	4.59E-01	CATEF	4.50E-04	890.2	1.15E+00	1.45E-01
110543	Hexane, n-	1.30E-01	CATEF	1.27E-04	890.2	3.24E-01	4.08E-02
91203	Naphthalene	6.65E-04	0.5*AP-42(1)	6.53E-07	890.2	1.66E-03	2.10E-04
	PAHs (listed individually below)	3.28E-04	SUM	3.22E-07	890.2	8.20E-04	1.03E-04
83329	*Acenaphthene*	*9.50E-06*	*CATEF*	*9.32E-09*	*890.2*	*2.38E-05*	*2.99E-06*
208968	*Acenapthyene*	*7.35E-06*	*CATEF*	*7.21E-09*	*890.2*	*1.84E-05*	*2.32E-06*
120127	*Anthracene*	*1.69E-05*	*CATEF*	*1.66E-08*	*890.2*	*4.23E-05*	*5.33E-06*
56553	*Benzo(a)anthracene*	*1.13E-05*	*CATEF*	*1.11E-08*	*890.2*	*2.83E-05*	*3.56E-06*
50328	*Benzo(a)pyrene*	*6.95E-06*	*CATEF*	*6.82E-09*	*890.2*	*1.74E-05*	*2.19E-06*
192972	*Benzo(e)pyrene*	*2.72E-07*	*CATEF*	*2.67E-10*	*890.2*	*6.80E-07*	*8.57E-08*
205992	*Benzo(b)fluoranthrene*	*5.65E-06*	*CATEF*	*5.54E-09*	*890.2*	*1.41E-05*	*1.78E-06*
207089	*Benzo(k)fluoranthrene*	*5.50E-06*	*CATEF*	*5.40E-09*	*890.2*	*1.38E-05*	*1.73E-06*
191242	*Benzo(g,h,i)perylene*	*6.85E-06*	*CATEF*	*6.72E-09*	*890.2*	*1.71E-05*	*2.16E-06*
218019	*Chrysene*	*1.26E-05*	*CATEF*	*1.24E-08*	*890.2*	*3.15E-05*	*3.97E-06*
53703	*Dibenz(a,h)anthracene*	*1.18E-05*	*CATEF*	*1.15E-08*	*890.2*	*2.94E-05*	*3.70E-06*
206440	*Fluoranthene*	*2.16E-05*	*CATEF*	*2.12E-08*	*890.2*	*5.40E-05*	*6.81E-06*
86737	*Fluorene*	*2.90E-05*	*CATEF*	*2.85E-08*	*890.2*	*7.25E-05*	*9.14E-06*
193395	*Indeno(1,2,3-cd)pyrene*	*1.18E-05*	*CATEF*	*1.15E-08*	*890.2*	*2.94E-05*	*3.70E-06*
85018	*Phenanthrene*	*1.57E-04*	*CATEF*	*1.54E-07*	*890.2*	*3.93E-04*	*4.95E-05*
129000	*Pyrene*	*1.39E-05*	*CATEF*	*1.36E-08*	*890.2*	*3.48E-05*	*4.38E-06*
75569	Propylene oxide	1.48E-02	0.5*AP-42(1)	1.45E-05	890.2	3.70E-02	4.66E-03
108883	Toluene	6.65E-02	0.5*AP-42(1)	6.53E-05	890.2	1.66E-01	2.10E-02
1210	Xylene	3.27E-02	0.5*AP-42(1)	3.20E-05	890.2	8.17E-02	1.03E-02

Note:

a. Assumes 50% reduction of organic HAP due to operation of CO catalyst.
b. Assumes emissions of organic HAPs during startup and shutdown are proportional to VOC emissions.
c. VOC emissions during shutdown = 6.53 lb/hr, VOC emissions during normal operation = 2.28 lb/hr Ratio = 2.86

Supplemental Risk Assessment

In response to a request from the District, we have prepared additional analyses of the potential project health impacts from the following:

- Acute impacts from startups and shutdowns; and
- Acute and chronic impacts from commissioning activities.

Methodology

Emissions – Toxic Air Contaminant (TAC) emissions during normal operations were estimated using EPA and CARB emission factors (see Appendix P-1 of the AFC). These emission factors are average emissions based on fuel consumption.

Emissions of TACs during startup and shutdown and during commissioning activities can be different than emissions during normal operations. Combustion conditions are different, and the oxidation catalyst that controls emissions of organic compounds (including TACs) may not be operating at all times.

Reliable emission factors are not available for these startups and shutdowns. The analysis summarized below uses volatile organic compound (VOC) emissions as a basis for estimating organic TAC emissions. The conditions that result in higher VOC emissions during startup and shutdown can be expected to lead to similarly high emissions of TAC.

Hourly emission rates for TACs during startup and shutdown were therefore scaled up from normal operating conditions based on the rate of VOC emissions.

Operating Mode	VOC emissions	Ratio (relative to normal operations)
Normal operations	2.28	1.0
Startup	5.81	2.55
Shutdown	6.53	2.86

A different approach was used to determine TAC emissions during commissioning. Turbine operation during commissioning is similar to turbine operation during normal operations, with the principal exception that the SCR and oxidation control systems are not fully operational. Organic TAC emissions during commissioning activities were therefore estimated using the same CATEF and AP-42 emission factors, and assuming no emission reduction from the oxidation catalyst.

One thing that could affect TAC emissions is the use of water or steam injection during commissioning. Both CO and VOC emissions are increased by water injection, with the

level of CO and VOC increases dependent on the amount of water injection. The supplemental analysis used the same pre-control emission factors for commissioning as for normal operations. By assuming that the pre-control emissions from commissioning are the same as TAC emission factors based on water injection, the TAC emissions are conservatively overstated.

Stack Parameters – Based upon the screening runs conducted for the project, maximum project impacts occur when the turbines are fired at low load in cold ambient temperatures (COLD LOW case). All impacts were based on modeling using these stack conditions.

Results

Startup/Shutdown – Hourly VOC emissions (and therefore, hourly TAC emissions) are highest during shutdown conditions. Because the stack parameters are the same for both cases, the maximum predicted impacts will occur during shutdown.

Using the methodology described above, maximum acute impacts during shutdown will be no more than 1.1E-01, which is much lower than the District's significance threshold of 1.0.

Commissioning – There are five different phases of commissioning, all of which involve low firing rates and low stack velocities. It was assumed that all three turbines would be commissioned at the same time.

Using the methodology described above, maximum acute impacts during commissioning will be no more than an acute hazard index of 2.7E-02, which is much lower than the District's significance threshold of 1.0.

In order to compare the long-term impacts of commissioning activities with those of normal operations, the lifetime cancer risk and chronic health index for commissioning activities were calculated as if they continued every year for 70 years. The resulting values should not be added to the operating impacts—they are useful for comparison only.

The lifetime cancer risk at the PMI for a single turbine, assuming 70 years of operation at the annual emission rate associated with commissioning, is 2.4 E-10. The chronic health hazard index at the PMI is 9.51 E-3. The lifetime cancer risk at the PMI from normal operations, assuming 70 years of operation, is 9.4 E-8.

The number of hours of commissioning activity (112 per turbine, or 336 total) is small relative to the 4,337 hours of normal operations per turbine per year. Therefore, the contribution of commissioning activities to project lifetime cancer risk, as well as to project chronic health impacts, is very small.

The acute impacts from commissioning activities are slightly lower than the acute impacts from normal operations because the firing rates are lower, and emission factors

for some TACs did not increase (because they were assumed to be unaffected by the oxidation catalyst during normal operations).

Conclusion

The results of the supplemental health risk assessment are summarized in the table below.

Supplemental Health Risk Assessment Summary			
Operating Mode	Cancer Risk	Chronic Health Hazard Index	Acute Health Hazard Index
Normal operations	0.094	0.011	0.034
Startup/shutdown			0.11
Commissioning (worst case)	0.0007	0.003	0.027

The analysis demonstrates that the rate of exposure at the PMI during commissioning is actually lower than the rate of exposure during normal operations. As a result, using normal operations to assess project impacts is more conservative than replacing part of the time period with commissioning.

PIO PICO Energy Center Project (PPEC) Modeling Files (CD2, Pio Pico Energy Center, NO2 and PM2.5 Compliance Demonstration)
Sierra Research – Wei Liu – March 2, 2011.

The modeling files are assigned in two disks. The first disk (CD1, Pio Pico Energy Center, AQ Modeling Files) includes the modeling files for Turbine screening, commissioning, construction, fumigation, and HRA modeling files.

This disk, (CD2, an external hard drive) include the refined runs, the AERMOD postfile results, i.e. the hour by hour, day by day 1-hr average NO2, 24-hour average PM2.5 modeling runs.

The following readme file describes the files in CD2. Another readme file for CD1 is included in CD1.

MODELING CD2 FOLDER & FILE NAMES

March 2, 2011

1. PPEC 1-Hour NO2 PVMRM – Startup – AERMOD

1A. \Refined\1HRNO2\Startup: The refined 1-hour NO2 Startup runs with Cartesian grid (for the receptors have a distance within 10km from the project) and Polar grid (for the receptors have a distance between 10 km and 50km from the project). The purpose of these runs is to identify the receptors that have a maximum impact higher than the SIL(7.5µg/m3) level.

POSTN06.ADI	2006 AERMOD 1hour NO2 PVMRM Startup input file
POSTN07.ADI	2007 AERMOD 1hour NO2 PVMRM Startup input file
POSTN08.ADI	2008 AERMOD 1hour NO2 PVMRM Startup input file
POSTNO06.out	2006 AERMOD 1hour NO2 PVMRM Startup output file
POSTNO07.out	2007 AERMOD 1hour NO2 PVMRM Startup output file
POSTNO08.out	2008 AERMOD 1hour NO2 PVMRM Startup output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU	AERMOD receptor file, Cartesian grid within 10km from the project
PIOPolar.ROU	AERMOD receptor file, Polar grid between 10km and 50km from the project
aermod.exe	AERMOD Executable file
CVAOZ06.prn	2006 Ozone concentration (ug/m3) file provided by the district
CVAOZ07.prn	2007 Ozone concentration (ug/m3) file provided by the district
CVAOZ08.prn	2008 Ozone concentration (ug/m3) file provided by the district
PCSTNO06.PLT	2006 Startup 1-HR NO2 AERMOD impact plot file

PCSTNO07.PLT	2007 Startup 1-HR NO2 AERMOD impact plot file
PCSTNO08.PLT	2008 Startup 1-HR NO2 AERMOD impact plot file
NO2_SIL_REC.rou	Receptor files, that has a maximum impact larger than the SIL

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
STARTDWN	STDNSTK1-STDNSTK3	1hr NO2 Startup modeling impacts, with PVMRM

1B. \Refined\1HRNO2\Postfile\Ambient: The ambient 1-hour NO2 background data, the original data were provided by the district. The background data used here are as following: for each hour, the monthly maximum are used for the whole month for that hour.

Filled CVA O3 NO2 OTM T 2006 120310.xls	2006 1-hour NO2 background, raw and monthly synthetic data
Filled CVA O3 NO2 OTM T 2007 120310.xls	2007 1-hour NO2 background, raw and monthly synthetic data
Filled CVA O3 NO2 OTM T 2008 120310.xls	2008 1-hour NO2 background, raw and monthly synthetic data

1C. \Refined\1HRNO2\Postfile\Startup: The refined 1-hour NO2 hour by hour, receptor by receptor Startup runs with for the receptor grids identified from 1A.

POSTN06.ADI	2006 AERMOD 1hour NO2 PVMRM Startup input file
POSTN07.ADI	2007 AERMOD 1hour NO2 PVMRM Startup input file
POSTN08.ADI	2008 AERMOD 1hour NO2 PVMRM Startup input file
POSTNO06.out	2006 AERMOD 1hour NO2 PVMRM Startup output file
POSTNO07.out	2007 AERMOD 1hour NO2 PVMRM Startup output file
POSTNO08.out	2008 AERMOD 1hour NO2 PVMRM Startup output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
aermod.exe	AERMOD Executable file
CVAOZ06.prn	2006 Ozone concentration (ug/m3) file provided by the district
CVAOZ07.prn	2007 Ozone concentration (ug/m3) file provided by the district
CVAOZ08.prn	2008 Ozone concentration (ug/m3) file provided by the district
PCSTNO06.PLT	2006 Startup 1-HR NO2 AERMOD impact plot file
PCSTNO07.PLT	2007 Startup 1-HR NO2 AERMOD impact plot file
PCSTNO08.PLT	2008 Startup 1-HR NO2 AERMOD impact plot file
NO2_SIL_REC.rou	Receptor files for receptors that has a maximum impact larger than the SIL
NO2MTH06.txt	2006 1-Hr NO2 background concentration (ug/m3) file assembled in 1B
NO2MTH07.txt	2007 1-Hr NO2 background concentration (ug/m3) file assembled in 1B
NO2MTH08.txt	2008 1-Hr NO2 background concentration (ug/m3) file assembled in 1B

stripNO1.exe[1]	1-Hr NO2 postprocessor file
Strip.bat	1-Hr NO2 batch file
PONO06.dat	2006 1-Hr NO2 postprocessor input file
PONO06ST.OUT	2006 1-Hr NO2 postprocessor output file
H6NO2S.OUT	2006 AERMOD 1-Hr NO2 AERMOD output Postfile
PONO07.dat	2007 1-Hr NO2 postprocessor input file
PONO07ST.OUT	2007 1-Hr NO2 postprocessor output file
H7NO2S.OUT	2007 AERMOD 1-Hr NO2 AERMOD output Postfile
PONO08.dat	2008 1-Hr NO2 postprocessor input file
PONO08ST.OUT	2008 1-Hr NO2 postprocessor output file
H6NO2S.OUT	2008 AERMOD 1-Hr NO2 AERMOD output Postfile

2. PPEC 1-Hour NO2 PVMRM – Normal Operation – AERMOD

2A. \Refined\1HRNO2\Normal: The refined 1-hour NO2 Normal operation runs with Cartesian grid (for the receptors have a distance within 10km from the project) and Polar grid (for the receptors have a distance between 10 km and 50km from the project). The purpose of these runs is to identify the receptors that have a maximum impact higher than the SIL(7.5µg/m3) level.

PONMN06.ADI	2006 AERMOD 1hour NO2 PVMRM Normal Operation input file
PONMN07.ADI	2007 AERMOD 1hour NO2 PVMRM Normal Operation input file
PONMN08.ADI	2008 AERMOD 1hour NO2 PVMRM Normal Operation input file
PONMNO06.out	2006 AERMOD 1hour NO2 PVMRM Normal Operation output file
PONMNO07.out	2007 AERMOD 1hour NO2 PVMRM Normal Operation output file
PONMNO08.out	2008 AERMOD 1hour NO2 PVMRM Normal Operation output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file

[1] A postprocessor was employed to gather highest-eight-highest (H8H) information from POSTFILE modeling output files, combined with ambient 1-hr average NO2 concentrations from Chula Vista. The executable file for these postprocessor are enclosed as well. The postprocessor takes two files as input: An AERMOD 1-hr average NO2 POSTFILE output file (processed with PVMRM), and hourly ambient background NO2 concentrations (in units of ug/m3). Two tables are output from the postprocessor. The first table outputs the daily maxima for all receptors. The second table outputs the Top-8 concentrations for each receptor (tagged by Julian day). The postprocessor output is then imported into an Excel spreadsheet. Maxima for the first table (maximum for each day) yield the highest modeled 1-hr average concentration of NO2 for the year, for comparison to the state standard. Maxima for the second table yield the highest eighth-highest concentration for all the receptors, for comparison to the federal standard.

PIOPICO.ROU	AERMOD receptor file, Cartesian grid within 10km from the project
PIOPolar.ROU	AERMOD receptor file, Polar grid between 10km and 50km from the project
aermod.exe	AERMOD Executable file
CVAOZ06.prn	2006 Ozone concentration (ug/m3) file provided by the district
CVAOZ07.prn	2007 Ozone concentration (ug/m3) file provided by the district
CVAOZ08.prn	2008 Ozone concentration (ug/m3) file provided by the district
PCNMNO06.PLT	2006 Normal operation 1-HR NO2 AERMOD impact plot file
PCNMNO07.PLT	2007 Normal operation 1-HR NO2 AERMOD impact plot file
PCNMNO08.PLT	2008 Normal operation 1-HR NO2 AERMOD impact plot file

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
NMNO	NMNO1-NMNO3	1hr NO2 Normal operation modeling impacts, with PVMRM

2B. \Refined\1HRNO2\Postfile\NormalO: The refined 1-hour NO2 hour by hour, receptor by receptor Normal operation runs with for the receptor grids identified from 1A (The receptor grids identified from startup (1A) runs are much broader than that of 2A, to be conservative, the receptor grids identified in 1A are used here).

PONMN06.ADI	2006 AERMOD 1hour NO2 PVMRM Normal Operation input file
PONMN07.ADI	2007 AERMOD 1hour NO2 PVMRM Normal Operation input file
PONMN08.ADI	2008 AERMOD 1hour NO2 PVMRM Normal Operation input file
PONMNO06.out	2006 AERMOD 1hour NO2 PVMRM Normal Operation output file
PONMNO07.out	2007 AERMOD 1hour NO2 PVMRM Normal Operation output file
PONMNO08.out	2008 AERMOD 1hour NO2 PVMRM Normal Operation output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
aermod.exe	AERMOD Executable file
CVAOZ06.prn	2006 Ozone concentration (ug/m3) file provided by the district
CVAOZ07.prn	2007 Ozone concentration (ug/m3) file provided by the district
CVAOZ08.prn	2008 Ozone concentration (ug/m3) file provided by the district
PCNMNO06.PLT	2006 Normal Operation 1-HR NO2 AERMOD impact plot file
PCNMNO07.PLT	2007 Normal Operation 1-HR NO2 AERMOD impact plot file
PCNMNO08.PLT	2008 Normal Operation 1-HR NO2 AERMOD impact plot file
NO2_SIL_REC.rou	Receptor files for receptors that has a maximum impact larger than the SIL
NO2MTH06.txt	2006 1-Hr NO2 background concentration (ug/m3) file assembled in 1B
NO2MTH07.txt	2007 1-Hr NO2 background concentration (ug/m3) file assembled in 1B
NO2MTH08.txt	2008 1-Hr NO2 background concentration (ug/m3) file assembled in 1B
stripNO1.exe	1-Hr NO2 postprocessor file
Strip.bat	1-Hr NO2 batch file
PONO06.dat	2006 1-Hr NO2 postprocessor input file

PONO06NM.OUT	2006 1-Hr NO2 postprocessor output file
H6NO2N.OUT	2006 AERMOD 1-Hr NO2 AERMOD output Postfile
PONO07.dat	2007 1-Hr NO2 postprocessor input file
PONO07NM.OUT	2007 1-Hr NO2 postprocessor output file
H7NO2N.OUT	2007 AERMOD 1-Hr NO2 AERMOD output Postfile
PONO08.dat	2008 1-Hr NO2 postprocessor input file
PONO08NM.OUT	2008 1-Hr NO2 postprocessor output file
H8NO2N.OUT	2008 AERMOD 1-Hr NO2 AERMOD output Postfile

3. PPEC 24-Hour PM2.5 – Normal Operation – AERMOD

3A. \Refined\PM2.5: The refined 24-hour PM2.5 Normal operation runs with Cartesian grid (for the receptors have a distance within 10km from the project) and Polar grid (for the receptors have a distance between 10 km and 50km from the project). The purpose of these runs is to identify the receptors that have a maximum 24-hr impact higher than the SIL(1.2 µg/m3) level.

POPM06.ADI	2006 AERMOD 24-Hr PM2.5 normal operation input file
POPM06.ADI	2007 AERMOD 24-Hr PM2.5 normal operation input file
POPM06.ADI	2008 AERMOD 24-Hr PM2.5 normal operation input file
POPM06.out	2006 AERMOD 24-Hr PM2.5 normal operation output file
POPM06.out	2007 AERMOD 24-Hr PM2.5 normal operation output file
POPM06.out	2008 AERMOD 24-Hr PM2.5 normal operation output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU	AERMOD receptor file, Cartesian grid within 10km from the project
PIOPolar.ROU	AERMOD receptor file, Polar grid between 10km and 50km from the project
aermod.exe	AERMOD Executable file
PCNMPM06.PLT	2006 24-Hr PM2.5 normal operation AERMOD impact plot file
PCNMPM07.PLT	2007 24-Hr PM2.5 normal operation AERMOD impact plot file
PCNMPM08.PLT	2008 24-Hr PM2.5 normal operation AERMOD impact plot file
STKPM06.PLT	2006 24-Hr PM2.5 normal operation Turbines alone AERMOD impact plot file
STKPM07.PLT	2007 24-Hr PM2.5 normal operation Turbines alone AERMOD impact plot file
STKPM08.PLT	2008 24-Hr PM2.5 normal operation Turbines alone AERMOD impact plot file
CTPM06.PLT	2006 24-Hr PM2.5 normal operation Cooling Towers alone AERMOD impact plot file
CTPM07.PLT	2007 24-Hr PM2.5 normal operation Cooling Towers alone AERMOD impact plot file
CTPM08.PLT	2008 24-Hr PM2.5 normal operation Cooling Towers alone AERMOD impact plot file
PM2.5_SIL_REC.rou	Receptor files, that has a maximum impact larger than the SIL

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
NMSPM	NMSPM1-NMSPM3 CLT1-CLT12	PM2.5 24 Hour Normal operation modeling impacts

3B. \Refined\PM2.5\Postfile: The refined 24-hour PM2.5 day by day, receptor by receptor Normal operation runs with for the receptor grids identified from 3A (The receptor grids identified from startup (1A) runs are much broader than that of 2A, to be conservative, the receptor grids identified in 1A are used here).

POPM06.ADI	2006 AERMOD 24-Hr PM2.5 normal operation Postfile input file
POPM06.ADI	2007 AERMOD 24-Hr PM2.5 normal operation Postfile input file
POPM06.ADI	2008 AERMOD 24-Hr PM2.5 normal operation Postfile input file
POPM06.out	2006 AERMOD 24-Hr PM2.5 normal operation Postfile output file
POPM06.out	2007 AERMOD 24-Hr PM2.5 normal operation Postfile output file
POPM06.out	2008 AERMOD 24-Hr PM2.5 normal operation Postfile output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PCNMPM06.PLT	2006 Normal Operation 24-HR PM2.5 AERMOD impact plot file
PCNMPM07.PLT	2007 Normal Operation 24-HR PM2.5 AERMOD impact plot file
PCNMPM08.PLT	2008 Normal Operation 24-HR PM2.5 AERMOD impact plot file
PM25_SIL_REC.rou	Receptor files for receptors that has a maximum impact larger than the SIL
PM06.txt	2006 24-Hr PM2.5 background concentration (ug/m3) file provided by the district
PM07.txt	2007 24-Hr PM2.5 background concentration (ug/m3) file provided by the district
PM08.txt	2008 24-Hr PM2.5 background concentration (ug/m3) file provided by the district
stripPM6.exe[2]	24-Hr PM2.5 postprocessor file
StripPM.bat	24-Hr PM2.5 Batch file
PIPM06.dat	2006 24-Hr PM2.5 postprocessor input file
PIPM06.OUT	2006 24-Hr PM2.5 postprocessor output file
H6PMN.OUT	2006 AERMOD 24-Hr PM2.5 AERMOD output Postfile
PIPM07.dat	2007 24-Hr PM2.5 postprocessor input file
PIPM07.OUT	2007 24-Hr PM2.5 postprocessor output file
H7PMN.OUT	2007 AERMOD 24-Hr PM2.5 AERMOD output Postfile

[2] A postprocessor was employed to gather highest-eight-highest (H8H) information from POSTFILE modeling output files, combined with ambient 24-hr average PM2.5 concentrations provided by the district. The executable file for these postprocessor are enclosed as well. The postprocessor takes two files as input: An AERMOD 24-hr average PM2.5 POSTFILE output file and 24-hour average ambient background PM2.5 concentrations (in units of ug/m3). Two tables are output from the postprocessor. The first table outputs the daily maxima for all receptors. The second table outputs the Top-8 concentrations for each receptor (tagged by Julian day). Maxima for the second table yield the highest eighth-highest concentration for all the receptors, for comparison to the federal standard.

PIPM08.dat	2008 24-Hr PM2.5 postprocessor input file
PIPM08.OUT	2008 24-Hr PM2.5 postprocessor output file
H8PMN.OUT	2008 AERMOD 24-Hr PM2.5 AERMOD output Postfile
aermod.exe	AERMOD Executable file

PIO PICO Energy Center Project (PPEC) Modeling Files (CD1, Pio Pico Energy Center, AQ Modeling Files)
Sierra Research – Wei Liu – March 2, 2011.

The modeling files are assigned in two disks. The first disk (CD1, Pio Pico Energy Center, AQ Modeling Files) includes the modeling files for Turbine screening, commissioning, construction, fumigation, and HRA modeling files. The second disk (CD2, an external hard drive, Pio Pico Energy Center, NO2 and PM2.5 Compliance Demonstration) include the refined runs, the AERMOD postfile results, i.e. the hour by hour, day by day 1-hr average NO2, 24-hour average PM2.5 modeling runs.

The following readme file describes the files in CD1. Another readme file for CD2 is included in CD2.

MODELING CD1 FOLDER & FILE NAMES

March 2, 2011

1. BPIP Prime files

\BPIP

Pico.bpi	BPIP input file (3 New Turbines, 12 Cooling cells) for AERMOD
Pico.pro	BPIP output (3 New Turbines, 12 Cooling cells) file for AERMOD
Pico.sum	BPIP/PRIME summary tables output file for AERMOD
Bpipprm	BPIP executable file

2. AERMET processed Meteorological Data, meteorology.zip

A. \meteorology\AERMET files: The AERMET data processed and provided by the district

PIOPICOMET_06.PFL	AERMET Processed 2006 Otay Mesa meteorological station, provided by the district
PIOPICOMET_06.SFC	AERMET Processed 2006 Otay Mesa meteorological station, provided by the district
PIOPICOMET_07.PFL	AERMET Processed 2007 Otay Mesa meteorological station, provided by the district
PIOPICOMET_07.SFC	AERMET Processed 2007 Otay Mesa meteorological station, provided by the district
PIOPICOMET_08.PFL	AERMET Processed 2008 Otay Mesa meteorological station, provided by the district
PIOPICOMET_08.SFC	AERMET Processed 2008 Otay Mesa meteorological station, provided by the district

B. \meteorology\AERMETProcess

aermet.exe	Aermet program executable file
3505v2722904-999992006.op	Brown field surface station meteorological data-raw from NCDC, 2006
3505v2722904-999992007.op	Brown field surface station meteorological data-raw from NCDC, 2007
3505v2722904-999992008.op	Brown field surface station meteorological data-raw from NCDC, 2008
FSLMiramar_00-09.txt	Miramar upper air station meteorological data-raw from NOAA, 2008-2009 together
MERGE06.MET	Stage 2 output Merge data file 2006

MERGE07.MET	Stage 2 output Merge data file 2007
MERGE08.MET	Stage 2 output Merge data file 2008
NWS.BAT	Stage 1 Brown Field NWS batch run file
Otay.BAT	Stage 1 Otay Mesa SDAPCD batch run file
PIOPICOMET_06.PFL	Stage 3 output AERMET file 2006
PIOPICOMET_06.SFC	Stage 3 output AERMET file 2006
PIOPICOMET_07.PFL	Stage 3 output AERMET file 2007
PIOPICOMET_07.SFC	Stage 3 output AERMET file 2007
PIOPICOMET_08.PFL	Stage 3 output AERMET file 2008
PIOPICOMET_08.SFC	Stage 3 output AERMET file 2008
OTM2006.prn	Otay Mesa surface station raw data from SDAPCD 2006
OTM2007.prn	Otay Mesa surface station raw data from SDAPCD 2007
OTM2008.prn	Otay Mesa surface station raw data from SDAPCD 2008
OTM 2006.xls	2006 Otay Mesa surface station raw data from SDAPCD
OTM 2007.xls	2007 Otay Mesa surface station raw data from SDAPCD
OTM 2008.xls	2008 Otay Mesa surface station raw data from SDAPCD
Stg1-NWS06-3505.INP	Stage 1 input file Brown field 2006
STG1-NWS06-3505.IQA	Stage 1 extract data
STG1-NWS06-3505.OQA	Stage 1 ouput file
STG1-NWS06-3505.RPT	Stage 1 report file
STG1-NWS06-3505.TXT	Stage 1 text report file
Stg1-NWS07-3505.INP	Stage 1 input file Brown field 2007
STG1-NWS07-3505.IQA	Stage 1 extract data
STG1-NWS07-3505.OQA	Stage 1 ouput file
STG1-NWS07-3505.RPT	Stage 1 report file
STG1-NWS07-3505.TXT	Stage 1 text report file
Stg1-NWS08-3505.INP	Stage 1 input file Brown field 2008
STG1-NWS08-3505.IQA	Stage 1 extract data
STG1-NWS08-3505.OQA	Stage 1 ouput file
STG1-NWS08-3505.RPT	Stage 1 report file
STG1-NWS08-3505.TXT	Stage 1 text report file
Stg1-UA06.INP	Stage 1 input file upper air 2006
STG1-UA06.IQA	Stage 1 extract data
STG1-UA06.OQA	Stage 1 ouput file
STG1-UA06.RPT	Stage 1 report file
STG1-UA06.TXT	Stage 1 text report file
Stg1-UA07.INP	Stage 1 input file upper air 2007
STG1-UA07.IQA	Stage 1 extract data
STG1-UA07.OQA	Stage 1 ouput file
STG1-UA07.RPT	Stage 1 report file
STG1-UA07.TXT	Stage 1 text report file
Stg1-UA08.INP	Stage 1 input file upper air 2008
STG1-UA08.IQA	Stage 1 extract data
STG1-UA08.OQA	Stage 1 ouput file
STG1-UA08.RPT	Stage 1 report file
STG1-UA08.TXT	Stage 1 text report file
Stg1OS06.inp	Stage 1 input file otay mesa 2006
Stg1OS07.inp	Stage 1 input file otay mesa 2007
Stg1OS08.inp	Stage 1 input file otay mesa 2008
STG1OTM06.OQA	Stage 1 ouput file
STG1OTM07.OQA	Stage 1 ouput file
STG1OTM08.OQA	Stage 1 ouput file
STG1OTM2006.RPT	Stage 1 report file
STG1OTM2006.TXT	Stage 1 text report file

STG1OTM2007.RPT	Stage 1 report file
STG1OTM2007.TXT	Stage 1 text report file
STG1OTM2008.RPT	Stage 1 report file
STG1OTM2008.TXT	Stage 1 text report file
Stg2-06.INP	Stage 2 input file 2006 for merge data
STG2-06.RPT	Stage 2 report file
STG2-06.TXT	Stage 2 text report file
Stg2-07.INP	Stage 2 input file 2076 for merge data
STG2-07.RPT	Stage 2 report file
STG2-07.TXT	Stage 2 text report file
Stg2-08.INP	Stage 2 input file 2008 for merge data
STG2-08.RPT	Stage 2 report file
STG2-08.TXT	Stage 2 text report file
STG2.BAT	Stage 2 batch run file
PioPicoMet_06.in3	Stage 3 input file 2006
PIOPICOMET_06.RPT	Stage 3 report file
PioPicoMet_07.in3	Stage 3 input file 2007
PIOPICOMET_07.RPT	Stage 3 report file
PioPicoMet_08.in3	Stage 3 input file 2008
PIOPICOMET_08.RPT	Stage 3 report file
STG3.BAT	Stage 3 batch run file
UA.BAT	Stage 1 batch run file upper air

3. PPEC Operation – Turbine Screening - AERMOD

\ Screening

POSCN06.ADI	2006 AERMOD Turbine Screening Runs input file, Unit Impact for different operating mode
POSCN07.ADI	2007 AERMOD Turbine Screening input file, Unit Impact for different operating mode
POSCN08.ADI	2008 AERMOD Turbine Screening input file, Unit Impact for different operating mode
POSCN06.out	2006 AERMOD Turbine Screening output file, Unit Impact for different operating mode
POSCN07.out	2007 AERMOD Turbine Screening output file, Unit Impact for different operating mode
POSCN08.out	2008 AERMOD Turbine Screening output file, Unit Impact for different operating mode
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU	AERMOD receptor file
aermod.exe	AERMOD Executable file

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description (operating mode)
STARTDWN	STDNSTK1-STDNSTK3	Startup/Shutdown
HOTBASE	HTBSTK1-HTBSTK3	Hot Base
AVGBASE	AVGBSTK1-AVGBSTK3	Avg. Base
CLDBASE	CLDBSTK1-CLDBSTK3	Cold base
HOTLow	STDNSTK1-STDNSTK3	Hot Low
AVGLOW	AVGLSTK1-AVGLSTK3	Average Low

CLDLOW	CLDLSTK1-CLDLSTK3	Cold Low

4. PPEC Operation – Commissioning – AERMOD

A. \Commissioning

POCM06.ADI	2006 AERMOD Commissioning input file
POCM07.ADI	2007 AERMOD Commissioning input file
POCM08.ADI	2008 AERMOD Commissioning input file
POCM06.out	2006 AERMOD Commissioning output file
POCM07.out	2007 AERMOD Commissioning output file
POCM08.out	2008 AERMOD Commissioning output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU	AERMOD receptor file
aermod.exe	AERMOD Executable file

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
CMSNO	CMSNO1-CMSNO3	1hr NO2 Commissioning modeling impacts, without PVMRM
CMSCO	CMSCO1-CMSCO3	1hr, 8 Hour CO Commissioning modeling impacts
CMSO	CMSSO1-CMSSO3	1hr, 3 Hour, 24 Hour SO2 Commissioning modeling impacts
CMPM	CMPM1-CMPM3	24 our PM Commissioning modeling impacts

B. \Commissioning\PVMRM

POCMNO06.ADI	2006 AERMOD 1hour NO2 PVMRM Commissioning input file
POCMNO07.ADI	2007 AERMOD 1hour NO2 PVMRM Commissioning input file
POCMNO08.ADI	2008 AERMOD 1hour NO2 PVMRM Commissioning input file
POCMNO06.out	2006 AERMOD 1hour NO2 PVMRM Commissioning output file
POCMNO07.out	2007 AERMOD 1hour NO2 PVMRM Commissioning output file
POCMNO08.out	2008 AERMOD 1hour NO2 PVMRM Commissioning output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU	AERMOD receptor file
aermod.exe	AERMOD Executable file

CVAOZ06.prn	2006 Ozone concentration (ug/m3) file provided by the district
CVAOZ07.prn	2007 Ozone concentration (ug/m3) file provided by the district
CVAOZ08.prn	2008 Ozone concentration (ug/m3) file provided by the district

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
CMSNO	CMSNO1-CMSNO3	1hr NO2 Commissioning modeling impacts, with PVMRM

5. PPEC Operation – Fumigation – Screen3

\Fumigation

Screen3.exe	SCREEN3 executable file
LEC_fumigation.xls	Fumigation Impacts results summary file
Aveb.in	PPEC Average base load fumigation input file
Avel.in	PPEC Average low load fumigation input file
Cldb.in	PPEC cold base load fumigation input file
Cldl.in	PPEC cold low load fumigation input file
Hotb.in	PPEC hot base fumigation input file
Hotl.in	PPEC hot low load fumigation input file
STDWN.in	PPEC Startup/Shutdown fumigation input file
Aveb.out	PPEC Average base load fumigation output file
Avel.out	PPEC Average low load fumigation output file
Cldb.out	PPEC cold base load fumigation output file
Cldl.out	PPEC cold low load fumigation output file
Hotb.out	PPEC hot base fumigation output file
Hotl.out	PPEC hot low load fumigation output file
STDWN.out	PPEC Startup/Shutdown fumigation output file

6. PPEC Health Risk Assessment 1 – Normal operation

\ NormalOP-HRA: HRA results for Normal Operation

POHRA06.ADI	2006 AERMOD HRA Normal Operation unit impact input file
POHRA07.ADI	2007 AERMOD HRA Normal Operation unit impact input file
POHRA08.ADI	2008 AERMOD HRA Normal Operation unit impact input file
POHRA06.out	2006 AERMOD HRA Normal Operation unit impact output file
POHRA07.out	2007 AERMOD HRA Normal Operation unit impact output file
POHRA08.out	2008 AERMOD HRA Normal Operation unit impact output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU[1]	AERMOD HRA receptor file
aermod.exe	AERMOD Executable file
PCOHRA06.PLT	2006 HRA AERMOD unit impact plot file, also used as HARP onramp input file
PCOHRA07.PLT	2007 HRA AERMOD unit impact plot file, also used as HARP onramp input file

PCOHRA08.PLT	2008 HRAAERMOD unit impact plot file, also used as HARP onramp input file
PIOPHRA.csv	HRA emission file used as HARP-onramp input
PIOPHRA06.EMS	2006 HARP onramp output emission file, used as emission input to HARP
PIOPHRA06.SRC[2]	2006 HARP onramp Source Receptor file, used as source receptor input to HARP
PIOPHRA06.XOQ	2006 HARP onramp X over Q file, used as X over Q input to HARP
PIOPHRA06_SUMMARY_FILE.TXT	2006 HARP On-ramp summary file
PIOPHRA07.EMS	2007 HARP onramp output emission file, used as emission input to HARP
PIOPHRA07.SRC[2]	2007 HARP onramp Source Receptor file, used as source receptor input to HARP
PIOPHRA07.XOQ	2007 HARP onramp X over Q file, used as X over Q input to HARP
PIOPHRA07_SUMMARY_FILE.TXT	2007 HARP On-ramp summary file
PIOPHRA08.EMS	2008 HARP onramp output emission file, used as emission input to HARP
PIOPHRA08.SRC[2]	2008 HARP onramp Source Receptor file, used as source receptor input to HARP
PIOPHRA08.XOQ	2008 HARP onramp X over Q file, used as X over Q input to HARP
PIOPHRA08_SUMMARY_FILE.TXT	2008 HARP On-ramp summary file
project.sit	HARP sit file to define the multi pathway
PIOPHRA06.RSK	2006 HARP Risk output file
PIOPHRA07.RSK	2007 HARP Risk output file
PIOPHRA08.RSK	2008 HARP Risk output file
06Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2006 Acute HHI HARP output file
06Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt	2006 Derived Adjusted Residential cancer risk HARP output file
06Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt	2006 Worker cancer risk HARP output file
06Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt	2006 Chronic HHI HARP output file
07Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2007 Acute HHI HARP output file
07Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt	2007 Derived Adjusted Residential cancer risk HARP output file
07Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt	2007 Worker cancer risk HARP output file
07Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt	2007 Chronic HHI HARP output file
08Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2008 Acute HHI HARP output file
08Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt	2008 Derived Adjusted Residential cancer risk HARP output file
08Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt	2008 Worker cancer risk HARP output file
08Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt	2008 Chronic HHI HARP output file

1. The first two receptors are used to define the water source receptor used for "water source" and "fish" pathway; the last ten receptors are used to represent the residential and worker receptors surrounding the project
2. The first two receptors from the HARP onramp *.SRC output file are edited to reflect the "water source" and "fish" pathway receptors

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
HRASTK1	HRASTK1	HRA AERMOD Unit Impact, Normal Operation Turbine 1
HRASTK2	HRASTK2	HRA AERMOD Unit Impact, Normal Operation Turbine 2
HRASTK3	HRASTK3	HRA AERMOD Unit Impact, Normal Operation Turbine 3
HRACLT1	HRACLT1	HRA AERMOD Unit Impact Cooling Cell 1
HRACLT2	HRACLT2	HRA AERMOD Unit Impact Cooling Cell 2
HRACLT3	HRACLT3	HRA AERMOD Unit Impact Cooling Cell 3
HRACLT4	HRACLT4	HRA AERMOD Unit Impact Cooling Cell 4
HRACLT5	HRACLT5	HRA AERMOD Unit Impact Cooling Cell 5
HRACLT6	HRACLT6	HRA AERMOD Unit Impact Cooling Cell 6
HRACLT7	HRACLT7	HRA AERMOD Unit Impact Cooling Cell 7
HRACLT8	HRACLT8	HRA AERMOD Unit Impact Cooling Cell 8

HRACLT9	HRACLT9	HRA AERMOD Unit Impact Cooling Cell 9
HRACLT10	HRACLT10	HRA AERMOD Unit Impact Cooling Cell 10
HRACLT11	HRACLT11	HRA AERMOD Unit Impact Cooling Cell 11
HRACLT12	HRACLT12	HRA AERMOD Unit Impact Cooling Cell 12

7. PPEC Health Risk Assessment 2 – Commissioning

Commissioning-HRA.zip: HRA results for Commissioning

PCMHRA06.ADI	2006 AERMOD HRA Commissioning unit impact input file
PCMHRA07.ADI	2007 AERMOD HRA Commissioning unit impact input file
PCMHRA08.ADI	2008 AERMOD HRA Commissioning unit impact input file
PCMHRA06.out	2006 AERMOD HRA Commissioning unit impact output file
PCMHRA07.out	2007 AERMOD HRA Commissioning unit impact output file
PCMHRA08.out	2008 AERMOD HRA Commissioning unit impact output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU[1]	AERMOD HRA receptor file
aermod.exe	AERMOD Executable file
PCMHRA06.PLT	2006 HRA AERMOD unit impact plot file, also used as HARP onramp input file
PCMHRA07.PLT	2007 HRA AERMOD unit impact plot file, also used as HARP onramp input file
PCMHRA08.PLT	2008 HRAAERMOD unit impact plot file, also used as HARP onramp input file
PCMHRA.csv	HRA emission file used as HARP-onramp input
PCMHRA06.EMS	2006 HARP onramp output emission file, used as emission input to HARP
PCMHRA06.SRC[2]	2006 HARP onramp Source Receptor file, used as source receptor input to HARP
PCMHRA06.XOQ	2006 HARP onramp X over Q file, used as X over Q input to HARP
PCMHRA06_SUMMARY_FILE.TXT	2006 HARP On-ramp summary file
PCMHRA07.EMS	2007 HARP onramp output emission file, used as emission input to HARP
PCMHRA07.SRC[2]	2007 HARP onramp Source Receptor file, used as source receptor input to HARP
PCMHRA07.XOQ	2007 HARP onramp X over Q file, used as X over Q input to HARP
PCMHRA07_SUMMARY_FILE.TXT	2007 HARP On-ramp summary file
PCMHRA08.EMS	2008 HARP onramp output emission file, used as emission input to HARP
PCMHRA08.SRC[2]	2008 HARP onramp Source Receptor file, used as source receptor input to HARP
PCMHRA08.XOQ	2008 HARP onramp X over Q file, used as X over Q input to HARP
PCMHRA08_SUMMARY_FILE.TXT	2008 HARP On-ramp summary file
project.sit	HARP sit file to define the multi pathway
PCMHRA06.RSK	2006 HARP Risk output file
PCMHRA07.RSK	2007 HARP Risk output file
PCMHRA08.RSK	2008 HARP Risk output file
06Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2006 Acute HHI HARP output file
06Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt	2006 Derived Adjusted Residential cancer risk HARP output file
06Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt	2006 Worker cancer risk HARP output file
06Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt	2006 Chronic HHI HARP output file
07Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2007 Acute HHI HARP output file
07Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt	2007 Derived Adjusted Residential cancer risk HARP output file
07Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt	2007 Worker cancer risk HARP output file

07Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt	2007 Chronic HHI HARP output file
08Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2008 Acute HHI HARP output file
08Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt	2008 Derived Adjusted Residential cancer risk HARP output file
08Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt	2008 Worker cancer risk HARP output file
08Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt	2008 Chronic HHI HARP output file

1. The first two receptors are used to define the water source receptor used for "water source" and "fish" pathway; the last ten receptors are used to represent the residential and worker receptors surrounding the project
2. The first two receptors from the HARP onramp *.SRC output file are edited to reflect the "water source" and "fish" pathway receptors

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
HRASTK1	HRASTK1	HRA AERMOD Unit Impact, Commissioning Turbine 1
HRASTK2	HRASTK2	HRA AERMOD Unit Impact, Commissioning Turbine 2
HRASTK3	HRASTK3	HRA AERMOD Unit Impact, Commissioning Turbine 3
HRACLT1	HRACLT1	HRA AERMOD Unit Impact Cooling Cell 1
HRACLT2	HRACLT2	HRA AERMOD Unit Impact Cooling Cell 2
HRACLT3	HRACLT3	HRA AERMOD Unit Impact Cooling Cell 3
HRACLT4	HRACLT4	HRA AERMOD Unit Impact Cooling Cell 4
HRACLT5	HRACLT5	HRA AERMOD Unit Impact Cooling Cell 5
HRACLT6	HRACLT6	HRA AERMOD Unit Impact Cooling Cell 6
HRACLT7	HRACLT7	HRA AERMOD Unit Impact Cooling Cell 7
HRACLT8	HRACLT8	HRA AERMOD Unit Impact Cooling Cell 8
HRACLT9	HRACLT9	HRA AERMOD Unit Impact Cooling Cell 9
HRACLT10	HRACLT10	HRA AERMOD Unit Impact Cooling Cell 10
HRACLT11	HRACLT11	HRA AERMOD Unit Impact Cooling Cell 11
HRACLT12	HRACLT12	HRA AERMOD Unit Impact Cooling Cell 12

8. PPEC Health Risk Assessment 3 – Startup

StartUpHRA.zip: HRA results for Startup

PSTHRA06.ADI	2006 AERMOD HRA Startup unit impact input file
PSTHRA07.ADI	2007 AERMOD HRA Startup unit impact input file
PSTHRA08.ADI	2008 AERMOD HRA Startup unit impact input file
PSTHRA06.out	2006 AERMOD HRA Startup unit impact output file
PSTHRA07.out	2007 AERMOD HRA Startup unit impact output file
PSTHRA08.out	2008 AERMOD HRA Startup unit impact output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOPICO.ROU[1]	AERMOD HRA receptor file
aermod.exe	AERMOD Executable file
PPSTHRA06.PLT	2006 HRA AERMOD unit impact plot file, also used as HARP onramp input file

PPSTHRA07.PLT	2007 HRA AERMOD unit impact plot file, also used as HARP onramp input file
PPSTHRA08.PLT	2008 HRAAERMOD unit impact plot file, also used as HARP onramp input file
PPSTHRA.csv	Startup HRA emission file used as HARP-onramp input
PPSTHRA06.EMS	2006 HARP onramp output emission file, used as emission input to HARP
PPSTHRA06.SRC[2]	2006 HARP onramp Source Receptor file, used as source receptor input to HARP
PPSTHRA06.XOQ	2006 HARP onramp X over Q file, used as X over Q input to HARP
PPSTHRA06_SUMMARY_FILE.TXT	2006 HARP On-ramp summary file
PPSTHRA07.EMS	2007 HARP onramp output emission file, used as emission input to HARP
PPSTHRA07.SRC[2]	2007 HARP onramp Source Receptor file, used as source receptor input to HARP
PPSTHRA07.XOQ	2007 HARP onramp X over Q file, used as X over Q input to HARP
PPSTHRA07_SUMMARY_FILE.TXT	2007 HARP On-ramp summary file
PPSTHRA08.EMS	2008 HARP onramp output emission file, used as emission input to HARP
PPSTHRA08.SRC[2]	2008 HARP onramp Source Receptor file, used as source receptor input to HARP
PPSTHRA08.XOQ	2008 HARP onramp X over Q file, used as X over Q input to HARP
PPSTHRA08_SUMMARY_FILE.TXT	2008 HARP On-ramp summary file
project.sit	HARP sit file to define the multi pathway
PPSTHRA06.RSK	2006 HARP Risk output file
PPSTHRA07.RSK	2007 HARP Risk output file
PPSTHRA08.RSK	2008 HARP Risk output file
06Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2006 Startup Acute HHI HARP output file
07Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2007 Startup Acute HHI HARP output file
08Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt	2008 Startup Acute HHI HARP output file

1. The first two receptors are used to define the water source receptor used for "water source" and "fish" pathway; the last ten receptors are used to represent the residential and worker receptors surrounding the project
2. The first two receptors from the HARP onramp *.SRC output file are edited to reflect the "water source" and "fish" pathway receptors

The AERMOD source group descriptions are detailed in the following table.

Source Group	Sources	Description
ACTSTK1	ACTSTK1	HRA AERMOD Unit Impact, Startup Turbine 1
ACTSTK2	ACTSTK2	HRA AERMOD Unit Impact, Startup Turbine 2
ACTSTK3	ACTSTK3	HRA AERMOD Unit Impact, Startup Turbine 3
HRACLT1	HRACLT1	HRA AERMOD Unit Impact Cooling Cell 1
HRACLT2	HRACLT2	HRA AERMOD Unit Impact Cooling Cell 2
HRACLT3	HRACLT3	HRA AERMOD Unit Impact Cooling Cell 3
HRACLT4	HRACLT4	HRA AERMOD Unit Impact Cooling Cell 4
HRACLT5	HRACLT5	HRA AERMOD Unit Impact Cooling Cell 5
HRACLT6	HRACLT6	HRA AERMOD Unit Impact Cooling Cell 6
HRACLT7	HRACLT7	HRA AERMOD Unit Impact Cooling Cell 7
HRACLT8	HRACLT8	HRA AERMOD Unit Impact Cooling Cell 8
HRACLT9	HRACLT9	HRA AERMOD Unit Impact Cooling Cell 9
HRACLT10	HRACLT10	HRA AERMOD Unit Impact Cooling Cell 10
HRACLT11	HRACLT11	HRA AERMOD Unit Impact Cooling Cell 11
HRACLT12	HRACLT12	HRA AERMOD Unit Impact Cooling Cell 12

9. PPEC Construction – AERMOD

A. \ Construction: Short Term (equal or less than 24 hour-average) Impacts

PIOCN06.ADI	2006 AERMOD Construction short term impact input file
PIOCN07.ADI	2007 AERMOD Construction short term impact input file
PIOCN08.ADI	2008 AERMOD Construction short term impact input file
PIOCN06.out	2006 AERMOD Construction short term impact output file
PIOCN07.out	2007 AERMOD Construction short term impact output file
PIOCN08.out	2008 AERMOD Construction short term impact output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOCONS.ROU	AERMOD Construction Modeling receptor file
aermod.exe	AERMOD Executable file

B. \Construction\ Annual: Annul Average Impacts

PIOCN06.ADI	2006 AERMOD Construction annual impact input file
PIOCN07.ADI	2007 AERMOD Construction annual impact input file
PIOCN08.ADI	2008 AERMOD Construction annual impact input file
PIOCN06.out	2006 AERMOD Construction annual impact output file
PIOCN07.out	2007 AERMOD Construction annual impact output file
PIOCN08.out	2008 AERMOD Construction annual impact output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOCONS.ROU	AERMOD Construction Modeling receptor file
aermod.exe	AERMOD Executable file

C. \Construction\PVMRM: 1-Hour NO2 PVMRM modeling

PIOCN06.ADI	2006 AERMOD Construction 1-HR NO2 PVMRM input file
PIOCN07.ADI	2007 AERMOD Construction 1-HR NO2 PVMRM input file
PIOCN08.ADI	2008 AERMOD Construction 1-HR NO2 PVMRM t input file
PIOCN06.out	2006 AERMOD Construction 1-HR NO2 PVMRM output file
PIOCN07.out	2007 AERMOD Construction 1-HR NO2 PVMRM output file
PIOCN08.out	2008 AERMOD Construction 1-HR NO2 PVMRM output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOCONS.ROU	AERMOD Construction Modeling receptor file
aermod.exe	AERMOD Executable file
CVAOZ06.prn	2006 Ozone concentration (ug/m3) file provided by the district

CVAOZ07.prn	2007 Ozone concentration (ug/m3) file provided by the district
CVAOZ08.prn	2008 Ozone concentration (ug/m3) file provided by the district

D. Construction\Annual\Residence\: Construction residential and worker receptors Combustion PM2.5 impacts modeling files - AERMOD

PIOCN06.ADI	2006 AERMOD Construction Combustion PM2.5 impact input file
PIOCN07.ADI	2007 AERMOD Construction Combustion PM2.5 impact input file
PIOCN08.ADI	2008 AERMOD Construction Combustion PM2.5 impact input file
PIOCN06.out	2006 AERMOD Construction Combustion PM2.5 impact output file
PIOCN07.out	2007 AERMOD Construction Combustion PM2.5 impact output file
PIOCN08.out	2008 AERMOD Construction Combustion PM2.5 impact output file
PIOPICOMET_06.SFC	2006 AERMET surface data file
PIOPICOMET_07.SFC	2007 AERMET surface data file
PIOPICOMET_08.SFC	2008 AERMET surface data file
PIOPICOMET_06.PFL	2006 AERMET Profile data file
PIOPICOMET_07.PFL	2007 AERMET Profile data file
PIOPICOMET_08.PFL	2008 AERMET Profile data file
PIOCONSRES.rou	AERMOD Construction Modeling Residential receptor file
aermod.exe	AERMOD Executable file
PCOCPM06.PLT	2006 Construction combustion PM2.5 AERMOD plot file
PCOCPM06.PLT	2007 Construction combustion PM2.5 AERMOD plot file
PCOCPM06.PLT	2008 Construction combustion PM2.5 AERMOD plot file