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DOCKET 07-AFC-3
DATE JUL 3 1 2007
RECD. JUL 3 1 2007

July 31, 2007

CALIFORNIA ENERGY COMMISSION
DOCKET UNIT, MS-4
Attn: Docket No. 07-AFC-3
1516 Ninth Street
Sacramento, California 95814-5512

RE: CPV Sentinel Energy Project
07-AFC-3
Permit to Construct/Permit to Operate
Application

Dear Sir / Madam:

Please find enclosed for filing five copies of Applicant's Permit to Construct/Permit to Operate Application dated July 2007. Also included with this submittal is one CD containing SCAQMD Air Quality and HRA Model Input and Output.

Very truly yours,
URS Corporation

Kathy Rushmore

Kathy Rushmore
Deputy Project Manager

Enclosure

CC: M. Turner, CPV Sentinel
M. Carroll, L&M

URS Corporation
221 Main Street, Suite 600
San Francisco, CA 94105
Tel: 415.896.5858
Fax: 415.882.9261
www.urscorp.com

PERMIT TO CONSTRUCT/PERMIT TO OPERATE APPLICATION FOR THE CPV SENTINEL ENERGY PROJECT

Prepared for

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Prepared by
Competitive Power Ventures
55 Second Street, Suite 525
San Francisco, CA 94105

July 2007

URS

1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108-4314
619.294.9400 Fax: 619.293.7920

CPV Sentinel, LLC

MARK TURNER
PROJECT MANAGER
Tel: (415) 293-1463
Fax. (415) 957-9886

July 25, 2007

Mark Liu
Air Quality And Compliance Supervisor
South Coast Air Quality Management District
21865 Copley Dr,
Diamond Bar, CA 91765

Subject: *Permit to Construct/Permit to Operate* Application for the CPV Sentinel Energy Project

Dear Mr. Liu:

Accompanying this letter, please find an application for a *Permit to Construct/Permit to Operate* the Competitive Power Ventures, Inc. (CPV) Sentinel Energy Project (CSEP), a new simple cycle peaking power plant with nominal rating of 850 megawatt (MW). The CSEP will be within unincorporated Riverside County, California, approximately 8 miles northwest of the center of Palm Springs and 4.5 miles west of the center of Desert Hot Springs. The CSEP will consist of eight combustion turbine generators (CTG), two cooling towers, and ancillary equipment.

The *Application for Certification* (AFC) for this project was submitted to the California Energy Commission on June 25, 2007. Attachments provided in Appendix A of our application include:

- Twenty-three (23) Forms 400-A, Application for Permit to Construct (two each for the gas turbines and SCRs, one each for the cooling towers, one each for the ammonia storage tanks, one for the black start generator, one for the fire water pump engine and one Title V application)
- One (1) Form 400-CEQA, California Environmental Quality Act (CEQA) Applicability
- Eight (8) Form 400-E-12, Gas Turbines
- Eight (8) Form 400-E-5 SCR System
- Two (2) Form 400-E-13a, Internal Combustion Engines
- Ten (10) Form 400-PS, Plot plan and stack information
- Two (2) Form 400-E-18, Storage Tanks
- One (1) Form 500-A2, Title V Certification
- One (1) Form 500-B, Title V Exempt Equipment

- One (1) Form 500-C1, Title V Compliance Status Certification
- One (1) Form 500-F1, Title IV Summary
- One (1) Form 500-H, Title V CAM Plan

One check payable to the South Coast Air Quality Management District (SCAQMD) in the amount of $95,813.30 is being provided with the application to cover permit review costs for the gas turbines, SCRs, emergency engines, ammonia tanks and Title V Permit revision. Any excess funds should be applied toward hourly charges by AQMD staff reviewing the document.

A DVD containing electronic copies of all air quality and public health input and output modeling files generated for the PTC impact analyses is being provided to you with this application.

According to CEC regulations, the CEC shall respond as to the completeness of the Project's AFC within 30 days of the AFC submittal date. Part of the CEC's determination of data adequacy relies on SCAQMD's determination that the application for this PTC is complete. As such, CPV respectfully requests that the SCAQMD devote resources to our application to make such a determination in a timely manner.

Thank you in advance for your review of our application. Please do not hesitate to contact me with questions or concerns regarding any aspect of this application, so that we can promptly make available the information you need to complete your evaluation. We look forward to working closely with you and your staff in this regard.

Sincerely,

Mark Turner
Project Manager
CPV Sentinel, LLC

cc: John Lague, URS Corporation

Attachments

PERMIT TO CONSTRUCT/PERMIT TO OPERATE APPLICATION FOR THE CPV SENTINEL ENERGY PROJECT

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$\mu g/m^3$	Micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AFC	Application for certification
AQRV	Air quality related values
ARB	Air Resources Board
BACT	Best available control technology
BPIP	Building profile input program
BPIP-Prime	Building Parameter Input Program – Prime
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CATEF	California Air Toxic Emissions Factors
CEC	California Energy Commission
CEMS	Continuous Emissions Monitoring System
CO	Carbon monoxide
CPV	Competitive Power Ventures
CTG	Combustion turbine generator
DOC	Determination of compliance
ERC	Emission reduction credit
FLAG	Federal Land Managers' Air Quality Related Values Workgroup
g/s	gram per second
HARP	Hotspots analysis and reporting program
HHV	Higher heating value
HRA	Health risk assessment
ISCST3	Industrial Source Complex Short Term 3rd version
km	kilometers
LORS	Laws, ordinances, regulations, and standards
MMBTU/hr	Million British Thermal Unit per hour
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NNSR	Non-attainment New Source Review
NH_3	Ammonia
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NPS	National Park Service
NSR	New source review
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OLM	Ozone limiting method
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PM_{10}	Particulate matter less than 10 μm in diameter
$PM_{2.5}$	Particulate matter less than 2.5 μm in diameter
ppb	parts per billion

ppm	parts per million
PSD	Prevention of significant deterioration
ROC	Reactive organic compound
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCR	Selective catalytic reduction
CSEP	CPV Sentinel Energy Project
SO_2	Sulfur dioxide
SO_x	Oxides of Sulfur
TAC	Toxic air contaminants
T-BACT	Best available control technology for toxics
THI	Total Hazard Index
tpy	tons per year
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds

SECTION 1 INTRODUCTION

Competitive Power Ventures (CPV) is proposing to install a new nominally rated 850 megawatt (MW) electrical generating facility in unincorporated Riverside County, California. The site encompasses 37 acres of land approximately 8 miles northwest of the center of the City of Palm Springs and 2.5 miles west of the City of Desert Hot Springs (see Figures 1-1 and 1-2). The proposed project consists of eight natural gas-fired General Electric (GE) LMS100 combustion turbine generators (CTGs) operating in simple cycle mode. Throughout this document, the proposed project is referred to as the CPV Sentinel Energy Project (CSEP). The project will constitute new sources of air pollutant emissions that will trigger the New Source Review requirements of Regulation XIII of the South Coast Air Quality Management District (SCAQMD), which has regulatory authority over the area including the proposed project site.

The pollutant emission sources associated with the project will meet all applicable Best Available Control Technology (BACT) requirements of the SCAQMD, as shown in Section 6 of this application. As a result of these strict emission limitations, the project will not cause exceedances of any applicable SCAQMD Significant Ambient Impact level and will not cause or significantly contribute to an exceedance of any California and National Ambient Air Quality Standards (CAAQS and NAAQS) (see Section 4).

In addition to the SCAQMD permitting process, the proposed project is also undergoing environmental review pursuant to the California Environmental Quality Act (CEQA), with the California Energy Commission (CEC) as the lead agency. Nearly all of the information presented in this application has been provided to the CEC as part of the Application for Certification (AFC) submitted on June 25, 2007. The applicant understands that certification of the resulting CEQA document is a condition for issuing the Permit to Construct for this project.

1.1 GENERAL FACILITY INFORMATION

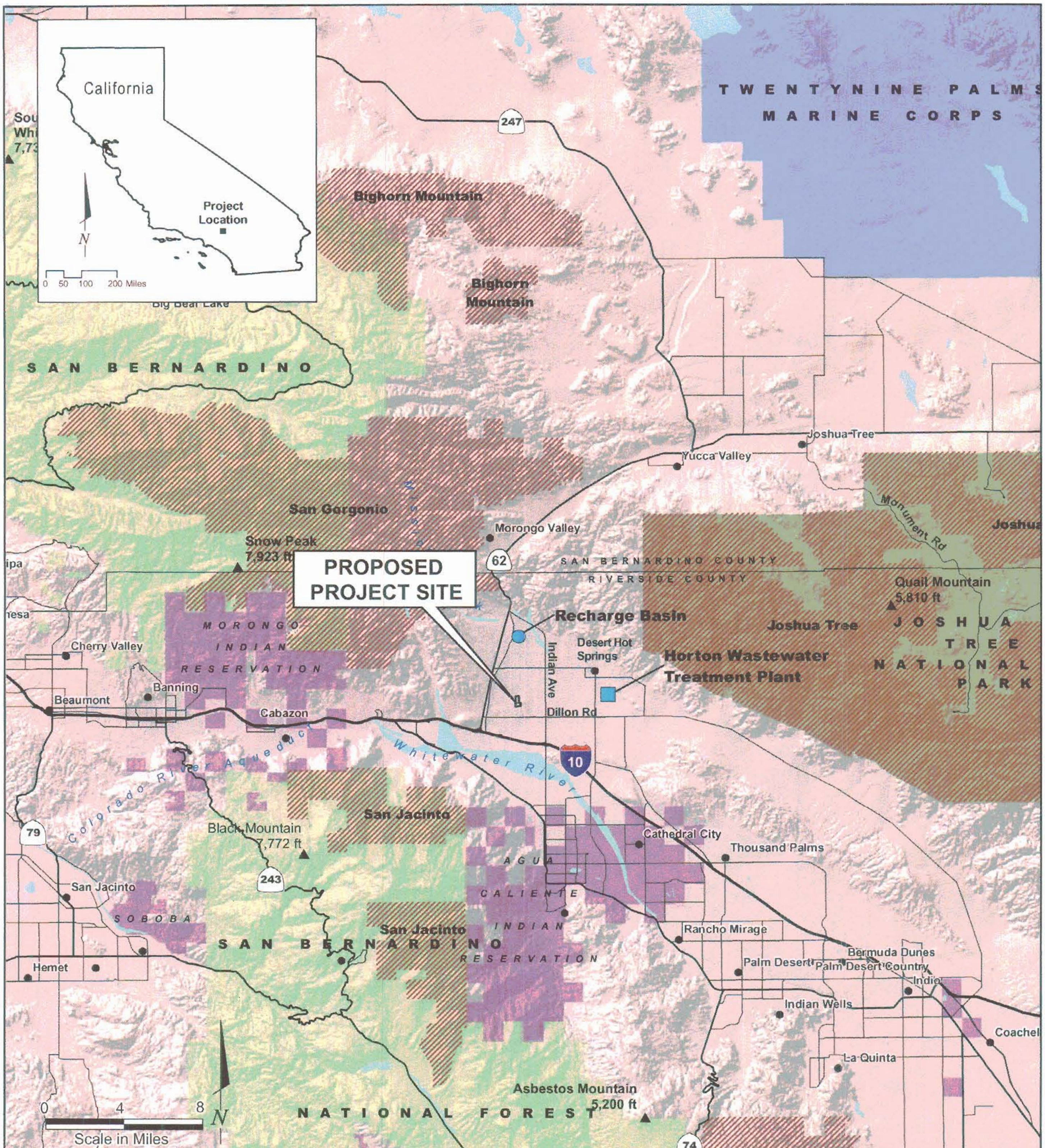
The proposed project site is located approximately 1.3 miles east of State Route (SR) 62 (also referred to as Twentynine Palms Highway), 1.7 miles north of Interstate 10 (I-10), and 1.3 miles west of Indian Avenue. Powerline Roads North and South run along the south side of the property. Access to the site will be available from Dillon Road north onto the proposed access road to the project site.

The 37-acre proposed power plant site is currently vacant, with the exception of an unoccupied dwelling unit at the southeastern corner of the site. The surrounding area is primarily characterized by industrial use with extensive development of wind energy and transmission infrastructure. The Devers substation is approximately 700 feet to the west of the proposed project site and the Indigo Energy Facility is approximately 1.8 miles to the southeast. The nearest current residence to the power plant site is approximately 330 feet to the east. CPV Sentinel has an option to acquire this property. The project site was selected to optimize nearby access to a natural gas fuel supply line and tie-in location to the Southern California Edison (SCE) transmission system at the Devers substation, as well as to minimize environmental impacts.

The proposed CSEP will consist of eight natural gas fired, GE Energy LMS100 CTGs operating in simple cycle mode. This location and the configuration of the plant have been selected to best match operating needs for the transmission grid and the competitive power market. The project will supply quick-start peaking capacity, energy and ancillary services into the California Independent System Operator Corporation's (CAISO) Los Angeles Basin Local Capacity Requirement (LCR) Area, which has been identified as an area in need of additional peaking capacity to meet resource adequacy requirements and ensure grid reliability. The linear facilities will consist of the site access road, natural gas line, potable water line, and the transmission line that will connect to the Devers substation. The proposed project will be fueled with pipeline-quality natural gas that will be delivered to the power plant site.

The CSEP will be owned and operated by CPV. The responsible official and facility contact is Mr. Mark Turner, Project Manager. Mr. Turner's contact information is provided and he will serve as the District's principal contact regarding permitting issues.

Project Manager	Mark Turner	Competitive Power Ventures, Inc. 55 Second Street, Suite 525 San Francisco, CA 94105	Tel: (415) 293-1463 Fax: (415) 957-9886 **mturner@cpv.com**



LEGEND

County Boundary	Marine Corps Base
National Park Land	Tribal Lands
National Forest Land	Designated Wilderness Area

Source: summits, USGS Geographic Names Information System, July 19, 2006; roads, ESRI, 1999; hillshading derived from 100K digital elevation models, USGS (various dates); park and tribal lands, Riverside County, 2001-2006; cities, highways, hydrologic features, 1990-98; national forest and wilderness area boundaries, BLM, 1996-2000.

SITE VICINITY MAP

July 2007
28067168

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

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FIGURE 1-1

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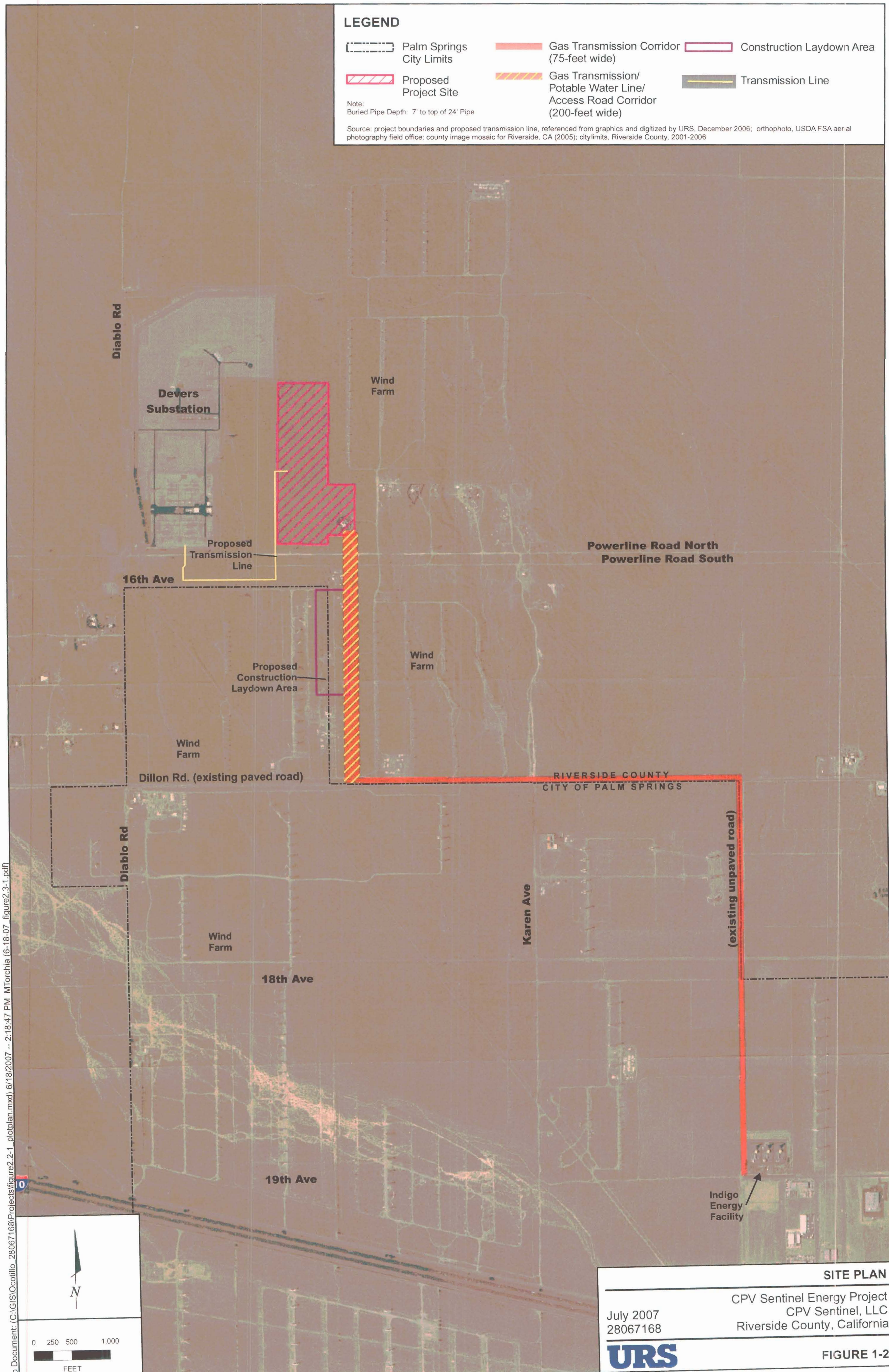

SITE PLAN

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

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FIGURE 1-2

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1.2 APPLICATION OVERVIEW

This application package has been designed to respond to the requirements of the SCAQMD New Source Review (NSR) and Title V Federal Operating Permits programs. Information to obtain approvals under these programs is contained in this application. It is understood that the current permit application supplies materials for permitting all of the following activities related to the proposed project.

- Addition of eight 100+ MW natural gas-fired General Electric LMS100 CTG's equipped with evaporative inlet air cooling, water injection, selective catalytic reduction (SCR) and oxidation catalyst systems;
- Addition of two cooling water towers with a total of 8 cells for heat rejection;
- Addition of two diesel fired engines, one for the black start generator and one for the fire water pump;
- Addition of two 12,000-gallon aqueous ammonia storage tanks, associated ammonia unloading station, in-plant distribution piping, and ammonia vaporizer(s);
- Addition of eight 90-foot-tall stacks equipped with continuous emissions monitoring systems (CEMS), each discharging the exhaust from one CTG train;
- Addition of one 50-foot-tall stack to discharge the exhaust from the fire water pump engine;
- Addition of one 50-foot-tall stack to discharge the exhaust from the black start generator;
- Title V permit for the facility.

1.3 APPLICATION FORMS

Completed copies of the required SCAQMD Standard Permit Application Forms are included with this permit application as Appendix A. These include:

- Twenty-three (23) Forms 400-A, -Application for Permit to Construct (two each for the gas turbines and SCRs, one each for the cooling towers, one each for the ammonia storage tanks, one for the black start generator, one for the fire water pump and one for Title V modification)
- One (1) Form 400-CEQA, - California Environmental Quality Act (CEQA) Applicability
- Eight (8) Form 400-E-12, -Gas Turbines
- Eight (8) Form 400-E-5 - SCR System
- Two (2) Form 400-E-13a, -Internal Combustion Engines
- Ten (10) Form 400-PS, -Plot plan and stack information
- Two (2) Form 400-E-18, -Storage Tanks
- One (1) Form 500-A2, -Title V Certification

SECTION 2 FACILITY DESCRIPTION

2.1 DESCRIPTION OF PROJECT COMPONENTS

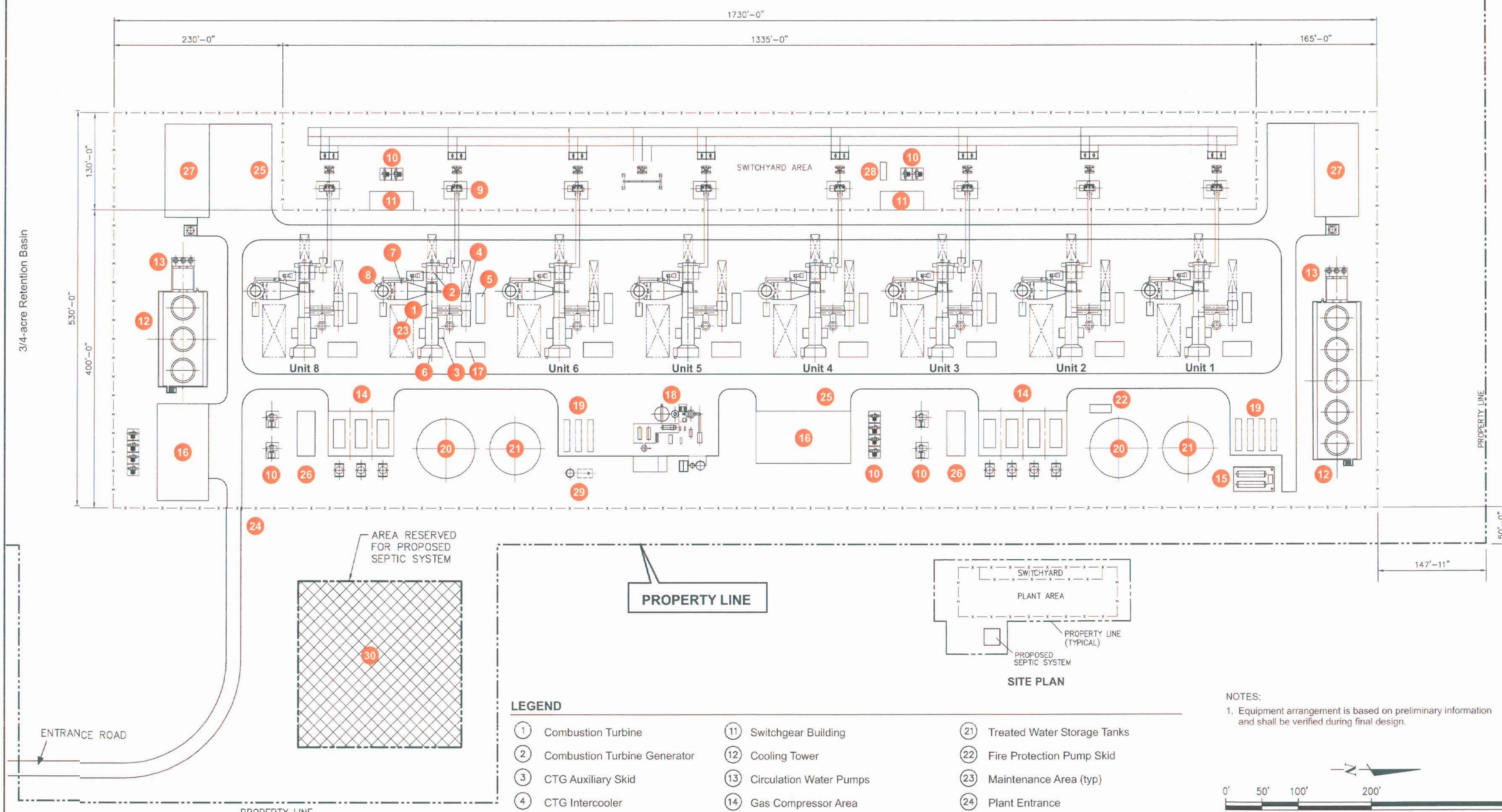
This section describes the major components and systems of the proposed project that will emit air pollutants, including the CTGs, black start generator, fire water pump, and heat rejection (cooling) system. A list of major mechanical equipment is provided in Table 2-1. Figure 2-1 shows the layout of Project equipment and emissions sources.

Table 2-1
Major Equipment List

Quantity	Description	Size/Capacity[1]	Remarks
8	Combustion Turbine (CT)	100+ MW	Water Injected for NO_x control
8	Generators	155 MVA	Included with CT
8	CT Inlet Air Cooling	85%+ Effective	Evaporative Cooling/Inlet Fog System
6	Fuel Gas Compressors	950 psi discharge	Electric powered
8	SCR/Oxcat Emissions Control Systems	BACT	
1	Black Start Generator	2,206 hp	
2	Raw Water Storage Tanks	1,128,000 gal	One includes fire water reserve
2	Treated Water Storage Tanks	864,000 gal	
1	Cooling Tower	675 MMBtu/hr	Five-Cell
1	Cooling Tower	405 MMBtu/hr	Three-Cell
1	Fire Water Pump Skid	2,000 gpm	Jockey; Motor; and Diesel-Driven Pumps
3	Cooling Water (CWP) Pumps	19,650 gpm	Electric powered
3	Cooling Water (CWP) Pumps	11,790 gpm	Electric powered
5	Plant Air Compressors and Dryers	1,500 SCFM	Electric powered
8	Step-up Transformers	13.8/220 kV	To electrical grid

Note:

Approximate size/capacity for each piece of equipment. Final sizing and configuration will be determined during detailed design.
psi = pounds per square inch



LEGEND

1. Combustion Turbine
2. Combustion Turbine Generator
3. CTG Auxiliary Skid
4. CTG Intercooler
5. CTG Pump Ski
6. CTG Inlet Air Filter
7. SCR
8. Exhaust Stack
9. GSU Transformer
10. Auxiliary Power Transformers
11. Switchgear Building
12. Cooling Tower
13. Circulation Water Pumps
14. Gas Compressor Area
15. Ammonia Storage Tank
16. Operations Building
17. Unit Control/Electrical Room
18. Water & Wastewater Treatment Area
19. Water Treatment Trailer Parking
20. Raw Water Storage Tanks
21. Treated Water Storage Tanks
22. Fire Protection Pump Skid
23. Maintenance Area (typ)
24. Plant Entrance
25. Plant Parking
26. MCC Building
27. Cooling Tower Building/Warehouse
28. Black Start Generator
29. Oil/Water Separator & Drain Sump
30. Proposed Location of Septic System

NOTES:
1. Equipment arrangement is based on preliminary information and shall be verified during final design.

Source:
Spectrum Energy, Inc.
Equipment Arrangement Plan (CPV_M-EA-002) Rev. C, 5/17/07,
and Area for Proposed Septic Tank (CPV_C-SK-003) Rev. A, 5/01/07.

PLOT PLAN
CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

July 2007
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FIGURE 2-1

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2.1.1 Combustion Turbine Generators

Thermal energy will be produced in the CTG through the combustion of natural gas, which will be converted to mechanical energy required to drive the combustion turbine compressors and generators. Eight GE LMS100 CTGs will be employed for this project. The CTGs will have water injection systems to control exhaust gas oxides of nitrogen (NO_X). Each CTG system will consist of a stationary CTG with supporting systems and associated auxiliary equipment. The CTGs will have the following accessories for safe and reliable operation:

- Inlet air filter system with inlet fog cooling
- Intercooler (cooled via cooling tower)
- Fuel gas system
- Lubricating and hydraulic oil systems
- Oil coolers
- Compressor wash system with on-line and off-line capability
- Fire protection system
- Turbine generator controls
- SCR
- Carbon monoxide (CO) Oxidation catalyst.

The generators will be three-phase, synchronous electrical generators and will be air-cooled. They will be designed to deliver power to the grid at 60 Hertz (Hz).

2.1.2 Black Start Generator Engine

A diesel-fired black start generator will be provided that will allow a single gas turbine to be started in the event of a loss of grid power. After one gas turbine is running, its power output may be used to start the other turbines. This provision will allow the power plant to start and feed the 220-kV line to the Devers substation in the event of a wide-scale power outage. The 2,206 horsepower black start engine will be tested one hour per month.

2.1.3 Fire Water Pump Engine

The proposed project will include an emergency fire pump engine powered by diesel fuel. The engine fuel will be ultra-low sulfur diesel containing a maximum of 15 parts per million (ppm) sulfur. The fire pump engine will be rated at approximately 240 horsepower and will be tested one hour per week.

2.1.4 Cooling Towers

The proposed project will also include two mechanical draft evaporative cooling towers with a total of eight cells (one with 5 cells, one with 3 cells). The cooling towers will operate during normal operation of the CTGs. The 5-cell cooling tower, or North Tower, will operate up to 2628 hours per year to support turbines 1-5 and the 3-cell cooling tower, or South Tower, will operate up to 3200 hours per year to support turbines 5-8.

SECTION 3 PROJECT EMISSIONS INFORMATION

This section describes the methodology used to quantify pollutant emissions associated with the proposed project.

3.1 EMISSIONS ESTIMATION METHODOLOGY

The eight CTG trains will be the dominant sources of air pollutant emissions from the Project. Vendor guarantees have been provided specifying maximum emission levels for certain pollutants emitted by the proposed gas turbines. These levels will comply with the applicable BACT limits for such units, including maximum stack gas concentrations of 2.5 ppmvd NO_x, 6 ppmvd CO, and 2 ppmvd volatile organic compounds (VOC), all referenced to 15% O_2. Estimated emissions of sulfur oxides by the turbines assumed full oxidation of all fuel sulfur to sulfur dioxide (SO_2) and a natural gas sulfur content of 0.25 grains per 100 dry standard cubic feet (dscf). Emissions particulate matter less than 10μm in diameter (PM_{10}) from the turbine were based on vendor guarantees. For gas turbines, BACT for these pollutants is universally considered to be the exclusive use of commercial quality natural gas fuel. Calculation sheets showing detailed criteria pollutant emission calculations are provided in Appendix B to this application.

3.2 ESTIMATED CRITERIA POLLUTANT EMISSIONS

3.2.1 Normal Turbine Operating Emissions

The most important emission sources of the proposed project would be the new CTG trains. Maximum short-term operational emissions from the CTGs were determined from a comparative evaluation of potential emissions corresponding to turbine commissioning, normal operating conditions, and CTG startup/shutdown conditions. The long-term operational emissions from the CTGs were estimated by summing the emissions contributions from normal operating conditions and CTG startup/shutdown conditions. Estimated annual emissions of air pollutants for the CTGs have been calculated based on the expected operating schedule for the CTGs presented below in Table 3-1. Note that somewhat different operating hours and annual startup/shutdown cycles are proposed for the first five and last three CTGs.

Table 3-1
Maximum Proposed CTG Operating Schedules

Operating Conditions (CTGs 1 through 5)	Annual Numbers
Number of Startups/Shutdown Cycles per CTG	300
Startup/Shutdown Time (hours)	177
Total CTG Normal Operating Hours	2,628
Operating Conditions (CTGs 6 through 8)	**Annual Numbers**
Number of Startups/Shutdown Cycles per CTG	350
Startup/Shutdown Time (hours)	206
Total CTG Normal Operating Hours	3,200

Each turbine unit will be equipped with a new stack with the following dimensions:

- Height – 90 feet (ft)
- Diameter – 13.5 ft

The criteria pollutant emission rates and stack parameters provided by the CTG vendors for three load conditions (50 percent, 75 percent, and 100 percent) at three ambient temperatures (17°F, 72°F, and 107°F) are presented in Table 3-2. These 11 cases encompass CTG operations with and without evaporative cooling of the inlet air to the turbines. The combined scenarios presented in this table bound the expected normal operating range of each proposed CTG.

Table 3-2
1-Hour Operating Emission Rates and Stack Parameters for Individual CTG Operating Load Scenarios

Case No.	100	101	102	103	104	105	106	107	108	109	110
Ambient Temperature (°F)	17	17	17	72	72	72	72	107	107	107	107
Stack Diameter (ft)	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Exhaust Flow (lb/hr)	1,703,900	1,438,227	1,138,130	1,636,078	1,599,844	1,371,797	1,089,457	1,556,054	1,479,392	1,273,593	1,016,749
CTG Load Level (percent)	**100**	**75**	**50**	**100**	**100**	**75**	**50**	**100**	**100**	**75**	**50**
Evaporative Cooler	NONE	NONE	NONE	YES	NONE	NONE	NONE	YES	NONE	NONE	NONE
Exhaust Temperature (°F)	744.1	744.6	762.4	785.9	791.8	771.2	786.7	799.7	813.6	791.8	806.2
Exit Velocity, ft/minute	6031.0	5092.7	4089.7	5992.0	5887.0	4964.8	3992.6	5762.0	5538.6	4686.5	3784.4
NO_x Emissions per Turbine Unit											
ppmvd @ 15% O_2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
lb/hr	7.92	6.25	4.59	7.92	7.75	6.08	4.47	7.53	7.15	5.63	4.16
CO Emissions per Turbine Unit											
ppmvd @ 15% O_2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
lb/hr	11.58	9.14	6.71	11.58	11.32	8.88	6.53	11.00	10.45	8.23	6.08
VOC Emissions per Turbine Unit											
ppmvd @ 15% O_2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
lb/hr as methane (CH_4)	2.21	1.74	1.28	2.21	2.16	1.70	1.25	2.10	2.00	1.57	1.16
PM_{10} Emissions per Turbine Unit											
lb/hr	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
SO_x Emissions per Turbine Unit											
lb/hr	0.61	0.48	0.36	0.61	0.60	0.47	0.35	0.58	0.55	0.44	0.32

Notes:
A natural gas fuel sulfur content of 0.25 grains per 100 dry standard cubic feet was used to estimate CTG emissions of SO_2
CO = carbon monoxide
CTG = combustion turbine generator
lb/hr = pounds per hour
NO_x = nitrogen oxide
O_2 = oxygen
PM_{10} = particulate matter 10 microns in diameter
ppmvd = parts per million by volume, dry
SO_x = sulfur oxides
VOC = volatile organic compounds

3.2.2 Turbine Startup and Shutdown Emissions

The expected emissions and durations associated with CTG startup and shutdown events are summarized in Table 3-3. Because hours that include startup and shutdown events would have higher NO_x, CO, and reactive organic compound (ROC) emissions than the normal operating condition with fully functioning SCR and CO oxidation catalyst, they were incorporated (as applicable) into the worst-case short- and long-term emissions estimates in the air quality dispersion modeling simulations for these pollutants.

Table 3-3
Criteria Pollutant Emission Rates During CTG Startup and Shutdown (per turbine)

Pollutant	Startup (25 minutes duration)		Shutdown (10 minutes duration)	
	Maximum Instantaneous Emission Rate (lb/hr)	Total Emissions (lb/event)	Maximum Instantaneous Emissions Rate (lb/hr)	Total Emissions (lb/event)
NO_X	59.76	24.90	34.95	6.00
CO	38.15	15.89	203.88	35.00
VOC	10.32	4.30	17.48	3.00
SO_2	0.42	0.17	0.12	0.02
PM_{10}	6.00	2.50	6.00	1.03

Note:

CO = carbon monoxide
NO_x = nitrogen oxide
PM_{10} = particulate matter 10 microns in diameter
SO_2 = sulfur dioxide
VOC = volatile organic compounds

3.2.3 Additional Emission Sources

The proposed project will include a black start generator engine and an emergency fire pump engine, both powered by diesel fuel. The 2,206 horsepower black start engine will be tested one hour per month. The fire pump engine will be rated at approximately 240 horsepower and will be tested one hour per week. Annual emissions and stack parameters for the testing of the engines are provided in Table 3-4. Emission rates shown in this table are based on vendor-supplied emission factors. The fuel for both engines will be ultra-low sulfur diesel, containing a maximum sulfur content of 15 ppm by weight. The proposed project will also include two mechanical draft evaporative cooling towers with a total of eight cells.

Detailed emissions calculations for all equipment of the operational proposed project are presented in Appendix B.

Table 3-4
Emergency Engine Emission Parameters

Pollutant	Emergency Fire Pump Engine		Black Start Engine	
	Emissions		Emissions	
	lb/hr	lb/yr	lb/hr	lb/yr
NO_X	2.06	107.30	17.86	214.29
CO	0.31	16.23	11.57	138.89
VOC	0.53	27.51	3.31	39.68
SO_X	0.001	0.06	4.52	54.27
PM_{10}	0.07	3.85	0.66	7.94
Source Parameters	Annual emissions based on 52 hours of operation Stack height: 50 feet Stack Diameter: 0.373 feet Stack exhaust flow rate at full firing:1,227 ACFM Stack exhaust temperature at full firing: 891 °F		Annual emissions based on 12 hours of operation Stack height: 50 feet Stack diameter: 0.67 feet Stack exhaust flow Rate at full firing: 11,071 ACFM Stack exhaust temperature at full firing: 762.8 °F	

3.2.4 Turbine Commissioning Emissions

Commissioning of each new combustion turbine will be performed in a defined series of tests that will be conducted following the CGT's installation at the proposed project facility. The specific tests to be run on each combustion turbine include:

- first fire
- controlled break in
- dynamic automatic voltage regulator (AVR)
- basc load AVR
- SCR commissioning
- full load testing

The duration of all tests may be affected by unforeseen events and therefore can only be estimated in advance. A maximum of 200 hours of operation during commissioning of each combustion turbine with partially abated emissions is expected over a period not to exceed 1 month. A minimum of one turbine start would be needed for each test. Additional starts may be necessary. The annual frequency of turbine starts during the year when commissioning occurs is not expected to exceed the frequency of turbine starts during operation (refer to Table 3-1). Fuel flow monitoring would be conducted for all tests.

CPV Sentinel proposes a commissioning period of approximately 8 months during which all installed equipment would be run and tested. The gas turbine commissioning periods would begin when the turbines first burn natural gas. CPV Sentinel will make every effort to minimize emissions of CO, VOC, and NO_X during the commissioning period. However, due to the nature of normal commissioning emissions, not all of the equipment to abate these emissions would be fully operational at the start of the commissioning period. CPV Sentinel requests a maximum of 200 hours of partially abated emissions for each gas turbine.

When it has been installed, the oxidation catalyst in each train will abate CO and VOC emissions from the gas turbine because it is essentially a passive device. While in some cases the oxidation catalyst will be able to be installed prior to initial startup of the combustion turbines, it may not be installed until late in the commissioning period. The SCR catalyst may not be installed at the same time as the oxidation catalyst. NO_x emissions from the gas turbines may be only partially abated during times that the gas turbine burners are being tuned and the SCR system is being tested. Regardless of the fact that the oxidation catalyst and SCR may not be installed until late in the commissioning process, the inherent low emissions of NO_x, CO, and VOC associated with water injection will ensure that the impacts of these emissions are kept to acceptable levels. Dispersion modeling to evaluate the impacts of commissioning tests on local air quality is presented in Section 4.7.

Conservative, worst-case turbine commissioning emissions were estimated by assuming that the control efficiency of the applicable abatement systems will be zero during the commissioning tests.

The durations and corresponding pollutant emission rates of individual commissioning tests for a single combustion turbine generator are summarized in Table 3-5. Detailed information regarding the assumed sequence of individual turbine commissioning tests and the associated durations and pollutant emissions is provided in Appendix B.

Table 3-5
Durations and Criteria Pollutant Emissions for Commissioning of a Single CTG

Activity	Duration (hours)	CTG Load (%)	Exhaust Temp (°F)	Exhaust Flow Rate (acfm)	Pollutant Emission Rates				
					NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)	SO_2 (lb/hr)	PM_{10} (lb/hr)
First Fire	28	0	859	163,836	11.13	45.44	1.16	0.61	6
Controlled Break in	20	5	864	226,630	20.92	30.27	0.73	0.61	6
Dynamic AVR	40	10-100	752-868	289,675-873,543	48.99	75.3	4.8	0.61	6
Base Load AVR	16	100	767	873,543	168.06	305.63	14.94	0.61	6

Notes:
CTG = combustion turbine generator
AVR = automatic voltage regulator
SCR = selective catalytic reduction

3.2.5 Combined Annual Project Emissions

The estimated total combined annual emissions from all sources of the proposed project are shown in Table 3-6, including the eight CTG units, the firewater pump engine, the blackstart engine, and the two cooling towers. Annual emissions of all pollutants were calculated assuming the CTG hours per year of operation described previously in Table 3-1 and the corresponding hours of cooling tower operation. Testing of the firewater pump engine and blackstart engine was assumed for 52 and 12 hours per year, respectively.

Table 3-6
Estimated Total Project Annual Emissions of Criteria Pollutants

Pollutant	Emissions (tons/year)[1,2]
SO_2	7.23
NO_x	129.55
ROC	34.46
PM_{10}[3]	73.84
CO	196.56
Lead[4]	<0.6

Notes:

[1] Includes emissions from eight new CTG units

[2] CTG emissions based on 2,805 hours of operation (2,628 hours normal operation), plus 300 starts and 300 shutdowns for Units 1-5 and 3,406 hours of operation (3,200 hours normal operation), plus 350 starts and 350 shutdowns for Units 6-8

[3] PM_{10} emissions includes both filterable (front-half) and condensable (back-half) particulates

[4] Lead emissions are 'non-detect' from AP-42 for CTGs firing natural gas

CO = carbon monoxide

NO_x = nitrogen oxides

PM_{10} = particulate matter less than 10 micrometers in diameter

ROC = reactive organic compounds

SO_2 = sulfur dioxide

3.3 ESTIMATED TOXIC AIR CONTAMINANT EMISSIONS

Facility operations were evaluated to determine whether particular substances would be used or generated at the proposed site project that may have the potential to cause adverse health effects upon their release to the air. The primary sources of potential emissions from facility operations would be the eight natural gas-fired CTGs, as well as the aqueous ammonia slip stream from the SCR control system on each turbine. Secondary sources of potential emissions include the evaporative cooling towers and diesel fuel combustion in the black start and fire water pump engines. The black start and fire water engines will normally be operated only for short periods in testing mode to ensure operability if needed. The cooling tower will employ a high-efficiency drift elimination system to minimize the release of drift droplets containing trace amounts of hazardous substances. The substances that would be emitted from facility operations (with potential toxicological impacts) are shown in Table 3-7. These potential air toxic species were identified in the list of emission factors published in U.S. EPA AP-42 (U.S. EPA, 1995) and the California Air Toxics Emissions Factors (CATEF, 1996) database compiled by the California Air Resources Board. SCAQMD recommends the use of AP-42 emission factors for purposes of health risk assessments (HRAs) for natural gas turbines. In addition, potential emissions of ammonia slip from the SCR systems were included.

Table 3-7
Toxicity Values Used To Characterize Health Risks

Compound	Sources of Emissions	Inhalation Cancer Potency Factor (mg/kg-day)$^{-1}$	Chronic REL (µg/m^3)	Acute REL (µg/m^3)
Diesel particulate (PM_{10})	Black start engine and fire pump	1.10E+00	5.00E+00	--
Ammonia	Gas turbine stacks	--	2.00E+02	3.20E+03
1,3-Butadiene	Gas turbine stacks	6.00E-01	2.00E+01	--
Acetaldehyde	Gas turbine stacks	1.00E-02	9.00E+00	--
Acrolein	Gas turbine stacks	--	6.00E-02	1.90E-01
Benzene	Gas turbine stacks	1.00E-01	6.00E+01	1.30E+03
Ethylbenzene	Gas turbine stacks	--	2.00E+03	--
Formaldehyde	Gas turbine stacks	2.10E-02	3.00E+00	9.40E+01
Propylene oxide	Gas turbine stacks	1.30E-02	3.00E+01	3.10E+03
Toluene	Gas turbine stacks	--	3.00E+02	3.70E+04
Xylenes	Gas turbine stacks	--	7.00E+02	2.20E+04
Benzo(a)anthracene	Gas turbine stacks	3.90E-01	--	--
Benzo(a)pyrene	Gas turbine stacks	3.90E+00	--	--
Benzo(b)fluoranthene	Gas turbine stacks	3.90E-01	--	--
Benzo(k)fluoranthene	Gas turbine stacks	3.90E-01	--	--
Chrysene	Gas turbine stacks	3.90E-02	--	--
Dibenz(a,h)anthracene	Gas turbine stacks	4.10E+00	--	--
Indeno(1,2,3-cd)pyrene	Gas turbine stacks	3.90E-01	--	--
Naphthalene	Gas turbine stacks	1.20E-01	9.00E+00	--
Antimony	Cooling tower	--	2.00E-01	--
Arsenic	Cooling tower	1.20E+01	3.00E-02	1.90E-01
Chlorine	Cooling tower	--	2.00E-01	2.10E+02
Chromium	Cooling tower	5.10E+02	2.00E-01	--
Copper	Cooling tower	--	2.40E+00	1.00E+02
Fluoride	Cooling tower	--	1.30E+01	2.40E+02
Lead	Cooling tower	4.20E-02	--	--
Selenium	Cooling tower	--	2.00E+01	--
Silica	Cooling tower	--	3.00E+00	--
Sulfate	Cooling tower	--	2.50E+01	1.20E+02
Vanadium	Cooling tower	--	--	3.00E+01
Zinc	Cooling tower	--	3.50E+01	--

Source: Cal-EPA/OEHHA, 2005

Notes:

-- = not applicable
mg/kg-day = milligrams per kilogram per day
µg/m^3 = micrograms per cubic meter
REL = reference exposure levels

Worst-case estimates of hourly and annual turbine emissions were made by assuming that all turbines would operate simultaneously under full load conditions with a maximum higher heating value (HHV) fuel energy input rate of 875.7 million British thermal units per hour (MMBtu/hr) (100 percent load at 72°F). For the annual emission calculations is was assumed that Units 1-5 would operate for a maximum of 2,805 hours per year (2,628 hours of normal operations plus 300 startups and shutdowns), and Units 6-8 would operate for a maximum of 3,406 hours per year (3,200 hours of normal operations plus 350 startups and shutdowns). The exit temperature and velocity for each turbine stack used in the model represented turbine operations at 100 percent load at an ambient temperature of 72°F.

Emission factors for natural gas-fired turbines were obtained from AP-42 Table 3.1-3 for natural gas-fired stationary turbines (U.S. EPA, 1995), and the speciated polycyclic aromatic hydrocarbon (PAH) emissions came from the CATEF database for natural gas-fired combustion turbines with SCR and CO catalyst. The emission factors and estimated maximum hourly and annual turbine emissions are summarized in Table 3-8.

Table 3-8
Toxic Air Contaminant Emission Rates From Operation of the Natural Gas Fired Combustion Turbines

Chemical Species	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions per Turbine (lb/hr)	Annual Emissions Per Turbine (Units 1-5) (lb/yr)	Annual Emissions Per Turbine (Units 6-7) (lb/yr)
Ammonia[2]	5 ppm[3]	5.867	1.65E+04	2.00E+04
1,3-Butadiene	4.30E-07	3.77E-04	1.06E+00	1.28E+00
Acetaldehyde	4.00E-05	3.50E-02	9.82E+01	1.19E+02
Acrolein	3.62E-06	3.17E-03	8.89E+00	1.08E+01
Benzene	3.26E-06	2.85E-03	8.01E+00	9.72E+00
Ethylbenzene	3.20E-05	2.80E-02	7.86E+01	9.54E+01
Formaldehyde	3.60E-04	3.15E-01	8.84E+02	1.07E+03
Propylene Oxide	2.90E-05	2.54E-02	7.12E+01	8.65E+01
Toluene	1.30E-04	1.14E-01	3.19E+02	3.88E+02
Xylenes	6.40E-05	5.60E-02	1.57E+02	1.91E+02
Polycyclic Aromatic Hydrocarbons (PAH)				
Benzo(a)anthracene	2.22E-08	1.94E-05	5.45E-02	6.62E-02
Benzo(a)pyrene	1.37E-08	1.20E-05	1.32E-01	4.07E-02
Benzo(b)fluoranthene	1.11E-08	9.72E-06	2.73E-02	3.31E-02
Benzo(k)fluoranthene	1.08E-08	9.46E-06	2.65E-02	3.22E-02
Chrysene	2.48E-08	2.17E-05	6.08E-02	7.38E-02
Dibenz(a,h)anthracene	2.31E-08	2.02E-05	5.67E-02	6.88E-02
Indeno(1,2,3-cd)pyrene	2.31E-08	2.02E-05	5.67E-02	6.88E-02
Naphthalene	1.63E-06	1.43E-03	4.01E+00	4.86E+00

Table 3-8
Toxic Air Contaminant Emission Rates From Operation of the Natural Gas Fired Combustion Turbines (Continued)

Chemical Species	Emission Factor (lb/MMBtu)[1]	Maximum Hourly Emissions per Turbine (lb/hr)	Annual Emissions Per Turbine (Units 1-5) (lb/yr)	Annual Emissions Per Turbine (Units 6-7) (lb/yr)

Notes:

[1] See Appendix C for detailed emission calculations. Emission factors obtained from U.S. EPA AP-42 Table 3.1-3 for uncontrolled natural gas-fired stationary turbines. Formaldehyde, Benzene, and Acrolein emission factors are from the Background document for AP-42 Section 3.1, Table 3.4-1 for a natural gas-fired combustion turbine with a CO catalyst. PAH emission factors obtained from the CATEF database for natural gas-fired combustion turbines with SCR and CO catalyst.
[2] Not a Clean Air Act Hazardous Air Pollutant (HAP).
[3] Based on estimated ammonia slip from for the nitrogen oxide (NO_x control, 5 parts per million by volume, dry at 15 percent oxygen).
lb/hr = pounds per hour
lb/yr = pounds per year
lb/MMBtu = pounds per million British thermal units
ppm = parts per million

Trace levels of inorganic particles are indicated in the analysis of the source water for the cooling towers and low-level emissions of these pollutants would therefore be contained in the particulate matter emitted as drift from the cooling towers. To calculate the cooling tower emissions, a water circulating rate of 7,860 gallons per minute per cell with a total dissolved solids concentration of 5000 ppm was used, with a drift elimination system capable of limiting drift to no more than 0.0005 percent of the circulating water rate, as guaranteed by the equipment vendor. Water from the existing onsite well was sampled to determine the maximum concentrations of inorganic chemicals. These values were then used to determine the maximum toxic air contaminant (TAC) emissions from each cooling tower. For the annual emission calculations it was assumed that the north cooling tower, servicing Units 1-5, would operate for a maximum of 2,628 hours per year, and the south cooling tower, servicing Units 6-8, would operate for a maximum of 3,200 hours per year. Emission factors and estimated maximum hourly and annual emissions per cooling tower cell are summarized in Table 3-9.

Table 3-9
Toxic Air Contaminant Emission Rates from Operation of the Cooling Towers

Chemical Species	TAC Concentration in Water (µg/L)[1]	Maximum Hourly Emissions per Cooling Tower Cell (lb/hr)	Annual Emissions per Cooling Tower Cell (Units 1-5) (lb/yr)	Annual Emissions per Cooling Tower Cell (Units 6-7) (lb/yr)
Antimony	0.34	6.69E-09	1.76E-05	2.14E-05
Arsenic	2.3	4.53E-08	1.19E-04	1.45E-04
Chlorine	27000	5.31E-04	1.40E+00	1.70E+00
Chromium	0.91	1.79E-08	4.71E-05	5.73E-05
Copper[2]	0.85	1.67E-08	4.40E-05	5.35E-05
Fluoride[2]	570	1.12E-05	2.95E-02	3.59E-02
Lead	0.21	4.13E-09	1.09E-05	1.32E-05

Table 3-9
Toxic Air Contaminant Emission Rates From Operation of the Cooling Towers (Continued)

Chemical Species	TAC Concentration in Water (µg/L)[1]	Maximum Hourly Emissions per Cooling Tower Cell (lb/hr)	Annual Emissions per Cooling Tower Cell (Units 1-5) (lb/yr)	Annual Emissions per Cooling Tower Cell (Units 6-7) (lb/yr)
Selenium	1.3	2.56E-08	6.72E-05	8.19E-05
Silica[2]	11000	2.16E-04	5.69E-01	6.93E-01
Sulfate[2]	8300	1.63E-04	4.29E-01	5.23E-01
Vanadium[2]	38.3	7.54E-07	1.98E-03	2.41E-03
Zinc[2]	70	1.38E-06	3.62E-03	4.41E-03

Notes:

[1] See Appendix C for detailed emission calculations. The maximum concentration for each TAC as determined from water samples collected from the existing onsite well.
[2] Not a Clean Air Act Hazardous Air Pollutant (HAP).
µg/L = micrograms per liter
lb/hr = pounds per hour
lb/yr = pounds per year

Fine particulate (PM_{10}) emission factors for the diesel-fired black start and fire pump engines were obtained from the vendor. PM_{10} emissions from the diesel-fired black start engine were estimated assuming it would run at its full rated capacity (1,500 kW) for one hour per month to test the engine. PM_{10} emissions from the diesel-fired fire pump engine were estimated assuming it would run at its full rated capacity (240 hp) for one hour per week for emergency preparedness. Actual emergency use of the diesel engines was not included. Emission factors and estimated maximum hourly and annual emissions from the black start and fire pump engines are summarized in Table 3-10.

Table 3-10
Toxic Air Contaminant Emission Rates from Operation of the Diesel Black Start and Fire Pump Engines

Engine	Chemical Species	Emission Factor[1]	Maximum Hourly Emissions per Engine (lb/hr)	Annual Emissions Per Engine (lb/yr)
Black Start	Diesel Particulate (PM10)[2]	0.20 g/kW-hr	0.661	7.930
Fire Pump	Diesel Particulate (PM10) [2]	0.14 g/hp-hr	0.074	3.848

Notes:

[1] See Appendix C for detailed emission calculations. Emission factors obtained from engine vendors.
[2] Not a Clean Air Act Hazardous Air Pollutant (HAP).
g/kW-hr = grams per kilowatt hour
g/hp-hr = grams per horsepower hour
lb/hr = pounds per hour
lb/yr = pounds per year

The emissions data in Tables 3-8 through 3-10 are used in the health risk assessment presented in Section 5 of this application.

SECTION 4 AIR QUALITY IMPACT ANALYSIS

The purpose of the air quality impact analyses is to evaluate whether criteria pollutant emissions resulting from operations of the proposed project, would cause or contribute significantly to a violation of a California or national ambient air quality standard. Separate modeling analyses were conducted to evaluate the potential for emissions of the CSEP to degrade air quality and air quality-related values in Class I areas and these are described in Section 4.8.

Mathematical models designed to simulate the atmospheric transport and dispersion of airborne pollutants are used to quantify the maximum expected impacts of project emissions on ambient air quality for comparison with applicable regulatory criteria. The air quality modeling methodology described in this section has been documented in a formal modeling protocol (URS 2007), which has been submitted for comments to SCAQMD, as well as to the CEC and U.S. EPA Region IX. A copy of the modeling protocol is presented in Appendix D.

4.1 MODEL AND MODEL OPTION SELECTIONS

The impacts of project operations on criteria pollutant concentrations in receptor areas within 31 miles (50 kilometers) from the CSEP site were evaluated using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (version 04300). AERMOD is appropriate for this Application because it has the ability to assess dispersion of emission plumes from multiple point, area, or volume sources in flat, simple, and complex terrain and to use sequential hourly meteorological input data to estimate pollutant concentrations for comparison with ambient standards for different averaging times. The regulatory default options were used, including building and stack tip downwash, default wind speed profiles, exclusion of deposition and gravitational settling, consideration of buoyant plume rise, and complex terrain.

For the AERMOD simulations to evaluate operations impacts of nitrogen dioxide (NO_2) concentrations, the ozone-limiting method (OLM) option of the model was used to take into account the role of ambient ozone in limiting the conversion of emitted NO_x (which occurs mostly in the form of NO) to NO_2, the pollutant regulated by ambient standards. The input data to the AERMOD-OLM model includes representative hourly ozone monitoring data for the same years corresponding to the meteorological input record. These simulations used the ozone data from the SCAQMD Palm Springs Fire Station monitoring site for the years 1988, 1989, 1990, and 1991.

To evaluate whether urban or rural dispersion parameters should be used in the model simulations, an analysis of land use adjacent to the proposed project site was conducted in accordance with Section 7.2.8 of the *Guideline on Air Quality Models* (EPA-450/2-78-027R and Auer [1978]), EPA AERMOD implementation guide (2004), and its addendum (2006). Based on the Auer land use classification procedure, more than 50 percent of the area within a 1.86-mile (3-kilometer) radius of the proposed project site is appropriately classified as rural. Thus, according to the EPA AERMOD implementation guide, the AERMOD rural option was selected. Accordingly, the land use parameter values shown in Table 4-1 were used when processing the meteorological input data by means of the AERMET pre-processing program.

Table 4-1
AERMET Land Use Characteristics

Land Use Characteristic	Spring	Summer	Autumn	Winter
Albedo	0.3	0.28	0.28	0.28
Bowen Ratio	3.0	4.0	6.0	6.0
Surface Roughness (m)	0.3	0.3	0.3	0.3

4.2 REPRESENTATION OF PROJECT EMISSIONS FOR MODELING

Reasonable worst-case project emissions scenarios were developed for each combination of pollutant and averaging time corresponding to an air quality standard or significance limit. Table 4-2 presents the worst-case modeling scenarios selected for each averaging time. These scenarios form the basis for the air dispersion modeling analyses, the results of which are presented in Section 4.6. Some notes regarding the selection of these scenarios and the resulting emission calculations are provided below.

Estimated annual emission totals for all pollutants incorporate the maximum requested numbers of startups and shutdowns, as well as the proposed maximum steady-state operating hours (see Table 3-1). For purposes of developing the annual emission estimates, the contributions associated with all normal operating hours were calculated based on assumed 100 percent turbine load and ambient temperature of 72°F for the specified number of hours per year. The analysis is conservative because no credit was taken for estimated downtime associated with each shutdown

Short-term emissions were calculated for the pollutants and averaging times corresponding to the ambient air quality standards. The worst-case CTG operating condition was assumed for purposes of estimating maximum 1-hour emission rates for all pollutants. A startup of all turbines with normal operations for the remaining time would produce the worst-case hourly NO_x and CO emissions. However, SO_2 emissions would be directly proportional to fuel usage. Since the highest maximum fuel usage rate would occur when all CTGs are running at 100 percent with an ambient temperature of 72°F (Table 3-2), this condition was selected to represent maximum hourly SO_2 emissions. The 3-hour SO_2 emission rate was calculated based on a scenario with all turbines running at 100 percent for the ambient temperature of 72°F. The 8-hour maximum CO emission rate was calculated assuming all turbines had one startup, one shutdown, and the balance of the time operating at the worst-case operating condition (running at 100 percent for the ambient temperature of 72°F). In each of these worst-case scenarios, it was assumed the fire water pump and the black start engine were tested for one hour during the averaging period. The black start engine would not be tested between 9 p.m. and 6 a.m.

Table 4-2
Criteria Pollutant Sources and Emission Totals for the Worst-Case Project Emissions Scenarios for All Averaging Times

Averaging Time	Operating Equipment	Pollutant	Emissions in pounds – Entire Period			
			Eight CTGs	Fire Water Pump	Black Start Engine	Cooling Tower (8 cells)
1-hour	**NO_x:** One startup (all turbines) with remaining time at normal operations (100% load, 72°F); **CO:** One startup (all turbines) with remaining time at normal operations (100% load, 72°F); **SO_2:** Full-load turbine operation at 72°F ambient temperature. **All:** includes test of fire pump and black start engine.	NO_x	236.2	2.06	17.86	-
		CO	356.7	0.31	11.57	-
		SO_2	4.9	0.001	4.52	-
3-hour	**SO_2:** Continuous full-load (all turbines) at 72°F ambient temperature, plus test of fire pump and black start engine.	SO_2	14.8	0.001	4.52	
8-hour	**CO:** One startup, one shutdown (all turbines) with remainder at normal operations (100% load, 7°F), plus test of fire pump and black start engine.	CO	1,093.8	0.31	11.57	-
24-hour	**NOx:** Two startups, two shutdowns (all turbines) with remainder at normal operations (100% load, 72°F). **SO_2** Continuous full-load (all turbines) at 72°F ambient temperature. **PM_{10}**: Two startups, two shutdowns (all turbines) with remainder at normal operations (50% load, 107°F). **All:** includes test of fire pump and black start engine.	PM_{10}	1,152.0	0.07	0.7	18.8
		NO_x	1,941.1	2.06	17.86	-
		SO_2	115.4	0.001	4.52	-

Note that turbine commissioning impacts are evaluated separately in the modeling due to the temporary, one-time nature of that activity.

4.3 MODEL INPUT DATA

4.3.1 Building Wake Effects

The effects of building wakes (i.e., downwash) on the plumes from the proposed project's CTGs and emergency engines were evaluated in the modeling for operational emissions, in accordance with EPA guidance (EPA, 1985). Data on the buildings within new and existing areas of the CSEP site that could potentially cause plume downwash effects for the new stacks were determined for different wind directions using the EPA Building Profile Input Program – Prime (BPIP-Prime) (Version 98086) (EPA, 1995b). Twenty-nine structures were identified within the CSEP site to be included in the downwash analysis:

- North cooling tower
- South cooling tower
- CTG1 – CTG8
- SCR1 – SCR8
- Raw water tank 1
- Raw water tank 2
- Seven buildings
- North treated water tanks
- South treated water tanks

The results of the BPIP-Prime analysis were included in the AERMOD input files to enable downwash effects to be simulated. Input and output electronic files for the BPIP-Prime analysis are included with those from all other dispersion modeling analyses on the digital versatile discs (DVDs) that are being submitted to accompany this Application.

4.3.2 Meteorological Data

The CSEP site is located at the eastern end of the San Gorgonio Pass in an area surrounded by complex terrain, which influences localized wind flows. The winds are consistently strong and predominantly from the west, as shown in Figure 4-1. Due to these strong winds, many wind energy facilities surround the CSEP site. Immediately adjacent to the CSEP is the Wintec Wind Energy facility, where meteorological data were collected to support the wind energy business. The following meteorological parameters were collected for the period 1988 – 1991: two levels of wind speeds, wind directions, and the horizontal standard deviation of the wind directions (sigma theta), each at 50-foot and 100-foot heights. In addition, temperature was measured at the 50-foot height.

The Wintec Energy meteorological data can be considered "onsite" because they were collected next door to the proposed CSEP site, and meet the EPA criteria (EPA, 1995) for representativeness, as follows:

- *Proximity*: The data were collected in close proximity to the proposed project site, and thus meet the criteria for proximity.
- *Complexity of Terrain and Exposure of Meteorological Monitoring Site*: Both the CSEP site and the Wintec Energy monitoring station are located at the eastern end of the San Gorgonio Pass and are the same distances from prominent terrain features in the surrounding area.

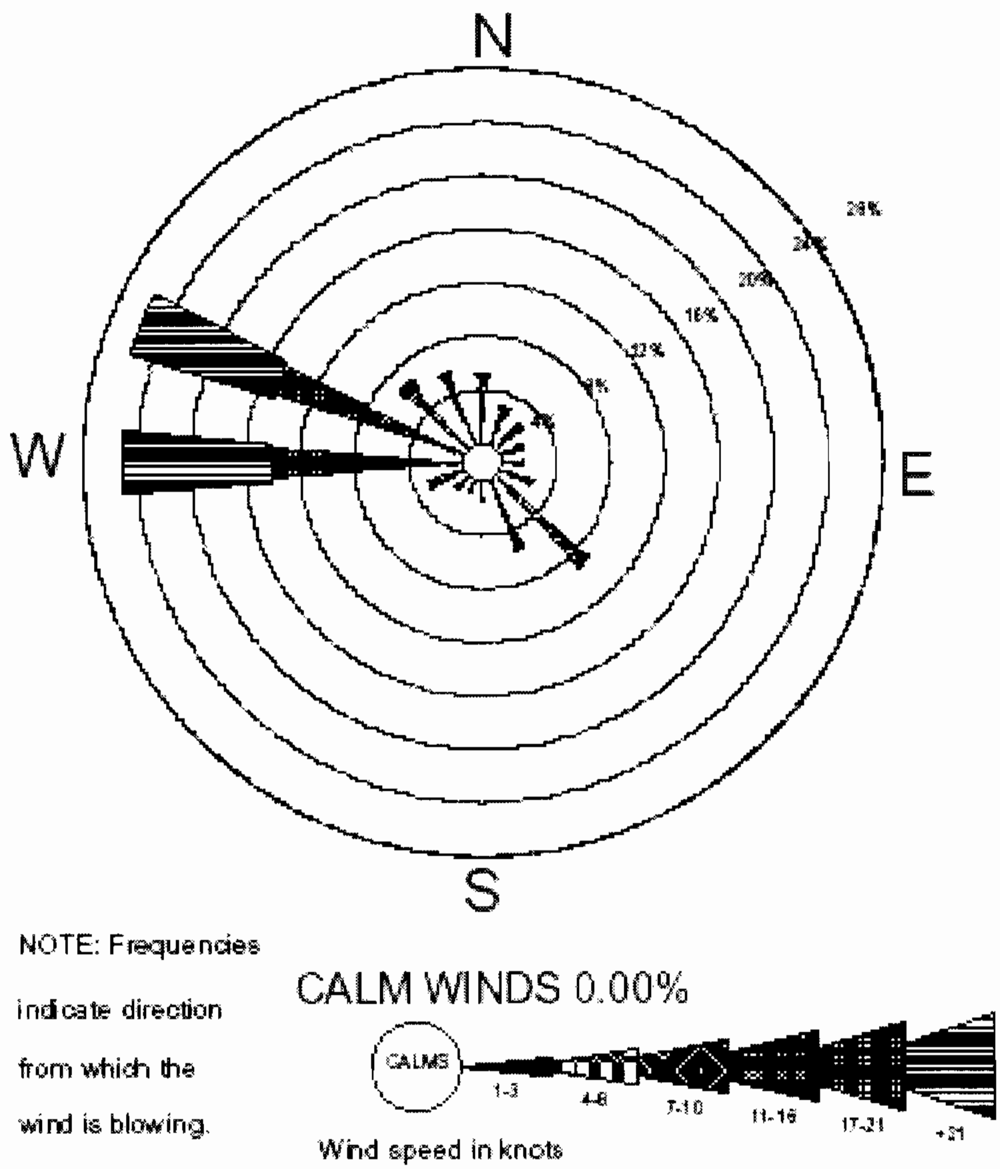
- *Period of Data Collection*: The 1988 through 1991 data set represents data collection over 4 full years. Although only 1 year of onsite data is required, a 4-year data set was used to better represent project site conditions, as well as to capture worst-case meteorological conditions.
- *Data Quality*: The quality of the Wintec Energy monitoring equipment was good and the site was maintained on a regular basis. In addition, the data recovery rate was greater than 90 percent for the years 1988-1991.

The Wintec Energy data were processed following the onsite data procedures set forth in the EPA *On-Site Meteorological Program Guidance for Regulatory Modeling Applications* (1987). To create the meteorological data input files for AERMOD, the onsite data were processed with National Weather Service (NWS) surface data and upper air data in the AERMET program.

The most representative NWS surface station, with adequate data collection, was determined to be the Dagget-Barstow station. The Palm Springs Airport station is nearer but had insufficient data collection.

Upper air data were obtained from the Desert Rock station in Nevada for 1988–1991. Although Edwards Air Force Base upper air monitoring station is the closest upper air station, data were collected less than 50 percent of the time; therefore, this station was determined to have insufficient data for the air quality analysis. The Desert Rock station is located in the desert, as is the CSEP site, and thus was determined to be the most representative data source available for use in this modeling analysis.

Figure 4-1 presents the annual windrose based on the 1988–1991 meteorological data from the Wintec Energy site. Seasonal windroses based on the 4 years of Wintec Energy surface meteorological data are provided as Appendix E. Winds for all seasons and all years blow predominantly from the west and northwest, although the directional pattern is more variable during the winter.



NOTE: Frequencies indicate direction from which the wind is blowing.

WINDROSE FOR WINTEC 1988-1991

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FIGURE 4-1

G:/GIS/projects/1577/28067168/mxd/aq_windrose.mxd

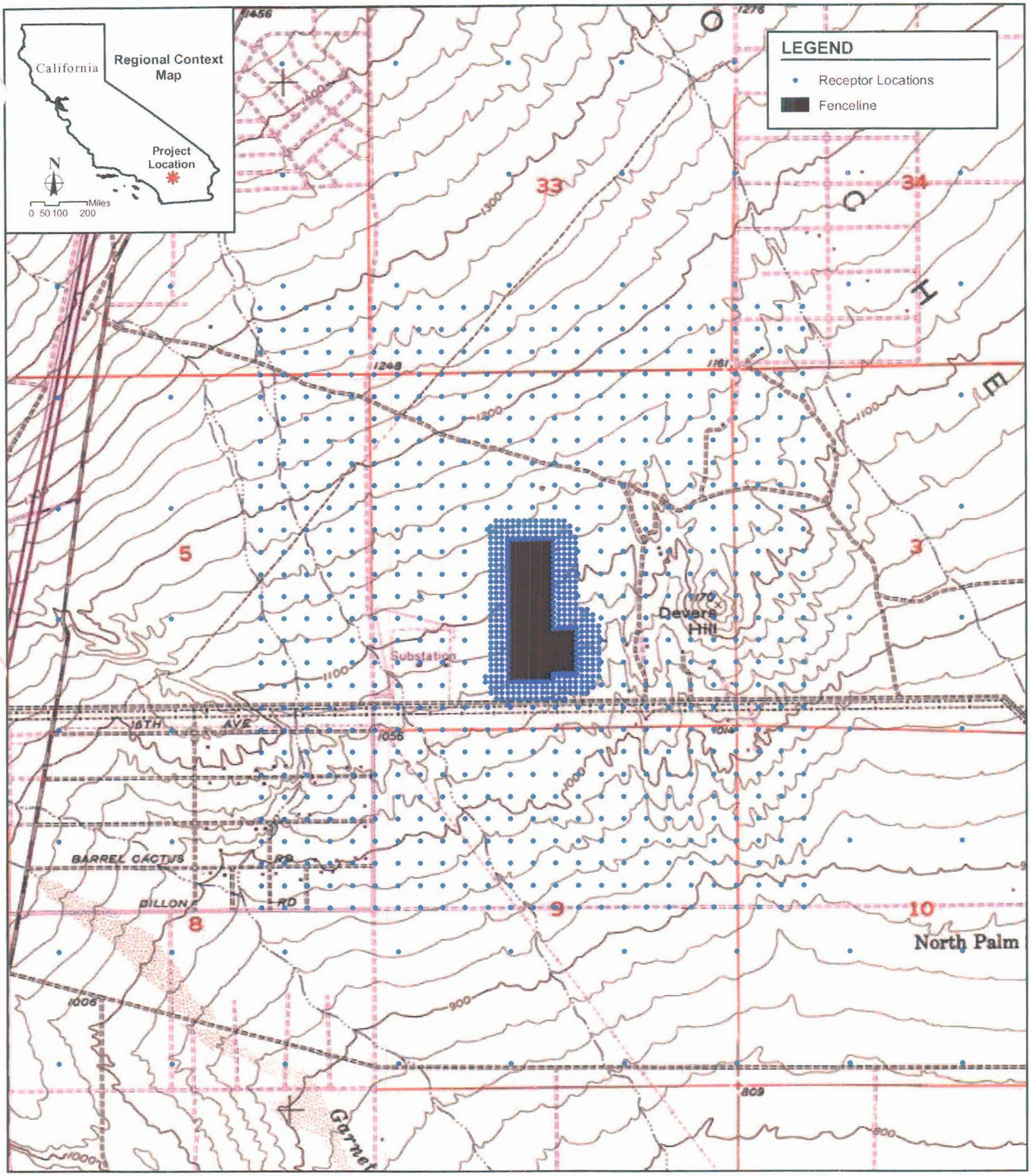
4.3.3 Receptor Locations

The receptor grids used in the AERMOD modeling analyses described in this Application were as follows:

- 25-meter (m) spacing along the fence line and extending from the fence line out to 100 meters beyond the property line;
- 100-meter spacing from 100 m to 1 kilometer (km) beyond the property line;
- 500-meter spacing within 1 to 5 km of property line; and
- 1,000-meter spacing within 5 to 10 km of property line.

Figures 4-2 and 4-3 show the placement of near-field and far-field receptor points, respectively. Terrain heights at receptor grid points were determined from U.S. Geological Survey (USGS) digital elevation model (DEM) files. During the refined modeling analysis for operational project emissions, if a maximum predicted concentration for a particular pollutant and averaging time was located within the portion of the receptor grid with spacing greater than 25 meters, a supplemental dense receptor grid was placed around the original maximum concentration point and the model was rerun. The dense grid used 25-meter spacing and extended to the next grid point in all directions from the original point of maximum concentration.

Due to the large computation time required to run AERMOD, this receptor grid, with the additional nested grid of more densely spaced points, when necessary, was determined to best balance the need to predict maximum pollutant concentrations and allow the all operational modeling runs to be completed in a timely manner.



0 2,000 4,000

Scale in Feet
1:24,000

Source: USGS TOPO!
(Desert Hot Springs quad 1978).

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NEAR-FIELD MODEL RECEPTOR GRID

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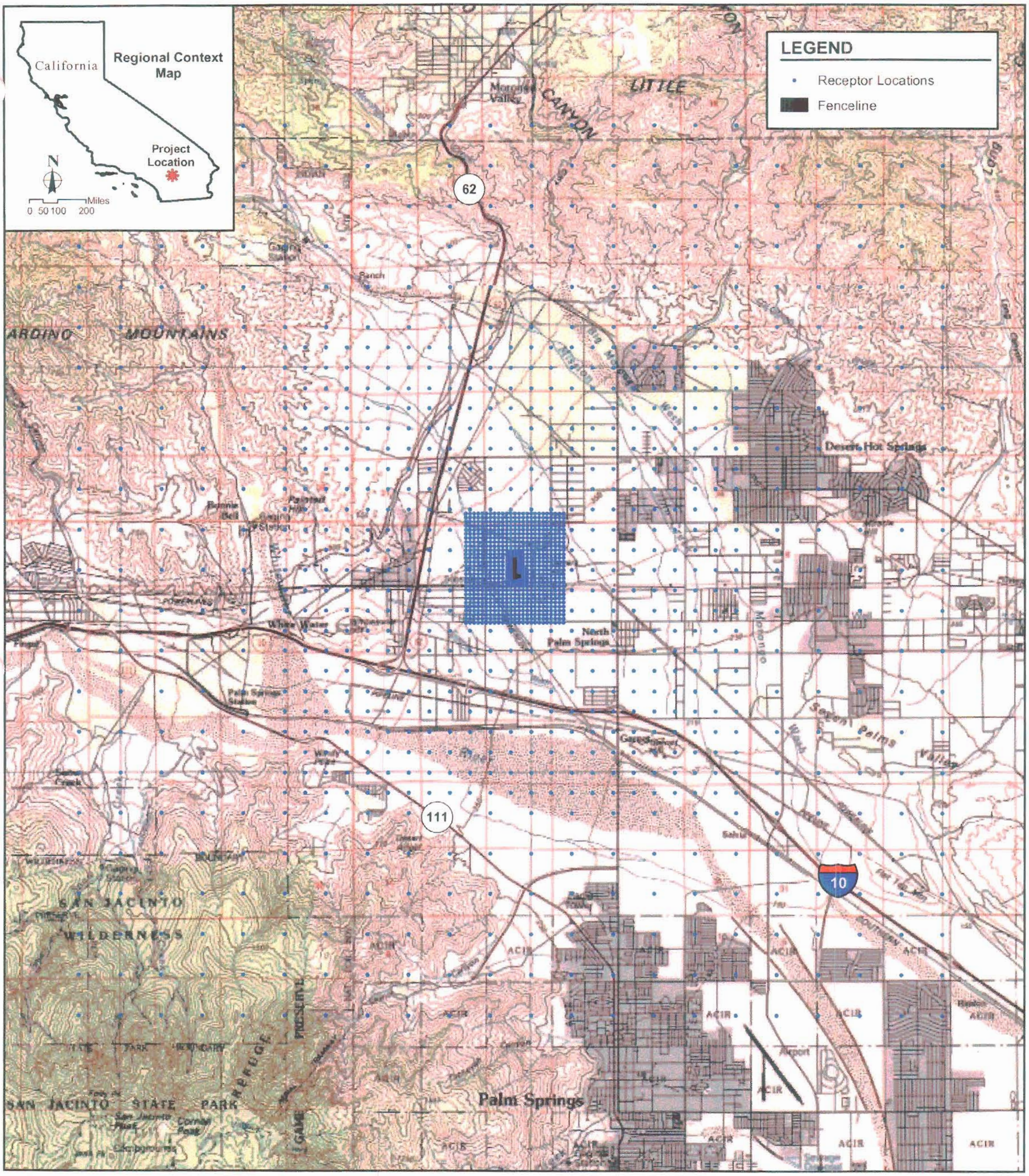
FIGURE 4-2

G:/GIS/projects/1577/28067168/mxd/aq_near_field.mxd



N

0 11,000 22,000

Scale in Feet
1:132,000

Source: USGS TOPO!
(100K quads: Big Bear Lake 1982, Palm Springs 1984).

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FAR-FIELD MODEL RECEPTOR GRID

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FIGURE 4-3

G:/GIS/projects/1577/28067168/mxd/aq_far_field.mxd

4.4 BACKGROUND AIR QUALITY

The ambient air quality in Riverside County is monitored at a number of permanent air quality monitoring stations operated by SCAQMD and California Air Resources Board (CARB). The monitoring stations within Riverside County that are closest to the proposed project site are the Palm Springs-Fire Station located approximately 6.4 miles south-southeast of the proposed project site and the Indio-Jackson Street station about 25.5 miles to the southeast of the proposed site. The Palm Springs station measures all criteria pollutant concentrations except SO_2. The Riverside-Rubidoux monitoring station is the closest station that monitors ambient SO_2 and is considered to be the most representative of the SCAQMD monitoring locations for characterizing conditions at the proposed project site. The Indio-Jackson Street station only monitors PM_{10}, particulate matter less than 2.5 µm in diameter ($PM_{2.5}$), and ozone (O_3). The next closest and next most representative station, the Banning Airport station, is approximately 25 miles west of the proposed site and thus closer to the large concentration of emission sources within the South Coast Air Basin to the west. The Banning Airport Station is situated in a narrow gap between high terrain to the north and south that results in stronger wind channeling than occurs at the proposed project site. Banning data are considered to be significantly less representative of site conditions than either Palms Springs or Indio; thus, Banning data are not used to represent background pollutant levels for the CSEP project.

Air quality measurements taken at these stations are summarized in the tables of Appendix F. For this air quality impact analysis, the maximum recorded concentration from the most recent 3 years (2004-2006) at any of these monitoring stations were used to represent background air quality levels (see Table 4-3). Use of these background values in all the criteria pollutant modeling simulations is very conservative, since it forces the peak impacts of the CSEP to coincide in time and space with the single highest monitored value in the Project area over the last three years, which is highly unlikely to occur.

4.5 TURBINE SCREENING MODELING

As described previously, a screening modeling analysis was performed to determine which CTG operating mode and stack parameters would produce worst-case offsite impacts (i.e., maximum ground-level concentrations for each pollutant and averaging time). Only the emissions from the CTGs with and without evaporative cooling were considered in this preliminary modeling step. The screening modeling used AERMOD, as described in the previous sections. Building wake information and the receptor grid described above were also used. All 4 years of hourly meteorological data were used in the screening analysis.

The AERMOD model simulated the dispersion of natural gas combustion emissions from eight 13.5-foot-diameter (4.15 meters), 90-foot-tall (27.43 meters) stacks for the CTG units. The stacks were modeled as point sources at their proposed locations within the proposed project site. Table 4-4 summarizes the CTG screening results for the different CTG operating loads and ambient temperature condition. First, the model was run with unit emissions (1.0 grams per second) from each stack to obtain normalized concentrations that are not specific to any pollutant. CTG and control equipment vendor data used to derive the stack parameters for the different operating conditions evaluated in this screening analysis are included in Appendix B.

The maximum ground-level concentrations predicted to occur offsite with unit turbine emission rates for each of the 11 operating conditions shown in Table 4-4 were then multiplied by the corresponding turbine emission rates for specific pollutants. The highest resulting concentration values for each pollutant and averaging time were then identified (see bolded values in the bottom section of the table).

Table 4-3
Peak Background Pollutant Concentrations Used in Modeling

Pollutant	Averaging Period	Background[1] (µg/m³)
CO	1 hour	2,645
	8 hour	944.4
NO_2	1 hour[2]	174.8
	Annual[2]	24.5
PM_{10}	24 hour	161[3]
	Annual	54.9[3]
$PM_{2.5}$	24 hour	44.3[3]
	Annual	10.8[3]
SO_2	1 hour	62.9
	3 hour	41.6
	24 hour	39.4
	Annual	10.7

Notes:

1 Background represents the maximum values measured at the monitoring stations described in previous sections, for 2004-2006.

2 Results for NO_2 during construction used OLM with ambient ozone data collected at the Palm Springs-Fire Station monitoring station for the years 1988 through 1991.

3 PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.

4 In February 2007, the CARB approved new, more stringent CAAQS for NO_2. In the units used in this table, the new standards, which are expected to take effect fully in late 2007, are 338 µg/m³ (1 hour) and 56 µg/m³ (annual).

µg/m³ = micrograms per cubic meter
AAQS = Most stringent ambient air quality standard for the averaging period
CO = carbon monoxide
NA = Not applicable
NO_2 = nitrogen dioxide
OLM = ozone limiting method
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter.
SO_2 = sulfur dioxide
UTM = Universal Transverse Mercator

The principal purpose of the turbine screening modeling analysis is to select stack parameters for use in subsequent refined modeling. Specifically, the stack parameters associated with the maximum predicted impacts for each pollutant and averaging time were used in all simulations of the refined AERMOD analyses, which are described in the next subsection. Note that the lower exhaust temperatures and flow rates at reduced turbine loads correspond to reduced plume rise, in some cases resulting in higher offsite pollutant concentrations at ground level than the higher baseload emissions. Model input and output files for the screening modeling analysis are included with those from all other modeling tasks on the Air Quality and Public Health Modeling DVDs that are provided separately with this Application.

Table 4-4
Turbine Screening Modeling Results

Stack Parameters Normal and Operational Emissions per Turbine											
Case	**CASE 100**	**CASE 101**	**CASE 102**	**CASE 103**	**CASE 104**	**CASE 105**	**CASE 106**	**CASE 107**	**CASE 108**	**CASE 109**	**CASE 110**
Ambient Temperature	17°F – 80% RH			72°F – 40% RH				107°F – 18% RH			
CTG Load Level	**100%**	**75%**	**50%**	**100%**	**100%**	**75%**	**50%**	**100%**	**100%**	**75%**	**50%**
Evaporative Cooler Status	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
Stack Outlet Temperature (°F)	744.1	744.6	762.4	785.9	791.8	771.2	786.7	799.7	813.6	791.8	806.2
Stack Exit Velocity (ft/second)	100.52	84.88	68.16	99.87	98.12	82.75	66.54	96.03	92.31	78.11	63.07
Stack Outlet Temperature (°K)	668.8	669.0	678.9	692.0	695.3	683.8	692.4	699.7	707.4	695.3	703.3
Stack Exit Velocity (m/s)	30.64	25.87	20.78	30.44	29.91	25.22	20.28	29.27	28.14	23.81	19.22
Emission Per Turbine											
NO_x (lb/hr)	7.94	6.261	4.595	7.94	7.77	6.085	4.473	7.544	7.172	5.637	4.165
CO (lb/hr)	11.6	9.145	6.711	11.601	11.344	8.889	6.534	11.019	10.47	8.234	6.084
SO_2 (lb/hr)	0.61	0.483	0.354	0.612	0.6	0.469	0.345	0.58	0.55	0.434	0.321
PM_{10} (lb/hr)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
NO_x (g/s)	1.0	0.7889	0.58	1.0	0.9785	0.7667	0.56	0.9505	0.9037	0.71	0.52
CO (g/s)	1.4611	1.1523	0.85	1.4617	1.4293	1.12	0.82	1.3884	1.319	1.04	0.77
SO_2 (g/s)	0.0771	0.0609	0.04	0.0771	0.0753	0.0591	0.04	0.0732	0.0696	0.05	0.04
PM_{10} (g/s)	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756	0.756
Screening Model Results – Maximum X/Q concentrations ($\mu g/m^3/(g/s)$) predicted from AERMOD											
1 hour	27.4	34.58	35.97	26.77	27.18	30.18	36.22	27.66	28.56	32.88	37.28
3 hour	22.7	28.0	31.36	22.15	22.51	28.23	31.58	22.95	23.92	29.77	32.86
8 hour	20.87	24.97	28.24	20.35	20.67	24.74	27.83	21.14	22.02	26.01	31.08
24 hour	11.98	14.54	19.04	11.68	11.92	14.57	19.29	12.21	12.77	15.4	20.37
Annual	1.58	1.82	2.19	1.56	1.58	1.84	2.22	1.6	1.64	1.91	2.31

Table 4-4
Turbine Screening Modeling Results
(Continued)

Stack Parameters Normal and Operational Emissions per Turbine												
Case		CASE 100	CASE 101	CASE 102	CASE 103	CASE 104	CASE 105	CASE 106	CASE 107	CASE 108	CASE 109	CASE 110
Maximum predicted offsite pollutant concentrations due to eight turbine emissions for each averaging time												
NO_x	1 hour	27.41	27.28	20.83	26.20	26.560	23.14	20.41	26.29	25.81	23.35	19.56
	annual	1.58	1.44	1.27	1.53	1.55	1.41	1.25	1.52	1.48	1.36	1.21
CO	1 hour	40.03	39.85	30.42	38.26	38.85	33.80	29.82	38.40	37.67	34.11	28.58
	8 hour	30.49	28.77	23.88	29.09	29.55	27.71	22.91	29.35	29.04	27.00	23.83
SO_2	1 hour	2.11	2.10	1.61	2.02	2.05	1.785	1.575	2.03	1.99	1.80	1.51
	3 hour	1.75	1.70	1.40	1.67	1.70	1.67	1.37	1.68	1.66	1.63	1.33
	24 hour	0.92	0.89	0.85	0.88	0.90	0.86	0.84	0.90	0.89	0.84	0.82
	Annual	0.12	0.11	0.10	0.118	0.12	0.11	0.10	0.12	0.11	0.10	0.09
PM_{10}	24 hour	9.06	10.99	14.39	8.83	9.01	11.02	14.58	9.23	9.65	11.64	15.40
	Annual	1.19	1.38	1.66	1.18	1.19	0.39	1.68	1.21	1.24	1.44	1.75

Notes:

Bold = highest concentration for that pollutant and averaging time
All particulate matter (PM) emissions from CTGs are assumed to be both PM_{10} and $PM_{2.5}$
CO = carbon monoxide
°F = degrees Fahrenheit
g/s = grams per second
ug/m^3 = micrograms per cubic meter
NO_x = nitrogen oxide(s)
PM_{10} = particulate matter less than 10 microns in diameter
SO_2 = sulfur dioxide
% = percent

4.6 PROJECT AIR QUALITY IMPACTS – NORMAL FACILITY OPERATIONS

Air dispersion modeling was performed according to the methodology described in the previous subsections to evaluate the maximum increase in ground-level pollutant concentrations resulting from proposed project's operational emissions, and to compare the maximum predicted impacts, including background pollutant levels, with applicable short-term and long-term CAAQS and NAAQS. The same 4-year record of hourly meteorological data described in Section 4.3.2 was used in the AERMOD modeling to evaluate operational impacts.

In evaluating operational impacts, the AERMOD model was used to predict the increases in criteria pollutant concentrations at all receptor concentrations due to project emissions only. Next, the maximum modeled incremental increases for each pollutant and averaging time were added to the maximum background concentrations, based on air quality data collected at the most representative monitoring stations during the last 3 years (2004 through 2006). These background concentrations are presented and discussed in Section 4.4. The resulting total pollutant concentrations were then compared with the most stringent CAAQS or NAAQS.

As described in Section 4.1, the emissions used in the AERMOD simulations for the project operations were selected to ensure that the maximum potential impacts would be addressed for each pollutant and averaging time corresponding to an ambient air quality standard. The emissions used for each pollutant and averaging time are explained and quantified in Table 4-2. This subsection describes the maximum predicted operational impacts of the proposed project for normal power plant operating conditions. Commissioning impacts, which would occur on a temporary, one-time basis and would not be representative of normal operations, were addressed separately, as described in the next subsection.

Table 4-5 summarizes the maximum predicted criteria pollutant concentrations due to operation of the proposed project. Table 4-5 also shows that the modeled impacts due to the proposed project emissions, in combination with conservative background concentrations, would not cause a violation of any NAAQS and would not significantly contribute to existing violations of the federal and state PM_{10} standards. In addition, as described later, all of the proposed project's operational emissions of nonattainment pollutants and their precursors would be offset to ensure a net air quality benefit.

SCAQMD Rule 1303 establishes incremental concentration limits for nonattainment pollutants due to proposed new sources. These limits are presented in Table 4-5. For 24-hour PM_{10}, the permissible limit for each emission unit is 2.5 $\mu g/m^3$. Modeling results indicate that the highest 24-hour offsite PM_{10} concentrations due to the eight individual CTGs would range from a low of 2.149 $\mu g/m^3$ (Unit 7) to a high of 2.399 $\mu g/m^3$ (Unit 2). These values are all below the SCAQMD 24-hour PM_{10} Significant Change level. In addition, the maximum annual PM_{10} value for all eight CTGs combined would be below the SCAQMD annual PM_{10} Significant Change level of 1 $\mu g/m^3$. Other important results of the operational modeling are summarized below:

- The locations of predicted maximum impacts vary by pollutant and averaging time, but in all cases would be within 2,000 feet from the proposed project facility fenceline.

- The peak annual NO_2 impact and the annual and 24-hour maxima for both PM_{10} and SO_2 are predicted to occur approximately 1,804 feet east of the property line of the proposed project opposite CTG 7.
- Short-term maxima for NO_2 are predicted to occur adjacent to the fenceline west of the property boundary opposite CTG 1.
- Short-term maxima for SO_2 are predicted adjacent to the fenceline east of the proposed project property boundary opposite CTG 4.
- Short-term maxima for CO are predicted to occur approximately 984 and 1,640 feet south of the proposed project property line boundary in line with all units.
- Maximum 24-hour SO_2 and PM_{10} impacts are predicted to occur approximately 1,312 feet south of proposed project property line boundary in line with all the CTGs.

Figure 4-4 shows the locations of the maximum predicted operational impacts for all pollutants and averaging times.

Table 4-5
AERMOD Refined Modeling Results for the Operational Project

Pollutant	Averaging Period	Maximum Predicted Impact (µg/m³)	SCAQMD Significant Change (µg/m³)	Background Concentration (µg/m³) [1]	Total Concentration (µg/m³)	NAAQS (µg/m³)	CAAQS (µg/m³)	Maximum UTMX NAD27 (m)	Maximum UTMY NAD27 (m)
NO_2	1-hour[2]	161.3	20	174.8	336.1	NA	470[5]	539,	3,754,
	Annual[2]	0.75	1	24.5	25.3	100	100[5]	539,375	3,754,875
SO_2	1-hour	44.3	NA	62.9	107.2	NA	655	539,692	3,755,071
	3-hour	38.3	NA	41.6	79.9	1300	NA	539,692	3,755,048
	24-hour	1.06	NA	39.4	40.5	365	105	539,625	3,754,250
	Annual	0.04	NA	10.7	10.7	80	NA	540,375	3,754,875
CO	1-hour	169.2	1,100	2,645	2,814	40,000	23,000	539,625	3,754,375
	8-hour	47.2	500	44.4	991.6	10,000	10,000	539,625	3,754,200
PM_{10}	24-hour[3,4]	16.7	2.5 (NA)	161	177.7	150	50	539,625	3,754,325
	Annual[3,4]	0.63	1	54.9	55.5	NA	20	540,300	3,754,900
$PM_{2.5}$	24-hour	16.7	NA	44.3	61.0	35	NA	539,625	3,754,325
	Annual	0.63	NA	10.8	11.4	15	12	540,300	3,754,900

Notes:

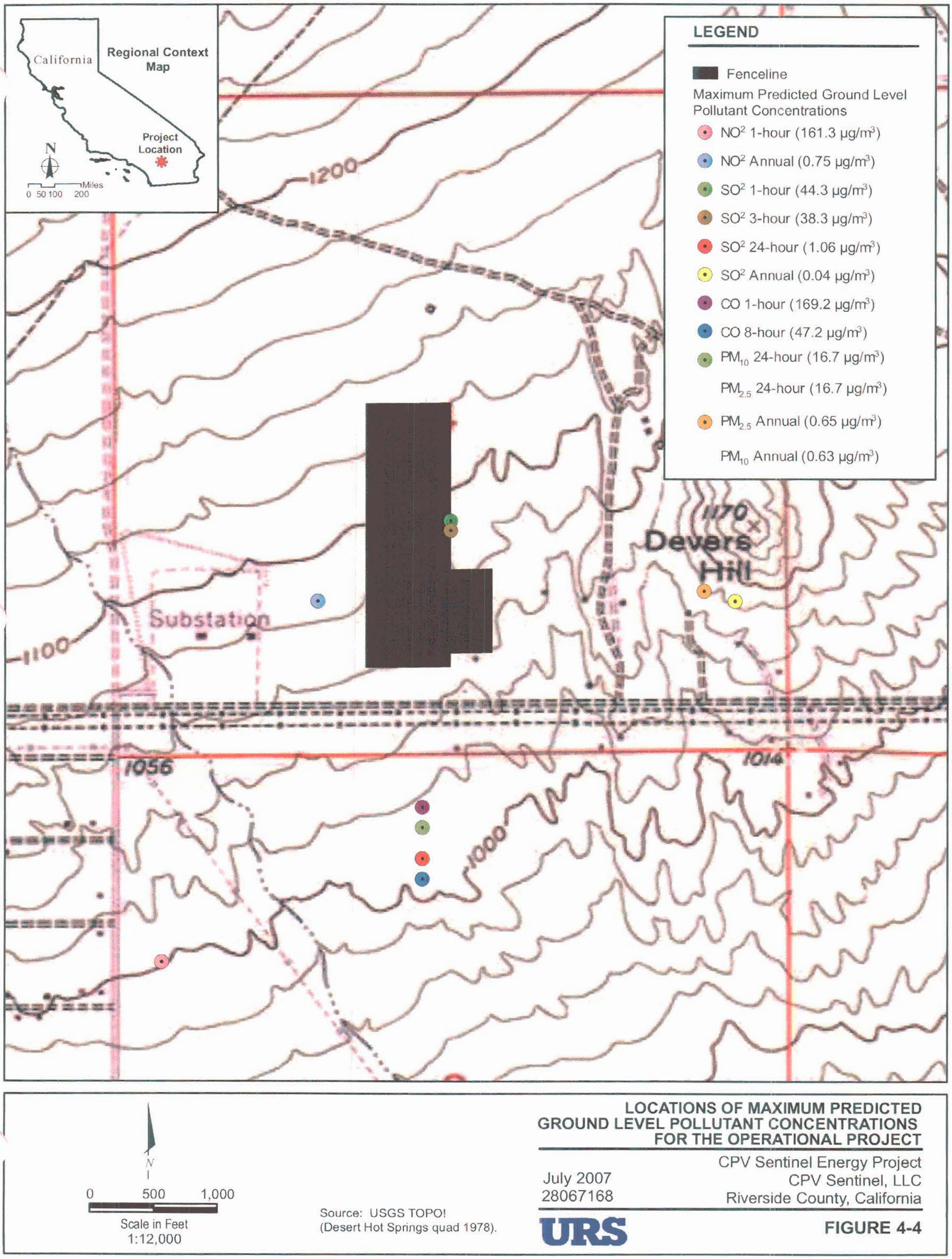
1 Background represents the maximum values measured at the monitoring stations identified in Section 4.4.

2 Results for NO_2 during operations used ozone limiting method (OLM) with ambient ozone data collected at the Palm Spring-Fire Station monitoring station for the years 2004 through 2006.

3 PM_{10} and $PM_{2.5}$ background levels exceed ambient standards.

4 All PM_{10} emissions from proposed project sources were also considered to be $PM_{2.5}$.

5 In February 2007, the CARB approved new, more stringent CAAQS for NO_2. In the units used in this table, the new standards, which are expected to take effect fully in late 2007, are 338 µg/m³ (1-hour) and 56 µg/m³ (annual).



Source: USGS TOPO! (Desert Hot Springs quad 1978).

LOCATIONS OF MAXIMUM PREDICTED GROUND LEVEL POLLUTANT CONCENTRATIONS FOR THE OPERATIONAL PROJECT

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FIGURE 4-4

G:/GIS/projects/1577/28067168/mxd/aq_max_pollutant.mxd

4.7 PROJECT AIR QUALITY IMPACTS – TURBINE COMMISSIONING

Each of the proposed project's CTGs could be operated for up to 200 hours with partially abated emissions for purposes of commissioning the new generating equipment. The expected sequence of commissioning tests and the associated emissions during each stage of CTG commissioning are presented in Section 3.2.4. Separate modeling was conducted using AERMOD to evaluate maximum short-term effects of these activities in terms of the impacts on offsite 1-hour NO_2 concentrations and 1-hour and 8-hour CO concentrations. These are the pollutants (along with VOCs, which are not modeled) for which emissions would be expected to be significantly higher than during normal operations, owing to the nonoperability of the SCR and oxidation catalyst emission control systems during some of the commissioning tests. Emissions of SO_2 and PM depend primarily on the rate of fuel combustion and would be unaffected by the availability or nonavailability of the SCR and oxidation catalyst. Thus, emissions of these pollutants during commissioning are not expected to exceed the levels that would occur during full-load normal operations of the turbines, and separate modeling for commissioning impacts on SO_2 and PM levels is unnecessary.

Stack exhaust flow rates and temperatures for individual turbine commissioning tests were presented in Table 3-5, along with the corresponding NO_x and CO emission rates. Modeling was conducted for the tests that were expected to produce the highest offsite concentrations at ground level, i.e., the test with the highest emission rate in combination with the lowest exhaust flow and temperature. For the NO_x modeling, the emissions and stack parameters for the row labeled Base Load AVR in Table 3-5 were used; maximum CO impacts were also evaluated for this case. CPV Sentinel would accept a permit condition prohibiting execution of the base load AVR test on more than one turbine at a time.

Since the other commissioning tests have lower NO_x and CO emissions, additional modeling was conducted to determine whether testing of multiple units could be conducted simultaneously for tests other than base load AVR. The results obtained from these simulations show that up to three turbines could undergo testing for the second-worst test (Dynamic AVR at 100 percent load) without causing the NO_2 or CO ambient standards to be exceeded. The maximum concentrations predicted for three turbines in the Dynamic AVR/100 percent case (including background) are:

- 1-hour NO_2 309.1 $\mu g/m^3$
- 1-hour CO 2,975 $\mu g/m^3$
- 8-hour CO 1,152.2 $\mu g/m^3$

Table 4-6 shows the results of the simulations for worst-case turbine commissioning test (base load AVR) for a single turbine. The tabulated impacts are the highest concentrations for the indicated averaging periods that are predicted by AERMOD to occur for the worst-case emission condition using 4 years of hourly meteorological input data.

The commissioning modeling results demonstrate that when the maximum incremental commissioning impacts are added to applicable background concentrations and compared with the most stringent state or national ambient standards, no violation of the applicable ambient air quality standards for these pollutants is predicted to occur.

Table 4-6
Proposed Project Commissioning Modeling Results

Modeling Scenario	Pollutant	Averaging Period	Maximum Estimated Impact ($\mu g/m^3$)	Background[2] ($\mu g/m^3$)	Total Predicted Concentration ($\mu g/m^3$)	Most Stringent Standard ($\mu g/m^3$)
Worst-case turbine commissioning tests[1]	CO	1 hour	205.5	2,645	2,851	23,000
		8 hour	166.0	944.4	1,110.4	10,000
	NO_2	1 hour	109.8	174.8	284.6	470[3]

Notes:

1 Indicated maximum impacts are the higher of the maxima obtained from separate simulations for worst-case commissioning emissions for any of the eight turbines.

2 Background represents the maximum values measured at the monitoring stations presented in Section 4.4.

3 In February 2007, the CARB approved new, more stringent CAAQS for NO_2. In the units used in this table, the new 1-hour standard, which is expected to take effect fully in late 2007, is 338 µg/m3.

$\mu g/m^3$ = micrograms per cubic meter
CO = carbon monoxide
NO_2 = nitrogen dioxide

4.8 PLUME VISIBILITY IMPACTS IN CLASS I AREAS

SCAQMD Rule 1303(b)(5)(C)(i) requires a plume visibility analysis if the net emissions increase from a new source exceeds 15 tons per year (tpy) of PM_{10} or 40 tpy of NO_x, provided that the source is located within specified distances to the nearest boundary of a federal Class I area. The proposed project site is within the specified distances from three Class I areas, as shown in Table 4-7. In addition, the annual project emissions are expected to exceed the threshold values for both NO_x and PM_{10}. Accordingly, a visibility modeling analysis was conducted per SCAQMD Rule 1303 requirements.

Table 4-7
Class I Areas near the Proposed Project Site

Class I Area	Distance from Proposed Project to Class I Area (km/miles)	SCAQMD Rule 1303 Required Analysis Distance (km/miles)
San Jacinto Wilderness Area	9/5.6	28/17.4
Joshua Tree National Park	12/7.5	29/18
San Gorgonio Wilderness Area	14/8.7	32/19.9

Since the proposed project does not trigger a Prevention of Significant Deterioration (PSD) analysis, the visibility analysis was conducted in accordance with SCAQMD Rule 1303 requirements and not PSD requirements.

4.8.1 Analysis Methods

The federal authority with jurisdiction in the two Wilderness Areas identified in Table 4-7 is the United States Forest Service (USFS), and the National Park Service (NPS) has jurisdiction over Joshua Tree National Park. The visibility analyses for these areas have been conducted in a manner consistent with guidance from the NPS and USFS following the procedures set forth in the *Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report* (USFS, 2000), with any exceptions noted in this document due to SCAQMD requirements.

4.8.1.1 Tier I Plume Visibility Analysis

For the three Class I areas listed in Table 4-7, a visibility modeling analysis was performed to address the proposed project's impacts in terms of plume contrast and color difference index. Initially, a series of Tier I visibility screening analyses were conducted to obtain a conservative evaluation of the proposed project's potential to adversely affect visibility in the San Jacinto Wilderness Area, the San Gorgonio Wilderness Area, and Joshua Tree National Park. The Tier 1 analysis entails use of the U.S. EPA VISCREEN model with simple, worst-case default input assumptions (i.e., extremely stable [Class F]) atmospheric turbulence conditions and a very low wind speed (1.0 meter per second) persisting for 12 consecutive hours in a direction that would transport the proposed turbine plumes toward a hypothetical observer at each Class I area. The only inputs required to execute the Tier 1 analysis with the default parameter settings are: (1) projected short-term maximum turbine emission rates of fine particulate, and nitrogen oxides, per U.S. EPA *Workbook for Plume Visual Impact Screening and Analysis* (U.S. EPA, 1988 and 1992); (2) the distances between the project stacks and a hypothetical observer at the nearest and farthest park boundaries; and (3) representative background visual range values for the region(s) of concern.

The VISCREEN output for a Class I analysis provides the results of the following plume impact tests:

- Plume perceptibility based on color differences between the plume and a sky or terrain background (ΔE)
- Plume contrast relative to a sky or terrain background (C)

The VISCREEN model calculates the color difference index (ΔE) and the contrast (C) for four different lines of sight corresponding to two types of background (sky and terrain), and two assumed worst-case sun angles (10 degrees and 140 degrees). As part of the standard output, the four lines of sight are calculated for both the observer's view inside the Class I area and the view outside the area. However, it should be noted that both the NPS and the USFS identify only the views inside the Class I area as the criteria for significance in this analysis.

Based upon the FLAG workbook, the significance criterion for the ΔE is less than 2, and a value of 0.05 or higher is considered significant for C. As recommended by the FLAG document, a Tier II screening procedure should be conducted when the potential for impacts greater than the screening criteria is indicated by the results of the Tier I analysis, as described in the *Workbook for Plume Visual Impact Screening and Analysis* (U.S. EPA, 1988 and 1992).

4.8.1.2 Tier II Plume Visibility Analysis

The Tier II procedure is similar to the Tier I analysis but allows more site-specific input data to be used in place of the extremely conservative default assumptions. Specifically, the frequencies of occurrence of the different dispersion conditions in the proposed project vicinity are established and ranked in terms of increasing values of the dispersion parameter '$\sigma_z u$' (i.e., the product of the wind speed (u) and the plume vertical spread parameter (σ_z) for the appropriate stability class) and the source-receptor distance. In the Tier II analysis, the VISCREEN model is run for the most restrictive combination of wind speed, wind direction, and atmospheric stability that corresponds to a cumulative frequency of 1 percent (in combination with all the other combinations corresponding to lesser dispersion parameter values). A background ozone concentration of 0.065 ppm was incorporated as a representative worst-case 24-hour average ozone concentration in the proposed project vicinity.

The available meteorological data were analyzed to incorporate information on the frequency of conditions that may lead to adverse plume impacts in the applicable Class I areas. The required meteorological statistics used for this refinement were derived from 4 years of hourly wind data measured at the Wintec Energy wind farm, very near the proposed project site, and are considered to be the most representative data available to characterize wind conditions at the site (see Section 4.3.2).

The Tier II analysis determined frequencies of various combinations of wind speed and stability occurring simultaneously with wind directions within the approximately 30 degree sectors that would carry the proposed project facility plume toward each of the three Class I areas identified for analysis. Separate frequency distributions were developed for four diurnal time periods (midnight–6:00 am, 6:00 am–noon, noon–6:00 pm, and 6:00 pm–midnight). For each 6-hour time period, the joint frequencies were determined for all combinations of the following parameter values:

- Five wind speed categories (0–1 m/s, 1–2 m/s, 2–3 m/s, 3–4 m/s, and 4–5 m/s):
- Six stability classes (Class A [most unstable] through Class F [most stable]; Class G is considered as Class F); and,
- Each of the specific wind direction compass sectors toward the Class I areas from the proposed project site.

Thus, for each time of day and each wind direction sector, 14 possible wind speed/stability combinations were ranked in order of increasing values of the dispersion parameter, $\sigma_z u$ as described above. The combinations included F stability for wind speed classes 1 through 4, E stability with wind speed classes 1 through 5, and D stability with wind speed classes 1 through 5, as specified by the Tier II guidance. Note that the lowest values of the dispersion parameter $\sigma_z u$ correspond to the most restrictive dispersion conditions. Finally, a table was constructed showing the percent frequency of occurrence for each combination of stability and wind speed or, alternatively for each value of $\sigma_z u$. Appendix F shows the tables developed for each of the three Class II areas.

These data were tabulated in terms of the frequency of each combination, as well as the cumulative frequency of all combinations with lower values of $\sigma_z u$. The meteorological condition for each Class I area with a cumulative frequency of 1 percent or greater, and with a wind speed fast enough to transport the plume to the given Class I area within 12 hours were selected to determine appropriate VISCREEN model input parameters. The nearest boundaries of the San Jacinto Wilderness Area and San Gorgonio Wilderness Area relative to the proposed project site are located in complex terrain. Since the elevation gain from the proposed project to both these Class I areas is greater than 1,640 feet, the worst-case stability class selected from the joint frequency analysis described above may be shifted to one category less stable, per the *Workbook for Plume Visual Impact Screening and Analysis* (U.S. EPA, 1988 and 1992). Thus the VISCREEN model was run with this adjusted stability category in combination with the wind speed determined by the techniques described above. Background visual ranges appropriate for each Class I area are specified in SCAQMD Rule 1303. Accordingly, the background visible range values used in all levels of analysis were:

- 171 km (106.3 miles) for San Jacinto Wilderness Area;
- 180 km (111.8 miles) for Joshua Tree National Park; and,
- 192 km (119.3 miles) for San Gorgonio Wilderness Area.

For the Tier I and II visibility modeling, the maximum 24-hour averaged emission rates of NO_x and PM_{10} from all sources of the operational proposed project were used, in accordance with guidance in the *Workbook for Plume Visual Impact Screening and Analysis* (U.S. EPA, 1988 and 1992).

4.8.1.3 Tier III Plume Visibility Analysis

Per SCAQMD Rule 1303, if the plume parameters predicted by VISCREEN Tier II analysis are above the screening criteria for locations inside the Class I areas, a Tier III analysis using the U.S. EPA PLUVUE II plume visibility model is required to determine whether a less conservative screening approach would result in predicted significant impacts within the three Class I areas. According to the FLAG guidance, the significant impact levels for the Tier III analysis are more stringent than those for the Tier 1 and Tier II modeling approach. Thus the ΔE and contrast numbers used as significance criteria in the PLUVUE II simulations were 1.0 and 0.02, respectively.

As recommended in the U.S. EPA *Workbook for Plume Visual Impact Screening and Analysis* (U.S. EPA, 1988 and 1992), the meteorology was examined by season, time of day, stability class, wind direction, and wind speed. Only daylight hours were examined because the plume would not be visible in the dark of night. Full details of the meteorological analysis used to determine realistic worst-case input scenarios are provided with the model input and output files submitted with this Application (see Appendix F). A conservative relative humidity value of 50 percent was used in all PLUVUE simulations, although the average humidity in the desert area surrounding the proposed project site is considerably lower.

To ensure that different angles of the sun reflecting off the plumes from the proposed project will be examined, both dawn and dusk hours were modeled. The U.S. EPA *Workbook for Plume Visual Impact Screening and Analysis* (U.S. EPA, 1988 and 1992) advises that these times of day should produce the worst-case conditions. Full-load turbine stack parameters and maximum 24-hour averaged emission rates of NO_x, SO_2, and PM_{10} from all sources were used in the analysis.

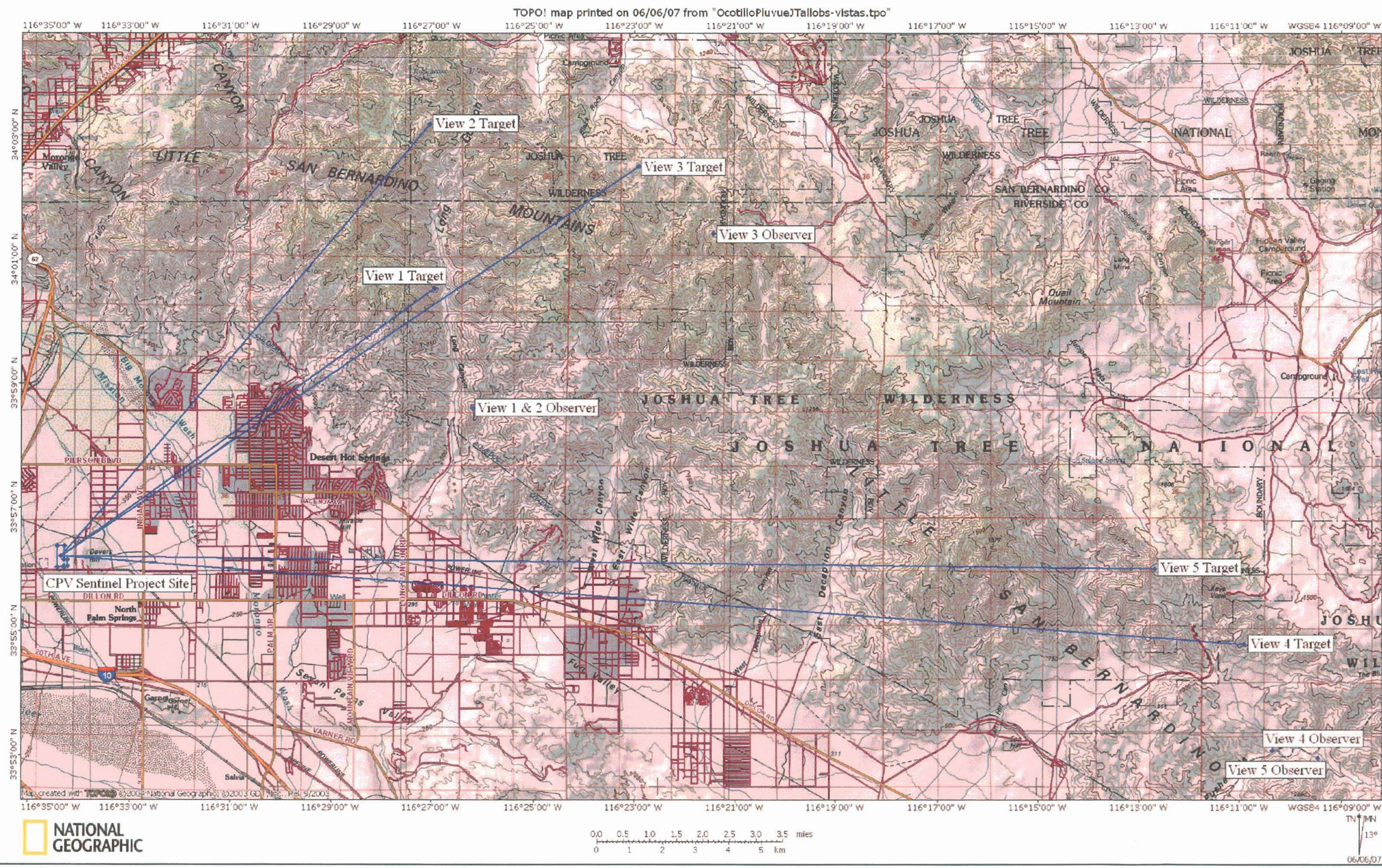
The observer/vista locations that were selected for analysis in the PLUVUE II simulations for the three individual Class I areas were determined in collaboration with the NPS and USFS and are shown in Figures 4-5 through 4-7. Also in accordance with the recommendation of the NPS, the background ozone level was set to 65 parts per billion (ppb) for all three Class I areas. Background values for NO_2 and coarse particle were set to 0.010 ppm and 30 micrograms per cubic meter ($\mu g/m^3$), respectively. These values are lower than the actual measured background values for these pollutants, as the PLUVUE II model will not allow higher values for these parameters given the nature of background visual range. Default model deposition and particle size parameters were used.

4.8.2 Analysis Results

The Tier I and Tier II analyses predicted values for the plume parameters ΔE and C that were above the screening criteria for viewer locations inside the three Class I areas. Model input files for the Tier I and Tier II evaluations are provided on the DVDs submitted with this Application, and details of the Tier II meteorological analysis are shown in Appendix F. Based on the Tier I and Tier II results, a Tier III analysis using the U.S. EPA PLUVUE II plume visibility model was performed.

PLUVUE II is a less conservative, more refined approach than VISCREEN for determining visible plume impacts. In preparation for a previous (2001) project at a site adjacent to the proposed project site, air quality staff members of both the NPS and USFS were consulted to identify appropriate observer locations that should be analyzed in the PLUVUE II study. As a result of these consultations, five different combinations of observer and target scenic vistas within Joshua Tree National Park were evaluated in the model simulations, and these are shown in Figure 4-5.

For the San Gorgonio and San Jacinto Wilderness Areas, the observer locations were specificd by the USFS, but the target vistas were not specified. Hence, a range of wind directions from the proposed project site that would traverse these areas was selected, and multiple appropriate vista targets were chosen along the path of the wind (see Figures 4-6 and 4-7). The effects of the proposed project plume on the views from all observer points to all target receptors were evaluated for these two Class I areas. The wind directions chosen to represent potential transport of the proposed project plumes through the San Gorgonio Wilderness Area were 112.5 degrees and 135 degrees. The wind directions selected to model proposed project impacts in the San Jacinto Wilderness Areas were 22.5 degrees, 45 degrees, and 60 degrees.



Joshua Tree PLUVUE II Observer/Vista Locations

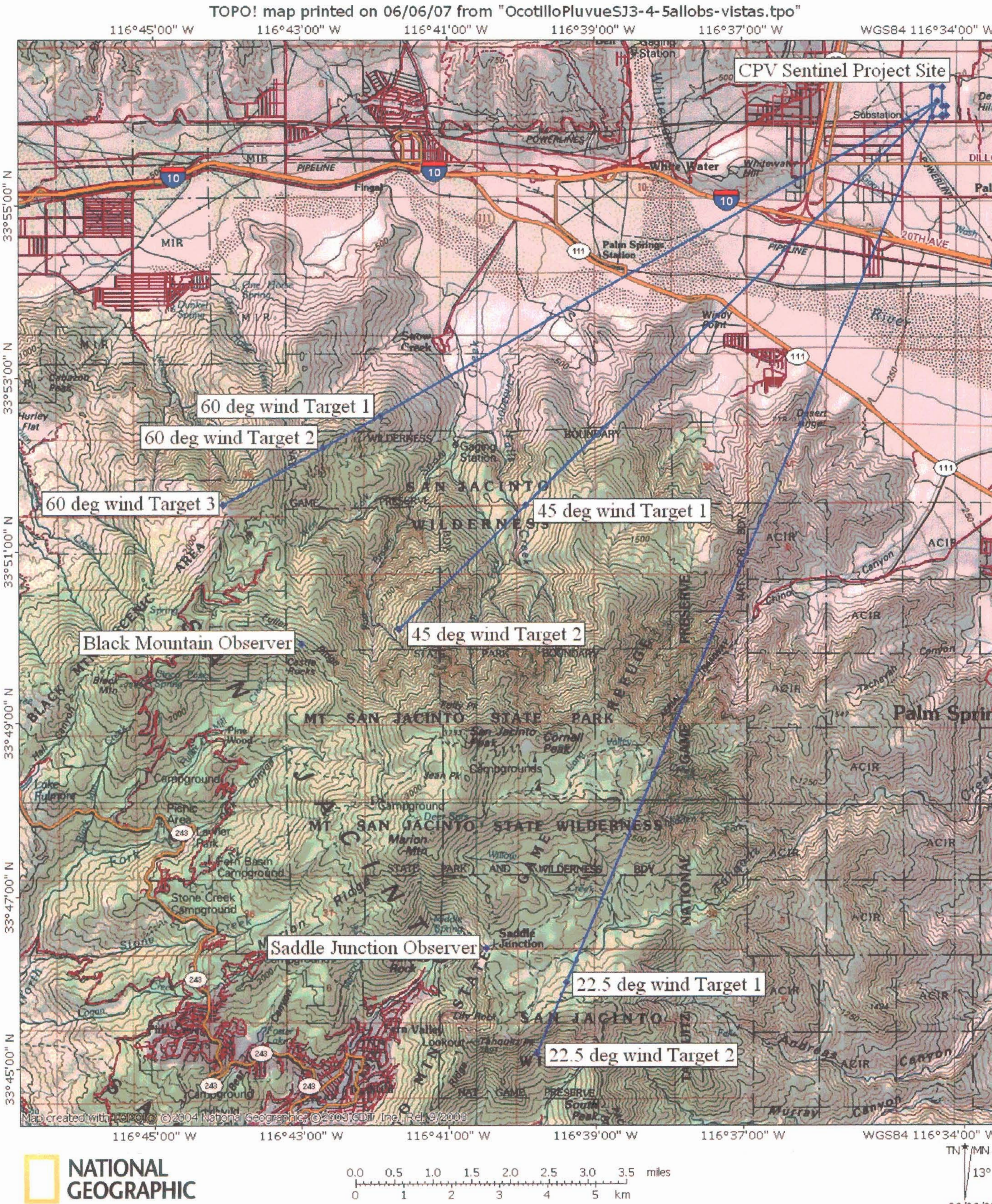
CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

July 2007
28067168

URS

FIGURE 4-5

G:/GIS/projects/1577/28067168/mxd/Joshua_Tree_PLUVUE_II.mxd



San Jacinto Wilderness Area
PLUVUE II Observer/Vista Locations

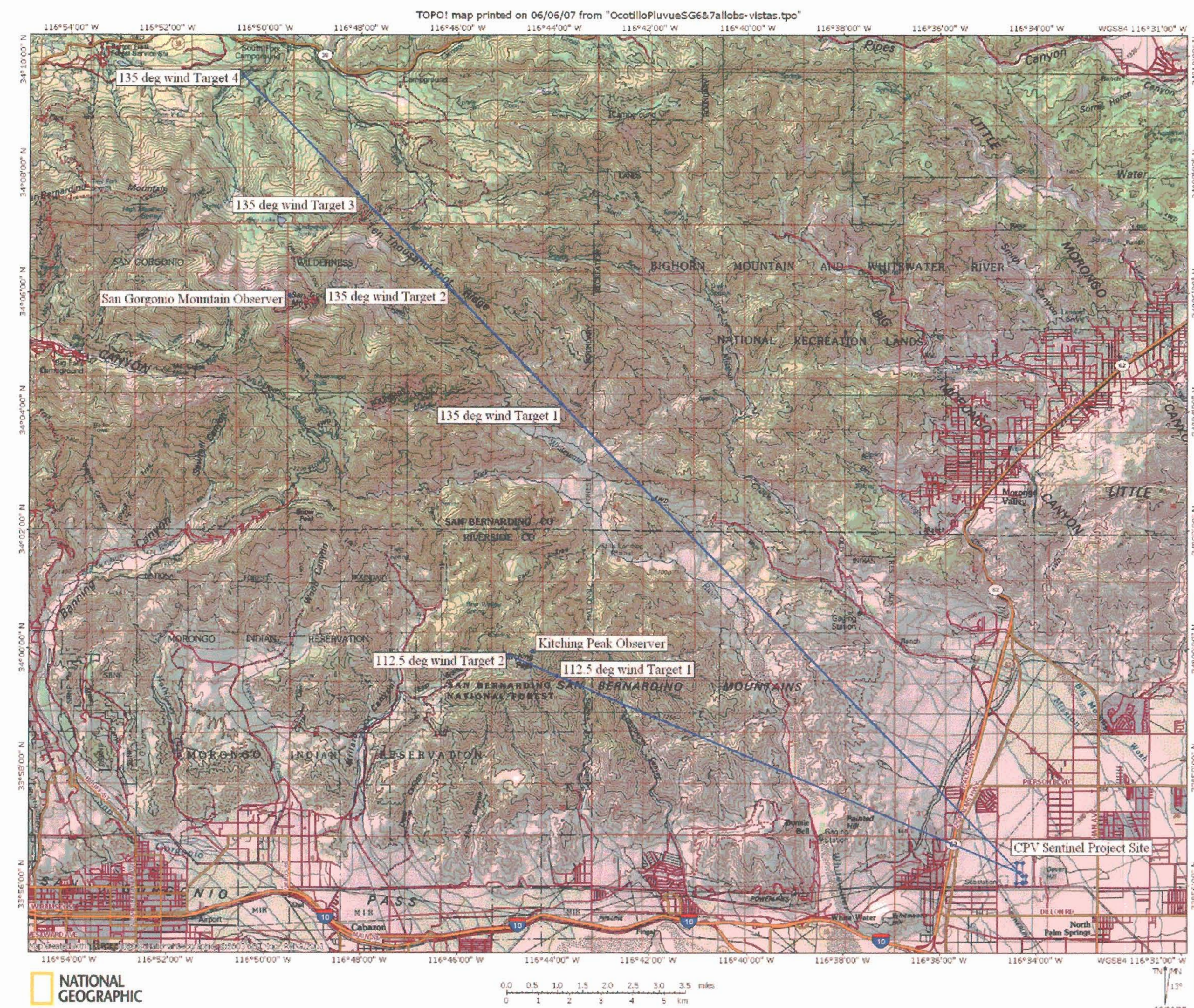
July 2007
28067168

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

URS

FIGURE 4-6

G:/GIS/projects/1577/28067168/mxd/San_Jacinto_Wilderness_Area_PLUVUE_II.mxd



San Gorgonio Wilderness Area PLUVUE II Observer/Vista Locations

July 2007
28067168

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

URS

FIGURE 4-7

G:/GIS/projects/1577/28067168/mxd/San_Gorgonio_Wilderness_Area_PLUVUE_II.mxd

Following the guidance in the PLUVUE II users manual and discussions with responsible NPS and USFS staff, a range of viewing conditions was used in 120 separate simulations that were completed to provide estimates of the proposed project plume impacts within the three Class I areas. Plume impacts during morning and evening conditions were evaluated using an appropriate worst-case meteorological dispersion condition that was determined from analyzing the Wintec Energy meteorological data set (see Section 4.3.2). As recommended in the U.S. EPA *Workbook for Plume Visual Impact Screening and Analysis* (U.S. EPA, 1988 and 1992), the meteorology was examined by season, time of day, stability class, wind speed, and wind direction.

The proposed project site is located in a windy desert valley with the terrain rising sharply towards the Class I Areas. Under stable conditions (stability Classes E and F), the wind blows primarily from the north to northwest, flowing away from all three Class I areas. As shown in the analysis of the onsite meteorological data (Appendix F), the wind blows from the proposed project site toward Joshua Tree National Park during daytime stable conditions only 0.27 percent of the time. During stable conditions, winds blow toward San Jacinto Wilderness Area only 0.76 percent of the time, and toward San Gorgonio Wilderness Area only 1.25 percent of the time. As these conditions occur very infrequently, and coherent plumes from the proposed project could not reach elevated terrain under these conditions, neutral atmospheric stability (Class D) was selected as the worst-case stability class for this analysis. The worst-case wind speed was conservatively chosen to be 1.5 m/s, because light winds do occasionally occur within the proposed project vicinity. A relative humidity value of 50 percent was conservatively used in all of the PLUVUE II simulations, although the average humidity in the desert area surrounding the proposed project site is considerably lower. Background visual range and air pollution concentration values used in the simulations were described in the previous subsection.

The results of the PLUVUE II simulations are summarized in Table 4-8. Each value in the table represents the highest predicted impact among six values calculated for different plume backgrounds or viewing angles—specifically, white, black or gray backgrounds—and a horizontal and a non-horizontal view through the plume center.

The model results for all three Class I area indicate that the change in color difference is below the designated significance level (ΔE of 1.0). For the San Gorgonio and San Jacinto Wilderness Areas, the results also indicate that the contrast values are below the designated significance level (C of 0.02) for all of the parameter combinations examined. In Joshua Tree National Park, there is only one exceedance of the contrast threshold. This contrast value is predicted to occur in the summer evening scenario for View 3 in the Joshua Tree Class I area for the viewpoint located 21.1 km (13.1 miles) downwind from the proposed project site against a black background. In this simulation, the observer is looking at an angle of 5.5 degrees upward along an azimuth of 311.8 degrees (nearly northwest). The observer elevation is 5,076 feet (1,547 meters), the terrain elevation at the scenic vista target point is 5,134 feet (1,565 meters), and the plume centerline altitude (above the terrain) is 791 feet (241 meters), meaning that the plume centerline elevation would be 1,565 + 241 = 1,806 meters (5,925 feet).

The USGS map of the Joshua Tree area shows that there is no terrain above 1,806 meters in elevation along an azimuth of 311.8 degrees from the View 3 observer past the View 3 vista point. Therefore, the View 3 observer looking through the plume centerline above the View 3 target point would view the plume against sky background only, with a calculated contrast of 0.004. The contrast of 0.040 calculated for black background by PLUVUE is moot and inapplicable, because there is no natural black background against which the plume could be viewed from the View 3 observer location. The black-background contrast value can be disregarded in this case because, in reality, the plume could only appear against sky background for this observer-target combination.

Thus the predicted contrast values resulting from the PLUVUE II simulations in Joshua Tree and the other two Class I areas are below the significance criterion for actual plume backgrounds. This analysis concludes that the operational proposed project would not result in significant plume visibility impacts within these three Class I areas. Electronic input and output files for all PLUVUE II simulations are being submitted with the other air quality and health risk assessment modeling on DVDs accompanying this Application.

Table 4-8
Summary of Results of PLUVUE II Plume Visibility Impact Simulations

Class I Area	Parameter	Autumn		Spring		Summer		Winter		Maximum For All Times
		Evening	Morning	Evening	Morning	Evening	Morning	Evening	Morning	
Joshua Tree National Park	contrast	0.014	0.005	0.013	0.004	0.0191	0.006	0.01	0.004	0.019
San Jacinto Wilderness Area	contrast	0.01	0.007	0.009	0.008	0.011	0.003	0.009	0.008	0.011
San Gorgonio Wilderness Area	contrast	0.009	0.006	0.007	0.007	0.005	0.006	0.005	0.008	0.009
Joshua Tree National Park	ΔE	0.292	0.309	0.268	0.356	0.924	0.314	0.204	0.356	0.924
San Jacinto Wilderness Area	ΔE	0.482	0.694	0.465	0.736	0.498	0.714	0.501	0.736	0.736
San Gorgonio Wilderness Area	ΔE	0.372	0.392	0.27	0.446	0.222	0.405	0.256	0.66	0.66

Note: Contrast predicted with a black background was excluded because the plume could only appear against sky background for this observer-target combination.

SECTION 5 AIR TOXICS HEALTH RISK ASSESSMENT

5.1 PUBLIC HEALTH IMPACT ASSESSMENT APPROACH

The potential human health risks posed by the proposed project's emissions were assessed using procedures consistent with the SCAQMD Risk Assessment Procedures for Rules 1401 and 212 (SCAQMD, 2005a), Supplemental Guidelines for Preparing Risk Assessments for the Toxics Hot Spots Information and Assessment Act (AB2588) (SCAQMD, 2005b), and Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines (Cal-EPA/OEHHA, 2003). As recommended by the SCAQMD guideline, the CARB Hotspots Analysis and Reporting Program (HARP) (CARB, 2003) was used to perform a refined SCAQMD Tier 4 and OEHHA Tier 1 health risk assessment for the proposed project. The SCAQMD and OEHHA guidelines were developed to provide risk assessment procedures, as required under the Air Toxics Hot Spots Information and Assessment Act of 1987, Assembly Bill 2588 (Health and Safety Code Sections 44360 et seq.). The Hot Spots law established a statewide program to inventory air toxics emissions from individual facilities, as well as guidance for execution of risk assessments and requirements for public notification of potential health risks.

The HRA was conducted in four steps using the HARP model:

- Hazard identification and emission quantification
- Exposure assessment
- Dose-response assessment
- Risk characterization

First, hazard identification was performed to determine the potential health effects that could be associated with the proposed project emissions. The purpose was to identify whether pollutants that would be emitted from the proposed project during plant operation have been identified as potential human carcinogens, or associated with other types of adverse health effects. From the SCAQMD and OEHHA guidelines, lists were prepared of pollutants with potential cancer and non-cancer health effects that may be emitted from the proposed project. These lists were presented in Section 3, Tables 3-7 thru 3-10 of this application.

Second, an exposure assessment was conducted to estimate the extent of public exposure to the proposed project emissions. Public exposure is dependent on the short- and long-term ground-level concentrations resulting from emissions, the route of exposure, and the duration of exposure to those emissions. Dispersion modeling was performed using the ISCST3 model within HARP to estimate the ground-level concentrations near the proposed project site. The methods used in the dispersion modeling were consistent with the approach described in Section 4 for criteria pollutant modeling and with the modeling protocol submitted to SCAQMD and CEC (Appendix D).

Third, a dose-response assessment was performed in HARP to characterize the relationship between pollutant exposure and the potential incidence of an adverse health effect in exposed populations. The dose-response relationship is expressed in terms of potency factors for cancer risk and reference exposure levels (RELs) for acute and chronic noncancer risks. The OEHHA guidelines provide potency factors and RELs for an extensive list of toxic air contaminants. Potency factors and RELs are constantly being revised by the OEHHA, and the most recent values were applied in this HRA (Cal-EPA/OEHHA, 2005). All exposure pathways were included in this analysis, except the dairy milk and local meat ingestion and drinking water consumption pathways, because little farming and no water sources are near the proposed project site. For the calculation of cancer risk, the duration of exposure to project emissions was assumed to be 24 hours per day, 365 days per year, for 70 years, at all receptors. The cancer risk was calculated in HARP using the Derived (Adjusted) Method, and the chronic total hazard index (THI) was calculated in HARP using the Derived (OEHHA) Method.

Fourth, risk characterization was performed to integrate the health effects and public exposure information and to provide quantitative estimates of health risks from project emissions. Risk modeling was performed using HARP to estimate cancer and noncancer health risks due to the project emissions. The HARP model uses OEHHA equations and algorithms to calculate health risks based on input parameters such as emissions, "unit" ground-level concentrations, and toxicological data.

5.2 MODEL INPUT PARAMETERS

The HRA was conducted using worst-case emissions for each source (short and long term). Cancer and chronic non-cancer health effects were evaluated using the HARP model with annual average emission estimates. Acute non-cancer health effects were analyzed based on the worst-case maximum hourly emissions for all sources.

Dispersion modeling was performed using the ISCST3 model in HARP and methods consistent with the approach (e.g., building down wash or meteorological data) described in Section 4, and the modeling protocol submitted for the proposed project. The ISCST3 model is used with project source emission rates and stack parameters to calculate the concentration of TACs per unit emission rate. HARP then uses this information along with the emission rates for specific TAC compounds (provided in the input file as described above) to calculate ground-level concentrations for each chemical species.

Meteorological data for the years 1988 through 1991 from Wintec, Daggett-Barstow and Desert Rock were processed with PCRAMMET to create the ISC input files. These are the same first 4 years of data used in the air quality modeling analysis described in Section 4. Risk values were modeled for all sensitive receptors, grid, boundary, and census receptors within 6 miles of the project site. Boundary receptors were placed every 82 feet (25 meters) along the property fence line. Grid receptors were spaced every 328 feet (100 meters) out to 6 miles (10 kilometers) from the site in every direction. Any risks calculated by the HARP model at onsite receptor locations were ignored. To ensure that the maximum potential risks resulting from proposed project emissions would be addressed, all receptors were treated as sensitive receptors.

Toxicological data, cancer potency factors and RELs for specific chemicals are built into the CARB's HARP model. The pollutant-specific cancer potency factors and RELs used in the HRA are listed in Table 3-7. The HARP model uses the toxicological data in conjunction with the other input data described above to perform health risk estimates based on OEHHA equations and algorithms.

5.3 CALCULATION OF HEALTH EFFECTS

Adverse health effects are expressed in terms of cancer or non-cancer health risks. Cancer risk is typically reported as "lifetime cancer risk," which is the estimated maximum increase of risk of developing cancer caused by long-term exposure to a pollutant suspected of being a carcinogen. The calculation of cancer risk conservatively assumes that an individual is exposed continuously to the maximum pollutant concentrations 24 hours per day for 70 years. Although such continuous lifetime exposure to maximum TAC levels is unlikely, the goal of the approach is to produce a conservative worst-case estimate of potential cancer risk. When a cancer risk greater than one in one million is predicted, then cancer burden is calculated. Cancer burden is the estimated increase in the occurrence of cancer cases within the portion of the population subject to a cancer risk greater than or equal to one in one million (1.0×10^{-6}) resulting from exposure to toxic air contaminants.

Non-cancer risk is typically reported as a total hazard index (THI). The THI is calculated for each target organ as a fraction of the maximum acceptable exposure level to a pollutant. The acceptable exposure level is generally the level at (or below) which no adverse health effects are expected. The THIs are calculated for both short-term (acute) and long-term (chronic) noncarcinogenic exposures.

Both cancer and non-cancer risk estimates produced by the HRA represent incremental risks (i.e., risks due to proposed project sources only) and do not include potential health risks posed by existing background concentrations. The HARP model performs all of the necessary calculations to estimate the potential lifetime cancer risk and the acute and chronic non-cancer THIs posed by proposed project emissions.

Various state and local agencies provide different significance criteria for cancer and noncancer health effects. For the proposed project, the SCAQMD and CEC guidelines provide the most stringent significance criteria for potential cancer and noncancer health effects from project-related emissions. For carcinogenic health effects, an exposure is considered potentially significant when the predicted increase in lifetime cancer risk exceeds 10 in 1 million (1.0×10^{-5}). For noncarcinogenic health effects, an exposure that affects each target organ is considered potentially significant when the THI exceeds a value of 1.0.

5.4 ESTIMATED LIFETIME CANCER RISK

The maximum incremental cancer risk resulting from project emissions was estimated to be 0.856 in 1 million, at a location on the eastern property boundary (receptor located at 539,613 m east, 3,755,378 m north[1]). The maximum incremental cancer risk predicted at a sensitive receptor was estimated to be 0.047 in 1 million, a farm/residence located approximately 1000 feet east (740 meters) of the eastern property line (539,953 m east, 3,755,077 m north). Table 5-1 presents the detailed cancer risk results of the HRA for the proposed project operations. The cancer burden is zero since this parameter relates to the number of people exposed to a cancer risk of one in a million or greater, and the maximum cancer risk is predicted to be less than one in a million.

[1] Coordinates are provided in accordance with the Universal Transverse Mercator and North American Datum, 1983, Zone 11.

The estimated cancer risks at all locations are well below the significance criterion of 10 in 1 million. Thus, the proposed project emissions are expected to pose a less-than-significant increase in carcinogenic health risk. All HARP model files and all air quality modeling files are provided electronically on a DVD that is supplied separately with this application.

Table 5-1
Total Project Estimated Cancer Risk and Acute and Chronic Non-cancer Total Hazard Indices

Location	Cancer Risk	Chronic Hazard Index	Acute Risk Hazard Index
Point of maximum impact	0.856 excess risk in 1 million	0.030 total hazard index	0.115 total hazard index
Nearest sensitive receptor	0.047 excess risk in 1 million	0.001 total hazard index	0.053 total hazard index

5.5 ESTIMATED CHRONIC AND ACUTE TOTAL HAZARD INDICES

The maximum chronic THI resulting from proposed project's operational emissions was estimated to be 0.030 at a location on the eastern property boundary (receptor located at 539,613 m east, 3,755,478 m north). The maximum predicted chronic THI at a sensitive receptor due to TAC emissions of the proposed project was 0.001. This receptor is the Sands RV Country Club located approximately 5 miles (8 kilometers) east of the new Unit 4 (at 547,651 m east, 3,754,053 m north).

The maximum acute THI resulting from the proposed project emissions was estimated to be 0.115 at a grid receptor located approximately 2 miles (3.5 kilometers) west-northwest of the project (at 536,211 m east, 3,756,410 m north). The maximum acute THI at a sensitive receptor was estimated to be 0.053 at St John's School, which is approximately 4 miles (7 kilometers) west-northwest of the proposed project site (at 532,883 m east, 3,756,842 m north). Table 5-1 presents the detailed non-cancer results of the HRA for the proposed project operations.

The estimated chronic and acute THIs are well below the significance criterion of 1.0. Thus, the proposed project emissions of noncarcinogenic TACs would not be expected to pose a significant risk.

To satisfy SCAQMD Rule 1401, the maximum cancer risk and non-cancer chronic and acute hazard indices from each permit unit must be below the significance thresholds presented in Section 6. Since the total project cancer risk, non-cancer acute and chronic hazard indices due to all sources of the proposed project are below the significance thresholds, the risk from each permit unit individually will necessarily be below the significance thresholds.

5.6 UNCERTAINTY IN THE PUBLIC HEALTH IMPACT ASSESSMENT

Sources of uncertainty in the results of HRAs include emissions estimates, dispersion modeling, exposure characteristics, and extrapolation of toxicity data in animals to humans. For this reason, assumptions used in HRAs are typically designed to provide sufficient health protection to avoid underestimation of risk to the public. Some sources of uncertainty applicable to this HRA are discussed below.

The turbine emission rates were derived using vendor data for ammonia slip and from emission factors from AP-42 (U.S. EPA, 1995) and CATEF (1996) for the other air toxics. Both the short- and long-term turbine emissions estimates were developed assuming all turbines would operate concurrently at full load. Under actual operating conditions, the turbines may operate less hours per year and at a lower load. Consequently, the emissions used for this HRA are likely to be higher than those that would be experienced under normal plant operation.

Dispersion models approved for regulatory applications contain assumptions that tend to overpredict ground-level concentrations. For example, the modeling performed in the HRA assumed a conservation of mass (i.e., all of the pollutants emitted from the sources remained in the atmosphere while being transported downwind). During the transport of pollutants from sources toward receptors, none of the emitted material was assumed to be removed from the source plumes through chemical reaction or lost at the ground surface through reaction, gravitational settling, or turbulent impaction. In reality, these mechanisms work to reduce the level of pollutants remaining in the atmosphere during plume travel.

The exposure characteristics assessed in the HRA included the assumption that residents would be exposed to turbine emissions continuously at the same location for 24 hours per day, 365 days per year, for 70 years. It is extremely unlikely that any resident would meet this condition. The conservative exposure assumption tends to overpredict risk estimates in the HRA process.

The toxicity data used in the HRA contain uncertainties due to the extrapolation of data from animals to humans. Typically, safety factors are applied when doing the extrapolation. Furthermore, the human population is much more diverse, both genetically and culturally, than bred experimental animals. The interspecies variability among humans is expected to be much greater than in laboratory animals. With all of the uncertainty in the assumptions used to extrapolate toxicity data, significant measures are taken to ensure that sufficient health protection is built into the available health effects data.

Conservative measures to compensate for all of these uncertainties and ensure that potential health risks are not underestimated are compounded in the final HRA predictions. Therefore, the actual risk numbers are expected to be well below the values presented in this analysis.

SECTION 6 BEST AVAILABLE CONTROL TECHNOLOGY

In accordance with the requirements of SCAQMD rules, the proposed project will be required to use BACT to minimize emissions from the proposed combustion turbines, the black start engine, and the fire water pump. The BACT analysis presented in this section was conducted to evaluate available control options for the proposed project. A summary of the proposed BACT is provided below.

Table 6-1 presents the proposed BACT emission levels for the proposed project, based on the assessment described below.

Table 6-1
Summary of Proposed BACT

Pollutant	Control Technology	Concentration
Combustion Turbines		
NO_x	Water injection and SCR with ammonia injection	2.5 ppmvd at 15 percent O_2 (1-hour average)
CO	Catalytic oxidation	6.0 ppmvd at 15 percent O_2 (1-hour average)
ROC	Catalytic oxidation	2.0 ppmvd at 15 percent O_2 (1-hour average)
SO_2	Pipeline quality natural gas	NA
PM_{10}	Pipeline quality natural gas	NA
Ammonia slip	Operational limitation	5.0 ppmvd at 15 percent O_2
Emergency Firewater Pump Engine (240 horsepower)		
NO_x	U.S. EPA Tier II	3.9 g/brake horsepower (bhp)-hour
CO	U.S. EPA Tier II	0.59 g/bhp-hour
ROC	U.S. EPA Tier II	1.00 g/bhp-hour
SO_2	U.S. EPA Tier II	Diesel fuel with sulfur content no greater than 0.0015% by weight
PM_{10}	U.S. EPA Tier II	0.14 g/bhp-hour
Black Start Engine (2,206 horsepower)		
NO_x	U.S. EPA Tier II	5.4 g/kilowatt (kW)-hour
CO	U.S. EPA Tier II	3.5 g/kW-hour
ROC	U.S. EPA Tier II	1.0 g/kW-hour
SO_2	U.S. EPA Tier II	Diesel fuel with sulfur content no greater than 0.0015% by weight
PM_{10}	U.S. EPA Tier II	0.20 g/kW-hour

Notes:

BACT = Best Available Control Technology
CO = carbon monoxide
NA = not applicable
NO_x = nitrogen oxides
O_2 = oxygen
PM_{10} = particulate matter less than or equal to 10 microns in diameter
ppm = parts per million
SCR = Selective catalytic reduction
ROC = reactive organic compounds
SO_2 = sulfur dioxide

6.1 COMBUSTION TURBINE GENERATORS

A BACT assessment was conducted for the proposed CSEP which considered all NO_x and CO control technologies currently proposed or in use on natural gas-fired combustion turbines with more than 50 MMBtu per hour fuel energy input. To identify feasible emission limits for comparable turbine units, several information sources were consulted, including the following:

- USEPA RACT/BACT/LAER Clearinghouse (USEPA 1985) and updates
- CARB BACT Clearinghouse database and CARB BACT Guidelines for Power Plants (Adopted 7/22/99)
- Recent CEC Applications for Certification

Table 6-2, Summary of Recent NO_x BACT Determinations for Combustion Turbine Generators Rated at Greater than 40 MW in Peaking Service, lists selected recent NO_x BACT proposals and determinations for natural gas-fired advanced technology combustion turbines in California. Nearly all recent simple-cycle turbine projects in California had a NO_x BACT level of 2.5 ppm dry volume (ppmvd) (at 15 percent oxygen [O_2]), to be achieved by means of dry low-NO_x burners and SCR with ammonia injection. However, in some cases, SCR in conjunction with water or steam injection has been selected. The combustion turbines of the CSEP will achieve the BACT concentration of 2.5 ppmvd at 15 percent O_2 using steam or water injection, rather than dry low-NO_x combustor technology, and SCR, except during maintenance, startup, and shutdown events.

Table 6-2
Summary of Recent No_x Bact Determinations for Combustion Turbine Generators Rated at Greater Than 40 Mw in Peaking Service

Name	Location	Rating	Vendor, Model	Emission Limit	Control(s)	Permit Date
Kings River Conservation District Peaking Plant	CA	40+ each, 2 turbines, 97 MW total	GE LM6000 Sprint PC	3.0 ppm	Water injection and SCR	5/04
Modesto Electric Generation Project	CA	40+ each, 2 turbines, 95 MW total	GE LM6000 Sprint	2.5 ppm	Water injection and SCR	2/04
Riverside Energy Resource Center	CA	40+ each, 2 turbines, 96 MW total	GE LM6000 Sprint PC NxGen	2.5 ppm	Water injection and SCR	12/04
San Francisco Electric Reliability Project	CA	40+ each, 3 turbines, 145 MW total	GE LM6000	2.5 ppm	Water injection and SCR	Tentative 4/06

GE = General Electric
MW = megawatt
ppm = Parts per million by volume, dry basis, at 15 percent oxygen
SCR = Selective catalytic reduction

Similarly, most recent simple-cycle turbine projects have been approved with a CO emissions limit of 6 ppmvd and a VOC emissions limit of 2 ppmvd (both at 15 percent O_2), based on the use of an oxidation catalyst. The CSEP natural gas turbines will achieve these same BACT concentrations for CO and VOC by application of oxidation catalysts. Exclusive use of natural gas fuel has been determined to be BACT for sulfur oxides (SO_x) and PM_{10} in all other comparable projects for several years.

6.1.1 Assessment of NO_x Control Technologies

Based on a review of the materials described above, the following NO_x control technologies were evaluated to determine whether they are able to achieve BACT NO_x levels in practice:

- DLE and Goal Line EMx™
- Water injection and SCR

6.1.1.1 EMx™

EMx™ is a NO_x reduction system produced by Goal Line Environmental Technologies (now distributed by EmeraChem) for natural gas turbine applications within an exhaust temperature range significantly below the design operating parameters of the simple-cycle LMS100 turbines that will be employed at the CSEP. This system uses a coated catalyst to oxidize both NO_x and CO and thereby reduce plant emissions. As demonstrated by an initial installation on several gas turbines in co-generation applications, EMx™ is capable of achieving NO_x emission concentrations of 2 ppm based on a maximum inlet concentration of 25 ppm, and 90 percent CO reduction based on a maximum inlet concentration of 50 ppm. CO emissions are reduced in EMx™ by the oxidation of CO to CO_2. A two-step process reduces NO_x emissions. First, NO_x emissions are oxidized to NO_2 and then adsorbed onto the catalyst. In the second step, a proprietary regenerative natural gas is passed through the catalyst periodically. This natural gas de-desorbs the NO_2 from the catalyst and reduces it to N_2. The system does not use ammonia as a reagent; rather, it uses natural gas as the basis for a proprietary catalyst regeneration process.

However, the EMx™ technology has not been sufficiently demonstrated on higher exhaust temperature simple-cycle peaking natural gas turbines such as those proposed for the Project. The system consists of a catalyst that is installed in the flue gas at a point where the temperature is between 280°F and 650°F. The CSEP CTGs operate between 741 to 817 °F; therefore, the EMx™ application is not appropriate for this high temperature technology.

Potential advantages of the EMx™ process include:

- **No Ammonia.** The EMx™ process does not use ammonia. This eliminates any ammonia storage and transportation safety issues and the potential for ammonia slip or ammonia-based particulate formation.
- **Carbon Monoxide Reduction.** EMx™ will reduce CO emissions as well as NO_x emissions.

Potential disadvantages of the EMx™ process include:

- **High Capital and Operating Cost.** EMx™ is significantly more expensive than SCR with ammonia injection, primarily due to the higher cost of initial and replacement catalyst. The EMx™ catalyst is a precious metal catalyst, which is very expensive.
- **Not Suitable for Exhaust Temperatures of Simple-Cycle Natural Gas Turbine Peaking Applications**. EMx™ has been primarily installed on small co-generation systems. The CSEP facility will be a simple-cycle peaking operation. Peaking units require more rapid startup and more frequent load changes than typical co-generation systems. The main concerns are the damper systems that would be required with EMx™ for the units and assuring proper regeneration gas distribution. The effectiveness and longevity of these damper systems have not been demonstrated on simple-cycle natural gas turbines, and their cost of replacement would be substantial. In addition, steam is required to produce the EMx™ regeneration gas. The CSEP facility will have no steam production.
- **Catalyst "Washing."** A proprietary catalyst washing system must be used and an on-line catalyst washing system design has not yet been fully developed. If an on-line catalyst washing system is not used, then the facility must be shut down for cleaning.

Because the low NO_x emission rates attainable on natural gas turbines in co-generation systems with EMx™ have not been sufficiently demonstrated as "achieved in practice" on simple-cycle natural gas turbine applications and the other factors discussed above, EMx™ does not represent current, technically feasible BACT for the CSEP facility. Accordingly, a comparative cost analysis with the proposed NOx control technologies is not required. However, SCAQMD staff has agreed with previous BACT evaluations that determined the use of EMx™ for simple-cycle CTGs is not a cost effective option. These findings reinforce the elimination of EMx™ on grounds of technical infeasibility.

6.1.1.2 SCR with Water Injection

SCR is a technology that achieves post-combustion reduction of NOx from flue gas within a catalytic reactor. The SCR process involves the injection of ammonia (NH3) into the exhaust gas upstream of a specialized catalyst module, promoting conversion of NOx to molecular nitrogen. SCR with ammonia injection systems for reduction of NOx emissions have been widely used in simple-cycle natural gas turbine applications for many years, and are considered a proven technology. SCR systems are commercially available from several vendors, unlike EMx™, which is available from a single vendor. The SCR process involves the injection of ammonia into the flue gas stream by means of an ammonia injection grid upstream of the catalyst. The ammonia reacts with NOx natural gases in the presence of the catalyst. The catalyst is not regenerated and requires periodic replacement. SCR vendors typically offer a 3-year guarantee on catalyst life. SCR with ammonia injection systems have been used in numerous simple-cycle applications in California..

Water or steam injection has been a proven NOx control technique for many years. Injection of water or steam into the primary combustion zone of advanced combustors of a CTG reduces the formation of thermal NOx by decreasing the peak combustion temperature. Water injection decreases the peak flame temperature by diluting the combustion gas stream and acting as a heat sink by absorbing heat necessary to: (a) vaporize the water (latent heat of vaporization), and (b) raise the vaporized water temperature to the combustion temperature. High purity water must be employed to prevent turbine corrosion and deposition of solids on the turbine blades. The use of water or steam injection in diffusion flame combustors firing natural gas can typically achieve NO_x exhaust concentrations of 25 ppmvd, corrected to 15 percent O_2.

The Project will use water injection and SCR with ammonia injection designed to achieve a NO_x emission limit of 2.5 ppm (at 15 percent O2). As noted in Table 6-2, water injection and SCR have recently been permitted at a NO_x emission level of 2.5 ppmvd (at 15 percent O_2) for numerous California turbines that are similar in capacity to the proposed CSEP turbines. Accordingly, water injection with SCR with ammonia injection is considered to be BACT for the CSEP facility.

6.1.1.3 Other Technologies

Technologies that cannot achieve a NO_x emissions limit of 2.5 ppmvd (at 15 percent O_2) in practice were not considered as BACT candidates for the CSEP facility. These technologies include SCR without DLE, DLE without SCR, and water/steam injection without SCR.

6.1.2 Assessment of CO Control Technologies

The CSEP facility CTGs are guaranteed to emit no more than 6 ppm of CO (at 15 percent O_2), with natural gas fuel and use of a CO oxidation catalyst (except during startup and shutdown). In discussions with the applicant, SCAQMD has already confirmed that the use of a CO oxidation catalyst to achieve a stack concentration of 6 ppmvd @15% O_2 will result in emissions of CO that will conform to current SCAQMD BACT requirements.

The following CO control technologies are evaluated:

- Combustion design/control
- Oxidizing catalyst

6.1.2.1 Combustion Design/Control

Natural gas turbine combustion technology has significantly improved over recent years with regard to lowering CO emissions. CSEP proposes to operate eight LMS100 turbines at the CSEP facility. For other installations, turbines have been guaranteed by the manufacturer to achieve a CO rate of 9 ppm (at 15 percent O_2) without post-combustion control technologies under a wide range of operating conditions (50 percent to 100 percent load) and ambient conditions (15°F to 115°F).

6.1.2.2 Oxidizing Catalyst

CO oxidizing catalysts have been used with natural gas-fired turbines for over a decade when uncontrolled CO emission levels are unacceptably high. CO catalysts operate at elevated temperatures within the exhaust stream. CO-oxidizing catalysts can be considered technically feasible for use in simple-cycle peaking applications. Thus, installation of a CO-oxidizing catalyst on the natural gas turbines is considered to be BACT for the CSEP facility.

6.1.3 Assessment of VOC Control Technologies

The proposed BACT level of 2 ppmvd (at 15 percent O_2) for VOC control with water injection, SCR, and an oxidation catalyst is consistent with the most stringent level found among recent BACT determinations for simple-cycle natural gas turbines, and is therefore considered to be BACT for the CSEP facility.

6.1.4 Assessment of SO_2 and PM_{10} Control Technologies

Sulfur dioxide and PM_{10} emissions will be controlled through the exclusive use of clean-burning pipeline quality natural gas. This control technology has been widely and uniformly implemented for control of SO_2 and PM_{10} emissions from combustion turbines in California and throughout the United States, and is considered to be BACT for the CSEP facility.

6.1.5 Assessment of Ammonia Slip Control Technologies

Ammonia emissions will be limited to 5 ppmvd (at 15 percent O_2). This proposed BACT is consistent with SCAQMD policy to control NO_x.

6.2 FIRE WATER AND BLACK START ENGINES

The Project will include two diesel fuel driven engines; one for the black start generator and one for the fire water pump. 40CFR part 89 and CCR Title 13 and Title 17 require certified EPA TEIR III emission rates for emergency internal combustion engines, which currently are commercially unavailable. The equipment proposed for CSEP satisfies the emission requirements of recent SCAQMD BACT determinations of similar equipment.

Table 6-3
Summary of Recent BACT Determinations in the SCAQMD for Internal Combustion Engines

Name	Location	Application Date	Rating (Hp)	Control Technology	Emission Limit (g/bhp-hr)			
					VOC	NO_x	CO	PM_{10}
East Los Angeles College	Monterey Park, CA	12/2003	160	Engine design	0.09	3.9	0.45	0.22
Los Angeles County	Downey, CA	12/2003	160	Engine design	0.12	4.2	0.44	0.14
Johnson Power Systems	Los Angeles, CA	8/2002	685	Engine design	0.07	4.17	0.52	0.07
Johnson Power Systems	Los Angeles, CA	8/2002	764	Engine design	0.03	6.19	0.37	0.04

Hp = horsepower
g/bhp-hr = grams per brake horsepower - hour
Emissions corrected to 3% O_2

SECTION 7 EMISSIONS OFFSET AND PROJECT MITIGATION STRATEGIES

The Applicant is required to provide emissions offsets for maximum potential increases in emissions of nonattainment pollutants in excess of specified thresholds that would result from the operation of the proposed facility. Based on expected project emission levels, the proposed project will be required to supply offsets for NO_x, PM_{10}, SO_2, and VOCs. Estimated annual emissions of these pollutants due to project operations are summarized in Table 3-6. CO offsets will not be required because of the current attainment designation of the Salton Sea Air Basin for this pollutant.

Under SCAQMD rules, the proposed project offset requirements for all pollutants other than NO_x will be determined based on the maximum expected monthly emissions (in pounds) divided by 30, i.e., essentially the average daily emissions of the worst-case month. The offset ratio for emission reduction credits (ERCs) or Priority Reserve Credits is 1.2 to 1. NO_x RECLAIM credit requirements are calculated based on the annual project emissions of this pollutant using a 1 to 1 ratio. Because the proposed project site is located in the Salton Sea Air Basin, it is not automatically a NO_x RECLAIM source, but may elect to opt into the program for that pollutant.

Table 7-1 shows the operating parameters used to estimate emissions offset requirements for the proposed project. Based on these assumptions and the proposed project equipment emissions data presented previously for normal operations and turbine startup/shutdown conditions, the expected offset requirements for the proposed project are shown in Table 7-2. The requirements for NO_x have been calculated based on both annual RECLAIM credits and ERCs, since the proposed project may obtain credits for this pollutant by either means. Offset requirements for SO_2 and PM_{10} may also be met using Priority Reserve Credits (PRCs). SCAQMD does not require offsets for PM_{10} emissions from evaporative cooling towers of the type that would be used for the proposed project.

The actual mix of emission credits that will be used to offset proposed project emissions will be determined based on availability and market conditions. One option is to create or purchase ERCs. SCAQMD regulations allow the use of interpollutant offsets in situations where one pollutant is a precursor to another. For example, since NO_x and SO_2 contribute to the formation of PM_{10}, extra NO_x and/or SO_2 ERCs could be used to offset some of the proposed project's PM_{10} emissions. Under the current language of SCAQMD Rule 1309.1, the proposed project will be eligible to obtain its required emission credits of SO_2 and PM_{10} from the District's Priority Reserve bank. The proposed project also could elect to opt into the RECLAIM (Regional Clean Air Incentives Market) program and will be eligible to purchase RECLAIM Trading Credits to offset some or all of the project NO_x emissions increases. Still another option available to CPV Sentinel is to create new ERCs by supporting emission reductions at other facilities.

Table 7-1
Basis for Estimating Emission Credit Requirements to Offset Proposed Project Emissions

Emission Source[4]	Annual Operating Hours @`100% Capacity	Annual Startups and Shutdowns (CTGs only)	Daily Operating Hours at 100% Capacity for Worst Month	Daily Startups/Shutdowns for Worst Month (CTGs only)
CTGs 1-5	2,628	300	15	2
CTGs 6-8	3,200	350	22	2
Cooling Tower for CTGs 1-5	2,628	300	15	2
Cooling Tower for CTGs 6-8	3,200	350	22	2
Black Start Engine	12		One 1-hour test one day each week	
Firewater Pump Engine	52		One 1-hour test each month	

Table 7-2
Estimated Emission Offset Requirements for the Proposed Project Emissions

Pollutant	CTGs	Fire and Blackstart Engine	Total Emission Credits Required	Note
NO_x (lbs/year)	258,896	243	259,139	If RECLAIM
NO_x (lbs/day)	1,084		1,933	If ERCs
VOC(lbs/day)	514.09	0.17	515.17	ERCs
PM_{10} (lbs/day)	1,107.82	0.03	1,107.85	Priority Reserve
SO_x (lbs/day)	107	0.00	107.0	Priority Reserve

Notes:

CTG = combustión turbina generador
ERCs = emisión reduction credits
Lbs/day = pounds per day
NO_x = oxides of nitrogen
PM_{10} = particulate matter less than or equal to 10 microns in diameter
SO_x = oxides of sulfur
VOC = volatile organic compound

SECTION 8 APPLICABLE REGULATORY REQUIREMENTS

The applicable laws, ordinances, regulations, and standards (LORS) related to the potential air quality impacts from the CSEP are described below. These LORS are administered (either independently or cooperatively) by the SCAQMD, U.S. EPA Region IX, the CEC, and the CARB.

8.1 FEDERAL

The federal Clean Air Act (CAA) of 1970, 42 United States Code 7401 et seq., as amended in 1977 and 1990, is the basic federal statute governing air pollution. The provisions of the CAA that are potentially relevant to this project are listed below and discussed in the following sections:

- Air Quality Control Regions
- National Ambient Air Quality Standards
- Prevention of Significant Deterioration
- Acid Rain Program
- New Source Review
- New Source Performance Standards
- Maximum Achievable Control Technology Standards
- Title V Operating Permits
- Risk Management Program

Applicable requirements of the State of California and the SCAQMD are discussed in Section 8.2 and 8.3, respectively, including regulations that apply to both construction and operation of the CSEP.

8.1.1 Air Quality Control Regions

Because air pollution is a regional problem and not limited to political or state boundaries, the CAA established Air Quality Control Regions (AQCR). This is a method of dividing the country into regional air basins. The proposed project site is located in the Southeast Desert Intrastate AQCR (40 CFR Part 81.167).

8.1.2 National Ambient Air Quality Standards

U.S. EPA, in response to the federal CAA of 1970, established federal NAAQS in 40 CFR Part 50. The federal NAAQS include both primary and secondary standards for six "criteria" pollutants. These criteria pollutants are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$ and lead (Pb).

Primary standards were established to protect human health, and secondary standards were designed to protect property and natural ecosystems from the effects of air pollution.

The state and federal AAQS relevant to the proposed project are summarized in Table 8-1.

Table 8-1
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3,4]	Secondary[3,5]	Concentration[3]
Ozone (O_3)	1-Hour	Revoked [6]	Same as Primary Standard	0.09 ppm (180 µg/m^3)
	8-Hour	0.08 ppm		0.07 ppm (137 µg/m^3)
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 µg/m^3)	Same as Primary Standard	-
	1-Hour	-		0.25 ppm (470 µg/m^3)
Sulfur Oxides (SO_2)	Annual Average	0.03 ppm (80 µg/m^3)	-	-
	24-Hour	0.14 ppm (365 µg/m^3)	-	0.04 ppm (105 µg/m^3)
	3-Hour	-	0.5 ppm (1300 µg/m^3)	-
	1-Hour	-	-	0.25 ppm (655 µg/m^3)
Suspended Particulate Matter (PM_{10})	24-Hour	150 µg/m^3	Same as Primary Standard	50 µg/m^3
	Annual Arithmetic Mean	Revoked [7]		20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$) [8]	24-Hour	35 µg/m^3	Same as Primary Standard	-
	Annual Arithmetic Mean	15 µg/m^3		12 µg/m^3
Lead (Pb)	30-Day Average	-	-	1.5 µg/m^3
	Quarterly Average	1.5 µg/m^3	Same as Primary Standard	-
Hydrogen Sulfide (HS)	1-Hour	No Federal Standards		0.03 ppm (42 µg/m^3)
Sulfates (SO_4)	24-Hour			25 µg/m^3
Visibility Reducing Particles	8-Hour (10 am-6 pm, Pacific Standard Time)			Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Table 8-1
National and California Ambient Air Quality Standards
(Continued)

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3,4]	Secondary[3,5]	Concentration[3]

Notes:

[1] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

[2] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility-reducing particles. are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[5] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[6] On June 15, 2005, the 1-hour ozone standard (0.12 ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas.

[7] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM_{10} standard in 2006 (effective December 17, 2006).

[8] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 μg/m³ (effective December 17, 2006).

μg/m³ = micrograms per cubic meter; mg/m³ = milligram per cubic meter; ppm = parts per million

Source: U.S. EPA-NAAQS (http://www.epa.gov/air/criteria.html); CARB-CAAQS (http://www.arb.ca.gov/aqs/aaqs2.pdf)

The U.S. EPA, CARB, and the local air pollution control districts determine air quality attainment status by comparing local ambient air quality measurements from the state or local ambient air monitoring stations with the federal and state AAQS. Those areas that meet ambient air quality standards are classified as "attainment" areas; areas that do not meet the standards are classified as "nonattainment" areas. Areas that have insufficient air quality data may be identified as unclassifiable areas. These attainment designations are determined on a pollutant-by-pollutant basis. The proposed project site is designated a federal nonattainment area for O_3 and PM_{10} based on air quality monitoring data showing exceedances of the federal standards. The proposed project vicinity is designated a state nonattainment area for O_3 and PM_{10} based on air quality monitoring data showing exceedances of the state standards. Table 8-2 presents the attainment status (both federal and state) for the portion of Riverside County (north portion of Salton Sea Air Basin) that lies within the SCAQMD.

Table 8-2
Attainment Status for Riverside County (north portion of Salton Sea Air Basin) with respect to Federal and California Ambient Air Quality Standards

Pollutant	Federal Attainment Status	State Attainment Status
Ozone	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Attainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Unclassified	Attainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Unclassified/Attainment	Unclassified
Lead	Unclassified	Attainment

Notes:
Source: National Area Designations and Proposed 2006 State Area Designations, CARB (http://www.arb.ca.gov/desig/adm/adm.htm)

Notes:

CO = carbon monoxide
NO_2 = nitrogen dioxide
SO_2 = sulfur dioxide
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter

The respective area of regulatory responsibility for EPA, CARB and SCAQMD are described below.

U.S. EPA has ultimate responsibility for ensuring, pursuant to the CAAA, that all areas of the United States meet, or are making progress toward meeting, the federal NAAQS. The State of California falls under the jurisdiction of U.S. EPA Region IX, which is headquartered in San Francisco. U.S. EPA requires that all states submit state implementation plans (SIPs) for nonattainment areas that describe how the federal NAAQS will be achieved and maintained. Attainment plans must be approved by CARB before they are submitted to U.S. EPA.

Regional or local air quality management districts (or air districts) such as SCAQMD are responsible for preparation of plans for attainment of federal and state standards. CARB is responsible for overseeing attainment of the CAAQS, implementation of nearly all phases of California's motor vehicle emissions program, and oversight of the operations and programs of the regional air districts. Each air district is responsible for establishing and implementing rules and control measures to achieve air quality attainment within its district boundaries. The air district also prepares an air quality management plan (AQMP) that includes an inventory of all emission sources within the district (both manmade and natural), a projection of future emissions growth, an evaluation of current air quality trends, and an assessment of any rules or control measures needed to attain the federal and state AAQS. This AQMP is submitted to CARB, which then compiles AQMP from all air districts within the state into the SIP. The responsibility of the air districts is to maintain an effective permitting system for existing, new, and modified stationary sources, to monitor local air quality trends, and to adopt and enforce such rules and regulations as may be necessary to achieve the federal and state AAQS.

8.1.3 Prevention of Significant Deterioration Requirements

In addition to the ambient air quality standards described above (NAAQS), the federal PSD program has been established to protect deterioration of air quality in those areas that already meet NAAQS. Specifically, the PSD program establishes allowable concentration increases for attainment pollutants due to new emission sources that are classified as major sources. These increases allow economic growth, while preserving the existing air quality, protecting public health and welfare, and protecting Class I areas (national parks and wilderness areas).

The PSD regulations define a "major stationary source" as any source type belonging to a list of 28 source categories that emits, or has the "potential to emit" 100 tons per year or more of any pollutant regulated under the CAA, or any other source type that has the potential to emit such pollutants in amounts equal to or greater than 250 tons per year. If a source is considered major for PSD purposes because of one pollutant, then PSD review is applicable for those other pollutants emitted from the source in amounts greater than the PSD significance levels. The PSD regulations require major stationary sources to undergo a preconstruction review that includes an analysis and implementation of BACT, a PSD increment consumption analysis, an ambient air quality impact analysis, and analysis of air quality-related values (AQRVs), i.e., impacts on soils, visibility and vegetation. The proposed project is not subject to these requirements.

The incremental proposed project emissions for CO, SO_2, NO_x, PM_{10}, and VOC are as shown in Table 8-3 and compared with the PSD thresholds. The project emissions of all pollutants would be below these PSD significant thresholds. Thus, the project would not trigger PSD requirements.

Table 8-3
PSD Emission Threshold Triggers for New Stationary Sources

Pollutant	Significant Thresholds (tpy)	Project Emissions (tpy)	PSD Triggered by Project?
CO	250	196.56	No
SO_2	250	7.23	No
NO_x	250	129.55	No
PM_{10}	250	73.84	No
VOCs	250	34.46	No

Notes:
Source: SCAQMD rule 1702 (http://www.aqmd.gov/rules/reg/reg17/r1702.pdf)

Project emissions include all emissions from natural gas.

Notes:

tpy	=	tons per year
CO	=	carbon monoxide
SO_2	=	sulfur dioxide
NO_x	=	nitrogen oxide(s)
PM_{10}	=	particulate matter less than 10 microns in diameter
VOCs	=	volatile organic compounds

8.1.4 Acid Rain Program Requirements

Title IV of the CAAA applies to sources of air pollutants that contribute to acid rain formation, including certain sources of SO_2 and NO_X emissions. Title IV is implemented by the U.S. EPA under 40 CFR 72, 73, and 75. Allowances of SO_2 emissions are set aside in 40 CFR 73. Sources subject to Title IV are required to obtain SO_2 allowances, to monitor their emissions, and obtain SO_2 allowances when a new source is permitted. Sources such as the proposed project that use pipeline-quality natural gas are exempt from many of the acid rain program requirements. However, these sources must still estimate SO_2 and carbon dioxide (CO_2) emissions, and monitor NO_x emissions with certified CEMS. All subject facilities must submit an acid rain permit application to U.S. EPA within 24 months of commencing operation.

8.1.5 New Source Review Requirements

The federal CAA, U.S. EPA regulations, and the California CAA establish the criteria for siting new and modified emission sources. The federally mandated process for permitting new or modified sources in federal nonattainment areas is referred to as Nonattainment New Source Review (NNSR). SCAQMD is responsible for NNSR rule development and enforcement for sources in the Salton Sea Air Basin. The SCAQMD NNSR rules are contained in Regulation XIII, Rules 1301-1313. The rules require that BACT must be applied to any new source with emissions above the levels specified in Regulation XIII, or Rule 2005. Second, all potential emission increases from the sources above specified thresholds must be offset by real, quantifiable, surplus, permanent, and enforceable emission decreases in the form of ERCs, as specified in Regulation XIII, Rule 1309 ERCs (see Section 8). Third, an ambient air quality impact assessment must be conducted to confirm that the proposed project does not cause or contribute to a violation of a federal or state AAQS (see Section 4.6) or jeopardize public health (see Section 6). Finally, CPV Sentinel must certify that all major sources owned or operated in the State of California are either in compliance or on an approved schedule for compliance with applicable air quality regulations.

8.1.6 New Source Performance Standards

New source performance standards (NSPS) have been established by U.S. EPA to limit air pollutant emissions from certain categories of new and modified stationary sources. The NSPS regulations are contained in 40 CFR Part 60 and cover many different industrial source categories. Stationary gas turbines are regulated under Subpart KKKK. The enforcement of NSPS has been delegated to the SCAQMD, and the NSPS regulations are incorporated by reference into the District's Regulation IV Rule 4001. In general, local emission limitation rules or BACT requirements in California are far more restrictive than the NSPS requirements. For example, the controlled NO_X emission rate from the proposed project's gas turbines of less than 0.09 pound (lb) of NO_X per MW-hour will be well below the Subpart KKKK requirement of 0.39 lb of NO_X per MW-hour. Similarly, the projected maximum SO_2 emissions from the proposed project gas turbines will be about 0.005 lb of SO_2 per MW-hour, which is substantially less than the Subpart KKKK requirement of 0.58 lb of SO_2 per MW-hour.

NSPS fuel requirements for SO_2 will be satisfied by the use of natural gas, and emissions and fuel monitoring that will be performed to meet the requirements of BACT will comply with NSPS, acid rain, and other regulatory requirements.

8.1.7 Maximum Achievable Control Technology

The CAAA of 1990, under revisions to Section 112, require a proposed project to list and promulgate national emission standards for hazardous air pollutants (NESHAPS) in order to control, reduce, or otherwise limit the emissions of hazardous air pollutants (HAPs) from major categories and area sources. As these standards are promulgated, they are published in 40 CFR 63.

Stationary gas turbines are on the list of 174 categories of major and area sources that would be henceforth subject to emission standards. The specific Maximum Achievable Control Technology (MACT) standard potentially applicable to new stationary gas turbines is 40 CFR 63 Subpart YYYY. However, since the proposed facility will not be a major source of HAPs, no additional controls under these NESHAPS are required.

8.1.8 Federally Mandated Operating Permits

Title V of the CAA requires U.S. EPA to develop a federal operating permit program that is implemented under 40 CFR 70. This program is administered by SCAQMD under Regulation XXX, Rules 3000-3008. Permits must contain emission estimates based on potential-to-emit, identification of all emission sources and controls, a compliance plan, and a statement indicating each source's compliance status. The permits must also incorporate all applicable federal, state, or Air Quality Control District orders, rules and regulations. Because the proposed facility will be a new stationary source, CPV will apply for a new Title V permit.

8.1.9 Consistency with Federal Requirements

The SCAQMD has authority to implement and enforce most applicable federal requirements, including the NSPS, NESHAPS, Title IV Acid Rain, and Title V Federal Operating Permit requirements. CPV Sentinel will apply for the Title V permit that will include Title IV Acid Rain provisions.

8.1.10 Risk Management Plan

Regulations (40 CFR 68) under the CAA are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store more than a threshold quantity of a listed regulated substance to develop a Risk Management Plan, including an offsite-consequence analysis for the worst-case accidental release of a hazardous substance, hazard assessments, and response programs to prevent accidental releases of listed chemicals. Section 112(r)(5) of the CAA discusses the regulated substances. These substances are listed in 40 CFR 68.130. Aqueous ammonia, which will used as a reagent to the proposed project SCR NOx control system, is a listed substance and its Threshold Quantity for solutions of 20 percent and greater is 20,000 pounds of solution.

8.2 STATE

The CARB was created by the Mulford-Carrell Air Resources Act in 1968. The primary responsibilities of the CARB include (1) to develop, adopt, implement and enforce the state's motor vehicle pollution control program; (2) to administer and coordinate the state's air pollution research program; (3) to adopt and update the state's ambient air quality standards; (4) to review the operations of the local air pollution control districts; and (5) to review and coordinate the SIPs for achieving federal ambient air quality standards.

8.2.1 State Implementation Plan

The federal CAA requires each state to prepare a SIP to demonstrate how it will attain the NAAQS within the federally imposed deadlines. In California, local districts adopt new rules to achieve attainment of the NAAQS by reducing emissions. CARB reviews the SIP. The relevant SCAQMD Rules and Regulations that have been incorporated into the SIP are described below under the local LORS.

8.2.2 California Clean Air Act

In 1989, California established state ambient air quality standards, including stringent enforcement of the NAAQS and additional standards for visibility-reducing particles, sulfates, vinyl chloride and hydrogen sulfide. Local districts prepare air quality plans to demonstrate how the ambient air quality standards will be attained.

8.2.3 Toxic Air Contaminant Program

The Toxic Air Contaminant Identification and Control Act of 1983 created a state process to identify toxic air contaminants and to control their emissions. CARB identifies and prioritizes the pollutants to be considered for identification as toxic air contaminants. CARB assesses the potential for human exposure to a substance while the OEHHA evaluates the corresponding health effects. These agencies prepare a risk assessment report to determine if a specific substance poses a significant health risk and should be identified as a toxic air contaminant. This program includes the 189 hazardous air pollutants (HAPs) named by the CAAA. If necessary, CARB develops air toxics control measures to reduce emissions. None of the measures in this program are applicable to the proposed project, since the project emissions increases would not exceed the Title V threshold of 10 tpy of any single HAP, or 25 tpy of a combination of HAPs. The HAPs are addressed by the Federal Title V Operating Permit.

8.2.4 Air Toxics Hot Spots Program

As required by the California Health and Safety Code Section 44300 (originally Assembly Bill 2588 – Air Toxics "Hot Spots" Information and Assessment Act.) This program was created in 1987 to develop a statewide inventory of air toxics emissions from stationary sources. Applicable facilities must prepare: (1) an emissions inventory plan identifying air toxics; (2) an emission inventory report quantifying air toxics emissions; and (3) a health risk assessment, if air toxics emissions are at high levels. Facilities whose air toxics pose a significant health risk must prepare and implement risk reduction plans. This requirement is applicable only after the start of operations. The health risk assessment described in Section 5 of this application indicates that air toxics impacts from the proposed project would be insignificant.

8.2.5 Power Plant Siting Requirements

Under the CEQA, the CEC has been charged with assessing the environmental impacts of each new power plant with generating capacity of 50 MW or higher and considering the implementation of feasible mitigation measures to prevent potential significant impacts. CEQA Guidelines [Title 14, California Administrative Code, Section 15002(a)(3)] state that the basic purpose of CEQA is to "prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible."

The CEC siting regulations require that, unless certain conditions justifying an override are shown, a new power plant can only be approved if the proposed project complies with all federal, state, and local air quality rules, regulations, standards, guidelines, and ordinances that govern the construction and operation of the proposed project. A project must demonstrate that facility emissions will be appropriately controlled to mitigate potentially significant impacts from the project, and that it will not jeopardize attainment and maintenance of the state and federal AAQS. Cumulative impacts, impacts due to pollutant interaction, and impacts from non-criteria pollutants must also be considered.

8.2.6 CEC and CARB Memorandum of Understanding

This Memorandum of Understanding establishes requirements of the CEC to assure protection of environmental quality during the power plant AFC review process.

8.2.7 Consistency with State Requirements

State law invests local air pollution control districts and air quality management districts with the responsibility for regulating emissions from stationary sources. As discussed previously in this section, the proposed project is under the local jurisdiction of the SCAQMD. Compliance with District rules and regulations will ensure compliance with state air quality requirements.

8.3 LOCAL

The SCAQMD is the local district with authority to implement and enforce air quality regulations. The SCAQMD prepares an Air Quality Plan to define its strategies for attaining the state and federal ambient air quality standards, and its relevant control measures for implementing those strategies (Health and Safety Code Section 40914).

The SCAQMD Rules and Regulations are authorized by Health and Safety Code (H&SC) Section 4000 et seq., and Section 40200 et seq. This section presents the SCAQMD requirements that are applicable to the proposed project. The SCAQMD has the delegated authority for implementing local, state, and federal air quality regulations in Los Angeles, Orange, and the non-desert portions of Riverside and San Bernardino counties. The proposed project is subject to District regulations concerning to new source review requirements, prohibitory regulations, and requirements for toxic air pollutants. The following sections evaluate the proposed project's compliance with applicable District requirements.

8.3.1 Permit to Construct and Permit to Operate

Under Regulation II, SCAQMD administers the air quality regulatory program for the construction, alteration, replacement, and operation of new power plants within its jurisdiction. Regulation II, Rules 201 and 203 incorporate other SCAQMD rules that pertain to sources that may emit air contaminants through the issuance of air permits (i.e., Permit to Construct [PTC] and Permit to Operate [PTO]). This permitting process allows the SCAQMD to adequately review new and modified air pollution sources to ensure compliance with all applicable prohibitory rules and to ensure that appropriate emission controls are used.

A PTC allows for the construction of the air pollution source and remains in effect until the PTO application is granted, denied, or canceled. For power plants under the siting jurisdiction of the CEC, the SCAQMD issues a Determination of Compliance (DOC) in lieu of a PTC. The DOC is incorporated into the CEC license. Once the project commences operation and demonstrates compliance with the DOC, SCAQMD will issue a PTO. The PTO specifies conditions that the air pollution source must meet to comply with the air quality standards and will incorporate applicable DOC requirements. The CSEP is required to secure a preconstruction DOC from the District, and to demonstrate continued compliance with regulatory limits. The preconstruction review includes BACT and offsetting of emissions.

8.3.2 SCAQMD Rules and Regulations

The following paragraphs outline the SCAQMD rules and regulations that apply to the proposed project.

8.3.2.1 Regulation II – Permits

This regulation establishes the framework of the permit to construct and permit to operate for a new or modified equipment that emits air pollutants.

Rule 201 – Permit to Construct

A person shall not construct or modify any nonexempt equipment that emits or controls air pollution without first obtaining a Permit to Construct. For power plant projects subject to CEC licensing, the PTC is effectively replaced by the DOC process.

Rule 202 – Temporary Permit to Operate

This rule allows for new equipment that was issued a PTC to be operated temporarily, upon notification of the Air Pollution Control Officer, until the final PTO is issued.

Rule 203 – Permit to Operate

This rule prohibits operation of any equipment that emits or controls air pollutants without first obtaining a PTO, except as provided in Rule 202. CPV Sentinel will need to obtain all the required permits prior to installation of the proposed project.

Rule 212 – Standards for Approving Permits

Rule 212 specifies the standard requirements for a PTC and a PTO, including public notification requirements for projects located within 1,000 feet from a school boundary, projects that pose a potential risk of nuisance, or facilities that pose a cancer risk of 10 in a million during a 70-year lifetime. Additionally, RECLAIM facilities that exceed the daily maximums specified in the Rule must conduct public notification to the broadest possible scope of interested parties, including federal, state, and local interested agencies, for a 30-day public comment period. Public notification must include all applicable provisions of 40 CFR Part 51.161(b) and 40 CFR Part 124.10. The proposed project will not be located within 1,000 feet from the outer boundary of a school, but daily estimated emissions will exceed those stated in Rule 212(g). However, the proposed project will not expose an individual to a cancer risk greater than, or equal to, 10 in a million (1 x 10^{-6}) during a lifetime (70 years), as documented by the Rule 1402 and presented in Section 5 of this Application. CPV Sentinel will be in compliance with Rule 212 by conducting public notification according to the requirements specified by the Rule, including the 30-day notification and public comment requirements of 40 CFR Part 124.10 and 40 CFR Part 51.161(b).

Rule 218 – Continuous Emission Monitoring

This rule describes the installation, quality control and assurance, and reporting requirements for CEMS to determine the concentration or mass emissions of a source. This rule does not apply to the CEMS required under RECLAIM Regulation XX for NO_x monitoring.

8.3.2.2 Regulation III – Fees

Rule 301 – Permit Fees

This rule identifies the fees that are applicable to permit modifications, new facilities, and permitted emissions. Review of the fee schedules identifies the fees in Rule 301 for processing of this Application. CPV Sentinel will submit the required fees with this Application in compliance with this rule.

8.3.2.3 Regulation IV – Prohibitions

This regulation restricts visible emissions, odor nuisance, fugitive dust, various air emissions, fuel contaminants, startup/shutdown exemptions, and breakdown events.

Rule 401 – Visible Emissions

Rule 401 prohibits the discharge of any air contaminant from a single source for more than three minutes in any one hour that produces visible emissions of specified opacity or shade (designated on the Ringlemann Chart). No visible emissions are expected with proper, normal operation of the proposed turbines and engines using natural gas and diesel fuels and the BACT equipment specified in this Application.

Rule 402 – Nuisance

Rule 402 implements H&SC 41700 to prohibit the discharge from any source of any air contaminant that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endangers such persons or public, or which may cause injury or damage to business or property. No nuisance is expected with proper, normal operation of the proposed turbines and engines utilizing natural gas and diesel fuels with the control equipment specified in this Application.

Rule 403 – Fugitive Dust

Under this rule CPV Sentinel must prevent, reduce, or mitigate fugitive dust emissions from the proposed project site. CPV Sentinel must use best available control measures to implement this rule. Mitigation may include adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, or using chemical stabilizers on roads or dirt areas, or ceasing all activities. A contingency plan may be required by the U.S. EPA. CPV Sentinel will submit a fugitive dust mitigation plan to both the District and the Commission. CPV Sentinel will also implement appropriate measures to control fugitive dust emissions during construction, including (1) use of water or chemical dust suppressants on unpaved surfaces; (2) use of vacuum or water flushing on paved surfaces; (3) covering or maintaining freeboard to haul vehicles; (4) limiting traffic speed on unpaved areas to 15 mph; (5) installing erosion control measures; (6) replanting disturbed areas as soon as possible; (7) using gravel pads and wheel washers as needed; and (8) using wind breaks and dust suppression as needed to control wind erosion.

Rule 403.1- Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources

This rule is supplemental to Rule 403 requirements and requires CPV Sentinel to reduce or prevent PM_{10} entrained from man-made source in the Coachella Valley. CPV Sentinel is required to determine when wind speed conditions exceed 25 miles per hour based on either District forecasts or through use of an on-site anemometer. For projects in the Coachella Valley Blowsand Zone, the rule also requires CPV Sentinel to stabilize new man-made deposits of bulk material within 24 hours of making such bulk material deposits, and stabilize new deposits of bulk material originating from off-site undisturbed natural desert areas within 72 hours. CPV Sentinel's fugitive dust control plan will be prepared in accordance with the Rule 403.1 Implementation Handbook. Since the proposed project is located in the Coachella Valley, the installation and operation of the CTGs is expected to comply with this rule. CPV Sentinel's fugitive dust control plan also needs to follow Fugitive Dust (PM-10) Control Plan guidelines for Riverside County. Only a small portion of the construction laydown area will be located within the Palm Springs City Limit and thus subject to the City's additional dust control requirements.

Rule 407 – Liquid and Gaseous Air Contaminants

Rule 407 prohibits the discharge of CO and sulfur compounds into the atmosphere at or above specified concentrations (2,000 ppm of CO, and 500 ppm of SO_2) averaged over 15 minutes. The proposed project turbines will meet the CO emission limit of 2,000 ppm with (or without) the installation of the control system, as substantiated by the emission calculations in Appendix B. The sulfur emission requirement does not apply per Rule 407 (c)(2), since the fuel complies with the gaseous fuel sulfur content limits of Rule 431.1 (see below). The proposed project will be in compliance with this rule.

Rule 408 – Circumvention

This rule prohibits the concealment of emissions released to the atmosphere that would otherwise constitute a violation of Chapter 3 of the Health and Safety Code. CPV Sentinel will not circumvent any District rules or regulations.

Rule 431.1 – Sulfur Content of Gaseous Fuels

This rule specifies fuel sulfur content limits applicable to any facility that burns gaseous fuels containing sulfur compounds. The rule's limit requirements are based on fuel type. The rule also provides test methods, monitoring, recordkeeping, and reporting requirements. Compliance with this rule is expected with usage of pipeline grade natural gas. The total emissions of sulfur compounds from the CSEP gas turbines will be limited to a maximum of 0.25 grains/100 dscf (4 ppmv as hydrogen sulfide [H_2S]), which is less than the rule's 16 ppmv limit for natural gas (calculated as H_2S). The proposed project will therefore be in compliance with this rule.

Rule 475 – Electric Power Generating Equipment

This rule applies to power generating equipment greater than 10 MW installed after May 7, 1976. Requirements establish a limit for combustion contaminants (particulate matter) of 11 lbs/hr or 0.01 grains/scf. Compliance is achieved if either the mass limit or the concentration limit is met. Composite emissions calculations for all turbine operations (cold startup, hot startup, base load, and planned shutdown) indicate that the average rate of PM_{10} emissions per turbine will be less than 11 lb/hr. The proposed project will, therefore, be in compliance with this Rule.

8.3.2.4 Regulation VII – Emergencies

Rule 701 – Air Pollution Emergency Contingency Actions

This rule requires facilities employing 100 or more people or emitting 100 or more tons of air pollutants (NO_X, SO_X, or VOCs) per year to reduce those pollutants by at least 20 percent upon declaration or prediction of a Stage 2 or 3 episode. Upon declaration of a state of emergency by the Governor, a facility must comply with the Governor's requirements. A power plant may be exempt if it is determined to be an essential service responding to public emergency or utility outage. CPV Sentinel will respond appropriately to the Governor's declaration of a state of emergency.

8.3.2.5 Regulation IX – Standards of Performance for New Stationary Sources

Standards of Performance for Electric Utility Steam Generating Units for which construction is commenced after September 18, 1978, specifies NO_X, SO_2, PM_{10}, and opacity emission limits; emission monitoring; and reporting requirements for Electric Utility Steam Generating Units. Regulation IX incorporates provisions of Part 60, Chapter I, Title 40 of the Code of Federal Regulations (40 CFR Part 60). It is applicable to all new, modified or reconstructed sources of air pollution. Subpart KKKK applies to stationary gas turbines. This subpart establishes limits of particulate matter, SO_2 and NO_2 emissions from the facility, and their corresponding monitoring and testing requirements. The proposed CTGs are expected to be well below these emissions limits with the proposed NO_X SCR controls and use of low-sulfur natural gas fuel.

8.3.2.6 Regulation XI – Source Specific Standards

Rule 1110.1 – Emissions from Stationary Internal Combustion Engines

This rule generally applies to engines larger than 50 brake-horsepower (bhp) and restricts NO_X and CO emissions from rich-burn or lean-burn engines. Emergency standby engines operating less than 200 hours per year are exempt. The proposed project will operate a 240 horsepower diesel emergency firewater pump engine and a 1,500 kilowatt (2,206 bhp) diesel black start generator; each engine will operate less than 20 hours per year.

Rule 1110.2 – Emissions from Gas and Liquid Fueled Engines

This rule establishes NO_X, VOC, and CO emission limits from stationary and portable engines over 50 bhp. Emergency standby engines operating less than 200 hours per year are exempt. The proposed project will include a 240 horsepower diesel emergency firewater pump engine and a 1,500 kilowatt

(2,206 bhp) emergency diesel black start generator, each of which will operate less than 200 ours per year.

Rule 1134 Emissions of Oxides of Nitrogen from Stationary Gas Turbines

Rule 1134 applies to stationary gas turbines, which provide guidelines/requirements for controlling NO_X emissions. The proposed project is subject to this rule, unless CPV Sentinel elects to opt into the RECLAIM program (Regulation XX), in which it will be exempt from the requirements of this rule..

Rule 1135 Emissions of Oxides of Nitrogen from Electric Power Generating Systems

Rule 1135 applies to electric power generating systems, which provide guidelines/requirements for controlling NOX emissions. The proposed project is subject to this rule, unless CPV Sentinel elects to opt into the RECLAIM program (Regulation XX), in which case it will be exempt from the requirements of this rule.

8.3.2.7 Regulation XIII – New Source Review

This regulation requires preconstruction review for new, modified, or relocated facilities to ensure that the facility does not interfere with progress toward attainment of the NAAQS, and that future economic growth in the Salton Sea Air Basin is not unnecessarily restricted. Regulation XIII limits the emissions of non-attainment contaminants and their precursors and ozone depleting compounds and ammonia, by requiring the use of BACT. CPV Sentinel intends to comply with all requirements of Regulation XIII.

The portion of Riverside County within the Salton Sea Air Basin is a nonattainment region for O_3, and PM_{10}. Precursors to nonattainment pollutants are also considered nonattainment for purposes of SCAQMD review. Therefore, SCAQMD considers the following pollutants to be nonattainment:

- Reactive organic gases (ROG) as a precursor to O_3 and the organic fraction of suspended particulate matter;
- NO_X as a precursor to O_3, NO_2 and the nitrate fraction of suspended particulate matter;
- SO_X as a precursor to SO_2, SO_4, and the sulfate fraction of suspended particulate matter; and,
- Inorganic gases such as NH_3, hydrogen fluoride (HF), and hydrogen chloride (HCl) as precursors to particulate matter.

Under NSR (Regulation XIII), Rule 1303 (Requirements), there are four specific requirements that apply to an applicable permit unit: (1) Installation of BACT (1303(a)); (2) modeling to substantiate that there will be no significant increase in an air pollutant concentration (1303(b)(1)); (3) obtaining emission offsets for the proposed increase in facility emissions (1303(b)(2)); and (4) facility compliance verification (1303 (b)(3)).

This regulation applies to all new or modified existing permit units that may cause the issuance of any nonattainment air contaminant (or precursor), halogenated hydrocarbon, or ammonia. The proposed project is expected to have emissions of NO_X, CO, SO_X, ROG, PM_{10} and NH_3. For RECLAIM facilities, this rule only applies to those nonattainment pollutants, or their precursors, not regulated under the RECLAIM program. The proposed project is not automatically a RECLAIM facility for NO_x, and SO_2, but could elect to opt into this program. The Regulation XIII requirements for CO, SO_x, ROG, PM_{10}, and NH_3 will apply.

1. Since CO and PM_{10} emissions from the CSEP will comply with BACT limits, the proposed project should not cause a significant increase in ambient air concentrations of CO, PM_{10}, or sulfates. However, a detailed air quality modeling analysis for CO, PM_{10}, and sulfates is required under Rule 1303. Modeling for ROC and SO_X is not required by this rule. An HRA for emissions of toxic contaminants is discussed in Section 5.1.

2. Under Rule 1304 (d)(2)(B), emission offsets will be required if the permit units (i.e., the project) post-modification potential-to-emit (PTE) for an individual criteria pollutant is greater than actual emissions discounted to BACT levels, based on actual process rate data during the previous 2 years. No 2-year internal offsets will be available to apply toward the new gas turbines, firewater pump, and black start engine; therefore, CPV Sentinel will provide all the ERCs needed for the new equipment emissions according to the provisions of Rules 1303(b)(2) and 1309.

Pursuant to Rule 1303 (b)(4) and Regulation II (Permits), CPV Sentinel shall certify that its facility complies with all applicable rules and regulations of SCAQMD. CPV Sentinel shall also certify the other sources operated by CPV Sentinel are in compliance with applicable federal emissions standards. Statewide compliance certification will also be required.

8.3.2.8 Regulation XIV – Toxics

Rule 1401 – New Source Review of Carcinogenic Air Contaminants

The SCAQMD regulates air toxic contaminants from new, modified, or relocated permit units by specifying limits for the maximum individual cancer risk and excess cancer cases that may result from emissions of carcinogenic air contaminants from these sources.

Requirements for BACT for Toxics (T-BACT), maximum individual cancer risk (MICR), and risk assessment guidelines for toxic pollutants are the primary provisions of SCAQMD Rule 1401. Operation of the proposed CPV Sentinel's facility will result in increases of Rule 1401 toxic pollutants, along with combustion pollutants. Emissions of organic hazardous air pollutants will be reduced by the CO oxidation catalyst. The CO oxidation catalyst is proposed as T-BACT for compliance with this rule. The proposed project would not cause an incremental cancer risk of 10 in 1 million, as documented in Section 5 of this Application.

8.3.2.8.1 Regulation XVII – Prevention of Significant Deterioration

This regulation establishes preconstruction requirements for stationary sources to ensure the air quality in attainment areas does not significantly deteriorate while maintaining a margin for future growth. It establishes maximum allowable increases over ambient baseline concentrations for each pollutant.

Rule 1703 – PSD Analysis

The SCAQMD Rule in 1703(a)(2) requires that each permit unit is constructed using BACT for each criteria air contaminant for which there is federally significant net emission increase. Since the proposed project will not trigger the federal Major Source emission threshold of 250 tons per year for any pollutant, this project will not be subject to the PSD rule.

8.3.2.9 Regulation XX – Regional Clean Air Incentives Market

The RECLAIM is a program designed to distribute emission allocations (or credits) for two primary non-attainment pollutants: NO_X and SO_x. A facility under the program may emit NO_X and/or SO_2 only according to the amount of credits in the facility's possession. Facilities in the South Coast Air Basin that emit more than 4 tons per year of NO_X or SO_2 are automatically included in the program. Other facilities may opt into the RECLAIM program, including facilities in the Salton Sea Air Basin. Regulation XX sets specific NO_X and/or SO_2 requirements for RECLAIM facilities and exempts the facilities from other NO_X and/or SO_2 requirements in a number of command and control rules according to Tables 1 and 2 in Rule 2001. The proposed project may elect to operate as a RECLAIM NO_X facility per Rule 2001. If so, CPV Sentinel will comply with the CEMS, record-keeping, and reporting requirements per Rule 2012.

Rule 2005 – New Source Review for RECLAIM

Similar to Regulation XIII, Rule 2005 defines the pre-construction review requirements for new RECLAIM facilities and modifications to existing RECLAIM facilities. The requirements of Rule 2005 are virtually identical to Rule 1303, except for different offset NO_X requirements. NO_X emission increases must be below the facility's current RECLAIM Trading Credit (RTC) allocation or additional RTCs must be provided by CPV Sentinel. RECLAIM facilities have no Community Bank for NO_X. Compliance certification requirements are identical to Rule 1303. CPV Sentinel will need to obtain a RECLAIM permit and comply with BACT, modeling, and emissions offsetting requirements if it elects to enter the RECLAIM program. As presented in this Application, CPV Sentinel has conducted dispersion modeling of the potential air impacts to substantiate that operational emissions of NO_X will not significantly affect air quality. CPV Sentinel will apply BACT to the turbines and SCR to control NO_X, and will offset the NO_X emissions of the proposed project by ERCs or RECLAIM credits.

8.3.2.9.1 Regulation XXX – Federal Operating Permits (Title V, Part 70)

Regulation XXX administers the 40 CFR Part 70 Federal Permitting Program, established by Title V of the CAAA, within the SCAQMD jurisdiction. The proposed project will be a Title V major source. Regulation XXX defines the permit application and issuance, and the compliance requirements of the program. The proposed project will require obtaining a new Title V permit, and U.S. EPA Region IX review is required. Regulation XXX integrates the Title V permit with the RECLAIM permit, if applicable. CPV Sentinel will apply for a Title V permit following commencement if CSEP operations.

8.3.2.10 Regulation XXXI – Acid Rain Permit

Title IV of the federal CAAA establishes acid rain permit for qualifying facilities. Regulation XXXI integrates the Title IV program with the RECLAIM program. The regulation requires a facility to obtain emission allowances for SO_X emissions, and requires monitoring of SO_x NO_X, and CO_2. CPV Sentinel will apply for RECLAIM permit to incorporate revisions to Title IV.

SECTION 9 COMPLIANCE MONITORING

The proposed project will be in compliance with the applicable regulations, as identified in the foregoing section of this application. Monitoring will be performed as required by the permit conditions. Stack testing for ammonia, and continuous emissions monitoring for NOx, CO, O2, temperature and exhaust flow gas in the turbine stacks will be implemented as a result of the proposed project.

SECTION 10 REFERENCES

This section lists the references used to conduct the air quality assessment.

August H. Auer Jr., 1978. *Journal of Applied Meteorology*, 17(5): 636-643. American Meteorological Society. "Correlation of Land Use and Cover with Meteorological Anomalies," May 1978.

California Air Pollution Control Officers Association (CAPCOA), 1993. Air Toxics "Hot Spots" Program, Revised 1992 Risk Assessment Guidelines.

California Air Resource Board), 2000. *Risk Management Guidance for the Permitting of New Stationery Source Diesel-Fueled Engines.* October.

California Air Resource Board, 2007. Off-road Mobile Source Emission Factors, Off-Road Emissions Inventory Program.

CEC (California Energy Commission), 1997. "Regulations Pertaining to the Rules of Practice and Procedure and Plant Site Certification." Title 20, California Code of Regulations. Chapters 1, 2, 5.

CEC (California Energy Commission), 2006. Rules of Practice and Procedure and Power Plant Site Certification Regulations Revisions, 04-SIT-2, December 14, 2006.

NPS (National Park Service), 2007. Particulate Matter Speciation: URL: http://www2.nature.nps.gov/air/permits/ect/index.cfm.

South Coast Air Quality Management District, 1993. *CEQA Air Quality Handbook.* April 1993.

U.S. EPA (U.S. Environmental Protection Agency), 1985. Guideline for Determination of Good Engineering Stack Height (Technical Support Document for the Stack Height Regulation) (Revised), U.S. EPA-450/4-80-023R. Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. June 1985.

U.S. EPA (U.S. Environmental Protection Agency), 1987. *On-Site Meteorological Program Guidance for Regulatory Modeling Applications.*

U.S. EPA (U.S. Environmental Protection Agency), 1988. Workbook for Plume Visual Impact Screening and Analysis, U.S. Environmental Protection Agency, Research Triangle Park, NC. September 1988.

U.S. EPA (U.S. Environmental Protection Agency), 1990. New Source Review Workshop Manual Prevention of Significant Deterioration and Nonattainment Area Permitting (Draft), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. October 1990.

U.S. EPA (U.S. Environmental Protection Agency), 1992. Addendum to Workbook for Plume Visual Impact Screening and Analysis, U.S. Environmental Protection Agency, Research Triangle Park, NC. October 1992.

U.S. EPA (U.S. Environmental Protection Agency), 1995a. User's Guide to the Industrial Source Complex (ISC3) Model, Volume I – User Instructions. U.S. EPA-454/B-95-003a. September 1995.

U.S. EPA (U.S. Environmental Protection Agency), 1995b. User's Guide to the Building Profile Input Program. U.S. EPA-454/R-93-038. Revised February 8, 1995.

U.S. EPA (U.S. Environmental Protection Agency), 2004. User's Guide for the AMS/U.S. EPA Regulatory Model-AERMOD. (U.S. EPA-454/B-03-001). September 2004.

U.S. EPA (U.S. Environmental Protection Agency), 2005. AERMOD Implementation Guide. September 2005.

U.S. EPA (U.S. Environmental Protection Agency), 2006a. Addendum to User's Guide for the AMS/U.S. EPA Regulatory Model-AERMOD. December 2006.

U.S. EPA (U.S. Environmental Protection Agency), 2006b. U.S. EPA AirData. URL: http://www.epa.gov/airdata/index.html.

United States Forest Service, National Park Service, and U.S. Fish and Wildlife Service, 2000. Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase 1 Report. Prepared by U.S. Forest Service Air. Quality Program, National Park Service Air Resources Division, U.S. Fish and Wildlife Service Air Quality Branch. December 2000.

Western Regional Climate Center, 2007. Desert Research Institute, Las Vegas, NV. URL: http://www.wrcc.dri.edu/.

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Form 400-A, Application for Permit to Construct and Permit to Operate
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CTG 8:

Form 400-A, Application for Permit to Construct and Permit to Operate
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CTG 8 SCR:

Form 400-A, Application for Permit to Construct and Permit to Operate
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Form 400-PS, Plot Plan and Stack Information Form

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Form 400-A, Application for Permit to Construct and Permit to Operate
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Ammonia Storage Tank 2

Form 400-A, Application for Permit to Construct and Permit to Operate
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Form 400-PS, Plot Plan and Stack Information Form

Cooling Tower 1

Form 400-A, Application for Permit to Construct and Permit to Operate

Cooling Tower 2

Form 400-A, Application for Permit to Construct and Permit to Operate

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator):
Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
CPV Sentinel Energy Project consists of eight natural gas-fired combustion turbine generators (CTGs) operating in simple cycle mode to supply peaking electrical power as needed. Additional units include SCRs, ammonia storage tanks, emergency engines and cooling towers.

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 0

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?
(•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☒ Form(s) signed and dated by authorized official
- ☒ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☒ CEQA Form (400-CEQA) attached
- ☒ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE $	VALIDATION
ENG A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

South Coast Air Quality Management District

Form 400–CEQA

California Environmental Quality Act (CEQA) Applicability

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385

www.aqmd.gov

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project[1] has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].[2] Refer to the attached instructions for guidance in completing this form.[3] For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Lori Inga at (909) 396-3109.

FACILITY INFORMATION	
Business Name of Operator to Appear on the Permit: CPV Sentinel, LLC	**Facility ID (6-Digit):**
Project Description: CPV Sentinel Energy Project consists of eight natural gas-fired combustion turbine generators (CTGs) operating in simple cycle mode to supply peaking electrical power as needed.	

REVIEW FOR EXEMPTION FROM FURTHER CEQA ACTION

Check "Yes" or "No" as applicable

	Yes	No	**Is this application for:**
A.	●		**A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project?** If yes, a permit cannot be issued until a Final CEQA document and Notice of Determination is submitted.
B.		●	**A request for a change of permittee only (without equipment modifications)?**
C.		●	**Equipment certification or equipment registration** (qualifies for Rule 222)?
D.		●	**A functionally identical permit unit replacement with no increase in rating or emissions?**
E.		●	**A change of daily VOC permit limit to a monthly VOC permit limit?**
F.		●	**Equipment damaged as a result of a disaster during state of emergency?**
G.		●	**A Title V** (i.e., Regulation XXX) **permit renewal (without equipment modifications)?**
H.		●	**A Title V administrative permit revision?**
I.		●	**The conversion of an existing permit into an initial Title V permit?**

If **"Yes"** is checked for any question above, your application does not require additional evaluation for CEQA applicability. Skip to page 2, "SIGNATURES" and sign and date this form.

REVIEW OF IMPACTS WHICH MAY TRIGGER CEQA

Complete Sections I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	**Section I – General**
1.		●	**Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project?** Controversy may be construed as concerns raised by local groups at public meetings, adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.		●	**Is this project part of a larger project?**
			Section II – Air Quality
3.	●		**Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?**
4.		●	**Does this project include the open outdoor storage of dry bulk solid materials that could generate dust?** If Yes, include a plot plan with the application package.

[1] A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.
[2] To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html.
[3] To download this form and the instructions, visit http://www.aqmd.gov/ceqa or http://www.aqmd.gov/permit

	Yes	No	
5.	○	●	**Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements?** For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 – Nuisance.
6.	○	●	**Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?**
7.	●	○	**Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1?[4]**
			Section III – Water Resources
8.	○	●	**Will the project increase demand for water at the facility by more than 5,000,000 gallons per day?** The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	●	○	**Will the project require construction of new water conveyance infrastructure?** Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
			Section IV – Transportation/Circulation
10.			**Will the project result in** (Check all that apply):
	○	●	**a. the need for more than 350 new employees?**
	○	●	**b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?**
	○	●	**c. increase customer traffic by more than 700 visits per day?**
			Section V – Noise
11.	○	●	**Will the project include equipment that will generate noise GREATER THAN 90 decibels (dB) at the property line?**
			Section VI – Public Services
12.			**Will the project create a permanent need for new or additional public services in any of the following areas** (Check all that apply):
	○	●	**a. Solid waste disposal?** Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	○	●	**b. Hazardous waste disposal?** Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).

REMINDER: *For each "Yes" checked in the sections above, attach all pertinent information including but not limited to estimated quantities, volumes, weights, etc.*

SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:	TITLE OF RESPONSIBLE OFFICIAL OF FIRM: Project Manager	
TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM: Mark Turner	RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER: (415) 2931-463	DATE Signed: 7/23/07
SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM:	TITLE OF PREPARER: Senior AQ Consultant	
TYPE OR PRINT NAME OF PREPARER: John Lague	PREPARER'S TELEPHONE NUMBER: (619) 2432-823	DATE Signed: 7/19/07

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND THE ATTACHMENTS WITH FORM 400-A.

[4] Table 1 – Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA.

CVP Sentinel Energy Project

AQMD Form 400-CEQA Attachment

Question 3: Excavation/grading

Summary of Temporary Disturbance Areas

The project will disturb approximately 85 acres of land during construction. Of this, 24.5 acres will be returned to pre-project conditions after construction is complete. Table 2.6-4 identifies estimated disturbed areas from construction, including construction right-of-ways for the project's linear features.

Table 2.6-4
Estimated Disturbed Area Summary

Project Component	Construction (acres)	Operations (acres)	Proposed Length (feet)	Construction Right of Way (feet)	Operations Right of Way (feet)
Site Boundary (Including Entrance Road)	36.8	36.8	N/A	N/A	N/A
Construction Laydown/Parking	13.6	13.6[1]	N/A	N/A	N/A
Transmission Interconnection Line	5.6	1.9	3,246	75	25
Gas Supply Line	23.4	6.2	13,591	75	20[2]
Potable Water Supply Line and Access Road	5.6	1.9	3,233	75	25
Total Disturbed Area	**85**	**60.4**			

Note:
Refer to Figure 2.3-1 for location of project components.
[1] The construction laydown area will remain graveled after project construction to facilitate the existing use of this area for equipment laydown for the adjacent wind farm.
[2] Consistent with the SoCalGas 20-foot easement existing from Indigo Energy Facility to Dillon Road

Question 7: Hazardous Materials

2.1.1 Hazardous Material and Hazardous Waste Management and Disposal

Prior to operation, the proposed project will develop and implement a Hazardous Materials Management Program (HMMP), which will include, at a minimum, procedures for:

- Hazardous materials handling, use, and storage
- Emergency response
- Spill control and prevention

- Employee training
- Reporting and record keeping

2.1.1.1 Hazardous Materials

Tables 2.4-8 and 2.4-11 list the chemicals to be used, handled, or stored at the project site. Sulfuric acid is listed in 40 CFR 355 as an extremely hazardous substance and requires special handling. In addition, 29 percent aqueous ammonia will be stored in two horizontal tanks. Each of the two tanks will have a 12,000-gallon capacity, and will be 8 feet in diameter and 36 feet long. The tanks will be located at the northeast section of the property. Secondary containment for the ammonia tanks will consist of an underground containment sump (17,014 gallons). The containment area is sized to contain at least 110 percent of the entire contents of one tank. A concrete unloading area is adjacent to the tank and pumps. The ammonia loading and unloading zone will be to the north of the tanks, in an area approximately 32 feet long by 20 feet wide and 1 foot deep.

The onsite supply of ammonia is expected to last for approximately 10 days during 15 hour-per-day operations, or 6 days during 24 hour-per-day operations. Ammonia is expected to be delivered to the site via SR 62 to the Dillon Road exit, then a left turn onto the project's site access road, and continuing on the internal project road to the northeastern section of the site.

The storage, use, and handling of these hazardous materials will be in accordance with applicable laws, ordinances, regulations, and standards (LORS), as follows:

- A facility HMMP will be developed and implemented prior to turnover of site management from the construction contractor to the operating company.

- Facility personnel will be trained in hazardous materials and hazardous waste awareness, handling, and management, as required for their level of responsibility.

- Bulk chemicals will be stored in aboveground storage tanks; all other chemicals will be stored in the original shipping container.

- Chemical storage areas and feed/transfer areas will have secondary containment sufficient in size to contain the volume of the largest storage container or tank, including an allowance for rainwater, if appropriate.

- Small-quantity chemicals used for maintenance tasks will be kept in appropriate flammable material or corrosive material storage lockers.

- Periodic inspections will ensure that all containers are secure and properly marked.

2.1.1.2 Hazardous Wastes

Table 2.4.10 lists the types of waste to be generated during operation of the project. These wastes will be managed in accordance with applicable LORS and the proposed project's HMMP, including:

- The proposed project will secure a U.S. EPA Hazardous Waste Generator Identification Number prior to turnover of site management from the construction contractor to the operating company.

- All hazardous waste will be stored in appropriately labeled bulk storage containers. Liquid waste will be stored in labeled 55-gallon drums equipped with secondary containment and closed-tops with bungs. Solid waste will be stored in secured drums.

- All waste drums will be stored in accordance with good practice and applicable regulations, and will be protected from environmental conditions (rain, wind, direct heat) and physical hazards such as vehicle traffic and other sources of heat and impact.

- Storage of hazardous waste will at no time exceed 90 days from the date of initial accumulation, with a total of 55 gallons of hazardous waste or more on site.

- All used or skimmed oils will be managed for recycling.

- California-authorized hazardous waste haulers will transport hazardous wastes to registered waste treatment, storage, disposal, and recycling facilities.

- Hazardous waste generation, handling, and storage areas will be inspected and monitored on a regular basis.

- Emergency response and reporting will be performed per written procedures that follow government and industry requirements and standards.

Table 2.4-8
Summary of Chemical Usage and Storage – Water and Wastewater Treatment

Chemical	Primary Application	Estimated 30-Day Usage [1]	Estimated Storage Quantity [1]
Sodium Hypochlorite (12.5%, Trade)	Biocide/Biofilm Control (Raw Water Tank, Circulating Water, MF System)	3,100 gallons	4,000 gallons
Sulfuric Acid (93%) [2]	pH Control (Cooling Tower Makeup, MF System, RO System)	4,200 gallons	5,000 gallons
Dispersant/Corrosion Inhibitor (neat)	Scale/Corrosion Control (Circulating Water)	350 gallons	400 gallons
Ferric Chloride (38%)	Coagulant (MF System)	150 gallons	200 gallons
Sodium Hydroxide (25%)	Alkalinity Control (MF System)	15,000 gallons	20,000 gallons
Sodium Carbonate (99%, solid)	Alkalinity Control (MF System)	40,000 pounds	25 ton
Magnesium Sulfate (30%)	Silica Removal (MF System)	2,900 gallons	3,500 gallons
Hydrochloric Acid (38%)	MF Membrane Cleaning	300 gallons	400 gallons
Antiscalant (neat)	RO System	20 gallons	25 gallons
Sodium Bisulfite (38%)	Dechlorination (RO System)	310 gallons	400 gallons
Polymer Thickening Aid (neat)	Gravity Thickener (MF System)	2 gallons	5 gallons
RO Membrane Cleaners (neat)	RO System	2 gallons	5 gallons
Anti-foaming Agent	Crystallizer	50 gallons	55 gallons

Notes:
[1] Expected based on 107 °F operation condition. Usage and storage will be optimized during final design.
[2] California Toxic Chemical

Table 2.4-10
Summary of Anticipated Operating Waste Streams and Management Methods
(Page 1 of 2)

Waste Stream	Waste Stream Classification	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite Treatment
Used hydraulic fluid, oils and grease, and oily filters from CTG and other users of hydraulic actuators and lubricants	Hazardous	Less than 5 gallons	Daily	Store for less than 90 days	Waste Oils, hydraulic fluids and antifreeze would be recycled
Spent lead acid and alkaline batteries	Hazardous solids	5 (Lead Acid) 30 (Alkaline)	Lead Acid – Yearly Alkaline -Monthly	Store for less than 1 year	Recycle
Spent catalyst (heavy metals)	Hazardous solids	120,000 lbs	Every 5 years	Removed to truck by licensed contractors	Recycle
Waste oil from oil water separator	Hazardous	15 US gallons	Yearly	None – removed directly from oil water separator	Oil would be recycled
Oily rags, oil absorbent from CTG and other users of hydraulic actuators and lubricants	Hazardous solids	Two 55 gallon containers	Monthly	Store for less than 90 days	Oily rags would be recycled Class I landfill disposal for other solids
CTG used air filters	Nonhazardous solids	2,000 filters	Every 5 years	Store for less than 90 days	Recycle/Class III landfill disposal
CTG water wash	Hazardous or nonhazardous liquids	10,000 US gallons	Yearly	Sample. Store hazardous portion for less than 90 days	Dispose to a TSDF if hazardous

Table 2.4-10
Summary of Anticipated Operating Waste Streams and Management Methods
(Page 2 of 2)

Waste Stream	Waste Stream Classification	Estimated Amount	Estimated Frequency of Generation	Waste Management Method	
				Onsite	Offsite Treatment
Fluorescent, mercury vapor lamps	Hazardous solids	30	Yearly	Store for 1 year	Recycle
Sanitary wastewater	Nonhazardous liquids	1,500 US gallons	Daily	Solids pumped once every 3 years to tanker truck by licensed contractors	Discharge to onsite septic tank and leach field
Stormwater	Nonhazardous liquids	716,000 US gallons	For a once in 2 year, 24 hour storm event	NPDES Stormwater program	Discharge to the stormwater retention basin
Salts from zero liquid discharge rotary drum	Nonhazardous solids	200 lbs	Daily	Store for less than 90 days	Class III/II landfill disposal

Table 2.4-11
Summary of Chemicals Usage and Storage - Nonwater Treatment

Chemical	Application	Storage Location	Storage or Usage Quantity	
			Average	Maximum
Natural gas	Fuel for power plant	Piped into plant on as-needed basis	NA	NA
Aqueous Ammonia (29%)	NO_X reduction in SCR	NE end of property	12,000 gal	24,000 gal
Mineral Oil	Transformers	--	123,500 gal, initial fill	
Sulfur Hexafluoride	Switchyard Breakers	Within Equipment	600 lbs	
Turbine and Generator Lube Oil	Rotating equipment	CTG	50,000 gal	
Hydraulic Oil	Rotating equipment	CTG	500 gal	
Carbon dioxide	Fire protection, generator purging	CTG Bottle Racks	32,000 lb initial fill	NA
Various detergents	Combustion turbine cleaning	--	1000 lb, before startup	Periodic short-term storage 500 lb
Dryer desiccant	Instrument air	Instrument air dryer	600 lb	
Diesel fuel	Fire water pump	Fire water skid	180 gal, initial fill	Maintain full diesel tank
Diesel fuel	Black Start Generator	Black Start Generator	1,300 gal, initial fill	Maintain full diesel tank

Question 9: Water Conveyance

2.1.1.3 Water Balance and Supply Requirements

Construction water will be supplied by the existing onsite well, the future water supply well(s), or by water truck(s). Average daily use of construction water is estimated to be about 25,673 gallons, primarily for dust control, but will vary depending on the activities being performed and weather conditions. The maximum daily water usage is estimated at 250,000 gallons during hydrotesting of the pipelines, tanks, equipment, and associated piping. The hydrotest water will be tested and, if suitable for discharge, will be routed to the retention basin. If the water quality is not suitable for discharge, it will be transported by trucks to an approved offsite disposal facility.

The proposed project will require approximately 1,975 gpm of raw water makeup when operating at full plant load during average summer ambient conditions 90°F, 30.2 percent relative humidity (RH). Maximum water requirements on a peak ambient summer day (120°F, 12.7 percent RH) will be 2,059 gpm. Key plant raw water uses will include makeup to the cooling tower systems, makeup to the mobile demineralizer system (MDS), and makeup to the service water system. Approximately five water supply wells will be installed on the project site; the final number will depend on the results of a well test program to determine the characteristics of the groundwater at the site. Water will be routed from these wells to the raw water storage tanks via one or more water lines. The groundwater quality was evaluated by testing water from the existing onsite domestic well. The results of testing of water from this onsite well are provided in Table 2.4-7. The onsite storage tanks have the capacity for approximately 24 hours of operation. In addition, one of the raw water storage tanks contains a fire water reserve, accessible only to the fire water pumps, equal to 2 hours of fire system flow. Demineralized water will be produced onsite by mobile trailer units containing demineralized water systems.

Potable water will be supplied by MSWD from a buried potable water line that would be installed along the site access route from Dillon Road to the proposed project site. Potable water requirements are expected to average 2 afy.

South Coast Air Quality Management District
Form 500–A2
TITLE V Application Certification

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

Section I - Facility Information

1. **Permit to be Issued to (Business name of operator to appear on permit):**

   CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice Issued by AQMD):**

3. **This Certification is submitted with a (Check one):**
   - a. (●) Title V Application (Initial, Revision or Renewal)
   - b. ( ) Supplement/Correction to a Title V Application
   - c. ( ) MACT Part 2

4. **Is Form 500-C2 included with this Certification?** ( ) Yes (●) No

Section II - Responsible Official Certification Statement

I certify under penalty of law that I am the responsible official for this facility as defined in AQMD Regulation XXX and that based on information and belief formed after reasonable inquiry, the statements and information in this document and in all attached application forms and other materials are true, accurate, and complete.

Read each statement carefully and check each that applies – ***You must check 3a or 3b.***

1. For Initial, Permit Renewal, and Administrative Application Certifications:

a. ( ) The facility, including equipment that are exempt from written permit per Rule 219, is currently operating and will continue to operate in compliance with all applicable requirement(s) identified in Section II and Section III of Form 500-C1,

   i. ( ) except for those requirements that do not specifically pertain to such devices or equipment and that have been identified as "Remove" on Section III of Form 500-C1.

   ii. ( ) except for those devices or equipment that have been identified on the completed and attached Form 500-C2 that will not be operating in compliance with the specified applicable requirement(s).

b. (●) The facility, including equipment that are exempt from written permit per Rule 219, will meet in a timely manner, all applicable requirements with future effective dates.

2. For Permit Revision Application Certifications:

a. ( ) The equipment or devices to which this permit revision applies, will in a timely manner comply with all applicable requirements identified in Section II and Section III of Form 500-C1.

3. For MACT Hammer Certifications:

a. ( ) The facility is subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63), also known as the MACT "hammer." The following information is submitted with a Title V application to comply with the Part 1 requirements of Section 112(j). (If Part 2 has not been submitted, you must submit 500-MACT Part 2 with this form.)

b. ( ) The facility is not subject to Section 112(j) of the Clean Air Act (Subpart B of 40 CFR part 63).

[signature] — Signature of Responsible Official | 7/23/07 — Date

Mark Turner — Type or Print Name of Responsible Official | (415) 293-1463 — Phone

Project Manager — Title of Responsible Official | (415) 957-9886 — Fax

55 Second Street, Suite 525 — Address of Responsible Official | San Francisco — City | CA — State | 94105 — Zip Code

Acid Rain Facilities Only: Turn page over & complete Section III

Acid Rain facilities must certify their compliance status of the devices subject to applicable requirements under Title IV by an individual who meets the definition of Designated (or Alternate) Representative in 40 CFR Part 72.

Section III - Designated Representative Certification Statement

1. *For Acid Rain Facilities Only*: I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

[signature]		7/23/07	
Signature of Designated Representative or Alternate		Date	
Mark Turner		(415) 293-1463	
Type or Print Name of Designated Representative or Alternate		Phone	
Project Manager		(415) 957-9886	
Title of Designated Representative or Alternate		Fax	
55 Second Street, Suite 525	San Francisco	CA	94105
Address of Designated Representative or Alternate	City	State	Zip Code

South Coast Air Quality Management District

Form 500-B

Title V List of Exempt Equipment

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Use this form for all application submittals requesting an initial Title V permit or permit renewal. If you are applying for a permit revision, you may also use this form to have your exempt equipment listing updated prior to renewing your permit.

This form is designed to summarize all of the equipment at a facility that is exempt from AQMD permit requirements (e.g., I.C. Engines ≤ 50 BHP, Boilers < 2 MM BTU/hr etc.). This equipment can be listed according to category. However, if there is a specific device that is vented to control equipment, then the equipment must be listed separately. Trivial activities listed on the back of this form or the Technical Guidance Document do not have to be listed on this form. Note: If your facility is in the RECLAIM program, it is not necessary to repeat any equipment currently listed in Appendix A of the RECLAIM permit.

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Check box if facility is in RECLAIM program: ☐

Valid AQMD Facility ID (Available on Permit or Invoice Issued by AQMD):

Provide Current Permit Issue Date (mo/day/yr):

Permit Revision No.:

Section I - Summary of Equipment Exempt from Permit Requirements (Including Portable)

Exempt Equipment Description [e.g., Small Boilers (75,000 BTU/hr-2,000,000 BTU/hr)]	Venting to Control Device Number	Control Device Description	Basis for Exemption [e.g., Rule 219 (b)(2), 05/19/00]	Source Specific Rule [e.g. Rule 1146.2]
NO KNOWN EXEMPT EQUIPMENT.				

Title V
Form 500-C1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Compliance Status Report

To provide the compliance status of your facility with applicable federally enforceable requirements and identify other local-only requirements, complete this form and attach it to a completed compliance certification Form 500-A2. As appropriate, all submittals of Form 500-C2 as appropriate should also be attached to this form.

Section I - General Information

1. Facility Name: CPV SENTINEL ENERGY PROJECT   Facility ID (6-Digit): ______

PROCEDURES FOR DETERMINING COMPLIANCE STATUS

1. **Equipment verification:** Review the list of pending applications, and either the preliminary Title V facility permit or the list of current permits to operate that the AQMD provided you, to determine if they completely and accurately describe all equipment operating at the facility. Attach a statement to describe any discrepancies.
2. **Identify applicable requirements*:** Use the checklist in Section II to identify all applicable and federally-enforceable local, state, and federal rules and regulations, test methods, and monitoring, recordkeeping and reporting (MRR) requirements that apply to any equipment or process (including equipment exempt from a permit by Rule 219) at your facility.

   The potential applicable requirements, test methods and MRR requirements are identified and listed adjacent to each given equipment/process description. Check off each box adjacent to the corresponding requirement as it applies to your particular equipment/process.

   Note: Even if there is only one piece of equipment that is subject to a particular requirement, the appropriate box should be checked.
3. **Identify additional applicable requirements*:** Use Section III to identify any additional requirements not found in Section II. Section II is not a complete list of all applicable requirements. It does not include recently adopted NESHAP regulations by EPA or recent amendments to AQMD rules. Do not add rules listed in Section V here.
4. **Identify any requirements that do not apply to a specific piece of equipment or process:** Also use Section III to identify any requirements that are listed in Section II but that do not apply to a specific piece of equipment or process. Fill out Section III of this form and attach a separate sheet to explain the reason(s) why the identified rules do not apply. Note: Listing any requirement that does not apply to a specific piece of equipment will not provide the facility with a permit shield unless one is specifically requested by completing Form 500-D and is approved by AQMD.
5. **Identify SIP-approved rules that are not current AQMD rules:** Use Section IV to identify older versions of current AQMD rules that are the EPA-approved versions in the State Implementation Plan (SIP), and that are still applicable requirements as defined by EPA. The facility is not required to certify compliance with the items checked in Section IV provided that the non-SIP approved rule in Section II is at least as stringent as the older SIP-approved version in Section IV. **
6. **Identify Local-Only Enforceable Regulatory Requirements:** Use Section V to identify AQMD rules that are not SIP-approved and are not federally enforceable.
7. **Determine compliance:** Determine if all equipment and processes are complying with all requirements identified in Sections II and III. If each piece of equipment complies with all applicable requirements, complete and attach Form 500-A2 to certify the compliance status of the facility. If any piece of equipment is not in compliance with any of the applicable requirements, complete and attach Form 500-C2 in addition to Form 500-A2.

* The following AQMD rules and regulations are not required to be included in Section II and do not have to be added to Section III: Regulation I, List and Criteria in Regulation II, Rule 201, Rule 201.1, Rule 202, Rule 203, Rule 205, Rule 206, Rule 207, Rule 208, Rule 209, Rule 210, Rule 212, Rule 214, Rule 215, Rule 216, Rule 217, Rule 219, Rule 220, Rule 221, Regulation III, Regulation V, Regulation VIII, Regulation XII, Regulation XV, Regulation XVI, Regulation XIX, Regulation XXI, Regulation XXII, and Regulation XXX.

** Emission units adversely affected by the gap between current and SIP-approved versions of rules may initially be placed in a non-Title V portion of the permit

Section II - Applicable Requirements, Test Methods, & MRR Requirements

EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
☒ All Air Pollution Control Equipment Using Combustion (RECLAIM & non-RECLAIM sources)	☐ Rule 480 (10/07/77)	N/A	N/A
☐ All Coating Operations	☐ Rule 442 (12/15/00)	☐ Rule 442(f)	☐ Rule 442(g)
☒ All Combustion Equipment, ≥ 555 Mmbtu/Hr (except for NOx RECLAIM sources)	☐ Rule 474 (12/04/81)	☐ AQMD TM 7.1 or 100.1	
☒ All Combustion Equipment Except Internal Combustion Engines (RECLAIM & non-RECLAIM sources)	☒ Rule 407 (04/02/82) ☐ Rule 409 (08/07/81)	☐ AQMD TM 100.1 or 10.1, 307-91 ☐ AQMD TM 5.1, 5.2, or 5.3	
☒ All Combustion Equipment Using Gaseous Fuel (except SOx RECLAIM sources)	☐ Rule 431.1 (06/12/98)	☐ Rule 431.1(f)	☐ Rule 431.1(d) & (e)
☒ All Combustion Equipment Using Liquid Fuel (except SOx RECLAIM sources)	☐ Rule 431.2 (09/15/00)	☐ Rule 431.2(g)	☐ Rule 431.2(f)
☒ All Combustion Equipment Using Fossil Fuel (except SOx RECLAIM sources)	☐ Rule 431.3 (05/07/76)		
☒ All Equipment	☒ Rule 401 (11/09/01) ☐ Rule 405 (02/07/86) ☒ Rule 408 (05/07/76) ☐ Rule 430 (07/12/96) ☒ Rule 701 (06/13/97) ☒ New Source Review, BACT ☐ Rule 1703 (10/07/88) ☐ 40 CFR68 - Accidental Release Prevention	☐ California Air Resources Board Visible Emission Evaluation ☐ AQMD TM 5.1, 5.2, or 5.3 N/A See Applicable Subpart	☐ Rule 430(b) See Applicable Subpart
☐ All Equipment Processing Solid Materials	☐ Rule 403 (04/02/04)	☐ Rule 403(d)(4)	☐ Rule 403(f)
☒ All Equipment With Exhaust Stack (except cement kilns subject to Rule 1112.1)	☐ Rule 404 (02/07/86)	☐ AQMD TM 5.1, 5.2, or 5.3	
☐ All Facilities Using Solvents to Clean Various Items or Equipment	☐ Rule 109 (05/02/03) ☐ Rule 1171 (11/07/03) ☐ 40 CFR63 SUBPART T	☐ Rule 109(g) ☐ Rule 1171(f) See Applicable Subpart	☐ Rule 109(c) ☐ Rule 1171(c)(6) See Applicable Subpart
☐ All RECLAIM Equipment (NOx & SOx)	☐ Reg. XX - RECLAIM	☐ Rule 2011, App. A (12/05/03) ☐ Rule 2012, App. A (12/05/03)	☐ Rule 2011, App. A (12/05/03) ☐ Rule 2012, App. A (12/05/03)
☐ Abrasive Blasting	☐ Rule 1140 (08/02/85)	☐ Rule 1140(d) & (e), AQMD Visible Emission Method	
☐ Aggregate and Related Operations	☐ Rule 1157 (01/07/05)	☐ Rule 1157(f)	☐ Rule 1157(e)
☐ Appliances Containing Ozone Depleting Substances (except Motor Vehicle Air Conditioners): Manufacturing, Repair, Maintenance, Service, & Disposal	☐ 40 CFR82 SUBPART F	See Applicable Subpart	See Applicable Subpart

KEY ABBREVIATIONS:	Reg.= AQMD Regulation Rule = AQMD Rule	App. = Appendix AQMD TM = AQMD Test Method	CFR = Code of Federal Regulations CCR = California Code of Regulations	AQMD Form 500-C1 Rev. 05/05

Section II - Applicable Requirements, Test Methods, & MRR Requirements

EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
☐ Asphalt	See Manufacturing, Asphalt Processing & Asphalt Roofing		
☐ Asphalt Concrete/Batch Plants	☐ 40 CFR60 SUBPART I	See Applicable Subpart	See Applicable Subpart
☐ Benzene Emissions, Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, & Coke By-Product Recovery Plants	☐ Rule 1173 (12/06/02)	☐ Rule 1173(j)	☐ Rule 1173(i)
	☐ Rule 1176 (09/13/96)	☐ Rule 1176(h)	☐ Rule 1176(f) & (g)
	☐ 40 CFR61 SUBPART L	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR61 SUBPART Y	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Benzene Transfer Operations	☐ Rule 1142 (07/19/91)	☐ Rule 1142(e)	☐ Rule 1142(h)
	☐ 40 CFR61 SUBPART BB	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART Y	See Applicable Subpart	See Applicable Subpart
☐ Benzene Waste Operations	☐ Rule 1176 (09/13/96)	☐ Rule 1176(h)	☐ Rule 1176(f) & (g)
	☐ 40 CFR61 SUBPART FF	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Beryllium Emissions	☐ 40 CFR61 SUBPART C	See Applicable Subpart	See Applicable Subpart
☐ Beryllium Emissions, Rocket Motor Firing	☐ 40 CFR61 SUBPART D	See Applicable Subpart	See Applicable Subpart
☐ Boiler, < 5 Mmbtu/Hr (non-RECLAIM sources)	☐ Rule 1146.1 (05/13/94)	☐ Rule 1146.1(d)	☐ Rule 1146.1(c)(2) & (c)(3)
	☐ Rule 1146.2 (01/07/05)	N/A	N/A
	☐ 40 CFR63 SUBPART DDDDD	See Applicable Subpart	See Applicable Subpart
☐ Boiler, < 5 Mmbtu/Hr (RECLAIM sources)	☐ Rule 1146.1 (05/13/94) - excluding NOx requirements	☐ Rule 1146.1(d)	☐ Rule 1146.1(c)(2) & (c)(3)
	☐ 40 CFR63 SUBPART DDDDD	See Applicable Subpart	See Applicable Subpart
☐ Boiler, ≥ 5 Mmbtu/Hr (non-RECLAIM sources)	☐ Rule 218 (05/14/99)	☐ AQMD TM 100.1	☐ Rule 218(e) & (f)
	☐ Rule 429 (12/21/90)	N/A	☐ Rule 429(d)
	☐ Rule 475 (08/07/78)	☐ AQMD TM 5.1, 5.2, or 5.3	
	☐ Rule 476 (10/08/76)	☐ AQMD TM 7.1, 100.1, 5.1, 5.2, or 5.3	
	☐ Rule 1146 (11/17/00)	☐ Rule 1146(d)	☐ Rule 1146(c)(6) & (c)(7)
	☐ 40 CFR60 SUBPART D	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Da	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Dc	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART DDDDD	See Applicable Subpart	See Applicable Subpart
☐ Boiler, ≥ 5 Mmbtu/Hr (RECLAIM sources)	☐ Rule 475 (08/07/78)	☐ AQMD TM 5.1, 5.2, or 5.3	
	☐ Rule 476 (10/08/76) - excluding NOx requirements	☐ AQMD TM 7.1, 100.1, 5.1, 5.2, or 5.3	
	☐ Rule 1146 (11/17/00) - excluding NOx requirements	☐ Rule 1146(d)	☐ Rule 1146(c)(6) & (c)(7)
	☐ Rule 2011 (12/05/03) or Rule 2012 (12/05/03)	☐ Rule 2011, App. A (12/05/03) or Rule 2012, App. A (12/05/03)	☐ Rule 2011, App. A (12/05/03) or Rule 2012, App. A (12/05/03)
	☐ 40 CFR60 SUBPART D	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Da	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Dc	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART DDDDD	See Applicable Subpart	See Applicable Subpart

KEY ABBREVIATIONS:	Reg. = AQMD Regulation Rule = AQMD Rule	App. = Appendix AQMD TM = AQMD Test Method	CFR = Code of Federal Regulations CCR = California Code of Regulations

Section II - Applicable Requirements, Test Methods, & MRR Requirements

EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
			See Applicable Subpart
☐ Boiler, Petroleum Refining (non-RECLAIM sources)	☐ Rule 218 (05/14/99) ☐ Rule 429 (12/21/90) ☐ Rule 431.1 (06/12/98) ☐ Rule 475 (08/07/78) ☐ Rule 1146 (11/17/00) ☐ 40 CFR60 SUBBPART J ☐ 40 CFR63 SUBPART DDDDD	☐ AQMD TM 100.1 N/A ☐ Rule 431.1(f) ☐ AQMD TM 5.1, 5.2, or 5.3 ☐ Rule 1146(d) See Applicable Subpart See Applicable Subpart	☐ Rule 218(e) & (f) ☐ Rule 429(d) ☐ Rule 431.1(d) & (e) ☐ Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart
☐ Boiler, Petroleum Refining (RECLAIM sources)	☐ Rule 1146 (11/17/00) - excluding NOx requirements ☐ Rule 2011 (12/05/03) or Rule 2012 (12/05/03) ☐ 40 CFR60 SUBPART J ☐ 40 CFR63 SUBPART DDDDD	☐ Rule 1146(d) ☐ Rule 2011, App. A (12/05/03) or Rule 2012, App. A (12/05/03) See Applicable Subpart See Applicable Subpart	☐ Rule 1146(c)(6) & (c)(7) ☐ Rule 2011, App. A (12/05/03) or Rule 2012, App. A (12/05/03) See Applicable Subpart See Applicable Subpart
☐ Boilers, Electric Utility (non-RECLAIM sources)	☐ Rule 218 (05/14/99) ☐ Rule 429 (12/21/90) ☐ Rule 1135 (07/19/91) ☐ 40 CFR60 SUBPART Db ☐ 40 CFR63 SUBPART DDDDD	☐ AQMD TM 100.1 N/A ☐ Rule 1135(e) See Applicable Subpart See Applicable Subpart	☐ Rule 218(e) & (f) ☐ Rule 429(d) ☐ Rule 1135(e) See Applicable Subpart See Applicable Subpart
☐ Boilers, Electric Utility (RECLAIM sources)	☐ Rule 2012 (12/05/03) ☐ 40 CFR60 SUBPART Db ☐ 40 CFR63 SUBPART DDDDD	☐ Rule 2012, App. A (12/05/03) See Applicable Subpart See Applicable Subpart	☐ Rule 2012, App. A (12/05/03) See Applicable Subpart See Applicable Subpart
☐ Bulk Loading Of Organic Liquids	☐ Rule 462 (05/14/99) ☐ 40 CFR60 SUBPART XX ☐ 40 CFR63 SUBPART R ☐ 40 CFR63 SUBPART EEEE ☐ 40 CFR63 SUBPART GGGGG	☐ Rule 462(f) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	☐ Rule 462(g) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart
☐ Cadmium Electroplating Operation	☐ Rule 1426 (05/02/03)		☐ Rule 1426(e)
☐ Calciner, Mineral Industries	☐ 40 CFR60 SUBPART UUU	See Applicable Subpart	See Applicable Subpart
☐ Calciner, Petroleum Coke	☐ Rule 477 (04/03/81) ☐ Rule 1119 (03/02/79) ☐ 40 CFR63 SUBPART L	☐ AQMD Visible Emissions, AQMD TM 5.1, 5.2, or 5.3 ☐ AQMD TM 6.1 or 100.1 See Applicable Subpart	 See Applicable Subpart
☐ Charbroilers	☐ Rule 1174 (10/05/90) ☐ Rule 1138 (11/14/97)	☐ AQMD Test Protocol ☐ Rule 1138(g)	 ☐ Rule 1138(d)
☐ Chrome Plating & Chromic Acid Anodizing Operation	☐ Rule 1426 (05/02/03) ☐ Rule 1469 (05/02/03)	 ☐ Rule 1469(e)	☐ Rule 1426(e) ☐ Rule 1469(g), (j) & (k)
☐ Coating Operation, Adhesive Application Operation	☐ Rule 109 (05/02/03) ☐ Rule 481 (01/11/02) ☐ Rule 1132 (05/07/04) ☐ Rule 1168 (01/07/05)	☐ Rule 109(g) ☐ Rule 481(d) ☐ Rule 1132(f) ☐ Rule 1168(f) & (g)	☐ Rule 109(c) ☐ Rule 1132(g) ☐ Rule 1168(e)

Section II - Applicable Requirements, Test Methods, & MRR Requirements

EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR60 SUBPART RR	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Aerospace Assembly & Component Manufacturing	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1124 (09/21/01)	☐ Rule 1124(e) & (f)	☐ Rule 1124(j)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR63 SUBPART GG	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Graphic Arts (Gravure, Letter Press, Flexographic & Lithographic Printing Process, Etc.)	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1130 (10/08/99)	☐ Rule 1130(h)	☐ Rule 1130(e)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR60 SUBPART QQ	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART RR	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART FFF	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART VVV	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART KK	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART JJJJ	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Magnet Wire Coating	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1126 (01/13/95)	☐ Rule 1126(d)	☐ Rule 1126(c)(4)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
☐ Coating Operation, Marine Coating (Except for recreational equipment)	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1106 (01/13/95)	☐ Rule 1106(e)	☐ Rule 1106(c)(5)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR63 SUBPART II	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Metal Coating	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1107 (11/09/01)	☐ Rule 1107(f)	☐ Rule 1107(k)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR60 SUBPART EE	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART SS	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART NNNN	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART MMMM	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART RRRR	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Metal Containers, Closure, & Coil Coating Operations	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1125 (01/13/95)	☐ Rule 1125(e)	☐ Rule 1125(c)(6)

Section II - Applicable Requirements, Test Methods, & MRR Requirements

EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR60 SUBPART TT	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART WW	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART SSSS	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Motor Vehicle & Mobile Equipment Non-Assembly Line Coating Operation	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1151 (12/11/98)	☐ Rule 1151(g)	☐ Rule 1151(f)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
☐ Coating Operation, Motor Vehicle Assembly Line	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1115 (05/12/95)	☐ Rule 1115(e)	☐ Rule 1115(g)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR60 SUBPART MM	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART IIII	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Paper, Fabric, & Film Coating Operations	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1128 (03/08/96)	☐ Rule 1128(f)	☐ Rule 1128(e)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR60 SUBPART VVV	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART OOOO	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Plastic, Rubber, & Glass	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1145 (12/03/04)	☐ Rule 1145(e)	☐ Rule 1145(d)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR60 SUBPART TTT	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART NNNN	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART PPPP	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Pleasure Craft	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1106.1 (02/12/99)	☐ Rule 1106.1(e)	☐ Rule 1106.1(d)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR63 SUBPART II	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Screen Printing	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1130.1 (12/13/96)	☐ Rule 1130.1(g)	☐ Rule 1130.1(c)(5)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)

Section II - Applicable Requirements, Test Methods, & MRR Requirements

EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
	☐ 40 CFR63 SUBPART KK	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Use Of Architectural Coating (Stationary Structures)	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1113 (07/09/04)	☐ Rule 1113(e)	
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
☐ Coating Operation, Wood Flat Stock	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1104 (08/13/99)	☐ Rule 1104(e)	☐ Rule 1104(d)
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR63 SUBPART II	See Applicable Subpart	See Applicable Subpart
☐ Coating Operation, Wood Products (Commercial Furniture, Cabinets, Shutters, Frames, Toys)	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 481 (01/11/02)	☐ Rule 481(d)	
	☐ Rule 1132 (05/07/04)	☐ Rule 1132(f)	☐ Rule 1132(g)
	☐ Rule 1136 (06/14/96)	☐ Rule 1136(f)	☐ Rule 1136(d) & (g)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR63 SUBPART JJ	See Applicable Subpart	See Applicable Subpart
☐ Coater	See Coating Operations		
☐ Columns	See Petroleum Refineries, Fugitive Emissions		
☐ Composting Operation	☐ Rule 1133 (01/10/03)		
	☐ Rule 1133.1 (01/10/03)	☐ Rule 1133.1(e)	☐ Rule 1133.1(d)
	☐ Rule 1133.2 (01/10/03)	☐ Rule 1133.2(g)	☐ Rule 1133.2(h)
☐ Compressors	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions		
☐ Concrete Batch Plants	See Nonmetallic Mineral Processing Plants		
☐ Consumer Product Manufacturing	See Manufacturing, Consumer Product		
☐ Cooling Tower, Hexavalent Chromium	☐ 40 CFR63 SUBPART Q	See Applicable Subpart	See Applicable Subpart
☐ Copper Electroplating Operation	☐ Rule 1426 (05/02/03)		☐ Rule 1426(e)
☐ Crude Oil Production	See Oil Well Operations		
☐ Crusher	See Nonmetallic Mineral Processing Plants		
☐ Dairy Farms and Related Operations	☐ Rule 1127	☐ Rule 1127(h)	☐ Rule 1127(g)
☐ Degreasers	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 1122 (10/01/04)	☐ Rule 1122(h)	☐ Rule 1122(i)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
	☐ 40 CFR63 SUBPART T	See Applicable Subpart	See Applicable Subpart
☐ Dry Cleaning, Perchloroethlyene	☐ Rule 1421 (12/06/02)	☐ Rule 1421(e) & (i)	☐ Rule 1421(g) & (h)
☐ Dry Cleaning, Petroleum Solvent	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 1102 (11/17/00)	☐ Rule 1102(g)	☐ Rule 1102(f)
	☐ 40 CFR60 SUBPART JJJ	See Applicable Subpart	See Applicable Subpart
☐ Dryers, Mineral Industries	☐ 40 CFR60 SUBPART UUU	See Applicable Subpart	See Applicable Subpart
☐ Ethylene Oxide Sterilizer	See Sterilizer, Ethylene Oxide		
☐ Flanges	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions		

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EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
☐ Fluid Catalytic Cracking Unit	☐ Rule 218 (05/14/99)	☐ AQMD TM 100.1	☐ Rule 218(e) & (f)
	☐ Rule 1105 (09/01/84)	☐ Rule 1105(c)(1)	☐ Rule 1105(c)(2)
	☐ Rule 1105.1 (11/07/03)	☐ Rule 1105.1(f)	☐ Rule 1105.1(e)
☐ Foundries, Iron and Steel	☐ 40 CFR63 SUBPART EEEEE	See Applicable Subpart	See Applicable Subpart
☐ Friction Materials Manufacturing	See Manufacturing, Friction Materials		
☐ Fugitive Emissions, Benzene	☐ Rule 1173 (12/06/02)	☐ Rule 1173(j)	☐ Rule 1173(i)
	☐ 40 CFR61 SUBPART L	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Fugitive Emissions, Chemical Plant	☐ Rule 466 (10/07/83)	☐ Rule 466(f)	☐ Rule 466(e)
	☐ Rule 466.1 (03/16/84)	☐ Rule 466.1(g)	☐ Rule 466.1(h)
	☐ Rule 467 (03/05/82)	☐ Rule 467(f)	☐ Rule 467(e)
	☐ Rule 1173 (12/06/02)	☐ Rule 1173(j)	☐ Rule 1173(i)
	☐ 40 CFR60 SUBPART VV	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Fugitive Emissions, Natural Gas Processing Plant	☐ Rule 466 (10/07/83)	☐ Rule 466(f)	☐ Rule 466(e)
	☐ Rule 466.1 (03/16/84)	☐ Rule 466.1(g)	☐ Rule 466.1(h)
	☐ Rule 467 (03/05/82)	☐ Rule 467(f)	☐ Rule 467(e)
	☐ Rule (12/06/02)	☐ Rule 1173(j)	☐ Rule 1173(i)
	☐ 40 CFR60 SUBPART KKK	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Fugitive Emissions, Oil & Gas Production Facility	☐ Rule 466 (10/07/83)	☐ Rule 466(f)	☐ Rule 466(e)
	☐ Rule 466.1 (03/16/84)	☐ Rule 466.1(g)	☐ Rule 466.1(h)
	☐ Rule 467 (03/05/82)	☐ Rule 467(f)	☐ Rule 467(e)
	☐ Rule 1173 (12/06/02)	☐ Rule 1173(j)	☐ Rule 1173(i)
	☐ 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart

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EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
	☐ 40 CFR63 SUBPART R ☐ 40 CFR63 SUBPART CC	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
☐ Fugitive Emissions, Pipeline Transfer Station	☐ Rule 466 (10/07/83) ☐ Rule 466.1 (03/16/84) ☐ Rule 467 (03/05/82) ☐ Rule 1173 (12/06/02) ☐ 40 CFR61 SUBPART V ☐ 40 CFR63 SUBPART F ☐ 40 CFR63 SUBPART G ☐ 40 CFR63 SUBPART H ☐ 40 CFR63 SUBPART I ☐ 40 CFR63 SUBPART R ☐ 40 CFR63 SUBPART CC	☐ Rule 466(f) ☐ Rule 466.1(g) ☐ Rule 467(f) ☐ Rule 1173(j) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart	☐ Rule 466(e) ☐ Rule 466.1(h) ☐ Rule 467(e) ☐ Rule 1173(i) See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart See Applicable Subpart
☐ Furnace, Basic Oxygen Process	☐ 40 CFR60 SUBPART Na	See Applicable Subpart	See Applicable Subpart
☐ Furnace, Electric Arc, For Steel Plants Constructed After August 17, 1983	☐ 40 CFR60 SUBPART AAa	See Applicable Subpart	See Applicable Subpart
☐ Furnace, Electric Arc, For Steel Plants: Constructed After Oct. 21, 1974, & On Or Before Aug. 17, 1983	☐ 40 CFR60 SUBPART AA	See Applicable Subpart	See Applicable Subpart
☐ Furnace, Glass Melting	☐ Rule 1117 (01/06/84) ☐ 40 CFR60 SUBPART CC	☐ Rule 1117(c), AQMD TM 7.1 or 100.1 See Applicable Subpart	See Applicable Subpart
☐ Furnace, Lead Melting, Automotive Batteries	☐ Rule 1101 (10/07/77) ☐ 40 CFR63 SUBPART X	☐ AQMD TM 6.1 See Applicable Subpart	See Applicable Subpart
☐ Gasoline Transfer & Dispensing Operation	☐ Rule 461 (01/09/04)	☐ Rule 461(f)	☐ Rule 461(e)(6) & (e)(7)
☐ Glass Manufacturing	See Manufacturing, Glass		
☐ Grain Elevators	☐ 40 CFR60 SUBPART DD	See Applicable Subpart	See Applicable Subpart
☐ Halon-containing Equipment, Use for Technician Training, Testing, Maintenance, Service, Repair, or Disposal	☐ 40 CFR82 SUBPART H	See Applicable Subpart	See Applicable Subpart
☐ Heater, Asphalt Pavement	☐ Rule 1120 (08/04/78)	☐ AQMD Visible Emissions, AQMD TM 6.2	☐ Rule 1120(f)
☐ Heaters, Petroleum Refinery Process	☐ Rule 429 (12/21/90) ☐ Rule 431.1 (06/12/98) ☐ Rule 1146 (11/17/00) ☐ 40 CFR60 SUBPART J ☐ 40 CFR63 SUBPART DDDDD	N/A ☐ Rule 431.1(f) ☐ Rule 1146(d) See Applicable Subpart See Applicable Subpart	☐ Rule 429(d) ☐ Rule 431.1(d) & (e) ☐ Rule 1146(c)(6) & (c)(7) See Applicable Subpart See Applicable Subpart
☐ Heaters, Process	See Boilers		
☐ Incinerators	☐ 40 CFR60 SUBPART E	See Applicable Subpart	See Applicable Subpart
☐ Inorganic Arsenic Emissions, Arsenic Trioxide & Metallic Arsenic Production Facilities	☐ 40 CFR61 SUBPART P	See Applicable Subpart	See Applicable Subpart

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EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
☒ Internal Combustion Engines, Reciprocating	☐ 40 CFR63 SUBPART ZZZZ	See Applicable Subpart	See Applicable Subpart
☐ Kiln, Cement Plant	☐ Rule 1112 (01/06/86)	N/A	N/A
	☐ Rule 1112.1 (02/07/86)	N/A	N/A
	☐ 40 CFR60 SUBPART F	See Applicable Subpart	See Applicable Subpart
☐ Landfills	☐ Rule 1150 (10/15/82)		
	☐ Rule 1150.1 (03/17/00)	☐ Rule 1150.1(j)	☐ Rule 1150.1(e) & (f)
	☐ 40 CFR60 SUBPART WWW	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART AAAA	See Applicable Subpart	See Applicable Subpart
☐ Lead Acid Battery Manufacturing Plants	See Manufacturing, Lead Acid Battery		
☐ Lead Electroplating Operation	☐ Rule 1426 (05/02/03)		☐ Rule 1426(e)
☐ Manufacturing, Asphalt Processing & Asphalt Roofing	☐ Rule 470 (05/07/76)	N/A	See Applicable Subpart
	☐ Rule 1108 (02/01/85)	☐ Rule 1108(b)	See Applicable Subpart
	☐ Rule 1108.1 (11/04/83)	☐ Rule 1108.1 (b)	
	☐ 40 CFR60 SUBPART UU	See Applicable Subpart	
	☐ 40 CFR63 SUBPART LLLLL	See Applicable Subpart	
☐ Manufacturing, Brick & Structural Clay Products	☐ 40 CFR63 SUBPART JJJJJ	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Clay Ceramics	☐ 40 CFR63 SUBPART KKKKK	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Coatings & Ink (SIC Code 2851)	☐ Rule 1141.1 (11/17/00)	N/A	☐ Rule 1141.1(c)
	☐ 40 CFR63 SUBPART HHHHH	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Consumer Product	☐ Title 17 CCR 94500		
☐ Manufacturing, Food Product	☐ Rule 1131 (06/06/03)	☐ Rule 1131(e)	☐ Rule 1131(d)
☐ Manufacturing, Friction Materials	☐ 40 CFR63 SUBPART QQQQQ	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Glass	☐ Rule 1117 (01/06/84)	☐ Rule 1117(c), AQMD TM 7.1 or 100.1	
	☐ 40 CFR60 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR61 SUBPART N	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Hydrochloric Acid	☐ 40 CFR63 SUBPART NNNNN	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Lead-Acid Battery	☐ 40 CFR60 SUBPART KK	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Lime	☐ 40 CFR63 SUBPART AAAAA	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Magnetic Tape Industry	☐ 40 CFR60 SUBPART SSS	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART EE	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Miscellaneous Organic Chemical	☐ 40 CFR63 SUBPART FFFF	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Nitric Acid	☐ Rule 218 (05/14/99)	☐ AQMD TM 100.1	☐ Rule 218(e) & (f)
	☐ Rule 1159 (12/06/85)	☐ AQMD TM 7.1 or 100.1	
	☐ 40 CFR60 SUBPART G	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Plywood & Composite Wood Products	☐ Rule 1137 (02/01/02)	N/A	☐ Rule 1137(e)
	☐ 40 CFR63 SUBPART DDDD	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Polymer Industry	☐ 40 CFR60 SUBPART DDD	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART W	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART J	See Applicable Subpart	See Applicable Subpart

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EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
☐ Manufacturing, Polymeric Cellular Foam	☐ Rule 1175 (05/13/94) ☐ 40 CFR63 SUBPART UUUU	☐ Rule 1175(f) See Applicable Subpart	☐ Rule 1175(e) See Applicable Subpart
☐ Manufacturing, Products Containing Halon Blends	☐ 40 CFR82 SUBPART H	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Products Containing Organic Solvents	☐ Rule 443.1 (12/05/86)	N/A	N/A
☐ Manufacturing, Products Containing Ozone Depleting Substances (ODS)	☐ 40 CFR82 SUBPART A ☐ 40 CFR82 SUBPART E	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
☐ Manufacturing, Reinforced Plastic Composites	☐ 40 CFR63 SUBPART WWWW	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Refractory Products	☐ 40 CFR63 SUBPART SSSSS	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Resin	☐ Rule 1141 (11/17/00) ☐ 40 CFR63 SUBPART W	☐ Rule 1141(d) See Applicable Subpart	☐ Rule 1141(c) See Applicable Subpart
☐ Manufacturing, Rubber Tire	☐ 40 CFR63 SUBPART XXXX	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Semiconductors	☐ Rule 109 (05/02/03) ☐ Rule 1164 (01/13/95) ☐ Rule 1171 (11/07/03) ☐ 40 CFR63 SUBPART BBBBB	☐ Rule 109(g) ☐ Rule 1164(e) ☐ Rule 1171(f) See Applicable Subpart	☐ Rule 109(c) ☐ Rule 1164(c)(5) ☐ Rule 1171(c)(6) See Applicable Subpart
☐ Manufacturing, Solvent	☐ Rule 443 (05/07/76)	N/A	N/A
☐ Manufacturing, Sulfuric Acid	☐ Rule 469 (02/13/81) ☐ 40 CFR60 SUBPART H ☐ 40 CFR60 SUBPART Cd	☐ AQMD TM 6.1 or 6.2 See Applicable Subpart See Applicable Subpart	 See Applicable Subpart See Applicable Subpart
☐ Manufacturing, Surfactant	☐ Rule 1141.2 (01/11/02)	☐ AQMD TM 25.1	
☐ Manufacturing, Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	☐ 40 CFR60 SUBPART III ☐ 40 CFR60 SUBPART NNN	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
☐ Manufacturing, Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	☐ 40 CFR60 SUBPART RRR	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Vinyl Chloride	☐ 40 CFR61 SUBPART F	See Applicable Subpart	See Applicable Subpart
☐ Manufacturing, Water Heaters	☐ Rule 1121 (09/03/04)	N/A	N/A
☐ Manufacturing, Wool Fiberglass Insulation	☐ 40 CFR60 SUBPART PPP	See Applicable Subpart	See Applicable Subpart
☐ Manure Processing Operations	☐ Rule 1127	☐ Rule 1127(h)	☐ Rule 1127(g)
☐ Marine Tank Vessel Operations	☐ Rule 1142 (07/19/91) ☐ 40 CFR63 SUBPART Y	☐ Rule 1142(e) See Applicable Subpart	☐ Rule 1142(h) See Applicable Subpart
☐ Mercury Emissions	☐ 40 CFR61 SUBPART E ☐ 40 CFR63 SUBPART IIII	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
☐ Motor Vehicle Air Conditioners with Ozone Depleting Substances (ODS): Repair. Service, Manufacturing, Maintenance, or Disposal	☐ 40 CFR82 SUBPART B ☐ 40 CFR82 SUBPART F	See Applicable Subpart See Applicable Subpart	See Applicable Subpart See Applicable Subpart
☐ Municipal Waste Combustors	☐ 40 CFR60 SUBPART Cb	See Applicable Subpart	See Applicable Subpart

KEY ABBREVIATIONS:	Reg.= AQMD Regulation Rule = AQMD Rule	App. = Appendix AQMD TM = AQMD Test Method	CFR = Code of Federal Regulations CCR = California Code of Regulations

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EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
	☐ 40 CFR60 SUBPART Ea	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Eb	See Applicable Subpart	See Applicable Subpart
☐ Negative Air Machines/HEPA, Asbestos	☐ 40 CFR61 SUBPART M	See Applicable Subpart	See Applicable Subpart
☐ Nickel Electroplating Operation	☐ Rule 1426 (05/02/03)		☐ Rule 1426(e)
☐ Nonmetallic Mineral Processing Plants	☐ Rule 404 (02/07/86)	☐ AQMD TM 5.1, 5.2, or 5.3	
	☐ Rule 405 (02/07/86)	☐ AQMD TM 5.1, 5.2, or 5.3	
	☐ 40 CFR60 SUBPART OOO	See Applicable Subpart	See Applicable Subpart
☐ Off site Waste and Recovery Operation	☐ 40 CFR63 SUBPART DD	See Applicable Subpart	See Applicable Subpart
☐ Oil and Gas Well Operation	☐ Rule 1148 (11/05/82)	☐ AQMD TM 25.1	
	☐ Rule 1148.1 (03/05/04)	☐ Rule 1148.1 (g)	☐ Rule 1148.1 (f)
☐ Onshore Natural Gas Processing, SO_2 Emissions	☐ 40 CFR60 SUBPART LLL	See Applicable Subpart	See Applicable Subpart
☐ Open Fires	☐ Rule 444 (12/21/01)		
☐ Open Storage, Petroleum Coke	☐ Rule 403 (04/02/04)	☐ Rule 403(d)(4)	☐ Rule 403(f)
	☐ Rule 403.1 (04/02/04)		☐ Rule 403.1(f)
	☐ Rule 1158 (06/11/99)	☐ Rule 1158(h)	☐ Rule 1158(j)
☐ Open Storage	☐ Rule 403 (04/02/04)	☐ Rule 403(d)(4)	☐ Rule 403(f)
	☐ Rule 403.1 (04/02/04)		☐ Rule 403.1(f)
☐ Outer Continental Shelf Platform	☐ Rule 1183 (03/12/93)	☐ 40 CFR55	☐ 40 CFR55
	☐ 40 CFR55	See Applicable Subpart	See Applicable Subpart
☐ Oven, Commercial Bakery	☐ Rule 1153 (01/13/95)	☐ Rule 1153(h)	☐ Rule 1153(g)
☐ Oven, Petroleum Coke	☐ Rule 477 (04/03/81)	☐ AQMD Visible Emissions, AQMD TM 5.1, 5.2, or 5.3	
	☐ 40 CFR63 SUBPART L	See Applicable Subpart	See Applicable Subpart
☐ Ozone Depleting Substances (ODS) or Alternative ODS, Use	☐ 40 CFR82 Subpart G	See Applicable Subpart	See Applicable Subpart
☐ Petroleum Refineries	☐ Rule 218 (05/14/99)	☐ AQMD TM 100.1	☐ Rule 218(e) & (f)
	☐ Rule 465 (08/13/99)		
	☐ Rule 468 (10/08/76)	☐ AQMD TM 6.1 or 6.2	
	☐ Rule 469 (02/13/81)	☐ AQMD TM 6.1 or 6.2	
	☐ Rule 1123 (12/07/90)	N/A	☐ Rule 1123(c)
	☐ Rule 1189 (01/21/00)	☐ Rule 1189(f)	☐ Rule 1189(e)
	☐ 40 CFR60 SUBPART J	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART EEEE	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART GGGGG	See Applicable Subpart	See Applicable Subpart
	☐ Title 13 CCR 2250		
☐ Petroleum Refineries, Fugitive Emissions	☐ Rule 1173 (12/06/02)	☐ Rule 1173(j)	☐ Rule 1173(i)

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EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
	☐ Rule 466 (10/07/83)	☐ Rule 466(f)	☐ Rule 466(e)
	☐ Rule 466.1 (03/16/84)	☐ Rule 466.1(g)	☐ Rule 466.1(h)
	☐ Rule 467 (03/05/82)	☐ Rule 467(f)	☐ Rule 467(e)
	☐ 40 CFR60 SUBPART GGG	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR61 SUBPART V	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Petroleum Refineries, Storage Tanks	☐ Rule 463 (05/06/05)	☐ Rule 463(g)	☐ Rule 463(e)(5)
	☐ Rule 1178 (12/11/01)	☐ Rule 1178(i)	☐ Rule 1178(f) & (h)
	☐ 40 CFR60 SUBPART K	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Ka	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Kb	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART EEEE	See Applicable Subpart	See Applicable Subpart
☐ Petroleum Refineries, Wastewater Systems	☐ Rule 1176 (09/13/96)	☐ Rule 1176(h)	☐ Rule 1176(f) & (g)
	☐ Rule 464 (12/07/90)	N/A	
	☐ 40 CFR60 SUBPART QQQ	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Pharmaceuticals & Cosmetics Manufacturing	☐ Rule 1103 (03/12/99)	☐ Rule 1103(f)	☐ Rule 1103(e)
☐ Polyester Resin Operation	☐ Rule 109 (05/02/03)	☐ Rule 109(g)	☐ Rule 109(c)
	☐ Rule 1162 (07/09/04)	☐ Rule 1162(f)	☐ Rule 1162(e)
	☐ Rule 1171 (11/07/03)	☐ Rule 1171(f)	☐ Rule 1171(c)(6)
☐ Primary Magnesium Refining	☐ 40 CFR63 SUBPART TTTTT	See Applicable Subpart	See Applicable Subpart
☐ Printing Press	See Coating Operations		
☐ Publicly Owned Treatment Works Operations	☐ Rule 1179 (03/06/92)	☐ Rule 1179(e)	☐ Rule 1179(c) & (d)
	☐ 40 CFR60 SUBPART O	See Applicable Subpart	See Applicable Subpart
☐ Pumps	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions		
☐ Recycling & Recovery Equipment for Ozone Depleting Substances (ODS),	☐ 40 CFR82 SUBPART F	See Applicable Subpart	See Applicable Subpart
☐ Refrigerant Reclaimers for Ozone Depleting Substances (ODS)	☐ 40 CFR82 SUBPART F	See Applicable Subpart	See Applicable Subpart
☐ Rendering Plant	☐ Rule 472 (05/07/76)	N/A	☐ Rule 472(b)
☐ Rock Crushing	See Nonmetallic Mineral Processing Plants		

Section II - Applicable Requirements, Test Methods, & MRR Requirements

EQUIPMENT/PROCESS	APPLICABLE REQUIREMENT	TEST METHOD	MRR REQUIREMENT
☐ Semiconductor Manufacturing	See Manufacturing, Semiconductors		
☐ Sewage Treatment Plants	See Publicly Owned Treatment Works Operation		
☐ Site Remediation	☐ 40 CFR63 SUBPART GGGGG	See Applicable Subpart	See Applicable Subpart
☐ Smelting, Primary Copper	☐ 40 CFR63 SUBPART QQQ	See Applicable Subpart	See Applicable Subpart
☐ Smelting, Secondary Lead	☐ 40 CFR60 SUBPART L	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART X	See Applicable Subpart	See Applicable Subpart
☐ Soil Decontamination	☐ Rule 1166 (05/11/01)	☐ Rule 1166(e)	☐ Rule 1166(c)(1)(C)
	☐ 40 CFR63 SUBPART GGGGG	See Applicable Subpart	See Applicable Subpart
☐ Spray Booth	See Coating Operations		
☐ Sterilizer, Ethylene Oxide	☐ 40 CFR63 SUBPART O	See Applicable Subpart	See Applicable Subpart
☐ Storage Tank, Degassing Operation	☐ Rule 1149 (07/14/95)		
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Storage Tank, Greater Than 19,815 Gallon Capacity	☐ Rule 463 (05/06/05)	☐ Rule 463(g)	☐ Rule 463(e)(5)
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART K	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Ka	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR60 SUBPART Kb	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART R	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Synthetic Fiber Production Facilities	☐ 40 CFR60 SUBPART HHH	See Applicable Subpart	See Applicable Subpart
☐ Taconite Iron Ore Processing Facilities	☐ 40 CFR63 SUBPART RRRRR	See Applicable Subpart	See Applicable Subpart
☒ Turbine, Stationary Gas-Fired	☐ Rule 1134 (08/08/97)	☐ CEMS Rule 1134(e) & (g)	☐ Rule 1134(d) & (f)
	☒ Rule 475 (08/07/78)	☐ AQMD TM 5.1, 5.2, or 5.3	
	☐ 40 CFR60 SUBPART GG	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART YYYY	See Applicable Subpart	See Applicable Subpart
☐ Turbine, Stationary Oil-Fired	☐ 40 CFR63 SUBPART YYYY	See Applicable Subpart	See Applicable Subpart
☐ Valves	See Fugitive Emissions or Petroleum Refineries, Fugitive Emissions		
☐ Vessel, Refinery Process	☐ Rule 1123 (12/07/90)	N/A	☐ Rule 1123(c)
☐ Vessels	See Petroleum Refineries, Fugitive Emissions		
☐ Wastewater, Chemical Plant	☐ Rule 464 (12/07/90)	N/A	
	☐ Rule 1176 (09/13/96)	☐ Rule 1176(h)	☐ Rule 1176(f) & (g)
	☐ 40 CFR63 SUBPART F	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART G	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART H	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART I	See Applicable Subpart	See Applicable Subpart
	☐ 40 CFR63 SUBPART CC	See Applicable Subpart	See Applicable Subpart
☐ Wastewater Treatment, Other	☐ Rule 464 (12/07/90)	N/A	
	☐ Rule 1176 (09/13/96)	☐ Rule 1176(h)	☐ Rule 1176(f) & (g)
☐ Woodworking Operations	☐ Rule 1137 (02/01/02)	N/A	☐ Rule 1137(e)

KEY ABBREVIATIONS:	Reg.= AQMD Regulation Rule = AQMD Rule	App. = Appendix AQMD TM = AQMD Test Method	CFR = Code of Federal Regulations CCR = California Code of Regulations

Section III – Supplemental Identification of Specific Requirements

Complete this section only if there is a specific requirement (i.e., rule reference, test method, or MRR requirement) that is:

1. Listed for a specific type of equipment or process in Section II of this form & **DOES NOT** pertain to a specific device at your facility*; OR,
2. Is **NOT** Listed for a specific type of equipment or process in Section II of this form but it **IS** applicable to a specific device at your facility.

NOTES:

1. For any specific requirement, test method, or MRR requirement that is identified as "Remove," attach additional sheets to explain the reasons why the specific requirement does not pertain to the device listed.
2. All boxes that are checked in Section II and any additional requirements identified in this section as "Add" will be used to determine the facility's compliance status. This information will be used to verify the certification statements made on Form 500-A2.
3. Do not use this section to identify equipment that is exempt from specific rule requirements. Your equipment is automatically considered to be in compliance with the rule that specifically exempts the equipment from those requirements.
4. Listing any requirement that does not apply to a specific piece of equipment in this section will not provide the facility with a permit shield unless one is specifically requested by completing Form 500-D and approved by the AQMD.

* If this section is completed as part of the initial Title V application & there is no device number assigned, refer to the existing permit or application number in this column.

Device No.*	Specific Requirement (Rule Number & Date)	Add (A) or Remove (R) (Check one)	Test Method	Add (A) or Remove (R) (Check one)	MRR Requirement	Add (A) or Remove (R) (Check one)
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R
		☐A ☐R		☐A ☐R		☐A ☐R

Section IV – SIP-Approved Rules That Are Not The Most Current AQMD Rules

Check off each SIP-Approved Rule as it applies to the facility. Use the blanks at the end of this form to fill-in new items.

SIP-Approved Rule	Adoption/ Amendment Date	Check (✓) if Applies	SIP-Approved Rule	Adoption/ Amendment Date	Check (✓) if Applies
218	08/07/81	☐	1146.2	01/09/98	☐
401	03/02/84	☐	1162	11/17/00	☐
403	12/11/98	☐	1166	07/14/95	☐
403.1	01/15/93	☐	1168	10/03/03	☐
431.2	05/04/90	☐	1171	11/07/03	☐
463	03/11/94	☐	1173	05/13/94	☐
466.1	05/02/80	☐	1186	09/10/99	☐
469	05/07/76	☐	2000	05/11/01	☐
475	10/08/76	☐	2001	05/11/01	☐
1112	01/06/84	☐	2002	05/11/01	☐
1113	11/08/96	☐	2005	04/20/01	☐
1121	12/10/99	☐	2007	12/05/03	☐
1122	07/11/97	☐	2010	05/11/01	☐
1132	03/05/04	☐	2011	12/05/03	☐
1140	02/01/80	☐	2012	12/05/03	☐
1145	02/14/97	☐			☐
		☐			☐
		☐			☐
		☐			☐
		☐			☐
		☐			☐

Section V – AQMD Rules That Are Not SIP-Approved (Continued on Following Page)

Check off each AQMD Rule as it applies to the facility. Use the blanks at the end of this form to fill-in new items.

Non SIP-Approved Rule	Adoption/ Amendment Date	Check (✓) if Applies	Non SIP-Approved Rule	Adoption/ Amendment Date	Check (✓) if Applies
53 Los Angeles Co.	N/A	☐	1170	05/06/88	☐
53 Orange Co.	N/A	☐	1183	03/12/93	☐
53 Riverside Co.	N/A	☐	1186.1	06/04/04	☐
53 San Bernardino Co.	N/A	☐	1191	06/16/00	☐
53A San Bernardino Co.	N/A	☐	1192	06/16/00	☐
218.1	05/14/99	☐	1193	06/06/03	☐
402	05/07/76	☐	1194	10/20/00	☐
429	12/21/90	☐	1195	04/20/01	☐
430	07/12/96	☐	1196	06/04/04	☐
441	05/07/76	☐	1401	03/04/05	☐
473	05/07/76	☐	1402	03/04/05	☐
477	04/03/81	☐	1403	04/08/94	☐
480	10/07/77	☐	1404	04/06/90	☐
1105.1	11/07/03	☐	1405	01/04/91	☐
1109	08/05/88	☐	1406	07/08/94	☐
1110.1	10/04/85	☐	1407	07/08/94	☐
1110.2	11/14/97	☐	1411	03/01/91	☐
1116.1	10/20/78	☐	1414	05/03/91	☐
1118	02/13/98	☐	1415	10/14/94	☐
1127	08/06/04	☐	1418	09/10/99	☐
1148.1	03/05/04	☐	1420	09/11/92	☐
1150	10/15/82	☐	1421	12/06/02	☐
1157	01/07/05	☐	1425	03/16/01	☐
1163	06/07/85	☐	1426	05/02/03	☐

Section V – AQMD Rules That Are Not SIP-Approved (Continued on Following Page)					
1469	05/02/03	☐	2009.1	05/11/01	☐
1469.1	03/04/05	☐	2020	05/11/01	☐
1470	03/04/05	☐	2501	05/09/97	☐
2009	01/07/05	☐	2506	12/10/99	☐
		☐			☐
		☐			☐
		☐			☐
		☐			☐
		☐			☐
		☐			☐

South Coast Air Quality Management District

Form 500–F1 (Title V)

Title IV- Acid Rain Phase II Facility Information Summary

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form shall be completed by Acid Rain facilities ONLY and shall accompany all requests for Phase II permit actions unique to Acid Rain facilities. Also attach a completed Form 500-A2. In addition, if an initial Title V permit, permit renewal, or permit revision is requested, attach Form 500-A1 and any supplemental Acid Rain forms (Forms 500-F2, 500-F3, and 500-F4), as appropriate.

Section I - General Information

1. **Permit to be issued to (Business name of operator to appear on permit):**
CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice Issued by AQMD):**

3. **ORIS Code:(5-Digit):**

4. **This is an application for a (Check all that apply to the facility):**

a. ☒ **Phase II Acid Rain Permit or Revision (Complete Section II of this form)**

b. ☐ **Repowering Extension Plan or Revision (Complete Form 500-F2)**

c. ☐ **New Unit Exemption or Revision (Complete Form 500-F3)**

d. ☐ **Retired Unit Exemption or Revision (Complete Form 500-F4)**

5. **The requested permit action involves a(n) (Check one):**

a. ○ **Administrative Permit Revision**

b. ○ **Significant Permit Revision**

c. ○ **Fast Track Permit Revision**

d. ○ **Automatic Permit Revision**

e. ● **Other (specify):** initial permit application

6. **For all applications requesting a permit revision, provide a general description of the proposed changes (Attach additional sheets as necessary):**

Section II - Phase II Acid Rain Device Summary

1. The following information is (Check one): a. ● New b. ○ Revised

AQMD Device #	EPA Unit #	Will device need a Repowering Extension Plan?	Has device started operations on or after 11/15/90?	Device Operations Start Date (mo/day/yr)	For Devices starting-up after 11/15/90, provide date when Monitoring Certification will begin (mo/day/yr)
		○ Yes ● No	● Yes ○ No	06/01/2010	07/01/2010
		○ Yes ○ No	○ Yes ○ No		
		○ Yes ○ No	○ Yes ○ No		
		○ Yes ○ No	○ Yes ○ No		
		○ Yes ○ No	○ Yes ○ No		

South Coast Air Quality Management District

Form 500-H (Title V)

Applicability Determination for Initial, Renewal, & Significant Permit Revision

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form is required as part of an initial, significant permit revision, or renewal Title V application. If your Title V facility has control devices in use, the CAM rule may apply. Follow the instructions on the reverse side of this form to determine whether your facility is subject to CAM requirements.

Section I – CAM Status Summary for Emission Units

1. **Permit to be issued to (Business name of operator to appear on permit):**

CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**

3. **Based on the criteria in the instructions (check one and attach additional pages as necessary):**

a. ☐ **The emission units identified below are subject to the CAM rule[1] and a CAM plan[2] is attached for each affected emissions unit:**

b. ☒ **There are no emission units with control devices at this Title V facility that are subject to the CAM rule.**

Emission Unit[3] Application, Permit or Device No.	Equipment Description[4]	Uncontrolled Emissions		Connected to Control Unit[3] Application, Permit or Device No.	Equipment[4] Description	Controlled Emissions	
		Pollutant	PTE[5] (tons/year)			Pollutant	PTE[5] (tons/year)

[1] For more detailed information regarding the CAM rule applicability, refer to Title 40, Chapter I, Part 64 Section 64.1 of the Code of Federal Regulations (40 CFR Part 64, Section 64.1). This also can be accessed via the internet at: http://www.access.gpo.gov/nara/cfr/waisidx_99/40cfr64_99.html.

[2] Only one CAM plan is required for a control device that is common to more than one emissions unit, or if an emissions unit is controlled by more than one control device similar in design and operation. If the control devices are not similar in design and operation, one plan is required for each control device.

[3] List all new and existing emission units and the connected control devices either by AQMD application, permit or device number. When the emission unit is new and has not yet been assigned an application number, leave this column blank.

[4] Provide a brief equipment description of the emission units and control devices by indicating equipment type, make, and model and serial numbers as appropriate.

[5] Potential to Emit

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**

3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs — CA, — 92240
City — State — Zip Code

County: ◯ Los Angeles ◯ Orange ◯ San Bernardino ◉ Riverside

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco — CA — 94105
City — State — Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ◯ RECLAIM ◉ Title V ◯ RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- ◉ New Construction (Permit to Construct)
- ◯ Equipment Operating Without A Permit or Expired Permit*
- ◯ Administrative Change
- ◯ Equipment On-Site But Not Constructed or Operational
- ◯ Title V Application (Initial, Revisions, Modifications, etc.)
- ◯ Compliance Plan
- ◯ Facility Permit Amendment
- ◯ Registration/Certification
- ◯ Streamlined Standard Permit
- ◯ Permitted Equipment Altered/ Modified Without Permit Approval*
- ◯ Proposed Alteration/Modification to Permitted Equipment
- ◯ Change of Condition For Permit To Operate
- ◯ Change of Condition For Permit To Construct
- ◯ Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010

8. **Description of Equipment:**
CTG1 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode

9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** ◉ No ◯ Yes

10. **For <u>Identical</u> equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 4

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less <u>and</u> total gross receipts are $500,000 or less, or a not-for-profit training center?) ◉ No ◯ Yes

12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?**
◉ No ◯ Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation

14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** ◉ No ◯ Yes

16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** ◉ No ◯ Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]

18. **Title:** Project Manager

19. **Print Name:** Mark Turner

20. **Date:** 7/23/07

Check List
- ☒ Form(s) signed and dated by authorized official
- ☒ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☒ CEQA Form (400-CEQA) attached
- ☒ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District
FORM 400–E–12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric **Model No.:** LMS 100 — **Serial No.:** **Size (based on Higher Heating Value - HHV):** **Manufacturer Maximum Input Rating:** MMBTU/hr kWh **Manufacturer Maximum Output Rating:** MMBTU/hr kWh
Function (Check all that apply)	[X] **Electrical Generation** [ ] **Driving Pump/Compressor** [ ] **Emergency Peaking Unit** [ ] **Steam Generation** [ ] **Exhaust Gas Recovery** [ ] **Other (specify):**
Cycle Type	(●) **Simple Cycle** ( ) **Regenerative Cycle** ( ) **Combined Cycle** ( ) **Other (specify):**
Combustion Type	( ) **Tubular** ( ) **Can-Annular** ( ) **Annular**
Fuel (Turbine)	(●) **Natural Gas** ( ) **LPG** ( ) **Digester Gas*** ( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other* :** * (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW **Low Pressure Steam Output Capacity:** lb/hr @ °F **High Pressure Steam Output Capacity:** lb/hr @ °F **Superheated Steam Output Capacity:** lb/hr @ °F
Duct Burner	**Manufacturer:** — **Model:** **Number of burners:** — **Rating of each burner (HHV):** **Type:** ( ) **Low NOx (please attach manufacturer's specifications)** ( ) **Other:** Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas*** ( ) **Refinery Gas*** ( ) **Landfill Gas*** ( ) **Propane** ( ) **Other* :** *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Air Pollution Control	(●) Selective Catalytic Reduction (SCR)* ( ) Selective Non-catalytic Reduction (SNCR)* ( ) Oxidation Catalyst* ( ) Other (specify)* ( ) Steam/Water Injection: Injection Rate: lbs. water/lbs. fuel, or mole water/mole fuel * Separate application is required.
	Capital Cost: / Installation Cost: / Annual Operating Cost:
Oxidation Catalyst Data (If Applicable)	Manufacturer: / Model:
	Catalyst Dimensions: Length: ft. in. Width: ft. in. Height: ft. in.
	Catalyst Cell Density: cells/sq. in. / Pressure Drop Across Catalyst:
	Manufacturer's Guarantee: CO Control Efficiency: 90.00 % Catalyst Life: yrs. VOC Control Efficiency: 30.00 % Operating Temp. Range: °F
	Space Velocity (gas flow rate/catalyst volume): / Area Velocity (gas flow/wetted catalyst surface area):
	VOC Concentration Into Catalyst: 5.000 PPMVD @ 15 % O_2 / CO Concentration Into Catalyst: 111.0[illegible] PPMVD @ 15 % O_2

SECTION B: OPERATION INFORMATION

On-line Emissions Data

Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
	PPM @15% O_2, dry	lb/Hour	PPM @15% O_2, dry	lb/Hour
ROG	5.000	5.000	2.000	2.200
NOx	25.000	79.400	2.500	7.900
CO	111.000	213.800	6.000	11.600
PM10		6.000		6.000
SOx				0.610
NH3			5.000	5.900

* Based on temperature, fuel consumption, and MW output

Reference (attach data): [X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data	Stack Height: 90 ft. 0.000 in. Stack Diameter: 13 ft. 6.000 in.
	Exhaust Temperature: 744.00 °F Exhaust Pressure: inches water column
	Exhaust Flow Rate: 863264.[illegible] CFM Oxygen Level: 15.00 %
Operating Schedule	Normal: 24 hours/day 7 days/week weeks/yr
	Maximum: 24 hours/day 7 days/week weeks/yr

Startup Data	No. of Startups per day:	No. of Startups per year: 300	Duration of each startup: 0.5 hours		
Shutdown Data	No. of Shutdowns per day:	No. of Shutdowns per year: 300	Duration of each shutdown: 0.2 hours		
Startup and Shutdown Emissions Data	**Pollutants**	**Startup Emissions**		**Shutdown Emissions**	
		PPM@15% O_2, dry	**lb/Hour**	**PPM@15% O_2, dry**	**lb/Hour**
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS)

CEMS Make:

CEMS Model:

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☐ Fuel Flow Rate ☒ Ammonia Injection Rate ☐ Other (specify)

☐ Ammonia Stack Concentration: Ammonia CEMS Model

Ammonia CEMS Make

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp/com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7/19/07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC
2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**
3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs — City; CA, — State; 92240 — Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco — City; CA — State; 94105 — Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010

8. **Description of Equipment:**
SCR1: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.

9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes

10. **For Identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 7

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation

14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes

16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]

18. **Title:** Project Manager

19. **Print Name:** Mark Turner

20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE $	VALIDATION
ENG A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-5

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be Issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 Power Line Rd , Desert Hot Springs, CA 92240 — (●) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)
SCR Catalyst	**Manufacturer:** See attachment — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Reducing Agent	( ) **Urea** ( ) **Anhydrous Ammonia** (●) **Aqueous Ammonia** 29.40 % — **Injection Rate:** lb/hr.
Reducing Agent Storage	**Diameter:** ft. in. **Height:** ft. in. **Capacity:** gal **Pressure Setting:** psia
Space Velocity	**Gas Flow Rate/Catalyst Volume:** hr^{-1}
Area Velocity	**Gas Flow Rate/Wetted Catalyst Surface Area:** ft/hr
Manufacturer's Guarantee	**NOx:** 2.500 ppm $\%O_2$: 15.00 **NOx:** gm/bhp-hr **Ammonia Slip:** 5.000 ppm @ 15.00 $\% O_2$
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**
	OXIDATION CATALYST
Oxidation Catalyst	**Manufacturer:** See attachment — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Space Velocity	**Gas flow rate/Catalyst Volume:** hr^{-1}
Manufacturer's Guarantee	**VOC** 2.000 ppm **VOC** gm/bhp-hr **CO** 6.000 ppm **CO** gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in. No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION

Operating Temperature	Minimum Inlet Temperature: °F (from cold start) Maximum Temperature: °F
	Warm-up Time: hr. min. (maximum)
Operating Schedule	Normal: hours/day days/week weeks/yr.
	Maximum: 24 hours/day 7 days/week 15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
	Sen. AQ Consultant	

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner E-MAIL ADDRESS: mturner@cpv.com	TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	7/19/07

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(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH_3 Slip = 5 ppmvd @ 15% O_2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O_2
Outlet NOx = 2.5 ppmvd @ 15% O_2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO_2 oxidation rate / SO_3 emissions
SO_2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested CO Catalyst Data

1. Type of Catalyst

Platinum group metals impregnated in alumina washcoat on stainless steel substrate

2. Catalyst Volume

Approx. 150 cu ft

3. Space velocity

From Nominally 93,000 1/hr to Nominally 158,000 1/hr

4. Linear Velocity

From Nominally 6.7 ft/s to 11.5 ft/s

5. Pressure Drop across Catalyst

From 1.8 in w.c. to 1.0 in w.c.

6. Manufacturer's Guarantee for Efficiency and Catalyst Life

CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)

7. Operating Temperature Range of Catalyst

From 500°F to 1200°F

8. Effect of Temperature on Efficiency

See Typical Performance Curve

9. CO Conversion Efficiency

Ranges from 94.6% to 91.2% (See Table A – Performance Data)

10. Unsaturated Hydrocarbon Conversion Efficiency

See Typical Performance Curve Above

11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency

0%

12. Methane Conversion Efficiency

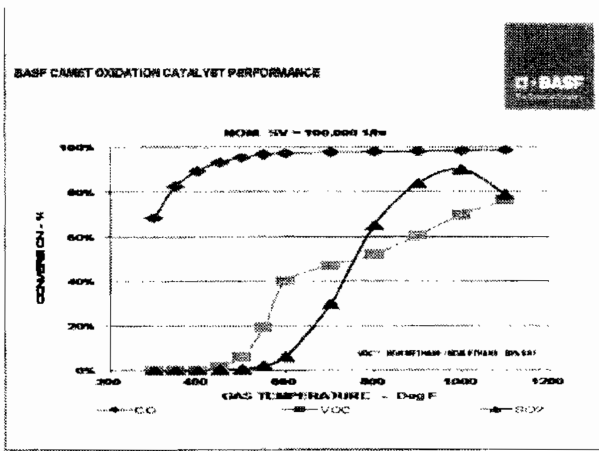
0%

13. CO Catalyst Total Cost

Approximately $300,000 at today's market price

14. CO Catalyst Replacement Cost

Approximately $400,000 including in/out costs at today's market price



15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions

See Attached Drawings

16. Catalyst Manufacturer

BASF Catalysts LLC (formerly Engelhard)

17. CO and HC Concentration IN and Out of CO Catalyst

See Table A - Performance Data

18. Catalyst Depth

Modules - Nom. 3.6 in

19. Catalyst Cell Density (Cells per Square Inch)

155 CPSI

South Coast Air Quality Management District

FORM 400–PS

PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) **Fixed Location** ( ) **Various Locations**

SECTION A: LOCATION DATA

Plot Plan	**Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.**
Location of School Nearby	**Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?** ( ) Yes (•) No. **If yes, please provide name(s) of school(s) below.** **School Name** / **School Address** / **Distance from stack or equipment vent to the outer boundary of the school.** Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in
Population Density	( ) **Urban (area of dense population)** (•) **Rural (area of sparse population)**
Zoning Classification	( ) **Mixed Use Residential Commercial Zone (M-U)** ( ) **Service and Professional Zone (C-S)** ( ) **Medium Commercial (C-3)** ( ) **Heavy Commercial (C-4)** ( ) **Commercial Manufacturing (C-M)** • W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data	**Stack Height:** 90.00 feet (height above ground level)* **What is the height of the closest building nearest the stack ?** 40.00 feet **Stack Inside Diameter:** 162.000 inches **Stack Flow:** 863264 acfm **Stack Temperature:** 744.00 °F **Rain Cap Present:** ( ) Yes (•) No **Stack Orientation:** (•) Vertical ( ) Horizontal * If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary **Building #/name:** (see attached) — **Building #/name:** **Building Height:** feet — **Building Height:** feet **Building Width:** feet — **Building Width:** feet **Building Length:** feet — **Building Length:** feet
Receptor Distance from equipment stack or roof vents/openings	**Distance to nearest residence** 300.00 **feet or** meters — **Distance to nearest business** feet or meters
Building Information	**Are the emissions released from vents and/or openings from the building?** ( ) Yes (•) No **If yes, please provide:** **Building height above ground level:** ft. — **Building dimensions:** length ft. / width ft. — or — **Total square footage of building where the source of the emissions is located.**

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER: Anne Kurnalls for JL	**TITLE OF PREPARER:** Sen. AQ Consultant	**PREPARER'S TELEPHONE NUMBER:** (619) 243-2823 **PREPARER'S E-MAIL ADDRESS:** john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner **E-MAIL ADDRESS:** mturner@cpv.com	**CONTACT PERSON'S TELEPHONE NUMBER:** (415) 293-1463 **FAX NUMBER:** (415) 957-9886	**DATE SIGNED:** 7-24-07

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(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	Height*	Width*	Length*
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator):
Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs | CA, | 92240
City | State | Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco | CA | 94105
City | State | Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D))

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
CTG2 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

South Coast Air Quality Management District

FORM 400-E-12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240

(●) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric **Model No.:** LMS 100 — **Serial No.:** **Size (based on Higher Heating Value - HHV):** **Manufacturer Maximum Input Rating:** MMBTU/hr kWh **Manufacturer Maximum Output Rating:** MMBTU/hr kWh
Function (Check all that apply)	[X] Electrical Generation [ ] Driving Pump/Compressor [ ] Emergency Peaking Unit [ ] Steam Generation [ ] Exhaust Gas Recovery [ ] Other (specify):
Cycle Type	(●) Simple Cycle ( ) Regenerative Cycle ( ) Combined Cycle ( ) Other (specify):
Combustion Type	( ) Tubular ( ) Can-Annular ( ) Annular
Fuel (Turbine)	(●) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Landfill Gas* ( ) Propane ( ) Refinery Gas* ( ) Other* : * (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW **Low Pressure Steam Output Capacity:** lb/hr @ °F **High Pressure Steam Output Capacity:** lb/hr @ °F **Superheated Steam Output Capacity:** lb/hr @ °F
Duct Burner	**Manufacturer:** — **Model:** **Number of burners:** — **Rating of each burner (HHV):** **Type:** ( ) Low NOx (please attach manufacturer's specifications) ( ) Other: Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	( ) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Refinery Gas* ( ) Landfill Gas* ( ) Propane ( ) Other* : *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Air Pollution Control	(•) **Selective Catalytic Reduction (SCR)*** ( ) **Selective Non-catalytic Reduction (SNCR)*** ( ) **Oxidation Catalyst*** ( ) **Other (specify)*** ( ) **Steam/Water Injection:** **Injection Rate:** lbs. water/lbs. fuel, **or** mole water/mole fuel * Separate application is required.
	Capital Cost: / **Installation Cost:** / **Annual Operating Cost:**
Oxidation Catalyst Data (If Applicable)	**Manufacturer:** / **Model:**
	Catalyst Dimensions: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	Catalyst Cell Density: cells/sq. in. / **Pressure Drop Across Catalyst:**
	Manufacturer's Guarantee — **CO Control Efficiency:** 90.00 % **Catalyst Life:** yrs. **VOC Control Efficiency:** 30.00 % **Operating Temp. Range:** °F
	Space Velocity (gas flow rate/catalyst volume): / **Area Velocity (gas flow/wetted catalyst surface area):**
	VOC Concentration into Catalyst: 5.000 PPMVD @ 15 % O_2 / **CO Concentration into Catalyst:** 111.0[illegible] PPMVD @ 15 % O_2

SECTION B: OPERATION INFORMATION

On-line Emissions Data

Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
	PPM@15% O_2,dry	lb/Hour	PPM@15% O_2,dry	lb/Hour
ROG	5.000	5.000	2.000	2.200
NOx	25.000	79.400	2.500	7.900
CO	111.000	213.800	6.000	11.600
PM10		6.000		6.000
SOx				0.610
NH3			5.000	5.900

* Based on temperature, fuel consumption, and MW output

Reference (attach data):
[X] **Manufacturer Emission Data** [ ] **EPA Emission Factors** [ ] **AQMD Emission Factors** [ ] **Source Test**

Stack or Vent Data	**Stack Height:** 90 ft. 0.000 in. **Stack Diameter:** 13 ft. 6.000 in. **Exhaust Temperature:** 744.00 °F **Exhaust Pressure:** inches water column **Exhaust Flow Rate:** 863264.[illegible] CFM **Oxygen Level:** 15.00 %
Operating Schedule	**Normal:** 24 **hours/day** 7 **days/week** **weeks/yr** **Maximum:** 24 **hours/day** 7 **days/week** **weeks/yr**

Startup Data	No. of Startups per day:	No. of Startups per year: 300	Duration of each startup: 0.5 hours		
Shutdown Data	No. of Shutdowns per day:	No. of Shutdowns per year: 300	Duration of each shutdown: 0.2 hours		
Startup and Shutdown Emissions Data	Pollutants	Startup Emissions		Shutdown Emissions	
		PPM@15% O_2, dry	lb/Hour	PPM@15% O_2, dry	lb/Hour
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				
Monitoring and Reporting	Continuous Emission Monitoring System (CEMS)	CEMS Make:	CEMS Model:		
	Will the CEMS be used to measure both on-line and startup/shutdown emissions?	(•) Yes ( ) No			
	The following parameters will be continuously monitored:				
	☒ NOx	☒ CO	☒ O_2		
	☐ Fuel Flow Rate	☐ Ammonia Injection Rate	☐ Other (specify)		
	☐ Ammonia Stack Concentration:	Ammonia CEMS Model	Ammonia CEMS Make		

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER: [signature]	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp/com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7/19/07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit: CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator): Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs | CA | 92240
City | State | Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager   Phone: (415) 293-1463

Fax: (415) 957-9886   E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco | CA | 94105
City | State | Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager   Phone: (415) 293-1463

Fax: (415) 957-9886   E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(if you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
SCR2: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For Identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 7

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location? Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-5

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 ◉ **Fixed Location** ◯ **Various Locations**

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)
SCR Catalyst	**Manufacturer:** SEE ATTACHED **Catalyst Active Material:**
	Model Number: **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Reducing Agent	◯ **Urea** ◯ **Anhydrous Ammonia** ◉ **Aqueous Ammonia** 29.40 % **Injection Rate:** lb/hr.
Reducing Agent Storage	**Diameter:** ft. in. **Height:** ft. in. **Capacity:** gal **Pressure Setting:** psia
Space Velocity	**Gas Flow Rate/Catalyst Volume:** hr^{-1}
Area Velocity	**Gas Flow Rate/Wetted Catalyst Surface Area:** ft/hr
Manufacturer's Guarantee	**NOx:** 2.500 ppm $\%O_2$: 15.00 **NOx:** gm/bhp-hr **Ammonia Slip:** 5.000 ppm @ 15.00 $\% O_2$
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**
	OXIDATION CATALYST
Oxidation Catalyst	**Manufacturer:** SEE ATTACHED **Catalyst Active Material:**
	Model Number: **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Space Velocity	**Gas flow rate/Catalyst Volume:** hr^{-1}
Manufacturer's Guarantee	**VOC** 2.000 ppm **VOC** gm/bhp-hr **CO** 6.000 ppm **CO** gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in. No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH_3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION	
Operating Temperature	Minimum Inlet Temperature: °F (from cold start) Maximum Temperature: °F
	Warm-up Time: hr. min. (maximum)
Operating Schedule	Normal: hours/day days/week weeks/yr.
	Maximum: 24 hours/day 7 days/week 15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
[signature]	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463	DATE SIGNED: 7/19/07
E-MAIL ADDRESS: mturner@cpv.com	FAX NUMBER: (415) 957-9886	

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(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH_3 Slip = 5 ppmvd @ 15% O_2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O_2
Outlet NOx = 2.5 ppmvd @ 15% O_2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO_2 oxidation rate / SO_3 emissions
SO_2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested CO Catalyst Data

1. Type of Catalyst

Platinum group metals impregnated in alumina washcoat on stainless steel substrate

2. Catalyst Volume

Approx. 150 cu ft

3. Space velocity

From Nominally 93,000 1/hr to Nominally 158,000 1/hr

4. Linear Velocity

From Nominally 6.7 ft/s to 11.5 ft/s

5. Pressure Drop across Catalyst

From 1.8 in w.c. to 1.0 in w.c.

6. Manufacturer's Guarantee for Efficiency and Catalyst Life

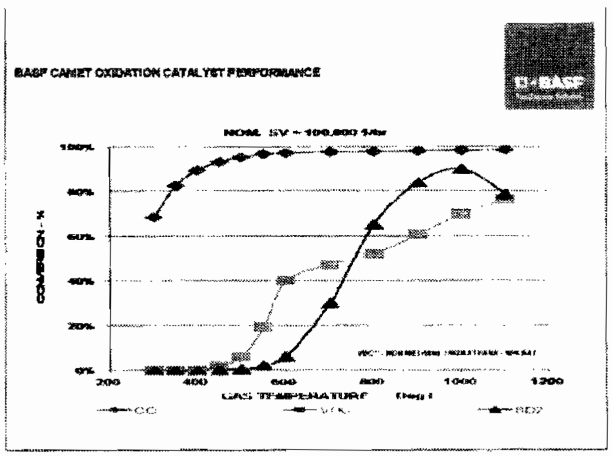
CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)

7. Operating Temperature Range of Catalyst

From 500°F to 1200°F

8. Effect of Temperature on Efficiency

See Typical Performance Curve



9. CO Conversion Efficiency

Ranges from 94.6% to 91.2% (See Table A – Performance Data)

10. Unsaturated Hydrocarbon Conversion Efficiency

See Typical Performance Curve Above

11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency

0%

12. Methane Conversion Efficiency

0%

13. CO Catalyst Total Cost

Approximately $300,000 at today's market price

14. CO Catalyst Replacement Cost

Approximately $400,000 including in/out costs at today's market price

15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions

See Attached Drawings

16. Catalyst Manufacturer

BASF Catalysts LLC (formerly Engelhard)

17. CO and HC Concentration IN and Out of CO Catalyst

See Table A - Performance Data

18. Catalyst Depth

Modules - Nom. 3.6 in

19. Catalyst Cell Density (Cells per Square Inch)

155 CPSI

South Coast Air Quality Management District

FORM 400–PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	**Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.**
Location of School Nearby	**Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?** ( ) Yes (•) No. If yes, please provide name(s) of school(s) below.
Population Density	( ) Urban (area of dense population) (•) Rural (area of sparse population)
Zoning Classification	( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M) • W-2

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 90.00 feet (height above ground level)* — What is the height of the closest building nearest the stack ? 40.00 feet

Stack Inside Diameter: 162.000 inches — Stack Flow: 863264 acfm — Stack Temperature: 744.00 oF

Rain Cap Present: ( ) Yes (•) No — Stack Orientation: (•) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name: (see attached)	Building #/name:
Building Height: feet	Building Height: feet
Building Width: feet	Building Width: feet
Building Length: feet	Building Length: feet

Receptor Distance from equipment stack or roof vents/openings

Distance to nearest residence 300.00 feet or meters	Distance to nearest business	feet or	meters

Building Information

Are the emissions released from vents and/or openings from the building? ( ) Yes (•) No
If yes, please provide:

Building height above ground level: ft.	Building dimensions:	length ft. or width ft.	Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7/19/07

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(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	Height*	Width*	Length*
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC
2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**
3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:** For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs | CA | 92240
City | State | Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco | CA | 94105
City | State | Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010
8. **Description of Equipment:** CTG3 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode
9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes
10. **For Identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 4
11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes
12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation
14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112
15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes
16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]
18. **Title:** Project Manager
19. **Print Name:** Mark Turner
20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District
FORM 400-E-12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric
	Model No.: LMS 100 — **Serial No.:**
	Size (based on Higher Heating Value - HHV):
	Manufacturer Maximum Input Rating: MMBTU/hr kWh
	Manufacturer Maximum Output Rating: MMBTU/hr kWh
Function (Check all that apply)	[X] Electrical Generation [ ] Driving Pump/Compressor [ ] Emergency Peaking Unit [ ] Steam Generation [ ] Exhaust Gas Recovery [ ] Other (specify):
Cycle Type	(•) Simple Cycle ( ) Regenerative Cycle ( ) Combined Cycle ( ) Other (specify):
Combustion Type	( ) Tubular ( ) Can-Annular ( ) Annular
Fuel (Turbine)	(•) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Landfill Gas* ( ) Propane ( ) Refinery Gas* ( ) Other*: * (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW
	Low Pressure Steam Output Capacity: lb/hr @ °F
	High Pressure Steam Output Capacity: lb/hr @ °F
	Superheated Steam Output Capacity: lb/hr @ °F
Duct Burner	**Manufacturer:** — **Model:**
	Number of burners: — **Rating of each burner (HHV):**
	Type: ( ) Low NOx (please attach manufacturer's specifications) ( ) Other: Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	( ) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Refinery Gas* ( ) Landfill Gas* ( ) Propane ( ) Other*: *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content)

Air Pollution Control	(●) **Selective Catalytic Reduction (SCR)*** ( ) **Selective Non-catalytic Reduction (SNCR)*** ( ) **Oxidation Catalyst*** ( ) **Other (specify)*** ( ) **Steam/Water Injection:** **Injection Rate:** lbs. water/lbs. fuel, **or** mole water/mole fuel * Separate application is required.
	Capital Cost: | **Installation Cost:** | **Annual Operating Cost:**
Oxidation Catalyst Data (If Applicable)	**Manufacturer:** | **Model:**
	Catalyst Dimensions: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	Catalyst Cell Density: cells/sq. in. | **Pressure Drop Across Catalyst:**
	Manufacturer's Guarantee — **CO Control Efficiency:** 90.00 % **Catalyst Life:** yrs. **VOC Control Efficiency:** 30.00 % **Operating Temp. Range:** °F
	Space Velocity (gas flow rate/catalyst volume): | **Area Velocity (gas flow/wetted catalyst surface area):**
	VOC Concentration into Catalyst: 5.000 PPMVD @ 15 % O_2 | **CO Concentration into Catalyst:** 111.0[illegible] PPMVD @ 15 % O_2

SECTION B: OPERATION INFORMATION

	Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
		PPM@15% O_2, dry	lb/Hour	PPM@15% O_2, dry	lb/Hour
On-line Emissions Data	ROG	5.000	5.000	2.000	2.200
	NOx	25.000	79.400	2.500	7.900
	CO	111.000	213.800	6.000	11.600
	PM10		6.000		6.000
	SOx				0.610
	NH3			5.000	5.900

* Based on temperature, fuel consumption, and MW output

Reference (attach data):
[X] **Manufacturer Emission Data** [ ] **EPA Emission Factors** [ ] **AQMD Emission Factors** [ ] **Source Test**

Stack or Vent Data	**Stack Height:** 90 ft. 0.000 in. **Stack Diameter:** 13 ft. 6.000 in. **Exhaust Temperature:** 744.00 °F **Exhaust Pressure:** inches water column **Exhaust Flow Rate:** 863264.[illegible] CFM **Oxygen Level:** 15.00 %
Operating Schedule	**Normal:** 24 **hours/day** 7 **days/week** **weeks/yr** **Maximum:** 24 **hours/day** 7 **days/week** **weeks/yr**

Startup Data	**No. of Startups per day:**	**No. of Startups per year:** 300		**Duration of each startup:** 0.5 **hours**	
Shutdown Data	**No. of Shutdowns per day:**	**No. of Shutdowns per year:** 300		**Duration of each shutdown:** 0.2 **hours**	
Startup and Shutdown Emissions Data	**Pollutants**	**Startup Emissions**		**Shutdown Emissions**	
		PPM@15% O_2, dry	**lb/Hour**	**PPM@15% O_2, dry**	**lb/Hour**
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS)

CEMS Make:

CEMS Model:

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) **Yes** ( ) **No**

The following parameters will be continuously monitored:

☒ **NOx** ☒ **CO** ☒ **O_2**

☐ **Fuel Flow Rate** ☐ **Ammonia Injection Rate** ☐ **Other (specify)**

☐ **Ammonia Stack Concentration:** **Ammonia CEMS Model**

Ammonia CEMS Make

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	**TITLE OF PREPARER:** Sen. AQ Consultant	**PREPARER'S TELEPHONE NUMBER:** (619) 243-2823 **PREPARER'S E-MAIL ADDRESS:** john_lague@urscorp/com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner **E-MAIL ADDRESS:** mturner@cpv.com	**CONTACT PERSON'S TELEPHONE NUMBER:** (415) 293-1463 **FAX NUMBER:** (415) 957-9886	**DATE SIGNED:** 7/19/07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
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(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District
Form 400-A
Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**

3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager   Phone: (415) 293-1463

Fax: (415) 957-9886   E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager   Phone: (415) 293-1463

Fax: (415) 957-9886   E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010

8. **Description of Equipment:**
SCR3: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.

9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes

10. **For identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 7

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?**
(•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation

14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes

16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct

17. **Signature of Responsible Official:** [signature]

18. **Title:** Project Manager

19. **Print Name:** Mark Turner

20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-5

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To:
SCAQMD
P.O. Box 4944
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Tel: (909) 396-3385
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Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)
SCR Catalyst	**Manufacturer:** **Catalyst Active Material:** **Model Number:** SEE ATTACHED **Type:** **Size of Each Layer or Module:** **Length:** ft. in. **Width:** ft. in. **Height:** ft. in. **No. of Layers or Modules:** **Total Volume:** cu.ft. **Total Weight:** lbs.
Reducing Agent	( ) **Urea** ( ) **Anhydrous Ammonia** (●) **Aqueous Ammonia** 29.40 % **Injection Rate:** lb/hr.
Reducing Agent Storage	**Diameter:** ft. in. **Height:** ft. in. **Capacity:** gal **Pressure Setting:** psia
Space Velocity	**Gas Flow Rate/Catalyst Volume:** hr^{-1}
Area Velocity	**Gas Flow Rate/Wetted Catalyst Surface Area:** ft/hr
Manufacturer's Guarantee	**NOx:** 2.500 ppm $\%O_2$: 15.00 **NOx:** gm/bhp-hr **Ammonia Slip:** 5.000 ppm @ 15.00 $\% O_2$
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**
	OXIDATION CATALYST
Oxidation Catalyst	**Manufacturer:** **Catalyst Active Material:** **Model Number:** **Type:** **Size of Each Layer or Module: Length:** ft. in. **Width:** ft. in. **Height:** ft. in. **No. of Layers or Modules:** **Total Volume:** cu.ft. **Total Weight:** lbs.
Space Velocity	**Gas flow rate/Catalyst Volume:** hr^{-1}
Manufacturer's Guarantee	**VOC** 2.000 ppm **VOC** gm/bhp-hr **CO** 6.000 ppm **CO** gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in.	
	No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION

Operating Temperature	Minimum Inlet Temperature: °F (from cold start)	Maximum Temperature: °F	
	Warm-up Time: hr. min. (maximum)		
Operating Schedule	Normal: hours/day	days/week	weeks/yr.
	Maximum: 24 hours/day	7 days/week	15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT

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Attachment to Form 400-E-5

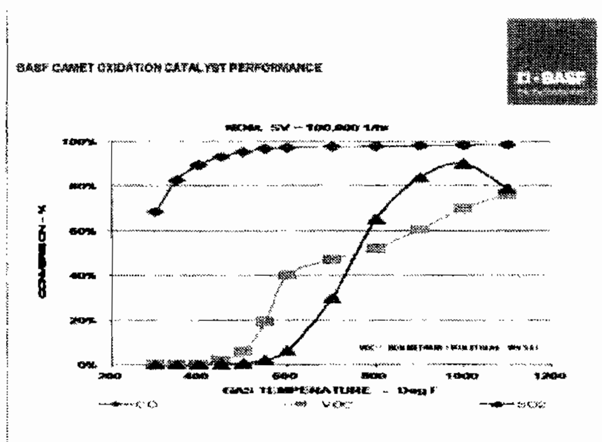
Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH_3 Slip = 5 ppmvd @ 15% O_2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O_2
Outlet NOx = 2.5 ppmvd @ 15% O_2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO_2 oxidation rate / SO_3 emissions
SO_2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested CO Catalyst Data
1. Type of Catalyst
Platinum group metals impregnated in alumina washcoat on stainless steel substrate
2. Catalyst Volume
Approx. 150 cu ft
3. Space velocity
From Nominally 93,000 1/hr to Nominally 158,000 1/hr
4. Linear Velocity
From Nominally 6.7 ft/s to 11.5 ft/s
5. Pressure Drop across Catalyst
From 1.8 in w.c. to 1.0 in w.c.
6. Manufacturer's Guarantee for Efficiency and Catalyst Life
CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)
7. Operating Temperature Range of Catalyst
From 500°F to 1200°F
8. Effect of Temperature on Efficiency
See Typical Performance Curve
9. CO Conversion Efficiency
Ranges from 94.6% to 91.2% (See Table A – Performance Data)
10. Unsaturated Hydrocarbon Conversion Efficiency
See Typical Performance Curve Above



11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency
0%
12. Methane Conversion Efficiency
0%
13. CO Catalyst Total Cost
Approximately $300,000 at today's market price
14. CO Catalyst Replacement Cost
Approximately $400,000 including in/out costs at today's market price
15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions
See Attached Drawings
16. Catalyst Manufacturer
BASF Catalysts LLC (formerly Engelhard)
17. CO and HC Concentration IN and Out of CO Catalyst
See Table A - Performance Data
18. Catalyst Depth
Modules - Nom. 3.6 in
19. Catalyst Cell Density (Cells per Square Inch)
155 CPSI

South Coast Air Quality Management District

FORM 400-PS
PLOT PLAN AND STACK INFORMATION FORM

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Tel: (909) 396-3385
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Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan: Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.

Location of School Nearby: Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?

( ) Yes (●) No. If yes, please provide name(s) of school(s) below.

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

Population Density: ( ) Urban (area of dense population) (●) Rural (area of sparse population)

Zoning Classification: ( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M) ● W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 90.00 feet (height above ground level)* — What is the height of the closest building nearest the stack ? 40.00 feet

Stack Inside Diameter: 162.000 inches — Stack Flow: 863264 acfm — Stack Temperature: 744.00 oF

Rain Cap Present: ( ) Yes (●) No — Stack Orientation: (●) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name: (see attached)	Building #/name:
Building Height: feet	Building Height: feet
Building Width: feet	Building Width: feet
Building Length: feet	Building Length: feet

Receptor Distance from equipment stack or roof vents/openings: Distance to nearest residence 300.00 feet or meters — Distance to nearest business feet or meters

Building Information: Are the emissions released from vents and/or openings from the building? ( ) Yes (●) No

If yes, please provide:

Building height above ground level: ft. — Building dimensions: length ft. or width ft. — Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7/19/07

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CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	Height*	Width*	Length*
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

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2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator): Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs | CA | 92240
City | State | Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco | CA | 94105
City | State | Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Administrative Change
- ( ) Change of Condition For Permit To Operate
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Change of Condition For Permit To Construct
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- ( ) Change of Location—Moving to New Site
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
CTG4 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #.

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location? Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE		FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District
FORM 400-E-12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240

(●) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric **Model No.:** LMS 100 **Serial No.:** **Size (based on Higher Heating Value - HHV):** **Manufacturer Maximum Input Rating:** MMBTU/hr kWh **Manufacturer Maximum Output Rating:** MMBTU/hr kWh
Function (Check all that apply)	[x] Electrical Generation [ ] Driving Pump/Compressor [ ] Emergency Peaking Unit [ ] Steam Generation [ ] Exhaust Gas Recovery [ ] Other (specify):
Cycle Type	(●) Simple Cycle ( ) Regenerative Cycle ( ) Combined Cycle ( ) Other (specify):
Combustion Type	( ) Tubular ( ) Can-Annular ( ) Annular
Fuel (Turbine)	(●) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Landfill Gas* ( ) Propane ( ) Refinery Gas* ( ) Other*: * (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW **Low Pressure Steam Output Capacity:** lb/hr @ °F **High Pressure Steam Output Capacity:** lb/hr @ °F **Superheated Steam Output Capacity:** lb/hr @ °F
Duct Burner	**Manufacturer:** **Model:** **Number of burners:** **Rating of each burner (HHV):** **Type:** ( ) Low NOx (please attach manufacturer's specifications) ( ) Other: Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	( ) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Refinery Gas* ( ) Landfill Gas* ( ) Propane ( ) Other*: *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Air Pollution Control	(●) **Selective Catalytic Reduction (SCR)*** ( ) **Oxidation Catalyst*** ( ) **Steam/Water Injection:** **Injection Rate:** lbs. water/lbs. fuel, or mole water/mole fuel * Separate application is required.	( ) **Selective Non-catalytic Reduction (SNCR)*** ( ) **Other (specify)***	
	Capital Cost:	**Installation Cost:**	**Annual Operating Cost:**
Oxidation Catalyst Data (If Applicable)	**Manufacturer:**	**Model:**	
	Catalyst Dimensions: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.		
	Catalyst Cell Density: cells/sq. in.	**Pressure Drop Across Catalyst:**	
	Manufacturer's Guarantee	**CO Control Efficiency:** 90.00 % **VOC Control Efficiency:** 30.00 %	**Catalyst Life:** yrs. **Operating Temp. Range:** °F
	Space Velocity (gas flow rate/catalyst volume):	**Area Velocity (gas flow/wetted catalyst surface area):**	
	VOC Concentration into Catalyst: 5.000 PPMVD @ 15 % O_2	**CO Concentration into Catalyst:** 111.0[illegible] PPMVD @ 15 % O_2	

SECTION B: OPERATION INFORMATION

	Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
		PPM@15% O_2, dry	lb/Hour	PPM@15% O_2, dry	lb/Hour
On-line Emissions Data	ROG	5.000	5.000	2.000	2.200
	NOx	25.000	79.400	2.500	7.900
	CO	111.000	213.800	6.000	11.600
	PM10		6.000		6.000
	SOx				0.610
	NH3			5.000	5.900

* Based on temperature, fuel consumption, and MW output

Reference (attach data):
[X] **Manufacturer Emission Data** [ ] **EPA Emission Factors** [ ] **AQMD Emission Factors** [ ] **Source Test**

Stack or Vent Data	**Stack Height:** 90 ft. 0.000 in.	**Stack Diameter:** 13 ft. 6.000 in.
	Exhaust Temperature: 744.00 °F	**Exhaust Pressure:** inches water column
	Exhaust Flow Rate: 863264.[illegible] CFM	**Oxygen Level:** 15.00 %
Operating Schedule	**Normal:** 24 hours/day 7 days/week weeks/yr	
	Maximum: 24 hours/day 7 days/week weeks/yr	

Startup Data	No. of Startups per day:	No. of Startups per year: 300		Duration of each startup: 0.5 hours	
Shutdown Data	No. of Shutdowns per day:	No. of Shutdowns per year: 300		Duration of each shutdown: 0.2 hours	
Startup and Shutdown Emissions Data	Pollutants	Startup Emissions		Shutdown Emissions	
		PPM @15% O_2 dry	lb/Hour	PPM @15% O_2 dry	lb/Hour
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS)

CEMS Make:

CEMS Model:

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☐ Fuel Flow Rate ☐ Ammonia Injection Rate ☐ Other (specify)

☐ Ammonia Stack Concentration: Ammonia CEMS Model

Ammonia CEMS Make

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp/com

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner E-MAIL ADDRESS: mturner@cpv.com	TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	7/19/07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**

3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs — City; CA, — State; 92240 — Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco — City; CA — State; 94105 — Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Administrative Change
- ( ) Change of Condition For Permit To Operate
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Change of Condition For Permit To Construct
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Change of Location—Moving to New Site
- ( ) Compliance Plan
- ( ) Facility Permit-Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010

8. **Description of Equipment:**
SCR4: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.

9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes

10. **For Identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 7

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?**
(•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation

14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes

16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]

18. **Title:** Project Manager

19. **Print Name:** Mark Turner

20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE		FEE SCHEDULE $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-5
SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)
SCR Catalyst	**Manufacturer:** SEE ATTACHED — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Reducing Agent	( ) **Urea** ( ) **Anhydrous Ammonia** (•) **Aqueous Ammonia** 29.40 % — **Injection Rate:** lb/hr.
Reducing Agent Storage	**Diameter:** ft. in. **Height:** ft. in. **Capacity:** gal **Pressure Setting:** psia
Space Velocity	**Gas Flow Rate/Catalyst Volume:** hr^{-1}
Area Velocity	**Gas Flow Rate/Wetted Catalyst Surface Area:** ft/hr
Manufacturer's Guarantee	**NOx:** 2.500 ppm $\%O_2$: 15.00 **NOx:** gm/bhp-hr **Ammonia Slip:** 5.000 ppm @ 15.00 $\% O_2$
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**
	OXIDATION CATALYST
Oxidation Catalyst	**Manufacturer:** — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: Length: ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Space Velocity	**Gas flow rate/Catalyst Volume:** hr^{-1}
Manufacturer's Guarantee	**VOC** 2.000 ppm **VOC** gm/bhp-hr **CO** 6.000 ppm **CO** gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in.	
	No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION

Operating Temperature	Minimum Inlet Temperature: °F (from cold start)	Maximum Temperature: °F	
	Warm-up Time: hr. min. (maximum)		
Operating Schedule	Normal: hours/day	days/week	weeks/yr.
	Maximum: 24 hours/day	7 days/week	15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7-19-07

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(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

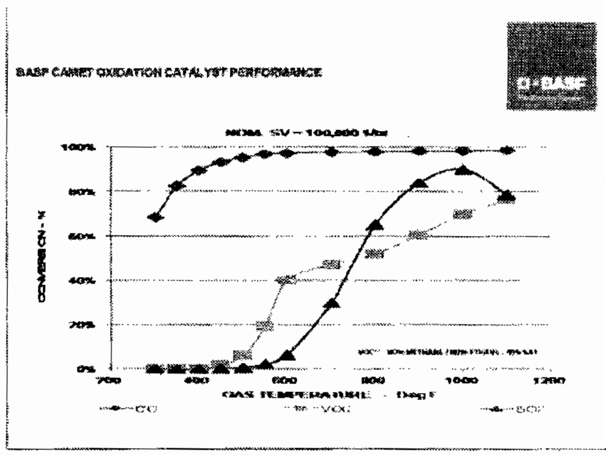
Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH_3 Slip = 5 ppmvd @ 15% O_2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O_2
Outlet NOx = 2.5 ppmvd @ 15% O_2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO_2 oxidation rate / SO_3 emissions
SO_2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested CO Catalyst Data

1. Type of Catalyst
Platinum group metals impregnated in alumina washcoat on stainless steel substrate
2. Catalyst Volume
Approx. 150 cu ft
3. Space velocity
From Nominally 93,000 1/hr to Nominally 158,000 1/hr
4. Linear Velocity
From Nominally 6.7 ft/s to 11.5 ft/s
5. Pressure Drop across Catalyst
From 1.8 in w.c. to 1.0 in w.c.
6. Manufacturer's Guarantee for Efficiency and Catalyst Life
CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)
7. Operating Temperature Range of Catalyst
From 500°F to 1200°F
8. Effect of Temperature on Efficiency
See Typical Performance Curve



9. CO Conversion Efficiency
Ranges from 94.6% to 91.2% (See Table A – Performance Data)
10. Unsaturated Hydrocarbon Conversion Efficiency
See Typical Performance Curve Above
11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency
0%
12. Methane Conversion Efficiency
0%
13. CO Catalyst Total Cost
Approximately $300,000 at today's market price
14. CO Catalyst Replacement Cost
Approximately $400,000 including in/out costs at today's market price
15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions
See Attached Drawings
16. Catalyst Manufacturer
BASF Catalysts LLC (formerly Engelhard)
17. CO and HC Concentration IN and Out of CO Catalyst
See Table A - Performance Data
18. Catalyst Depth
Modules - Nom. 3.6 in
19. Catalyst Cell Density (Cells per Square Inch)
155 CPSI

South Coast Air Quality Management District

FORM 400-PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.
Location of School Nearby	Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (•) No. If yes, please provide name(s) of school(s) below.

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

Population Density	( ) Urban (area of dense population) (•) Rural (area of sparse population)
Zoning Classification	( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M) (•) W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 90.00 feet (height above ground level)* — What is the height of the closest building nearest the stack ? 40.00 feet

Stack Inside Diameter: 162.000 inches — Stack Flow: 863264 acfm — Stack Temperature: 744.00 °F

Rain Cap Present: ( ) Yes (•) No — Stack Orientation: (•) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name: (see attached)	Building #/name:
Building Height: feet	Building Height: feet
Building Width: feet	Building Width: feet
Building Length: feet	Building Length: feet

Receptor Distance from equipment stack or roof vents/openings

Distance to nearest residence 300.00 feet or meters — Distance to nearest business feet or meters

Building Information

Are the emissions released from vents and/or openings from the building? ( ) Yes (•) No

If yes, please provide:

Building height above ground level: ft.	Building dimensions: length ft. or width ft.	Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7/20/07

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(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	**Height***	**Width***	**Length***
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator):
Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
CTG5 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 4

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric
	Model No.: LMS 100 — **Serial No.:**
	Size (based on Higher Heating Value - HHV): **Manufacturer Maximum Input Rating:** MMBTU/hr kWh **Manufacturer Maximum Output Rating:** MMBTU/hr kWh
Function (Check all that apply)	[X] **Electrical Generation** [ ] **Driving Pump/Compressor** [ ] **Emergency Peaking Unit** [ ] **Steam Generation** [ ] **Exhaust Gas Recovery** [ ] **Other (specify):**
Cycle Type	(•) **Simple Cycle** ( ) **Regenerative Cycle** ( ) **Combined Cycle** ( ) **Other (specify):**
Combustion Type	( ) **Tubular** ( ) **Can-Annular** ( ) **Annular**
Fuel (Turbine)	(•) **Natural Gas** ( ) **LPG** ( ) **Digester Gas*** ( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other*** : * (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW **Low Pressure Steam Output Capacity:** lb/hr @ ºF **High Pressure Steam Output Capacity:** lb/hr @ ºF **Superheated Steam Output Capacity:** lb/hr @ ºF
Duct Burner	**Manufacturer:** — **Model:**
	Number of burners: — **Rating of each burner (HHV):**
	Type: ( ) **Low NOx (please attach manufacturer's specifications)** ( ) **Other:** Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas*** ( ) **Refinery Gas*** ( ) **Landfill Gas*** ( ) **Propane** ( ) **Other*** : *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Air Pollution Control	(●) **Selective Catalytic Reduction (SCR)*** ( ) **Selective Non-catalytic Reduction (SNCR)*** ( ) **Oxidation Catalyst*** ( ) **Other (specify)*** ( ) **Steam/Water Injection:** **Injection Rate:** lbs. water/lbs. fuel, or mole water/mole fuel * Separate application is required.
	Capital Cost: / **Installation Cost:** / **Annual Operating Cost:**
Oxidation Catalyst Data (If Applicable)	**Manufacturer:** / **Model:**
	Catalyst Dimensions: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	Catalyst Cell Density: cells/sq. in. / **Pressure Drop Across Catalyst:**
	Manufacturer's Guarantee — **CO Control Efficiency:** 90.00 % **Catalyst Life:** yrs. **VOC Control Efficiency:** 30.00 % **Operating Temp. Range:** ºF
	Space Velocity (gas flow rate/catalyst volume): / **Area Velocity (gas flow/wetted catalyst surface area):**
	VOC Concentration into Catalyst: 5.000 PPMVD @ 15 % O_2 / **CO Concentration into Catalyst:** 111.0[illegible] PPMVD @ 15 % O_2

SECTION B: OPERATION INFORMATION

On-line Emissions Data

Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/Hour	PPM@15% O_2, dry	lb/Hour
ROG	5.000	5.000	2.000	2.200
NOx	25.000	79.400	2.500	7.900
CO	111.000	213.800	6.000	11.600
PM10		6.000		6.000
SOx				0.610
NH3			5.000	5.900

* Based on temperature, fuel consumption, and MW output

Reference (attach data):
☒ Manufacturer Emission Data ☐ EPA Emission Factors ☐ AQMD Emission Factors ☐ Source Test

Stack or Vent Data

Stack Height: 90 ft. 0.000 in. **Stack Diameter:** 13 ft. 6.000 in.
Exhaust Temperature: 744.00 ºF **Exhaust Pressure:** inches water column
Exhaust Flow Rate: 863264.[illegible] CFM **Oxygen Level:** 15.00 %

Operating Schedule

Normal:	24 hours/day	7 days/week	weeks/yr
Maximum:	24 hours/day	7 days/week	weeks/yr

Startup Data	No. of Startups per day: ____ No. of Startups per year: 300 Duration of each startup: 0.5 hours				
Shutdown Data	No. of Shutdowns per day: ____ No. of Shutdowns per year: 300 Duration of each shutdown: 0.2 hours				
Startup and Shutdown Emissions Data	**Pollutants**	**Startup Emissions**		**Shutdown Emissions**	
		PPM @15% O_2, dry	**lb/Hour**	**PPM @15% O_2, dry**	**lb/Hour**
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				
Monitoring and Reporting	Continuous Emission Monitoring System (CEMS) CEMS Make: CEMS Model: Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No				
	The following parameters will be continuously monitored: ☒ NOx ☒ CO ☒ O_2 ☐ Fuel Flow Rate ☐ Ammonia Injection Rate ☐ Other (specify) ☐ Ammonia Stack Concentration: Ammonia CEMS Model Ammonia CEMS Make				

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp/com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7-19-07

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC
2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**
3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs — CA, — 92240
City — State — Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco — CA, — 94105
City — State — Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
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- ( ) Facility Permit Amendment
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- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010
8. **Description of Equipment:**
SCR5: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.
9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes
10. **For identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 7
11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes
12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation
14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112
15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes
16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]
18. **Title:** Project Manager
19. **Print Name:** Mark Turner
20. **Date:** 7/23/07

Check List
☐ Form(s) signed and dated by authorized official
☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
☐ CEQA Form (400-CEQA) attached
☐ Payment for permit processing fee attached
Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

South Coast Air Quality Management District

FORM 400-E-5
SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
62575 power Line Rd , Desert Hot Springs, CA 92240
(•) Fixed Location ( ) Various Locations

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)	
SCR Catalyst	**Manufacturer:** SEE ATTACHED	**Catalyst Active Material:**
	Model Number:	**Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.	
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.	
Reducing Agent	( ) Urea ( ) Anhydrous Ammonia (•) Aqueous Ammonia 29.40 %	**Injection Rate:** lb/hr.
Reducing Agent Storage	**Diameter:** ft. in. **Height:** ft. in. **Capacity:** gal **Pressure Setting:** psia	
Space Velocity	**Gas Flow Rate/Catalyst Volume:** hr^{-1}	
Area Velocity	**Gas Flow Rate/Wetted Catalyst Surface Area:** ft/hr	
Manufacturer's Guarantee	**NOx:** 2.500 ppm $\%O_2$: 15.00 **NOx:** gm/bhp-hr **Ammonia Slip:** 5.000 ppm @ 15.00 $\% O_2$	
Catalyst Life	years (expected)	
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**	
	OXIDATION CATALYST	
Oxidation Catalyst	**Manufacturer:**	**Catalyst Active Material:**
	Model Number:	**Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.	
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.	
Space Velocity	**Gas flow rate/Catalyst Volume:** hr^{-1}	
Manufacturer's Guarantee	**VOC** 2.000 ppm **VOC** gm/bhp-hr **CO** 6.000 ppm **CO** gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00	
Catalyst Life	years (expected)	
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**	

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in.	
	No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION			
Operating Temperature	Minimum Inlet Temperature: °F (from cold start)	Maximum Temperature: °F	
	Warm-up Time: hr. min. (maximum)		
Operating Schedule	Normal: hours/day	days/week	weeks/yr.
	Maximum: 24 hours/day	7 days/week	15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT
I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
[signature]	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner	TELEPHONE NUMBER: (415) 293-1463	7-19-07
E-MAIL ADDRESS: mturner@cpv.com	FAX NUMBER: (415) 957-9886	

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

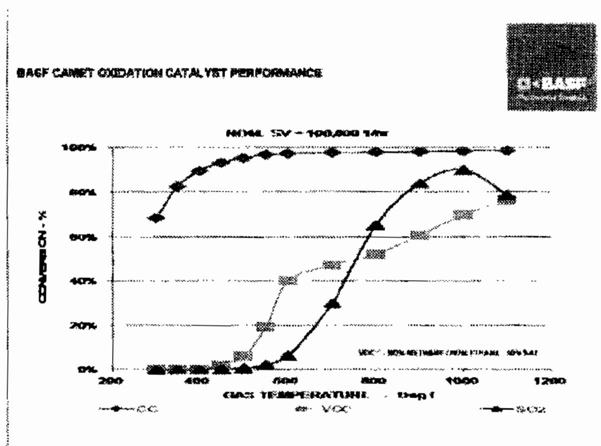
Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH_3 Slip = 5 ppmvd @ 15% O_2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m^3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O_2
Outlet NOx = 2.5 ppmvd @ 15% O_2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO_2 oxidation rate / SO_3 emissions
SO_2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA -- Requested CO Catalyst Data

1. Type of Catalyst
Platinum group metals impregnated in alumina washcoat on stainless steel substrate
2. Catalyst Volume
Approx. 150 cu ft
3. Space velocity
From Nominally 93,000 1/hr to Nominally 158,000 1/hr
4. Linear Velocity
From Nominally 6.7 ft/s to 11.5 ft/s
5. Pressure Drop across Catalyst
From 1.8 in w.c. to 1.0 in w.c.
6. Manufacturer's Guarantee for Efficiency and Catalyst Life
CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)
7. Operating Temperature Range of Catalyst
From 500°F to 1200°F
8. Effect of Temperature on Efficiency
See Typical Performance Curve



9. CO Conversion Efficiency
Ranges from 94.6% to 91.2% (See Table A – Performance Data)
10. Unsaturated Hydrocarbon Conversion Efficiency
See Typical Performance Curve Above
11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency
0%
12. Methane Conversion Efficiency
0%
13. CO Catalyst Total Cost
Approximately $300,000 at today's market price
14. CO Catalyst Replacement Cost
Approximately $400,000 including in/out costs at today's market price
15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions
See Attached Drawings
16. Catalyst Manufacturer
BASF Catalysts LLC (formerly Engelhard)
17. CO and HC Concentration IN and Out of CO Catalyst
See Table A - Performance Data
18. Catalyst Depth
Modules - Nom. 3.6 in
19. Catalyst Cell Density (Cells per Square Inch)
155 CPSI

South Coast Air Quality Management District

FORM 400-PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	**Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.**
Location of School Nearby	**Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?** ( ) Yes (•) No. **If yes, please provide name(s) of school(s) below.**

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

Population Density	( ) Urban (area of dense population) (•) Rural (area of sparse population)
Zoning Classification	( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M) (•) W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 90.00 feet (height above ground level)* — What is the height of the closest building nearest the stack? 40.00 feet

Stack Inside Diameter: 162.000 inches — Stack Flow: 863264 acfm — Stack Temperature: 744.00 °F

Rain Cap Present: ( ) Yes (•) No — Stack Orientation: (•) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name: (see attached)	Building #/name:
Building Height: feet	Building Height: feet
Building Width: feet	Building Width: feet
Building Length: feet	Building Length: feet

Receptor Distance from equipment stack or roof vents/openings

Distance to nearest residence 300.00 feet or meters	Distance to nearest business	feet or meters

Building Information

Are the emissions released from vents and/or openings from the building? ( ) Yes ( ) No
If yes, please provide:

Building height above ground level: ft.	Building dimensions:	length ft. or width ft.	Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
[signature]	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner	TELEPHONE NUMBER: (415) 293-1463	3/19/07
E-MAIL ADDRESS: mturner@cpv.com	FAX NUMBER: (415) 957-9886	

CONFIDENTIAL INFORMATION

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(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	Height*	Width*	Length*
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator):
Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
CTG6 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 2

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?
(•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official:

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

South Coast Air Quality Management District
FORM 400–E–12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit): CPV Sentinel, LLC	
Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 62575 power Line Rd , Desert Hot Springs, CA 92240	(●) Fixed Location ( ) Various Locations

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric		
	Model No.: LMS 100		**Serial No.:**
	Size (based on Higher Heating Value - HHV): **Manufacturer Maximum Input Rating:** MMBTU/hr kWh **Manufacturer Maximum Output Rating:** MMBTU/hr kWh		
Function (Check all that apply)	[X] Electrical Generation [ ] Steam Generation	[ ] Driving Pump/Compressor [ ] Exhaust Gas Recovery	[ ] Emergency Peaking Unit [ ] Other (specify):
Cycle Type	(●) Simple Cycle ( ) Combined Cycle	( ) Regenerative Cycle ( ) Other (specify):	
Combustion Type	( ) Tubular	( ) Can-Annular	( ) Annular
Fuel (Turbine)	(●) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Landfill Gas* ( ) Propane ( ) Refinery Gas* ( ) Other*: * (If Digester Gas, Landfill Gas Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).		
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW **Low Pressure Steam Output Capacity:** lb/hr @ ºF **High Pressure Steam Output Capacity:** lb/hr @ ºF **Superheated Steam Output Capacity:** lb/hr @ ºF		
Duct Burner	**Manufacturer:**		**Model:**
	Number of burners:	**Rating of each burner (HHV):**	
	Type: ( ) Low NOx (please attach manufacturer's specifications) ( ) Other: Show all heat transfer surface locations with the HRSG and temperature profile		
Fuel (Duct Burner)	( ) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Refinery Gas* ( ) Landfill Gas* ( ) Propane ( ) Other*: *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content)		

Air Pollution Control	(•) **Selective Catalytic Reduction (SCR)*** ( ) **Selective Non-catalytic Reduction (SNCR)*** ( ) **Oxidation Catalyst*** ( ) **Other (specify)*** ( ) **Steam/Water Injection:** **Injection Rate:** lbs. water/lbs. fuel, or mole water/mole fuel * Separate application is required.		
	Capital Cost:	**Installation Cost:**	**Annual Operating Cost:**
Oxidation Catalyst Data (If Applicable)	**Manufacturer:**	**Model:**	
	Catalyst Dimensions: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.		
	Catalyst Cell Density: cells/sq. in.	**Pressure Drop Across Catalyst:**	
	Manufacturer's Guarantee	**CO Control Efficiency:** 90.00 % **VOC Control Efficiency:** 30.00 %	**Catalyst Life:** yrs. **Operating Temp. Range:** ºF
	Space Velocity (gas flow rate/catalyst volume):	**Area Velocity (gas flow/wetted catalyst surface area):**	
	VOC Concentration into Catalyst: 5.000 PPMVD @ 15 % O_2	**CO Concentration into Catalyst:** 111.0[illegible] PPMVD @ 15 % O_2	

SECTION B: OPERATION INFORMATION

	Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
		PPM@15% O_2, dry	lb/Hour	PPM@15% O_2, dry	lb/Hour
On-line Emissions Data	ROG	5.000	5.000	2.000	2.200
	NOx	25.000	79.400	2.500	7.900
	CO	111.000	213.800	6.000	11.600
	PM10		6.000		6.000
	SOx				0.610
	NH3			5.000	5.900
	* Based on temperature, fuel consumption, and MW output **Reference (attach data):** [x] **Manufacturer Emission Data** [ ] **EPA Emission Factors** [ ] **AQMD Emission Factors** [ ] **Source Test**				
Stack or Vent Data	**Stack Height:** 90 ft. 0.000 in.	**Stack Diameter:** 13 ft. 6.000 in.			
	Exhaust Temperature: 744.00 ºF	**Exhaust Pressure:** inches water column			
	Exhaust Flow Rate: 863264.[illegible] CFM	**Oxygen Level:** 15.00 %			
Operating Schedule	**Normal:** 24 hours/day 7 days/week weeks/yr				
	Maximum: 24 hours/day 7 days/week weeks/yr				

Startup Data	**No. of Startups per day:**	**No. of Startups per year:** 350		**Duration of each startup:** 0.5 **hours**	
Shutdown Data	**No. of Shutdowns per day:**	**No. of Shutdowns per year:** 350		**Duration of each shutdown:** 0.2 **hours**	
Startup and Shutdown Emissions Data	**Pollutants**	**Startup Emissions**		**Shutdown Emissions**	
		PPM@15% O_2, dry	**lb/Hour**	**PPM@15% O_2, dry**	**lb/Hour**
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS)

CEMS Make:

CEMS Model:

Will the CEMS be used to measure both on-line and startup/shutdown emissions? (•) Yes ( ) No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☐ Fuel Flow Rate ☐ Ammonia Injection Rate ☐ Other (specify)

☐ Ammonia Stack Concentration: Ammonia CEMS Model

Ammonia CEMS Make

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	**TITLE OF PREPARER:** Sen. AQ Consultant	**PREPARER'S TELEPHONE NUMBER:** (619) 243-2823 **PREPARER'S E-MAIL ADDRESS:** john_lague@urscorp/com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner **E-MAIL ADDRESS:** mturner@cpv.com	**CONTACT PERSON'S TELEPHONE NUMBER:** (415) 293-1463 **FAX NUMBER:** (415) 957-9886	**DATE SIGNED:** 7-19-07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential Information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator):
Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs — City; CA — State; 92240 — Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco — City; CA — State; 94105 — Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) **RECLAIM** (•) **Title V** ( ) **RECLAIM & Title V Program (please check if applicable)**

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
SCR6: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 7

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE $	VALIDATION
ENG. A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-5

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To: SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)
SCR Catalyst	**Manufacturer:** SEE ATTACHED — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Reducing Agent	( ) Urea ( ) Anhydrous Ammonia (●) Aqueous Ammonia 29.40 % — **Injection Rate:** lb/hr.
Reducing Agent Storage	**Diameter:** ft. in. **Height:** ft. in. **Capacity:** gal **Pressure Setting:** psia
Space Velocity	**Gas Flow Rate/Catalyst Volume:** hr^{-1}
Area Velocity	**Gas Flow Rate/Wetted Catalyst Surface Area:** ft/hr
Manufacturer's Guarantee	**NOx:** 2.500 ppm $\%O_2$: 15.00 **NOx:** gm/bhp-hr **Ammonia Slip:** 5.000 ppm @ 15.00 $\% O_2$
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**
	OXIDATION CATALYST
Oxidation Catalyst	**Manufacturer:** — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Space Velocity	**Gas flow rate/Catalyst Volume:** hr^{-1}
Manufacturer's Guarantee	**VOC** 2.000 ppm **VOC** gm/bhp-hr **CO** 6.000 ppm **CO** gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in.	
	No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION

Operating Temperature	Minimum Inlet Temperature: °F (from cold start) Maximum Temperature: °F
	Warm-up Time: hr. min. (maximum)
Operating Schedule	Normal: hours/day days/week weeks/yr.
	Maximum: 24 hours/day 7 days/week 15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner	TELEPHONE NUMBER: (415) 293-1463	7-19-07
E-MAIL ADDRESS: mturner@cpv.com	FAX NUMBER: (415) 957-9886	

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(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Attachment to Form 400-E-5

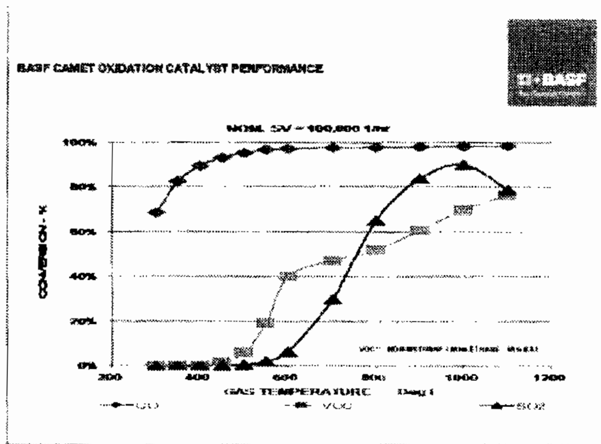
Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH_3 Slip = 5 ppmvd @ 15% O_2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O_2
Outlet NOx = 2.5 ppmvd @ 15% O_2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO_2 oxidation rate / SO_3 emissions
SO_2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested CO Catalyst Data
1. Type of Catalyst
Platinum group metals impregnated in alumina washcoat on stainless steel substrate
2. Catalyst Volume
Approx. 150 cu ft
3. Space velocity
From Nominally 93,000 1/hr to Nominally 158,000 1/hr
4. Linear Velocity
From Nominally 6.7 ft/s to 11.5 ft/s
5. Pressure Drop across Catalyst
From 1.8 in w.c. to 1.0 in w.c.
6. Manufacturer's Guarantee for Efficiency and Catalyst Life
CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)
7. Operating Temperature Range of Catalyst
From 500°F to 1200°F
8. Effect of Temperature on Efficiency
See Typical Performance Curve
9. CO Conversion Efficiency
Ranges from 94.6% to 91.2% (See Table A – Performance Data)
10. Unsaturated Hydrocarbon Conversion Efficiency
See Typical Performance Curve Above
11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency
0%
12. Methane Conversion Efficiency
0%
13. CO Catalyst Total Cost
Approximately $300,000 at today's market price
14. CO Catalyst Replacement Cost
Approximately $400,000 including in/out costs at today's market price



15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions
See Attached Drawings
16. Catalyst Manufacturer
BASF Catalysts LLC (formerly Engelhard)
17. CO and HC Concentration IN and Out of CO Catalyst
See Table A - Performance Data
18. Catalyst Depth
Modules - Nom. 3.6 in
19. Catalyst Cell Density (Cells per Square Inch)
155 CPSI

South Coast Air Quality Management District

FORM 400–PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.
Location of School Nearby	Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (•) No. If yes, please provide name(s) of school(s) below.

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

Population Density	( ) Urban (area of dense population) (•) Rural (area of sparse population)
Zoning Classification	( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M) (•) W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 90.00 feet (height above ground level)* — What is the height of the closest building nearest the stack ? 40.00 feet

Stack Inside Diameter: 162.000 inches — Stack Flow: 863264 acfm — Stack Temperature: 744.00 oF

Rain Cap Present: ( ) Yes (•) No — Stack Orientation: (•) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name: (see attached)	Building #/name:
Building Height: feet	Building Height: feet
Building Width: feet	Building Width: feet
Building Length: feet	Building Length: feet

Receptor Distance from equipment stack or roof vents/openings	Distance to nearest residence 300.00 feet or meters	Distance to nearest business feet or meters

Building Information

Are the emissions released from vents and/or openings from the building? ( ) Yes (•) No
If yes, please provide:

Building height above ground level: ft.	Building dimensions: length ft. or width ft.	Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7-19-07

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(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	Height*	Width*	Length*
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel. (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit: CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator): Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
CTG7 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For Identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 2

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location? Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☒ Form(s) signed and dated by authorized official
- ☒ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☒ CEQA Form (400-CEQA) attached
- ☒ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE $	VALIDATION
ENG A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric **Model No.:** LMS 100 — **Serial No.:** **Size (based on Higher Heating Value - HHV):** **Manufacturer Maximum Input Rating:** MMBTU/hr kWh **Manufacturer Maximum Output Rating:** MMBTU/hr kWh
Function (Check all that apply)	[X] **Electrical Generation** [ ] **Driving Pump/Compressor** [ ] **Emergency Peaking Unit** [ ] **Steam Generation** [ ] **Exhaust Gas Recovery** [ ] **Other (specify):**
Cycle Type	(●) **Simple Cycle** ( ) **Regenerative Cycle** ( ) **Combined Cycle** ( ) **Other (specify):**
Combustion Type	( ) **Tubular** ( ) **Can-Annular** ( ) **Annular**
Fuel (Turbine)	(●) **Natural Gas** ( ) **LPG** ( ) **Digester Gas**** ( ) **Landfill Gas*** ( ) **Propane** ( ) **Refinery Gas*** ( ) **Other*:** * (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW **Low Pressure Steam Output Capacity:** lb/hr @ °F **High Pressure Steam Output Capacity:** lb/hr @ °F **Superheated Steam Output Capacity:** lb/hr @ °F
Duct Burner	**Manufacturer:** — **Model:** **Number of burners:** — **Rating of each burner (HHV):** **Type:** ( ) **Low NOx (please attach manufacturer's specifications)** ( ) **Other:** Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	( ) **Natural Gas** ( ) **LPG** ( ) **Digester Gas*** ( ) **Refinery Gas*** ( ) **Landfill Gas*** ( ) **Propane** ( ) **Other*:** *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Air Pollution Control	(•) **Selective Catalytic Reduction (SCR)*** ( ) **Selective Non-catalytic Reduction (SNCR)*** ( ) **Oxidation Catalyst*** ( ) **Other (specify)*** ( ) **Steam/Water Injection:** **Injection Rate:** lbs. water/lbs. fuel, or mole water/mole fuel * Separate application is required.
	Capital Cost: | **Installation Cost:** | **Annual Operating Cost:**
Oxidation Catalyst Data (If Applicable)	**Manufacturer:** | **Model:**
	Catalyst Dimensions: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	Catalyst Cell Density: cells/sq. in. | **Pressure Drop Across Catalyst:**
	Manufacturer's Guarantee **CO Control Efficiency:** 90.00 % **Catalyst Life:** yrs. **VOC Control Efficiency:** 30.00 % **Operating Temp. Range:** ºF
	Space Velocity (gas flow rate/catalyst volume): | **Area Velocity (gas flow/wetted catalyst surface area):**
	VOC Concentration into Catalyst: 5.000 PPMVD @ 15 % O_2 | **CO Concentration into Catalyst:** 111.0[illegible] PPMVD @ 15 % O_2

SECTION B: OPERATION INFORMATION

On-line Emissions Data

Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
	PPM@15% O_2, dry	lb/Hour	PPM@15% O_2, dry	lb/Hour
ROG	5.000	5.000	2.000	2.200
NOx	25.000	79.400	2.500	7.900
CO	111.000	213.800	6.000	11.600
PM10		6.000		6.000
SOx				0.610
NH3			5.000	5.900

* Based on temperature, fuel consumption, and MW output

Reference (attach data):
[X] **Manufacturer Emission Data** [ ] **EPA Emission Factors** [ ] **AQMD Emission Factors** [ ] **Source Test**

Stack or Vent Data

Stack Height: 90 ft. 0.000 in. **Stack Diameter:** 13 ft. 6.000 in.
Exhaust Temperature: 744.00 ºF **Exhaust Pressure:** inches water column
Exhaust Flow Rate: 863264.[illegible] CFM **Oxygen Level:** 15.00 %

Operating Schedule

Normal:	24 **hours/day**	7 **days/week**	**weeks/yr**
Maximum:	24 **hours/day**	7 **days/week**	**weeks/yr**

Startup Data	No. of Startups per day:	No. of Startups per year: 350	Duration of each startup: 0.5 hours		
Shutdown Data	No. of Shutdowns per day:	No. of Shutdowns per year: 350	Duration of each shutdown: 0.2 hours		
Startup and Shutdown Emissions Data	Pollutants	Startup Emissions		Shutdown Emissions	
		PPM@15% O_2, dry	lb/Hour	PPM@15% O_2, dry	lb/Hour
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				

Monitoring and Reporting

Continuous Emission Monitoring System (CEMS)

CEMS Make:

CEMS Model:

Will the CEMS be used to measure both on-line and startup/shutdown emissions? ◉ Yes ○ No

The following parameters will be continuously monitored:

☒ NOx ☒ CO ☒ O_2

☐ Fuel Flow Rate ☐ Ammonia Injection Rate ☐ Other (specify)

☐ Ammonia Stack Concentration: Ammonia CEMS Model

Ammonia CEMS Make

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp/com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7-17-03

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit: CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator): Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
SCR7: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 7

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location? Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

South Coast Air Quality Management District

FORM 400-E-5

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)
SCR Catalyst	**Manufacturer:** SEE ATTACHED — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Reducing Agent	( ) Urea ( ) Anhydrous Ammonia (•) Aqueous Ammonia 29.40 % — **Injection Rate:** lb/hr.
Reducing Agent Storage	Diameter: ft. in. Height: ft. in. Capacity: gal Pressure Setting: psia
Space Velocity	Gas Flow Rate/Catalyst Volume: hr^{-1}
Area Velocity	Gas Flow Rate/Wetted Catalyst Surface Area: ft/hr
Manufacturer's Guarantee	NOx: 2.500 ppm $\%O_2$: 15.00 NOx: gm/bhp-hr Ammonia Slip: 5.000 ppm @ 15.00 $\% O_2$
Catalyst Life	years (expected)
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:
	OXIDATION CATALYST
Oxidation Catalyst	**Manufacturer:** — **Catalyst Active Material:**
	Model Number: — **Type:**
	Size of Each Layer or Module: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.
	No. of Layers or Modules: **Total Volume:** cu.ft. **Total Weight:** lbs.
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}
Manufacturer's Guarantee	VOC 2.000 ppm VOC gm/bhp-hr CO 6.000 ppm CO gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00
Catalyst Life	years (expected)
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in.	
	No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH_3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION

Operating Temperature	Minimum Inlet Temperature: °F (from cold start)	Maximum Temperature: °F	
	Warm-up Time: hr. min. (maximum)		
Operating Schedule	Normal: hours/day	days/week	weeks/yr.
	Maximum: 24 hours/day	7 days/week	15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com	
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886		DATE SIGNED: 7-19-07

CONFIDENTIAL INFORMATION

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(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Attachment to Form 400-E-5

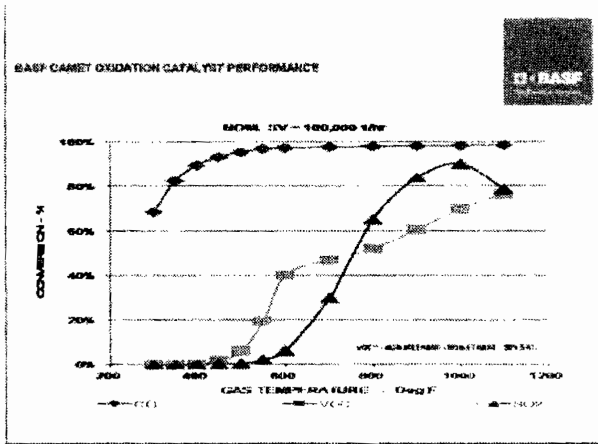
Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH3 Slip = 5 ppmvd @ 15% O2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O2
Outlet NOx = 2.5 ppmvd @ 15% O2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO2 oxidation rate / SO3 emissions
SO2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested CO Catalyst Data
1. Type of Catalyst
Platinum group metals impregnated in alumina washcoat on stainless steel substrate
2. Catalyst Volume
Approx. 150 cu ft
3. Space velocity
From Nominally 93,000 1/hr to Nominally 158,000 1/hr
4. Linear Velocity
From Nominally 6.7 ft/s to 11.5 ft/s
5. Pressure Drop across Catalyst
From 1.8 in w.c. to 1.0 in w.c.
6. Manufacturer's Guarantee for Efficiency and Catalyst Life
CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)
7. Operating Temperature Range of Catalyst
From 500°F to 1200°F
8. Effect of Temperature on Efficiency
See Typical Performance Curve
9. CO Conversion Efficiency
Ranges from 94.6% to 91.2% (See Table A – Performance Data)
10. Unsaturated Hydrocarbon Conversion Efficiency
See Typical Performance Curve Above
11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency
0%
12. Methane Conversion Efficiency
0%
13. CO Catalyst Total Cost
Approximately $300,000 at today's market price
14. CO Catalyst Replacement Cost
Approximately $400,000 including in/out costs at today's market price



15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions
See Attached Drawings
16. Catalyst Manufacturer
BASF Catalysts LLC (formerly Engelhard)
17. CO and HC Concentration IN and Out of CO Catalyst
See Table A - Performance Data
18. Catalyst Depth
Modules - Nom. 3.6 in
19. Catalyst Cell Density (Cells per Square Inch)
155 CPSI

South Coast Air Quality Management District

FORM 400-PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.
Location of School Nearby	Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No. If yes, please provide name(s) of school(s) below. School Name: — School Address: — Distance from stack or equipment vent to the outer boundary of the school: — Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in
Population Density	( ) Urban (area of dense population) (●) Rural (area of sparse population)
Zoning Classification	( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M)

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data	Stack Height: 90.00 feet (height above ground level)* — What is the height of the closest building nearest the stack ? 40.00 feet Stack Inside Diameter: 162.000 inches — Stack Flow: 863264 acfm — Stack Temperature: 744.00 oF Rain Cap Present: ( ) Yes (●) No — Stack Orientation: (●) Vertical ( ) Horizontal * If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary Building #/name: (see attached) — Building Height: feet — Building Width: feet — Building Length: feet Building #/name: — Building Height: feet — Building Width: feet — Building Length: feet
Receptor Distance from equipment stack or roof vents/openings	Distance to nearest residence 300.00 feet or meters — Distance to nearest business feet or meters
Building Information	Are the emissions released from vents and/or openings from the building? ( ) Yes (●) No If yes, please provide: Building height above ground level: ft. — Building dimensions: length ft. or width ft. — Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER: [signature]	TITLE OF PREPARER: Sen. AQ Consultant	PREPARER'S TELEPHONE NUMBER: (619) 243-2823 PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner E-MAIL ADDRESS: mturner@cpv.com	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463 FAX NUMBER: (415) 957-9886	DATE SIGNED: 7-19-07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	Height*	Width*	Length*
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**

3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010

8. **Description of Equipment:**
CTG8 - natural gas-fired General Electric (GE) LMS100 combustion turbine generator (CTG) operating in simple cycle mode

9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes

10. **For identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 2

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #.

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation

14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes

16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]

18. **Title:** Project Manager

19. **Print Name:** Mark Turner

20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

South Coast Air Quality Management District
FORM 400-E-12
GAS TURBINE

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) Fixed Location ( ) Various Locations

SECTION A: EQUIPMENT INFORMATION

Turbine	**Manufacturer:** General Electric **Model No.:** LMS 100 — **Serial No.:** **Size (based on Higher Heating Value - HHV):** **Manufacturer Maximum Input Rating:** MMBTU/hr kWh **Manufacturer Maximum Output Rating:** MMBTU/hr kWh
Function (Check all that apply)	☒ Electrical Generation ☐ Driving Pump/Compressor ☐ Emergency Peaking Unit ☐ Steam Generation ☐ Exhaust Gas Recovery ☐ Other (specify):
Cycle Type	(●) Simple Cycle ( ) Regenerative Cycle ( ) Combined Cycle ( ) Other (specify):
Combustion Type	( ) Tubular ( ) Can-Annular ( ) Annular
Fuel (Turbine)	(●) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Landfill Gas* ( ) Propane ( ) Refinery Gas* ( ) Other* : * (If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).
Heat Recovery Steam Generator (HRSG)	**Steam Turbine Capacity** MW **Low Pressure Steam Output Capacity:** lb/hr @ ºF **High Pressure Steam Output Capacity:** lb/hr @ ºF **Superheated Steam Output Capacity:** lb/hr @ ºF
Duct Burner	**Manufacturer:** — **Model:** **Number of burners:** — **Rating of each burner (HHV):** **Type:** ( ) Low NOx (please attach manufacturer's specifications) ( ) Other: Show all heat transfer surface locations with the HRSG and temperature profile
Fuel (Duct Burner)	( ) Natural Gas ( ) LPG ( ) Digester Gas* ( ) Refinery Gas* ( ) Landfill Gas* ( ) Propane ( ) Other* : *(If Digester Gas, Landfill Gas, Refinery Gas, and/or Other are checked, attach fuel analysis indicating higher heating value and sulfur content).

Air Pollution Control	(●) **Selective Catalytic Reduction (SCR)*** ( ) **Selective Non-catalytic Reduction (SNCR)*** ( ) **Oxidation Catalyst*** ( ) **Other (specify)*** ( ) **Steam/Water Injection:** **Injection Rate:** lbs. water/lbs. fuel, or mole water/mole fuel * Separate application is required.		
	Capital Cost:	**Installation Cost:**	**Annual Operating Cost:**
Oxidation Catalyst Data (If Applicable)	**Manufacturer:**	**Model:**	
	Catalyst Dimensions: **Length:** ft. in. **Width:** ft. in. **Height:** ft. in.		
	Catalyst Cell Density: cells/sq. in.	**Pressure Drop Across Catalyst:**	
	Manufacturer's Guarantee	**CO Control Efficiency:** 90.00 % **Catalyst Life:** yrs. **VOC Control Efficiency:** 30.00 % **Operating Temp. Range:** oF	
	Space Velocity (gas flow rate/catalyst volume):	**Area Velocity (gas flow/wetted catalyst surface area):**	
	VOC Concentration into Catalyst: 5.000 PPMVD @ 15 % O_2	**CO Concentration into Catalyst:** 111.0[illegible] PPMVD @ 15 % O_2	

SECTION B: OPERATION INFORMATION

On-line Emissions Data

Pollutants	Maximum Emissions Before Control*		Maximum Emissions After Control	
	PPM @15% O_2, dry	lb/Hour	PPM @15% O_2, dry	lb/Hour
ROG	5.000	5.000	2.000	2.200
NOx	25.000	79.400	2.500	7.900
CO	111.000	213.800	6.000	11.600
PM10		6.000		6.000
SOx				0.610
NH3			5.000	5.900

* Based on temperature, fuel consumption, and MW output

Reference (attach data):
[X] Manufacturer Emission Data [ ] EPA Emission Factors [ ] AQMD Emission Factors [ ] Source Test

Stack or Vent Data

Stack Height: 90 ft. 0.000 in. **Stack Diameter:** 13 ft. 6.000 in.

Exhaust Temperature: 744.00 oF **Exhaust Pressure:** inches water column

Exhaust Flow Rate: 863264.[illegible] CFM **Oxygen Level:** 15.00 %

Operating Schedule

Normal:	24 **hours/day**	7 **days/week**	**weeks/yr**
Maximum:	24 **hours/day**	7 **days/week**	**weeks/yr**

Startup Data	**No. of Startups per day:**	**No. of Startups per year:** 350		**Duration of each startup:** 0.5 **hours**	
Shutdown Data	**No. of Shutdowns per day:**	**No. of Shutdowns per year:** 350		**Duration of each shutdown:** 0.2 **hours**	
Startup and Shutdown Emissions Data	**Pollutants**	**Startup Emissions**		**Shutdown Emissions**	
		PPM@15% O_2, dry	**lb/Hour**	**PPM@15% O_2, dry**	**lb/Hour**
	ROG		10.320		17.480
	NOx		59.760		34.950
	CO		38.150		203.900
	PM10		6.000		6.000
	SOx		0.420		0.120
	NH3				
Monitoring and Reporting	**Continuous Emission Monitoring System (CEMS)** **CEMS Make:** **CEMS Model:** **Will the CEMS be used to measure both on-line and startup/shutdown emissions?** (•) Yes ( ) No				
	The following parameters will be continuously monitored: [x] NOx [x] CO [x] O_2 [ ] Fuel Flow Rate [ ] Ammonia Injection Rate [ ] Other (specify) [ ] Ammonia Stack Concentration: Ammonia CEMS Model Ammonia CEMS Make				

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER: [signature]	**TITLE OF PREPARER:** Sen. AQ Consultant	**PREPARER'S TELEPHONE NUMBER:** (619) 243-2823 **PREPARER'S E-MAIL ADDRESS:** john_lague@urscorp/com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner **E-MAIL ADDRESS:** mturner@cpv.com	**CONTACT PERSON'S TELEPHONE NUMBER:** (415) 293-1463 **FAX NUMBER:** (415) 957-9886	**DATE SIGNED:** 7-19-07

CONFIDENTIAL INFORMATION

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(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**

3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010

8. **Description of Equipment:**
SCR8: aqueous ammonia-type selective catalytic reduction (SCR) and oxidation catalyst systems for oxides of nitrogen (NOx) and carbon monoxide (CO) emissions control.

9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes

10. **For identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 7

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation

14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes

16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]

18. **Title:** Project Manager

19. **Print Name:** Mark Turner

20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE: $	VALIDATION
ENG A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ — Tracking #

South Coast Air Quality Management District

FORM 400-E-5

SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM, OXIDATION CATALYST, AND AMMONIA CATALYST

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) **Fixed Location** ( ) **Various Locations**

SECTION A: EQUIPMENT INFORMATION

	SELECTIVE CATALYTIC REDUCTION (SCR)
SCR Catalyst	**Manufacturer:** SEE ATTACHED — **Catalyst Active Material:** **Model Number:** — **Type:** **Size of Each Layer or Module:** **Length:** ft. in. **Width:** ft. in. **Height:** ft. in. **No. of Layers or Modules:** **Total Volume:** cu.ft. **Total Weight:** lbs.
Reducing Agent	( ) **Urea** ( ) **Anhydrous Ammonia** (•) **Aqueous Ammonia** 29.40 % — **Injection Rate:** lb/hr.
Reducing Agent Storage	**Diameter:** ft. in. **Height:** ft. in. **Capacity:** gal **Pressure Setting:** psia
Space Velocity	**Gas Flow Rate/Catalyst Volume:** hr^{-1}
Area Velocity	**Gas Flow Rate/Wetted Catalyst Surface Area:** ft/hr
Manufacturer's Guarantee	**NOx:** 2.500 ppm $\%O_2$: 15.00 **NOx:** gm/bhp-hr **Ammonia Slip:** 5.000 ppm @ 15.00 $\% O_2$
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**
	OXIDATION CATALYST
Oxidation Catalyst	**Manufacturer:** — **Catalyst Active Material:** **Model Number:** — **Type:** **Size of Each Layer or Module:** **Length:** ft. in. **Width:** ft. in. **Height:** ft. in. **No. of Layers or Modules:** **Total Volume:** cu.ft. **Total Weight:** lbs.
Space Velocity	**Gas flow rate/Catalyst Volume:** hr^{-1}
Manufacturer's Guarantee	**VOC** 2.000 ppm **VOC** gm/bhp-hr **CO** 6.000 ppm **CO** gm/bhp-hr $\% O_2$ 15.00 $\% O_2$ 15.00
Catalyst Life	years (expected)
Cost	**Capital Cost:** **Installation Cost:** **Catalyst Replacement Cost:**

AMMONIA CATALYST		
Ammonia Catalyst	Manufacturer:	Catalyst Active Material:
	Model Number:	Type:
	Size of Each Layer or Module: Length: ft. in. Width: ft. in. Height: ft. in. No. of Layers or Modules: Total Volume: cu.ft. Total Weight: lbs.	
Space Velocity	Gas flow rate/Catalyst Volume: hr^{-1}	
Manufacturer's Guarantee	NH_3 5.000 ppm % O_2 15.00	
Catalyst Life	years (expected)	
Cost	Capital Cost: Installation Cost: Catalyst Replacement Cost:	

SECTION B: OPERATION INFORMATION

Operating Temperature	Minimum Inlet Temperature: °F (from cold start)	Maximum Temperature: °F	
	Warm-up Time: hr. min. (maximum)		
Operating Schedule	Normal: hours/day	days/week	weeks/yr.
	Maximum: 24 hours/day	7 days/week	15 weeks/yr.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner	TELEPHONE NUMBER: (415) 293-1463	7-19-07
E-MAIL ADDRESS: mturner@cpv.com	FAX NUMBER: (415) 957-9886	

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(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested NOx Catalyst Data
1. Catalyst Manufacturer
Cormetech, Inc.
2. Catalyst & Heat Recovery Steam Generator (HRSG) drawings include catalyst dimensions
See drawing
3. Ammonia grid details
Grid is 2 x4 array with two-dimensional adjustment capabilities & mixing enhancement devices
4. Ammonia injection rate
225 lb/hr of 19% aqueous ammonia at maximum specified operating case
5. Ammonia emission rate
NH_3 Slip = 5 ppmvd @ 15% O_2
6. Pressure drop across SCR unit including injection grid
5 inches w.c. at maximum specified operating case
7. Controls for ammonia injection
Feedforward from fuel CTG fuel input / trimming via feedback from CEMS
8. Type of catalyst
Homogeneous Honeycomb Catalyst
9. Catalyst volume
Approximately 23 m^3 (reference volume only)
10. Space velocity (gas flow rate/catalyst volume)
Approx. 16,000 to 27,500 1/hr
11. Area velocity (gas flow rate/wetted catalyst surface area)
Approx. 9.7 to 16.2 m/hr
12. Manufacturer's guarantee for efficiency & catalyst life
Outlet NOx = 90% conversion efficiency at specified design conditions
Catalyst Life = earlier of 20,000 hours / 5 years
13. NOx concentration in and out of SCR
Inlet NOx = 25 ppmvd @ 15% O_2
Outlet NOx = 2.5 ppmvd @ 15% O_2
14. SCR unit total cost
Complete Simple Cycle Catalyst System = approximately $4,000,000 at today's market price
15. Catalyst replacement cost
Approximately $400,000 including in/out costs at today's market price
16. Percent decrease in prime mover output
Nominally 0.1% per 1 inch w.c. additional backpressure = 1.2 MW for Total System
17. Percent in HRSG output
Not Applicable
18. SO_2 oxidation rate / SO_3 emissions
SO_2 Oxidation Rate < 2%
19. Stack temperature after HRSG
Not Applicable for Simple Cycle - Temperature will be nominally the same as inlet
20. HRSG and turbine modifications
Not Applicable
21. Temperature at which ammonia injection will begin
Permissive from Thermocouple downstream of SCR Catalyst = 540°F

Attachment to Form 400-E-5

Note: Information provided is typical, preliminary design. Final design will be determined during equipment purchase.

Simple Cycle Catalyst System for LMS100PA – Requested CO Catalyst Data

1. Type of Catalyst

Platinum group metals impregnated in alumina washcoat on stainless steel substrate

2. Catalyst Volume

Approx. 150 cu ft

3. Space velocity

From Nominally 93,000 1/hr to Nominally 158,000 1/hr

4. Linear Velocity

From Nominally 6.7 ft/s to 11.5 ft/s

5. Pressure Drop across Catalyst

From 1.8 in w.c. to 1.0 in w.c.

6. Manufacturer's Guarantee for Efficiency and Catalyst Life

CO out of 6 ppmvd @ 15% O2 - 20,000 hours or 5 years (see Table A – Performance Data)

7. Operating Temperature Range of Catalyst

From 500°F to 1200°F

8. Effect of Temperature on Efficiency

See Typical Performance Curve

9. CO Conversion Efficiency

Ranges from 94.6% to 91.2% (See Table A – Performance Data)

10. Unsaturated Hydrocarbon Conversion Efficiency

See Typical Performance Curve Above

11. Saturated (Non-Methane) Hydrocarbon Conversion Efficiency

0%

12. Methane Conversion Efficiency

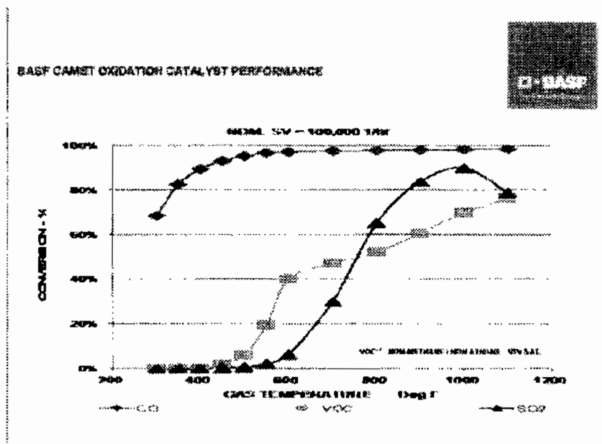
0%

13. CO Catalyst Total Cost

Approximately $300,000 at today's market price

14. CO Catalyst Replacement Cost

Approximately $400,000 including in/out costs at today's market price



15. Catalyst and Heat Recovery Steam Generator (HRSG) Drawings including Catalyst Dimensions

See Attached Drawings

16. Catalyst Manufacturer

BASF Catalysts LLC (formerly Engelhard)

17. CO and HC Concentration IN and Out of CO Catalyst

See Table A - Performance Data

18. Catalyst Depth

Modules - Nom. 3.6 in

19. Catalyst Cell Density (Cells per Square Inch)

155 CPSI

South Coast Air Quality Management District

FORM 400–PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be Issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	**Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.**
Location of School Nearby	**Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?** ( ) Yes (•) **No. If yes, please provide name(s) of school(s) below.**

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

Population Density	( ) **Urban (area of dense population)** (•) **Rural (area of sparse population)**
Zoning Classification	( ) **Mixed Use Residential Commercial Zone (M-U)** ( ) **Service and Professional Zone (C-S)** ( ) **Medium Commercial (C-3)** ( ) **Heavy Commercial (C-4)** ( ) **Commercial Manufacturing (C-M)** (•) W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 90.00 feet (height above ground level)* — **What is the height of the closest building nearest the stack?** 40.00 feet

Stack Inside Diameter: 162.000 inches — **Stack Flow:** 863264 acfm — **Stack Temperature:** 744.00 oF

Rain Cap Present: ( ) Yes (•) No — **Stack Orientation:** (•) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name: (see attached)	**Building #/name:**
Building Height: feet	**Building Height:** feet
Building Width: feet	**Building Width:** feet
Building Length: feet	**Building Length:** feet

Receptor Distance from equipment stack or roof vents/openings	**Distance to nearest residence** 300.00 **feet or** meters	**Distance to nearest business** feet or meters

Building Information

Are the emissions released from vents and/or openings from the building? ( ) Yes (•) No
If yes, please provide:

Building height above ground level: ft.	**Building dimensions:** length ft. or width ft.	**Total square footage of building where the source of the emissions is located.**

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	**TITLE OF PREPARER:** Sen. AQ Consultant	**PREPARER'S TELEPHONE NUMBER:** (619) 243-2823 **PREPARER'S E-MAIL ADDRESS:** john_lague@urscorp.com
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner **E-MAIL ADDRESS:** mturner@cpv.com	**CONTACT PERSON'S TELEPHONE NUMBER:** (415) 293-1463 **FAX NUMBER:** (415) 957-9886	**DATE SIGNED:** 7-19-07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

CVP Sentinel Energy Project

AQMD Form 400-PS Attachment

Building data for buildings near SCR Exhaust Stacks:

Building Name	Height*	Width*	Length*
CTG1	40	88	33
SCR1	12	49	23
CTG2	40	88	33
SCR2	12	49	23
CTG3	40	88	33
SCR3	12	49	23
CTG4	40	88	33
SCR4	12	49	23
CTG5	40	88	33
SCR5	12	49	23
CTG6	40	88	33
SCR6	12	49	23
CTG7	40	88	33
SCR7	12	49	23
CTG8	40	88	33
SCR8	12	49	23
North Cooling Tower	46	212	67
South Cooling Tower	46	128	67
Building 11	24	25	60

*All dimensions given are in feet.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC
2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**
3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs | CA | 92240
City | State | Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco | CA | 94105
City | State | Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**
   - (•) New Construction (Permit to Construct)
   - ( ) Equipment Operating Without A Permit or Expired Permit*
   - ( ) Administrative Change
   - ( ) Equipment On-Site But Not Constructed or Operational
   - ( ) Title V Application (Initial, Revisions, Modifications, etc.)
   - ( ) Compliance Plan
   - ( ) Facility Permit Amendment
   - ( ) Registration/Certification
   - ( ) Streamlined Standard Permit
   - ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
   - ( ) Proposed Alteration/Modification to Permitted Equipment
   - ( ) Change of Condition For Permit To Operate
   - ( ) Change of Condition For Permit To Construct
   - ( ) Change of Location—Moving to New Site

   Existing Or Previous Permit/Application Number:
   (If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010
8. **Description of Equipment:**
Aqueous Ammonia Storage Tank 1 - a 12,000 gallon aqueous ammonia storage tank, associated ammonia unloading station, in-plant distribution piping, and ammonia vaporizer(s).
9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes
10. **For identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 1
11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes
12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation
14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112
15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes
16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]
18. **Title:** Project Manager
19. **Print Name:** Mark Turner
20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-18

STORAGE TANK

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel. (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):

CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):

62575 Power Line Rd , Desert Hot Springs, CA 92240 — (●) **Fixed Location** ( ) **Various Locations**

Tank Type (Select ONE)	( ) External Floating Roof Tank (EFRT)	( ) Internal Floating Roof Tank (IFRT)	(●) Horizontal Tank (HT)
	( ) Vertical Fixed Roof Tank (VFRT)	( ) Domed External Roof Tank (DEFRT)	
Identification	**Tank Identification Number:**	**Tank Contents/Product (include MSDS):** Aqueous Ammonia	

SECTION A: TANK INFORMATION

Physical Characteristics

Tank Characteristics

Shell Diameter (ft):	**Shell Length (ft):**	**Shell Height (ft):**	**TurnoversPer Year:**
Is Tank Heated? ( ) Yes (●) No	**Is Tank Underground?** ( ) Yes (●) No	**Net Throughput (gal/year):**	**Self Support Roof** ( ) Yes (●) No
Number of Columns?	**Effective Column Diameter:** ( ) 9" by 7" Built Up Column – 1.1 ( ) 8" Diameter Pipe – 0.7 ( ) Unknown – 1		
External Shell Condition:	**Internal Shell Color:**	**External Shell Color:**	
( ) Good	( ) Light Rust	( ) White/White	( ) Gray/Light
( ) Poor	( ) Dense Rust	( ) Aluminum/Specular	( ) Gray/Medium
	( ) Gunite Lining	( ) Aluminum/Diffuse	( ) Red/Primer
Average LiquidHeight (ft): (VERT Only)	**Maximum LiquidHeight (ft): (VERT Only)**	**Working Volume (gal): (VERT Only)**	
Paint Condition:	**Paint Color/Shade:**		
( ) Good	( ) White/White	( ) Gray/Light	( ) Gray/Medium
( ) Poor	( ) Aluminum/Diffuse	( ) Aluminum/Specular	( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type:		**Roof Fitting Category:**	**Roof Height:**
( ) Pontoon	( ) Dome Roof (Height ft.)	( ) Typical	
( ) Double Deck	( ) Cone Roof (Height ft.)	( ) Detail	
Roof Paint Condition	**Roof Color/Shade**		
( ) Good	( ) White/White	( ) Gray/Light	( ) Gray/Medium
( ) Poor	( ) Aluminum/Diffuse	( ) Aluminum/Specular	( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted

Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	**Deck Seam Length (ft):**	**Deck Seam:**
( ) Sheet		( ) 5 ft. wide ( ) 6 ft. wide ( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft. ( ) 5 x 12 ft.

Tank Construction and Rim-Seal System (Floating Roof Tank)

Tank Construction:	**Primary Seal:**		**Secondary Seal:**	
( ) Welded	( ) Mechanical Shoe	( ) Liquid Mounted	( ) Rim Mounted	( ) None
( ) Riveted	( ) Vapor Mounted		( ) Shoe Mounted	

Breather Vent Setting

Vacuum Setting (psig): **Pressure Setting (psig):**

*Section C of the application MUST be completed.

SECTION A: TANK INFORMATION (Cont.)

Site Selection	Nearest Major City: Palm Springs, Ca	
	Daily Average Ambient Temperature (°F): 73.00	Annual Average Minimum Temperature (°F): 57.00
	Annual Average Maximum Temperature (°F): 89.00	Average Wind Speed (mph): 18.000
	Annual Average Solar Insulation Factor (Btu/(ft² * ft * day)):	
Tank Contents	Chemical Category: ◯ Organic Liquids ◯ Cude Oil ◯ Petroleum Distillates	Liquid: ◉ Single ◯ Multiple: If Multiple, Select Speciation Option: ◯ Full Speciation ◯ Partial Speciation ◯ Various Weight Speciation ◯ None

SECTION B: OPERATION INFORMATION

Vapor Control

Vapor Control During Loading or Unloading:

☐ Sparger ☐ Vapor Balance System ☒ Vapor Return Line

☐ Vented to Air Pollution Control Equipment[1]

[1]If yes, a separate permit is required. If APC equipment is already permitted, provide Permit or Device Number:

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discarging to (Check Appropriate Box) Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
Vaccum				☐	☐	☐
Open				☐	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
aqueous ammonia

If Material is stored in a solution, supply the following information:
Name of Solvent: Name of Materials Dissolved:

Concentration of Materials Dissolved: 29.40 % by Weight **OR** % by Volume **OR** lbs/gal

SECTION C: ROOF/DECK FITTING

Section C is required for the following tanks: External Floating Roof Tank, Internal Floating Roof Tank, or Domed External Floating Roof Tank.

Select the number of fittngs for each applicable question. For Example: 3 Unbolted Cover, Ungasketed; ___ Unbolted Cover, Gasketed

Roof/Deck Fitting Details

1. Access Hatch (24" diameter well)	2. Automatic Gauge Float Well (20" diameter well)	3. Column Well (24" diameter well)
Bolted Cover, Gasketed	Bolted Cover, Gasketed	Built-Up Col – Sliding Cover, Gasketed
Unbolted Cover, Ungasketed	Unbolted Cover, Ungasketed	Built-Up Col – Sliding Cover, Ungasketed
Unbolted Cover, Gasketed	Unbolted Cover, Gasketed	Pipe Col – Flex. Fabric Sleeve Seal
		Pipe Col – Sliding Cover, Gasketed
		Pipe Col. – Sliding Cover, Ungasketed

Roof/Deck Fitting Details (Cont.)	**4. Gauge Hatch/Sample Well** (8" diameter well) Weighted Mechanical Actuation, Gasketed Weighted Mechanical Actuation, Ungasketed	**5. Ladder Well** (36" diameter) Sliding Cover, Gasketed Sliding Cover, Ungasketed	**6. Rim Vent** (6" diameter) Weighted Mechanical Actuation, Gasketed Weighted Mechanical Actuation, Ungasketed
	7. Roof Drain (3" diameter) Open 90% Close	**8. Roof Leg** (3" diameter leg) Adjustable, Pontoon Area, Ungasketed Adjustable, Center Area, Ungasketed Adjustable, Double-Deck Roofs Fixed Adjustable, Pontoon Area, Gasketed Adjustable, Pontoon Area, Sock Adjustable, Center Area, Gasketed Adjustable, Center Area, Sock	**9. Roof Leg or Hang Well** Adjustable Fixed **10. Sample Pipe** (24" diameter) Slotted Pipe – Sliding Cover, Gasketed Slotted Pipe – Sliding Cover, Ungasketed Slit Fabric Seal, 10% Open
	11. Guided Pole/Sample Well Ungasketed, Sliding Cover, Without Float Ungasketed Sliding Cover, With Float Gasketed Sliding Cover, Without Float Gasketed Sliding Cover, With Float Gasketed Sliding Cover, With Pole Sleeve Gasketed Sliding Cover, With Pole Wiper Gasketed Sliding Cover, With Float, Wiper Gasketed Sliding Cover, With Float, Sleeve, Wiper Gasketed Sliding Cover, With Pole Sleeve, Wiper	**12. Stub Drain (1" diameter)** **13. Unslotted Guide – Pole Well** Ungasketed, Sliding Cover Gasketed Sliding Cover Ungasketed Sliding Cover with Sleeve Gasketed Sliding Cover with Sleeve Gasketed Sliding Cover with Wiper **14. Vacuum Breaker** (10" diameter well) Weighted Mechanical Actuation, Gasketed Weighted Mechanical Actuation, Ungasketed	

SECTION D: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823	
[signature]	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com	
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner	CONTACT PERSON'S TELEPHONE NUMBER: (415) 293-1463	FAX NUMBER: (415) 957-9886	DATE SIGNED: 7-19-07
E-MAIL ADDRESS: mturner@cpv.com			

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC

2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**

3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:**
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs | CA | 92240
City | State | Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco | CA | 94105
City | State | Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010

8. **Description of Equipment:**
Aqueous Ammonia Storage Tank 2 - a 12,000 gallon aqueous ammonia storage tank, associated ammonia unloading station, in-plant distribution piping, and ammonia vaporizer(s).

9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes

10. **For Identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 1

11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation

14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112

15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes

16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]

18. **Title:** Project Manager

19. **Print Name:** Mark Turner

20. **Date:** 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District
FORM 400-E-18
STORAGE TANK

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A, Form CEQA, Plot Plan and Stack Form

Permit to be issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
62575 power Line Rd , Desert Hot Springs, CA 92240

(•) **Fixed Location** ( ) **Various Locations**

Tank Type (Select ONE)	( ) External Floating Roof Tank (EFRT) ( ) Internal Floating Roof Tank (IFRT) (•) Horizontal Tank (HT) ( ) Vertical Fixed Roof Tank (VFRT) ( ) Domed External Roof Tank (DEFRT)	
Identification	**Tank Identification Number:**	**Tank Contents/Product (Include MSDS):** Aqueous Ammonia

SECTION A: TANK INFORMATION

Physical Characteristics

Tank Characteristics

Shell Diameter (ft):	**Shell Length (ft):**	**Shell Height (ft):**	**TurnoversPer Year:**
Is Tank Heated? ( ) Yes (•) No	**Is Tank Underground?** ( ) Yes (•) No	**Net Throughput (gal/year):**	**Self Support Roof** ( ) Yes (•) No

Number of Columns?

Effective Column Diameter: ( ) 9" by 7" Built Up Column – 1.1 ( ) 8" Diameter Pipe – 0.7 ( ) Unknown – 1

External Shell Condition:	**Internal Shell Color:**	**External Shell Color:**	
( ) Good	( ) Light Rust	( ) White/White	( ) Gray/Light
( ) Poor	( ) Dense Rust	( ) Aluminum/Specular	( ) Gray/Medium
	( ) Gunite Lining	( ) Aluminum/Diffuse	( ) Red/Primer

Average LiquidHeight (ft): (VERT Only) **Maximum LiquidHeight (ft): (VERT Only)** **Working Volume (gal): (VERT Only)**

Paint Condition:	**Paint Color/Shade:**		
( ) Good	( ) White/White	( ) Gray/Light	( ) Gray/Medium
( ) Poor	( ) Aluminum/Diffuse	( ) Aluminum/Specular	( ) Red/Primer

Roof Characteristics (Floating Roof Tank)

Roof Type: ( ) Pontoon ( ) Dome Roof (Height ft.) ( ) Double Deck ( ) Cone Roof (Height ft.)

Roof Fitting Category: ( ) Typical ( ) Detail

Roof Height:

Roof Paint Condition	**Roof Color/Shade**		
( ) Good	( ) White/White	( ) Gray/Light	( ) Gray/Medium
( ) Poor	( ) Aluminum/Diffuse	( ) Aluminum/Specular	( ) Red/Primer

Deck Characteristics (Floating Roof Tank)

Deck Type: ( ) Welded ( ) Bolted

Deck Fitting Characteristics: ( ) Typical ( ) Detailed (Complete Deck Seam)

Construction:	**Deck Seam Length (ft):**	**Deck Seam:**
( ) Sheet		( ) 5 ft. wide ( ) 6 ft. wide ( ) 7 ft. wide
( ) Panel		( ) 5 x 7.5 ft. ( ) 5 x 12 ft.

Tank Construction and Rim-Seal System (Floating Roof Tank)

Tank Construction: ( ) Welded ( ) Riveted

Primary Seal: ( ) Mechanical Shoe ( ) Liquid Mounted ( ) Vapor Mounted

Secondary Seal: ( ) Rim Mounted ( ) None ( ) Shoe Mounted

Breather Vent Setting

Vacuum Setting (psig): **Pressure Setting (psig):**

*Section C of the application MUST be completed.

SECTION A: TANK INFORMATION (Cont.)

Site Selection	**Nearest Major City:** Palm Springs, Ca	
	Daily Average Ambient Temperature (°F): 73.00	**Annual Average Minimum Temperature (°F):** 57.00
	Annual Average Maximum Temperature (°F): 89.00	**Average Wind Speed (mph):**
	Annual Average Solar Insulation Factor (Btu/(ft² * ft * day)):	
Tank Contents	**Chemical Category** (•) Organic Liquids ( ) Cude Oil ( ) Petroleum Distillates	**Liquid** (•) Single ( ) Multiple: **If Multiple, Select Speciation Option:** ( ) Full Speciation ( ) Partial Speciation ( ) Various Weight Speciation ( ) None

SECTION B: OPERATION INFORMATION

Vapor Control

Vapor Control During Loading or Unloading:

☐ Sparger ☐ Vapor Balance System ☐ Vapor Return Line

☐ Vented to Air Pollution Control Equpment[1]

[1]If yes, a separate permit is required. If APC equpment is already permitted, provide Permit or Device Number:

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discarging to (Check Appropriate Box) Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
Vaccum				☐	☐	☐
Open				☐	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:
aqueous ammonia

If Material is stored in a solution, supply the following information:
Name of Solvent: **Name of Materials Dissolved:**

Concentration of Materials Dissolved: 29.40 % by Weight **OR** % by Volume **OR** lbs/gal

SECTION C: ROOF/DECK FITTING

Section C is required for the following tanks: External Floating Roof Tank, Internal Floating Roof Tank, or Domed External Floating Roof Tank.

Select the number of fittngs for each applicable question. For Example: 3 Unbolted Cover, Ungasketed; Unbolted Cover, Gasketed

Roof/Deck Fitting Details

1. Access Hatch (24" diameter well)
- Bolted Cover, Gasketed
- Unbolted Cover, Ungasketed
- Unbolted Cover, Gasketed

2. Automatic Gauge Float Well (20" diameter well)
- Bolted Cover, Gasketed
- Unbolted Cover, Ungasketed
- Unbolted Cover, Gasketed

3. Column Well (24" diameter well)
- Built-Up Col - Sliding Cover, Gasketed
- Built-Up Col – Sliding Cover, Ungasketed
- Pipe Col – Flex. Fabric Sleeve Seal
- Pipe Col – Sliding Cover, Gasketed
- Pipe Col. – Sliding Cover. Ungasketed

Roof/Deck Fitting Details (Cont.)	**4. Gauge Hatch/Sample Well** (8" diameter well) Weighted Mechanical Actuation, Gasketed Weighted Mechanical Actuation, Ungasketed **7. Roof Drain** (3" diameter) Open 90% Close	**5. Ladder Well** (36" diameter) Sliding Cover, Gasketed Sliding Cover, Ungasketed **8. Roof Leg** (3" diameter leg) Adjustable, Pontoon Area, Ungasketed Adjustable, Center Area, Ungasketed Adjustable, Double-Deck Roofs Fixed Adjustable, Pontoon Area, Gasketed Adjustable, Pontoon Area, Sock Adjustable, Center Area, Gasketed Adjustable, Center Area, Sock	**6. Rim Vent** (6" diameter) Weighted Mechanical Actuation, Gasketed Weighted Mechanical Actuation, Ungasketed **9. Roof Leg or Hang Well** Adjustable Fixed **10. Sample Pipe** (24" diameter) Slotted Pipe – Sliding Cover, Gasketed Slotted Pipe – Sliding Cover, Ungasketed Slit Fabric Seal, 10% Open
	11. Guided Pole/Sample Well Ungasketed, Sliding Cover, Without Float Ungasketed Sliding Cover, With Float Gasketed Sliding Cover, Without Float Gasketed Sliding Cover, With Float Gasketed Sliding Cover, With Pole Sleeve Gasketed Sliding Cover, With Pole Wiper Gasketed Sliding Cover, With Float, Wiper Gasketed Sliding Cover, With Float, Sleeve, Wiper Gasketed Sliding Cover, With Pole Sleeve, Wiper		**12. Stub Drain (1" diameter)** **13. Unslotted Guide – Pole Well** Ungasketed, Sliding Cover Gasketed Sliding Cover Ungasketed Sliding Cover with Sleeve Gasketed Sliding Cover with Sleeve Gasketed Sliding Cover with Wiper **14. Vacuum Breaker** (10" diameter well) Weighted Mechanical Actuation, Gasketed Weighted Mechanical Actuation, Ungasketed

SECTION D: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	**TITLE OF PREPARER:** Sen. AQ Consultant	**PREPARER'S TELEPHONE NUMBER:** (619) 243-2823 **PREPARER'S E-MAIL ADDRESS:** john_lague@urscorp.com	
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner **E-MAIL ADDRESS:** mturner@cpv.com	**CONTACT PERSON'S TELEPHONE NUMBER:** (415) 293-1463 **FAX NUMBER:** (415) 957-9886		**DATE SIGNED:** 7-19-07

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit: CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator): Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs, CA, 92240
City, State, Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco, CA, 94105
City, State, Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager Phone: (415) 293-1463

Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Administrative Change
- ( ) Change of Condition For Permit To Operate
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Change of Condition For Permit To Construct
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Change of Location—Moving to New Site
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
Black start Engine - 2,206 horsepower black start generator engine powered by ultra-low sulfur diesel fuel.

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For Identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 0

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? (•) No ( ) Yes If yes, provide NOV/NC #

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location? Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

SECTION A: TANK INFORMATION (Cont.)

Site Selection	**Nearest Major City:** Palm Springs, Ca		
	Daily Average Ambient Temperature (ºF): 73.00	**Annual Average Minimum Temperature (ºF):** 57.00	
	Annual Average Maximum Temperature (ºF): 89.00	**Average Wind Speed (mph):** 18.000	
	Annual Average Solar Insulation Factor (Btu/(ft³ * ft * day)):		
Tank Contents	**Chemical Category** ◯ Organic Liquids ◯ Cude Oil ◯ Petroleum Distillates	**Liquid** ◉ Single ◯ Multiple:	**If Multiple, Select Speciation Option:** ◯ Full Speciation ◯ Partial Speciation ◯ Various Weight Speciation ◯ None

SECTION B: OPERATION INFORMATION

Vapor Control

Vapor Control During Loading or Unloading:

☐ Sparger ☐ Vapor Balance System ☒ Vapor Return Line

☐ Vented to Air Pollution Control Equipment¹

¹If yes, a separate permit is required. If APC equipment is already permitted, provide Permit or Device Number:

Vent Valve Data

Indicate Type of Setting and Vapor Disposal

	Number	Pressure Setting	Vaccum Setting	Discarging to (Check Appropriate Box) Atmosphere	Vapor Control	Flare
Combination				☐	☐	☐
Pressure				☐	☐	☐
Vaccum				☐	☐	☐
Open				☐	☐	☐

Materials

Name all liquids, vapors, gases, or mixtures of such material to be stored in this tank:

aqueous ammonia

If Material is stored in a solution, supply the following information:

Name of Solvent: **Name of Materials Dissolved:**

Concentration of Materials Dissolved: 29.40 % by Weight **OR** % by Volume **OR** lbs/gal

SECTION C: ROOF/DECK FITTING

Section C is required for the following tanks. External Floating Roof Tank, Internal Floating Roof Tank, or Domed External Floating Roof Tank.

Select the number of fittngs for each applicable question. For Example: 3 Unbolted Cover, Ungasketed / Unbolted Cover, Gasketed

Roof/Deck Fitting Details

1. Access Hatch (24" diameter well)
- Bolted Cover, Gasketed
- Unbolted Cover, Ungasketed
- Unbolted Cover, Gasketed

2. Automatic Gauge Float Well (20" diameter well)
- Bolted Cover, Gasketed
- Unbolted Cover, Ungasketed
- Unbolted Cover, Gasketed

3. Column Well (24" diameter well)
- Built-Up Col – Sliding Cover, Gasketed
- Built-Up Col – Sliding Cover, Ungasketed
- Pipe Col – Flex. Fabric Sleeve Seal
- Pipe Col – Sliding Cover, Gasketed
- Pipe Col. – Sliding Cover, Ungasketed

Engine Data	**(1)** Select year of manufacture and rated horsepower. **(2)** Provide actual emission figures from manufacturing specifications (if available) for the Rated Power selected. If engine fuel is LPG or Natural Gas, select Spark Ignition. **(3)** The compression ignited diesel fuel internal combustion engine (ICE's) must meet the State of California or EPA's Non-Road Emission Standards as listed below (please provide manufacturer's specification and guarantee.						
	Rated Power	**Year**	**Figures**	**Carbon Monoxide (grams/bhp-hr)**	**Hydrocarbons (grams/bhp-hr)**	**Oxides of Nitrogen (grams/bhp-hr)**	**Particulate Matter (grams/bhp-hr)**
Compressor Ignition							
	50 – 750 H.P.						
		50 - 100 H.P.	**BACT**	8.5	1.0	6.9	0.38
			Actual				
		100 - 175 H.P.	**BACT**	8.5	1.0	6.9	0.38
			Actual				
		175 - 750 H.P.	**BACT**	2.6	1.0	3.8	0.15
			Actual				
	751 and greater H.P						
		2000 and	**BACT**	8.5	1.0	6.9	0.38
			Actual	3.500	1.000	5.400	0.200

		Figures	VOC	NOx	CO
Spark Ignition		For natural gas fired or LPG. The ICE must meet the requirements for BACT as listed below.			
		BACT	1.5 grams/bhp-hr	1.5 grams/bhp-hr	2.0 grams/bhp-hr
		Actual			

Section C: APPLICANT CERTIFICATION STATEMENT I hereby certify that all information contained herein and information submitted with this application is true and correct		
SIGNATURE OF PREPARER:	**TITLE OF PREPARER:** Sen. AQ Consultant	
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Mark Turner	**CONTACT PERSON'S TELEPHONE NUMBER** (415) 293-1463	**DATE SIGNED:** 7-19-07

South Coast Air Quality Management District
FORM 400-E-13A
Emergency ICE Attachment A

Official Use Only

Engr. Ini.	
A/N	
Appln Date:	
Class	

Data Input

Applicant	CPV Sentinel, LLC	ID	
Mailing Address	55 Second Street, Ste 525, San Francisco, CA 94105		
Equipment Location	62575 Power Line Rd , Desert Hot Springs, CA 92240	Equipment Type	Fixed site

Equipment Description	Manufacturer:	Gen Set or equivalent
	Model No:	3512CDITA
	Serial No.:	EBG00100
	Manufacturer Date:	
	Installation Date:	
	Cylinders:	
	HP Rating:	2206.000

	Turbocharged	Turbocharged/Aftercooled	Naturally Aspirated
Aspiration Type	0	X	0
	Turbocharged/Aftercooled		

	Generator	Compressor	Pump
Driving (ICE Emergency Function)	X	0	0
	Electrical Generator		

	VOC	NOx	CO	PM
Emission Factors, g/HP-hr	1.000	5.400	3.500	0.200
	(Note: Emission factors taken from engine manufacturer specs included with application			

	Yes	No
Retard Timing		

Operating Schedule	Hrs/Day Max.		Hrs/Month Max	
	Hrs/Day Ave.		Wks/Yr	
	Days/Wk.			
	Days/Mo			

South Coast Air Quality Management District
FORM 400-E-13A
Emergency ICE Attachment A

Official Use Only

A/N:	

Given

HP	2206.000					
G to lb conversion factor	0.0022046					
Operating Schedule	Hrs/Day Max.					
	Hrs/Day Avg.					
	Days/Wk.					
	Days.Mo.					
	Hrs/Month Max.					
	Wks/Yr.					
Emission Factors	VOC	NOx	SOx	CO	PM	PM10
	1.000	5.400	0.160	3.500	0.200	0.192
Retard Timing	Yes	No				
Emission Correction Factor	VOC	NOx	SOx	CO	PM	PM10
	1.000		1.000		1.000	1.000

Computations

		VOC	NOx	SOx	CO	PM	PM10
	Emission factor, g/HP-hr	1.000		0.160		0.200	0.192
	lb/hr.	4.863		0.778		0.973	0.934
	lb/day Max.						
	lb/day Avg.						
	lb/yr.						

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT *ENGINEERING AND COMPLIANCE* APPLICATION PROCESSING AND CALCULATIONS	PAGE	1 of 3	For Official Use Only
	CHECKED BY:		
	A/N:		
	PROCESSED BY:		
	DATE:		

Applicant's Name: CPV Sentinel, LLC ID:

Equipment Location: 62575 Power Line Rd . Desert Hot Springs, CA 92240

Equipment Description:

EQUIPMENT:	INTERNAL COMBUSTION ENGINE
MANUFACTURER:	Gen Set or equivalent
MODEL NO.:	3512CDITA
FUELED WITH:	Diesel Oil No. 2
DRIVING:	Electrical Generator
SERIAL NO.:	EBG00100
CYLINDERS:	
ASPIRATION:	Turbocharged/Aftercooled
HP RATING:	2206.000

Permit Description:

INTERNAL COMBUSTION ENGINE, Fixed site, Gen Set or equivalent, MODEL NO. 3512CDITA, SERIAL NO. EBG00100, Diesel Oil No. 2 FUELED, Four CYCLES, Six CYLINDERS, Turbocharged/ Aftercooled, RATED AT 2206 B.H.P., DRIVING AN EMERGENCY Electrical Generator.

CALCULATIONS
See ATTACHMENT A

EVALUATION:

Rule 212: (Not Applicable if more than 1,000 feet from a school.)

This is a not significant project as defined by this rule. Hence, public notice is not required.

Rule 401:

Based on experience with similar equipment, this engine is expected to comply with the visible emission limits.

Rule 402:

Based on experience with similar equipment, nuisance complaints are not expected.

Rule 404:

Based on experience with similar equipment, compliance with this rule is expected.

Rule 431.2:

Diesel fuel supplied to this equipment must contain 0.05% or less sulfur by weight. Compliance is expected.

Rule 1110.2:

Exempt per Rule 1110.2 (i)(2) and (i)(10).

REGULATION XIII:

Exempt per Rule 1301 (b)(3).

REGULATION XIV:

Exempt per Rule 1401 (g)(1)(F).

CARB-EPA Emission Limits for Nonroad Compression-Ignited Engines:

For engine manufacture date on or after ________ and engine rating between 751 and greater H.P. ________, the following emission limits apply:

	NOx	ROG	CO	PM
Required	6.9	1	8.5	0.4
Actual	5.400	1.000	3.500	0.200
Compliance	Yes	Yes	Yes	Yes

CONDITIONS

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.

3. SULFUR CONTENT OF DIESEL FUEL SUPPLIED TO THE ENGINE SHALL NOT EXCEED 0.05% BY WEIGHT.

4. THIS ENGINE SHALL NOT OPERATE MORE THAN 200 HOURS IN ANY ONE YEAR.

5. THIS ENGINE SHALL NOT OPERATE MORE THAN 50 HOURS IN ANY ONE YEAR FOR MAINTENANCE AND TESTING PURPOSES.

6. AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.

7. AN ENGINE OPERATING LOG LISTING THE DATE OF OPERATION AND THE ELAPSED TIME, IN HOURS, AND THE REASON FOR OPERATION SHALL BE KEPT AND MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

8. IN ADDITION TO MAINTENANCE AND TESTING OF THIS ENGINE, THIS ENGINE SHALL ONLY BE USED FOR EITHER PROVIDING ELECTRICAL POWER TO PORTABLE OPERATIONS OR EMERGENCY POWER TO STATIONARY SOURCES. PORTABLE OPERATIONS ARE THOSE WHERE IT CAN BE DEMONSTRATED THAT BECAUSE OF THE NATURE OF THE OPERATION, IT IS NECESSARY TO PERIODICALLY MOVE THE EQUIPMENT FROM ONE LOCATION TO ANOTHER. EMERGENCIES AT STATIONARY SOURCES ARE THOSE THAT RESULT IN AN INTERRUPTION OF SERVICE OF THE PRIMARY POWER SUPPLY OR DURING STAGE II OR III ELECTRICAL EMERGENCIES DECLARED BY THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR.

9. UPON THE FIFTH DAY AFTER PLACEMENT OF THIS EQUIPMENT INTO OPERATION AT A NEW SITE, THE DISTRICT SHALL BE NOTIFIED VIA TELEPHONE AT 1-877-810-6995 OF THE EXACT NATURE OF THE PROJECT AS FOLLOWS:

   A. THE PERMIT NUMBER OF THE PORTABLE EQUIPMENT.

   B. THE NAME AND TELEPHONE NUMBER OF A CONTACT PERSON.

   C. THE LOCATION WHERE THE PORTABLE EQUIPMENT WILL BE OPERATED.

   D. THE ESTIMATED TIME THE PORTABLE EQUIPMENT WILL BE LOCATED AT THE SITE.

   E. DESCRIPTION OF THE PROJECT.

   F. IF LESS THAN 1/4 MILE, THE DISTANCE TO THE NEAREST SENSITIVE RECEPTOR. SENSITIVE RECEPTORS ARE DEFINED AS LONG-TERM HEALTH CARE FACILITIES, REHABILITATION CENTERS, CONVALESCENT CENTERS, RETIREMENT HOMES, RESIDENCES, SCHOOLS, PLAYGROUNDS, CHILD CARE CENTERS, AND ATHLETIC FACILITIES.

10. THIS ENGINE AND ITS REPLACEMENT UNIT INTENDED TO PERFORM THE SAME OR SIMILAR FUNCTION, SHALL NOT RESIDE AT ANY ONE LOCATION FOR MORE THAN 12 CONSECUTIVE MONTHS. THE PERIOD DURING WHICH THE ENGINE AND ITS REPLACEMENT IS MAINTAINED AT A STORAGE FACILITY SHALL BE EXCLUDED FROM RESIDENCY TIME DETERMINATION.

11. THIS ENGINE SHALL NOT BE REMOVED FROM ONE LOCATION FOR A PERIOD OF TIME, AND THEN IT OR ITS EQUIVALENT ENGINE RETURNED TO THE SAME LOCATION, IN ORDER TO CIRCUMVENT THE PORTABLE ENGINE RESIDENCE TIME REQUIREMENTS.

South Coast Air Quality Management District
FORM 400–PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
62575 power Line Rd , Desert Hot Springs, CA 92240 — (●) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.
Location of School Nearby	Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school? ( ) Yes (●) No. If yes, please provide name(s) of school(s) below.

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

Population Density	( ) Urban (area of dense population) (●) Rural (area of sparse population)
Zoning Classification	( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M) ● W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 50.00 feet (height above ground level)* — What is the height of the closest building nearest the stack ? 12.00 feet

Stack Inside Diameter: 8.000 inches — Stack Flow: 11071.[illegible] acfm — Stack Temperature: 762.8 °F

Rain Cap Present: ( ) Yes (●) No — Stack Orientation: (●) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name:	Building #/name:
Building Height: feet	Building Height: feet
Building Width: feet	Building Width: feet
Building Length: feet	Building Length: feet

Receptor Distance from equipment stack or roof vents/openings: Distance to nearest residence 300.00 feet or meters — Distance to nearest business feet or meters

Building Information: Are the emissions released from vents and/or openings from the building? ( ) Yes ( ) No
If yes, please provide:

Building height above ground level: ft.	Building dimensions: length ft. width ft.	or	Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner	TELEPHONE NUMBER: (415) 293-1463	7-11-07
E-MAIL ADDRESS: mturner@cpv.com	FAX NUMBER: (415) 957-9886	

CONFIDENTIAL INFORMATION
Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:
(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. **Business Name of Operator To Appear On The Permit:** CPV Sentinel, LLC
2. **Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):**
3. **Owner's Business Name (only if different from Business Name of Operator):** Competitive Power Ventures, Inc.

Section B: Equipment Location

4. **Equipment Location Address:** For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

Street Address: 62575 Power Line Rd.
City: Desert Hot Springs State: CA, Zip Code: 92240

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner
Contact Title: Project Manager Phone: (415) 293-1463
Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. **Permit and Correspondence Information:**
☐ Check here if same as equipment location address

Street Address: 55 Second Street, Suite 525
City: San Francisco State: CA Zip Code: 94105

Contact Name: Mark Turner
Contact Title: Project Manager Phone: (415) 293-1463
Fax: (415) 957-9886 E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. **Reason for Submitting Application (Select only ONE):**

- (•) New Construction (Permit to Construct)
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Administrative Change
- ( ) Change of Condition For Permit To Operate
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Change of Condition For Permit To Construct
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Change of Location—Moving to New Site
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. **Estimated Start Date of Operation/Construction (MM/DD/YYYY):** 06/01/2010
8. **Description of Equipment:** Fire Water Pump Engine - 240 horsepower fire water pump engine powered by ultra-low sulfur diesel fuel.
9. **Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction?** (•) No ( ) Yes
10. **For identical equipment, how many additional applications are being submitted with this application?** (Form 400-A required for each) 0
11. **Are you a Small Business as per AQMD's Rule 102 definition?** (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes
12. **Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?** (•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. **What type of business is being conducted at this equipment location?** Power generation
14. **What is your businesses primary NAICS Code** (North American Industrial Classification System)? 221112
15. **Are there other facilities in the SCAQMD jurisdiction operated by the same operator?** (•) No ( ) Yes
16. **Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location?** (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. **Signature of Responsible Official:** [signature]
18. **Title:** Project Manager
19. **Print Name:** Mark Turner
20. **Date:** 7/23/07

Check List
☐ Form(s) signed and dated by authorized official
☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
☐ CEQA Form (400-CEQA) attached
☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:		FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

South Coast Air Quality Management District

FORM 400-E-13a
Emergency Internal Combustion Engine

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A

Permit to be issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Street location where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site): 62575 power Line Rd , Desert Hot Springs, CA 92240

(•) Fixed ( ) Various

Section A: EQUIPMENT INFORMATION

Internal Combustion Engine	**Manufacturer:** Clarke or equivalent	**Model No.:** JU6H
	Serial No.:	**Date of Manufacture:** (mm/dd/yyyy) — For an ICE manufactured after 7/18/94, please provide manufacturer's specification and guarantee.
	Manufacturer Maximum Rating: 240.00 BHP @ RPM	**Date of Installation:** (mm/dd/yyyy)
ICE Emergency Function	( ) Electrical Generator (•) Fire Pump ( ) Flood Control ( ) Pump Driver ( ) Compressor	
Type	(•) Fixed site ( ) Portable — How Is This Type of Equipment Used? (Check All That Apply) [X] Within Facility [ ] Off- Site [ ] Rental	
Fuel	(•) Diesel Oil No. 2 ( ) LPG ( ) Natural Gas ( ) Other:	
Cycle Type	( ) Two Cycle (•) Four Cycle	
Combustion Type	(•) Lean Burn ( ) Rich Burn	
No. of Cylinders	( ) Four (•) Six ( ) Eight ( ) Ten ( ) Twelve ( ) Sixteen ( ) Other	
Aspiration Type	(•) Turbocharged ( ) Turbocharged/Aftercooled ( ) Naturally Aspirated — [ ] Timing Retarded ≥ 4° (relative to standard timing)	
Air Pollution Control (if applicable)	( ) Selective Catalytic Reduction (SCR)* (•) No Controls ( ) Selective Non-catalytic Reduction (SNCR)* ( ) Air Fuel Ratio Controller ( ) Non-selective Catalytic Reduction (NSCR) ( ) Other (specify) * Separate application is required.	
	Manufacturer:	**Model No.:**
	If already permitted, indicate Permit No.	Device No.

Section B: OPERATION INFORMATION

Fuel Consumption	Maximum Rated load: 10.300 gal./hr. OR cu. ft./hr	Average Load: gal./hr. OR cu. ft./hr.	
Operating Schedule	Normal: hours/day	days/week	weeks/yr.
	Maximum: hours/day	days/week	weeks/yr.
	Testing & Maintenance (Emergency ICE only): 52 hours/year		

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:
(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

Serial Number.

Engine Data

(1) Select year of manufacture and rated horsepower.

(2) Provide actual emission figures from manufacturing specifications (if available) for the Rated Power selected. If engine fuel is LPG or Natural Gas, select Spark Ignition.

(3) The compression ignited diesel fuel internal combustion engine (ICE's) must meet the State of California or EPA's Non-Road Emission Standards as listed below (please provide manufacturer's specification and guarantee.

	Rated Power	Year	Figures	Carbon Monoxide (grams/bhp-hr)	Hydrocarbons (grams/bhp-hr)	Oxides of Nitrogen (grams/bhp-hr)	Particulate Matter (grams/bhp-hr)
Compressor Ignition							
	50 – 750 H.P.						
	○	50 - 100 H.P.	BACT	8.5	1.0	6.9	0.38
			Actual				
	○	100 - 175 H.P.	BACT	8.5	1.0	6.9	0.38
			Actual				
	◉	175 - 750 H.P.	BACT	2.6	1.0	3.8	0.15
			Actual	2.600	1.000	3.900	0.150
	751 and greater H.P						
	○	2000 and	BACT	8.5	1.0	6.9	0.38
			Actual				

		Figures	VOC	NOx	CO
Spark Ignition		For natural gas fired or LPG. The ICE must meet the requirements for BACT as listed below.			
	○	BACT	1.5 grams/bhp-hr	1.5 grams/bhp-hr	2.0 grams/bhp-hr
		Actual			

Section C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	
[signature]	Sen. AQ Consultant	
CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S TELEPHONE NUMBER	DATE SIGNED:
Mark Turner	(415) 293-1463	7-19-07

South Coast Air Quality Management District

FORM 400–E–13A

Emergency ICE Attachment A

Official Use Only

Engr. Inl.	
A/N	
Appln Date:	
Class	

Data Input

Applicant	CPV Sentinel, LLC	ID	
Mailing Address	55 Second Street, Ste 525, San Francisco, CA 94105		
Equipment Location	62575 power Line Rd , Desert Hot Springs, CA 92240	Equipment Type	Fixed site

Equipment Description	Manufacturer:	Clarke or equivalent
	Model No:	JU6H
	Serial No.:	
	Manufacturer Date:	
	Installation Date:	
	Cylinders:	Six
	HP Rating:	240.000

	Turbocharged	Turbocharged/Aftercooled	Naturally Aspirated
Aspiration Type	X	0	0
	Turbocharged		

	Generator	Compressor	Pump
Driving (ICE Emergency Function)	0	0	X
	Fire Pump		

	VOC	NOx	CO	PM
Emission Factors, g/HP-hr	1.000	3.900	2.600	0.150
	(Note: Emission factors taken from engine manufacturer specs included with application			

	Yes	No	
Retard Timing			

Operating Schedule	Hrs/Day Max.		Hrs/Month Max	
	Hrs/Day Ave.		Wks/Yr	
	Days/Wk.			
	Days/Mo			

South Coast Air Quality Management District

FORM 400-E-13A

Emergency ICE Attachment A

Official Use Only

A/N:	

Given

HP	240.000						
G to lb conversion factor	0.0022046						
Operating Schedule	Hrs/Day Max.						
	Hrs/Day Avg.						
	Days/Wk.						
	Days.Mo.						
	Hrs/Month Max.						
	Wks/Yr.						
Emission Factors	VOC	NOx	SOx	CO	PM	PM10	
	1.000	3.900	0.160	2.600	0.150	0.144	
Retard Timing	Yes	No					
Emission Correction Factor	VOC	NOx	SOx	CO	PM	PM10	
	1.000		1.000		1.000	1.000	

Computations

		VOC	NOx	SOx	CO	PM	PM10
	Emission factor, g/HP-hr	1.000		0.160		0.150	0.144
	lb/hr.	0.529		0.085		0.079	0.076
	lb/day Max.						
	lb/day Avg.						
	lb/yr.						

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT *ENGINEERING AND COMPLIANCE* APPLICATION PROCESSING AND CALCULATIONS	PAGE	1 of 3	For Official Use Only
	CHECKED BY:		
	A/N:		
	PROCESSED BY:		
	DATE:		

Applicant's Name: CPV Sentinel, LLC ID:

Equipment Location: 62575 power Line Rd , Desert Hot Springs, CA 92240

Equipment Description:

EQUIPMENT:	INTERNAL COMBUSTION ENGINE
MANUFACTURER:	Clarke or equivalent
MODEL NO.:	JU6H
FUELED WITH:	Diesel Oil No. 2
DRIVING:	Fire Pump
SERIAL NO.:	
CYLINDERS:	Six
ASPIRATION:	Turbocharged
HP RATING:	240.000

Permit Description:

INTERNAL COMBUSTION ENGINE, Fixed site, Clarke or equivalent, MODEL NO. JU6H, SERIAL NO. _______________, Diesel Oil No. 2 FUELED, Four CYCLES, Six CYLINDERS, Turbocharged, RATED AT 240 B.H.P., DRIVING AN EMERGENCY Fire Pump.

CALCULATIONS
See ATTACHMENT A

EVALUATION:

Rule 212: (Not Applicable if more than 1,000 feet from a school.)

This is a not significant project as defined by this rule. Hence, public notice is not required.

Rule 401:

Based on experience with similar equipment, this engine is expected to comply with the visible emission limits.

Rule 402:

Based on experience with similar equipment, nuisance complaints are not expected.

Rule 404:

Based on experience with similar equipment, compliance with this rule is expected.

Rule 431.2:

Diesel fuel supplied to this equipment must contain 0.05% or less sulfur by weight. Compliance is expected.

Rule 1110.2:

Exempt per Rule 1110.2 (i)(2) and (i)(10).

REGULATION XIII:

Exempt per Rule 1301 (b)(3).

REGULATION XIV:

Exempt per Rule 1401 (g)(1)(F).

CARB-EPA Emission Limits for Nonroad Compression-Ignited Engines:

For engine manufacture date on or after _____ and engine rating between 175 - 750 H.P. , the following emission limits apply:

	NOx	ROG	CO	PM
Required	6.9	1	8.5	0.4
Actual	3.900	1.000	2.600	0.150
Compliance	Yes	Yes	Yes	Yes

CONDITIONS

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITIONS AT ALL TIMES.

3. SULFUR CONTENT OF DIESEL FUEL SUPPLIED TO THE ENGINE SHALL NOT EXCEED 0.05% BY WEIGHT.

4. THIS ENGINE SHALL NOT OPERATE MORE THAN 200 HOURS IN ANY ONE YEAR.

5. THIS ENGINE SHALL NOT OPERATE MORE THAN 50 HOURS IN ANY ONE YEAR FOR MAINTENANCE AND TESTING PURPOSES.

6. AN OPERATIONAL NON-RESETTABLE TOTALIZING TIME METER SHALL BE INSTALLED AND MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.

7. AN ENGINE OPERATING LOG LISTING THE DATE OF OPERATION AND THE ELAPSED TIME, IN HOURS, AND THE REASON FOR OPERATION SHALL BE KEPT AND MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

8. IN ADDITION TO MAINTENANCE AND TESTING OF THIS ENGINE, THIS ENGINE SHALL ONLY BE USED FOR EITHER PROVIDING ELECTRICAL POWER TO PORTABLE OPERATIONS OR EMERGENCY POWER TO STATIONARY SOURCES. PORTABLE OPERATIONS ARE THOSE WHERE IT CAN BE DEMONSTRATED THAT BECAUSE OF THE NATURE OF THE OPERATION. IT IS NECESSARY TO PERIODICALLY MOVE THE EQUIPMENT FROM ONE LOCATION TO ANOTHER. EMERGENCIES AT STATIONARY SOURCES ARE THOSE THAT RESULT IN AN INTERRUPTION OF SERVICE OF THE PRIMARY POWER SUPPLY OR DURING STAGE II OR III ELECTRICAL EMERGENCIES DECLARED BY THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR.

9. UPON THE FIFTH DAY AFTER PLACEMENT OF THIS EQUIPMENT INTO OPERATION AT A NEW SITE, THE DISTRICT SHALL BE NOTIFIED VIA TELEPHONE AT 1-877-810-6995 OF THE EXACT NATURE OF THE PROJECT AS FOLLOWS:

   A. THE PERMIT NUMBER OF THE PORTABLE EQUIPMENT.

   B. THE NAME AND TELEPHONE NUMBER OF A CONTACT PERSON.

   C. THE LOCATION WHERE THE PORTABLE EQUIPMENT WILL BE OPERATED.

   D. THE ESTIMATED TIME THE PORTABLE EQUIPMENT WILL BE LOCATED AT THE SITE.

   E. DESCRIPTION OF THE PROJECT.

   F. IF LESS THAN 1/4 MILE, THE DISTANCE TO THE NEAREST SENSITIVE RECEPTOR. SENSITIVE RECEPTORS ARE DEFINED AS LONG-TERM HEALTH CARE FACILITIES, REHABILITATION CENTERS, CONVALESCENT CENTERS, RETIREMENT HOMES, RESIDENCES, SCHOOLS, PLAYGROUNDS, CHILD CARE CENTERS, AND ATHLETIC FACILITIES.

10. THIS ENGINE AND ITS REPLACEMENT UNIT INTENDED TO PERFORM THE SAME OR SIMILAR FUNCTION, SHALL NOT RESIDE AT ANY ONE LOCATION FOR MORE THAN 12 CONSECUTIVE MONTHS. THE PERIOD DURING WHICH THE ENGINE AND ITS REPLACEMENT IS MAINTAINED AT A STORAGE FACILITY SHALL BE EXCLUDED FROM RESIDENCY TIME DETERMINATION.

11. THIS ENGINE SHALL NOT BE REMOVED FROM ONE LOCATION FOR A PERIOD OF TIME, AND THEN IT OR ITS EQUIVALENT ENGINE RETURNED TO THE SAME LOCATION, IN ORDER TO CIRCUMVENT THE PORTABLE ENGINE RESIDENCE TIME REQUIREMENTS.

South Coast Air Quality Management District
FORM 400–PS
PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

Permit to be issued to (Business name of operator to appear on permit):
CPV Sentinel, LLC

Address where the equipment will be operated (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
62575 power Line Rd , Desert Hot Springs, CA 92240 — (•) Fixed Location ( ) Various Locations

SECTION A: LOCATION DATA

Plot Plan	**Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.**
Location of School Nearby	**Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?** ( ) Yes (•) No. **If yes, please provide name(s) of school(s) below.**

School Name	School Address	Distance from stack or equipment vent to the outer boundary of the school.

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

Population Density	( ) Urban (area of dense population) (•) Rural (area of sparse population)
Zoning Classification	( ) Mixed Use Residential Commercial Zone (M-U) ( ) Service and Professional Zone (C-S) ( ) Medium Commercial (C-3) ( ) Heavy Commercial (C-4) ( ) Commercial Manufacturing (C-M) (•) W-2

SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

Stack Data

Stack Height: 50.00 feet (height above ground level)* — What is the height of the closest building nearest the stack ? 12.00 feet

Stack Inside Diameter: 4.500 inches — Stack Flow: 1227.00 acfm — Stack Temperature: 891.00 °F

Rain Cap Present: ( ) Yes (•) No — Stack Orientation: (•) Vertical ( ) Horizontal

* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

Building #/name:	Building #/name:
Building Height: feet	Building Height: feet
Building Width: feet	Building Width: feet
Building Length: feet	Building Length: feet

Receptor Distance from equipment stack or roof vents/openings	Distance to nearest residence 300.00 feet or meters	Distance to nearest business feet or meters

Building Information

Are the emissions released from vents and/or openings from the building? ( ) Yes (•) No
If yes, please provide:

Building height above ground level: ft.	Building dimensions: length ft. or width ft.	Total square footage of building where the source of the emissions is located.

SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

SIGNATURE OF PREPARER:	TITLE OF PREPARER:	PREPARER'S TELEPHONE NUMBER: (619) 243-2823
	Sen. AQ Consultant	PREPARER'S E-MAIL ADDRESS: john_lague@urscorp.com

CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT:	CONTACT PERSON'S	DATE SIGNED:
Mark Turner	TELEPHONE NUMBER: (415) 293-1463	7-11-07
E-MAIL ADDRESS: mturner@cpv.com	FAX NUMBER: (415) 957-9886	

CONFIDENTIAL INFORMATION

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:

(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

South Coast Air Quality Management District

Form 400-A

Application For Permit To Construct and Permit To Operate

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice Issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator):
Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs — City; CA, — State; 92240 — Zip Code

County: ( ) Los Angeles ( ) Orange ( ) San Bernardino (•) Riverside

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco — City; CA — State; 94105 — Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ( ) RECLAIM (•) Title V ( ) RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- (•) New Construction (Permit to Construct)
- ( ) Equipment Operating Without A Permit or Expired Permit*
- ( ) Administrative Change
- ( ) Equipment On-Site But Not Constructed or Operational
- ( ) Title V Application (Initial, Revisions, Modifications, etc.)
- ( ) Compliance Plan
- ( ) Facility Permit Amendment
- ( ) Registration/Certification
- ( ) Streamlined Standard Permit
- ( ) Permitted Equipment Altered/ Modified Without Permit Approval*
- ( ) Proposed Alteration/Modification to Permitted Equipment
- ( ) Change of Condition For Permit To Operate
- ( ) Change of Condition For Permit To Construct
- ( ) Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
North Cooling Water Tower - five cell mechanical draft evaporative cooling tower

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? (•) No ( ) Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 0

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) (•) No ( ) Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment?
(•) No ( ) Yes If yes, provide NOV/NC #:

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? (•) No ( ) Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? (•) No ( ) Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE	FEE SCHEDULE: $	VALIDATION
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $ / Tracking #

Mail Application To:
P.O. Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

AQMD South Coast Air Quality Management District

Form 400-A
Application For Permit To Construct and Permit To Operate

Section A: Operator Information

1. Business Name of Operator To Appear On The Permit:
CPV Sentinel, LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice issued by AQMD):

3. Owner's Business Name (only if different from Business Name of Operator):
Competitive Power Ventures, Inc.

Section B: Equipment Location

4. Equipment Location Address:
For equipment operated at various locations in AQMD's jurisdiction, provide address of initial site

62575 Power Line Rd.
Street Address

Desert Hot Springs — City; CA, — State; 92240 — Zip Code

County: ◯ Los Angeles ◯ Orange ◯ San Bernardino ◉ Riverside

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section C: Permit Mailing Address

5. Permit and Correspondence Information:
☐ Check here if same as equipment location address

55 Second Street, Suite 525
Street Address

San Francisco — City; CA — State; 94105 — Zip Code

Contact Name: Mark Turner

Contact Title: Project Manager — Phone: (415) 293-1463

Fax: (415) 957-9886 — E-Mail: mturner@cpv.com

Section D: Application Type

The facility is in ◯ RECLAIM ◉ Title V ◯ RECLAIM & Title V Program (please check if applicable)

6. Reason for Submitting Application (Select only ONE):

- ◉ New Construction (Permit to Construct)
- ◯ Equipment Operating Without A Permit or Expired Permit*
- ◯ Administrative Change
- ◯ Equipment On-Site But Not Constructed or Operational
- ◯ Title V Application (Initial, Revisions, Modifications, etc.)
- ◯ Compliance Plan
- ◯ Facility Permit Amendment
- ◯ Registration/Certification
- ◯ Streamlined Standard Permit
- ◯ Permitted Equipment Altered/ Modified Without Permit Approval*
- ◯ Proposed Alteration/Modification to Permitted Equipment
- ◯ Change of Condition For Permit To Operate
- ◯ Change of Condition For Permit To Construct
- ◯ Change of Location—Moving to New Site

Existing Or Previous Permit/Application Number:
(If you checked any of the items in this column, you MUST provide a existing Permit/ Application Number)

* A Higher Permit Processing Fee applies to those items with an asterisk (Rule 301 (c) (1) (D)

7. Estimated Start Date of Operation/Construction (MM/DD/YYYY): 06/01/2010

8. Description of Equipment:
South Cooling Water Tower - three cell mechanical draft evaporative cooling tower

9. Is this equipment portable AND will it be operated at different locations within AQMD's jurisdiction? ◉ No ◯ Yes

10. For identical equipment, how many additional applications are being submitted with this application? (Form 400-A required for each) 0

11. Are you a Small Business as per AQMD's Rule 102 definition? (10 employees or less and total gross receipts are $500,000 or less, or a not-for-profit training center?) ◉ No ◯ Yes

12. Has a Notice of Violation (NOV) or a Notice To Comply (NC) been issued for this equipment? ◉ No ◯ Yes If yes, provide NOV/NC #.

Section E: Facility Business Information

13. What type of business is being conducted at this equipment location?
Power generation

14. What is your businesses primary NAICS Code (North American Industrial Classification System)? 221112

15. Are there other facilities in the SCAQMD jurisdiction operated by the same operator? ◉ No ◯ Yes

16. Are there any schools (K-12) within a 1000-ft. radius of the equipment physical location? ◉ No ◯ Yes

Section F: Authorization/Signature

I hereby certify that all information contained herein and information submitted with this application is true and correct.

17. Signature of Responsible Official: [signature]

18. Title: Project Manager

19. Print Name: Mark Turner

20. Date: 7/23/07

Check List
- ☐ Form(s) signed and dated by authorized official
- ☐ Supplemental Equipment Form (400-E-XX or 400-E-GEN)
- ☐ CEQA Form (400-CEQA) attached
- ☐ Payment for permit processing fee attached

Your application will be rejected if any of the above items are missing.

AQMD USE ONLY	APPLICATION/TRACKING #	TYPE B C D	EQUIPMENT CATEGORY CODE:	FEE SCHEDULE: $	VALIDATION	
ENG. A R DATE	ENG. A R DATE	CLASS I III IV	ASSIGNMENT Unit Engineer	CHECK/MONEY ORDER #	AMOUNT $	Tracking #

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By: **Larry Salguero**
Project Info: **CPV Ocotillo-Update (at Unit "H" elev with Blythe 2006 Fuel)**

Engine: **LMS100 PA**
Deck Info: **G0179C - 87o.scp**
Generator: **BDAX 82-445ER 60Hz, 13.8kV, 0.9PF (35404)**
Fuel: **Site Gas Fuel#900-1531, 20600 Btu/lb,LHV**

Date: **04/26/2007**
Time: **2:07:36 PM**
Version: **3.5.10**

PERMIT SUBSET

Case #	100	101	102	103	104	105	106	107	108	109	110
Ambient Conditions											
Dry Bulb, °F	17.0	17.0	17.0	72.0	72.0	72.0	72.0	107.0	107.0	107.0	107.0
Wet Bulb, °F	15.8	15.8	15.8	57.1	57.1	57.1	57.1	72.2	72.2	72.2	72.2
RH, %	80.0	80.0	80.0	40.0	40.0	40.0	40.0	18.4	18.4	18.4	18.4
Altitude, ft	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2
Ambient Pressure, psia	14.132	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131
Engine Inlet											
Comp Inlet Temp, °F	17.0	17.0	17.0	59.3	72.0	72.0	72.0	77.4	107.0	107.0	107.0
RH, %	80.0	80.0	80.0	87.8	40.0	40.0	40.0	78.3	18.4	18.4	18.4
Conditioning	NONE	NONE	NONE	EVAP	NONE	NONE	NONE	EVAP	NONE	NONE	NONE
Tons or kBtu/hr	0	0	0	0	0	0	0	0	0	0	0
Pressure Losses											
Inlet Loss, inH20	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
Exhaust Loss, inH2O	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Partload %	**100**	**75**	**50**	**100-EVAP**	**100**	**75**	**50**	**100-EVAP**	**100**	**75**	**50**
kW, Gen Terms	**102611**	**76972**	**51327**	**100815**	**97647**	**73250**	**48845**	**94242**	**87682**	**65778**	**43866**
Est. Btu/kW-hr, LHV	**7696**	**8096**	**8913**	**7832**	**7908**	**8265**	**9116**	**7958**	**8126**	**8526**	**9450**
Fuel Flow											
MMBtu/hr, LHV	789.8	623.2	457.5	789.6	772.2	605.5	445.3	750.0	712.5	560.8	414.5
lb/hr	38338	30251	22209	38331	37485	29391	21616	36409	34589	27224	20124
NOx Control	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Water Injection											
lb/hr	34407	24526	15618	31603	32072	22056	13838	28441	27730	18956	11812
Temperature, °F	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Intercooler	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**
Humidification	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
IC Heat Extraction, btu/s	20364	14849	9124	25137	25843	20407	13606	27440	27252	21913	15084
KOD Water Extraction, lb/s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0
Control Parameters											
HP Speed, RPM	9248	9098	8927	9353	9350	9142	8959	9357	9351	9135	8952
LP Speed, RPM	5075	4729	4510	5317	5290	4941	4714	5272	5293	5026	4800
PT Speed, RPM	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600
PS3 - CDP, psia	567.0	468.9	362.9	552.8	540.4	450.5	349.6	526.1	500.0	418.4	326.3
T23 - Intcl Inlet Temp, °F	285.1	259.2	223.1	335.9	348.8	327.8	290.5	350.5	382.3	362.2	325.3
P23 - Intcl Inlet Pressure, psia	57.2	50.7	42.8	53.9	52.6	48.2	40.8	51.5	49.0	45.1	38.5
W23 - Intcl Inlet Flow, lb/s	455.6	401.2	351.3	437.5	427.4	368.8	322.3	418.2	395.8	342.8	300.6
T25 - HPC Inlet Temp, °F	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
T3CRF - CDT, °F	714	687	659	724	724	688	659	721	720	685	656
T48IN, °R	1986	1925	1857	2031	2031	1943	1876	2031	2031	1942	1874
T48IN, °F	1526	1465	1398	1571	1571	1483	1416	1572	1571	1482	1415
Exhaust Parameters											
Temperature, °F	744.1	744.6	762.4	785.9	791.8	771.2	786.7	799.7	813.6	791.8	806.2
lb/sec	473.3	399.5	316.1	454.5	444.4	381.1	302.6	432.2	410.9	353.8	282.4
lb/hr	1703900	1438227	1138130	1636078	1599844	1371797	1089457	1556054	1479392	1273593	1016749
Energy, Btu/s- Ref 0 °R	146479	123075	98407	146897	144141	120629	96564	141518	135888	114110	91724

AMBIENT SPREAD

Case #	111	112	113	114	115	116	117	118	119	120	121	122	123
Ambient Conditions													
Dry Bulb, °F	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0
Wet Bulb, °F	-0.6	9.1	17.2	26.2	34.8	44.0	49.8	56.0	61.8	67.0	69.7	72.9	75.6
RH, %	80.0	80.0	60.0	60.0	60.0	62.7	49.0	41.5	35.6	30.2	21.7	16.8	12.7
Altitude, ft	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2	1080.2
Ambient Pressure, psia	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131	14.131
Engine Inlet													
Comp Inlet Temp, °F	10.0	20.0	30.0	40.0	40.0	50.0	60.0	58.1	64.5	70.4	74.2	78.5	82.3
RH, %	47.9	49.0	37.5	39.9	60.0	62.7	49.0	88.2	86.2	84.1	80.2	77.3	74.2
Conditioning	HEAT	HEAT	HEAT	HEAT	NONE	NONE	NONE	EVAP	EVAP	EVAP	EVAP	EVAP	EVAP
Tons or kBtu/hr	4002	3927	3888	3967	0	0	0	0	0	0	0	0	0
Pressure Losses													
Inlet Loss, inH20	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
Exhaust Loss, inH2O	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Partload %	**100-HEAT**	**100-HEAT**	**100-HEAT**	**100-HEAT**	**100**	**100**	**100**	**100-EVAP**	**100-EVAP**	**100-EVAP**	**100-EVAP**	**100-EVAP**	**100-EVAP**
kW, Gen Terms	**102392**	**102717**	**103166**	**103687**	**103747**	**103576**	**101129**	**101180**	**99125**	**96823**	**95444**	**93840**	**92462**
Est. Btu/kW-hr, LHV	**7686**	**7707**	**7739**	**7770**	**7767**	**7799**	**7844**	**7827**	**7857**	**7902**	**7932**	**7967**	**7998**
Fuel Flow													
MMBtu/hr, LHV	787.0	791.7	798.4	805.7	805.8	807.8	793.2	791.9	778.8	765.1	757.1	747.7	739.6
lb/hr	38205	38431	38758	39111	39118	39215	38507	38443	37806	37142	36751	36294	35902
NOx Control	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
Water Injection													
lb/hr	34549	34784	35350	35685	35205	34801	33759	31908	30167	29265	28833	28310	27861
Temperature, °F	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Intercooler	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**	**Water-Air**
Humidification	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
IC Heat Extraction, btu/s	19317	20771	22135	23505	23516	24700	25304	25078	25320	26292	26863	27617	28264
KOD Water Extraction, lb/s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.2	1.8	2.4
Control Parameters													
HP Speed, RPM	9235	9255	9283	9314	9318	9345	9346	9352	9356	9357	9357	9357	9358
LP Speed, RPM	5038	5099	5185	5273	5276	5344	5330	5322	5287	5277	5275	5272	5269
PT Speed, RPM	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600	3600
PS3 - CDP, psia	567.0	567.0	567.0	567.0	567.0	564.5	554.6	554.3	545.8	536.5	530.9	524.5	518.9
T23 - Intcl Inlet Temp, °F	275.4	289.1	302.4	315.8	315.8	328.2	337.7	334.8	340.2	344.9	348.0	351.3	354.3
P23 - Intcl Inlet Pressure, psia	57.4	57.0	56.3	55.6	55.6	54.8	53.9	54.0	53.3	52.4	51.9	51.3	50.8
W23 - Intcl Inlet Flow, lb/s	459.1	455.0	452.8	450.4	450.3	446.4	438.6	438.6	432.0	425.5	421.6	417.1	413.2
T25 - HPC Inlet Temp, °F	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
T3CRF - CDT, °F	713	715	719	724	724	727	726	724	723	722	721	721	721
T48IN, °R	1980	1989	2003	2017	2018	2031	2031	2031	2031	2031	2031	2031	2031
T48IN, °F	1520	1530	1543	1558	1558	1571	1571	1571	1572	1572	1572	1572	1572
Exhaust Parameters													
Temperature, °F	739.6	746.8	757.1	768.5	769.2	779.8	784.6	785.1	789.6	794.3	797.2	800.6	803.6
lb/sec	474.2	472.8	470.9	468.7	468.4	464.5	456.2	455.7	448.5	440.8	436.2	430.9	426.3
lb/hr	1707260	1702162	1695082	1687174	1686405	1672140	1642491	1640662	1614738	1586985	1570460	1551234	1534715
Energy, Btu/s- Ref 0 °R	146054	146668	147523	148507	148631	148979	146978	147184	145563	143658	142515	141183	140036

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By: **Larry Salguero**
Project Info: **CPV Ocotillo-Update (at Unit "H" elev with Blythe 2006 Fuel)**

Engine: **LMS100 PA**
Deck Info: **G0179C - 87o.scp**
Generator: **BDAX 82-445ER 60Hz, 13.8kV, 0.9PF (35404)**
Fuel: **Site Gas Fuel#900-1531, 20600 Btu/lb,LHV**

Date: **04/26/2007**
Time: **2:07:36 PM**
Version: **3.5.10**

	PERMIT SUBSET										
Case #	**100**	**101**	**102**	**103**	**104**	**105**	**106**	**107**	**108**	**109**	**110**
Cp, Btu/lb-R	0.2729	0.2714	0.2704	0.2767	0.2764	0.2735	0.2724	0.2775	0.2775	0.2746	0.2734
Emissions (NOT FOR USE IN ENVIRONMENTAL PERMITS)											
NOx ppmvd Ref 15% O2	25	25	25	25	25	25	25	25	25	25	25
NOx as NO2, lb/hr	79	63	46	79	78	61	45	75	72	56	42
CO ppmvd Ref 15% O2	153	153	134	125	132	130	111	116	120	116	96
CO, lb/hr	295.37	232.47	149.89	241.07	248.83	191.85	120.74	212.42	209.12	158.76	97.36
CO2, lb/hr	102784.70	81150.75	59652.54	102821.00	100531.60	78887.77	58090.98	97693.12	92799.31	73103.20	54107.54
HC ppmvd Ref 15% O2	8	8	6	6	6	6	4	5	5	5	3
HC, lb/hr	8.33	6.55	3.91	6.00	6.43	4.90	2.73	4.99	5.05	3.73	1.90
SOX as SO2, lb/hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Emissions (GE)											
NOx ppmvd Ref 15% O2	25	25	25	25	25	25	25	25	25	25	25
NOx as NO2, lb/hr	79.390	62.610	45.950	79.420	77.660	60.850	44.730	75.440	71.720	56.370	41.650
CO ppmvd Ref 15% O2	111	111	111	92	78	78	78	73	68	68	68
CO, lb/hr	213.750	168.580	123.710	178.650	146.900	115.110	84.620	134.620	119.160	93.730	69.260
HC ppmvd Ref 15% O2	23	23	18	16	18	17	13	14	15	14	10
HC, lb/hr	25.080	19.710	11.790	18.070	19.360	14.760	8.220	15.020	15.220	11.220	5.790
VOC ppmvd Ref 15% O2	5	5	4	3	4	4	3	3	3	3	2
VOC, lb/hr	5.020	3.940	2.360	3.610	3.870	2.950	1.640	3.000	3.040	2.240	1.160
PM10, lb/hr	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Exh Wght % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)											
AR	1.2310	1.2369	1.2431	1.2210	1.2236	1.2312	1.2375	1.2193	1.2220	1.2295	1.2357
N2	72.1967	72.5427	72.9072	71.6130	71.7635	72.2099	72.5806	71.5142	71.6735	72.1105	72.4720
O2	13.5463	14.2113	14.9010	13.0110	13.0570	13.9580	14.6745	12.9915	13.0475	13.9454	14.6586
CO2	6.0323	5.6424	5.2413	6.2846	6.2838	5.7507	5.3321	6.2783	6.2728	5.7399	5.3216
H20	6.9728	6.3470	5.6911	7.8519	7.6527	6.8328	6.1611	7.9794	7.7664	6.9588	6.2996
SO2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO	0.0173	0.0162	0.0132	0.0147	0.0156	0.0140	0.0111	0.0137	0.0141	0.0125	0.0096
HC	0.0005	0.0005	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0002
NOX	0.0032	0.0030	0.0028	0.0033	0.0033	0.0030	0.0028	0.0033	0.0033	0.0030	0.0028
Exh Mole % Dry (NOT FOR USE IN ENVIRONMENTAL PERMITS)											
AR	0.9723	0.9695	0.9667	0.9743	0.9742	0.9704	0.9675	0.9743	0.9742	0.9704	0.9674
N2	81.3204	81.0866	80.8488	81.4904	81.4827	81.1608	80.9112	81.4913	81.4804	81.1587	80.9093
O2	13.3584	13.9072	14.4668	12.9622	12.9795	13.7349	14.3220	12.9608	12.9859	13.7411	14.3276
CO2	4.3251	4.0147	3.6998	4.5522	4.5417	4.1144	3.7837	4.5540	4.5393	4.1122	3.7819
H20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO	0.0195	0.0181	0.0146	0.0168	0.0177	0.0157	0.0124	0.0156	0.0161	0.0140	0.0107
HC	0.0010	0.0009	0.0007	0.0007	0.0008	0.0007	0.0005	0.0006	0.0007	0.0006	0.0004
NOX	0.0032	0.0030	0.0027	0.0034	0.0034	0.0030	0.0028	0.0034	0.0034	0.0030	0.0028
Exh Mole % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)											
AR	0.8665	0.8732	0.8803	0.8555	0.8583	0.8669	0.8741	0.8536	0.8566	0.8650	0.8721
N2	72.4696	73.0297	73.6234	71.5492	71.7834	72.5024	73.1035	71.3963	71.6441	72.3475	72.9330
O2	11.9045	12.5254	13.1739	11.3809	11.4345	12.2697	12.9400	11.3552	11.4183	12.2492	12.9151
CO2	3.8544	3.6158	3.3691	3.9969	4.0011	3.6754	3.4186	3.9899	3.9913	3.6658	3.4090
H20	10.8839	9.9361	8.9369	12.1992	11.9036	10.6683	9.6497	12.3878	12.0720	10.8568	9.8584
SO2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO	0.0174	0.0163	0.0133	0.0147	0.0156	0.0140	0.0112	0.0136	0.0141	0.0125	0.0096
HC	0.0009	0.0008	0.0006	0.0006	0.0007	0.0006	0.0004	0.0006	0.0006	0.0005	0.0003

	AMBIENT SPREAD												
Case #	**111**	**112**	**113**	**114**	**115**	**116**	**117**	**118**	**119**	**120**	**121**	**122**	**123**
Cp, Btu/lb-R	0.2725	0.2730	0.2737	0.2746	0.2748	0.2757	0.2760	0.2766	0.2770	0.2773	0.2774	0.2775	0.2777
Emissions (NOT FOR USE IN ENVIRONMENTAL PERMITS)													
NOx ppmvd Ref 15% O2	25	25	25	25	25	25	25	25	25	25	25	25	25
NOx as NO2, lb/hr	79	80	80	81	81	81	80	80	78	77	76	75	74
CO ppmvd Ref 15% O2	157	153	149	145	142	139	137	126	119	117	116	115	115
CO, lb/hr	302.31	296.68	291.14	286.48	280.42	275.08	265.12	244.11	227.08	219.25	215.67	211.33	207.60
CO2, lb/hr	102421.40	103030.60	103911.00	104859.40	104886.80	105148.10	103255.90	103118.50	101431.30	99657.07	98609.01	97386.46	96335.63
HC ppmvd Ref 15% O2	8	8	7	7	7	7	6	6	5	5	5	5	5
HC, lb/hr	8.64	8.37	8.10	7.86	7.60	7.36	7.01	6.12	5.46	5.20	5.09	4.95	4.84
SOX as SO2, lb/hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Emissions (GE)													
NOx ppmvd Ref 15% O2	25	25	25	25	25	25	25	25	25	25	25	25	25
NOx as NO2, lb/hr	79	80	80	81	81	81	80	80	78	77	76	75	74
CO ppmvd Ref 15% O2	111	110	110	108	108	101	92	94	86	79	76	73	71
CO, lb/hr	214	214	215	213	213	200	178	182	164	149	140	133	128
HC ppmvd Ref 15% O2	24	23	22	21	20	20	19	17	15	15	15	14	14
HC, lb/hr	26.0	25.2	24.4	23.7	22.9	22.2	21.1	18.4	16.4	15.7	15.3	14.9	14.6
VOC ppmvd Ref 15% O2	5	5	4	4	4	4	4	3	3	3	3	3	3
VOC, lb/hr	5.21	5.04	4.88	4.73	4.58	4.43	4.22	3.68	3.29	3.13	3.07	2.98	2.91
PM10, lb/hr	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Exh Wght % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)													
AR	1.2322	1.2312	1.2300	1.2283	1.2273	1.2249	1.2245	1.2213	1.2197	1.2194	1.2194	1.2193	1.2192
N2	72.2700	72.2093	72.1428	72.0400	71.9817	71.8444	71.8201	71.6301	71.5349	71.5203	71.5168	71.5134	71.5104
O2	13.6155	13.5206	13.3903	13.2378	13.2141	13.0741	13.0696	13.0152	12.9924	12.9912	12.9912	12.9917	12.9922
CO2	5.9992	6.0529	6.1301	6.2151	6.2196	6.2882	6.2865	6.2852	6.2816	6.2796	6.2790	6.2780	6.2771
H20	6.8617	6.9649	7.0858	7.2581	7.3371	7.5481	7.5794	7.8296	7.9537	7.9720	7.9763	7.9804	7.9838
SO2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO	0.0177	0.0174	0.0172	0.0170	0.0166	0.0165	0.0161	0.0149	0.0141	0.0138	0.0137	0.0136	0.0135
HC	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003
NOX	0.0032	0.0032	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033
Exh Mole % Dry (NOT FOR USE IN ENVIRONMENTAL PERMITS)													
AR	0.9721	0.9724	0.9730	0.9736	0.9737	0.9742	0.9742	0.9743	0.9744	0.9743	0.9743	0.9743	0.9743
N2	81.2985	81.3315	81.3779	81.4307	81.4360	81.4815	81.4816	81.4899	81.4923	81.4918	81.4916	81.4912	81.4908
O2	13.4095	13.3325	13.2238	13.1003	13.0883	12.9817	12.9816	12.9632	12.9581	12.9594	12.9600	12.9611	12.9621
CO2	4.2959	4.3397	4.4017	4.4719	4.4791	4.5397	4.5400	4.5515	4.5552	4.5546	4.5544	4.5538	4.5534
H20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO	0.0199	0.0196	0.0194	0.0192	0.0188	0.0187	0.0183	0.0169	0.0160	0.0157	0.0157	0.0155	0.0154
HC	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009	0.0007	0.0007	0.0007	0.0006	0.0006	0.0006
NOX	0.0032	0.0032	0.0033	0.0033	0.0033	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034
Exh Mole % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)													
AR	0.8679	0.8667	0.8654	0.8635	0.8624	0.8598	0.8593	0.8558	0.8540	0.8538	0.8537	0.8536	0.8536
N2	72.5859	72.4886	72.3815	72.2173	72.1260	71.9089	71.8712	71.5758	71.4281	71.4057	71.4003	71.3951	71.3906
O2	11.9724	11.8829	11.7619	11.6181	11.5920	11.4565	11.4504	11.3861	11.3578	11.3554	11.3551	11.3553	11.3555
CO2	3.8355	3.8679	3.9151	3.9660	3.9670	4.0064	4.0046	3.9978	3.9926	3.9909	3.9904	3.9897	3.9890
H20	10.7169	10.8726	11.0551	11.3145	11.4323	11.7482	11.7947	12.1660	12.3499	12.3769	12.3833	12.3892	12.3943
SO2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO	0.0178	0.0175	0.0172	0.0170	0.0167	0.0165	0.0162	0.0149	0.0140	0.0138	0.0137	0.0136	0.0135
HC	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By: **Larry Salguero**
Project Info: **CPV Ocotillo-Update (at Unit "H" elev with Blythe 2006 Fuel)**

Engine: **LMS100 PA**
Deck Info: **G0179C - 87o.scp**
Generator: **BDAX 82-445ER 60Hz, 13.8kV, 0.9PF (35404)**
Fuel: **Site Gas Fuel#900-1531, 20600 Btu/lb,LHV**

Date: **04/26/2007**
Time: **2:07:36 PM**
Version: **3.5.10**

	PERMIT SUBSET										
Case #	100	101	102	103	104	105	106	107	108	109	110
NOX	0.0028	0.0027	0.0025	0.0030	0.0030	0.0027	0.0025	0.0029	0.0030	0.0027	0.0025
O2 Correction Factor	0.7838	0.8448	0.9178	0.7449	0.7465	0.8247	0.8977	0.7448	0.7471	0.8254	0.8985
Exhaust Molecular Weight	28.120	28.202	28.289	27.989	28.022	28.128	28.216	27.968	28.003	28.106	28.192
Stack Emissions (after SCR/oxcat)											
NOx ppmvd Ref 15% O2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CO ppmvd Ref 15% O2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
VOC ppmvd Ref 15% O2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NH3 ppmvd Ref 15% O2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
NOx as NO2, lb/hr	7.9241	6.253	4.591	7.9245	7.749	6.076	4.470	7.528	7.151	5.629	4.162
CO, lb/hr	11.579	9.137	6.709	11.580	11.323	8.879	6.531	11.000	10.450	8.225	6.081
VOC, lb/hr	2.211	1.744	1.281	2.211	2.162	1.695	1.247	2.100	1.995	1.570	1.161
NH3, lb/hr	5.867	4.629	3.399	5.867	5.737	4.499	3.309	5.573	5.294	4.167	3.081
SOX, lb/hr (based on 0.25 gr/SCF)	0.614535	0.485	0.356	0.614379	0.601	0.471	0.346	0.584	0.554	0.436	0.323
PM10, lb/hr	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000
CO Removal, pct	94.58%	94.58%	94.58%	93.52%	92.29%	92.29%	92.28%	91.83%	91.23%	91.22%	91.22%
VOC Removal, pct	55.96%	55.73%	45.73%	38.76%	44.14%	42.54%	23.97%	30.00%	34.37%	29.90%	-0.08%
Engine Exhaust											
Exhaust MW	28.1	28.2	28.3	28.0	28.0	28.1	28.2	28.0	28.0	28.1	28.2

	AMBIENT SPREAD												
Case #	111	112	113	114	115	116	117	118	119	120	121	122	123
NOX	0.0028	0.0029	0.0029	0.0029	0.0029	0.0030	0.0030	0.0030	0.0029	0.0030	0.0029	0.0029	0.0029
O2 Correction Factor	0.7891	0.7811	0.7701	0.7580	0.7568	0.7467	0.7467	0.7450	0.7445	0.7446	0.7447	0.7448	0.7449
Exhaust Molecular Weight	28.137	28.123	28.107	28.083	28.070	28.039	28.034	27.993	27.972	27.969	27.969	27.968	27.967
Stack Emissions (after SCR/oxcat)													
NOx ppmvd Ref 15% O2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CO ppmvd Ref 15% O2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
VOC ppmvd Ref 15% O2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NH3 ppmvd Ref 15% O2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
NOx as NO2, lb/hr	7.9	7.9	8.0	8.1	8.1	8.1	8.0	7.9	7.8	7.7	7.6	7.5	7.4
CO, lb/hr	11.5	11.6	11.7	11.8	11.8	11.8	11.6	11.6	11.4	11.2	11.1	11.0	10.8
VOC, lb/hr	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1
NH3, lb/hr	5.8	5.9	5.9	6.0	6.0	6.0	5.9	5.9	5.8	5.7	5.6	5.6	5.5
SOX, lb/hr (based on 0.25 gr/SCF)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
PM10, lb/hr	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
CO Removal, pct	94.61%	94.57%	94.55%	94.45%	94.45%	94.08%	93.46%	93.62%	93.04%	92.45%	92.09%	91.75%	91.54%
VOC Removal, pct	57.72%	56.03%	54.20%	52.32%	50.75%	48.95%	47.38%	39.75%	33.72%	31.55%	30.95%	29.75%	28.84%
Engine Exhaust													
Exhaust MW	28.1	28.1	28.1	28.1	28.1	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0

Aero Energy Fuel Number	**900-1531 (CPV-SCG Blythe 2006 Avg)**	
	Volume %	**Weight %**
Hydrogen	0.0000	0.0000
Methane	95.9992	91.2962
Ethane	1.7359	3.0943
Ethylene	0.0000	0.0000
Propane	0.3325	0.8692
Propylene	0.0000	0.0000
Butane	0.1224	0.4217
Butylene	0.0000	0.0000
Butadiene	0.0000	0.0000
Pentane	0.0343	0.1467
Cyclopentane	0.0000	0.0000
Hexane	0.0258	0.1318
Heptane	0.0000	0.0000
Carbon Monoxide	0.0000	0.0000
Carbon Dioxide	1.1961	3.1207
Nitrogen	0.5537	0.9195
Water Vapor	0.0000	0.0000
Oxygen	0.0000	0.0000
Hydrogen Sulfide	0.0000	0.0000
Ammonia	0.0000	0.0000
Btu/lb, LHV	20600	
Btu/scf, LHV	918	
Btu/scf, HHV	1018	
Btu/lb, HHV	22838	
Fuel Temp, °F	77.0	
NOx Scalar	0.983	
Specific Gravity	0.58	

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By: **Larry Salguero**
Project Info: **CPV Ocotillo-Update (at Unit "H" elev with Blythe 2006 Fuel)**

Engine: **LMS100 PA**
Deck Info: **G0179C - 87o.scp**
Generator: **BDAX 82-445ER 60Hz, 13.8kV, 0.9PF (35404)**
Fuel: **Site Gas Fuel#900-1531, 20600 Btu/lb,LHV**

Date: **04/26/2007**
Time: **2:07:36 PM**
Version: **3.5.10**

					PERMIT SUBSET						
Case #	100	101	102	103	104	105	106	107	108	109	110
Exhaust Flow, ACFM	895116	753658	603394	893509	876874	736700	590603	859907	825501	695946	560261
Exhaust Flow, SCFM	366361	308338	243249	353424	345193	294875	233452	336392	319423	273975	218054
Exhaust Flow, Btu/lb	309	308	311	323	324	317	319	327	331	323	325
Exhaust Flow, Calories/s	36912700	31014815	24798635	37018032	36323426	30398628	24334051	35662438	34243725	28755795	23114446
Inlet Flow Wet, pps	455.8	401.4	351.4	437.7	427.6	369.0	322.5	418.4	396.0	343.0	300.7
Inlet Flow Dry, pps	455.1	400.8	350.9	433.4	424.7	366.4	320.3	411.5	392.2	339.7	297.8
Shaft HP	139504	104903	70353	137079	132800	99885	67013	128203	119350	89815	60312
Generator Information											
Capacity kW	201459	201459	201459	170534	179625	170534	170534	138446	166257	138446	138446
Efficiency	0.986	0.984	0.978	0.986	0.983	0.983	0.977	0.986	0.982	0.982	0.975
Inlet Temp, °F	17.0	17.0	17.0	72.0	72.0	72.0	72.0	107.0	107.0	107.0	107.0
Gear Box Loss	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8th Stage Bleed											
Flow, pps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temperature, °R	0	0	0	0	0	0	0	0	0	0	0
CDP Bleed											
Flow, pps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CardPack	87o	87o	87o	87o	87o	87o	87o	87o	87o	87o	87o
Intercooler CardPack	87m	87m	87m	87m	87m	87m	87m	87m	87m	87m	87m
NSI	332	0	0	334	334	0	0	334	334	0	0
NSI	0	0	0	0	0	0	0	0	0	0	0
NSI	0	0	0	0	0	0	0	0	0	0	0
XNENG											

	AMBIENT SPREAD												
Case #	111	112	113	114	115	116	117	118	119	120	121	122	123
Exhaust Flow, ACFM	893009	896135	900514	905491	906034	907104	894632	895334	885011	873175	866090	857832	850723
Exhaust Flow, SCFM	366868	365955	364637	363243	363242	360567	354241	354366	349024	343063	339499	335351	331788
Exhaust Flow, Btu/lb	308	310	313	317	317	321	322	323	325	326	327	328	328
Exhaust Flow, Calories/s	36805730	36960454	37175887	37423768	37455012	37542791	37038527	37090376	36681770	36201694	35913812	35578179	35289052
Inlet Flow Wet, pps	459.3	455.2	453.0	450.6	450.5	446.6	438.8	438.8	432.3	425.7	421.8	417.3	413.4
Inlet Flow Dry, pps	459.0	454.7	452.4	449.6	449.1	444.4	436.4	434.7	427.2	419.8	415.4	410.2	405.8
Shaft HP	139208	139648	140254	140958	141038	140808	137503	137571	134796	131688	129826	127660	125801
Generator Information													
Capacity kW	207681	204123	200258	195942	191052	185489	179175	172058	164103	155302	145668	135236	124063
Efficiency	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986	0.986
Inlet Temp, °F	0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0
Gear Box Loss	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8th Stage Bleed													
Flow, pps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Temperature, °R	0	0	0	0	0	0	0	0	0	0	0	0	0
CDP Bleed													
Flow, pps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CardPack	87o	87o	87o	87o	87o	87o	87o	87o	87o	87o	87o	87o	87o
Intercooler CardPack	87m	87m	87m	87m	87m	87m	87m	87m	87m	87m	87m	87m	87m
NSI	332	332	332	332	332	334	334	334	334	334	334	334	334
NSI	0	0	0	0	0	0	0	0	0	0	0	0	0
NSI	0	0	0	0	0	0	0	0	0	0	0	0	0
XNENG													

Transient Emissions Summary

LMS100 PA Estimated Startup / Shutdown Emissions at Package Exit

T2 (°F / °C)		CO (lb)*	NOx (lb)*	VOC (lb)*	PM10 (lb)*	Startup Fuel, MMBtu (LHV)	Sulfur, lb
-30 / -34.4	Start	15	5	3	11	28	0.02
	Shutdown	59	6	3	11		
59 / 15	Start	13	5	3	11	28	0.02
	Shutdown	35	6	3	11		
78 / 25.5	Start	13	5	3	11	28	0.02
	Shutdown	29	6	3	11		
90 / 32.2	Start	13	5	3	11	28	0.02
	Shutdown	29	6	3	11		

* Margined average engine emissions - NOT A GUARANTEE

Assumptions: Natural gas, sea level, 4"/6" losses, water injection to 25 PPM NOx @ 15% O2

May 22, 2006

Notes: The table shown above was provided by GE (and confirmed on 4/27/07).
Based on the table, the cold start CO used is 14 lb.
All other startup values at all other ambients are a constant.
PM_{10} emissions are limited to 6 pounds per hour, not 11 as presented in the table.

Complete Start (Ignition to full compliance)		CO lb	NOx lb	VOC lb	PM10 lb	Fuel MMBtu	SO2** lb
Cold Day (17°F)	Initial 10 minutes	14.0	5.0	3.0	1.0	26.0	0.02
	Final 15 minutes *	2.9	19.8	1.3	1.5	197.5	0.15
	Total	16.9	24.8	4.3	2.5	223.5	0.17
Avg Day (72°F)	Initial 10 minutes	13.0	5.0	3.0	1.0	26.0	0.02
	Final 15 minutes *	2.9	19.9	1.0	1.5	197.4	0.15
	Total	15.9	24.9	4.0	2.5	223.4	0.17
Hot Day (107°F)	Initial 10 minutes	13.0	5.0	3.0	1.0	26.0	0.02
	Final 15 minutes *	2.7	18.9	0.8	1.5	187.5	0.15
	Total	15.7	23.9	3.8	2.5	213.5	0.17

*Notes: * Oxidation catalyst expected to be fully effective at end of GE 10 minute start interval.*
Other emissions during start-up and all emissions during transient assumed to be unabated.

	CO	NOx	VOC	PM10	Fuel	SO2
Cold Day	59	6	3	1.03	26	0.02
Average Day	35	6	3	1.03		
Hot day	29	6	3	1.03		

Operating and stack parameter for LMS100 Commissioning

Description	Power Level	Corrected Operating Hours	Estimated Fuel Rate (MMBtu/hr)	Total Estimated Emission per Event				Exhaust Temperature (deg F)	Exhaust Flow (ACFM)
				NO_X (lbs)	CO (lbs)	VOC (lbs)	PM_{10} (lbs)		
*** First fire the unit & then shutdown to check for leaks, etc**									
	Core/Sync Idle	16	73.5	178	727	18.5	96	859	163836
*** Synch & Check E-stop**									
	Sync Idle	12	73.5	133.5	545.2	13.9	72	859	163836
Totals for First Fire		28		311.5	1272.2	32.4	168		
*** Additional AVR Commissioning**									
	5%	12	92.8	251	363.2	8.7	72	864	226630
*** Break-in Run**									
	5%	8	92.8	167.3	242.1	5.8	48	864	226630
Totals for Break in		20		418.3	605.3	14.5	120		
*** Dynamic Commissioning of AVR & Commission Water**									
Load Step 1	10.00%	4	166.1	66.8	277	21	24	868	289675
Load Step 2	20.00%	4	245.5	98.6	181	10.4	24	827	380155
Load Step 3	30.00%	4	319.3	128	181	10.6	24	806	456411
Load Step 4	40.00%	4	389.1	156	160	10.7	24	785	524273
Load Step 5	50.00%	4	457.4	184	132	11.3	24	770	588755
Load Step 6	60.00%	4	524.6	211	180	13.5	24	760	648646
Load Step 7	70.00%	4	590.8	237	247	16.3	24	752	706812
Load Step 8	80.00%	4	658.5	265	349	20.7	24	752	761888
Load Step 9	90.00%	4	727.9	292	516	29.5	24	758	817320
Load Step 10	100.00%	4	798.1	321	789	47.9	24	767	873543
Totals for Dynamic AVR		40		1959.4	3012	191.9	240		
*** Base load AVR Commissioning**									
	100%	16	798.1	2689	4890	239	96	767	873543

Turbines operating Scenario

Case	100	101	102	103	104	105	106	107	108	109	110
Ambient Temperature (°F)	17	17	17	72	72	72	72	107	107	107	107
Stack Diameter (ft)	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Exhaust Flow (lb/hr)	1,703,900	1,438,227	1,138,130	1,636,078	1,599,844	1,371,797	1,089,457	1,556,054	1,479,392	1,273,593	1,016,749
CTG Load Level (%)	**100**	**75**	**50**	**100-EVAP**	**100**	**75**	**50**	**100-EVAP**	**100**	**75**	**50**
Evap. Cooler	NONE	NONE	NONE	EVAP	NONE	NONE	NONE	EVAP	NONE	NONE	NONE
Data from Vendor					Area =	143.14	ft^2				
Expected Operation of Each Gas Turbine - Normal Operation											
(Reference: CPV Ocotillo Update 4/26/07 GE LMS100 PA Turbine/Site Specific (1080.2 ft elev) Information)											
Heat Consumed (MMBTU/hr) - LHV	789.8	623.2	457.5	789.6	772.2	605.5	445.3	750.0	712.5	560.8	414.5
Turbine Outlet Temperature (°F)	744.1	744.6	762.4	785.9	791.8	771.2	786.7	799.7	813.6	791.8	806.2
Turbine Outlet Temperature (°K)	668.8	669.0	678.9	692.0	695.3	683.8	692.4	699.7	707.4	695.3	703.3
Exhaust Flow (acfm)	863264	728966	585388	857686	842663	710654	571496	824772	792793	670822	541700
Stack Exit Velocity, ft/m	6031.0	5092.7	4089.7	5992.0	5887.0	4964.8	3992.6	5762.0	5538.6	4686.5	3784.4
Stack Exit Velocity, m/s	30.64	25.87	20.78	30.44	29.91	25.22	20.28	29.27	28.14	23.81	19.22
Nitrogen, % Vol	81.32	81.09	80.85	81.49	81.48	81.16	80.91	81.49	81.48	81.16	80.91
Oxygen, % Vol	13.36	13.91	14.47	12.96	12.98	13.73	14.32	12.96	12.99	13.74	14.33
Carbon Dioxide, % Vol	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.01
Argon, % Vol	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Water Vapor, % Vol	10.88	9.94	8.94	12.20	11.90	10.67	9.65	12.39	12.07	10.86	9.86
Molecular Weight	29.40	29.34	29.27	29.56	29.51	29.44	29.37	29.59	29.54	29.47	29.41
Average Emission Rates from Each Gas Turbine (lbs/hr) - Normal Operations											
NO_X at 25 ppmvd pre-BACT level	79.39	62.61	45.95	79.42	77.66	60.85	44.73	75.44	71.72	56.37	41.65
NO_X at 2.5 ppmvd BACT level	7.92	6.253	4.591	7.92	7.75	6.08	4.47	7.53	7.15	5.63	4.16
CO at 111-68 ppmvd pre BACT level	213.75	168.58	123.71	178.65	146.90	115.11	84.62	134.62	119.16	93.73	69.26
CO at 6.0 ppmvd BACT level	11.58	9.14	6.71	11.58	11.32	8.88	6.53	11.00	10.45	8.23	6.08
UHC at 23-14 ppmvd pre-BACT level	25.08	19.71	11.79	18.07	19.36	14.76	8.22	15.02	15.22	11.22	5.79
VOC at 2.0 ppmvd BACT level	2.21	1.74	1.28	2.21	2.16	1.70	1.25	2.10	2.00	1.57	1.16
SO_2 short-term rate	0.61	0.48	0.36	0.61	0.60	0.47	0.35	0.58	0.55	0.44	0.32
SO_2 long-term rate	0.61	0.48	0.36	0.61	0.60	0.47	0.35	0.58	0.55	0.44	0.32
PM_{10}	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
NH_3 at 5 ppmvd BACT level	5.87	4.63	3.40	5.87	5.74	4.50	3.31	5.57	5.29	4.17	3.08
Sulfur content in fuel basis for above:	0.25	grains total S/100 scf	short-term								
	0.25	grains total S/100 scf	long-term	max hourly value							
Data from Vendor											

Startup / Shutdown Emissions from Turbine

Startup

duration in minutes	10	15	25	35	1 hour With Start up and Normal Operation	Emissions if starting up for an entire hour
	Startup	SCR Warmup	Total Startup	Normal		
	Emissions	Emissions	Emissions	Emissions		
	lb/event	**lb/event**	**lb/event**	lb/hour	lb/hour	lb/hour
NO_X	5.00	19.90	24.90	7.92	29.52	59.76
CO	13.00	2.89	15.89	11.58	22.65	38.15
VOC	3.00	1.30	4.30	2.21	5.59	10.32
SO_2	0.02	0.15	0.17	0.61	0.53	0.42
PM_{10}	1.00	1.50	2.50	6.00	6.00	6.00

Assumptions:

Startup Emissions for CO, NO_2, PM_{10}, and VOC integrated from data provided by GE.

Startup emissions are highest of three temperatures, all for cold day 17 degrees F.

SO_2 emissions assume complete conversion of all sulfur to SO_2.

Normal emissions are highest of eleven operating cases listed above (case 103).

Shutdown

duration in minutes	10.3	49.7	Emissions for 1 hour with a shut down and normal op.	Emissions if shutting down for an entire hour
	Shutdown	Normal		
	Emissions	Emissions		
	lb/event	lb/hour	lb/hr	lb/hour
NO_X	6.00	7.92	12.56	34.95
CO	35.00	11.58	44.59	203.88
VOC	3.00	2.21	4.83	17.48
SO_2	0.02	0.61	0.53	0.12
PM_{10}	1.03	6.00	6.00	6.00

Assumptions:

Shutdown Emissions for CO, NO_2, PM_{10}, and VOC integrated from data provided by GE.

SO_2 emissions assume complete conversion of all sulfur to SO_2.

Normal emissions are highest of all operating cases listed above (case 103).

Worst-Case 1-Hour Emissions per Turbine

Worst-Case (non-commissioning) 1-Hour Emissions consists of the maximum of an hour with 1 startup & normal operations; an hour with 1 shutdown and normal operations; or normal operations.

Comparison of normal, startup and shutdown emissions presented below.

Emissions per turbine	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total
	lb/hr				Total lbs				g/s
NO_2	29.52	29.52	12.56	7.92					3.72
CO	44.59	22.65	44.59	11.58					5.62
VOC	5.59	5.59	4.83	2.21					0.70
SO_2	0.61	0.53	0.53	0.61					0.08
PM_{10}	6.00	6.00	6.00	6.00					0.76

Worst-Case 3 Hour Emission Rate per Turbine

Only SO_2 is considered for an average 3-hour Ambient Air Quality Standard.

Worst-case 3-Hour Scenario are equal to 3 hours at normal rate.

Emissions per turbine	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total
	lb/hr				Total lbs				g/s
Total Hours of Operation	3			3				3	
SO_2	0.61			0.61	1.84			1.84	0.08

Worst-Case 8-Hour Emission Rates

Only CO is considered for an average 8-hour Ambient Air Quality Standard.

Worst-case (non-commissioning) 8-Hour Scenario includes 1 startup & 1 shutdown and remaining time at normal rate.

Emissions per turbine	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total
	lb/hr				Total lbs				g/s
Total Hours of Operation	8	0.4	0.17	7.4		0.4	0.17	7.4	
CO	17.09	38.1	203.88	11.58	136.72	15.89	35.00	85.82	2.15

Worst-Case 24 Hour Emission Rate

Only SO_2 and PM_{10} are considered for an average 24-hour Ambient Air Quality Standard.

Worst-case 24-Hour Scenario for PM_{10} includes 2 Startups, 2 Shutdowns, and remaining time at normal rate.

Worst-case 24-hour scenario for SO_2 uses normal operations.

Emissions per turbine	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total
	lb/hr				Total lbs				g/s
Total Hours of Operation	24	0.83	0.34	22.82		0.83	0.34	22.82	
NO_X	10.11	59.76	34.95	7.92	242.66	49.80	12.00	180.86	1.27
CO	15.25	38.15	203.88	11.58	366.08	31.79	70.00	264.29	1.92
VOC	2.71	10.32	17.48	2.21	65.06	8.60	6.00	50.46	0.34
SO_2	0.60	0.42	0.12	0.61	14.41	0.35	0.04	14.03	0.08
PM_{10}	6.00	6.00	6.00	6.00	144.00	5.00	2.06	136.94	0.76

Average Annual Emissions

Average Operation lb/hr Emission Rates presented below for normal operations are based on normaloperation scenario (max emissions) for 2,628 total operating hours, plus 300 startup/warmup events and 300 shutdown events for 5 units (1-5) and 350 startup/warmup events and 350 shutdown events for 3 units (6-8).

Emissions per turbine	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total
	lb/hr				Total lbs				g/s
Total Hours of Operation	2805	125.00	51.50	2628					
Number per Scenario		300	300						
Duration of Event (min)		25	10.3	60					
NO_X	3.44	59.76	34.95	7.92	30095.58	7470.0	1800.0	20825.6	0.43
CO	5.22	38.15	203.88	11.58	45699.75	4768.5	10500.0	30431.3	0.66
VOC	0.91	10.32	17.48	2.21	7999.83	1290.0	900.0	5809.8	0.12
SO_2	0.19	0.42	0.12	0.61	1673.23	52.2	6.1	1615.0	0.02
PM_{10}	1.92	6.00	6.00	6.00	16827.00	750.0	309.0	15768.0	0.24

Note: Worst-case lb/hr is the total emissions (lbs) over 8,760 hours/year

				5 turbines + fire pump	5 turbines + cooling tower + fire pump	
Est. annual normal operating hours	2628					
Number of Turbines:	1	5				
ANNUAL TOTALS	1 unit	5 units at 30%				
NO_X	15.05	75.24	tpy	75.29	75.29	tpy
CO	22.85	114.25	tpy	114.26	114.26	tpy
VOC	4.00	20.00	tpy	20.01	20.01	tpy
SO_2	0.84	4.18	tpy	4.18	4.18	tpy
PM_{10}	8.41	42.07	tpy	42.07	43.19	tpy

Emissions per turbine 3200 hrs - 350 SU/SD	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total
	lb/hr				Total lbs				g/s
Total Hours of Operation	3406	145.83	60.08	3200					
Number per Scenario		350	350						
Duration of Event (min)		25	10.3	60					
NOX	4.13	59.76	34.95	7.92	36173.39	8715.0	2100.0	25358.4	0.52
CO	6.26	38.15	203.88	11.58	54868.05	5563.2	12250.0	37054.8	0.79
VOC	1.10	10.32	17.48	2.21	9629.38	1505.0	1050.0	7074.4	0.14
SO2	0.23	0.42	0.12	0.61	2034.44	60.9	7.1	1966.5	0.03
PM10	2.33	6.00	6.00	6.00	20435.50	875.0	360.5	19200.0	0.29

Note: Worst-case lb/hr is the total emissions (lbs) over 8,760 hours/year

Estimated annual normal operating hours	3200	
Number of Turbines:	1	3
ANNUAL TOTALS	1 unit	3 units at 37%
NOX	18.09	54.26
CO	27.43	82.30
VOC	4.81	14.44
SO2	1.02	3.05
PM10	10.22	30.65

Average Annual Emissions

ANNUAL TOTALS	8 units (5 units at 30%, 3 units at 37%)			turbines + fire pump	turbines + cooling tower + fire pump	
NOX	258,998	**129.50**	tpy	129.55	129.55	tpy
CO	393,103	**196.55**	tpy	196.56	196.56	tpy
VOC	68,887	**34.44**	tpy	34.46	34.46	tpy
SO2	14,469	**7.23**	tpy	7.23	7.23	tpy
PM10	145,442	**72.72**	tpy	72.72	73.84	tpy

Cooling Tower Drift Calculation

5 cell tower - North

Cooling Tower					
design circulating water rate		39,300	gallons/min		
cycles of concentration		1			
TDS		5000	mg/liter		
		41.72	lb/1000 gallons		
Drift Eliminator Control		0.000005			
Operating hours per year		2628			
Drift PM emissions	total	0.49	lb/hr	0.098 lb/hr	per cell (5)
		1292.7	lb/yr		
		0.65	**tpy**		

Cooling Tower Drift Calculation

3 cell tower - South

Cooling Tower					
design circulating water rate		23,580	gallons/min		
cycles of concentration		1			
TDS		5000	mg/liter		
		41.72	lb/1000 gallons		
Drift Eliminator Control		0.000005			
Operating hours per year		3200			
Drift PM emissions	total	0.30	lb/hr	0.098 lb/hr	per cell (3)
		944.5	lb/yr		
		0.47	**tpy**		

Fire Pump

Emissions from Emergency Diesel Firewater Pump

Rated Horsepower	**240**	**BHP**		
Testing duration	**60**	**min/week**		
Yearly testing	**52**	**week/year**		
Expected non-emergency usage	**52**	**hr/yr**		
Diesel Fired	Emision Factor	Emission Rate per Testing	Yearly Emission Rate	
	g/HP/Hr	lb/hr	lb/yr	
NO_X	3.90	2.06	107.30	1.225E-02
CO	0.59	0.31	16.23	
VOC (Total Hydrocarbons)	1.00	0.53	27.51	
SO_X		0.001	0.06	6.512E-06
PM_{10}	0.14	0.07	3.85	4.397E-04 lb/hr

Note: SO_2 emission calculated from spec sheet gpm of fuel usage and sulfur content of 15 ppm in fuel.

Engine parameters

Flow Rate (acfm)	1227	
Exhaust Temp (degrees F)	891	
Stack Diameter (feet)	0.373	
Stack height (feet)	50	(12 ft building + 38 ft stack)
fuel usage (gph)	10.3	
diesel density (lb/gal)	7.1	

MNHC+NOx emission factor = 4.90
Sulfur content 15 ppm in fuel

Data from Vendor

Emissions from Black Start Engine Generator

Rated Horsepower	2206	**bhp**	
Max Engine Power	1500	Kw	
Total Efficiency	100	%	
Fuel Consumption	0.333	**lb/bhp-hr**	
Testing duration	1	**hr/month**	
Expected non-emergency usage	12	**hr/yr**	
Diesel Fuel Fired	Emision Factor	Emission Rate per Testing	Yearly Emission Rate
	g/Kw/Hr	lb/hr	lb/yr
NO_X	5.400	17.8575	214.29
CO	3.500	11.57	138.89
VOC (Total Hydrocarbons)	1.000	3.31	39.68
PM_{10}	0.200	0.66	7.94
	lb/hp-hr		
SO_2	2.05E-03	4.52	54.27

Note: SO_2 emission factors from EPA AP-42 Table 3.3-1 for diesel fuel Industrial Engines
PM_{10} emission rate includes filterable and condensable emissions.

Engine parameters

Flow Rate (acfm)	11,061	
Exhaust Temp (degrees F)	762.8	
Stack Diameter (feet)	0.66	
Stack height (feet)	50	(12 ft building + 38 ft stack)

Data from Vendor

1-Hour Worst-Case Emission Scenario for Ocotillo

Only NO_2, CO and SO_2 are considered for the 1-hour Ambient Air Quality Standard.
Worst-Case 1-Hour Emissions consists of the maximum of an hour with 1 startup & normal operations; an hour with 1 shutdown and normal operations; or normal operations plus fire pump.
Worst-case 1-Hour Scenario for SO_2 includes new turbines operating for 1 hour at normal rate.
Fire Pump operates 1 hour per week, black start engine operates 1 hour per month.

Emissions per Turbine	**lb/hr**	**g/s**
NO_2	29.52	3.72
CO	44.59	5.62
SO_2	0.615	0.08
Emissions from Fire Pump		
NO_2	2.06	0.26
CO	0.31	0.04
SO_2	0.001	1.38E-04
Emissions from Black Start Engine		
NO_2	17.86	2.25
CO	11.57	1.46
SO_2	4.52	0.57

3 Hour Emissions Scenarios for Ocotillo

Only SO_2 is considered for an average 3-hour Ambient Air Quality Standard.
The worst-case 3-hour emission rate is the maximum SO_2 rate for 100% load, normal operating case (72°F; with Evap. Cooler On).
Fire Pump operates 1 hour per week.

Emissions per Turbine	**lb/hr**	**g/s**
SO_2	0.615	0.08
Emissions from Fire Pump		
SO_2	0.0004	4.61E-05
Emissions from Black Start Engine		
SO_2	1.51	0.19

8-Hour Emissions Scenarios for Ocotillo

Only CO is considered for an average 8-hour Ambient Air Quality Standard.
Worst-case (non-commissioning) 8-Hour Scenario includes 1 startup & 1 shutdown and remaining time at normal rate.
Fire Pump operates 1 hour per week.

Emissions per Turbine	**lb/hr**	**g/s**
CO	17.09	2.15
Emissions from Fire Pump		
CO	0.04	0.00
Emissions from Black Start Engine		
CO	1.45	0.18

24-Hour Emissions Scenarios for Ocotillo

Only SO_2 and PM_{10} are considered for an average 24-hour Ambient Air Quality Standard.
Worst-case 24-Hour Scenario for PM_{10} includes 2 Startups, 2 Shutdowns, and remaining time at normal rate. SO_2 uses normal operating rate.
Fire Pump operates 1 hour per week, black start enginer operates one hour per month.

Emissions per Turbine	lb/hr	g/s
NO_2	10.11	1.27
CO	15.25	1.92
VOC	2.71	0.34
SO_2	0.601	0.08
PM_{10}	6.00	0.76
Emissions per Cooling Tower Cell	**lb/hr**	**g/s**
PM_{10}	0.098	0.01
Emissions from Fire Pump		
NO_2	0.086	0.01
CO	0.013	0.00
VOC	0.022	0.00
SO_2	4.57E-05	0.000
PM_{10}	0.003	0.00
Emissions from Black Start Engine		
NO_2	0.74	0.09
CO	0.48	0.06
VOC	0.14	0.02
SO_2	0.19	0.02
PM_{10}	0.01	0.00

Average Annual Emissions for Ocotillo

Average Operation Emission Rates are based on the annual operation scenarios for 2,628 hours plus 300 startup/shutdown events for 5 turbines, and 3,200 operating hours plus 350 startup/shutdown events for 3 turbines.
Fire Pump operates 52 hours per year. Cooling tower operates 5 cells @ 2,628 hours per year, and 3 cells @ 3,200 hours per year.
Annual SO_2 assumes 0.25 grains S/scf of natural gas.

	5 units (1-5)		3 units (6, 7, 8)	
Emissions per Turbine	**lb/hr**	**g/s**	**lb/hr**	**g/s**
NO_X	3.44	0.43	4.13	0.52
CO	5.22	0.66	6.26	0.79
VOC	0.91	0.12	1.10	0.14
SO_2	0.19	0.02	0.23	0.03
PM_{10}	1.92	0.24	2.33	0.29
Emissions per Cooling Tower Cell				
PM_{10}	0.030	3.72E-03	0.036	4.53E-03
Emissions from Fire Pump				
NO_2	1.22E-02	1.54E-03		
CO	1.85E-03	2.33E-04		
VOC	3.14E-03	3.96E-04		
SO_2	6.51E-06	8.20E-07		
PM_{10}	4.40E-04	5.54E-05		
Emissions from Black Start Engine				
NO_2	2.45E-02	3.08E-03		
CO	1.59E-02	2.00E-03		
VOC	4.53E-03	5.71E-04		
SO_2	6.19E-03	7.81E-04		
PM_{10}	9.06E-04	1.14E-04		

Note: Worst-case annual lb/hr is the total emissions (lbs) over 8,760 hours/year

APPENDIX C

Supporting Calculations for Project Toxic Air Contaminant Emissions Estimates

Toxic Air Contaminant Emissions from Each Turbine 1 - 5

Max Fuel Flow (HHV) **875.7 MMBtu/hr**
Maximum annual hours of operation **2805 hr/yr**
includes 2628 hours of normal operations plus 300 startups and 300 shutdowns
Operations Fuel Flow based on the maximum fuel flow (Case 103; 72°F ambient temperature; 100% load with evaporative cooling)

Pollutant	CAS	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMcf)	Emission factor source	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)
Ammonia *	7664417			max TBACT level	5.867	1.65E+04
1,3-Butadiene	106990	4.30E-07		AP-42	3.77E-04	1.06E+00
Acetaldehyde	75070	4.00E-05		AP-42	3.50E-02	9.82E+01
Acrolein	107028	3.62E-06		AP-42	3.17E-03	8.89E+00
Benzene	71432	3.26E-06		AP-42	2.85E-03	8.01E+00
Ethylbenzene	100414	3.20E-05		AP-42	2.80E-02	7.86E+01
Formaldehyde	50000	3.60E-04		AP-42	3.15E-01	8.84E+02
Propylene Oxide	75569	2.90E-05		AP-42	2.54E-02	7.12E+01
Toluene	108883	1.30E-04		AP-42	1.14E-01	3.19E+02
Xylenes	1330207	6.40E-05		AP-42	5.60E-02	1.57E+02
PAH						
Benzo(a)anthracene	56553	2.22E-08	2.26E-05	CATEF mean	1.94E-05	5.45E-02
Benzo(a)pyrene	50328	1.37E-08	1.39E-05	CATEF mean	1.20E-05	1.32E-01
Benzo(b)fluoranthene	205992	1.11E-08	1.13E-05	CATEF mean	9.72E-06	2.73E-02
Benzo(k)fluoranthene	207089	1.08E-08	1.10E-05	CATEF mean	9.46E-06	2.65E-02
Chrysene	218019	2.48E-08	2.52E-05	CATEF mean	2.17E-05	6.08E-02
Dibenz(a,h)anthracene	53703	2.31E-08	2.35E-05	CATEF mean	2.02E-05	5.67E-02
Indeno(1,2,3-cd)pyrene	193395	2.31E-08	2.35E-05	CATEF mean	2.02E-05	5.67E-02
Naphthalene	91203	1.63E-06	1.66E-03	CATEF mean	1.43E-03	4.01E+00
Total PAHs (other than naphthalene)					1.13E-04	4.15E-01
Total Annual HAP Emissions per Turbine (ton/yr)						**8.16E-01**

Notes:

- Emission factors obtained from US EPA AP-42 Table 3.1-3 for uncontrolled natural gas-fired stationary turbines. Formaldehyde, Benzene, and Acrolein emission factors are from the Background document for AP-42 Section 3.1, Table 3.4-1 for a natural gas-fired
'combustion turbine with a CO catalyst.
- Emission factors obtained from the CATEF database for natural gas-fired combustion turbines with SCR and CO catalyst.
- Ammonia emission rate based on an exhaust NH_3 limit of 5 ppmv @ 15% O_2 provided by the turbine vendor.
- Used a HHV (Btu/scf) = 1018
* not a CAA112 HAP

Toxic Air Contaminant Emissions from Each Turbine 6 - 8

Max Fuel Flow (HHV) **875.7 MMBtu/hr**
Maximum annual hours of operation **3406 hr/yr**
includes 3200 hours of normal operations plus 350 startups and 350 shutdowns
Operations Fuel Flow based on the maximum fuel flow (Case 103; 72°F ambient temperature; 100% load with evaporative cooling)

Pollutant	CAS	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMcf)	Emission factor source	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)
Ammonia *	7664417			max TBACT level	5.867	2.00E+04
1,3-Butadiene	106990	4.30E-07		AP-42	3.77E-04	1.28E+00
Acetaldehyde	75070	4.00E-05		AP-42	3.50E-02	1.19E+02
Acrolein	107028	3.62E-06		AP-42	3.17E-03	1.08E+01
Benzene	71432	3.26E-06		AP-42	2.85E-03	9.72E+00
Ethylbenzene	100414	3.20E-05		AP-42	2.80E-02	9.54E+01
Formaldehyde	50000	3.60E-04		AP-42	3.15E-01	1.07E+03
Propylene Oxide	75569	2.90E-05		AP-42	2.54E-02	8.65E+01
Toluene	108883	1.30E-04		AP-42	1.14E-01	3.88E+02
Xylenes	1330207	6.40E-05		AP-42	5.60E-02	1.91E+02
PAH						
Benzo(a)anthracene	56553	2.22E-08	2.26E-05	CATEF mean	1.94E-05	6.62E-02
Benzo(a)pyrene	50328	1.37E-08	1.39E-05	CATEF mean	1.20E-05	4.07E-02
Benzo(b)fluoranthene	205992	1.11E-08	1.13E-05	CATEF mean	9.72E-06	3.31E-02
Benzo(k)fluoranthene	207089	1.08E-08	1.10E-05	CATEF mean	9.46E-06	3.22E-02
Chrysene	218019	2.48E-08	2.52E-05	CATEF mean	2.17E-05	7.38E-02
Dibenz(a,h)anthracene	53703	2.31E-08	2.35E-05	CATEF mean	2.02E-05	6.88E-02
Indeno(1,2,3-cd)pyrene	193395	2.31E-08	2.35E-05	CATEF mean	2.02E-05	6.88E-02
Naphthalene	91203	1.63E-06	1.66E-03	CATEF mean	1.43E-03	4.86E+00
Total PAHs (other than naphthalene)					1.13E-04	3.84E-01
Total Annual HAP Emissions per Turbine (ton/yr)						**9.90E-01**

Notes:

- Emission factors obtained from US EPA AP-42 Table 3.1-3 for uncontrolled natural gas-fired stationary turbines. Formaldehyde, Benzene, and Acrolein emission factors are from the Background document for AP-42 Section 3.1, Table 3.4-1 for a natural gas-fired
'combustion turbine with a CO catalyst.
- Emission factors obtained from the CATEF database for natural gas-fired combustion turbines with SCR and CO catalyst.
- Ammonia emission rate based on an exhaust NH_3 limit of 5 ppmv @ 15% O_2 provided by the turbine vendor.
- Used a HHV (Btu/scf) = 1018
* not a CAA112 HAP

Toxic Air Contaminant Emissions from Cooling Tower Cells 1 - 5

design circulating water rate	39,300	gallons/min	7860
cycles of concentration	1		
Drift Eliminator Control	0.000005	=	0.0005 %
Operating hours per year	2,628		
Number of cells in the cooling tower	5		

Toxic Air Contaminant	CAS	TAC Concentration in water[1]		Total tower emissions		Emissions per cell	
		ug/liter	lb/(1000 gallon)	lb/hr	lb/yr	lb/hr	lb/yr
Antimony	7440360	0.34	0.000003	3.34E-08	8.79E-05	6.69E-09	1.76E-05
Arsenic	7440382	2.3	0.000019	2.26E-07	5.95E-04	4.53E-08	1.19E-04
Chlorine	7782505	27000	0.225299	2.66E-03	6.98E+00	5.31E-04	1.40E+00
Chromium	18540299	0.91	0.000008	8.95E-08	2.35E-04	1.79E-08	4.71E-05
Copper *	7440508	0.85	0.000007	8.36E-08	2.20E-04	1.67E-08	4.40E-05
Fluoride *	1101	570	0.004756	5.61E-05	1.47E-01	1.12E-05	2.95E-02
Lead	7439921	0.21	0.000002	2.07E-08	5.43E-05	4.13E-09	1.09E-05
Selenium	7782492	1.3	0.000011	1.28E-07	3.36E-04	2.56E-08	6.72E-05
Silica *	7631869	11000	0.091789	1.08E-03	2.84E+00	2.16E-04	5.69E-01
Sulfate *	9960	8300	0.069259	8.17E-04	2.15E+00	1.63E-04	4.29E-01
Vanadium *	7440622	38.3	0.000320	3.77E-06	9.90E-03	7.54E-07	1.98E-03
Zinc *	7440666	70	0.000584	6.89E-06	1.81E-02	1.38E-06	3.62E-03
Total Annual HAP Emissions (ton/yr)					**3.49E-03**		

Note:
The maximum concentration for each TAC as determined from water samples collected from the existing onsite well.
* not a CAA112 HAP

Toxic Air Contaminant Emissions from Cooling Tower Cells 6 - 8

design circulating water rate	23,580	gallons/min	
cycles of concentration	1		
Drift Eliminator Control	0.000005	=	0.0005 %
Operating hours per year	3200		
Number of cells in the cooling tower	3		

Toxic Air Contaminant	CAS	TAC Concentration in water[1]		Total tower emissions		Emissions per cell	
		ug/liter	lb/(1000 gallon)	lb/hr	lb/yr	lb/hr	lb/yr
Antimony	7440360	0.34	0.000003	2.01E-08	6.42E-05	6.69E-09	2.14E-05
Arsenic	7440382	2.3	0.000019	1.36E-07	4.34E-04	4.53E-08	1.45E-04
Chlorine	7782505	27000	0.225299	1.59E-03	5.10E+00	5.31E-04	1.70E+00
Chromium	18540299	0.91	0.000008	5.37E-08	1.72E-04	1.79E-08	5.73E-05
Copper *	7440508	0.85	0.000007	5.02E-08	1.61E-04	1.67E-08	5.35E-05
Fluoride *	1101	570	0.004756	3.36E-05	1.08E-01	1.12E-05	3.59E-02
Lead	7439921	0.21	0.000002	1.24E-08	3.97E-05	4.13E-09	1.32E-05
Selenium	7782492	1.3	0.000011	7.67E-08	2.46E-04	2.56E-08	8.19E-05
Silica *	7631869	11000	0.091789	6.49E-04	2.08E+00	2.16E-04	6.93E-01
Sulfate *	9960	8300	0.069259	4.90E-04	1.57E+00	1.63E-04	5.23E-01
Vanadium *	7440622	38.3	0.000320	2.26E-06	7.23E-03	7.54E-07	2.41E-03
Zinc *	7440666	70	0.000584	4.13E-06	1.32E-02	1.38E-06	4.41E-03
Total Annual HAP Emissions (ton/yr)					**2.55E-03**		

Note:
The maximum concentration for each TAC as determined from water samples collected from the existing onsite well.
* not a CAA112 HAP

Toxic Air Contaminant Emissions from Emergency Diesel Firewater Pump

Rated Horsepower	**240**	**BHP**
Expected non-emergency usage	**52**	**hr/yr**

Pollutant	CAS	Emission Factor (Power Output) (g/hp-hr)	Emission factor source	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)
Diesel Particulate (PM10)	9901	0.14	Vendor guarantee	0.074	3.848

Toxic Air Contaminant Emissions from Black Start Engine

Rated Horsepower	**1500**	**kW**
Expected non-emergency usage	**12**	**hr/yr**

Pollutant	CAS	Emission Factor (Power Output) (g/kW-hr)	Emission factor source	Hourly Emission Rate (lb/hr)	Annual Emission Rate (lb/yr)
Diesel Particulate (PM10)	9901	0.20	Vendor guarantee	0.661	7.930

MODELING PROTOCOL FOR THE CPV OCOTILLO ENERGY PROJECT RIVERSIDE COUNTY, CALIFORNIA

Prepared for

South Coast Air Quality Management District and
California Energy Commission

Prepared on Behalf of

Competitive Power Ventures

May 8, 2007

URS

1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108-4314
619.294.9400 Fax: 619.293.7920

May 8, 2007

Mr. Mike Mills
Senior Air Quality Manager
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765-4182

Subject: Modeling Protocol for the CPV Ocotillo Energy Center
Riverside County, California

Dear Mike:

Please find enclosed for SCAQMD review and comment two copies of the air quality modeling protocol for the CPV Ocotillo Energy Center Project, which is being proposed by Competitive Power Ventures (CVP). Copies of the protocol are also being provided for review and comment to the California Energy Commission (CEC) air modeling staff. Please provide one of the enclosed copies to the District's air modeling specialist who is being assigned to this project.

The Project will consist primarily of eight simple cycle LMS100 peaker turbines with a combined maximum generating capacity of approximately 815 MW. The project site is southwest of Desert Hot Springs, approximately 1 mile east of State Route 62 (Twenty-nine Palms Highway), 1 mile north of I-10, and 2 miles west of Indian Avenue.

An Application for Certification for the proposed power generation facility will be submitted to CEC within approximately one month. We would thus appreciate receiving your review comments as soon as possible, so that any changes that may be required can be incorporated. Please distribute the protocol among your colleagues as appropriate.

Thank you in advance for your review of this protocol. Do not hesitate to contact me directly with any questions or concerns regarding any aspect of our intended modeling methodology.

Sincerely,

URS CORPORATION

John Lague
Senior Air Quality Consultant

JL:ml

Enclosures

TABLE OF CONTENTS

Tables

Figures

$\mu g/m^3$	Micrograms per cubic meter
μm	Micrometers
σ_z	Plume vertical spreading parameter
AAQS	Ambient Air Quality Standards
AERMOD	American Meteorological Society/Environmental Protection Agency regulatory model
AFC	Application for certification
AOI	Area of impact
APN	Assessors parcel number
AQRV	Air quality related values
ARB	Air Resources Board
ARM	Ambient ratio method
ATC	Authority to Construct
BACT	Best available control technology
BPIP	Building profile input program
C	Contrast
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEC	California Energy Commission
CO	Carbon monoxide
COEP	CPV Ocotillo Energy Project
CTG	Combustion turbine generator
CVP	Competitive Power Ventures
°C	Degrees Celsius
dE	Difference index
DEM	Digital elevation model
DOC	Determination of Compliance
FLAG	Federal Land Managers Air Quality Related Values Workgroup
FLM	Federal land manager
g/s	Gram per second
GE	General Electric
GEP	Good engineering practice
H1H	High first high
HARP	Hotspots analysis and reporting program
HI	Hazard index
HNO_3	Nitric acid
HRA	Health risk assessment
ISCST3	Industrial Source Complex Short Term 3rd version

IWAQM	Interagency Workgroup on Air Quality Modeling
km	Kilometers
LCC	Lambert conformal conic
LORS	Laws, ordinances, regulations, and standards
m/s	Meter per second
MEI	Maximally exposed individual
m	Meter
MICR	Maximum individual cancer risk
mm	Millimeter
MM5	Mesoscale meteorological data
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NNSR	Non-attainment New Source Review
NO_2	Nitrogen dioxide
NO_3	Nitrates
NO_x	Nitrogen oxides
NPS	National Park Service
NSR	New Source Review
NWS	National Weather Service
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OLM	Ozone limiting method
Pb	Lead
$PM_{2.5}$	Particulate matter less than 2.5 µm in diameter
PM_{10}	Particulate matter less than 10 µm in diameter
PMS	Particulate matter speciation
ppb	Parts per billion
ppm	Parts per million
PSD	Prevention of significant deterioration
ROC	Reactive organic compound
SCE	Southern California Edison
SCR	Selective catalytic reduction
SIL	Significant impact level
SCAQMD	South Coast Air Quality Management District
SO_2	Sulfur dioxide
SO_4	Sulfates
SOA	Secondary organic aerosol

TAC	Toxic air contaminants
T-BACT	Best available control technology for toxics
tpy	Tons per year
u	Wind speed
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USGS	United States Geological Survey
UTM	Universal Transverse Mercator

SECTION 1 INTRODUCTION

1.1 BACKGROUND

Competitive Power Ventures (CPV) is proposing to build and operate a new natural gas-fired simple cycle peaking plant with a generating capacity of approximately 850 megawatts (MW) using eight new General Electric (GE) LMS100 combustion turbine generators (CTG). The CPV Ocotillo Energy Project (COEP) site is in central Riverside County in the upper Coachella Valley about 1 mile west of State Highway 62 and 1 mile north of I-10 along Power Line Road (Figure 1-1). The project is subject to the site licensing requirements of the California Energy Commission (CEC). The CEC will coordinate its independent air quality evaluations with the South Coast Air Quality Management District (SCAQMD) through the Determination of Compliance (DOC) process. Annual emissions of all criteria pollutants will be below the emission level thresholds specified by the United States Environmental Protection Agency's (USEPA) Prevention of Significant Deterioration (PSD) regulations for Major Sources. Specifically, the COEP Facility will emit less than: 250 tons per year (tpy) of nitrogen oxides (NO_x), carbon monoxide (CO), reactive organic compounds (ROC) and sulfur dioxide (SO_2), less than 0.6 tons per year of lead (Pb) and less than 7.0 tons per year of sulfuric acid mist.

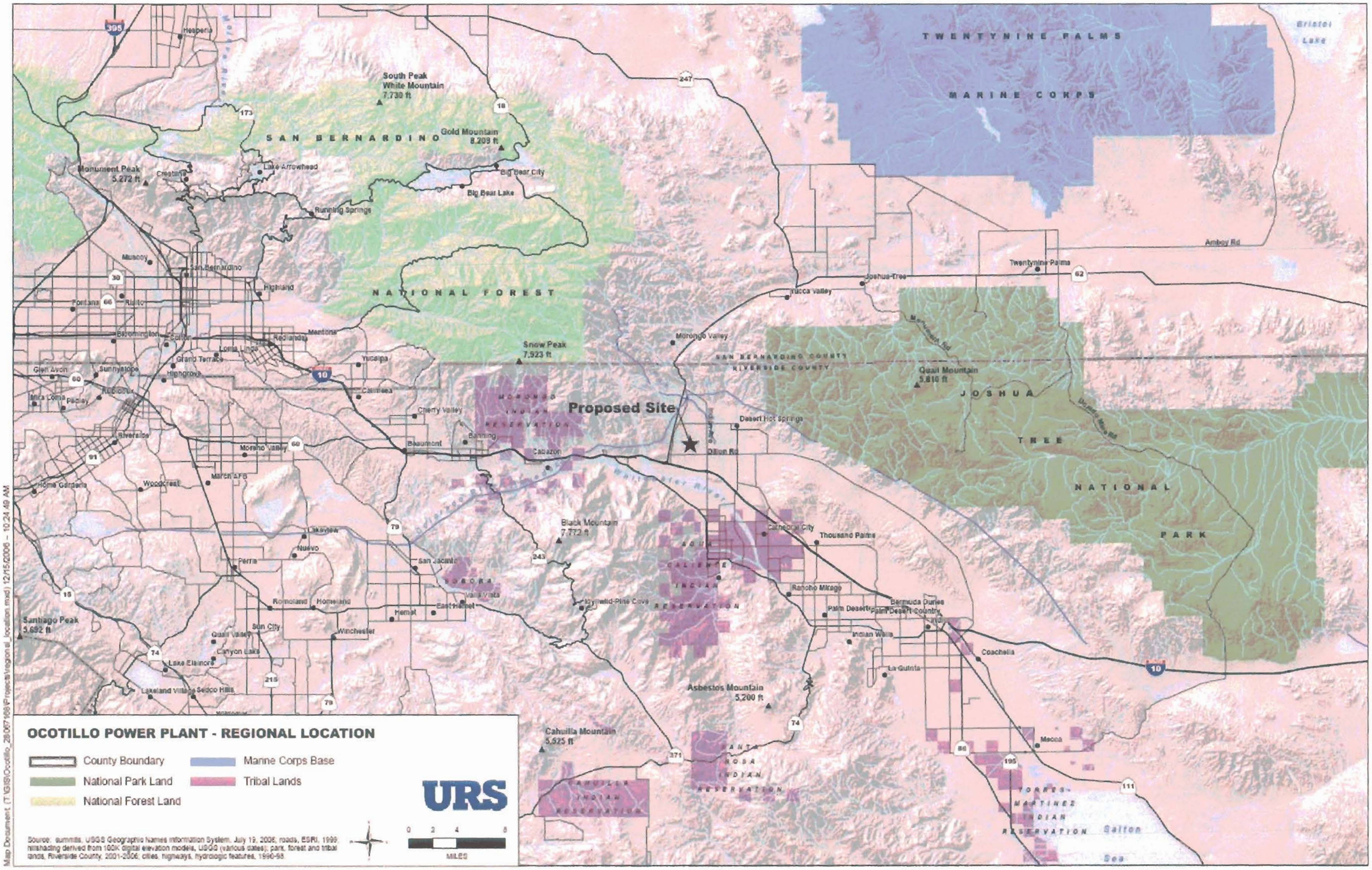
SCAQMD new source review (NSR) and non-attainment NSR (NNSR) regulations are potentially applicable to all criteria pollutants emitted by a new source, depending on the quantities of pollutants that will be emitted. The area around the COEP Facility is classified as national attainment/unclassified for nitrogen dioxide (NO_2), CO and SO_2, and non-attainment for ozone (O_3), particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$), and PM_{10}. With respect to the California Ambient Air Quality Standards (CAAQS), the area around the COEP is classified as attainment for CO, NO_2, sulfates, Pb, hydrogen sulfide, and SO_2, and non-attainment for O_3, $PM_{2.5}$, and PM_{10}. NO_2 and SO_2 are regulated as PM_{10} precursors, and NO_2 and ROC as O_3 precursors. Project emissions of non-attainment pollutants and their precursors will be offset to satisfy state and local NNSR regulations.

1.2 PURPOSE

The CEC and SCAQMD require the use of atmospheric dispersion modeling to demonstrate compliance with applicable air quality standards, and modeling is also required to evaluate the potential impacts on human health from toxic air contaminants. CEC siting regulations also require that the cumulative impacts of the proposed project and reasonably foreseeable projects within 6 miles (10 km) of the project site be assessed via modeling.

This document summarizes the procedures to be used for the air dispersion modeling for project certification and permitting. Modeling of both operational and construction emissions of the Project will be performed in accordance with CEC guidance (CEC, 1997). This protocol is being submitted to the CEC and SCAQMD for their review and comment prior to completion of the applicable permit applications. The proposed model selection and modeling approaches are is based on review of applicable regulations and agency guidance documents, and discussions with agency staff.

Figure 1-1 Area Surrounding COEP Site



SECTION 2 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project will be located on approximately 37 acres located within unincorporated Riverside County. The 37-acre Project Site is within the upper Coachella Valley, roughly 100 miles east of Los Angeles. The site is within the existing Wintec wind energy complex. The westernmost Little San Bernardino Mountains, the southern part of Morongo Valley, the foothills of the San Bernardino Mountains, spurs of the San Jacinto Mountains, and the westernmost extension of the Indio Hills bound the site. It is positioned at the juncture of three geomorphic provinces – the Transverse Ranges north of San Gorgonio Pass, the Peninsular Ranges south of the Pass, and the Colorado Desert.

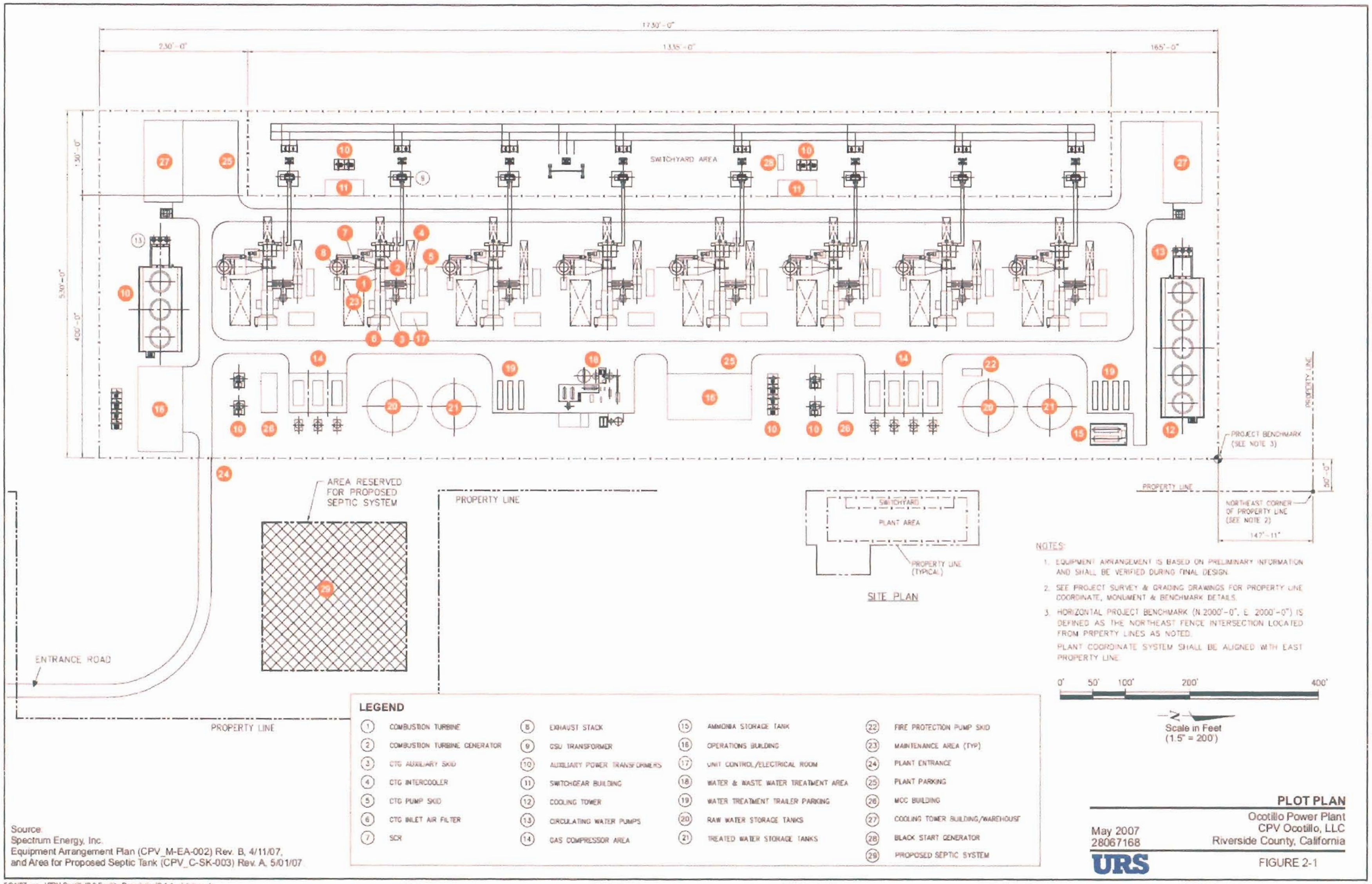
The Coachella Valley is the northwest part of the Colorado Desert that merges southeastward into the Imperial Valley near the northern shore of the Salton Sea. The Coachella Valley is about 50 miles long and from 10 to 20 miles wide. The site is in the northwestern-most portion of the Valley. Figure 2-1 shows the area surrounding the COEP site.

The site is within Riverside County. Nearby towns are the City of Palm Springs, North Palm Springs (unincorporated) and Desert Hot Springs. The site is located southwest of Desert Hot Springs, approximately 1 mile east of State Route 62 (Twentynine Palms Highway), 1 mile north of I-10, and 2 miles west of Indian Avenue. Power Line Road runs along the south side of the property. Approximately one quarter mile from the west border of the site is Diablo Road and a partially developed subdivision of single family homes. West of the Project Site is the Southern California Edison (SCE) Devers Substation. The surrounding area is dominated by the wind turbine generators and transmission lines. The project site is approximately 0.5 miles (0.8 kilometers [km]) from complex terrain (i.e., with elevation exceeding proposed stack heights) and is surrounded by vacant or industrial land. The nearest residential area is approximately 200 yards southeast of the proposed site property line.

2.2 DESCRIPTION OF THE PROPOSED SOURCES

The proposed project will entail the construction and operation of eight (8) GE LMS100 CTG, 2 evaporative cooling towers, associated transformers, water tanks, and other ancillary facilities. The gas turbines will be fired exclusively on natural gas and will be equipped with water injection and selective catalytic reduction (SCR) for the control of NOx emissions and an oxidation catalyst for control of CO emissions. Each CTG will operate in simple cycle mode and will have an exhaust stack with a height of 90 feet and a diameter of 13.5 feet. Aqueous ammonia will be used in the SCR system. One 250-horsepower diesel engine will act as the emergency firewater pump driver. One 1750 kilowatt diesel black start generator will be the only other fuel-fired emission source. The evaporative cooling tower will also be a relatively small source of PM10 (drift). Figure 2-1 is a scaled plot plan showing the layout of Project facilities.

Figure 2-2 Area Surrounding COEP Site



Source:
Spectrum Energy, Inc.
Equipment Arrangement Plan (CPV_M-EA-002) Rev. B, 4/11/07,
and Area for Proposed Septic Tank (CPV_C-SK-003) Rev. A, 5/01/07

5/01/07 vsa ..\CPV Ocotillo\2.0 Facility Description\2.4-1_plotplan.cdr

(MICR), cancer burden, and non-carcinogenic acute and chronic hazard indices (HI) for new or modified sources of TAC emissions. The health risks resulting from project emissions, as determined by a health risk assessment using approved modeling methos, must not exceed established threshold values. While Rule 1401 does not specifically require the application of best available control technology for toxics (T-BACT) to a new or modified source that emits carcinogenic TACs, the rule relaxes the MICR risk threshold when T-BACT is applied.

3.3 U.S. ENVIRONMENTAL PROTECTION AGENCY REQUIREMENTS

USEPA has promulgated PSD regulations applicable to major sources in Riverside County. The COEP facility will not be a major source for criteria pollutants; thus a PSD analysis will not be conducted. The applicant will accept a permit condition limiting the annual operating hours of the proposed plant to a level that will avoid triggering PSD requirements

SECTION 4 MODELS PROPOSED AND MODELING TECHNIQUES

This section describes the dispersion models and modeling techniques to be used in performing the air quality analysis for the COEP. The objectives of the modeling are to demonstrate that air emissions from the COEP will not cause or contribute significantly to an ambient air quality standard violation, and will not cause a significant health risk.

In November 2005, the USEPA officially recognized the American Meteorological Society/ Environmental Protection Agency Regulatory Model (AERMOD) as the preferred dispersion model for regulatory applications, replacing the Industrial Source Complex Short Term 3 (ISCST3) model. Thus, AERMOD will be used in this air quality impact analysis.

4.1 SCREENING MODELING

A turbine screening modeling analysis will be conducted with AERMOD (Version 04300) to determine the stack parameters that cause the maximum off-site ground-level pollutant concentrations due to the proposed combustion turbine generators.. This screening modeling will use the same meteorological data set as the refined modeling analysis. Screening modeling will be conducted with stack parameters corresponding to normal operating emissions of the proposed new turbines for different load conditions and ambient temperatures in order to determine the stack parameters and operating loads that correspond to maximum off-site impacts from the most important project sources, i.e., the CTGs. The stack parameters that align with the highest offsite impact from these sources for each pollutant and averaging time period will be used for subsequent the refined modeling simulations.

4.2 REFINED MODELING

The purpose of the refined modeling analysis is to demonstrate that air emissions from the COEP will not cause or contribute significantly to a violation of an ambient air quality standard (see Table 4-1). The AERMOD model (version 04300) will be used for the refined modeling of criteria pollutants. The regulatory default option will be selected. Specific modeling techniques for the AAQS analysis are discussed below.

Analysis of land use adjacent to the COEP was conducted in accordance with Section 8.2.8 of the *Guideline on Air Quality Models (EPA-450/2-78-027R* and Auer [1978]), *EPA AERMOD Implementation Guide (2004)*, and its addendum (2006). Based on the Auer land use procedure, more than 50 percent of the area within a 3-km radius of the COEP power plant is appropriately classified as rural. Since the Auer classification scheme requires more than 50 percent of the area within the 3-km radius around a proposed new source to be rural for a rural classification, the rural mode will be used in the AERMOD modeling analyses. The regulatory default options will be used, including building and stack tip downwash, default wind speed profiles, exclusion of deposition and gravitational settling, consideration of buoyant plume rise and complex terrain. In addition, the model will be instructed to exclude periods of missing meteorological data.

Table 4-1 Relevant Ambient Air Quality Standards and Significance Levels

Pollutant	Averaging Time	CAAQS (a,c)	NAAQS (b,c)	SCAQMD Significant Change in Air Quality Concentration (μg/m3)	PSD Significant Emission Rates (TPY)
CO	8-hour	9.0 ppm (10,000 μg/m³)	9.0 ppm (10,000 μg/m³)	500	250
	1-hour	20 ppm (23,000 μg/m³)	35 ppm (40,000 μg/m³)	1,100	
NO_2(d)	Annual	-	0.053 ppm (100 μg/m³)	1	250
	1-hour	0.25 ppm (470 μg/m³)	-	(20)(e)	
SO_2	Annual	-	0.03 ppm (80 μg/m³)	-	250
	24-hour	0.04 ppm (105 μg/m³)	0.14 ppm (365 μg/m³)	-	
	3-hour	-	0.5 ppm (1,300 μg/m³)	-	
	1-hour	0.25 ppm (655 μg/m³)	-	-	
PM_{10}	Annual	20 μg/m³	-	1	250
	24-hour	50 μg/m³	150 μg/m³	2.5(f)	
$PM_{2.5}$	Annual	12 μg/m³	15 μg/m³	-	-
	24-hour	-	35 μg/m³	-	-
O_3	8-hour	0.07 ppm (137 μg/m³)	0.08 ppm (157 μg/m³)	-	250 (of ROCs)
	1-hour	0.09 ppm (180 μg/m³)	See footnote(g)	-	-

a. California standards for ozone (as volatile organic compounds, carbon monoxide, sulfur dioxide (1-hour), nitrogen dioxide, and PM_{10}, are values that are not to be exceeded.

b. National standards, other than those for ozone, particulate matter, and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

c. Concentrations are expressed first in units in which they were promulgated. Equivalent units are given in parentheses and based on a reference temperature of 25° Celsius (C) and a reference pressure of 760 millimeters (mm) of mercury (1,013.2 millibar)..

d. Nitrogen dioxide (NO_2) is the compound regulated as a criteria pollutant; however, emissions are usually based on the sum of all oxides of nitrogen (NO_x). On February 27,2007 the California Air Resources Board recommended that the NO2 1-hour and annual standards be lowered. The proposed levels are 0.18 ppm (338 μg/m³) for 1-hour and 0.3 ppm (56 μg/m³) for annual. These standards have not yet been approved by the Office of Administrative Law but are expected to be promulgated later in 2007.

e. Previous SCAQMD 1-hour NO_2 Significant Impact Level in Rule 1303 rescinded for NO_2 attainment areas on April 20, 2001.

Table 4-1
Relevant Ambient Air Quality Standards and Significance Level
(Continued)

f. Per SCAQMD Rule 1303 this threshold applies to each emission unit.

g. New federal 8-hour ozone and fine particulate matter ($PM_{2.5}$) standards were promulgated by USEPA on July 18, 1997. The federal 1-hour ozone standard was revoked by USEPA on June 15, 2005.

-	=	Not applicable
CAAQS	=	California Ambient Air Quality Standard
NAAQS	=	National Ambient Air Quality Standard
Ppm	=	parts per million by volume, or micromoles of pollutant per mole of gas
TPY	=	ton per year
$\mu g/m^3$	=	micrograms per cubic meter

4.2.1 Ambient Air Quality Standard Analysis

In accordance with SCAQMD Rule 1303(b)(1), the proposed COEP will be required to demonstrate compliance with one of the following requirements:

- The project impact plus background must not exceed the most stringent applicable ambient air quality standard for each attainment pollutant (NO_2, SO_2, CO).
- The incremental effect of each permit unit of the COEP may not exceed the Significant Change in Air Quality Concentration standards (listed in Table 4-1 as SCAQMD Significance Levels) for non-attainment pollutants (PM_{10}).

Compliance with these modeling requirements for attainment pollutants will be demonstrated by determining the maximum impact of the proposed Project at any receptor and adding a conservative background concentration based on recent data from the SCAQMD air quality monitoring station determined to be most representative of pre-project conditions in the project area.

Modeling will be conducted for maximum normal operational emissions scenarios, including startups and shutdowns for all averaging times and pollutants. Separate modeling will be conducted to determine the impacts from turbine commissioning due to the fact that commissioning is a short-term, one time event.

Initially, the modeling will assume full conversion of NO_x to NO_2. If required, a 75% conversion rate of NO_x to NO_2 will be assumed for purposes of modeling annual NO_2 impacts.[EPA Ambient Ratio Method (ARM)]. Alternatively the AERMOD option to employ the ozone limiting method (OLM) may be used for estimating hourly and annual concentrations of this pollutant . If 1-hour and annual concentrations do not exceed the applicable ambient air quality standard, then compliance is demonstrated and no further modeling is necessary for NO_2.

For PM_{10}, which is a non-attainment pollutant in the project area, the maximum incremental contribution from each individual turbine of the proposed COEP will be compared directly with the SCAQMD 24-hour and annual Significant Change in Air Quality Concentration thresholds shown in Table 4-1 If the maximum predicted values are below these significant change thresholds, no further demonstration of compliance for this pollutant is required. Note that emissions reduction credits will be provided by the applicant to provide offsets for all Project emissions increases of NO_x, ROC, PM_{10} and SO_2.

4.2.2 Construction Analysis

AERMOD will be used to estimate the worst-case short- and long-term air quality impacts from construction of COEP. The same meteorological input data used for the modeling of the Project's operational emissions will be used for the construction modeling. All fugitive dust sources will be modeled as area sources and all combustion sources will be modeled as point sources. Stack parameters for the combustion point sources will be obtained from the CARB document *Risk Management Guidance for the Permitting of New Stationary Source Diesel-Fueled Engines* (2000). If necessary the OLM method will be applied to calculate NO_2 impacts.

4.2.3 Fumigation

Fumigation occurs when a stable layer of air lies a short distance above the release point of a plume and unstable air lies below. Especially on sunny mornings with light winds, the heating of the earth's surface may cause a layer of turbulence which grows in depth over time and may intersect an elevated exhaust plume, rapidly drawing it down to ground level and creating relatively high pollutant concentrations for a short period. A fumigation modeling analysis will be conducted using SCREEN3, with rural dispersion, stack parameters for one turbine and unit emission rate (1 g/s). The results from SCREEN3 can then be multiplied by the actual emission rate from all turbines and scaled for the averaging time of concern. Only short-term impacts will be examined as fumigation conditions typically last no longer than a few hours.

4.2.4 Cumulative Impact Analysis Using Off-Property Sources

A request will be made to SCAQMD for a list of all new and planned sources of pollutant emissions that would be located within six miles from the proposed COEP facility. The list will include projects that are either currently either under construction, undergoing permitting or expected to be permitted in the near future. When provided, this list will be forwarded onto CEC for review. Based on this information, and CEC response, additional sources may be included in a cumulative source modeling analysis.

4.3 HEALTH RISK ASSESSMENT

The CEC and SCAQMD require a HRA to evaluate TAC emissions from the operation of the project. Contaminants emitted by the project with potential carcinogenic effects or chronic and/or acute non-carcinogenic effects will be considered. This health risk assessment will be performed following the SCAQMD Risk Assessment Procedures for Rules 1401 and 212 (SCAQMD, 2005), Supplemental Guidelines for Preparing Risk Assessments for the Toxics "Hot Spots" Information and Assessment Act (AB2588) (SCAQMD, 2005) and Office of Environmental Health Hazard Assessment (OEHHA), Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003). As recommended by the SCAQMD guideline, the California Air Resources Board (CARB) Hotspots Analysis and Reporting Program (HARP) (CARB, 2005) will be used to perform a refined SCAQMD Tier 4 and OEHHA Tier 1 health risk assessment for the project. HARP includes two modules: a dispersion module and a risk module. The HARP dispersion module incorporates the USEPA ISCST3 air dispersion model, and the HARP risk module implements the latest Risk Assessment Guidelines developed by OEHHA. CARB is currently working on a HARP interface with AERMOD, but this is still in early development and not ready for use by the general public. Thus HARP as presently designed with ISCST3 will be used to conduct the required HRA modeling.

First, ground-level concentrations from the COEP emissions will be estimated using the ISCST3 dispersion model within HARP. The HARP modeling analysis will be consistent with, and use similar source parameters, as the modeling approach discussed above for the AAQS analyses using AERMOD, except that the ISCST3 control parameter NOCALMS will be selected per SCAQMD requirements for HRAs. The same 5-year meteorological data set used for AERMOD will be processed for input into ISCST3, and used in the HRA. Based on the impacts determined by the ISCST3 model, the HARP model will be used to estimate the corresponding health risks. The ISCST3 results obtained for the year(s) of meteorological data resulting in the highest 1-hour and annual impacts will be used and receptors will be placed at 25-meter spacing around the facility fenceline and 100-meter spacing outside the fence out to 10 km. All receptors that HARP creates inside the fenceline will be excluded. The HARP simulations will also include the census receptors out to 10 km, and additional receptors will be placed at all sensitive locations (e.g., schools, hospitals, etc.) out to a distance of 3 miles.

Per SCAQMD guidelines, cancer risk will be determined using the "Derived (Adjusted)" calculation method. Chronic non-cancer risks will be calculated with the "Derived (OEHHA)" method. Since the COEP site is in a desert environment, there are no cattle or water sources; thus the dairy milk/beef ingestion, fish and drinking water consumption pathways will not be included in this analysis.

The HRA performed by means of the HARP model will follow the following steps:

- Define the location of the MEI for residents and commercial/industrial (i.e., the location where the highest carcinogenic risk may occur);
- Define the locations of the maximum chronic non-carcinogenic adverse health effects and the maximum acute adverse health effects;
- Calculate concentrations and adverse health effects at locations of maximum impact for each pollutant;
- Calculate cancer burden if the maximum cancer risk is predicted to be greater than one in a million;
- Determine the zone of impact for cancer risk if the maximum cancer risk is predicted to be greater than or equal to one in a million; and
- Determine the zone of impact for acute and chronic health risks if the acute or chronic health index is predicted to be greater than or equal to 0.5.

4.4 VISIBILITY ANALYSIS

SCAQMD Rule 1303(b)(5) (C)(i) requires a plume visibility analysis if the net emissions increase from a new source will exceed 15 tpy of PM_{10} or 40 tpy of NO_x, provided that the source is located within specified distances from the nearest boundary of a Federal Class I area. The proposed COEP site is within the distances specified in Rule 1303 for 3 Class I areas. In addition, the Project emissions are expected to exceed both the NO_x and PM_{10}. threshold values. Accordingly, a plume visibility analysis will be conducted in the manner that meets the requirements of Rule 1303 Appendix B.

The Class I areas that will be included in the plume visibility analysis are listed in Table 4-2, along with the distances to each area from COEP. The federal authority in charge of the two Wilderness Areas identified in Table 4-2 is the United States Forest Service (USFS) and the National Park Service (NPS) has jurisdiction over Joshua Tree National Park. The visibility analyses for these areas will be conducted in a manner consistent with guidance from the NPS and USFS following the procedures set forth in the

Table 4-2 Class I Areas Near the COEP

Class I Area	Distance from COEP to Class I Area (km)	SCAQMD Rule 1303 Required Analysis Distance (km)
San Jacinto Wilderness Area	9	28
Joshua Tree National Park	10	29
San Gorgonio Wilderness Area	22	32

Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report (USFS, 2000), with any exceptions noted in this protocol due to SCAQMD requirements.

For these three Class I areas a visibility modeling analysis will be performed to address the proposed project's impacts in terms of plume contrast and color difference index. Initially, a series of Level I visibility screening analyses will be conducted to obtain a conservative evaluation of the proposed Project's potential to adversely affect visibility in the San Jacinto Wilderness Area, the San Gorgonio Wilderness Area, and the Joshua Tree National Park. The Level 1 analysis entails use of the USEPA VISCREEN model with simple, worst-case default input assumptions (i.e., extremely stable [Class F]) atmospheric turbulence conditions and a very low wind speed [1.0 meter per second] persisting for 12 consecutive hours in a direction that would transport the proposed turbine plumes toward a hypothetical observer at each Class I area. The only inputs required to execute the Level I analysis with the default parameter settings are: (1) projected short-term maximum turbine emission rates of fine particulate, and nitrogen oxides; per *USEPA Plume Visual Impact Screening Workbook (EPA, 1988 and 1992;* (2) the distances between the project stacks and a hypothetical observer at the nearest and farthest Park boundaries; and (3) representative background visual range values for the region(s) of concern.

The VISCREEN output for a Class I analysis provides the results of the following plume impact tests:

- Plume perceptibility based on color differences between the plume and a sky or terrain background (dE).
- Plume contrast relative to a sky or terrain background (C).

The VISCREEN model calculates the color difference index (dE) and the contrast (C) for four different lines of sight corresponding to two types of background (sky and terrain), and two assumed worst-case sun angles (10 degrees and 140 degrees). As part of the standard output, the four lines of sites will be calculated for both the observer's view inside the Class I area and the view outside the area. However, it should be noted that both the NPS and the USFS identify only the views inside the Class I area as the criteria for significance in this analysis.

Based upon the FLAG workbook, the significance criterion for the dE is less than 2, and a value of 0.05 or higher is considered significant for C. As recommended by the FLAG document, a Level II screening procedure should be conducted when the potential for impacts greater than the screening criteria is indicated by the results of the Level I analysis, as described in the *Plume Visual Impact Screening Workbook (EPA, 1988 and 1992)*.

The Level II procedure is similar to the Level I analysis, but allows more site-specific input data to be used in place of the extremely conservative default assumptions Specifically, the frequency of occurrence of the different dispersion conditions in the project vicinity will be established and ranked in terms of increasing values of the dispersion parameter '$\sigma_z u$' (i.e., the product of the wind speed (u) and the plume vertical spread parameter (σ_z) for the appropriate stability class) and the source-receptor distance. The VISCREEN model will then be run for the most restrictive combination of wind speed, wind direction and atmospheric stability that corresponds to a cumulative frequency of 1% (in combination with all the other combinations corresponding to lesser dispersion parameter values). A background ozone concentration of 0.065 ppm will be incorporated to represent the worst-case 24-hour ozone concentration in the region.

The Level II procedure consists of analyzing the available meteorological data to incorporate information on the frequency of conditions that may lead to adverse plume impacts in the Class I areas. The required meteorological statistics used for this refinement will be derived from the five-year hourly ISCST3 meteorological data set used in the HRA, which is discussed later in this protocol. Hourly wind data were measured at the Wintec wind farm, very near the proposed COEP site and are considered to be the most representative data available to characterize wind conditions at the site (see Section 4.8).

This data set will first be analyzed to determine the frequencies of various combinations of wind speed and stability occurring simultaneously with wind directions within the approximately 30 degree sectors that would carry the COEP facility plume toward each of the three Class I areas identified for analysis. Frequency distributions will be developed separately for four diurnal time periods (midnight-6:00 am, 6:00 am-noon, noon-6:00 pm, and 6:00 pm-midnight). For each 6-hour time period, the joint frequencies of five wind speed categories (0-1 meters per second (m/s), 1-2 m/s, 2-3 m/s, 3-4 m/s, and 4-5 m/s), six stability classes (Class A-most unstable through Class F-most stable - Class G is considered as Class F) and the specific wind direction compass sectors toward the Class I areas from the project site. For each time of day and each wind direction sector, 14 wind speed/stability combinations will be ranked in order of increasing values of the dispersion parameter, σ_z u as described above. The combinations will include F stability for wind speed classes 1 through 4, E stability with wind speed classes 1 through 5, and D stability with wind speed classes 1 through 5, as specified by the Level II guidance. Note that the lowest values of the dispersion parameter $\sigma_z u$ correspond to the most restrictive dispersion conditions. Finally, a table will be constructed showing the percent frequency of occurrence for each combination of stability and wind speed or, alternatively for each value of σ_z u. These data are tabulated in terms of the frequency of each combination, as well as the cumulative frequency of all combinations with lower values of σ_z u.

The meteorological condition for each Class I area with a cumulative frequency of 1 or greater, and with a wind speed fast enough to transport the plume to the given Class I area within 12 hours will be selected. The front edge of the San Jacinto Wilderness Area and San Gorgonio Wilderness Area lie in complex terrain. Since the elevation gain from the COEP to both these parks is greater than 500 meters, the worst-case stability class selected may be shifted to one category less stable, per the *Plume Visual Impact Screening Workbook (EPA, 1988 and 1992)..* Thus the VISCREEN model will be run for one stability class less stable with the wind speed determined by the techniques described above to determine whether impacts above the model's screening criteria would be predicted for each Class I areas. Background visual ranges are provided in SCAQMD Rule 1303. The background visible range values to be used in all levels of analysis for San Jacinto Wilderness Area are 171 km, 180 km for Joshua Tree National Park, and

192 km for San Gorgonio Wilderness Area. For Level I and II visibility modeling, the maximum 24-hour averaged emission rates of NO_2 and PM_{10} from all sources will be used, per the *Plume Visual Impact Screening Workbook (EPA, 1988 and 1992).*

If the plume parameters predicted by VISCREEN are above the screening criteria for locations inside the Class I areas, a Level III analysis using the USEPA PLUVUE II plume visibility model will be required to determine whether a less conservative screening approach would result in predicted significant impacts within the three Class I areas. According to the FLAG guidance, the significant impact levels for the Level III analysis are more stringent than those for the Level 1 and Level II modeling approach. Thus the dE and contrast numbers used as significance criteria in the PLUVUE II simulations will be 1.0 and 0.02, respectively.

As recommended in the EPA *Workbook for Plume Visual Impact Screening and Analysis*, the meteorology will be examined by season, time of day, stability class, wind speed and wind direction. Only daylight hours will be examined, as the plume will not be visible in the dark of night. Full details of the meteorological analysis used to determine realistic worst-case input scenarios will be provided with the model input and output files. A relative humidity value of 50% will conservatively be used in all of the PLUVUE simulations, although the average humidity in the desert area surrounding the proposed project site is considerably lower.

To ensure that different angles of the sun reflecting off the plumes from the COEP will be examined, both dawn and dusk hours will be modeled. The EPA *Workbook for Plume Visual Impact* advises that these times of day should produce the worst-case conditions. Full-load turbine stack parameters and maximum 24-hour averaged emission rates of NO_2, SO_2 and PM_{10} from all sources will be used in the analysis.

Per guidance provided from the United States Forest Service and National Park Service in 2001 for a previous version of the Ocotillo project, the observer/vista locations that will be analyzed in the PLUVUE II study are those shown in Figures 4-1 through 4-3. Also per the recommendation of the National Park Service, the background ozone level will be set to 65 ppb for all Class I Areas. The NO_x and coarse particle background values will be set to 0.010 $\mu g/m^3$ and 30 $\mu g/m^3$ respectively. These values are lower than the actual measured background values for each pollutant, as the PLUVUE II model will not allow higher values for these parameters when such a pristine background visual range is used. Default deposition and particle size parameters will be utilized.

Full details of the VISCREEN and PLUVUE simulations and meteorological analyses used in developing realistic worst-case impact scenarios will be provided with model input and output files for the plume visibility simulations.

Figure 4-1 Joshua Tree PLUVUE II Observer/Vista Locations

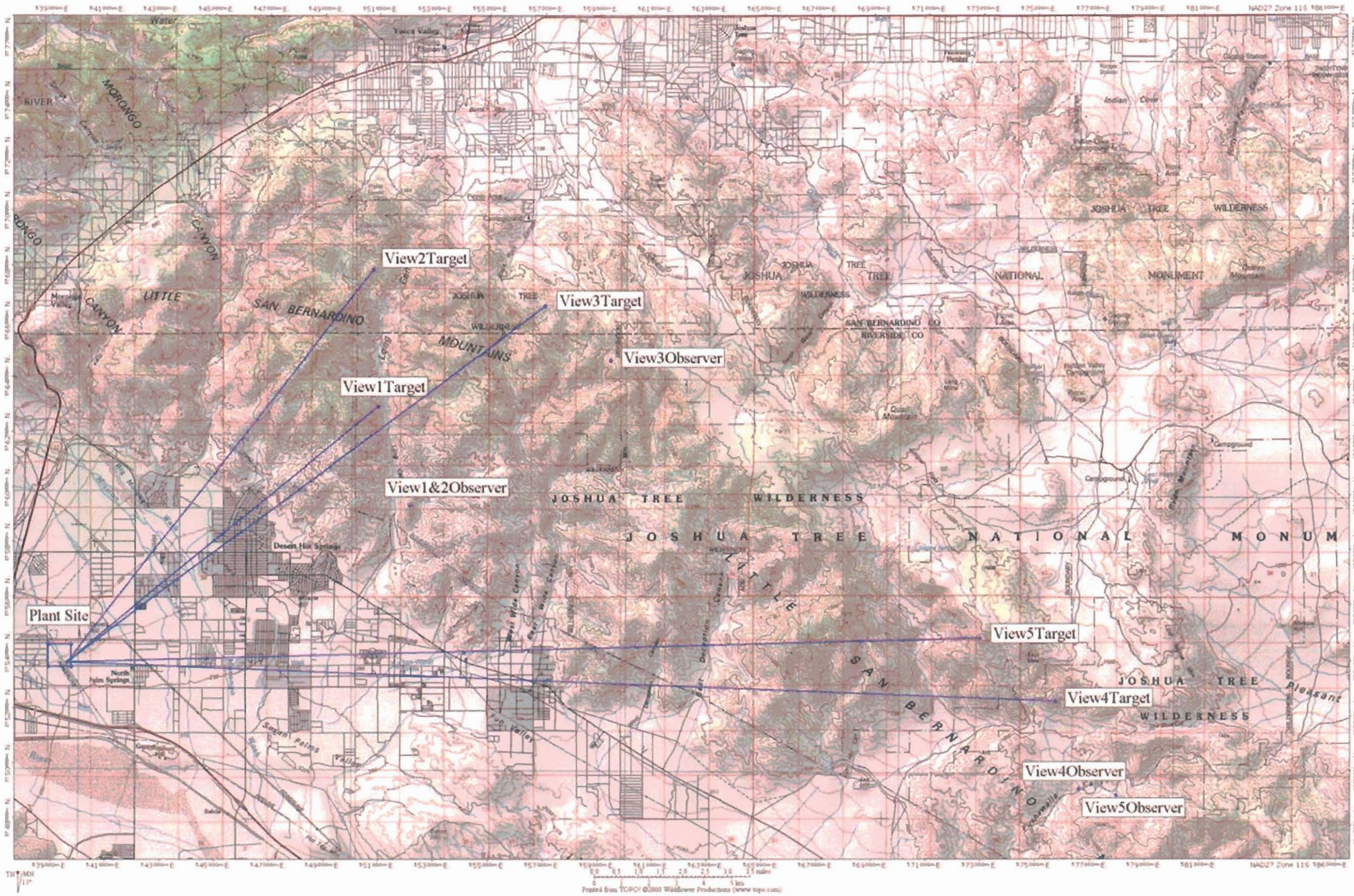


Figure 4-2 San Jacinto Wilderness Area PLUVUE II Observer/Vista Locations

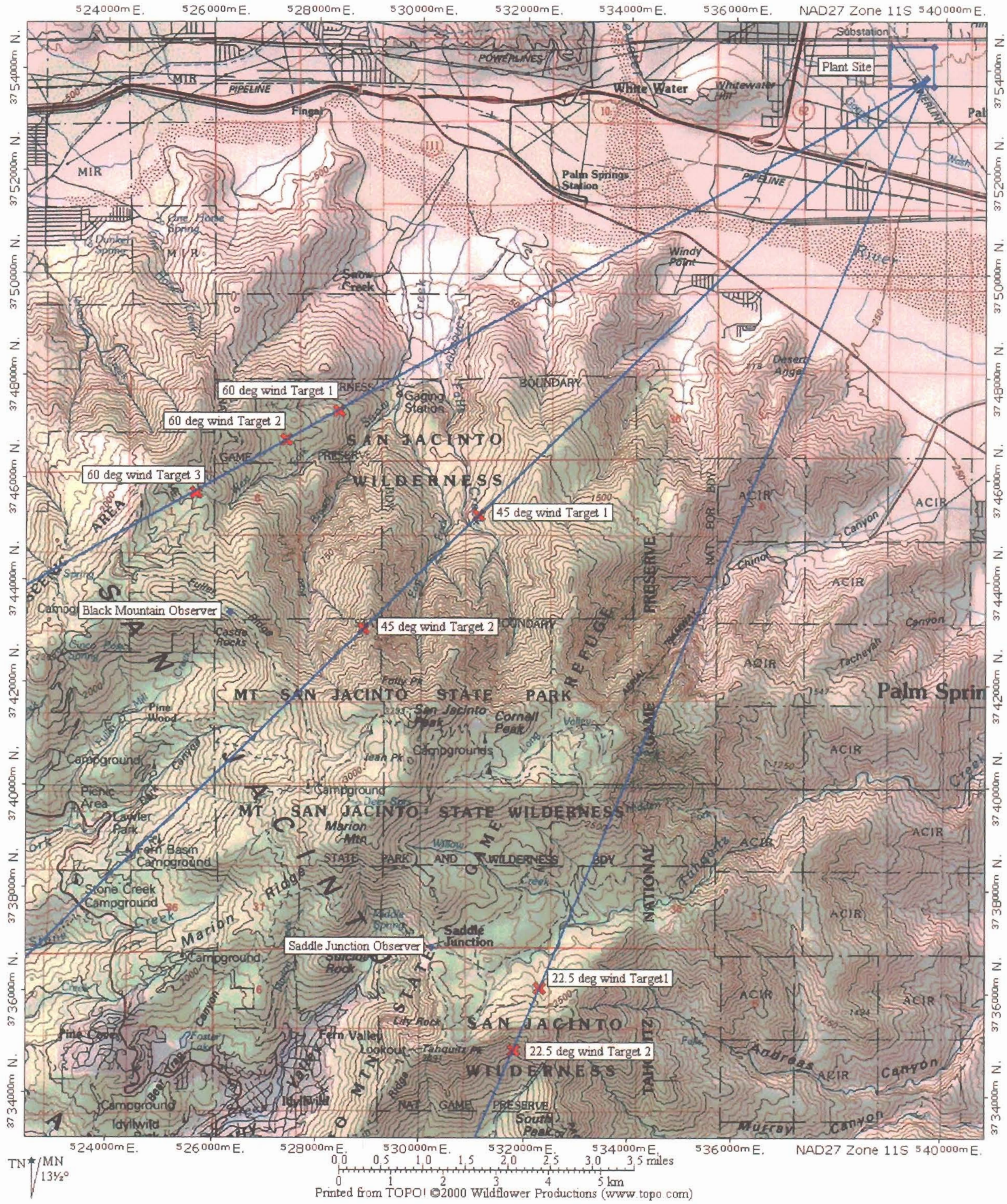


Figure 4-3 San Gorgonio Wilderness Area PLUVUE II Observer/Vista Locations

4.5 MODELING EMISSIONS INVENTORY

4.5.1 Operational Emissions

Operational emissions from the COEP will be dominated by the combustion turbine-generators. Conceptual plant design includes SCR for NO_x control and oxidation catalysts for CO control that will match recent BACT determinations for similar projects. Emissions of SO_2 and PM_{10} will be low, owing to the exclusive use of interstate pipeline quality natural gas as fuel for the gas turbine.

Table 4-3 Preliminary Estimated Emissions for Entire COEP

NO_x	CO	SO_2	ROC	PM_{10}	Pb
120	230	10	35	85	<0.6

Combustion turbine generator emissions will vary with ambient temperature and turbine load. Modeling will be conducted for a range of ambient temperatures (from low ambient temperature to high ambient temperature) and CTG loads (50, 75, and 100 percent). All combinations will be modeled to identify worst-case operating scenarios for each averaging period (i.e., 1-hour, 3-hour, 8-hour, 24-hour, and annual). Startup and shutdown scenarios will be addressed in the evaluation of normal worst-case operations. The modeling emission inventory for the proposed facility will include the maximum emission rate for each source for each appropriate averaging time. The modeling analyses conducted for the AFC, DOC, and Authority to Construct (ATC) permit applications will be based on the refined emissions estimates. Where applicable, emissions estimates will be provided in both parts per million (ppm) and pounds per hour values.

Emissions from different phases of the turbine commissioning process will be presented and the maximum short-term emissions will be selected as input into separate AERMOD modeling simulations.

The new cooling towers will incorporate drift eliminators. Drift emissions (as particulates) will be reduced by the drift eliminators. The PM_{10} emission rate from the cooling towers will incorporate this control measure. Emissions from the diesel black start generator and emergency firewater pump will also be estimated using vendor when provided or USEPA emission factors.

4.5.2 Construction Emissions

Temporary construction emissions will result from heavy equipment exhaust (primarily, CO, NO_x and diesel particulate emissions) and fugitive dust (PM_{10}) from earthmoving activities and vehicle traffic on paved and unpaved surfaces. Equipment-specific emissions factors will be used to estimate mass emissions for all criteria pollutants from diesel-fueled construction equipment and vehicles using SCAQMD OFFROAD Emission Factors. Fugitive dust emissions resulting from onsite soil disturbances and travel on unpaved roads will be estimated using SCAQMD CEQA Handbook (SCAQMD, 1993) emission factors. A dust control efficiency of 85 percent for the construction area activities will be achieved for these activities by frequent watering or other measures when required. Emissions from on-road delivery trucks and worker commute trips will be estimated using emission factors provided by

SCAQMD for Onroad Vehicles from the EMFAC2007 model. An ultra-low fuel sulfur content of 0.0015 percent by weight (15 ppm) will be used in all diesel construction equipment.

A detailed Excel Workbook will be created to estimate criteria pollutant emissions for the different non-overlapping phases of Project construction, based on information from the Project design engineers on the equipment use by month during the construction schedule and the areal extent of ground disturbance that will occur during different construction phases. Depending on the magnitude of emissions for different pollutants and the proximity of construction activities to the property boundary for each phase, one or more emission scenarios representing reasonable worst-case activity and ground disturbance for each averaging time will be selected for subsequent dispersion modeling to estimate the maximum off-site air quality impacts of these temporary activities. The emissions estimates for these scenarios will be modeled using AERMOD.

4.5.3 Air Toxic Emissions

Air toxics will also be emitted from the operational COEP due to combustion of natural gas in the turbines and diesel fuel in the black start engine and firewater pump engine. These emissions have not yet been estimated; however, because only natural gas will be used as fuel for the CTGs, only small quantities of TAC including benzene, formaldehyde, and polycyclic aromatic hydrocarbons may potentially be emitted. Diesel particulate matter is regulated as a TAC in California and will most likely dominate the predicted health risks attributable to diesel equipment. Emissions estimates for TAC will be based on emission factors and/or speciation profiles (for PM_{10} and ROC) available from SCAQMD, CARB, USEPA, and/or vendor data, if available.

4.5.4 Greenhouse Gas Emissions

Potential greenhouse gas emissions from the proposed project will be calculated using the California Climate Action Registry power/utility protocol. The estimated greenhouse gas emissions from the Project will be presented in a table.

4.6 BUILDING WAKE EFFECTS

The effect of building wakes (i.e., downwash) upon the stack plumes of emission sources at the COEP facility will be evaluated in accordance with USEPA guidance (USEPA, 1985). Wind direction-specific building data will be generated for stacks below good engineering practice (GEP) stack height using the most recent version of USEPA Building Parameter Input Program – Prime (BPIP-Prime). Appropriate information will be provided in the AFC and other permit applications that describe the input assumptions and output results from the BPIP-Prime model. The AERMOD model considers wind direction-specific downwash using both the Huber Snyder and Schulman-Scire algorithms as evaluated in the BPIP-Prime program.

4.7 RECEPTOR GRID

4.7.1 Normal Operations

The receptor grids that will be used in the AERMOD modeling analyses described in this protocol for operational sources will be as follows:

- 25-meter spacing along the fence line and extending from the fence line out to 100 meters beyond the property line;
- 100-meter spacing from 100 m to 1 km beyond the property line;
- 500-meter spacing within 1 to 5 km of the property line; and
- 1,000-meter spacing within 5 to 10 km of the property line.

During the refined modeling analysis for operational Project emissions, if a maximum predicted concentration for a particular pollutant and averaging time is located within the portion of the receptor grid with spacing greater than 25 meters, a supplemental dense receptor grid will be placed around the original maximum concentration point and the model will be rerun. The dense grid will use 25-meter spacing and will extend to the next grid point in all directions from the original point of maximum concentration.

Due to the large computation time required to run AERMOD, this receptor grid, with the additional dense nested grid points, was determined to best balance the need to predict maximum pollutant concentrations and allow the all operational modeling runs to be completed in less than one week.

A detailed project map and a 7 ½- minute U.S Geological Survey (USGS) map will be provided in the AFC. Actual Universal Transverse Mercator (UTM) coordinates will be used. The CAAQS and NAAQS apply to all locations offsite of the applicant's facility, i.e. where public access is not under the control of the applicant. The CAAQS and NAAQS are not evaluated on the property controlled by the applicant. In other words, the air within a facility's property is not considered ambient air relative to that facility's emissions.

4.7.2 Construction

Because construction emission sources release pollutants to the atmosphere from small stacks or from soil disturbances at ground level, maximum predicted construction impacts for all pollutants and averaging times will occur within the first kilometer from the COEP site boundary. Accordingly, only the portion of the above grid out to a distance of 1 km will be used for the construction modeling.

4.7.3 HRA Receptors

For the HRA modeling, receptors will be placed around the fence line with 25-meter spacing, and 100-meter grid spacing will be used out to 10 kilometers. All receptors that HARP creates inside the fence will be excluded. HARP will also include the census receptors out to 10 km. These census receptors will include the populated areas near the proposed COEP facility location. Discrete receptors will also be placed at all sensitive locations (e.g., schools, hospitals, residences, etc.) out to 3 miles.

4.8 METEOROLOGICAL DATA

The COEP is located at the eastern end of the San Gorgonio Pass, in an area surrounded by complex terrain which influences localized wind flows. The winds are consistently strong and predominantly from the west as shown in Figure 4-4. Due to these strong winds, many wind energy facilities surround the COEP site. Immediately adjacent to the COEP is the Wintec Wind Energy facility, where meteorological data were collected to support their wind energy business. The following meteorological parameters were collected: wind speed wind directions, and the horizontal standard deviation of the wind directions (sigma theta), at 50-foot and 100-foot heights above local grade. In addition, temperature was measured at the 50-foot height.

The Wintec Energy data can be considered "onsite" since they were collected next door to the proposed COEP site, and meet the USEPA criteria (USEPA, 1995) for representativeness, as follows:

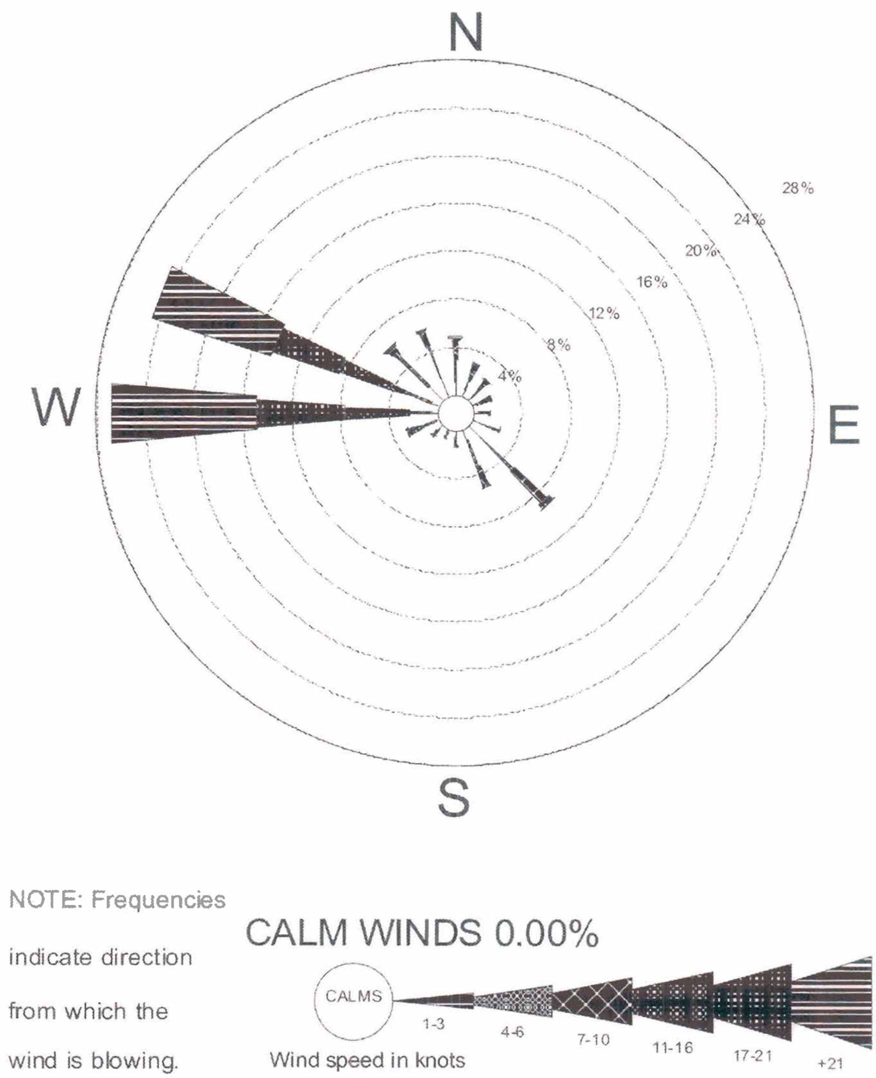
- *Proximity*: The data were collected within the boundary of the project site, and thus meet the criteria for proximity.
- *Complexity of Terrain and Exposure of Meteorological Monitoring Site*: Both the COEP site and the Wintec Energy monitoring station are located at the eastern end of the San Gorgonio Pass and are the same distances from prominent terrain features in the surrounding area.
- *Period of Data Collection*: The 1988 through 1991 data set represents data collection over four full years. Although only one year of onsite data is required, a four-year data set will be used to better represent project site conditions, as well as to capture worst-case meteorological conditions.
- *Data Quality:* The quality of the Wintec Energy monitoring equipment was good and the site was maintained on a regular basis. In addition, the data recovery rate was greater than 90 percent for the years 1988-1991.

The Wintec data will be processed according to the onsite data procedures set forth in the USEPA *On-Site Meteorological Program Guidance for Regulatory Modeling Applications* (1987). To create the meteorological data input files for AERMOD, the onsite data must be processed with National Weather Service (NWS) surface data and upper air data in AERMET.

The most representative NWS surface station with adequate data collection to support the required modeling effort, was determined to be the Dagget-Barstow station. The Palm Springs Airport station is nearer, but had insufficient data collection.

Upper air data will be obtained from the Desert Rock station in Nevada for 1988-1991. Although Edwards Air Force Base upper air monitoring station is the closest upper air station, data were collected less than 50% of the time during the years for which Wintec data are available, and thus this station was determined to have insufficient data for the air quality analysis. The Desert Rock station is located in a desert environment similar to the COEP site and thus was determined to be the most representative data available for use in this modeling analysis.

Figure 4-4 Annual Windrose based 1988-1991 Wintec Wind Data



The land use characteristics for the entire 360 degrees out to a distance of 3 kilometers surrounding both the Wintec Energy facility and the COEP site are entirely rural desert. The land-use parameter values show in Table 4-4 are proposed to be used in AERMET for purposes of processing the Wintec meteorological data.

Table 4-4 COEP Land Use Characteristics

Land Use Characteristic	Spring	Summer	Autumn	Winter
Albedo	0.3	0.28	0.28	0.28
Bowen Ratio	3.0	4.0	6.0	6.0
Surface Roughness (meters)	0.3	0.3	0.3	0.3

To create a meteorological input data set for the HARP/ISC modeling, the same 1988-1991 Wintec data, Daggett-Barstow and Desert Rock data will be processed with PCRAMMET. Annual average values for surface roughness, albedo and Bowen ratio will be input into PCRAMMET.

4.9 AIR QUALITY MONITORING DATA

Available SCAQMD/CARB air quality data recorded from 2002 through 2006 will be used to determine baseline air pollutant concentrations. Data from the SCAQMD's Palm Springs-Fire Station, Banning Airport, Indio-Jackson Street Station, and Riverside-Rubidoux monitoring stations will be evaluated for potential representativeness of the proposed project site conditions.

The Palm Springs-Fire Station monitoring station records CO, NO_2, PM_{10}, $PM_{2.5}$, and O_3 and is located approximately 8.5 miles southeast of the COEP site It is by far the closest station that monitors all the criteria pollutants, except SO_2. The Riverside-Rubidoux station is the closest station that monitors ambient SO_2. Use of the monitoring data from the Palm Springs-Fire Station, and Riverside-Rubidoux stations to characterize conditions at the Project Site will almost certainly overestimate pollutant levels at COEP site, because of the lower population and level of development of the COEP area compared with those of the urban monitoring stations.

The data collected at the air monitoring stations identified above will be used to represent the background air quality for purposes of the AAQS analyses. The AFC will include an analysis supporting the representativeness and use of the background data sets selected to represent background conditions for the AAQS evaluations. The highest reported concentration that has occurred at the selected stations within the last five years will be used for each pollutant and averaging time corresponding to the AAQS.

The maximum monitored pollutant concentrations (Table 4-5) will be added to the modeled maximum impacts from the proposed facility and the total will then be compared with the applicable AAQS. This is a conservative approach because it assumes that the highest recorded value and the modeled maximum impact both occur at the same time and at the same location.

Table 4-5 Highest Monitored Concentrations Near COEP (2002 – 2006)

Pollutant	Averaging Time	Highest Monitoring Concentration	Monitoring Station Address	Year
CO	8-hour	1.29 ppm (1433 μg/m³)	Palm Springs - Fire Station	2003
	1-hour	3.3 ppm (3771 μg/m³)	Palm Springs - Fire Station	2003
NO_2	Annual	0.016 ppm (30.19 μg/m³)	Palm Springs - Fire Station	2002
	1-hour	0.0.93 ppm (174.84 μg/m³)	Palm Springs - Fire Station	2002
SO_2	Annual	0.004 ppm (10.7 μg/m³)	Riverside-Rubidoux	2005
	24-hour	0.015 ppm (39.38 μg/m³)	Riverside-Rubidoux	2004
	3-hour	0.016 ppm (41.6 μg/m³)	Riverside-Rubidoux	2004
	1-hour	0.024 ppm (62.88 μg/m³)	Riverside-Rubidoux	2005
PM_{10} (Non-attainment area)	Annual	26.5 μg/m³	Palm Springs - Fire Station	2003
	24-hour	108 μg/m³	Palm Springs - Fire Station	2003
$PM_{2.5}$ (Non-attainment area)	Annual	10 μg/m³	Palm Springs - Fire Station	2002
	24-hour	42.3 μg/m³	Indio-Jackson Street Station	2005

SECTION 5 PRESENTATION OF MODELING RESULTS

5.1 NAAQS AND CAAQS ANALYSIS

The results of the AAQS analyses for the COEP facility will be presented in summary tables. A figure indicating the location of the maximum pollutant concentrations during project operations will be provided. For CO, NO_2, SO_2, and PM_{10}, the highest short-term and highest annual concentrations over the four years modeled will be reported. The highest annual $PM_{2.5}$ concentration over the four years modeled will be presented. The 24-hour $PM_{2.5}$ NAAQS, is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. This is equivalent to the highest eighth high (H8H) 24-hour concentration over the four year period modeled. Background concentrations will be added to yield the total concentrations suitable for comparison with the NAAQS and CAAQS.

5.2 VISIBILITY ANALYSIS

The results of the visibility analysis to evaluate the operational impacts of the COEP facility will be presented in summary tables and compared with all relevant significance thresholds.

5.3 HEALTH RISK ASSESSMENT ANALYSIS

Maps at a scale of 1:24,000 will depict the following data:

- A map depicting elevated terrain within a 10-km radius of the project;
- A map indicating the locations of sensitive receptors, including schools, pre-schools, hospitals, etc., within a 3-mile radius of the project;
- A map depicting current and future residential land uses;
- Isopleths for any areas where predicted exposures to air toxics result in estimated chronic non-cancer impacts and acute impacts equal to or exceeding a hazard index of 0.5; and
- Isopleths for any areas where exposures to air toxics lead to an estimated carcinogenic risk equal to or exceeding one in one million.

Health risk assessment modeling results will be summarized to include maximum annual (chronic, carcinogenic, and non-carcinogenic) and hourly (acute) adverse health effects from the toxic air contaminant emissions from the COEP. Cancer burden will be presented if the maximum predicted cancer risk is greater than one in a million at any receptors. Health risk values will be calculated and presented in a summary table for the points of maximum impact and the sensitive receptors with the maximum risk values.

5.4 DATA SUBMITTAL

Electronic copies of the modeling input and output files will be provided to SCAQMD and the CEC.

SECTION 6 REFERENCES

Auer, August Jr, 1978. *Correlation of Land Use and Cover with Meteorological Anomalies*, American Meteorological Society. Journal of Applied Meteorology, 17(5): 636-643, May 1978.

California Air Resources Board (CARB), 2000. *Risk Management Guidance for the Permitting of New Stationary Source Diesel-Fueled Engines*, October 2000.

CARB, 2003. *HARP User Guide – Software for Emission Inventory Database Management, Air Dispersion Modeling Analyses, and Health Risk Assessment version 1.3*, Air Resources, Board, California Environmental Protection Agency. December 2003.

CARB, 2005. *HARP (Hotspots Analysis and Reporting Program)*, Version 1.1 (Build 23.02.21), April 2005.

California Energy Commission (CEC), 1997. *Regulations Pertaining to the Rules of Practice and Procedure and Plant Site Certification*. Title 20, California Code of Regulations. Chapter 1, 2, 5.

CEC, 2006. *Rules of Practice and Procedure & Power Plant Site Certification Regulations Revisions*, 04-SIT-2, December 14, 2006.

National Park Service, 2007. Particulate Matter Speciation: http://www2.nature.nps.gov/air/permits/ect/index.cfm

Office of Environmental Health Hazard Assessment (OEHHA), 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines*, August 2003.

South Coast Air Quality Management District, 2005. *Risk Assessment Procedure for Rules 1401 and 212*, Version 7, July 2005.

South Coast Air Quality Management District, 2005. *Supplemental Guidelines for Preparing Risk Assessments for the Toxics "Hot Spots" Information and Assessment Act (AB2588)*, July 2005.

United States Environmental Protection Agency, 1985. *Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations)*, EPA-450/4-85-023R, June 1985.

United States Environmental Protection Agency, 1987. *On-Site Meteorological Program Guidance for Regulatory Modeling Applications*, EPA-450/4-87-013, June 1987.

United States Environmental Protection Agency, 1988. *Workbook for Plume Visual Impact Screening and Analysis*, Research Triangle Park, NC. September 1988.

United States Environmental Protection Agency, 1992. *Addendum to Workbook for Plume Visual Impact Screening and Analysis*, Research Triangle Park, NC. October 1992.

United States Environmental Protection Agency, 1998. *Interagency Workgroup on Air Quality Modeling (IWAQM), Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts*. EPA-454/R-98-019. December 1998.

United States Environmental Protection Agency, 2004. *User's Guide for the AMS/EPA Regulatory Model-AERMOD*. September 2004.

United States Environmental Protection Agency, 2005. *AERMOD Implementation Guide*. September 2005.

United States Environmental Protection Agency, 2006. *Addendum to User's Guide for the AMS/EPA Regulatory Model-AERMOD*. December 2006.

United States Forest Service et al. 2000. *Federal Land Managers Air Quality Related Values Workgroup (FLAG) Phase 1 Report*. Prepared by U.S. Forest Service Air Quality Program, National Park Service Air Resources Division, U.S. Fish and Wildlife Service Air Quality Branch. December 2000.

APPENDIX E

Air Monitoring Data Used to Characterize Background Air Quality for Modeling

7.1.1.1 Existing Air Quality

Ambient air quality standards have been set by both the federal government and the State of California to protect public health and welfare with an adequate margin of safety. Pollutants for which NAAQS or CAAQS have been set are often referred to as "criteria" air pollutants. The term is derived from the comprehensive health and damage effects review that culminates in pollutant-specific air quality criteria documents, which precede the establishment of NAAQS and CAAQS. These standards are reviewed on a legally prescribed frequency and revised as new health and welfare effects data warrant. Each NAAQS or CAAQS is based on a specific averaging time over which the concentration is measured. Different averaging times are based upon protection against short-term, high-dosage effects or longer-term, low-dosage effects. NAAQS may be exceeded no more than once per year. CAAQS are not to be exceeded.

The ambient air quality in Riverside County is monitored at a number of permanent air quality monitoring stations operated by SCAQMD and California Air Resources Board (CARB). The monitoring stations within Riverside County that are closest to the proposed project site are the Palm Springs-Fire Station located approximately 6.4 miles south-southeast of the proposed project site and the Indio-Jackson Street station about 25.5 miles to the southeast of the proposed site. The Palm Springs station measures all criteria pollutant concentrations except SO_2. The Riverside-Rubidoux monitoring station is the closest station that monitors ambient SO_2 and is considered to be the most representative of the SCAQMD monitoring locations for characterizing conditions at the proposed project site. The Indio-Jackson Street station only monitors PM_{10}, $PM_{2.5}$, and O_3. The next closest and next most representative station, the Banning Airport station, is approximately 25 miles west of the proposed site and thus closer to the large concentration of emission sources within the South Coast Air Basin to the west, and is situated in a narrow gap between high terrain to the north and south that results in stronger wind channeling than occurs at the proposed project site. Banning data are considered be significantly less representative of site conditions than either Palms Springs or Inidio; thus, Banning data are not presented in the tables of this section.

The criteria pollutants monitored at these stations include ozone (O_3), PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and lead (Pb). Air quality measurements taken at these stations are presented in Tables 7.1-2 through 7.1-8. For the air quality impact analysis, the maximum recorded concentration from the most recent 5 years (2002–2006) at any of these monitoring stations were used to represent background air quality levels.

Ozone

Table 7.1-2a shows that the federal 1-hour O_3 NAAQS of 0.12 parts per million (ppm) has been exceeded in each of the last 3 years at the Palm Springs-Fire Station monitoring station (four times in 2005 with a maximum concentration of 0.139 ppm), and zero times at the Indio Jackson Street station. The more stringent state O_3 CAAQS of 0.09 ppm was also exceeded each year for the past 3 years at the Palm Springs-Fire Station (41 times in 2005) monitoring station and at the Indio-Jackson Street monitoring station (23 times in 2004).

The federal 8-hour O_3 NAAQS of 0.08 ppm has also been exceeded frequently agt both monitoring stations. The federal standard requires maintaining 0.08 ppm as a 3-year average of the fourth-highest daily maximum values. Therefore, the number of days that the maximum concentration exceeds the standard concentration is not the number of violations of the standard for the year. The ozone data from the Palm Springs and Indio monitoring stations are presented in Tables 7.1-2a and 7.1-2b, respectively. .As supported by the data in Table 7.1-2a, the proposed project site is located in an area that is in extreme nonattainment of the state 1-hour O_3 standard.

Table 7.1-2a Concentration Data Summary for Ozone (O_3) at Palm Springs-Fire Station					
Year	**Highest Concentration for O_3 (ppm)**		**Estimated Number of Days Exceeding Standards**		
	1-hour	**8-hour**	**Federal 1-hr**	**Federal 8-hr**	**State 1-hr**
2006	0.126	0.109	2	23	37
2005	0.139	0.116	4	35	41
2004	0.125	0.106	1	32	36

Notes:
The federal 8-hour average O_3 standard is 0.08 ppm. On June 15, 2005, the 1-hour ozone standard (0.12 ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (EAC). The proposed project site is not located within one of the EAC areas that are still subject to the 1-hour ozone standard.
The state O_3 standards are 1-hour average (0.09 ppm) and 8-hour average (0.07 ppm).
Monitoring Site Address: Palm Springs-Fire Station, 590 E Racquet Club Ave, Palm Springs, CA 92262
Source: CARB-California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)

Table 7.1-2b Concentration Data Summary for Ozone (O_3) at Indio-Jackson Street					
Year	**Highest Concentration for O_3 (ppm)**		**Estimated Number of Days Exceeding Standards**		
	1-hour	**8-hour**	**Federal 1-hr**	**Federal 8-hr**	**State 1-hr**
2006	0.103	0.090	0	7	5
2005	0.114	0.095	0	18	18
2004	0.111	0.099	0	18	23

Notes:
The federal 8-hour average O_3 standard is 0.08 ppm. On June 15, 2005, the 1-hour ozone standard (0.12 ppm) was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (EAC). The proposed project site is not located within one of the EAC areas that are still subject to the 1-hour ozone standard.
The state O_3 standards are 1-hour average (0.09 ppm) and 8-hour average (0.07 ppm).
Monitoring Site Address: Indio-Jackson Street, 46990 Jackson Street, Indio, CA 92201
Source: CARB-California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)

Particulates

PM_{10}

Particulates in the air are caused by a combination of (1) windblown fugitive dust or road dust; (2) particles emitted from combustion sources (primarily carbon particles); and (3) organic, sulfate, and nitrate aerosols formed in the air from emitted hydrocarbons, SO_x, and NO_X. Respirable particulate matter is referred to as PM_{10}, which has a diameter of equal to or less than 10 microns. It can contribute to increased respiratory disease, lung damage, cancer, premature death, reduced visibility, and surface soiling. In 1987, the U.S. Environmental Protection Agency (U.S. EPA) adopted standards for PM_{10} and phased out the total suspended particulate (TSP) standards that had previously been in effect.

The Coachella Valley within the Salton Sea Air Basin is designated as federal serious nonattainment for PM_{10}. Concentration data for this pollutant in micrograms per cubic meter ($\mu g/m^3$) that were recorded within the most recent 3 years at the Palm Springs-Fire Station monitoring station are summarized in Table 7.1-3a. This table shows that the 24-hour average CAAQS for PM_{10} (50 $\mu g/m^3$) is frequently exceeded in the proposed project area. The federal 24-hour average PM_{10} NAAQS of 150 $\mu g/m^3$ was not exceeded during 2004–2006, with one exception in 2006. The maximum recorded 24-hour PM_{10} concentration of 226 $\mu g/m^3$ on July 16, 2006, is assumed to be an anomaly due to a natural event that will be excluded. The next highest concentration in 2006 was 73 $\mu g/m^3$, and this value is presented in the table. The annual PM_{10} data at Palm Springs are also presented in Table 7.1-3a.

Monitoring data recorded within the most recent 3 years at the Indio-Jackson Street monitoring station are summarized in Table 7.1-3b. This table shows that the 24-hour average CAAQS for PM_{10} (50 $\mu g/m^3$) is frequently exceeded at this station. The federal 24-hour average PM_{10} NAAQS of 150 $\mu g/m^3$ was not exceeded during 2004–2006, with one exception in 2006 and one exception in 2004. The maximum recorded 24-hour PM_{10} concentration of 314 $\mu g/m^3$ on July 16, 2006, is assumed to be an anomaly due to a natural event that will be excluded. The next highest concentration in 2006 was 122 $\mu g/m^3$, and this value is presented in the table. The annual PM_{10} data at the Indio Jackson station are also presented in Table 7.1-3b. As shown by these tables, the Salton Sea Air Basin has not been in attainment of the state PM_{10} standards during the last 3 years.

Prior to July 2003, the annual geometric mean PM_{10} concentration was referred to as the state annual average. Since then, the state annual average has been changed to match the federal standards (i.e., annual arithmetic mean), which is called the national annual average and calculated as the arithmetic average of the four arithmetic quarterly averages. The federal annual PM_{10} standard was revoked by the U.S. EPA in 2006 due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution. However, the measured annual geometric and arithmetic mean concentrations recorded at the twp nearest air monitoring stations to the proposed project site have been above the California PM_{10} ambient air quality standard of 20 $\mu g/m^3$. The maximum annual arithmetic mean concentration recorded was 54. $\mu g/m^3$ at Indio in 2006.

Table 7.1-3a
Concentration Data Summary for Particulate Matter (PM_{10}) at Palm Springs-Fire Station

Year	Highest 24-hour Concentration for PM_{10} ($\mu g/m^3$)		Annual Arithmetic Mean for PM_{10} ($\mu g/m^3$)	Estimated Number of Days Exceeding Standards	
	Federal	State	State	Federal 24-hour	State 24 hour
2006	73[1]	71[2]	27.8	7[3]	20
2005	66	64	25.4	0	13
2004	79	78	NA	0	NA

Notes:
The federal PM_{10} standard is 24-hour average: 150 μg/m³.
The state PM_{10} standards are annual arithmetic mean: 20 μg/m³ and 24-hour average: 50 μg/m³.
Monitoring Site Address: Palm Springs-Fire Station, 590 E Racquet Club Av, Palm Springs, CA 92262
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)
NA = There were insufficient (or no) data available to determine the value.
[1] Value listed is second highest 24-hour concentration. The data for the sample collected (226 μg/m³ on 7/16/06) is anticipated to be excluded in accordance with U.S. EPA's Natural Events Policy. U.S. EPA allows one exceedance of the standard per year.
[2] Value listed is second highest 24-hour concentration. The data for the sample collected (226 μg/m³ on 7/16/06) is anticipated to be excluded in accordance with U.S. EPA's Natural Events Policy.
[3] Value presented is number of days in the year when 24-hour values would be estimated to exceed the level of the 24-hour standard if monitoring took place every day. Currently, PM_{10} monitoring occurs every 6 days.

Table 7.1-3b
Concentration Data Summary for Particulate Matter (PM_{10}) at Indio-Jackson Street

Year	Highest 24-hour Concentration for PM_{10} (μg/m³)		Annual Arithmetic Mean for PM_{10} (μg/m³)	Estimated Number of Days Exceeding Standards[3]	
	Federal	State	State	Federal 24-hour	State 24 hour
2006	122[1]	122[2]	54.9	3	180
2005	106	106	45.4	0	122
2004	161	161	40.6	3	74

Notes:
The federal PM_{10} standard is 24-hour average: 150 μg/m³.
The state PM_{10} standards are annual arithmetic mean: 20 μg/m³ and 24-hour average: 50 μg/m³.
Monitoring Site Address: Indio-Jackson Street, 46990 Jackson Street, Indio, CA 92201
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)
[1] Value listed is second highest 24-hour concentration. The data for the sample collected (313 μg/m³ on 7/16/06) is anticipated to be excluded in accordance with U.S. EPA's Natural Events Policy. U.S. EPA allows one exceedance of the standard per year.
[2] Value listed is second highest 24-hour concentration. The data for the sample collected (314 μg/m³ on 7/16/06) is anticipated to be excluded in accordance with U.S. EPA's Natural Events Policy.
[3] Values presented are number of days in the year when 24-hour values would be estimated to exceed the level of the 24-hour standard if monitoring took place every day. Currently, PM_{10} monitoring occurs every 6 days.

$PM_{2.5}$

Fine particulates result from fuel combustion in motor vehicles and industrial sources, residential and agricultural burning, and atmospheric reactions involving NO_x, SO_x, and organics. Fine particulates are referred to as $PM_{2.5}$ and have a diameter equal to or less than 2.5 microns. The potential health effects of $PM_{2.5}$ are considered more serious than those of PM_{10}. In 1997, U.S. EPA established annual and 24-hour NAAQS for $PM_{2.5}$ for the first time. The standard regulating the 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations (35 μg/m³) became effective on December 17, 2006.

The $PM_{2.5}$ data presented in Table 7.1-4a for the Palm Springs-Fire Station monitoring station show that the federal 24-hour average NAAQS of 35 μg/m³ is not exceeded. The highest 24-hour $PM_{2.5}$ concentration of 27.1 μg/m³ was measured during 2004. The annual average $PM_{2.5}$ data at Palm Springs are also presented in this table. The annual arithmetic mean concentrations are below the California $PM_{2.5}$ ambient air quality standard of 12 μg/m³. The maximum recorded annual arithmetic mean concentration was 8.9 μg/m^3 in 2004, which is also below the federal annual $PM_{2.5}$ NAAQS of 15 μg/m^3.

The $PM_{2.5}$ data presented in Table 7.1-4b for the Indio-Jackson Street monitoring station show that the federal 24-hour average NAAQS of 35 μg/m^3 has been exceeded once in the past three years. The highest 24-hour $PM_{2.5}$ concentration of 44.3 μg/m^3 was measured during 2005. The annual average $PM_{2.5}$ data at the Indio Jackson Street station are also presented in this table. The annual arithmetic mean concentrations are below the California $PM_{2.5}$ ambient air quality standard of 12 μg/m^3. The maximum recorded annual arithmetic mean concentration was 10.8 μg/m^3 in 2004, which is also below the federal annual $PM_{2.5}$ NAAQS of 15 μg/m^3.

Table 7.1-4a
Concentration Data Summary for Particulate Matter ($PM_{2.5}$) at Palm Springs-Fire Station

Year	Highest 24-hour Concentration for $PM_{2.5}$ (μg/m^3)	Annual Arithmetic Mean for $PM_{2.5}$ (μg/m^3)		Estimated Number of Days Exceeding Standards
	Federal	Federal	State	Federal
2006	24.7	7.7	NA	NA
2005	26.1	8.4	NA	NA
2004	27.1	8.9	8.8	0

Notes:
The federal $PM_{2.5}$ standards are 24-hour average (35 μg/m^3) and annual arithmetic mean (15 μg/m^3).
The state $PM_{2.5}$ standard is annual arithmetic mean: 12 μg/m^3.
Monitoring Site Address: Palm Springs-Fire Station, 590 E Racquet Club Av, Palm Springs, CA 92262
Source: California Air Resources Board-California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)
NA = There were insufficient data available to determine the value.

Table 7.1-4b
Concentration Data Summary for Particulate Matter ($PM_{2.5}$) at Indio-Jackson Street

Year	Highest 24-hour Concentration for $PM_{2.5}$ (μg/m^3)	Annual Arithmetic Mean for $PM_{2.5}$ (μg/m^3)		Estimated Number of Days Exceeding Standards
	Federal	Federal	State	Federal
2006	24.2	9.6	NA	0
2005	44.3	10.3	NA	0
2004	28.5	10.8	9.7	0

Notes:
The federal $PM_{2.5}$ standards are 24-hour average (35 μg/m^3) and annual arithmetic mean (15 μg/m^3).
The state $PM_{2.5}$ standard is annual arithmetic mean: 12 μg/m^3.
Monitoring Site Address: Indio-Jackson Street, 46990 Jackson Street, Indio, CA 92201
Source: California Air Resources Board-California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)
NA = There were insufficient data available to determine the value.

Carbon Monoxide

CO is a product of incomplete combustion, principally from automobiles and other mobile sources of pollution. CO emissions from wood-burning stoves and fireplaces can also be important sources of this pollutant. Health effects resulting from exposure to high CO levels can include chest pain in heart patients, headaches, and reduced mental alertness.

Recorded CO monitoring data for the Palm Springs-Fire Station monitoring station are provided in Table 7.1-5. The data in this table indicate that maximum 1-hour average CO levels comply with the NAAQS and CAAQS of 20.0 ppm. This limit has not been exceeded in the last 3 years. The maximum 1-hour concentration was 2.3 ppm in 2006. This table also shows that maximum recorded 8-hour average CO levels comply with the NAAQS and CAAQS of 9.0 ppm within the last 3 years. The maximum 8-hour concentration was 0.85 ppm in 2006. As supported by this table, the Riverside County portion of the Salton Sea Air Basin is in attainment for CO.

Table 7.1-5
Concentration Data Summary for Carbon Monoxide (CO) at Palm Springs-Fire Station

Year	Highest Concentration for CO (ppm)		Estimated Number of Days Exceeding Standards (days)			
	1-hour	8-hour	Federal 1-hour	Federal 8-hour	State 1-hour	State 8-hour
2006	2.3	0.85	0	0	0	0
2005	2.1	0.80	0	0	0	0
2004	2.1	0.80	0	0	0	0

Notes:
The federal CO standards are 1-hour average (35 ppm) and 8-hour average (9 ppm).
The state CO standards are 1-hour average (20 ppm) and 8-hour average (9 ppm).
Monitoring Site Address: Palm Springs-Fire Station, 590 E Racquet Club Av, Palm Springs, CA 92262
Source: U.S. EPA, 2006b

Nitrogen Dioxide

Nitrogen oxide emissions are primarily generated from the combustion of fuels. Nitrogen oxides include) and NO_2. Because nitric oxide converts to NO_2 in the atmosphere over time and NO_2 is the more toxic of the two, NO_2 is the listed criteria pollutant. The control of NO_2 also is important because of this pollutant's role in the atmospheric formation of ozone, the principal component of smog. It also can provoke lung irritation and damage.

Recorded NO_2 concentration data for the Palm Springs-Fire Station monitoring station are provided in Table 7.1-6. As supported by this table, the Salton Sea Air Basin has been in attainment of NO_2 for many years.

Maximum annual average (arithmetic mean) NO_2 levels comply with the federal NAAQS of 0.053 ppm. This limit has not been exceeded in the last 3 years. The maximum annual average concentration was 0.013 ppm in 2004. The data in the table also show that maximum 1-hour average NO_2 levels comply with the CAAQS of 0.25 ppm. This limit also has not been exceeded in the last 3 years. The maximum 1-hour concentration was 0.093 ppm in 2006.

On February 23, 2007, the CARB approved new stricter ambient California standards for NO_2. The new 1-hour standard will be 0.18 ppm not to be exceeded, and the new annual average standard is 0.030 ppm. The Office of Administrative Law must approve the standards before they take effect. A CARB spokesperson stated that the standards are expected to become effective within 6 to 8 months following CARB approval.

Table 7.1-6
Concentration Data Summary for Nitrogen Dioxide (NO_2) at Palm Springs-Fire Station

Year	Highest 1-hour Concentration for NO_2 (ppm)	Annual Average for NO_2 (ppm)	Estimated Number of Days Exceeding Standards (days)	
			Federal	State
2006	0.093	0.010	0	0
2005	0.059	0.012	0	0
2004	0.066	0.013	0	0

Notes:
The federal NO_2 standards is annual average: 0.053 ppm
The state NO_2 standards is 1-hour average: 0.25 ppm
Monitoring Site Address: Palm Springs-Fire Station, 590 E Racquet Club Av, Palm Springs, CA 92262
Source: California Air Resources Board -California Air Quality Data website (http://www.arb.ca.gov/aqd/aqdpage.htm)

Sulfur Dioxide

Sulfur dioxide is produced when any sulfur-containing fuel is burned. It is also emitted by chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains trace amounts of sulfur, while fuel oils may contain much larger amounts. SO_2 can increase lung disease and breathing problems for asthmatics. It reacts in the atmosphere to form acid rain, which is destructive to crops and vegetation, as well as to buildings, materials, and works of art.

Summaries of monitored SO_2 concentration data are presented in Table 7.1-7 for the Riverside-Rubidoux monitoring station. The Palm Springs-Fire Station monitoring station does not monitor for SO_2. This table shows that the Salton Sea Air Basin is in attainment for all applicable state and federal ambient standards for SO_2.

The SO_2 data in Table 7.1-7 demonstrates that neither the 24-hour average CAAQS of 0.04 ppm nor the NAAQS of 0.14 ppm has been exceeded in the proposed project vicinity between 2004 and 2006. The maximum 24-hour SO_2 monitored concentration of 0.015 ppm was measured at the Riverside-Rubidoux monitoring station in 2004. The recorded annual average (arithmetic mean) SO_2 concentrations at the monitoring station are also presented in Table 7.1-7 and in all cases are well below the federal ambient air quality standard of 0.03 ppm. The maximum 1-hour average SO_2 levels easily comply with the CAAQS of 0.25 ppm. This limit also has not been exceeded in the last 3 years. The maximum 1-hour concentration was 0.024 ppm at the Riverside-Rubidoux monitoring station in 2005.

Table 7.1-7
Concentration Data Summary for Sulfur Dioxide (SO_2) at Riverside-Rubidoux Station

Yea r	Highest Concentration for SO_2 (ppm)	Annual Averag	Estimated Number of Days Exceeding Standards (days)

	1-hour	3-hour	24-hour	e for SO_2 (ppm)	Federal 3-hour	Federal 24-hour	Federal Annual Mean	State 1-hour	State 24-hour
2006	0.012	0.004	0.002	0.001	0	0	0	0	0
2005	0.024	0.012	0.011	0.004	0	0	0	0	0
2004	0.017	0.016	0.015	0.004	0	0	0	0	0

Notes:
The federal SO_2 standards are annual average (0.03 ppm,) and 24-hour average (0.14 ppm)
The state SO_2 standards are 24-hour average (0.04 ppm), 3-hour average (0.50 ppm) and 1-hour average (0.25 ppm).
Monitoring site: Riverside-Rubidoux, 5888 Mission Blvd. Rubidoux, Riverside County, CA
Source: U.S. EPA, 2006b

Lead

Lead exposure can occur through multiple pathways, including inhalation of air and ingestion of lead in food from water, soil, or dust contamination. Excessive exposure to lead can trigger seizures, mental retardation, or behavioral disorders, and other central nervous system damage. Lead gasoline additives, nonferrous smelters, and battery plants were the most significant contributors to atmospheric lead emissions. Legislation in the early 1970s required gradual reduction of the lead content of gasoline over a period of time, which has dramatically reduced lead emissions from mobile and other combustion sources. In addition, unleaded gasoline was introduced in 1975, and together these controls have essentially eliminated violations of the lead standard for ambient air in urban areas. Measured lead concentration levels at the Riverside-Rubidoux monitoring station are presented in Table 7.1-8. The data in this table supports the attainment status of the Salton Sea Air Basin for lead.

Table 7.1-8
Summary of Recent Lead (Pb) Concentration Data at Riverside-Rubidoux Station

Year	Highest 24-hour Concentration for Lead (μg/m³)	Estimated Number of Days Exceeding Federal and State Standards (days)
2006	0.02	0
2005	0.03	0
2004	0.05	0

Notes:
The federal lead standard is quarterly average: 1.5 $\mu g/m^3$.
The state lead standard is 30 days average: 1.5 $\mu g/m^3$.
Monitoring site: Riverside-Rubidoux, 5888 Mission Blvd., Rubidoux, Riverside County, CA
Source: U.S. EPA, 2006b

Particulate Sulfates

Particulate sulfates are the product of further oxidation of SO_2. Sulfate compounds consist of primary and secondary particles. Primary sulfate particles are directly emitted from open pit mines, dry lakebeds, and desert soils. Fuel combustion is another source of sulfates, both primary and secondary. Secondary sulfate particles are produced when SO_x emissions are transformed into particles through physical and chemical processes in the atmosphere. Particles can be transported long distances. The Salton Sea Air Basin is in attainment with the state standard for sulfates, and there is no federal standard.

Other State-Designated Criteria Pollutants

Along with sulfates, California has designated hydrogen sulfide and visibility-reducing particles as criteria pollutants, in addition to the federal criteria pollutants. The entire state is in attainment for visibility-reducing particles, and the Salton Sea Air Basin is in attainment for hydrogen sulfide.

APPENDIX F Supporting Calculations for Tier 2 VISCREEN Modeling

Sentinel Energy Project Level II Visibility Modeling
VISCREEN LEVEL II MODELING SUMMARY

Emissions:	24-hour NOx	10.3	g/s
	24-hour PM10	6.05	g/s

These emission rates are for 8 turbines.

Ozone: 0.065 ppm
Primary Particulates Density= 1.5
Primary Particulates Diameter = 1.0

Class I Area	Wind Direction	Met Data	Worst Met Condition	Worst Met Adjusted for Terrain Influences	Distance to Class I Area Closest (km)	Distance to Class I Area Farthest (km) *	Background Visible Range (km)	File Name	Met Condition w/ Cumulative Frequency >1.0 (Stability Class and Wind Speed (m/s)) Hr 1-6	Hr 7-12	Hr 13-18	Hr 19-24		VISCREEN Level II Results Inside Class I Area Sky 10	Sky 140	Ter 10	Ter 140
													Delta E Threshold	2.00	2.00	2.00	2.00
													Contrast Threshold	0.05	0.05	0.05	0.05
Joshua Tree	WNW	1987-1991	D 3.5	D 3.5	32.3	50	180	jtlv2wnw	--	--	D 3.5	D 4.5	Delta E	0.505	0.157	0.907	0.053
													Contrast	0.009	-0.005	0.006	0.001
Joshua Tree	W	1987-1991	--	--	14.4	50	180	< 1% stable winds	--	--	--	--	Delta E				
													Contrast				
Joshua Tree	WSW	1987-1991	D 3.5	D 3.5	11.6	50	180	jtlv2wsw	D 3.5	--	--	D 5.5	Delta E	1.405	0.303	3.382	0.157
													Contrast	0.021	-0.011	0.013	0.001
Joshua Tree	SW	1987-1991	E 2.5	E 2.5	13.1	35.9	180	jtlv2sw	E 2.5	--	--	E 3.5	Delta E	4.453	1.260	9.408	1.300
													Contrast	0.074	-0.039	0.086	0.025
San Gorgonio	SE	1987-1991	F 1.5	E 1.5	16.4	42.8	192	sglv2se	F 1.5	--	--	F 1.5	Delta E	6.535	1.665	12.090	1.765
													Contrast	0.111	-0.054	0.117	0.036
San Gorgonio	ESE	1987-1991	F 1.5	E 1.5	14.3	43.2	192	sglv2ese	F 1.5	D 4.5	--	F 1.5	Delta E	7.751	1.892	13.135	2.053
													Contrast	0.129	-0.064	0.131	0.044
San Jacinto	N	1987-1991	--	--	20.9	24.9	171	< 1% stable winds	--	--	--	--	Delta E				
													Contrast				
San Jacinto	NNE	1987-1991	--	--	10.5	24.9	171	< 1% stable winds	--	--	--	--	Delta E				
													Contrast				
San Jacinto	NE	1987-1991	--	--	9.0	21.2	171	< 1% stable winds	--	--	--	--	Delta E				
													Contrast				
San Jacinto	ENE	1987-1991	D 3.5	C 3.5	12.5	16.4	171	sjlv2ene	D 4.5	--	--	D 3.5	Delta E	0.157	0.076	0.750	0.036
													Contrast	0.003	-0.002	0.003	0.000

*Note: If farthest distance is greater than 50 km, 50 km is used.

Process Description:

1 The values (stability class and wind speed) corresponding to the first occurrence for a met condition with a cumulative frequency >1.0 are shown for each Class I area.
2 Worst-case met adjusted for terrain influences is the meteorological condition used in the Level II Visibility analysis.
3 Background visual range provide in SCAQMD Rule 1303
4 All other inputs in the model use default values.
5 Contrast threshold is an absolute value.

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
Joshua Tree National Park

Formulas:

σ_y (meters) =465.11628(x)tan(TH)
TH =0.017453293[c-d ln(x)]
σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 32.1 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second) 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.268414195	4106.58457	5000	2.05E+07	4.11E+07	6.16E+07	8.21E+07	1.03E+08	1.23E+08	1.44E+08	1.64E+08
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.210412679	3188.708139	4913.679582	1.57E+07	3.13E+07	4.70E+07	6.27E+07	7.83E+07	9.40E+07	1.10E+08	1.25E+08
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.15243467	2293.678214	1459.679019	3.35E+06	6.70E+06	1.00E+07	1.34E+07	1.67E+07	2.01E+07	2.34E+07	2.68E+07
D	44.053 [4]	0.51179 [4]	8.333	0.72382	0.101616085	1522.395389	260.0097895	3.96E+05	7.92E+05	1.19E+06	1.58E+06	1.98E+06	2.38E+06	2.77E+06	3.17E+06
E	35.420 [5]	0.37615 [5]	6.25	0.54287	0.076216124	1140.132955	130.5931582	1.49E+05	2.98E+05	4.47E+05	5.96E+05	7.44E+05	8.93E+05	1.04E+06	1.19E+06
F	27.074 [6]	0.27436 [6]	4.1667	0.36191	0.050811533	759.2815598	70.12568964	5.32E+04	1.06E+05	1.60E+05	2.13E+05	2.66E+05	3.19E+05	3.73E+05	4.26E+05
							Travel Time (hours)[7]	17.8	5.9	3.6	2.5	2.0	1.6	1.4	1.2

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" > 30.00 kilometers.
[5] for "x" 20.01 - 40.00 kilometers.
[6] for "x" 30.01 - 60.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **WNW**

Condition No.	5 year Meteorological Data Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance, Hour of day: 1-6 *f*	1-6 *cf*	7-12 *f*	7-12 *cf*	13-18 *f*	13-18 *cf*	19-24 *f*	19-24 *cf*	5 year Meteorological Data Stability Class	Wind Speed
1	F	0 - 1	1	5.3245E+04	17.8	0.000%		0.000%		0.000%		0.000%		F	0-1
2	F	1 - 2	2	1.0649E+05	5.9	0.240%	0.240%	0.000%	0.000%	0.050%	0.050%	0.160%	0.160%	F	1-2
3	E	0 - 1	1	1.4889E+05	17.8	0.000%		0.000%		0.000%		0.000%		E	0-1
4	F	2 - 3	3	1.5974E+05	3.6	0.040%	0.280%	0.000%	0.000%	0.010%	0.060%	0.050%	0.210%	F	2-3
5	E	1 - 2	2	2.9779E+05	5.9	0.140%	0.420%	0.000%	0.000%	0.250%	0.310%	0.100%	0.310%	E	1-2
6	D	0 - 1	1	3.9584E+05	17.8	0.000%		0.000%		0.000%		0.000%		D	0-1
7	E	2 - 3	3	4.4668E+05	3.6	0.100%	0.520%	0.000%	0.000%	0.160%	0.470%	0.210%	0.520%	E	2-3
8	E	3 - 4	4	5.9557E+05	2.5	0.070%	0.590%	0.000%	0.000%	0.050%	0.520%	0.080%	0.600%	E	3-4
9	E	4 - 5	5	7.4447E+05	2.0	0.040%	0.630%	0.000%	0.000%	0.030%	0.550%	0.060%	0.660%	E	4-5
10	D	1 - 2	2	7.9168E+05	5.9	0.010%	0.640%	0.210%	0.210%	0.120%	0.670%	0.010%	0.670%	D	1-2
11	D	2 - 3	3	1.1875E+06	3.6	0.030%	0.670%	0.340%	0.550%	0.280%	0.950%	0.060%	0.730%	D	2-3
12	D	3 - 4	4	1.5834E+06	2.5	0.130%	0.800%	0.100%	0.650%	0.260%	1.210%	0.220%	0.950%	D	3-4
13	D	4 - 5	5	1.9792E+06	2.0	0.070%	0.870%	0.080%	0.730%	0.260%	1.470%	0.050%	1.000%	D	4-5
14	D	5 - 6	6	2.3750E+06	2.5	0.020%	0.890%	0.090%	0.820%	0.080%	1.550%	0.100%	1.100%	D	5-6
15	D	6 - 7	7	2.7709E+06	1.4	0.000%	0.890%	0.000%	0.820%	0.000%	1.550%	0.000%	1.100%	D	6-7
16	D	7 - 8	8	3.1667E+06	1.2	0.000%	0.890%	0.000%	0.820%	0.000%	1.550%	0.000%	1.100%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
Joshua Tree National Park

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 13.8 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second) 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.305740933	2025.954165	5000	1.01E+07	2.03E+07	3.04E+07	4.05E+07	5.06E+07	6.08E+07	7.09E+07	8.10E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.237075055	1550.855572	1946.173289	3.02E+06	6.04E+06	9.05E+06	1.21E+07	1.51E+07	1.81E+07	2.11E+07	2.41E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.168431212	1091.433924	674.4083581	7.36E+05	1.47E+06	2.21E+06	2.94E+06	3.68E+06	4.42E+06	5.15E+06	5.89E+06
D	36.650 [4]	0.56589 [4]	8.333	0.72382	0.112280741	723.7295889	161.852777	1.17E+05	2.34E+05	3.51E+05	4.69E+05	5.86E+05	7.03E+05	8.20E+05	9.37E+05
E	26.970 [5]	0.46713 [5]	6.25	0.54287	0.08421469	541.8222947	91.90786213	4.98E+04	9.96E+04	1.49E+05	1.99E+05	2.49E+05	2.99E+05	3.49E+05	3.98E+05
F	17.836 [6]	0.41507 [6]	4.1667	0.36191	0.056143861	360.7443655	53.018456	1.91E+04	3.83E+04	5.74E+04	7.65E+04	9.56E+04	1.15E+05	1.34E+05	1.53E+05
							Travel Time (hours)[7]	7.7	2.6	1.5	1.1	0.9	0.7	0.6	0.5

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 10.01 - 30.00 kilometers.
[5] for "x" 10.01 - 20.00 kilometers.
[6] for "x" 7.01 - 15.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **W**

Condition No.	5 year Meteorological Data Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance Hour of day 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data Stability Class	Wind Speed
1	F	0 - 1	1	1.9126E+04	7.7	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	3.8252E+04	2.6	0.150%	0.150%	0.000%	0.000%	0.030%	0.030%	0.210%	0.210%	F	1-2
3	E	0 - 1	1	4.9798E+04	7.7	0.000%	0.150%	0.000%	0.000%	0.000%	0.030%	0.000%	0.210%	E	0-1
4	F	2 - 3	3	5.7378E+04	1.5	0.060%	0.210%	0.000%	0.000%	0.000%	0.030%	0.050%	0.260%	F	2-3
5	E	1 - 2	2	9.9595E+04	2.6	0.130%	0.340%	0.000%	0.000%	0.080%	0.110%	0.100%	0.360%	E	1-2
6	D	0 - 1	1	1.1714E+05	7.7	0.000%	0.340%	0.000%	0.000%	0.000%	0.110%	0.000%	0.360%	D	0-1
7	E	2 - 3	3	1.4939E+05	1.5	0.170%	0.510%	0.000%	0.000%	0.070%	0.180%	0.160%	0.520%	E	2-3
8	E	3 - 4	4	1.9919E+05	1.1	0.030%	0.540%	0.000%	0.000%	0.040%	0.220%	0.100%	0.620%	E	3-4
9	D	1 - 2	2	2.3428E+05	2.6	0.050%	0.590%	0.180%	0.180%	0.050%	0.270%	0.000%	0.620%	D	1-2
10	E	4 - 5	5	2.4899E+05	0.9	0.030%	0.620%	0.000%	0.180%	0.030%	0.300%	0.050%	0.670%	E	4-5
11	D	2 - 3	3	3.5141E+05	1.5	0.080%	0.700%	0.160%	0.340%	0.070%	0.370%	0.020%	0.690%	D	2-3
12	D	3 - 4	4	4.6855E+05	1.1	0.130%	0.830%	0.050%	0.390%	0.060%	0.430%	0.130%	0.820%	D	3-4
13	D	4 - 5	5	5.8569E+05	0.9	0.050%	0.880%	0.060%	0.450%	0.080%	0.510%	0.060%	0.880%	D	4-5
14	D	5 - 6	6	7.0283E+05	1.1	0.080%	0.960%	0.050%	0.500%	0.090%	0.600%	0.040%	0.920%	D	5-6
15	D	6 - 7	7	8.1996E+05	0.6	0.000%	0.960%	0.000%	0.500%	0.000%	0.600%	0.000%	0.920%	D	6-7
16	D	7 - 8	8	9.3710E+05	0.5	0.000%	0.960%	0.000%	0.500%	0.000%	0.600%	0.000%	0.920%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
Joshua Tree National Park

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 12.0 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second) 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.311920671	1799.701744	5000	9.00E+06	1.80E+07	2.70E+07	3.60E+07	4.50E+07	5.40E+07	6.30E+07	7.20E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.241489224	1374.673604	1669.513392	2.30E+06	4.59E+06	6.89E+06	9.18E+06	1.15E+07	1.38E+07	1.61E+07	1.84E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.171079566	964.2887776	593.479421	5.72E+05	1.14E+06	1.72E+06	2.29E+06	2.86E+06	3.43E+06	4.01E+06	4.58E+06
D	36.650 [4]	0.56589 [4]	8.333	0.72382	0.114046359	639.3119786	149.5449853	9.56E+04	1.91E+05	2.87E+05	3.82E+05	4.78E+05	5.74E+05	6.69E+05	7.65E+05
E	26.970 [5]	0.46713 [5]	6.25	0.54287	0.085538916	478.5943544	86.09915356	4.12E+04	8.24E+04	1.24E+05	1.65E+05	2.06E+05	2.47E+05	2.88E+05	3.30E+05
F	17.836 [6]	0.41507 [6]	4.1667	0.36191	0.05702667	318.633871	50.03031341	1.59E+04	3.19E+04	4.78E+04	6.38E+04	7.97E+04	9.56E+04	1.12E+05	1.28E+05
							Travel Time (hours)[7]	6.7	2.2	1.3	1.0	0.7	0.6	0.5	0.4

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 10.01 - 30.00 kilometers.
[5] for "x" 10.01 - 20.00 kilometers.
[6] for "x" 7.01 - 15.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **WSW**

Condition No.	5 year Meteorological Data Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance Hour of day 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data Stability Class	Wind Speed
1	F	0 - 1	1	1.5941E+04	6.7	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	3.1883E+04	2.2	0.330%	0.330%	0.000%	0.000%	0.050%	0.050%	0.240%	0.240%	F	1-2
3	E	0 - 1	1	4.1207E+04	6.7	0.000%	0.330%	0.000%	0.000%	0.000%	0.050%	0.000%	0.240%	E	0-1
4	F	2 - 3	3	4.7824E+04	1.3	0.050%	0.380%	0.000%	0.000%	0.000%	0.050%	0.050%	0.290%	F	2-3
5	E	1 - 2	2	8.2413E+04	2.2	0.170%	0.550%	0.000%	0.000%	0.090%	0.140%	0.160%	0.450%	E	1-2
6	D	0 - 1	1	9.5606E+04	6.7	0.000%	0.550%	0.000%	0.000%	0.000%	0.140%	0.000%	0.450%	D	0-1
7	E	2 - 3	3	1.2362E+05	1.3	0.160%	0.710%	0.000%	0.000%	0.050%	0.190%	0.150%	0.600%	E	2-3
8	E	3 - 4	4	1.6483E+05	1.0	0.050%	0.760%	0.000%	0.000%	0.030%	0.220%	0.080%	0.680%	E	3-4
9	D	1 - 2	2	1.9121E+05	2.2	0.060%	0.820%	0.240%	0.240%	0.030%	0.250%	0.010%	0.690%	D	1-2
10	E	4 - 5	5	2.0603E+05	0.7	0.080%	0.900%	0.000%	0.240%	0.060%	0.310%	0.060%	0.750%	E	4-5
11	D	2 - 3	3	2.8682E+05	1.3	0.050%	0.950%	0.160%	0.400%	0.030%	0.340%	0.050%	0.800%	D	2-3
12	D	3 - 4	4	3.8242E+05	1.0	0.100%	1.050%	0.050%	0.450%	0.050%	0.390%	0.100%	0.900%	D	3-4
13	D	4 - 5	5	4.7803E+05	0.7	0.090%	1.140%	0.040%	0.490%	0.160%	0.550%	0.060%	0.960%	D	4-5
14	D	5 - 6	6	5.7364E+05	1.0	0.100%	1.240%	0.070%	0.560%	0.160%	0.710%	0.160%	1.120%	D	5-6
15	D	6 - 7	7	6.6924E+05	0.5	0.000%	1.240%	0.000%	0.560%	0.000%	0.710%	0.000%	1.120%	D	6-7
16	D	7 - 8	8	7.6485E+05	0.4	0.000%	1.240%	0.000%	0.560%	0.000%	0.710%	0.000%	1.120%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
Joshua Tree National Park

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 14.0 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second): 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.305104718	2050.761204	5000	1.03E+07	2.05E+07	3.08E+07	4.10E+07	5.13E+07	6.15E+07	7.18E+07	8.20E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.236620609	1570.200142	1977.139123	3.10E+06	6.21E+06	9.31E+06	1.24E+07	1.55E+07	1.86E+07	2.17E+07	2.48E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.168158559	1105.425143	683.3426782	7.55E+05	1.51E+06	2.27E+06	3.02E+06	3.78E+06	4.53E+06	5.29E+06	6.04E+06
D	36.650 [4]	0.56589 [4]	8.333	0.72382	0.112098967	733.019758	163.1760339	1.20E+05	2.39E+05	3.59E+05	4.78E+05	5.98E+05	7.18E+05	8.37E+05	9.57E+05
E	26.970 [5]	0.46713 [5]	6.25	0.54287	0.084078358	548.7807368	92.52769337	5.08E+04	1.02E+05	1.52E+05	2.03E+05	2.54E+05	3.05E+05	3.55E+05	4.06E+05
F	17.836 [6]	0.41507 [6]	4.1667	0.36191	0.056052974	365.3788576	53.33604732	1.95E+04	3.90E+04	5.85E+04	7.80E+04	9.74E+04	1.17E+05	1.36E+05	1.56E+05
							Travel Time (hours)[7]	7.8	2.6	1.6	1.1	0.9	0.7	0.6	0.5

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 10.01 - 30.00 kilometers.
[5] for "x" 10.01 - 20.00 kilometers.
[6] for "x" 7.01 - 15.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **SW**

Condition No.	5 year Meteorological Data: Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance, Hour of day: 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data: Stability Class	Wind Speed
1	F	0 - 1	1	1.9488E+04	7.8	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	3.8976E+04	2.6	0.470%	0.470%	0.000%	0.000%	0.040%	0.040%	0.330%	0.330%	F	1-2
3	E	0 - 1	1	5.0777E+04	7.8	0.000%	0.470%	0.000%	0.000%	0.000%	0.040%	0.000%	0.330%	E	0-1
4	F	2 - 3	3	5.8464E+04	1.6	0.110%	0.580%	0.000%	0.000%	0.030%	0.070%	0.050%	0.380%	F	2-3
5	E	1 - 2	2	1.0155E+05	2.6	0.280%	0.860%	0.000%	0.000%	0.090%	0.160%	0.370%	0.750%	E	1-2
6	D	0 - 1	1	1.1961E+05	7.8	0.000%	0.860%	0.000%	0.000%	0.000%	0.160%	0.000%	0.750%	D	0-1
7	E	2 - 3	3	1.5233E+05	1.6	0.260%	1.120%	0.000%	0.000%	0.030%	0.190%	0.190%	0.940%	E	2-3
8	E	3 - 4	4	2.0311E+05	1.1	0.070%	1.190%	0.000%	0.000%	0.050%	0.240%	0.120%	1.060%	E	3-4
9	D	1 - 2	2	2.3922E+05	2.6	0.150%	1.340%	0.250%	0.250%	0.010%	0.250%	0.000%	1.060%	D	1-2
10	E	4 - 5	5	2.5389E+05	0.9	0.090%	1.430%	0.000%	0.250%	0.070%	0.320%	0.120%	1.180%	E	4-5
11	D	2 - 3	3	3.5883E+05	1.6	0.120%	1.550%	0.210%	0.460%	0.040%	0.360%	0.020%	1.200%	D	2-3
12	D	3 - 4	4	4.7845E+05	1.1	0.090%	1.640%	0.070%	0.530%	0.080%	0.440%	0.110%	1.310%	D	3-4
13	D	4 - 5	5	5.9806E+05	0.9	0.100%	1.740%	0.050%	0.580%	0.140%	0.580%	0.050%	1.360%	D	4-5
14	D	5 - 6	6	7.1767E+05	1.1	0.130%	1.870%	0.160%	0.740%	0.300%	0.880%	0.150%	1.510%	D	5-6
15	D	6 - 7	7	8.3728E+05	0.6	0.000%	1.870%	0.000%	0.740%	0.000%	0.880%	0.000%	1.510%	D	6-7
16	D	7 - 8	8	9.5689E+05	0.5	0.000%	1.870%	0.000%	0.740%	0.000%	0.880%	0.000%	1.510%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
San Gorgonio Wilderness Area

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 17.6 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second) 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.294986219	2487.33979	5000	1.24E+07	2.49E+07	3.73E+07	4.97E+07	6.22E+07	7.46E+07	8.71E+07	9.95E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.229392996	1911.467824	2541.394641	4.86E+06	9.72E+06	1.46E+07	1.94E+07	2.43E+07	2.91E+07	3.40E+07	3.89E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.163822231	1353.183574	842.443336	1.14E+06	2.28E+06	3.42E+06	4.56E+06	5.70E+06	6.84E+06	7.98E+06	9.12E+06
D	36.650 [4]	0.56589 [4]	8.333	0.72382	0.109208002	897.5528113	185.7364509	1.67E+05	3.33E+05	5.00E+05	6.67E+05	8.34E+05	1.00E+06	1.17E+06	1.33E+06
E	26.970 [5]	0.46713 [5]	6.25	0.54287	0.081910114	672.0236085	102.9668149	6.92E+04	1.38E+05	2.08E+05	2.77E+05	3.46E+05	4.15E+05	4.84E+05	5.54E+05
F	22.651 [6]	0.32681 [6]	4.1667	0.36191	0.054607492	447.4643312	57.82736122	2.59E+04	5.18E+04	7.76E+04	1.04E+05	1.29E+05	1.55E+05	1.81E+05	2.07E+05
							Travel Time (hours)[7]	9.8	3.3	2.0	1.4	1.1	0.9	0.8	0.7

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 10.01 - 30.00 kilometers.
[5] for "x" 10.01 - 20.00 kilometers.
[6] for "x" 15.01 - 30.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **SE**

Condition No.	5 year Meteorological Data Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance Hour of day 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data Stability Class	Wind Speed
1	F	0 - 1	1	2.5876E+04	9.8	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	5.1751E+04	3.3	1.380%	1.380%	0.000%	0.000%	0.020%	0.020%	1.100%	1.100%	F	1-2
3	E	0 - 1	1	6.9196E+04	9.8		1.380%	0.000%	0.000%	0.000%	0.020%	0.000%	1.100%	E	0-1
4	F	2 - 3	3	7.7627E+04	2.0		1.380%	0.000%	0.000%	0.000%	0.020%	0.550%	1.650%	F	2-3
5	E	1 - 2	2	1.3839E+05	3.3		1.380%	0.000%	0.000%	0.110%	0.130%	1.030%	2.680%	E	1-2
6	D	0 - 1	1	1.6671E+05	9.8		1.380%	0.000%	0.000%	0.000%	0.130%		2.680%	D	0-1
7	E	2 - 3	3	2.0759E+05	2.0		1.380%	0.000%	0.000%	0.000%	0.130%		2.680%	E	2-3
8	E	3 - 4	4	2.7678E+05	1.4		1.380%	0.000%	0.000%	0.000%	0.130%		2.680%	E	3-4
9	D	1 - 2	2	3.3342E+05	3.3		1.380%	0.320%	0.320%	0.040%	0.170%		2.680%	D	1-2
10	E	4 - 5	5	3.4598E+05	1.1		1.380%	0.000%	0.320%	0.010%	0.180%		2.680%	E	4-5
11	D	2 - 3	3	5.0012E+05	2.0		1.380%	0.200%	0.520%	0.010%	0.190%		2.680%	D	2-3
12	D	3 - 4	4	6.6683E+05	1.4		1.380%	0.050%	0.570%	0.010%	0.200%		2.680%	D	3-4
13	D	4 - 5	5	8.3354E+05	1.1		1.380%	0.030%	0.600%	0.000%	0.200%		2.680%	D	4-5
14	D	5 - 6	6	1.0002E+06	1.4		1.380%	0.010%	0.610%	0.000%	0.200%		2.680%	D	5-6
15	D	6 - 7	7	1.1670E+06	0.8		1.380%	0.000%	0.610%	0.000%	0.200%		2.680%	D	6-7
16	D	7 - 8	8	1.3337E+06	0.7		1.380%	0.000%	0.610%	0.000%	0.200%		2.680%	D	7-8

	1-6	7-12	13-18	19-24
Cumulative frequencies for stability classes E,F&D per time period:	311	151	42	179
Cumulative frequencies for stability classes A,B&C per time period:	0	97	26	0
Includes all stability classes:	311	248	68	179
hours in met year:	2190	2190	2190	2190

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
San Gorgonio Wilderness Area

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 15.0 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second): 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.302054117	2173.872264	5000	1.09E+07	2.17E+07	3.26E+07	4.35E+07	5.43E+07	6.52E+07	7.61E+07	8.70E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.234441574	1666.279157	2132.602344	3.55E+06	7.11E+06	1.07E+07	1.42E+07	1.78E+07	2.13E+07	2.49E+07	2.84E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.16685121	1175.002262	727.8542257	8.55E+05	1.71E+06	2.57E+06	3.42E+06	4.28E+06	5.13E+06	5.99E+06	6.84E+06
D	36.650 [4]	0.56589 [4]	8.333	0.72382	0.111227377	779.2209972	169.6728136	1.32E+05	2.64E+05	3.97E+05	5.29E+05	6.61E+05	7.93E+05	9.25E+05	1.06E+06
E	26.970 [5]	0.46713 [5]	6.25	0.54287	0.08342466	583.3865337	95.55830909	5.57E+04	1.11E+05	1.67E+05	2.23E+05	2.79E+05	3.34E+05	3.90E+05	4.46E+05
F	17.836 [6]	0.41507 [6]	4.1667	0.36191	0.055617179	388.4274191	54.88550476	2.13E+04	4.26E+04	6.40E+04	8.53E+04	1.07E+05	1.28E+05	1.49E+05	1.71E+05
							Travel Time (hours)[7]	8.3	2.8	1.7	1.2	0.9	0.8	0.6	0.6

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 10.01 - 30.00 kilometers.
[5] for "x" 10.01 - 20.00 kilometers.
[6] for "x" 7.01 - 15.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **ESE**

Condition No.	5 year Meteorological Data: Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance, Hour of day: 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data: Stability Class	Wind Speed
1	F	0 - 1	1	2.1319E+04	8.3	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	4.2638E+04	2.8	1.290%	1.290%	0.000%	0.000%	0.020%	0.020%	1.020%	1.020%	F	1-2
3	E	0 - 1	1	5.5747E+04	8.3		1.290%	0.000%	0.000%	0.000%	0.020%		1.020%	E	0-1
4	F	2 - 3	3	6.3957E+04	1.7		1.290%	0.000%	0.000%	0.000%	0.020%		1.020%	F	2-3
5	E	1 - 2	2	1.1149E+05	2.8		1.290%	0.000%	0.000%	0.070%	0.090%		1.020%	E	1-2
6	D	0 - 1	1	1.3221E+05	8.3		1.290%	0.000%	0.000%	0.000%	0.090%		1.020%	D	0-1
7	E	2 - 3	3	1.6724E+05	1.7		1.290%	0.000%	0.000%	0.030%	0.120%		1.020%	E	2-3
8	E	3 - 4	4	2.2299E+05	1.2		1.290%	0.000%	0.000%	0.040%	0.160%		1.020%	E	3-4
9	D	1 - 2	2	2.6443E+05	2.8		1.290%	0.300%	0.300%	0.030%	0.190%		1.020%	D	1-2
10	E	4 - 5	5	2.7874E+05	0.9		1.290%	0.000%	0.300%	0.020%	0.210%		1.020%	E	4-5
11	D	2 - 3	3	3.9664E+05	1.7		1.290%	0.200%	0.500%	0.050%	0.260%		1.020%	D	2-3
12	D	3 - 4	4	5.2885E+05	1.2		1.290%	0.230%	0.730%	0.040%	0.300%		1.020%	D	3-4
13	D	4 - 5	5	6.6106E+05	0.9		1.290%	0.330%	1.060%	0.040%	0.340%		1.020%	D	4-5
14	D	5 - 6	6	7.9328E+05	1.2		1.290%	0.250%	1.310%	0.050%	0.390%		1.020%	D	5-6
15	D	6 - 7	7	9.2549E+05	0.6		1.290%	0.000%	1.310%	0.000%	0.390%		1.020%	D	6-7
16	D	7 - 8	8	1.0577E+06	0.6		1.290%	0.000%	1.310%	0.000%	0.390%		1.020%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
San Jacinto Wilderness Area

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 15.7 distance to class I area (km)

Stability Class	a (meters)	b	c^8	d^8	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second) 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.300037395	2259.173216	5000	1.13E+07	2.26E+07	3.39E+07	4.52E+07	5.65E+07	6.78E+07	7.91E+07	9.04E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.233001035	1732.923352	2242.031296	3.89E+06	7.77E+06	1.17E+07	1.55E+07	1.94E+07	2.33E+07	2.72E+07	3.11E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.165986935	1223.34641	758.8608618	9.28E+05	1.86E+06	2.79E+06	3.71E+06	4.64E+06	5.57E+06	6.50E+06	7.43E+06
D	36.650 [4]	0.56589 [4]	8.333	0.72382	0.110651178	811.3248341	174.1091652	1.41E+05	2.83E+05	4.24E+05	5.65E+05	7.06E+05	8.48E+05	9.89E+05	1.13E+06
E	26.970 [5]	0.46713 [5]	6.25	0.54287	0.082992506	607.4335616	97.61612215	5.93E+04	1.19E+05	1.78E+05	2.37E+05	2.96E+05	3.56E+05	4.15E+05	4.74E+05
F	22.651 [6]	0.32681 [6]	4.1667	0.36191	0.055329079	404.4437464	55.70822814	2.25E+04	4.51E+04	6.76E+04	9.01E+04	1.13E+05	1.35E+05	1.58E+05	1.80E+05
							Travel Time (hours)[7]	8.7	2.9	1.7	1.2	1.0	0.8	0.7	0.6

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 10.01 - 30.00 kilometers.
[5] for "x" 10.01 - 20.00 kilometers.
[6] for "x" 15.01 - 30.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **N**

Condition No.	5 year Meteorological Data Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance, Hour of day 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data Stability Class	Wind Speed
1	F	0 - 1	1	2.2531E+04	8.7	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	4.5062E+04	2.9	0.150%	0.150%	0.000%	0.000%	0.040%	0.040%	0.180%	0.180%	F	1-2
3	E	0 - 1	1	5.9295E+04	8.7	0.000%	0.150%	0.000%	0.000%	0.000%	0.040%	0.000%	0.180%	E	0-1
4	F	2 - 3	3	6.7593E+04	1.7	0.020%	0.170%	0.000%	0.000%	0.010%	0.050%	0.010%	0.190%	F	2-3
5	E	1 - 2	2	1.1859E+05	2.9	0.070%	0.240%	0.000%	0.000%	0.160%	0.210%	0.130%	0.320%	E	1-2
6	D	0 - 1	1	1.4126E+05	8.7	0.000%	0.240%	0.000%	0.000%	0.000%	0.210%	0.000%	0.320%	D	0-1
7	E	2 - 3	3	1.7789E+05	1.7	0.040%	0.280%	0.000%	0.000%	0.010%	0.220%	0.030%	0.350%	E	2-3
8	E	3 - 4	4	2.3718E+05	1.2	0.010%	0.290%	0.000%	0.000%	0.000%	0.220%	0.010%	0.360%	E	3-4
9	D	1 - 2	2	2.8252E+05	2.9	0.050%	0.340%	0.100%	0.100%	0.150%	0.370%	0.020%	0.380%	D	1-2
10	E	4 - 5	5	2.9648E+05	1.0	0.000%	0.340%	0.000%	0.100%	0.000%	0.370%	0.040%	0.420%	E	4-5
11	D	2 - 3	3	4.2378E+05	1.7	0.010%	0.350%	0.010%	0.110%	0.070%	0.440%	0.030%	0.450%	D	2-3
12	D	3 - 4	4	5.6504E+05	1.2	0.050%	0.400%	0.040%	0.150%	0.050%	0.490%	0.020%	0.470%	D	3-4
13	D	4 - 5	5	7.0630E+05	1.0	0.010%	0.410%	0.020%	0.170%	0.040%	0.530%	0.020%	0.490%	D	4-5
14	D	5 - 6	6	8.4755E+05	1.2	0.020%	0.430%	0.010%	0.180%	0.050%	0.580%	0.010%	0.500%	D	5-6
15	D	6 - 7	7	9.8881E+05	0.7	0.000%	0.430%	0.000%	0.180%	0.000%	0.580%	0.000%	0.500%	D	6-7
16	D	7 - 8	8	1.1301E+06	0.6	0.000%	0.430%	0.000%	0.180%	0.000%	0.580%	0.000%	0.500%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
San Jacinto Wilderness Area

Formulas:

σ_y(meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z(meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 9.7 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second): 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.321329022	1501.76316	5000	7.51E+06	1.50E+07	2.25E+07	3.00E+07	3.75E+07	4.51E+07	5.26E+07	6.01E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.24820958	1143.407293	1321.926874	1.51E+06	3.02E+06	4.53E+06	6.05E+06	7.56E+06	9.07E+06	1.06E+07	1.21E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.175111558	798.2137441	488.5210753	3.90E+05	7.80E+05	1.17E+06	1.56E+06	1.95E+06	2.34E+06	2.73E+06	3.12E+06
D	33.504 [4]	0.60486 [4]	8.333	0.72382	0.116734428	529.0676772	132.4205573	7.01E+04	1.40E+05	2.10E+05	2.80E+05	3.50E+05	4.20E+05	4.90E+05	5.60E+05
E	24.703 [5]	0.50527 [5]	6.25	0.54287	0.087554986	396.0280025	77.8638462	3.08E+04	6.17E+04	9.25E+04	1.23E+05	1.54E+05	1.85E+05	2.16E+05	2.47E+05
F	17.836 [6]	0.41507 [6]	4.1667	0.36191	0.058370704	263.6463944	45.8011948	1.21E+04	2.42E+04	3.62E+04	4.83E+04	6.04E+04	7.25E+04	8.45E+04	9.66E+04
							Travel Time (hours)[7]	5.4	1.8	1.1	0.8	0.6	0.5	0.4	0.4

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 3.01 - 10.00 kilometers.
[5] for "x" 4.01 - 10.00 kilometers.
[6] for "x" 7.01 - 15.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **NE**

Condition No.	5 year Meteorological Data: Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance, Hour of day: 1-6 *f*	1-6 *cf*	7-12 *f*	7-12 *cf*	13-18 *f*	13-18 *cf*	19-24 *f*	19-24 *cf*	5 year Meteorological Data: Stability Class	Wind Speed
1	F	0 - 1	1	1.2075E+04	5.4	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	2.4151E+04	1.8	0.060%	0.060%	0.000%	0.000%	0.010%	0.010%	0.070%	0.070%	F	1-2
3	E	0 - 1	1	3.0836E+04	5.4	0.000%	0.060%	0.000%	0.000%	0.000%	0.010%	0.000%	0.070%	E	0-1
4	F	2 - 3	3	3.6226E+04	1.1	0.000%	0.060%	0.000%	0.000%	0.000%	0.010%	0.010%	0.080%	F	2-3
5	E	1 - 2	2	6.1673E+04	1.8	0.040%	0.100%	0.000%	0.000%	0.050%	0.060%	0.040%	0.120%	E	1-2
6	D	0 - 1	1	7.0059E+04	5.4	0.000%	0.100%	0.000%	0.000%	0.000%	0.060%	0.000%	0.120%	D	0-1
7	E	2 - 3	3	9.2509E+04	1.1	0.040%	0.140%	0.000%	0.000%	0.020%	0.080%	0.050%	0.170%	E	2-3
8	E	3 - 4	4	1.2335E+05	0.8	0.000%	0.140%	0.000%	0.000%	0.000%	0.080%	0.010%	0.180%	E	3-4
9	D	1 - 2	2	1.4012E+05	1.8	0.030%	0.170%	0.050%	0.050%	0.050%	0.130%	0.010%	0.190%	D	1-2
10	E	4 - 5	5	1.5418E+05	0.6	0.010%	0.180%	0.000%	0.050%	0.000%	0.130%	0.020%	0.210%	E	4-5
11	D	2 - 3	3	2.1018E+05	1.1	0.000%	0.180%	0.040%	0.090%	0.030%	0.160%	0.020%	0.230%	D	2-3
12	D	3 - 4	4	2.8024E+05	0.8	0.020%	0.200%	0.020%	0.110%	0.020%	0.180%	0.060%	0.290%	D	3-4
13	D	4 - 5	5	3.5030E+05	0.6	0.020%	0.220%	0.000%	0.110%	0.020%	0.200%	0.030%	0.320%	D	4-5
14	D	5 - 6	6	4.2036E+05	0.8	0.010%	0.230%	0.020%	0.130%	0.000%	0.200%	0.010%	0.330%	D	5-6
15	D	6 - 7	7	4.9042E+05	0.4	0.000%	0.230%	0.000%	0.130%	0.000%	0.200%	0.000%	0.330%	D	6-7
16	D	7 - 8	8	5.6048E+05	0.4	0.000%	0.230%	0.000%	0.130%	0.000%	0.200%	0.000%	0.330%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
San Jacinto Wilderness Area

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 8.0 distance to class I area (km)

Stability Class	a (meters)	b	c[8]	d[8]	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second) 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.329848786	1273.882501	5000	6.37E+06	1.27E+07	1.91E+07	2.55E+07	3.18E+07	3.82E+07	4.46E+07	5.10E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.254295222	967.1525283	1070.040429	1.03E+06	2.07E+06	3.10E+06	4.14E+06	5.17E+06	6.21E+06	7.24E+06	8.28E+06
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.178762741	672.3407938	409.584765	2.76E+05	5.51E+05	8.26E+05	1.10E+06	1.38E+06	1.65E+06	1.93E+06	2.20E+06
D	33.504 [4]	0.60486 [4]	8.333	0.72382	0.119168617	445.5291205	117.8527361	5.25E+04	1.05E+05	1.58E+05	2.10E+05	2.63E+05	3.15E+05	3.68E+05	4.20E+05
E	24.703 [5]	0.50527 [5]	6.25	0.54287	0.089380645	333.4676302	70.64053441	2.36E+04	4.71E+04	7.07E+04	9.42E+04	1.18E+05	1.41E+05	1.65E+05	1.88E+05
F	17.836 [6]	0.41507 [6]	4.1667	0.36191	0.059587799	221.9848405	42.28078331	9.39E+03	1.88E+04	2.82E+04	3.75E+04	4.69E+04	5.63E+04	6.57E+04	7.51E+04
							Travel Time (hours)[7]	4.4	1.5	0.9	0.6	0.5	0.4	0.3	0.3

1 If x is >3.11 km, then σz = 5,000 meters
2 for "x" > 0.4 kilometers.
3 all distances
4 for "x" 3.01 - 10.00 kilometers.
5 for "x" 4.01 - 10.00 kilometers.
6 for "x" 7.01 - 15.00 kilometers.
7 wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
8 Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **NE**

Condition No.	5 year Meteorological Data Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance, Hour of day: 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data Stability Class	Wind Speed
1	F	0 - 1	1	9.3857E+03	4.4	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	1.8771E+04	1.5	0.100%	0.100%	0.000%	0.000%	0.000%	0.000%	0.150%	0.150%	F	1-2
3	E	0 - 1	1	2.3556E+04	4.4	0.000%	0.100%	0.000%	0.000%	0.000%	0.000%	0.000%	0.150%	E	0-1
4	F	2 - 3	3	2.8157E+04	0.9	0.000%	0.100%	0.000%	0.000%	0.000%	0.000%	0.000%	0.150%	F	2-3
5	E	1 - 2	2	4.7113E+04	1.5	0.030%	0.130%	0.000%	0.000%	0.040%	0.040%	0.090%	0.240%	E	1-2
6	D	0 - 1	1	5.2507E+04	4.4	0.000%	0.130%	0.000%	0.000%	0.000%	0.040%	0.000%	0.240%	D	0-1
7	E	2 - 3	3	7.0669E+04	0.9	0.120%	0.250%	0.000%	0.000%	0.050%	0.090%	0.090%	0.330%	E	2-3
8	E	3 - 4	4	9.4225E+04	0.6	0.010%	0.260%	0.000%	0.000%	0.010%	0.100%	0.030%	0.360%	E	3-4
9	D	1 - 2	2	1.0501E+05	1.5	0.040%	0.300%	0.160%	0.160%	0.010%	0.110%	0.040%	0.400%	D	1-2
10	E	4 - 5	5	1.1778E+05	0.5	0.010%	0.310%	0.000%	0.160%	0.000%	0.110%	0.000%	0.400%	E	4-5
11	D	2 - 3	3	1.5752E+05	0.9	0.010%	0.320%	0.090%	0.250%	0.010%	0.120%	0.000%	0.400%	D	2-3
12	D	3 - 4	4	2.1003E+05	0.6	0.060%	0.380%	0.090%	0.340%	0.040%	0.160%	0.090%	0.490%	D	3-4
13	D	4 - 5	5	2.6253E+05	0.5	0.040%	0.420%	0.050%	0.390%	0.040%	0.200%	0.050%	0.540%	D	4-5
14	D	5 - 6	6	3.1504E+05	0.6	0.060%	0.480%	0.040%	0.430%	0.020%	0.220%	0.090%	0.630%	D	5-6
15	D	6 - 7	7	3.6755E+05	0.3	0.000%	0.480%	0.000%	0.430%	0.000%	0.220%	0.000%	0.630%	D	6-7
16	D	7 - 8	8	4.2005E+05	0.3	0.000%	0.480%	0.000%	0.430%	0.000%	0.220%	0.000%	0.630%	D	7-8
					Cumulative frequencies for stability classes E,F&D per time period:	311		151		42		179			
					Cumulative frequencies for stability classes A,B&C per time period:	0		97		26		0			
					Includes all stability classes:	311		248		68		179			
					hours in met year:	2190		2190		2190		2190			

Sentinel Energy Project Level II Visibility Modeling
Class I Areas
San Jacinto Wilderness Area

Formulas:

σ_y (meters) =465.11628(x)tan(TH)

TH =0.017453293[c-d ln(x)]

σ_z (meters) =ax^b

Shaded areas below represent wind speed/stability conditions not needed for this analysis.
(see page 45 in "Workbook for Plume Visual Impact Screening and Analysis, EPA-450/4-88-019; updated 10-92)

x= 10.3 distance to class I area (km)

Stability Class	a (meters)	b	c^8	d^8	TH	σ_y	σ_z	$\sigma_y\sigma_z u$ for various wind speeds (meters/second): 1	2	3	4	5	6	7	8
A	** [1]	** [1]	24.167	2.5334	0.318675255	1580.54613	5000	7.90E+06	1.58E+07	2.37E+07	3.16E+07	3.95E+07	4.74E+07	5.53E+07	6.32E+07
B	109.300 [2]	1.09710 [2]	18.333	1.8096	0.246314003	1204.473729	1411.899815	1.70E+06	3.40E+06	5.10E+06	6.80E+06	8.50E+06	1.02E+07	1.19E+07	1.36E+07
C	61.141 [3]	0.91465 [3]	12.5	1.0857	0.173974274	841.9699906	516.088409	4.35E+05	8.69E+05	1.30E+06	1.74E+06	2.17E+06	2.61E+06	3.04E+06	3.48E+06
D	36.650 [4]	0.56589 [4]	8.333	0.72382	0.115976218	558.1115333	137.1603031	7.66E+04	1.53E+05	2.30E+05	3.06E+05	3.83E+05	4.59E+05	5.36E+05	6.12E+05
E	26.970 [5]	0.46713 [5]	6.25	0.54287	0.086986323	417.779434	80.16920912	3.35E+04	6.70E+04	1.00E+05	1.34E+05	1.67E+05	2.01E+05	2.34E+05	2.68E+05
F	17.836 [6]	0.41507 [6]	4.1667	0.36191	0.057991599	278.1320794	46.95650996	1.31E+04	2.61E+04	3.92E+04	5.22E+04	6.53E+04	7.84E+04	9.14E+04	1.04E+05
							Travel Time (hours)[7]	5.7	1.9	1.1	0.8	0.6	0.5	0.4	0.4

[1] If x is >3.11 km, then σz = 5,000 meters
[2] for "x" > 0.4 kilometers.
[3] all distances
[4] for "x" 10.01 - 30.00 kilometers.
[5] for "x" 10.01 - 20.00 kilometers.
[6] for "x" 7.01 - 15.00 kilometers.
[7] wind speed used to calculate travel time are the average ws within a ws category. (1-2 uses 1.5 m/s; ws category of 3-4 uses 3.5 m/s)
[8] Table 1-1 in ISC2 Volume II Users Guide

Sector of Interest **ENE**

Condition No.	5 year Meteorological Data: Stability Class	Wind Speed	Flag	$\sigma_y\sigma_z u$	Travel Time (hours)	Frequency of Occurance, Hour of day: 1-6 f	1-6 cf	7-12 f	7-12 cf	13-18 f	13-18 cf	19-24 f	19-24 cf	5 year Meteorological Data: Stability Class	Wind Speed
1	F	0 - 1	1	1.3060E+04	5.7	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	F	0-1
2	F	1 - 2	2	2.6120E+04	1.9	0.140%	0.140%	0.000%	0.000%	0.010%	0.010%	0.270%	0.270%	F	1-2
3	E	0 - 1	1	3.3493E+04	5.7	0.000%	0.140%	0.000%	0.000%	0.000%	0.010%	0.000%	0.270%	E	0-1
4	F	2 - 3	3	3.9180E+04	1.1	0.050%	0.190%	0.000%	0.000%	0.010%	0.020%	0.070%	0.340%	F	2-3
5	E	1 - 2	2	6.6986E+04	1.9	0.160%	0.350%	0.000%	0.000%	0.020%	0.040%	0.200%	0.540%	E	1-2
6	D	0 - 1	1	7.6551E+04	5.7	0.000%	0.350%	0.000%	0.000%	0.000%	0.040%	0.000%	0.540%	D	0-1
7	E	2 - 3	3	1.0048E+05	1.1	0.160%	0.510%	0.000%	0.000%	0.000%	0.040%	0.100%	0.640%	E	2-3
8	E	3 - 4	4	1.3397E+05	0.8	0.050%	0.560%	0.000%	0.000%	0.000%	0.040%	0.130%	0.770%	E	3-4
9	D	1 - 2	2	1.5310E+05	1.9	0.060%	0.620%	0.160%	0.160%	0.050%	0.090%	0.000%	0.770%	D	1-2
10	E	4 - 5	5	1.6747E+05	0.6	0.050%	0.670%	0.000%	0.160%	0.030%	0.120%	0.090%	0.860%	E	4-5
11	D	2 - 3	3	2.2965E+05	1.1	0.050%	0.720%	0.130%	0.290%	0.060%	0.180%	0.060%	0.920%	D	2-3
12	D	3 - 4	4	3.0620E+05	0.8	0.150%	0.870%	0.230%	0.520%	0.050%	0.230%	0.140%	1.060%	D	3-4
13	D	4 - 5	5	3.8275E+05	0.6	0.160%	1.030%	0.240%	0.760%	0.130%	0.360%	0.090%	1.150%	D	4-5
14	D	5 - 6	6	4.5930E+05	0.8	0.160%	1.190%	0.170%	0.930%	0.060%	0.420%	0.220%	1.370%	D	5-6
15	D	6 - 7	7	5.3586E+05	0.4	0.000%	1.190%	0.000%	0.930%	0.000%	0.420%	0.000%	1.370%	D	6-7
16	D	7 - 8	8	6.1241E+05	0.4	0.000%	1.190%	0.000%	0.930%	0.000%	0.420%	0.000%	1.370%	D	7-8

	1-6	7-12	13-18	19-24
Cumulative frequencies for stability classes E,F&D per time period:	311	151	42	179
Cumulative frequencies for stability classes A,B&C per time period:	0	97	26	0
Includes all stability classes:	311	248	68	179
hours in met year:	2190	2190	2190	2190