DOCKET
00-AFC-14C
DATE MAY 18 2010
RECD. JUN 29 2010

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

May 18, 2010

Mr. Joseph Douglas
Project Manager
California Energy Commission
1516 9th Street, MS 3000
Sacramento, CA 95814-5512

Subject: El Segundo Power Redevelopment Project (00-AFC-14C); Facility ID No. 115663; located at 301 Vista Del Mar, El Segundo, CA 90245

Dear Mr. Douglas:

This letter is to inform you that the South Coast Air Quality Management District (AQMD) has completed our analysis of the proposed project as described above. Attached for your review is the Second Addendum to the Determination of Compliance (DOC) which updates the Addendum to the DOC dated March 31, 2010.

During the 30 day public comment period, AQMD received two comment letters, one from the applicant which requested several administrative changes to the proposed permit, and another from a member of the public concerning the proposed project's impacts on air quality and public health in the El Segundo area. AQMD responded to both letters and a copy of the response letters are attached for your information. In addition, the Second Addendum to the Determination of Compliance includes the requested administrative changes by the applicant, as applicable and appropriate.

If you have any questions regarding this project please contact me at (909) 396-2662 (mnazemi1@aqmd.gov), or either one of my staff, Mr. Kenneth L. Coats (kcoats@aqmd.gov) at (909) 396-2527 or Mr. John Yee (jyee@aqmd.gov) at (909) 396-2531.

Very truly yours,

Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering and Compliance

MN:klc

Attachments
cc: Matt Layton, CEC
Brenner Munger, CEC
George Piantka, P.E., El Segundo Power, LLC
Barry Wallerstein, D.Env., AQMD
Kurt Wiese, AQMD
Barbara Baird, AQMD
Mr. Brian L. Yeh, AQMD
Mr. Andrew Lee, AQMD

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 48	PAGE 1
ENGINEERING AND COMPLIANCE DIVISION	APPLICATION NO. 470652 (Master File)	DATE Rev 5-14-2010
ENGINEERING ANALYSIS / EVALUATION	PROCESSED BY: Ken Coats	REVIEWED BY:

EL SEGUNDO POWER, LLC
SECOND ADDENDUM TO THE DETERMINATION OF COMPLIANCE

COMPANY NAME AND ADDRESS

El Segundo Power, LLC
301 Vista Del Mar
El Segundo, CA 90245

Contact: Mr. George Piantka, P.E.
AQMD Facility ID: 115663

EQUIPMENT LOCATION

301 Vista Del Mar
El Segundo, CA 90245

EQUIPMENT DESCRIPTION

Section H of the Facility Permit

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
System 2: GAS TURBINE, POWER GENERATION					
GAS TURBINE, UNIT NO. 5, NATURAL GAS, SIEMENS MODEL SGT6-5000F, RAPID-RESPONSE COMBINED CYCLE, 2,096 MMBTU/HR AT 78 DEGREES F, WITH DRY LOW-NOX COMBUSTORS WITH A/N 470652 GENERATOR, HEAT RECOVERY STEAM, UNFIRED STEAM TURBINE, 67.7 MW GENERATOR, 219 MW	D67	C75	NOX: MAJOR SOURCE	**CO:** 2.0 PPMV NATURAL GAS (4) [Rule 1703(a)(2)-PSD-BACT]; **CO:** 2000 PPMV (5) [Rule 407] **NOX:** 15 PPMV NATURAL GAS (8) [40CFR60 Subpart KKKK] **NOX:** 16.55 LB/MMCF NATURAL GAS (1) [Rule 2012] **NOX:** 8.66 LB/MMCF NATURAL GAS (1A) [Rule 2012] **NOX:** 2.0 PPMV NATURAL GAS (4) [Rule 2005-BACT, Rule 1703(a)(2)-PSD-BACT]; **VOC:** 2.0 PPMV (4) [Rule 1303(a)(1)-BACT] **PM10**: 0.01 GRAIN/DSCF (5) [Rule 475]; **PM10**: 0.1 GRAIN/DSCF (5A) [Rule 409]; **PM10**: 11 LB/HR (5B) [Rule 475 **SOX**: 0.06 LB/MMBTU (8) [40 CFR60 Subpart KKKK] **SO2**: (9) 40CFR72-Acid Rain Provisions	A63.2, A99.7, A99.8, A99.9, A99.10, A99.11, A195.8, 195.9, A195.10, A327.1, A433.1, B61.2, C1.6, D12.10, D29.7, D29.8, D29.9, D82.4, D82.5, E193.2, E193.3, I296.2, K40.4, K67.5

EQUIPMENT DESCRIPTION (continued)

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
Process 2: INTERNAL COMBUSTION					
System 2: GAS TURBINE, POWER GENERATION					
CO OXIDATION CATALYST, UNIT NO. 5, BASF, 290 CUBIC FEET OF TOTAL CATALYST VOLUME, WITH A/N: 470653	C75	D67 C76			
SELECTIVE CATALYTIC REDUCTION, UNIT NO. 5, CORMETECH MODEL CM 21HT, WITH 2,050 CUBIC FEET OF TOTAL CATALYST VOLUME, LENGTH: 24 FT 3 IN; WIDTH: 25 FT 0 IN; HEIGHT: 70 FT 0 IN; WITH NH3 INJECTION GRID A/N: 470653	C76	C75 S78		**NH3:** 5.0 PPMV (4) [Rule 1303(a)(1)-BACT]	A195.11 D12.11 D12.12 D12.13 E179.5 E179.6
STACK NO. 5, DIAMETER: 20 FT 11 IN, HEIGHT: 210 FT 0 IN A/N: 470652	S78	C76			
GAS TURBINE, UNIT NO. 7, NATURAL GAS, SIEMENS MODEL SGT6-5000F, RAPID-RESPONSE COMBINED CYCLE, 2,096 MMBTU/HR AT 78 DEGREES F, WITH DRY LOW-NOX COMBUSTORS WITH A/N 470656 GENERATOR, HEAT RECOVERY STEAM, UNFIRED STEAM TURBINE, 67.7 MW GENERATOR, 219 MW	D68	C79	NOX: MAJOR SOURCE	**CO:** 2.0 PPMV NATURAL GAS (4) [Rule 1703(a)(2)-PSD-BACT]; **CO:** 2000 PPMV (5) [Rule 407] **NOX:** 15 PPMV NATURAL GAS (8) [40CFR60 Subpart KKKK] **NOX:** 16.55 LB/MMCF NATURAL GAS (1) [Rule 2012] **NOX:** 8.66 LB/MMCF NATURAL GAS (1A) [Rule 2012] **NOX:** 2.0 PPMV NATURAL GAS (4) [Rule 2005-BACT, Rule 1703(a)(2)-PSD-BACT]; **VOC:** 2.0 PPMV (4) [Rule 1303(a)(1)-BACT] **PM10**: 0.01 GRAIN/DSCF (5) [Rule 475]; **PM10**: 0.1 GRAIN/DSCF (5A) [Rule 409]; **PM10**: 11 LB/HR (5B) [Rule 475]; **SOX**: 0.06 LB/MMBTU (8) [40 CFR60 Subpart KKKK] **SO2**: (9) 40CFR72-Acid Rain Provisions	A63.2, A99.7, A99.8, A99.9, A99.10, A99.11, A195.8, 195.9, A195.10, A327.1, A433.1, B61.2, C1.6, D12.10, D29.7, D29.8, D29.9,; D82.4, D82.5, E193.2, E193.3, I296.2, K40.4, K67.5

EQUIPMENT DESCRIPTION (continued)

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
Process 2: INTERNAL COMBUSTION					
System 2: GAS TURBINE, POWER GENERATION					
CO OXIDATION CATALYST, UNIT NO.7, BASF, 290 CUBIC FEET OF TOTAL CATALYST VOLUME, WITH A/N: 470654	C79	D68 C80			
SELECTIVE CATALYTIC REDUCTION, UNIT NO. 7, CORMETECH MODEL CM 21HT, WITH 2,050 CUBIC FEET OF TOTAL CATALYST VOLUME, LENGTH: 24 FT 3 IN; WIDTH: 25 FT 0 IN; HEIGHT: 70 FT 0 IN; WITH NH3 INJECTION GRID A/N: 470654	C80	C79 S82		**NH3:** 5.0 PPMV (4) [Rule 1303(a)(1)-BACT]	A195.11 D12.11 D12.12 D12.13 E179.5 E179.6
STACK NO. 7, DIAMETER: 20 FT 0 IN, HEIGHT: 210 FT 0 IN A/N: 470656	S82	C80			
Process 5: INORGANIC CHEMICAL STORAGE					
STORAGE TANK, UNDERGROUND, TK-001 , AQUEOUS AMMONIA, 29 PERCENT, CARBON STEEL,DOUBLE WALLED, WITH 3 TRANSFER PUMPS AND A PRV SET AT A MINIMUM OF 50 PSIG, 20,000 GALLONS, DIAMETER: 10 FT 2 IN; LENGTH: 37 FT 10 IN; WITH SCRUBBER, VENTURI, TWO STAGE WITH A/N: 379904	D30 C64				C157.1, E57.2, E144.2

ORIGINAL DESIGN

The El Segundo Generating Station (ESGS) is located on a 32.8-acre site in El Segundo, CA. The facility is bordered on the west by Santa Monica Bay, on the east by Vista Del Mar, on the north by the Chevron Marine Terminal, and on the south by 45th Street in the City of Manhattan Beach. The ESGS has been operating as an electric generating station since May 1955. The facility was originally owned and operated as a public utility by the Southern California Edison (SCE) Company. In 1998, SCE sold the facility to El Segundo Power, LLC as part of deregulation. Since 1998 El Segundo Power, LLC has owned and operated the facility. As part of the original proposal for the El Segundo Power Redevelopment Project (ESPR) existing utility boiler units 1 & 2 are to be demolished and removed from service and replaced with two General Electric 7FA combined cycle combustion turbine generators (CTGs) each being

equipped with a vertical flow heat recovery steam generator (HRSG) and two 600 MMBTU/hr duct burners. Each CTG will be equipped with SCR/CO catalyst unit. Also included is an emergency fire pump rated at 265 BHP. On December 20, 2000, AQMD received five permit applications from El Segundo Power, LLC, for the new construction of the two new CTGs two associated SCRs, and the emergency fire pump. On January 17, 2001, the applicant was informed that they also needed permit applications for a significant Title V permit revision and an application for the ammonia storage tank. The District received the additional two applications on January 18, 2001, and the District deemed the application package complete on January 19, 2001. The application numbers for the original design of the ESPR project are listed in Table 1 below.

Table 1 - Applications for Permits to Construct for Original Design

Application Number	Equipment Description	Date Submitted
378766	7FA CTG Unit No. 5 with duct burner & HRSG	December 20, 2000
378767	7FA CTG Unit No. 7 with duct burner & HRSG	December 20, 2000
378769	Emergency Fire Pump	December 20, 2000
378771	SCR/CO Catalyst Unit No. 5	December 20, 2000
378773	SCR/CO Catalyst Unit No. 7	December 20, 2000
379904	Ammonia Storage Tank	January 18, 2001
379905	Title V Significant Permit Revision	January 18, 2001

MODIFIED DESIGN

The AQMD issued a Final Determination of Compliance for the original design on February 14, 2002, followed by the California Energy Commission (CEC) issuing its final approval in February 2, 2005 for the project as originally designed. Due to unforeseen costs and unexpected litigation by various environmental groups since February 2005, the applicant decided to modify the design of the project by making the following changes as shown in Table 2: Therefore, the proposed project will be configured as shown in the modified design in Table 2 below.

Table 2 - Original versus Modified Design

Equipment	Original Design	Modified Design
CTGs No. 5 & 7	Two General Electric 7FA CTGs with duct burner & HRSG, in a two-on-one configuration, 647 MW total generating capacity (includes steam turbines).	• Two Siemens-Westinghouse SGT6-5000F Rapid Response CTGs, no duct burner, unfired horizontal flow HRSG, one-on-one configuration, 573 MW total generating capacity (includes steam turbines) • Replace once-though cooling with use of dry-cooling
Emergency Fire Pump	Clarke Model JDFP 06WA, diesel fuel, turbocharged, aftercooled, 265 BHP	Eliminated in modified design
SCR Catalyst for Units No. 5 & 7	Cormetech, titanium-vanadium, 4,379 ft^3, width 41ft, height 3 ft; length 44 ft.	Cormetech, titanium-vanadium-tungsten, 2,050 ft^3, height 25 ft; width 70 ft.
CO Catalyst for Units No. 5 & 7	Englehard, 1,000 ft3, width 41 ft, height 3 ft; length 44 ft.	Englehard, 290 ft3, height 25 ft; width 70 ft

Ammonia Storage Tank	TK-001, underground, carbon-steel, 29% aqueous ammonia, 20,000 gallons, double walled with 3 transfer pumps, with PRV set at 50 psig	No proposed changes

The California Energy Commission (CEC) is the lead agency for this project (00-AFC-14C) and will address all CEQA related issues. CEC will review and amend the original environmental impact report (EIR) issued in February 2005 to account for the proposed modifications in the project design which were proposed after February 2005. El Segundo Power, LLC agreed to submit new applications for the modified design described in Table 2 above. The new applications will replace and supersede the existing open applications. Table 3 below illustrates this transaction. The ammonia storage tank will not be modified and therefore, the original application will be processed along with the new applications.

Table 3 - Existing Open Applications and New Applications for ESPR project

Equipment	Existing Open Applications for Original Design	New Applications for Modified Design
Gas Turbine	378766	470652
Gas Turbine	378767	470656
SCR/CO Catalyst	378771	470653
SCR/CO Catalyst	378773	470654
Title V Significant Revision	379905	470655

Each of the new applications in Table 3 above were submitted to the AQMD on June 21, 2007. AQMD deemed the applications complete on June 29, 2007. Because the proposed re-powering project will have the potential to generate electricity greater than 25 MW, it will be subject to the federal Acid Rain requirements and therefore the federal Title V permitting requirements apply. The ESPR project is a NOx Major Source and is in the NOx RECLAIM program.

El Segundo Power, LLC has subsequently elected to shut down existing Boiler No. 3 and remove the equipment from service either just prior to the initial start-up of the new combined cycle units or within 90 days of the initial start-up of such units. With the addition of the Boiler No. 3 shutdown, the total generating capacity of 685 MW associated with boilers 1, 2, and 3 will exceed the 573 MW capacity of the proposed new combined cycle units. Therefore, the emissions from the new units will be fully offset by the shutdown of the three boilers, as allowed under Rule 1304(a)(2). SB 827, which went into effect on January 1, 2010, presently allows facilities to use the offset exemptions in Rule 1304 as a means of satisfying the offset requirements of New Source Review.

Processing Fee Summary

Table 4 below shows the applicable processing fees for the project. The applicant also included a signed form 400-XPP and the appropriate fees for expedited permit processing. The two (2) CTGs are identical and therefore, one of the CTGs receives a 50% discount off of the original processing fee of $11,671.96. In addition, both of the SCR/CO catalysts are identical and therefore one of these devices receives a 50% discount off of the original processing fee of $2,681.75. The total fees include the normal processing fees multiplied by 1.5 for expedited processing under Rule 301(t). A fee summary is shown in Table 4 below.

Table 4 - Summary of Permit Processing Fees

A/N	Submittal Date	Deemed Data Adequate	Equipment	Schedule	Processing Fee	XPP	TOTAL
470652	6/21/2007	6/29/2007	Gas Turbine No. 5	G	$11,671.96	1.5	$17,507.94
470656	6/21/2007	6/29/2007	Gas Turbine No. 7	G	$5,835.98	1.5	$8,753.97
470653	6/21/2007	6/29/2007	SCR/CO Catalyst No. 5	C	$2,681.75	1.5	$4,022.63
470654	6/21/2007	6/29/2007	SCR/CO Catalyst No. 7	C	$1,340.87	1.5	$2,011.31
379904	1/19/2001	N/A	NH3 Storage Tank	B	$1,865.02	N/A	$1,865.02
470655	6/21/2007	6/29/2007	Title V Application	N/A	$1,394.73	N/A	$1,394.73
						TOTAL PROCESSING FEE	**$35,555.60**

PROCESS DESCRIPTION

The new CTGs consist of two Siemens-Westinghouse (SW) SGT6-5000F rapid response combined cycle gas turbines. Each unit will be equipped with an inlet air filter, an inlet air-cooling system, and steam power augmentation, arranged in a one-on-one configuration. The following table lists the technical specifications for the Siemens-Westinghouse CTGs. Note the specifications in Table 5 below are for a single CTG.

Table 5 - CTG Specifications (Single CTG)

Parameter	Specifications
Manufacturer	Siemens-Westinghouse
Model	SGT6-5000F
Fuel Type	CPUC[1] Quality Natural Gas
Natural Gas Heating Value	1,027.7 BTU/scf
Gas Turbine Heat Input (HHV)	2,096.0 MMBTU/hr at 78°F ambient (peak load)
Fuel Consumption	2.0395 MMSCF/hr[2]
Gas Turbine Exhaust Flow	803,493 DSCFM at 78°F ambient (peak load)
Gas Turbine Exhaust Temperature	361°F at 78°F ambient (peak load)
Heat Recovery Steam Generator	Unfired
NOx Combustion Control	DLN Combustor 9 ppmv
Post Combustion Control	SCR 2.0 ppmv (1-hour average at 15% O_2)
Steam Turbine Power Generation	67.7 MW
Gas Turbine Power Generation	219 MW
Total Gross Power Generation[3]	570 MW
Total Net Power Generation	560 MW
Net Plant Heat Rate, (HHV)	7,311 BTU/kW-hr at ISO conditions
Net Plant Heat Rate, (LHV)	6,596 BTU/kW-hr at ISO conditions
Net Plant Efficiency, (LHV)	52%

The modified ESPR project no longer includes the use of duct burners, or the installation of an emergency firepump engine. The proposed gas turbines/HRSGs will use dry low-NOx combustors, SCR systems, and oxidation catalysts. Finally, the modified project will use horizontal rather then vertical flow HRSGs.

In addition, the modified project includes the use of air-cooled condensers. Two air-cooled condensers

[1] CPUC is the acronym for the California Public Utilities Commission
[2] Represents the maximum possible fuel consumption of the CTG, based on 2,096.0 MMBTU/hr heat input and 1,027.7 BTU/scf fuel heat content
[3] Represents the total power generation from the facility (2 SW CTGs at 219 MW plus 2 ST at 67.7 MW = 573 MW total gross generating capacity)

(also referred to as dry cooling, or steam turbine fin/fan cooler, or air-cooled back pressure heat exchangers) are utilized for steam turbine exhaust steam heat rejection. This system will replace the previously approved once-through cooling system. Steam exhausted from the steam turbine is condensed in the air-cooled back pressure heat exchanger (BPHX). The BPHX is comprised of a number of cells arranged in rows. The modules consist of horizontal fin tube bundles. The tube bundles are complete with inlet and outlet headers and piped to distribute the wet low pressure steam being condensed and slightly sloped to aid drainage of the saturated water exiting the bundles. Fans force cooler ambient air over tube bundles to condense exhaust steam. The condensate is collected in the condensate receiver tank. With this system there is no direct contact between the steam/water being cooled and the ambient air.

For the modified ESPR project, each of the CTGs will drive an electrical generator rated at 219.0 MW. In addition, each CTG is equipped with an unfired heat recovery steam generator (HRSG) that drives an electric generator rated at 67.7 MW, for a total gross generating capacity of 573 MW. Net power output, after taking away auxiliary loads of approximately 13 MW, is 560 MW. Fuel consumption is approximately 2,096 MMBTU/hr for each CTG at 78 ° F and 60% relative humidity. During peak CTG operation, steam is injected downstream of the CTG combustors. The addition of this steam increases the mass throughput of the CTG which thereby increases the power output. The steam power augmentation is only used periodically when peak CTG output is necessary. The total nominal gross generating capacity of the modified ESPR project is 573 MW. The modified ESPR project is expected to have an annual capacity factor ranging from 40-60%, depending on weather-related customer demand, load growth, hydro-electric supplies, generating unit retirements, and other factors. Each of the proposed CTGs will be equipped with dry low-NOx combustors (DLN combustors), a selective catalytic reduction (SCR) system for the control of NOx emissions, and oxidation catalyst for the control of CO and VOCs. The existing 20,000-gallon ammonia (NH_3) storage tank at the facility (storing 29% aqueous ammonia) will be used to supply aqueous ammonia to the CTG SCR systems.

The two CTGs will utilize two primary means for the reduction of NOx emissions. The CTGs will be equipped with DLN combustors with 1-hour average NOx concentrations of approximately 9 ppmv on a dry basis at 15% O_2 prior to entry to the selective catalytic reduction (SCR) units. On the back end, an SCR catalyst with ammonia injection will be used downstream of each CTG for further reduction of NOx emissions. As a result, the NOx emissions will be reduced to 2.0 ppmv, 1-hour average, dry basis at 15% O_2. The DLN combustors along with the oxidation catalyst are expected to achieve CO emissions of 2.0 ppmv, 1-hour average, dry basis, at 15% O_2. The DLN combustors along with the oxidation catalyst are expected to achieve VOC emissions of 2.0 ppmv, dry basis at 15% O_2. SOx and PM_{10} emissions will be mitigated through the use of PUC-quality natural gas. Detailed descriptions of the air pollution control system are given in the next section. Tables 6 and 7 below show the specifications for the SCR and oxidation catalyst to be used for the CTGs.

Table 6 - SCR Specifications

Catalyst Properties	Specifications
Manufacturer	Cormetech
Catalyst Description	Titanium/Vanadium/Tungsten with homogeneous honeycomb structure
Catalyst Dimensions	25 feet high, 70 feet wide
Catalyst Volume	2,050 ft^3
Catalyst Life	5 years
Space Velocity	23,000 hr^{-1}
Ammonia Injection Rate	88 lb/hr (at 29% NH_3)
NOx removal efficiency	>90%
NOx at stack outlet	2.0 ppmv at 15% O_2
Ammonia Slip	5.0 ppmv at 15% O_2
Maximum Operating Temperature	750°F
Minimum Operating Temperature	450°F
Warranty Period	5 years
SCR Capital Cost	$1.0 million

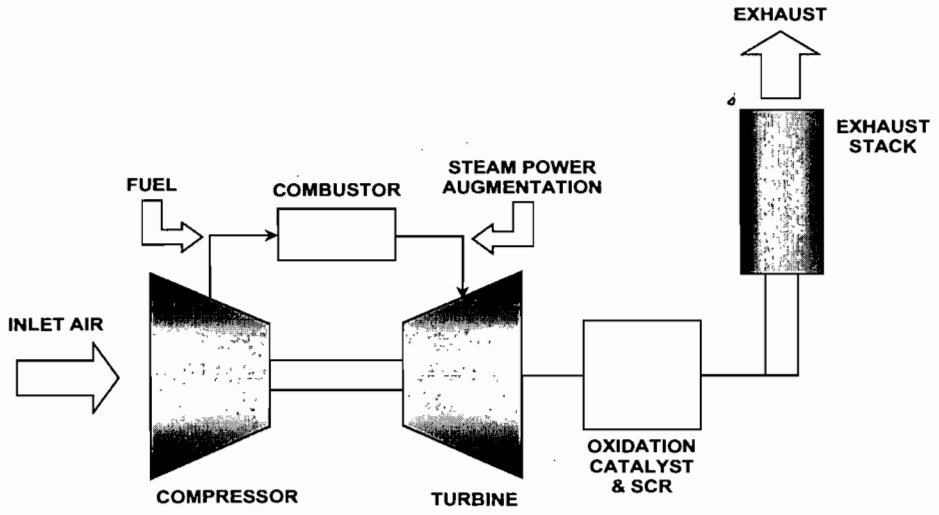
The SCR catalyst will use ammonia injection in the presence of the catalyst to reduce NOx. Diluted ammonia vapor will be injected into the exhaust gas stream via a grid of nozzles located upstream of the catalyst module. The subsequent chemical reaction will reduce NOx to elemental nitrogen (N_2) and water, resulting in NOx concentrations in the exhaust gas at no greater than 2.0 ppmvd at 15% O_2 on a 1-hour average.

Table 7 - Oxidation Catalyst Specifications

Catalyst Properties	Specifications
Manufacturer	Engelhard
Catalyst Description	Stainless steel substrate with alumina platinum catalyst
Catalyst Dimensions	25 feet high, 70 feet wide
Catalyst Volume	290 ft^3
Catalyst Life	5 years
Space Velocity	218,000 hr^{-1}
Area Velocity	82,000 ft/hr
CO removal efficiency	>70%
CO at stack Outlet	2.0 ppmv at 15% O_2
VOC Removal Efficiency	≤ 50%
VOC at Stack Outlet	2.0 ppmv at 15% O_2
Maximum Operating Temperature	1,000°F
Minimum Operating Temperature	300°F
CO Catalyst Capital Cost	$800,000

The exhaust from each catalyst housing will be discharged from a 210-foot tall, 20-foot diameter exhaust stack. Individual CEMS sampling probes will be located in the stacks. The process flow for the CTGs is shown in the diagram below:

CTG Process Flow Diagram



Aqueous Ammonia Storage Tank

The ammonia will be transported to the site in aqueous form and will have a maximum concentration of 29% by weight. The aqueous ammonia will be stored in the existing 20,000-gallon ammonia storage tank at the El Segundo Generating Station (see Appendix B for a copy of the equipment description of this tank).

Heated Ammonia Vaporization Skid

The ammonia vaporization skids will be used to vaporize the 29% aqueous ammonia so that it can be transferred to the ammonia injection grids. The ammonia vaporization equipment will be shop-assembled and skid mounted for easy field installation. During cold start-up of the CTGs, it will take some time (~10 minutes) before the ammonia injection chamber is hot enough to heat the ammonia for injection. Therefore, each ammonia injection chamber is equipped with an electric pre-heater unit which can be initiated prior to the cold start-ups to ensure that the ammonia is adequately heated prior to injection. The ammonia vaporization skids are typically configured with two dilution air fans (one operating and one spare) and two pre-heater elements (one operating and one spare) housed in a common heater box. In addition, the aqueous ammonia is typically atomized in the ammonia injection chamber and is then fed to the ammonia distribution header.

Ammonia Distribution Header

A carbon steel ammonia distribution header will be used to receive the hot ammonia/air mixture from the ammonia vaporization skid and deliver it evenly to the ammonia injection grid piping. Typically, the injection grid supply piping is equipped with manual butterfly valves and flow instrumentation used for adequate balancing of ammonia flow.

Intermittent Operation

A traditional peaking unit is defined as a turbine which is used intermittently to produce energy on a demand basis and does not operate more than 1,300 hours per year. This definition is found in Rule 2012-Requirements for Monitoring, Reporting and Recordkeeping for Oxides of Nitrogen (NOx) Emissions, Attachment A-F as amended December 5, 2003. The ESPR project will have the potential to operate for approximately 5,456 hours/year during a non-commissioning year (this number includes start-up, shutdown, and normal operations). Since the annual hours of operation will exceed that which is allowed for a traditional peaking unit under Rule 2012, the Siemens CTGs will not be classified as peaking units in the equipment description. Each CTG is essentially a NOx Major Source as defined in Rule 2012 and will be designated at such on the Facility Permit.

The following page shows a plot plan for the proposed project.

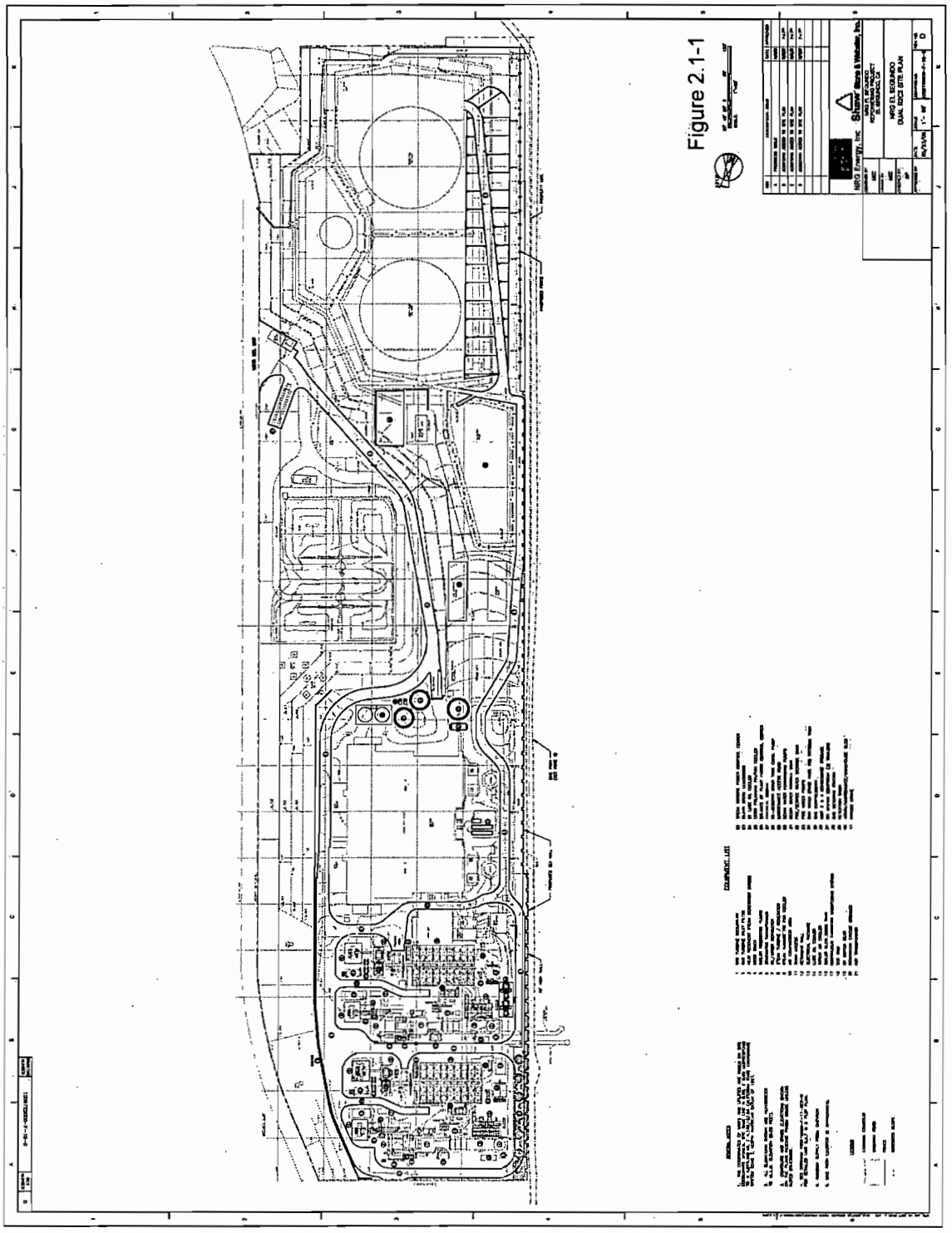


Figure 2.1-1

COMPLIANCE RECORD

A check of the AQMD's Compliance Tracking System database back to February 2005 indicates that there are no outstanding NOVs or NC's for this facility.

Performance Warranties

Siemens has submitted a letter to NRG West dated August 10, 2007 (see engineering file) confirming that the Seimens-Westinghouse SGT6-5000F CTGs will are designed to comply with the following emission limits at the stack outlet when the CTGs are operated between 60 percent and 100 percent load.

Table 8 - Warranted Emissions

Pollutant	Warranted Emissions
NOx	2.0 ppmv at 15% O_2
CO	2.0 ppmv at 15% O_2
VOC	2.0 ppmv at 15% O_2
PM10	9.5 lb/hr
NH3 Slip	5.0 ppmv at 15% O_2

CRITERIA POLLUTANT EMISSIONS

The total emissions from the power plant will include the summation of both CTGs, however, for NSR purposes, the emissions are calculated on a per turbine basis. The emissions are based on the following formula and assumptions:

$$EF(lb/MMBTU) = ppmvd \times MW \times \left(\frac{1}{SMV}\right)\left(\frac{20.9}{5.9}\right) \times F_d$$

where,

ppmvd = Uncontrolled (or controlled) concentration at 15% O_2, dry basis
MW = Molecular weight, lb/lb-mol
SMV = Specific molar volume at 68°F = 385.3 dscf/lb-mol
F_d = Dry oxygen f-factor for natural gas at 68°F = 8,710 dscf/MMBTU

Assumptions:

1. Emissions are based on the worst case operating scenario
2. PM_{10} emissions are based on 0.0045 lb/MMBTU * 2,096 MMBTU/hr = 9.5 lb/hr
3. SO_2 to SO_3 conversion in APC equipment is accounted for in the PM_{10} emission factor
4. SOx emissions are based on 0.25 grains/100 scf
5. 30-Day Averages are based on 730 hours/month of operation

Operating Conditions

The applicant has identified the top 10 operating conditions (OC) in which the fuel consumption per turbine ranges from a low of 1,139 MMBTU/hr (OC8) to a maximum of 2,096 MMBTU/hr (OC3) as shown in Table 9 below:.

Table 9 - Operating Conditions

Parameter	OC1	OC2	OC3	OC4	OC5	OC6	OC7	OC8	OC9	OC10
Ambient Temperature, °F	78	78	78	78	83	83	83	83	62	62
Ambient Pressure, psia	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64	14.64
Fuel Consumption, MMBTU/hr	1,881	1,951	2,096	1,155	1,851	1,930	2,073	1,139	2,004	1,974
Fuel Consumption, scfm	30,805	31,957	34,331	18,917	30,314	31,611	33,955	18,654	32,828	32,342
Exhaust Temperature, °F	1,108	1,100	1,101	1,108	1,113	1,104	1,105	1,113	1,091	1,194
Evaporative Cooler(on/off)	On	On	Off	Off	On	On	Off	On	Off	Off

The worst case scenario from an emissions standpoint occurs during periods of maximum fuel consumption (2,096 MMBTU/hr). Based on the information in Table 9, this occurs at full load (219 MW), ambient temperature of 78ºF and 49.6% relative humidity, with evaporative cooler off, and an exhaust temperature of 1,101ºF (see "Seimens SGT6-5000F Performance Runs" provided by the applicant and located in List of Appendices at the end of this report). Therefore, to address the worst case scenario, the facility's NSR emissions will be based on the parameters listed in operating condition no. 3.

There are essentially four modes of operation for the CTGs. Emissions from the four operating modes are distinctly different and must be calculated independently. Table 10 gives more detail of the four operating modes.

Table 10 - Operating Modes

Mode	Description
Commissioning	Facility follows a systematic approach to optimizing the performance of the CTGs by fine-tuning each of the units at zero load, partial load, and full load. This procedure is usually performed immediately after construction and prior to commercial operation. Several parameters, such as gas turbine load, degree of combustor tuning, and degree of SCR control may be varied simultaneously or individually during commissioning at the discretion of the applicant. Emissions are expected to be greater during commissioning than during normal operation for some pollutants due to the fact that the combustors may not be optimally tuned and the SCR systems may be only partially operational or not operational at all. The commissioning period is expected to last for approximately 415 hours per turbine over approximately 2 months. This mode affects only the initial year of operation.
Start-up	For a typical combined cycle system, there are three types of starts - cold, warm, and hot. Cold starts occur after the turbine has been down for 72 or more hours, and the start will last approximately 2.5 hours (the time to reach proper operating temperature for full DLN, SCR, and CO catalyst control. Warm starts occur after the turbine has been down 10 to 72 hours, and will last 2 hours. Hot starts occur when the turbine has been down less than 10 hours, and typically last 40 minutes. However, El Segundo is employing the Rapid-Response-Combined Cycle (R2C2) technology developed by Siemens-Westinghouse in which the CTGs can be started up in simple cycle mode until full load is achieved, followed by a start-up of the steam turbines. The applicant has indicated that there will be up to two start-ups per day for each CTG. Start up emissions are higher due to the fact that the control equipment has not reached optimal temperature to begin the chemical reactions needed to convert NOx to elemental nitrogen and water.
Normal Operation	Normal operation for combined cycle units occurs after the CTGs and the control equipment are working optimally, when NOx, CO and VOC are each controlled to 2.0 ppmvd at 15% O_2

Shutdown	Shutdown occurs at the initiation of the turbine shutdown sequence and ends with the cessation of CTG firing, and will last approximately 40 minutes thereafter. Typically, the shutdown process will emit less than the start-up process but may emit slightly greater than during normal operation because both H_2O injection into the CTGs and NH_3 injection into the SCR reactor have ceased operation. Emission controls will typically operate down to a level of 60% load, with the final 20 minutes of the shutdown process being partially or completely uncontrolled.

Commissioning Period

Each turbine will go through a series of tests during the commissioning period to prepare for commercial operation. According to the applicant, the specific commissioning tests / activities scheduled for each CTG will include the following:

- FSNL, excitation test
- CTG test, up to 40% load
- Steam blow, HRSG tuning
- Steam blow, HRSG restoration, install SCR/CO catalyst
- Establish vacuum / HRSG tuning / BOP tuning
- CTG load test, by-pass valve and safety valve tuning
- Installation of emissions test equipment
- By-pass operation / steam turbine initial roll and trip test
- By-pass operation steam turbine load test
- CTG on by-pass / steam turbine load test
- Combined cycle drift test
- Emissions tuning / drift test
- Pre-performance drift test
- RATA / pre-performance testing / source testing
- Pre-performance testing / source testing
- Performance testing
- Cal-ISO certification

It will be assumed that the commissioning of both units will be simultaneous to address the worst case scenario. The durations and corresponding pollutant emission rates of the individual commissioning tests and activities for each combustion turbine are shown in Table 11 below. The applicant did not provide emissions data for SOx during the commissioning period:

Table 11 – CTG 8 & 9 Individual Commissioning Tests (per turbine)

Activity	Duration (hours)	CTG load (%)	Pollutant Emission Rates (lbs)			
			NOx	CO	VOC	PM10
FSNL, Excitation test	8	0	376	30,501	1,310	93
CTG Testing @ 40% load	8	0-40	1,601	17,683	677	102
Steam Blow / HRSG Tuning	24	0-50	2,762	52,859	1,682	255
Steam Blow	12	0-50	1,007	9,147	713	111
Steam blow Restoration, install SCR/CO Cat	0	0	0	0	0	0
Establish vacuum/HRSG tuning/BOP tuning	16	60	239	908	136	137

Establish vacuum/BOP tuning	16	60	239	908	136	137
CTG load test & bypass valve tuning	32	60	478	1,816	272	274
CTG load test & bypass valve tuning/safety valve test	12	75	222	842	92	106
CTG base load, commissioning of NH_3 system	12	100	260	852	97	117
CTG load test & bypass valve tuning	12	100	260	852	97	117
Bypass operation, STG initial roll & trip test	10	0-60	182	869	113	89
Bypass operation/ STG load test	16	0-60	239	908	136	137
CTG on bypass/STG load test	16	0-100	317	867	105	152
Combined cycle testing/drift test	24	0-100	386	615	93	215
Combined cycle testing/drift test	24	100	380	374	73	214
Emissions tuning/drift test	24	50-100	520	1,704	194	234
Pre-performance testing/drift test	36	100	780	2,556	291	351
RATA/Pre-performance testing/source testing	15	100	303	864	103	143
Pre-performance testing/source testing	14	100	289	860	101	134
Pre-performance testing/source testing	12	50-100	260	852	97	117
Remove emissions test equipment	0	0	0	0	0	0
Water wash & performance preparation	0	0	0	0	0	0
Performance testing	48	100	858	1,796	240	442
CALISO Certification	12	50-100	260	852	97	117
CALISO Certification	12	100	260	852	97	117
TOTALS	**415**	////////////	**12,478**	**130,337**	**6,952**	**3,911**

Start-Up Emissions

Siemens-Westinghouse has provided start-up emission curves for the SGT6-5000F CTG coupled with the SST-800 ST steam turbine. The combined cycle arrangement for the proposed power plant will be a one-on-one configuration. A total of three curves were provided for plant down times of 8 hours, 16 hours and 48 hours. These curves are proprietary and confidential to Siemens-Westinghouse and will be contained in the engineering file for internal reference only. As shown in all three curves, regardless of the time the CTG is down, the time required for the CTG to reach full load is 12 minutes. This is true because the steam generated by the heat recovery steam generator during a CTG start-up is routed to the air-cooled condensers until the steam is needed by the steam turbine. This means that essentially the steam turbine can be by-passed, allowing the plant to start-up in simple cycle mode, and as a result, the start-up of the steam turbine does not slow down or impede the start-up of the CTG. The curves also show that the longer the CTG is down, the longer the time for the steam turbine to reach full load. Consequently, the start-up times and associated start-up emissions attributed to the CTG are unaffected by the length of time

the unit is down. Therefore, there is no need to distinguish between hot, warm, and cold start-ups even though the proposed power plant will operate in combined cycle mode. This rapid-start feature is unique to this highly efficient combined cycle configuration from Siemens-Westinghouse and is known as "Rapid Response-Combined Cycle (R2C2). It allows the facility to significantly reduce start-up emissions as compared with traditional combined cycle configurations in which the steam turbine is not by-passed and the entire CTG–ST train is started simultaneously. Similar rapid-start configurations with the Siemens-Westinghouse combined cycle CTGs are being proposed at the City of Vernon and the San Gabriel Generating Station. Although the specific configurations at these facilities do not allow for a complete by-pass of the steam turbine such as with the proposed R2C2 configuration at El Segundo, the configurations at these facilities use an auxiliary boiler to keep the system pre-heated to a temperature such that the system can start-up under warm or hot conditions, and minimize the number of cold starts.

Table 12 below is the total estimated start-up and shutdown emissions for the SGT6-5000F CTG as provided by Siemens-Westinghouse.

Table 12 - Total Estimated Start-up and Shutdown Emissions, per CTG

Mode	Time, minutes	Total Emissions per Event (pounds)			
		NOx	CO	VOC	PM10
Start-up @ 62 deg F	12	24	259	12	3
Shutdown @ 62 deg F	7	10	131	5	1
Start-up @ 41 deg F	12	25	267	13	3
Shutdown @ 41 deg F	7	10	135	5	1

The applicant anticipates a maximum of 200 hours/year during which a CTG start-up will occur. During a CTG start-up, there are approximately 12 minutes in which elevated emissions occur. Therefore, the hourly emission rates during a start-up hour will be based on 12 minutes of uncontrolled emissions followed by 48 minutes of normal operation in which BACT levels are assumed. The applicant has also indicated that there will be up to 200 hours per year of shutdowns which will comprise 53 minutes of normal operation at which BACT levels are assumed followed by 7 minutes of elevated emissions as the catalyst gradually cools down.

Normal Operations

The emissions during normal operations are assumed to be fully controlled to Best Available Control Technology (BACT) levels, and exclude emissions due to commissioning, start up and shutdown periods, which are not subject to BACT levels. Hourly, monthly, annual, and 30-day averages are calculated and shown in Appendices A through C.

Emissions During A Commissioning Year

Tables 13 through 15 below show the cumulative emissions during a commissioning year from both gas turbines which include commissioning, start-up, shutdown and normal operation.

Table 13 – Mass Emission Rates, lb/hr (Commissioning Year)

	Emissions, lb/hr					
2-Siemens SGT6-5000F CTGs	NOx	CO	VOC	SO_2	PM_{10}	NH_3
Normal Operations	30.88	18.80	10.74	2.93	18.98	28.54
Start up	112.06	834.84	34.60	2.93	18.98	
Shutdown	71.00	442.36	19.48	2.93	18.98	
Commissioning	60.14	628.08	33.50	2.93	18.98	
TOTALS	**274.08**	**1,924.08**	**98.32**	**11.72**	**75.92**	**28.54**

Table 14 – Mass Emission Rates, lb/month (Commissioning Year)

	Emissions, lb/month					
2-Siemens SGT6-5000F CTGs	NOx	CO	VOC	SO_2	PM_{10}	NH_3
Normal Operation, Start up, Shutdown & Commissioning (1-30)	13,129.28	236,291.44	10,922.08	519.76	3,357.08	
Normal Operation, Start up, Shutdown & Commissioning (31-49)	24,447.88	33,650.96	8,276.28	2,131.60	13,836.82	
HIGHEST MONTH	**24,447.88**	**236,291.44**	**10,922.08**	**2,131.60**	**13,836.82**	**14,070.22**

Table 15 – Mass Emission Rates, lb/year (Commissioning Year)

	Emissions, lb/year					
2-Siemens SGT6-5000F CTGs	NOx	CO	VOC	SO_2	PM_{10}	NH_3
Normal Operations	143,314.08	87,250.80	49,844.34	13,551.72	88,179.00	132,454.14
Start up	22,412.00	166,960.00	6,920.00	584.00	3,800.00	
Shutdown	14,200.00	88,472.00	3,896.00	584.00	3,800.00	
Commissioning	24,958.10	260,678.10	13,902.50	1,211.80	7,885.00	
TOTALS	**204,884.18**	**603,360.90**	**74,562.84**	**15,931.52**	**103,664.00**	**132,454.14**

Emissions During A Non-Commissioning Year

Tables 16 through 18 below show the cumulative emissions during a non-commissioning year from both CTGs which include start-up, shutdown and normal operation.

Table 16 – Mass Emission Rates, lb/hr (Non-Commissioning Year)

	Emissions, lb/hr					
2-Siemens SGT6-5000F CTGs	NOx	CO	VOC	SO_2	PM_{10}	NH_3
Normal Operations	30.88	18.80	10.74	2.92	18.98	28.54
Start up	112.06	834.84	34.60	2.92	18.98	
Shutdown	71.00	442.36	19.48	2.92	18.98	
TOTALS	**213.94**	**1,296.00**	**64.82**	**8.76**	**56.94**	**28.54**

Table 17 – Mass Emission Rates, lb/month (Non-Commissioning Year)

	Emissions, lb/month					
2-Siemens SGT6-5000F CTGs	NOx	CO	VOC	SO_2	PM_{10}	NH_3
Normal Operations	18,713.28	11,392.80	6,508.44	1,769.52	11,514.00	17,295.24
Start up	6,944.00	51,760.08	2,145.20	181.04	1,178.00	
Shutdown	4,402.00	27,426.32	1,207.76	181.04	1,178.00	
TOTALS	**30,059.28**	**90,579.20**	**9,861.40**	**2,131.60**	**13,870.00**	**17,295.24**

Table 18 – Mass Emission Rates, lb/year (Non-Commissioning Year)

	Emissions, lb/year					
2-Siemens SGT6-5000F CTGs	NOx	CO	VOC	SO_2	PM_{10}	NH_3
Normal Operations	156,129.28	95,052.80	54,301.44	14,763.52	96,064.00	144,298.24
Start up	22,412.00	166,968.00	6,920.00	584.00	3,800.00	
Shutdown	14,200.00	88,472.00	3,896.00	584.00	3,800.00	
TOTALS	**192,741.28**	**350,492.80**	**65,117.44**	**15,931.52**	**103,664.00**	**144,298.24**

30-Day Averages

The 30 Day Average emissions are calculated in Appendix B for both a commissioning and non-commissioning year for the worst case operating scenario. The worst case operating scenario was defined as OC3 in Table 9 above.

Table 19 is a comparison of the 30-day averages *for a single permit unit* for both a commissioning year and a non-commissioning year. The maximum 30-day averages for each pollutant are shown as shaded in Table 19 below:

Table.19 - 30-Day Average (Permit unit)

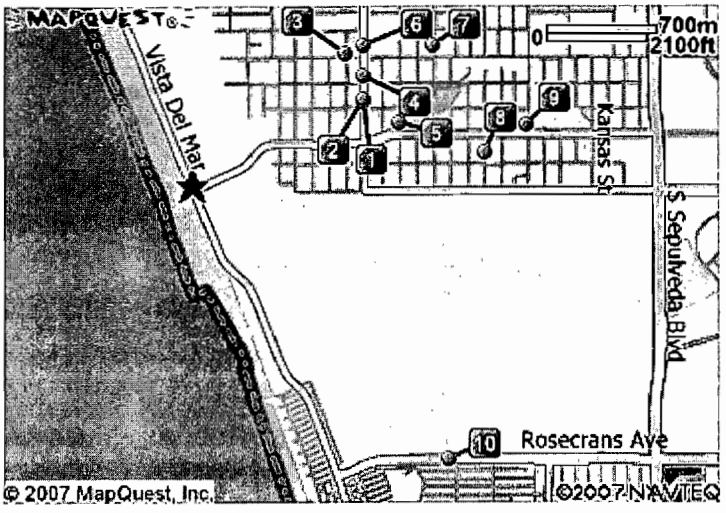
	NOx	CO	VOC	SOx	PM_{10}
30 Day Average (Commissioning Year)	407	**3,938**	**182**	36	231
30 Day Average (Non-Commissioning Year)	**501**	1,510	164	**36**	**231**

SCHOOL LOCATIONS

This proposed project is located at 301 Vista Del Mar El Segundo, CA. The school located nearest to the facility, Little Palette School, is at least 0.74 miles away (well beyond 1,000 feet) from the site as measured by the Mapquest program found at http://www.mapquest.com. The remaining nine schools are located even further away from the site, as shown in the table below. The school locations in relation to the project site are shown graphically in the illustration below.

No	Name of School	Address	Mapquest Distance Miles
1	Little Palette School	425 Main Street, El Segundo	0.74
2	Flight Services Unlimited	426 ½ Main Street, El Segundo	0.75
3	Richmond Street Elementary	615 Richmond Street , El Segundo	0.78
4	Real Estate Center	531 Main Street No. 935, El Segundo	0.79
5	El Segundo Babe Ruth	338 Eucalyptus Dr, El Segundo	0.84

6	El Segundo High School	640 Main Street, El Segundo	0.85
7	El Segundo School District Adm	641 Sheldon St, El Segundo	1.08
8	St Anthony Catholic School	233 Lomita St, El Segundo	1.14
9	El Segundo Middle School	332 Center St, El Segundo	1.32
10	Creative Minds Integrated	590 Rosecrans Ave, Manhattan Beach	1.42



PROHIBITORY RULE EVALUATION

RULE 212-Standards for Approving Permits

Rule 212 requires that a person shall not build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants without first obtaining written authorization for such construction from the Executive Officer. Rule 212(c) states that a project requires written notification if there is an emission increase for ANY criteria pollutant in excess of the daily maximums specified in Rule 212(g), if the equipment is located within 1,000 feet of the outer boundary of a school, or if the MICR is equal to or greater than one in a million (1EE-6) during a lifetime (70 years) for facilities with more than one permitted unit, source under Regulation XX, or equipment under Regulation XXX, unless the applicant demonstrates to the satisfaction of the Executive Officer that the total facility-wide maximum individual cancer risk is below ten in a million (10EE-6) using the risk assessment procedures and toxic air contaminants specified under Rule 1402; or, ten in a million (10EE-6) during a lifetime (70 years) for facilities with a single permitted unit, source under Regulation XX, or equipment under Regulation XXX. The total facility wide residential MICR is expected to be less than 1EE-6, and the facility is located more than 1,000 feet from a school, however, since the emissions of criteria pollutants for the facility exceed the thresholds in Rule 212(g), a public notice is required in accordance with the requirements of Rule 212. Although a public notice was distributed for the original project, a new public notice was conducted for the project due to the significant modifications being proposed and the fact that the resulting emissions will exceed the thresholds of Rule 212(g). The public notice was published in the Los Angeles Daily News and the Daily Breeze newspapers on March 19, 2008. The notice was also distributed to all interested parties and to residences within a ¼ mile radius of the facility on March 27, 2008. A copy is included in the file.

TITLE V PUBLIC HEARING

In response to the Public Notice, AQMD received several letters, two on March 27, and April 22, 2008 from Lisa Lappin requesting a Title V Public Hearing, and several from Elizabeth Garnholz dated April 17, 2008, July 31, 2008, and August 12, 2008 with several questions and concerns about the proposed installation of the new equipment. On June 10, 2008, AQMD responded to Ms. Lappin's March 27, 2008 letter, a copy which is included in the file, indicating that AQMD had reviewed and evaluated the request for a Title V Public Hearing and that based on this review, the request did not meet all of the elements required to be included in a request to hold a Title V Public Hearing. However, in the interest of the local community and other interested parties, AQMD elected to hold a Public Hearing on July 31, 2008 to address the concerns of the local community and interested parties along with the concerns raised in these letters. Notice of the Title V Public Hearing was published in the Los Angeles Daily News on June 26, 2008. Listed below are several questions raised by the attendees and AQMD provided individual responses to each of these questions at the Public Hearing. Also summarized are responses to comments from Elizabeth Garnholz's letters.

- Ms Lillian Light, resident of Manhattan Beach was concerned with fine soot particles potentially being emitted from the facility, and stated that offsets should not be provided until fine particulates and greenhouse gas emissions are evaluated. She also stated that the facility should make use of alternative fuels. AQMD staff explained that AQMD's Regulation XIII, New Source Review Rule, addresses offset requirements for each of the criteria pollutants such as fine particulate matter (PM10) and requires the use of Best Available Control Technology (BACT) and Clean Fuels such as natural gas to minimize emissions from new or modified equipment which has the potential for emission increases. AQMD also explained that greenhouse gases are not presently required to be regulated under AQMD permits. Since the date of the Title V Public Hearing, EPA has proposed to regulate greenhouse gases upon adoption of greenhouse gas standards for light duty vehicles. However, EPA has announced that greenhouse gas emissions are not required to be incorporated into permits until at the earliest February of 2011.
- Mr. Bob Perkins, resident of El Segundo stated that AQMD should consider the proper parties when addressing issues regarding the analysis. There is some confusion as to who is the actual permit holder, El Segundo Power, LLC, El Segundo Power II, LLC, or El Segundo Energy Center, LLC. Mr. Perkins also stated that the person requesting the hearing, Ms. Lisa Lappin, is presently unable to attend and that the Hearing should have been scheduled at a time and place where the requestor could have attended. Mr. Perkins further inquired if the engineering analysis included the soot generated from oil tankers. AQMD staff explained that the business name to appear on the actual permit was El Segundo Power, LLC according to information provided to AQMD by the applicant, however, AQMD staff would verify this with the applicant. It was also communicated to Mr. Perkins that the AQMD regretted that Ms. Lappin could not attend but that her concerns and comments would be considered along with other comments and inputs received at this meeting. It was also explained by AQMD staff that this project will not use oil and therefore the emissions from the oil tankers are not related to this project. As a result, the soot from oil tankers was not evaluated as part of this project.
- Ms. Michelle Murphy stated that in light of the court decision on July 29, 2008, does AQMD have the legal authority to hold this Hearing? She also inquired if another Hearing would be held pending the outcome of the court decision. Ms. Murphy also stated that since the particulate standards were already exceeded, the regulations are becoming less stringent, and how would the

facility limit their PM2.5 emissions to less than 100 tons/year if there is a high demand for power. Ms. Murphy further inquired if the new federal requirement for facilities to limit PM2.5 emissions to less than 100 tons/year would require a new application for certification to the CEC. Ms. Murphy stated that because of the impacts on surfers and joggers in the surrounding area, AQMD should perform an analysis for fumigation impacts during each startup of the turbines. AQMD staff indicated that the agency has legal authority to hold the Title V Public Hearing and that there was not another one scheduled at this time. With regard to the PM2.5 issue, the proposed project meets all federal PM2.5 requirements and its PM2.5 will be limited through enforceable permit conditions that the company must comply with. In addition, the modeling analysis demonstrates compliance with all ambient air quality standards during both start-up and all other operations. Also, Mr. Steve Munro, the Project manager at CEC, indicated that they do not require a new application due to PM2.5 emission limits.

- Mr. Daniel Nunez indicated that his wife is sensitive to air pollution and that AQMD should consider conservation as a starting point, and if the plant could supply only 5-10% of the electrical needs of the community, then the community could begin to reduce their electrical consumption. AQMD staff indicated that AQMD agrees with the need to consider and practice conservation and the need to reduce excess use of electricity, however, our rules specifically regulate air pollution to ensure each project complies with applicable air quality rules and regulations.
- Mr. Jaime Anzar, Lisa Lappin's husband, indicated that he is a frequent jogger near the plant and stated that there are too many polluting sites (LAX, Hyperion, Chevron) in the local area. Mr. Anzar also indicated that if once-through cooling is not being used, why do we need the plant, and that there are presently other methods in the market to reduce PM emissions by 99%. AQMD indicated that one of the significant modifications to the facility include the removal of the once-through cooling and that the use of clean burning fuel as required by AQMD BACT would be the most effective means to minimize PM emissions. However, AQMD is engaged in and is sponsoring additional studies to determine further controls for fine particulate emissions from power plants.
- Ms. Elizabeth Garnholz, resident of El Segundo, submitted written comments to AQMD in letters dated April 17, July 31, and August 12, 2008. The comments included how much PM2.5 will the facility generate and how much of the total generated PM2.5 will be offset with purchased pollution credits. AQMD Regulation XIII-New Source Review (NSR), imposes specific requirements for non-attainment air contaminants, such as PM10. As such, emissions under NSR are calculated as PM10. In the case of this project, the fuel used is natural gas and natural gas combustion results in almost 100 percent of PM10 being in the form of PM2.5. Based upon the current design which includes the shutdown of the three existing older utility steam boilers, the overall impact of the project will be a net reduction in total capacity for electrical power generation at this site. Since there is a net reduction in electrical generation capacity, and in turn PM2.5 emissions, the facility will not require additional offsets and consequently the facility will not need to purchase emission reduction credits. Ms. Garnholz also inquired how much greenhouse gas will be produced by this facility and how much greenhouse gas will be offset through pollution credits, and lastly, how will the facility report greenhouse gas emission to the state. Although greenhouse gases are not presently regulated under AQMD permits, EPA has proposed to regulate greenhouse gases for sources such as power plants, however, according to EPA, greenhouse gas emissions are not required to be incorporated into permits until at the earliest February 2011. As such greenhouse

gases were not evaluated as part of this project. Also, under State Law, (AB 32), the facility is required to report its greenhouse gas emissions to the California Air Resources Board, (ARB), and the facility will be subject to any greenhouse gas reductions under AB 32, as applicable.

Ms Garnholz also commented on what the maximum amount of emission reduction credits will a facility need purchase to satisfy AQMD regulations. AQMD Regulation XIII, New Source Review, requires the facility operator to provide emission offsets for any increase in non-attainment criteria pollutants. In this particular case, however, as indicated earlier, the facility complies with the offset requirement by emission reductions achieved through the proposed shutdown of existing old electric utility boilers 1,2 and 3.

Ms. Garnholz also asked about the Acid Rain Facility. This is a terminology that means the facility is an electric power generating facility that emits nitrogen oxides (NOx) and is subject to the Federal Clean Air Act, Title IV requirements for monitoring and reporting of its NOx emissions. Ms. Garnholz also expressed concerns about cumulative impacts of this facility along with LAX, Hyperion, Chevron and other emissions from vehicular traffic on Sepulveda Blvd. As indicated above, AQMD is evaluating the permits for the project which includes replacement of three existing older utility steam boilers with an overall smaller size new, state of the art, cleaner, and more efficient power generating units (that will also not use ocean water for cooling). This new project complies with all applicable air quality rules and regulations. The California Energy Commission is, however, the lead agency in charge of the environmental analysis for this project. Ms Garnholz also asked about emissions from the new cooling design (i.e. dry cooling vs ocean water cooling). Both dry cooling and ocean water cooling result in little or no air emissions, however, ocean water cooling is proposed to be phased out by the state due to potential damage to marine life. Finally, Ms. Garnholz asked if the project captures the waste heat, then where do the emissions come from? Since the new gas turbines, similar to the existing utility steam boilers, burn natural gas as the fuel, emissions come from combustion of the fuel. However, since the gas turbines are designed as combined cycle, the heat that will be generated from combustion of the natural gas will also be recovered and used to generate additional electrical power and increases the efficiency of the system.

APPLICANT's COMMENTS

In a letter dated April 18, 2008, the applicant provided AQMD with written comments on the proposed Facility Permit. The comments provided additional clarification to proposed equipment descriptions, source testing methodology and permit conditions. AQMD addressed and provided written responses to the applicant's written comments on May 16, 2008.

DEVELOPMENTS SINCE THE JULY 31, 2008 TITLE V PUBLIC HEARING

El Segundo Power has proposed to shut down a third utility Boiler (No.3) as part of this repowering project. AQMD completed the evaluation of the latest proposed project and subject permit applications and issued an a modification to the Addendum to the Determination of Compliance (DOC) dated March 31, 2010 to CEC indicating that the equipment will comply with all of the applicable requirements of air quality Rules and Regulations.

At the request of the applicant, AQMD issued another public notice on April 6, 2010 and provided a 30-day comment period for the latest proposal to shut down the third utility boiler. The notice was also published in the LA Daily News and the Daily Breeze newspapers on April 6, 2010.

The public notice was distributed on April 5, 2010 to all addresses within1/4 mile radius of the project site. Sierra Research, the applicant's consultant, submitted proof of distribution of the public notice to AQMD on April 23, 2010 (see letter in engineering file).

During the 30-day comment period, AQMD received two comment letters as described below, one from the applicant dated April 27, 2010 which requested several clarification, consistency, and administrative changes to the proposed permit and a second from Ms. Lisa Lappin dated May 1, 2010 concerning questions regarding air quality in the El Segundo area. Both of these letters are contained in the Appendix along with AQMD's individually written responses to these letters. Below is a summary of AQMD's responses to both letters:

AQMD's Responses to Issues Raised in the Applicant's April 27, 2010 Comment Letter

Comment No. 1
El Segundo Energy Center, LLC (ESEC) requests that the requirement for a new emission control system (a two stage scrubber, Device D64) be removed from the draft permit because this is an existing ammonia storage tank that is not being modified.

AQMD Response
The existing ammonia storage tank is operating under a current permit and complies with Best Available Control Technology (BACT). Even though the ammonia storage tank is not being modified nor has any increase in emissions or operation, NRG has voluntarily opted to install the two stage venturi scrubber described as Device D64 in order to provide further control of any ammonia emissions.

Comment No. 2
ESEC requests that the requirements to comply with all California Energy Commission (CEC) mitigation measures as defined in Permit Conditions E193.1 and E193.2 be clarified to refer to "air quality" mitigation measures. As written, this condition would require compliance with non-air quality related mitigation measures, including noise, visual, land use, water quality, and cultural resources.

AQMD Response:
AQMD notes that referenced condition E193.1 is reflected in Section D of the permit and does not refer to the current CEC CEQA equivalent document, therefore no changes in condition E193.1 are required. AQMD does concur with the condition E193.2 request and will revise the permit accordingly.

Comment No. 3
ESEC requests that the aqueous ammonia injection limits in condition D12.11 be changed from between 13.5 to 16.5 gallons per hour to between 4.8 to 11.5 gallons per hour.

AQMD Response:
AQMD concurs with ESEC's request for the change in aqueous ammonia injection rate and will revise the permit and engineering analysis accordingly.

Comment No. 4
ESEC requests that the SCR operating temperature limits in condition D12.12 be changed from between 450 to 750 degrees F to between 400 and 750 degrees F to be consistent with the information supplied by the manufacturer.

AQMD Response:
AQMD concurs with ESEC's request for the change in SCR operation temperature range and will revise the permit and engineering analysis accordingly.

Comment No. 5
ESEC requests that the SCR pressure drop limits in condition D12.13 be changed from between 5 to 7.5 inches of water to between 1 to 4 inches of water, to be consistent with information supplied from the manufacturer.

AQMD Response:
AQMD concurs with ESEC's request for the change in the SCR pressure drop limits and will revise the permit and engineering analysis accordingly.

Comment No. 6
Permit Conditions A99.7 A99.8 and A99.9 limit the commissioning period to 415 hours per gas turbine per year. It also includes exemptions from the NOx limit of 2.0 ppmv during commissioning, start-ups, and shutdowns. With regards to the commissioning period, ESEC requests (a) that the conditions clarify that the 415 hour limit refers to gas turbine operating hours, and (b) that an exemption from the 2.0 ppmv NOx limit during combustor tuning be added.

AQMD Response:
(a) Conditions A99.7, A99.8 and A99.9 will be reworded to state that the 415 hour commissioning period limitation refers only to turbine operational hours.

(b) ESEC's request for exemption from the 2.0 ppmv NOx BACT limit during periodic combustor tuning was further explained in the June 30, 2008 correspondence from your consultant, Sierra Research. As stated, combustor tuning is expected to occur every 12,500 equivalent baseload operating hours. Given that similar units typically operate from 30 to 70 percent load capacity, combustor tuning would occur between every 2 to 5 years depending on usage. AQMD does not agree to include this change in the permit and has determined that this type of infrequent occurrence will best be handled under AQMD's variance procedures.

Comment No. 7
ESEC had requests that all references to ROG be changed to VOC for consistency purposes.

AQMD Response
AQMD will revise the draft permit to refer to "VOC" rather than "ROG" as appropriate.

Comment No. 8
ESEC requests that Condition A433.1 refer to Permit Condition A99.7 rather than A99.1. In addition, ESEC requests that the NOx emission limit be corrected to 112 lb/hr rather than 112 lb/day to match the information and analysis provided in the permit application. Finally, ESEC requests that the annual number of start-ups per year be corrected to 200 start-ups per year rather than 100 start-ups per year to match the information and analysis in the permit application.

AQMD Response:
AQMD has reviewed this request and concludes that the emission calculations in the DOC were based on 200 start-up hours per year rather than 100, and that the basis for the emission limit in the engineering analysis was 112 lb/hr rather than 112 lb/day. Therefore these typographical errors will be corrected in the DOC and in the draft permit.

Comment No. 9
ESEC states that there appears to be a typographical error in permit condition E179.5. The permit condition should refer to Permit Conditions D12.11 and D12.12 rather than Permit Conditions D12.2 and D12.3. Therefore, ESEC requests that this correction be included in the final Title V permit.

AQMD Response:
AQMD concurs with these requests and will revise the facility permit and engineering analysis accordingly.

Comment No. 10
ESEC states that there appears to be a typographical error in permit condition E179.6. The permit condition should refer to Permit Condition D12.13 rather than Permit Condition D12. Therefore, ESEC requests that this correction be included in the final Title V permit.

AQMD Response:
AQMD concurs with these requests and will revise the facility permit and engineering analysis accordingly.

Comment No. 11
ESEC states that there appears to be several typographical errors in permit condition F2.1. The reference to 10 microns should be changed to 2.5 microns. Permit Condition F2.1 in Section H appears to be missing the following definition:

> *For the purpose of this condition, any one year shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each calendar month.*

AQMD Response:
AQMD concurs with these requests and will revise the facility permit and engineering analysis accordingly.

Comment No. 12
ESEC states that there appears to be a typographical error in source testing conditions D29.7 and D29.9 regarding an incomplete sentence. ESES suggests the following correction should be made to the following sentence in both of these permit conditions:

> ***Because the VOC BACT level was set using data derived from various source test results, this alternative*** *VOC compliance method provides a fair comparison and represents the best sampling and analysis technique for this purpose at this time.*

AQMD Response:
AQMD has revisited the VOC portion of the above source testing conditions and has decided that the alternative testing procedures stated provides the applicant with an adequate testing option without the added above narrative. As such, the above condition wording will be deleted in its entirety.

AQMD's Responses to Questions Raised in Lisa Lappin's May 1, 2010 Letter

Issue No. 1
You object to the authorizing of NRG to increase operations in the City of El Segundo.

AQMD Response
NRG is proposing to modernize its existing facility by replacing three older, dirtier and less efficient electric utility boilers (circa 1955), with a total combined capacity of 685 megawatts (MWs), with two new, state of the art, cleaner and more efficient natural gas fired combined cycle gas turbines with a total electrical generation capacity of 573 MWs. The replacement of the older, less efficient boilers with new electricity generation turbine units is an actual reduction (not an increase) in generation capacity and the more energy efficient turbines will provide electrical power similar to the older utility boilers while reducing the amount of pollution generated per unit of electricity produced at the facility.

Issue No. 2
You inquired whether the Health Risk Assessment considered the cumulative effects of toxic emissions when combined with other industries within a six mile radius of the project site.

AQMD Response
AQMD Rule 1401 specifies limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard index (HI) from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants. AQMD determined both the cancer and non-cancer risks from the proposed project. The individual gas turbine (and overall project) calculated cancer and non-cancer risk levels for the El Segundo Repower complies with the applicable requirements and health risk thresholds of Rule 1401.

The California Energy Commission's (CEC's) certification process is functionally equivalent to the California Environmental Quality Act (CEQA) process and therefore, the cumulative impacts from multiple sources along with other CEQA related issues are addressed by the CEC certification process. Further

details regarding cumulative impacts and other CEQA related issues can be obtained by contacting the CEC.

However, AQMD is aware and concerned with the potential risk to the public due to exposure to cumulative sources of toxic emissions in the South Coast Air Basin and as a result has conducted several studies such as the Multiple Air Toxics Exposure Study III (MATES III). In general, these studies have endeavored to quantify toxic emission exposure based upon geographical locations. The MATES III conducted in the South Coast Air Basin (Basin) is one of the most comprehensive monitoring and evaluation studies conducted in the U.S. The study is a follow up to previous air toxics studies in the Basin and is part of the AQMD Governing Board's 2003-04 Environmental Justice Workplan. The MATES III Study consists of several elements. These include a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the Basin. The study focuses on the carcinogenic risk from exposure to air toxics. The results of this study showed that over 85 per cent of cancer risk from exposure to toxic air contaminants is due to combustion of diesel fuel in mobile sources and over 90 percent of the overall cancer risk is related to emissions from mobile sources. Further information about the MATES III study can be found on our website at http://www.aqmd.gov/prdas/matesIII/matesIII.html.

AQMD has utilized its limited authority on mobile sources to adopt rules, regulations, policies and incentive programs to reduce and control diesel emissions and reduce exposure to diesel particulates from mobile sources. In addition, AQMD has adopted rules and regulations regarding stationary sources to reduce toxic emissions and risk from such sources. Some of these rules include Rule 1402 which addresses control of air toxics from existing sources and Rules 1470 and 1472 which address air toxics from stationary diesel fueled internal combustion engines, specifically the control of diesel particulate, a pollutant which has been determined to be a large toxic contribution as determined in AQMD's MATES III study.

Issue No. 3

You inquired about CO emissions from the El Segundo Power Redevelopment Project and how AQMD could authorize permitting of this facility at the present time where the country is reducing carbon emissions.

AQMD Response

Through the long term efforts of the AQMD with cooperation from other environmental agencies and the regulated community, the South Coast Air Basin is currently in attainment with both State and Federal ambient air quality standards for Carbon Monoxide (CO). The control and regulation of greenhouse gases, such as carbon dioxide (CO2), is currently primarily done at the state (California Air Resources Board) and federal (U.S. Environmental Protection Agency) levels, both of which require the monitoring and reporting of greenhouse gases, as well as any applicable requirements for reduction of greenhouse gases. The NRG El Segundo facility will be subject to and would have to comply with any such applicable requirements.

Issue No. 4
You stated a concern that the amount of PM emissions from the proposed modification to the facility poses a potential health hazard to the local residents.

AQMD Response
The replacement of less efficient older boilers with smaller, more efficient natural gas fired turbines will allow the facility to reduce the amount of air pollutant emissions per unit of electrical power generated. Since the amount of PM10 emitted into the atmosphere is directly related to the amount of fuel consumed, the operation of the proposed new gas turbines should result in an overall reduction of emissions, including PM10, when compared to the emissions from the older, less efficient boilers if used to produce the same amount of electricity.

Issue No. 5
You inquired that given the July 29, 2008 LA County Superior Court Ruling regarding a facility's access to the AQMD Priority Reserve, has AQMD fully complied with the spirit and letter of the law?

AQMD Response
Although Judge Jones' decision was related to AQMD Rules 1309.1 and 1315 and NRG had previously proposed to partially use Rule 1309.1, the most recent proposed project will not access the AQMD's Priority Reserve (Rule 1309.1) for offsets. The project's reduced electrical generation capacity (685 MW to 573 MW) which is in conjunction with the removal of the third existing utility boiler (unit no. 3), qualifies the project to be permitted under Rule 1304(a)(2)-Electric Utility Steam Boiler Replacement. Also state law was recently changed that requires the AQMD to permit projects subject to Rule 1304 effective January 1, 2010 (Senate Bill 827). Therefore, the proposed permit is in compliance with all air quality rules and regulations.

RULE 401-Visible Emissions
This rule limits visible emissions to an opacity of less than 20 percent (Ringlemann No.1), as published by the United States Bureau of Mines. It is unlikely, with the use of the SCR /CO catalyst configuration that there will be visible emissions. However, in the unlikely event that visible emissions do occur, anything greater than 20 percent opacity is not expected to last for greater than 3 minutes. During normal operation, no visible emissions are expected. Therefore, based on the above and on experience with other CTGs, compliance with this rule is expected.

RULE 402-Nuisance
This rule requires that a person not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which cause, or have a natural tendency to cause injury or damage to business or property. The two new combined cycle CTGs will be operated with SCR and CO catalysts to comply with BACT and are expected to be cleaner burning than their predecessor utility boilers and are not expected to create a public nuisance based on experience with similar CTGs. Therefore, compliance with Rule 402 is expected.

RULE 403-Fugitive Dust

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. The provisions of this rule apply to any activity or man-made condition capable of generating fugitive dust. This rule prohibits emissions of fugitive dust beyond the property line of the emission source. The applicant will be taking steps to prevent and/or reduce or mitigate fugitive dust emissions from the project site. Such measures include covering loose material on haul vehicles, watering, and using chemical stabilizers when necessary. The installation and operation of the CTGs is expected to comply with this rule.

RULE 407-Liquid and Gaseous Air Contaminants

This rule limits CO emissions to 2,000 ppmvd and SO_2 emissions to 500 ppmvd, averaged over 15 minutes. For CO, the CTGs will be required to meet the BACT limit of 2.0 ppmvd at 15% O_2, 1-hr average, and will be conditioned as such. For SO_2, equipment which complies with Rule 431.1 is exempt from the SO_2 limit in Rule 407. The applicant will be required to comply with Rule 431.1 and thus the SO_2 limit in Rule 407 will not apply.

RULE 409-Combustion Contaminants

This rule restricts the discharge of contaminants from the combustion of fuel to 0.23 grams per cubic meter (0.1 grain per cubic foot) of gas, calculated to 12% CO_2, averaged over 15 minutes. The equipment is expected to meet this limit based on the calculations shown below:

Estimated exhaust gas = 803,493 DSCFM = 48.21 mmscf/hr
Maximum PM_{10} Emissions = 9.5 lb/hr
Estimated CO_2 in exhaust = 3%

$$\text{Grain Loading} = \frac{(9.5\ \text{lb/hr})(7000\ \text{gr/lb})}{48.21\text{EE6 scf/hr}} \times \frac{12}{3} = 0.005517\ \text{gr/dscf} << 0.1\ \text{gr/dscf}$$

RULE 431.1-Sulfur Content of Gaseous Fuels

El Segundo Power, LLC will use pipeline quality natural gas which will comply with the 16 ppmv sulfur limit, calculated as H_2S, specified in this rule. Natural gas supplied by the Gas Company also has a sulfur content of less than 0.25 gr/100scf, which is equivalent to a sulfur concentration of about 4 ppmv. It is also much less than the 1 gr/100scf limit typical of pipeline quality natural gas. Compliance is expected.

RULE 474-Fuel Burning Equipment-Oxides of Nitrogen

Superseded by NOx RECLAIM.

RULE 475-Electric Power Generating Equipment

This rule applies to power generating equipment rated greater than 10 MW installed after May 7, 1976. Requirements specify that the equipment must comply with a PM_{10} mass emission limit of 11 lb/hr or a PM_{10} concentration limit of 0.01 grains/dscf. Compliance is demonstrated if either the mass emission limit or the concentration limit is met. The PM_{10} mass emissions from each turbine are estimated to be 9.5 lb/hr. The estimated grain loading is less than 0.01 grain/dscf (see calculations under Rule 409 analysis). Therefore, compliance is expected. Compliance will be verified through performance tests.

NEW SOURCE REVIEW (NSR) ANALYSIS

The following section describes the NSR analysis for El Segundo Power, LLC proposed re-powering project. The facility can comply with NSR either by qualifying for various exemptions from or by demonstrating compliance with the following rules. Since the proposed installation of the new combined cycle CTGs will be treated as installation of new equipment, there are no exemptions from any portions of BACT. Therefore each of the following NSR rules will apply. Each individual permit unit (in this case a permit unit is defined as one gas turbine) is evaluated for compliance with the rules in Table 20 below.

Table 20 - Applicable NSR Rules for El Segundo Power, LLC

Applicable NSR Rules for Non-RECLAIM Pollutants (SOx, VOC, PM_{10})	Applicable NSR Rules for RECLAIM Pollutants (NOx)
Rule 1303(a)-BACT	Rule 2005(b)(1)(A)-BACT
Rule 1303(b)(1)-Modeling	Rule 2005(b)(1)(B)-Modeling
Rule 1303(b)(2)-Offsets	Rule 2005(b)(2)-Offsets
Rule 1303(b)(3)-Sensitive Zone Requirements	Rule 2005(e)-Trading Zone Restrictions
Rule 1303(b)(4)-Facility Compliance	Rule 2005(g)(1)-Statewide Compliance
	Rule 2005(g)(3)-Compliance through CEQA
	Rule 2005(h)-Public Notice
	Rule 2005(i)-Rule 1401 Compliance
	Rule 2005(j)-Compliance with Fed/State NSR

RULE 1303(a) and Rule 2005(b)(1)(A)-BACT – Siemens CTGs

Both rules state that the Executive Officer shall deny the Permit to Construct for any new source which results in an emission increase of any non-attainment air contaminant, any ozone depleting compound, or ammonia unless the applicant can demonstrate that BACT is employed for the new source. El Segundo Power, LLC is a new source with a potential for an increase in emissions and therefore, BACT is required. Both CTGs proposed for construction will be configured in combined cycle. As of the date of this evaluation, BACT for combined cycle gas turbines for NOx, VOC's, PM10, SOx, and NH3 is shown in Table 21 below, however, since the South Coast Air Basin is in attainment for CO, the BACTrequirements for CO are discussed in another section:

Table 21 - BACT Requirements for Combined Cycle Gas Turbines

NOx	VOC	PM_{10}/SOx	NH_3
2.0 ppmvd, at 15% O_2, 1-hour rolling average	2.0 ppmvd, at 15% O_2, 1-hour rolling average	Pipeline quality natural gas w/ S content ≤ 1 grain/100 scf	5.0 ppmvd at 15% O_2, 1-hour rolling average

This information was based on a search of the BACT Clearinghouse database and the latest information available for permits issued to Vernon City (A/N 394164) and Magnolia Power (A/N 386305). The turbines at El Segundo Power operate in combined cycle similar to those at the Vernon and Magnolia projects. The emission levels in Table 19 are now officially considered BACT for combined cycle CTGs. The applicant is proposing the emission levels for this project shown in Table 22 below.

Table 22 - Proposed BACT for Siemens Combined Cycle CTGs

NOx	VOC	PM_{10}/SOx	NH_3
2.0 ppmvd, @ 15% O_2, 1-hour average	2.0 ppmvd, @ 15% O_2, 1-hour average	PUC quality natural gas w/ S content ≤ 1 grain/100 scf	5.0 ppmvd @ 15% O_2, 1-hour average

The proposed control levels in the table above will comply with the current BACT requirements for each pollutant including NH_3. The turbines are expected to comply with BACT and will be verified by a performance test after construction, commissioning, and initial operation of the equipment.

RULE 1303(a)-BACT – Ammonia Storage Tank

A pressure relief valve which will be set at no less than 50 psig will control ammonia emissions from the storage tank. In addition, a vapor return line will be used to control ammonia emissions during storage tank filling operations. Based on the above, compliance with BACT requirements is expected.

Based on the above BACT analysis, the two (2) CTGs, their SCR/CO catalyst systems, and the ammonia tank will comply with the current BACT requirements found in Regulation XIII (for the non-RECLAIM pollutants) and in Regulation XX (for the RECLAIM pollutants). BACT for all equipment is satisfied.

RULE 1303(b)(1)-Modeling and Rule 1303(b)(2)-Offsets

The facility is exempt from modeling and offsets for non-RECLAIM pollutants under Rule 1304(a)(2). There will be emissions of non-RECLAIM pollutants (VOCs, SOx, CO, and PM10) as a result of operation of the new gas turbines for this project. However, in accordance with Rule 1304(a)(2), if the new source replaces older electric utility steam boiler(s) with combined cycle gas turbine(s), intercooled, chemically-recuperated gas turbines, other advanced gas turbine(s); solar, geothermal, or wind energy or other equipment, only the emissions attributed to the increased electrical generating capacity (MW) must be offset. If there is no net increase in electrical generating capacity, then the emissions are exempt from offsets. The original facility (which included boilers no. 1,2 &3) was rated at 685 MW. The modified facility (which includes removal of boilers no. 1,2 and 3 and installation of combined cycle CTGs 5 & 7) is rated at 573 MW. Since the modification results in no net increase in generating capacity and in fact a reduction of 112 on a MW to MW basis, the emissions from the new equipment are exempt from offsets under Rule 1304(a)(2). As a result of the July 2008 California court ruling, permitting on projects which relied on either the offset exemptions in Rule 1304 or access to the AQMD Priority Reserve under Rule 1309.1 were suspended. However, due to the recently signed Senate Bill (SB) 827, beginning in January 2010, AQMD is now able to process permits for projects which rely on the offset exemptions provided in Rule 1304. Since the applicant is replacing existing utility steam boiler units 1, 2, and 3 with new combined cycle equipment, the offset exemption included in Rule 1304(a)(2) applies to this project and as such, the project can be permitted pursuant to SB827. Table 23 below shows there are no required emission offsets using the provisions of Rule 1304(a)(2) for replacement of utility boilers with combined cycle CTGs.

Table 23 - Required Emission Offsets

		CO	VOC	PM10	SOx
30-Day Averages	CTG No. 5	3,938	182	231	36
	CTG No. 7	3,938	182	231	36
Offsets Required	CTG No. 5		0	0	0
	CTG No. 7		0	0	0

The facility's maximum monthly and annual fuel usage for the simultaneous operation of the two (2) CTGs will be 3,000.16 mmscf and 22,423.09 mmscf, respectively, based on the OC3. The calculations are shown below and a monthly fuel cap will be included on the Facility Permit as a condition.

Monthly:
CTGFuel= (2,096 MMBTU/hr)(1 scf/1,020 BTU)(730 hr/month)(2 CTGs) = 3,000.16 MMscf/month

Annually:
CTGFuel= (2,096 MMBTU/hr)(1 scf/1,020 BTU)(5,456 hr/year)(2 CTGs) = 22,423.09 MMscf/year

RULES 1303(b)(3)-Sensitive Zone Requirements and 2005(e)-Trading Zone Restrictions
This facility is exempt from offsets under Rule 1304(a)(2). Therefore, this rule is not applicable.

RULE 1303(b)(4)-Facility Compliance
The new facility complies with all applicable Rules and Regulations of the AQMD.

RULE 1303(b)(5)-Major Polluting Facility
El Segundo Power, LLC has addressed the alternative analysis, statewide compliance, protection of visibility, and CEQA compliance requirements of this rule for NOx. These requirements are summarized below.

Rule 1303(b)(5)(A) – Alternative Analysis
Requires the applicant to conduct an analysis of alternative sites, sizes, production processes, environmental control techniques for the re-powering project and to demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with this project. El Segundo Power, LLC has performed a comparative evaluation of alternative sites as part of the AFC process and has concluded that the benefits of providing additional electricity and increased employment in the surrounding area will outweigh the environmental and social costs incurred in the construction and operation of the proposed facility.

Rule 1303(b)(5)(B) – Statewide Compliance
El Segundo Power, LLC has submitted a letter to the AQMD dated February 22, 2010 (see file) stating that any and all facilities that El Segundo Power, LLC owns or operates in the State of California (including the proposed re-powering project) are in compliance or are on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. Therefore, compliance is expected.

Rule 1303(b)(5)(C) – Protection of Visibility
Modeling is required if the source is within a Class I area and the NOx and PM_{10} emissions exceed 40 TPY and 15TYP respectively. Since the nearest Class I area is located over 28 miles from the El Segundo site, modeling from plume visibility is not required, however, the applicant has provided modeling impact data for the Class I areas as part of the AFC process. Compliance is expected.

Rule 1303(b)(5)(D) – Compliance through CEQA
The California Energy Commission's (CEC) certification process is essentially equivalent to CEQA. Since the applicant is required to receive a certification from the CEC, the applicable CEQA requirements will be addressed. Compliance is expected.

PM2.5 ANALYSIS

Effective July 15, 2008, EPA required AQMD to implement the New Source Review (NSR) program for fine particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers. Listed below are the definitions and requirements of this rule

Thresholds for Major Sources & Significant Emission Rates

- Major Source threshold for PM2.5 in attainment areas under PSD is 100 tpy for certain source categories (listed in 40CFR 51.166(b)(1)(i)(a) & 52.21(b)(1)(i)(a)) and 250 tpy for all other sources.
- Major source threshold for PM2.5 in non-attainment areas under NSR is 100 tpy.
- Significant Emission Rate threshold for PM2.5 is 10 tpy.

Requirements:

Attainment Areas (PSD)

- Effective date of the rule for both delegated and SIP-Approved S/L is July 15, 2008.
- Implementation date deadline for EPA & delegated S/L (40CFR 52.21) is July 15, 2008.
- Implementation date deadline for SIP-Approved S/L (40CRF 51.166) is July 15, 2011, until which time S/L follow PM10 surrogate policy.
- BACT applies to emission units at new major sources with significant emissions.
- BACT applies to all emission units part of a major modification.

Non-Attainment Areas (NA NSR)

- Effective date of the rule for both EPA (NA NSR rules in 40CFR part 51 Appendix S) and SIP-Approved S/L is July 15, 2008.
- Implementation date deadline for EPA under Appendix S is July 15, 2008, and can no longer use PM10 surrogate program any more.
- Implementation date deadline for S/L with SIP-Approved NA NSR rules is July 15, 2011 to revise SIP consistent with 40CFR 51.165, however until then and effective July 15, 2008, S/L must follow Appendix S requirements for PM2.5 and can no longer use PM10 surrogate. This basically means that effective July 15, 2008 EPA and all S/L have to implement PM2.5 NA NSR through Appendix S.
- LAER, Offsets & other requirements for PM2.5 apply on effective date of Appendix S, or July 15, 2008.

El Segundo Power is located in the South Coast Air Bsin (SCAB), which is presently considered to be a non-attainment area for PM2.5. Therefore, LAER and offset thresholds for non-attainment areas apply. For purposes of this rule, 100% of PM10 is assumed to be PM2.5. The tables below are a compliance determination for El Segundo Power with respect to EPA's NSR program for PM2.5 sources. In addition, note that the facility has elected to become a synthetic minor source for PM2.5 by accepting a facility permit condition to remain below 100 tons/year of PM2.5 in order to comply with the Federal Rule.

LAER Requirements:

Pollutant	LAER Requirement	Proposed LAER	Comply (Y/N)
PM2.5	Pipeline Quality Natural Gas	Pipeline Quality Natural Gas	Yes

Offset Requirements

Pollutant	Facility PTE (ton/yr)	Offset Threshold (ton/yr)	Required Offsets (Y/N)	Comply (Y/N)
PM2.5	51.83	100	No	Yes

Based on the analysis above, the source complies with the requirements of the Federal PM2.5 NSR Rule.

Rule 1401 – New Source Review of Toxic Air Contaminants

This rule specifies limits for maximum individual cancer risk (MICR), acute hazard index (HIA), chronic hazard index (HIC) and cancer burden (CB) from new permit units, relocations, or modifications to existing permits which emit toxic air contaminants. Rule 1401 requirements are summarized as follows:

Table 27 - Rule 1401 Requirements

Parameters and Specifications	Rule 1401 Requirements
MICR, without T-BACT	$\leq 1x10^{-6}$
MICR, with T-BACT	$\leq 1x10^{-5}$
Acute Hazard Index	≤ 1.0
Chronic Hazard Index	≤ 1.0
Cancer Burden	≤ 0.5

The applicant performed a Tier 4 health risk assessment using the Hot Spots Analysis and Reporting Program (HARP). The analysis included an estimate of the MICR for the nearest residential and commercial receptors, as well as the acute and chronic hazard indices on a per unit basis. Table 28 below shows the results of the health risk assessment as performed by the applicant.

Table 28 - Rule 1401 Modeled Results (permit-unit basis)

Risk Parameter	Residential	Commercial	Rule 1401 Requirements	Compliance (Yes/No)
CTG No. 5				
MICR	4.00EE-8	1.28EE-8	≤1.0EE-6	Yes
HIA	6.00EE-3	6.00EE-3	≤1.0	Yes
HIC	1.60EE-3	1.60EE-3	≤1.0	Yes
CTG No. 7				
MICR	4.05EE-8	1.31EE-8	≤1.0EE-6	Yes
HIA	6.00EE-3	6.00EE-3	≤1.0	Yes
HIC	1.60EE-3	1.60EE-3	≤1.0	Yes

Table 28 shows that El Segundo Power, LLC will comply with the applicable requirements of Rule 1401. The cancer burden is not computed because the highest MICR is less than $1EE10^{-6}$. AQMD modeling staff has reviewed the health risk assessment for the proposed project and provided their comments in a memorandum from Ms. Jill Whynot to Mr. Mike Mills dated November 15, 2007. The ISCST3 modeling conforms to AQMD's dispersion modeling procedures. No discrepancies were noted. In addition, the facility performed a health risk assessment to submit to the CEC as part of the CEQA requirements. The overall project risk (including the existing boilers) is less than 1 in a million.

Rule 2005(b)(1)(A)-Modeling and Rule (b)(2)(A)- Offsets

Modeling and offsets are required for a modification to an existing facility if there is an increase in NOx emissions. The following table shows the facility's pre-modification PTE vs the post-modification PTE.

	Pre-Modification PTE*	Post-Modification PTE	Increase/Decrease
Annual (tons/yr)	403.6	96.4	Decrease
Hourly (lb/hr)	147.93	18.6	Decrease

*Actual AER data is used as the pre-modification PTE for the purpose of this analysis

Since the facility post modification PTE is less than the pre-modification PTE on both an hourly and an annual basis, modeling and offsets for NOx are not required.

Rule 2005(g) – Additional Requirements

As with Rule 1303(b)(5) for the Non-RECLAIM pollutants, El Segundo Power, LLC has addressed the alternative analysis, statewide compliance, protection of visibility, and CEQA compliance requirements of this rule for NOx. These requirements are summarized below.

Rule 2005(g)(1) – Statewide Compliance

El Segundo Power, LLC has submitted a letter to the AQMD dated February 22, 2010 (see file) stating that any and all facilities that El Segundo Power, LLC owns or operates in the State of California (including the proposed re-powering project) are in compliance or are on a schedule for compliance with all applicable emission limitations and standards under the Clean Air Act. Therefore, compliance is expected.

Rule 2005(g)(2) – Alternative Analysis

Requires the applicant to conduct an analysis of alternative sites, sizes, production processes, environmental control techniques for the re-powering project and to demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with this project. El Segundo Power, LLC is exempt from this requirement per Rule 2005(g)(3)(B).

Rule 2005(g)(3) – Compliance through CEQA

The California Energy Commission (CEC) is the lead agency for this project and will be conducting their CEQA analysis with input from interested parties/agencies. As part of the CEQA analysis, CEC will be issuing an amendment to their decision dated February 2005. Compliance is expected

Rule 2005(g)(4) – Protection of Visibility

Modeling is required if the source is within a Federal Class I area and the NO_x potential to emit (PTE) exceeds 40 TPY. Since the nearest Federal Class I area is located well beyond the project site, modeling for plume visibility is not required for this project.

Rule 2005(h) – Public Notice

El Segundo Power, LLC complies with the requirements for Public Notice found in Rule 212. Therefore compliance with Rule 2005(h) is expected.

Rule 2005(i) – Rule 1401 Compliance

El Segundo Power, LLC complies with Rule 1401 as demonstrated in the Tier 4 analysis and subsequently reviewed and found to be satisfactory by AQMD modeling staff. Compliance is expected.

Rule 2005(j) – Compliance with State and Federal NSR.

El Segundo Power, LLC complies with the provisions of this rule by having demonstrated compliance with AQMD NSR Regulations XIII (non-RECLAIM) and Rule 2005-(RECLAIM).

REGULATION XVII-Prevention of Significant Deterioration

On July 25, 2007 AQMD and EPA have signed a new Partial PSD Delegation Agreement intended to delegate the authority and responsibility to AQMD for issuance of initial PSD permits and for PSD permit modifications where the applicant does not seek to use the emissions calculation methodologies promulgated in 40 CFR 52.21 (NSR Reform) but not set forth in AQMD Regulation XVII. The Partial Delegation agreement also does not delegate authority and responsibility to AQMD to issue new or modified PSD permits based on Plant-wide Applicability Limits (PALS) provisions of 40 CFR 52.21. Therefore, consistent with the Partial Delegation Agreement, for all new and modified PSD permits, AQMD will only use Regulation XVII as the bases for the PSD analysis.

The South Coast Air Basin where the project is to be located is in attainment for NOx, SO_2, and CO emissions. Therefore PSD applies to these pollutants. For combined cycle projects, a significant emission increase is 40 tpy or more of NOx or SO_2 or 100 tons per year or more of CO. Table 29 below shows the net emissions at the El Segundo facility due to the addition of the two proposed Siemens rapid response combined cycle CTGs and the removal of steam boiler units 1, 2, and 3. Rule 1706(c)(1)(B) states that emission reductions for permit units removed from service shall be calculated from the sum of actual emissions as determined from company records which have occurred during the two year period preceding the date of permit application or a different two year time period within the past 5 years. According to the applicant, the emission reductions for units 1,2, and 3 were based on the annual fuel use (mmcf/yr) as reported in the facility's Annual Emission Reports to the AQMD. The emission factors for CO, and SOx were taken from AQMD general instruction book for annual emission reporting, Appendix A, Table 1 – natural gas boilers. NOx reductions were based on the reported emissions to AQMD.

Table 29 - Net Emissions from El Segundo Power, LLC

	NOx tons/yr	SOx tons/yr	CO tons/yr
Two (2) Siemens combined cycle CTGs	+96.4	+8.0	+175.2
Removal of Boiler Units 1,2,& 3	-403.6	-2.4	-199.25
Net Emissions	-307.2	+5.6	-24.05
PSD Significance Thresholds	+40	+40	+100
PSD Analysis Required	No	No	No

Table 29 above shows that the El Segundo Power combined cycle project will not result in a significant increase of NOx, SO_2, or CO. Therefore, a PSD review is not required.

Rule 1703(a)(2) requires each permit unit be constructed using BACT for each attainment air contaminant for which there is a net emission increase. The BACT requirements for CO as well as the applicant's BACT proposals for the CTGs are listed in Table 30 below: As shown below, the equipment will comply with PSD BACT requirements for major sources.

Table 30 - CO BACT Proposals for the Siemens Combined Cycle CTGs

Pollutant	AQMD BACT Requirements	Proposed BACT	Comply (Yes/No)
CO	2.0 ppmvd at 15% O2, 1-hour rolling average	2.0 ppmvd at 15% O2, 1-hour rolling average	Yes
NOx	2.0 ppmvd at 15% O2, 1-hour rolling average	2.0 ppmvd at 15% O2, 1-hour rolling average	Yes
SOx	PUC quality natural gas w/ S content ≤ 1 grain/100 scf	PUC quality natural gas w/ S content = 0.25 grain/100 scf	Yes

INTERIM PERIOD EMISSION FACTORS – Rule 2012

RECLAIM requires that a NO_x emission factor be used for reporting emissions during the interim reporting period. The interim period is defined as a period typically 12 months in duration, when the CEMS has not been certified. During this period, the emissions cannot be accurately or officially quantified, monitored, or verified. The emissions during this period are assumed to be at uncontrolled levels. The interim reporting period can be broken down into the two parts which includes (a) the commissioning period in which an uncontrolled[4] emission rate is assumed, and (b) the remaining period at which controlled rates at BACT are assumed. Since El Segundo Power, LLC is included in NO_x RECLAIM, an interim period emission factor for NO_x will be determined. Although not a RECLAIM pollutant, a CO emission factor will also be calculated so that the applicant may use it to report emissions during the interim period when the CEMS is not yet certified for CO. In the event CEMS data is not available, NO_x, and CO emissions during the interim period will be calculated using monthly fuel usage and the emission factors derived below. There will be two interim period emission factors calculated for NO_x and two interim period emission factors calculated for CO. The first factor will be for use during commissioning stage when the CTGs are assumed to be operating at uncontrolled levels and the second factor will be for use after commissioning is complete and the CTGs are assumed to operate at BACT levels. The specific calculations are shown in Appendix G and the results are shown in the tables below, and are done on a per turbine basis.

Commissioning Period

Pollutants	NOx	CO
Total emissions (lbs)	12,478	130,337
Total Fuel (mmscf)	754	754
Emission Factor (lb/mmscf)	**16.55**	**172.89**

Remaining Period (Non-Commissioning)

Pollutants	NOx	CO
Total emissions (lbs)	96,371	175,246
Total Fuel (mmscf)	11,124	11,124
Emission Factor (lb/mmscf)	**8.66**	**15.75**

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The California Energy Commission (CEC) is the lead agency for the El Segundo Power Redevelopment Project (00-AFC-14C), and will be addressing CEQA compliance. It is anticipated that the CEC will amend its decision dated February 2, 2005 to address the proposed changes to the El Segundo Power Redevelopment Project.

[4] The emission factor for the commissioning period is an average for the entire 415 hour commissioning period. During this period, the turbines may be uncontrolled, partially controlled, or 100% controlled.

40CFR Part 60 Subpart GG – NSPS for Stationary Gas Turbines

The refurbished CTGs proposed for construction at El Segundo Power, LLC are subject to the requirements of 40CFR60 Subpart KKKK, and are exempt from 40CFR60 Subpart GG per 40 CFR60 Subpart KKKK, §60.4305 (b).

40CFR Part 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

Subpart KKKK establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines with a heat input greater than 10 MMBTU/hr (10.7 gigajoules per hour), based on higher heating value, which commenced construction, modification or reconstruction after February 18, 2005.

§60.4320(a) Both CTGs are natural gas-fired and has a heat input > 850 MMBTU/hr, therefore, it is subject to a NO_X emission limit of 15 ppmv @ 15% O_2 from Table 1 of this subpart. The turbine is required to comply with BACT for NO_x which is officially at 2.0 ppmv at 15% O2, dry basis for a combined cycle plant. It is anticipated that the CTGs will meet a NO_x level of 2.0 ppmv or less at 15% O2 on a 1-hour average which is more stringent than this subpart. Therefore, compliance with this section is expected.

§60.4330(a)(2) Natural gas fuel burned in the turbine has a sulfur content of 0.0006 lb-SO_2/MMBtu, which is less than 0.06 lb-SO_2/MMBTU (26 ng-SO_2/J) required by this section. Therefore, compliance with the sulfur dioxide limits of this section is expected.

§60.4335 The gas turbines use water injection to help reduce NO_X to compliance levels. Monitoring is required and will be accomplished with a CEMS; therefore, compliance with this section is expected with a certified CEMS.

§60.4345 The CEMS is required to be certified according to the Performance Specification 2 (PS 2) in appendix B to this part. SCE will be required to file a CEMS application package with Source Test Engineering to certify the CEMS to meet the requirements of Rule 218 or 40CFR60 Appendix B. Therefore, compliance with this section is expected.

§60.4400(a) An initial source test will be required per §60.8. The annual source testing requirement for NOx will be satisfied through the annual RATAs performed on the CEMS. Compliance with the source testing requirements is expected.

40CFR Part 72 – Acid Rain Provisions

El Segundo Power, LLC is subject to the requirements of the federal Acid Rain program because the electricity generated will be rated at greater than 25 MW. This program is similar to RECLAIM in that facilities are required to cover SO_2 emissions with SO_2 allowances that are similar in concept to RTC's. SO_2 allowances are however, not required in any year when the unit emits less than 1,000 lbs of SO_2. Facilities with insufficient allowances are required to purchase SO_2 credits on the open market. In addition, both NOx and SO_2 emissions will be monitored and reported directly to USEPA. Based on the above, compliance with this rule is expected.

REGULATION XXX – Title V

El Segundo Power, LLC is a Title V facility because the cumulative emissions will exceed the Title V major source thresholds and because it is also subject to the federal acid rain provisions. The Title V significant revision will be processed and the required public notice was sent along with the Rule 212(g) Public Notice, which was also required for this project. EPA was afforded the opportunity to review and comment on the project within a 45-day review period.

OVERALL EVALUATION / RECOMMENDATION(S)

Issue a Facility Permit to Construct with the following permit conditions.

PERMIT CONDITIONS

Facility

F2.1 The operator shall limit the emissions from this facility as follows:

CONTAMINANT	EMISSION LIMIT
PM	Less than 100 tons in any one year

For the purpose of this condition, the PM emission limit shall be applicable to particulate matter with aerodynamic diameter less than 2.5 microns.

For the purpose of this condition, any one year shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each calendar month.
[40CFR51 Subpart S]

CTGs

A63.2 The operator shall limit emission from this equipment as follows:

CONTAMINANT	EMISSION LIMIT
PM_{10}	6,935 LBS IN ANY ONE MONTH
SOx	1,065 LBS IN ANY ONE MONTH
VOC	4,930 LBS IN ANY ONE MONTH

The operator shall calculate the monthly emissions for VOC, PM10 and SOx using the equation below and the following emission factors: VOC: 2.93 lb/mmcf; PM10: 4.66 lb/mmcf; and SOx: 0.72 lb/mmcf.

Monthly Emissions, lb/mon = X (E.F.)

Where X = monthly fuel usage, mmscf/month and E.F. = emission factor indicated above.
[Rule 1303-Offsets]

A99.7 The 2.0 PPM NOx emission limits shall not apply during turbine commissioning, start-up, and shutdown periods. The commissioning period shall not exceed 415 gas turbine operating hours. Start-up time shall not exceed 60 minutes for each start-up. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 start-ups per year. Written records of commissioning, start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.

A gas turbine operating hour during the commissioning period consists of 60 minutes operating minutes. An operating minute occurs when the gas turbine fuel flow during that minute is greater than zero.
[Rule 2005, Rule 1703(a)(2) - PSD-BACT]

A99.8 The 2.0 PPM CO emission limits shall not apply during turbine commissioning, start-up, and shutdown periods. The commissioning period shall not exceed 415 gas turbine operating hours. Start-up time shall not exceed 60 minutes for each start-up. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 start-ups per year. Written records of commissioning, start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.

A gas turbine operating hour during the commissioning period consists of 60 minutes operating minutes. An operating minute occurs when the gas turbine fuel flow during that minute is greater than zero.
[Rule 1703 - PSD, Rule 1703(a)(2) - PSD-BACT]

A99.9 The 2.0 PPM VOC emission limit shall not apply during turbine commissioning, start-up, and shutdown periods. The commissioning period shall not exceed 415 gas turbine operating hours. Start-up time shall not exceed 60 minutes for each start-up. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 start-ups per year. Written records of commissioning, start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.

A gas turbine operating hour during the commissioning period consists of 60 minutes operating minutes. An operating minute occurs when the gas turbine fuel flow during that minute is greater than zero.
[Rule 1303 - BACT]

A99.10 The 16.55 LBS/MMCF NOx emission limit shall only apply during the interim reporting period during initial turbine commissioning to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.
[Rule 2012 - Requirements for Monitoring, Reporting and Recordkeeping for Oxides of Nitrogen Emissions]

A99.11 The 8.66 LBS/MMCF NOx emission limits shall only apply during the interim reporting period after initial turbine commissioning to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.
[Rule 2012 - Requirements for Monitoring, Reporting and Recordkeeping for Oxides of Nitrogen Emissions]

A195.8 The 2.0 PPMV CO emission limit(s) is averaged over 60 minutes at 15 percent O2, dry.
[Rule 1703(a)(2) - PSD-BACT]

A195.9 The 2.0 PPMV NOX emission limit(s) is averaged over 60 minutes at 15 percent O2, dry.
[Rule 1703(a)(2) - PSD-BACT, Rule 2005]

A195.10 The 2.0 ppmv VOC emission limit(s) is averaged over 60 minutes at 15 percent O2, dry.
[Rule 1303(a) - BACT]

A327.1 For the purpose of determining compliance with District Rule 475, combustion contaminants emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.
[Rule 475]

A433.1 The operator shall comply at all times with the 2.0 ppm 1-hour BACT limit for NOx, except as defined in condition A99.7 and for the following scenario:

Operating Scenario	Maximum Hourly Emission Limit	Operational Limit
Start-up	112 lb/hr	NOx emissions not to exceed 112 lbs total per start-up per turbine. Each turbine shall be limited to 200 start-ups per year, with each start-up not to exceed 60 minutes.

[Rule 1703(a)(2)-PSD-BACT, Rule 2005]

B61.2 The operator shall not use natural gas containing the following specified compounds:

Compound	Grains per 100 scf
H2S	0.25

This concentration limit is an annual average based on monthly samples of natural gas composition or gas supplier documentation. The gaseous fuel sample shall be tested using District method 307-91 for total sulfur calculated as H2S.
[Rule 1303(b) - Offset]

C1.6 The operator shall limit the fuel usage to no more than 1,500 mmcsf in any one calendar month.

For the purpose of this condition, fuel usage shall be defined as the total natural gas usage of a single turbine.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition.
[Rule 1303(b)(2) - Offset]

D12.10 The operator shall install and maintain a(n) flow meter to accurately indicate the fuel usage being supplied to the turbine.

The operator shall also install and maintain a device to continuously record the parameter being measured
[Rule 1303(b)(2) - Offset, Rule 2012]

D29.7 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant to be tested	Required Test Method(s)	Averaging Time	Test Location
NOX emissions	District Method 100.1	1 hour	Outlet of the SCR
CO emissions	District Method 100.1	1 hour	Outlet of the SCR
SOX emissions	AQMD Method 307-91	Not Applicable	Fuel Sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR
PM10 emissions	District Method 5	4 hours	Outlet of the SCR
NH3 emissions	District Method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR

The test shall be conducted after AQMD approval of the source test protocol, but no later than 180 days after initial start-up. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in MW.

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

The test shall be conducted when this equipment is operating at maximum, average, and minimum loads.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit.

For natural gas fired turbines only, VOC compliance shall be demonstrated as follows: a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters are done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA Method TO-12 (with pre concentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F.

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv limit calculated as carbon for natural gas fired turbines. The test results shall be reported with two significant digits.

For the purpose of this condition, alternative test methods may be allowed for each of the above pollutants upon concurrence of AQMD and EPA.

[Rule 1303(a)(1) - BACT, Rule 1703(a)(2) - PSD-BACT, Rule 1303(b)(2) - Offset, Rule 2005,]

D29.8 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR

The test shall be conducted and the results submitted to the District within 45 days after the test date. The AQMD shall be notified of the date and time of the test at least 7 days prior to the test.

The test shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit

If the equipment is not operated in any given quarter, the operator may elect to defer the required testing to a quarter in which the equipment is operated. *[Rule 1303(a)(1) - BACT]*

D29.9 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant to be tested	Required Test Method(s)	Averaging Time	Test Location
SOX emissions	AQMD Method 307-91	Not Applicable	Fuel Sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR
PM10 emissions	District Method 5	4 hours	Outlet of the SCR

The test shall be conducted at least once every three years for SOx and PM10, and yearly for VOC.
The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in MW.
The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the turbine during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted when this equipment is operating at 100 percent load.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit.
For natural gas fired turbines only, VOC compliance shall be demonstrated as follows: a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters are done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA Method TO-12 (with pre concentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F.

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv calculated as carbon for natural gas fired turbines. The test results shall be reported with two significant digits.

For the purpose of this condition, alternative test methods may be allowed for each of the above pollutants upon concurrence of AQMD and EPA.
[Rule 1303(a)(1) - BACT, Rule 1303(b)(2) - Offset, Rule 1703(a)(2) - PSD-BACT]

D82.4 The operator shall install and maintain a CEMS to measure the following parameters:

CO concentration in ppmv
Concentrations shall be corrected to 15 percent oxygen on a dry basis
The CEMS shall be installed and operated no later than 90 days after initial start-up of the turbine, and in accordance with an approved AQMD Rule 218 CEMS plan application. The operator shall not install the CEMS prior to receiving initial approval from AQMD. Within two weeks of the turbine start-up, the operator shall provide written notification to the District of the exact date of start-up.

The CEMS shall be installed and operated to measure CO concentrations over a 15 minute averaging time period.
The CEMS would convert the actual CO concentrations to mass emission rates (lbs/hr) using the equation below and record the hourly emission rates on a continuous basis.

CO Emission Rate, lbs/hr = K Cco Fd[20.9/(20.9% - %O2 d)][(Qg * HHV)/106], where

K = 7.267 *10^{-8} (lb/scf)/ppm

Cco = Average of four consecutive 15 min. ave. CO concentration, ppm

Fd = 8710 dscf/MMBTU natural gas
$\%O_2$ d = Hourly ave. % by vol. O_2 dry, corresponding to Cco

Qg = Fuel gas usage during the hour, scf/hr

HHV = Gross high heating value of fuel gas, BTU/scf
[Rule 1703(a)(2) - PSD-BACT]

D82.5 The operator shall install and maintain a CEMS to measure the following parameters:

NOx concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis.
The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine and shall comply with the requirements of Rule 2012. During the interim period between the initial start-up and the provisional certification date of the CEMS, the operator shall comply with the monitoring requirements of Rule 2012(h)(2)and 2012(h)(3). Within two weeks of the turbine start-up date, the operator shall provide written notification to the District of the exact date of start-up.

The CEMS shall be installed and operating (for BACT purposes only) no later than 90 days after initial start up of the turbine.
[Rule 1703(a)(2) - PSD-BACT, Rule 2005, Rule 2012]

E193.2 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all air quality mitigation measures stipulated in the final California Energy Commission decision for the 00-AFC-14C project.
[CEQA]

E193.3 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

The combined cycle gas turbine units 5 and 7 shall not operate simultaneously with boiler units 1,2, or 3 except for the 90 day period as stipulated in AQMD Rule 1313. El Segundo Power shall surrender the Permit to Operate (P/N F14448) for boiler no. 3 within 90 days of the start-up of the combined cycle gas turbines.
[Rule 1313]

I296.2 This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emission increase.

To comply with this condition, the operator shall prior to the 1st compliance year hold a minimum NOx RTCs of 104,864 lbs/yr. This condition shall apply during the 1st months of operation, commencing with the initial operation of the gas turbine.

To comply with this condition, the operator shall, prior to the beginning of all years subsequent to the 1st compliance year, hold a minimum of lbs/yr of 90,953 NOx RTC's for operation of the gas turbine. In accordance with Rule 2005(f), unused RTC's may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the 1st compliance year.
This condition shall apply to each turbine individually.
[Rule 2005]

K40.4 The operator shall provide to the District a source test report in accordance with the following specifications:

Source test results shall be submitted to the District no later than 60 days after the source test was conducted.
Emission data shall be expressed in terms of concentration (ppmv) corrected to 15 percent oxygen (dry basis), mass rate (lb/hr), and lb/MMCF. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains/DSCF.
All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute.
All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.
Source test results shall also include the oxygen levels in the exhaust, fuel flow rate (CFH), the flue gas temperature, and the generator power output (MW) under which the test was conducted.
[Rule 1303(a)(1) - BACT, Rule 1303(b)(2) - Offset, Rule 1703(a)(2) - PSD-BACT, Rule 2005]

K67.5 The operator shall keep records in a manner approved by the District, for the following parameter(s) or item(s):

Natural gas fuel use after CEMS certification
Natural gas fuel use during the commissioning period
Natural gas fuel use after the commissioning period and prior to CEMS certification
[Rule 2012]

(SCR/CO Catalyst)

A195.11 The 5 ppmv NH3 emission limit is averaged over 60 minutes at 15% O2, dry basis. The operator shall calculate and continuously record the NH3 slip concentration using the following:

NH3 (ppmv) = [a-b*c/1EE+06]*1EE+06/b

where,
a = NH3 injection rate (lbs/hr)/17(lb/lb-mol)
b = dry exhaust gas flow rate (scf/hr)/385.3 scf/lb-mol)
c = change in measured NOx across the SCR (ppmvd at 15% O2)

The operator shall install and maintain a NOx analyzer to measure the SCR inlet NOx ppmv accurate to plus or minus 5 percent calibrated at least once every twelve months.
The NOx analyzer shall be installed and operated within 90 days of initial start-up.
The operator shall use the above described method or another alternative method approved by the Executive Officer.
The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information without corroborative data using an approved reference method for the determination of ammonia.
[Rule 1303(a)(1) - BACT, Rule 2012]

D12.11 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia.

The operator shall also install and maintain a device to continuously record the parameter being measured.
The measuring device or gauge shall be accurate to within plus or minus 5 percent.
It shall be calibrated once every twelve months.
The ammonia injection rate shall remain between 4.8 and 11.5 gallons per hour.

[Rule 1303(a)(1) - BACT, Rule 1703(a)(2) - PSD-BACT, Rule 2005]

D12.12 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor.

The operator shall also install and maintain a device to continuously record the parameter being measured.
The measuring device or gauge shall be accurate to within plus or minus 5 percent.
It shall be calibrated once every twelve months.
The temperature shall remain between 400 degrees F and 750 degrees F
The catalyst temperature shall not exceed 750 degrees F during the start-up period.
[Rule 1303(a)(1) - BACT, Rule 1703(a)(2)- PSD-BACT, Rule 2005]

D12.13 The operator shall install and maintain a(n) pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches of water column.

The operator shall also install and maintain a device to continuously record the parameter being measured.
The measuring device or gauge shall be accurate to within plus or minus 5 percent.
It shall be calibrated once every twelve months.
The pressure drop across the catalyst shall remain between 1 inch of water column and 4 inches of water column.
The pressure drop across the catalyst shall not exceed 4 inches of water column during the start-up period.

[Rule 1303(a)(1) - BACT, Rule 1703(a)(2) - PSD-BACT, Rule 2005]

E193.2 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all air quality mitigation measures stipulated in the final California Energy Commission decision for the 00-AFC-14C project.
[CEQA]

E179.5 For the purpose of the following condition number(s), continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

Condition Number D12.11
Condition Number D12.12
[Rule 1303(a)(1) - BACT, Rule 1703(a)(2) - PSD-BACT]

E179.6 For the purpose of the following condition numbers, continuously record shall be defined as measuring at least once every month and shall be calculated based upon the average of the continuous monitoring for that month.

Condition Number: D12.13
[Rule 1303(a)(1) - BACT, Rule 1703(a)(2) - PSD-BACT]

(Ammonia Storage Tank)

C157.1 The operator shall install and maintain a pressure relief valve with a minimum pressure set at 50 psig.
[Rule 1303(a)(1) - BACT]

E144.2 The operator shall vent this equipment, during filling, only to the vessel from which it is being filled.
[Rule 1303(a)(1) - BACT]

E57.2 The operator shall vent this equipment to the two-stage venture scrubber described as Device C64 whenever the tank is undergoing loading of ammonia.

EL SEGUNDO POWER REDEVELOPMENT PROJECT
List of Appendices

1. Appendix A - Siemens SGT6-5000F CTG Hourly Emissions

2. Appendix B - Siemens SGT6-5000F CTG Monthly Emissions
   - Commissioning year
   - Non-Commissioning year
   - 30-Day Averages (Commissioning year)
   - 30-Day Averages (Non-commissioning year)

3. Appendix C - Siemens SGT6-5000F CTG Annual Emissions
   - Commissioning year
   - Non-commissioning year

4. Appendix D - First Year NOx RTC Calculations

5. Appendix E - Subsequent Year NOx RTC Calculations

6. Appendix F - Interim Period Emission Factors

7. Commissioning Schedules

8. Comment Letters from Interested Parties and AQMD Response Letters

Appendix A - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG Hourly Emissions - Normal Operations

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

Data:

Standard Conditions: 29.92 inches Hg and 68 degrees Fahrenheit

Emission Factor (lb/MMBTU) = (ppmvd)*(MW)*(1/SMV)*(20.9/5.9)*(Fd)*(1/1E6)

where,

controlled ppmvd = controlled concentration corrected to 15% O_2

MW = molecular weight (lb/lb-mol)

SMV = specific molar volume at 68 degrees Fahrenheit = 385.3 dscf/lb-mol

Fd = dry oxygen F-factor for natural gas = 8,710 dscf/MMBTU at 68 degrees Fahrenheit

Emission Rate Uncontrolled = Emission Factor Uncontrolled (lb/MMBTU) * Heat Input (MMBTU/hr)

Emission Rate Controlled = Emission Factor Controlled (lb/MMBTU) * Heat Input (MMBTU/hr)

Uncontrolled Emissions from the CTG:

NOx = 25 ppm @ 15% O_2, CO = 100 ppm @ 15% O_2, VOC = 4 ppm, PM10 = 0.0053 lbs/MMBTU; SOx = 0.25 grains/100 scf

CO Emissions

Operating Condition Number	Heat Input (MMBTU/hr)	Pollutant Conc. Uncontrolled (ppmvd)	Pollutant Conc. Controlled (ppmvd)	Molecular Weight (lbs/lb-mole)	Specific Molar Volume (dscf/lb-mole)	Dry Fuel Factor (dscf/MMBTU)	Emission Factor Uncontrolled (lb/MMBTU)	Emission Factor Controlled (lb/MMBTU)	Emission Rate Uncontrolled (lb/hr)	Emission Rate Controlled (lb/hr)
1	1,881.0	100	2.00	28	385.3	8,710	0.2242	0.0045	421.76	8.44
2	1,951.0	100	2.00	28	385.3	8,710	0.2242	0.0045	437.45	8.75
3	2,096.0	100	2.00	28	385.3	8,710	0.2242	0.0045	469.96	9.40
4	1,155.0	100	2.00	28	385.3	8,710	0.2242	0.0045	258.97	5.18
Average										**7.94**

Appendix A - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG Hourly Emissions - Normal Operations

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

NOx Emissions

Operating Condition Number	Heat Input (MMBTU/hr)	Pollutant Conc. Uncontrolled (ppmvd)	Pollutant Conc. Controlled (ppmvd)	Molecular Weight (lb/lb-mol)	Specific Molar Volume (dscf/lb-mole)	Dry Fuel Factor (dscf/MMBTU)	Emission Factor Uncontrolled (lb/MMBTU)	Emission Factor Controlled (lb/MMBTU)	Emission Rate Uncontrolled (lb/hr)	Emission Rate Controlled (lb/hr)
1	1,881.0	9	2.0	46	385.3	8,710	0.0332	0.0074	62.36	13.86
2	1,951.0	9	2.0	46	385.3	8,710	0.0332	0.0074	64.68	14.37
3	2,096.0	9	2.0	46	385.3	8,710	0.0332	0.0074	69.49	15.44
4	1,155.0	9	2.0	46	385.3	8,710	0.0332	0.0074	38.29	8.51
Average										**13.05**

VOC Emissions

Operating Condition Number	Heat Input (MMBTU/hr)	Pollutant Conc. Uncontrolled (ppmvd)	Pollutant Conc. Controlled (ppmvd)	Molecular Weight (lb/lb-mol)	Specific Molar Volume (dscf/lb-mol)	Dry Fuel Factor (dscf/MMBTU)	Emission Factor Uncontrolled (lb/MMBTU)	Emission Factor Controlled (lb/MMBTU)	Emission Rate Uncontrolled (lb/hr)	Emission Rate Controlled (lb/hr)
1	1,881.0	4	2.0	16	385.3	8,710	0.0051	0.0026	9.64	4.82
2	1,951.0	4	2.0	16	385.3	8,710	0.0051	0.0026	10.00	5.00
3	2,096.0	4	2.0	16	385.3	8,710	0.0051	0.0026	10.74	5.37
4	1,155.0	4	2.0	16	385.3	8,710	0.0051	0.0026	5.92	2.96
Average										**4.54**

Appendix A - EL SEGUNDO POWER, LLC
Siemens SGT6-5000FCTG Hourly Emissions - Normal Operations

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

PM10 Emissions

Operating Condition Number	Heat Input (MMBTU/hr)	Emission Factor (lb/MMBTU)	Emission Rate Uncontrolled (lb/hr)	Emission Rate Controlled (lb/hr)
1	1,881.0	0.0045	8.52	8.52
2	1,951.0	0.0045	8.84	8.84
3	2,096.0	0.0045	9.49	9.49
4	1,155.0	0.0045	5.23	5.23
Average			**8.02**	**8.02**

SOx Emissions

Operating Condition Number	Heat Input (MMBTU/hr)	Emission Factor[1] (lb/MMBTU)	Emission Rate Uncontrolled (lb/hr)	Emission Rate Controlled (lb/hr)
1	1,881.0	0.00070	1.317	1.317
2	1,951.0	0.00070	1.366	1.366
3	2,096.0	0.00070	1.467	1.467
4	1,155.0	0.00070	0.809	0.809
Average			**1.240**	**1.240**

[1] Based on a maximum sulfur content of 0.25 grains/100 scf fuel; 1,050 BTU/scf natural gas; and 7,000 grains/lb, and 1 mole S for 2 moles SO_2

SOx = (0.25 gr/100scf)(1 scf/1,020 BTU)(lb/7,000 gr)(2 mol SO_2/1 mol S) = 0.00070 lb/MMBTU

Appendix A - EL SEGUNDO POWER, LLC
Siemens SGT6-5000FCTG Hourly Emissions - Normal Operations

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

NH3 Emissions

Operating Condition Number	Heat Input (MMBTU/hr)	Pollutant Conc. Controlled (ppmvd)	Molecular Weight (lb/lb-mol)	Specific Molar Volume (dscf/lb-mol)	Dry Fuel Factor (dscf/MMBTU)	Emission Factor (lb/MMBTU)	Emission Rate (lb/hr)
1	1,881.0	5	17	385.3	8,710	0.0068	12.80
2	1,951.0	5	17	385.3	8,710	0.0068	13.28
3	2,096.0	5	17	385.3	8,710	0.0068	14.27
4	1,155.0	5	17	385.3	8,710	0.0068	7.86
Average							**12.05**

Appendix B - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG Monthly Emissions - Commissioning Year

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

Operating Condition 3	Hours per Month	CO (lbs/hr)	NOx (lbs/hr)	VOC (lbs/hr)	PM10 (lbs/hr)	SOx (lbs/hr)	CO (lbs/month)	NOX (lbs/month)	VOC (lbs/month)	PM10 (lbs/month)	SOx (lbs/month)
Start-Up, Shutdown & Commissioning (1-30)	178	663.74	36.88	30.68	9.43	1.46	118,145.72	6,564.64	5,461.04	1,678.54	259.88
Normal Operation	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unit 5 Totals	**178**						**118,145.72**	**6,564.64**	**5,461.04**	**1,678.54**	**259.88**
Start-Up, Shutdown & Commissioning (1-30)	178	663.74	36.88	30.68	9.43	1.46	118,145.72	6,564.64	5,461.04	1,678.54	259.88
Normal Operation	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unit 7 Totals	**178**						**118,145.72**	**6,564.64**	**5,461.04**	**1,678.54**	**259.88**
Total Monthly Emissions (lb/month)							**236,291.44**	**13,129.28**	**10,922.08**	**3,357.08**	**519.76**

Operating Condition 3	Hours per Month	CO (lbs/hr)	NOx (lbs/hr)	VOC (lbs/hr)	PM10 (lbs/hr)	SOx (lbs/hr)	CO (lbs/month)	NOX (lbs/month)	VOC (lbs/month)	PM10 (lbs/month)	SOx (lbs/month)
Start-Up, Shutdown & Commissioning (31-49)	237	51.4	19.46	6.29	9.43	1.46	12,191.28	4,612.02	1,490.73	2,234.91	346.02
Normal Operation	493	9.40	15.44	5.37	9.50	1.46	4,634.20	7,611.92	2,647.41	4,683.50	719.78
Unit 5 Totals	**730**						**16,825.48**	**12,223.94**	**4,138.14**	**6,918.41**	**1,065.80**
Start-Up, Shutdown & Commissioning (31-49)	237	51.4	19.46	6.29	9.43	1.46	12,191.28	4,612.02	1,490.73	2,234.91	346.02
Normal Operation	493	9.40	15.44	5.37	9.50	1.46	4,634.20	7,611.92	2,647.41	4,683.50	719.78
Unit 7 Totals	**730**						**16,825.48**	**12,223.94**	**4,138.14**	**6,918.41**	**1,065.80**
Total Monthly Emissions (lb/month)							**33,650.96**	**24,447.88**	**8,276.28**	**13,836.82**	**2,131.60**

Appendix B - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG Monthly Emissions - Non-Commissioning Year

PAGES	PAGE	A/N 470562
BY KLC	DATE 8/26/07	

Operating Condition 3	Hours per Month	CO (lb/hr)	NOx (lb/hr)	VOC (lb/hr)	PM10 (lb/hr)	SOx (lb/hr)	CO (lb/month)	NOX (lb/month)	VOC (lb/month)	PM10 (lb/month)	SOx (lb/month)
Start-Up	62.0	417.42	56.00	17.30	9.50	1.46	25,880.04	3,472.00	1,072.60	589.00	90.52
Normal Operations	606.0	9.40	15.44	5.37	9.50	1.46	5,696.40	9,356.64	3,254.22	5,757.00	884.76
Shutdown	62.0	221.18	35.50	9.74	9.50	1.46	13,713.16	2,201.00	603.88	589.00	90.52
Unit 5 Totals	730.0						**45,289.60**	**15,029.64**	**4,930.70**	**6,935.00**	**1,065.80**
Start-Up	62.0	417.42	56.00	17.30	9.50	1.46	25,880.04	3,472.00	1,072.60	589.00	90.52
Normal Operations	606.0	9.40	15.44	5.37	9.50	1.46	5,696.40	9,356.64	3,254.22	5,757.00	884.76
Shutdown	62.0	221.18	35.50	9.74	9.50	1.46	13,713.16	2,201.00	603.88	589.00	90.52
Unit 7 Totals	730.0						**45,289.60**	**15,029.64**	**4,930.70**	**6,935.00**	**1,065.80**
Total Monthly Emissions (lb/month)							**90,579.20**	**30,059.28**	**9,861.40**	**13,870.00**	**2,131.60**

Appendix B - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG - 30 Day Averages - Commissioning Year

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

Operating Condition 3	Hours per Month	CO (lb/hr)	NOx (lb/hr)	VOC (lb/hr)	PM10 (lb/hr)	SOx (lb/hr)	CO (lb/month)	NOx (lb/month)	VOC (lb/month)	PM10 (lb/month)	SOx (lb/month)
CTG 5 Startup, Shutdown & Commissioning (1-30)	178	663.7	36.88	30.68	9.43	1.46	118,146	6,565	5,461	1,679	260
CTG 5 Normal Operations	0	0.0	0.00	0.00	0.00	0.000	0	0	0	0	0
CTG 7 Startup, Shutdown & Commissioning (1-30)	178	663.7	36.88	30.68	9.43	1.46	118,146	6,565	5,461	1,679	260
CTG 7 Normal Operations	0	0.0	0.00	0.00	0.00	0.000	0	0	0	0	0
CTG 5 30-Day Average (lb/day)							**3,938**	**219**	**182**	**56**	**9**
CTG 7 30-Day Average (lb/day)							**3,938**	**219**	**182**	**56**	**9**

Operating Condition 3	Hours per Month	CO (lb/hr)	NOx (lb/hr)	VOC (lb/hr)	PM10 (lb/hr)	SOx (lb/hr)	CO (lb/month)	NOx (lb/month)	VOC (lb/month)	PM10 (lb/month)	SOx (lb/month)
CTG 5 Startup, Shutdown & Commissioning (31-49)	237	51.4	19.46	6.29	9.43	1.46	12,191	4,612	1,491	2,235	346
CTG 5 Normal Operations	493	9.4	15.44	5.37	9.50	1.460	4,634	7,612	2,647	4,684	720
CTG 7 Startup, Shutdown & Commissioning (31-49)	237	51.4	19.46	6.29	9.43	1.46	12,191	4,612	1,491	2,235	346
CTG 7 Normal Operations	493	9.4	15.44	5.37	9.50	1.460	4,634	7,612	2,647	4,684	720
CTG 5 30-Day Average (lb/day)							**561**	**407**	**138**	**231**	**36**
CTG 7 30-Day Average (lb/day)							**561**	**407**	**138**	**231**	**36**

Appendix B - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG - 30 Day Averages - Non-Commissioning Year

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

Operating Condition 3	Hours per Month	NOx (lb/hr)	CO (lb/hr)	PM10 (lb/hr)	VOC (lb/hr)	SOx (lb/hr)	NOx (lb/moth)	CO (lb/month)	PM10 (lb/month)	VOC (lb/month)	SOx (lb/month)
CTG 5 Startup	62	56.0	417.42	9.50	17.30	1.46	3,474	25,880	589	1,073	91
CTG 5 Normal Operations	606	15.4	9.40	9.50	5.37	1.46	9,357	5,696	5,757	3,254	885
CTG 5 Shutdown	62	35.5	221.18	9.50	9.74	1.46	2,201	13,713	589	604	91
CTG 7 Startup	62	56.0	417.42	9.50	17.30	1.46	3,474	25,880	589	1,073	91
CTG 7 Normal Operations	606	15.4	9.40	9.50	5.37	1.46	9,357	5,696	5,757	3,254	885
CTG 7 Shutdown	62	35.5	221.18	9.50	9.74	1.46	2,201	13,713	589	604	91
CTG 5 30-Day Average (lb/day)							**501**	**1,510**	**231**	**164**	**36**
CTG 7 30-Day Average (lb/day)							**501**	**1,510**	**231**	**164**	**36**

Appendix C - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG Annual Emissions - Commissioning Year

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

OC3	Hours per Year	CO (lbs/hr)	NOx (lbs/hr)	VOC (lbs/hr)	PM10 (lbs/hr)	SOx (lbs/hr)	CO (lbs/year)	NOX (lbs/year)	VOC (lbs/year)	PM10 (lbs/year)	SOx (lbs/year)
Start-Up	200	417.42	56.03	17.30	9.50	1.46	83,484.00	11,206.00	3,460.00	1,900.00	292.00
Commissioning[1]	415	314.07	30.07	16.75	9.50	1.46	130,339.05	12,479.05	6,951.25	3,942.50	605.90
Normal Operation	4,641	9.40	15.44	5.37	9.50	1.46	43,625.40	71,657.04	24,922.17	44,089.50	6,775.86
Shutdown	200	221.18	35.50	9.74	9.50	1.46	44,236.00	7,100.00	1,948.00	1,900.00	292.00
Unit 5 Totals	**5,456**						**301,684.45**	**102,442.09**	**37,281.42**	**51,832.00**	**7,965.76**
Start-Up	200	417.42	56.03	17.30	9.50	1.46	83,484.00	11,206.00	3,460.00	1,900.00	292.00
Commissioning[1]	415	314.07	30.07	16.75	9.50	1.46	130,339.05	12,479.05	6,951.25	3,942.50	605.90
Normal Operation	4,641	9.40	15.44	5.37	9.50	1.46	43,625.40	71,657.04	24,922.17	44,089.50	6,775.86
Shutdown	200	221.18	35.50	9.74	9.50	1.46	44,236.00	7,100.00	1,948.00	1,900.00	292.00
Unit 7 Totals	**5,456**						**301,684.45**	**102,442.09**	**37,281.42**	**51,832.00**	**7,965.76**
Total Annual Emissions (lb/year)							**603,368.90**	**204,884.18**	**74,562.84**	**103,664.00**	**15,931.52**

[1]From Table 9-Proposed Commissioning Schedule; 415 hours of total commissioning for each turbine per year

Appendix C - EL SEGUNDO POWER, LLC
Siemens SGT6-5000F CTG Annual Emissions - Non-Commissioning Year

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

OC3	Hours per Year	CO (lbs/hr)	NOx (lbs/hr)	VOC (lbs/hr)	PM10 (lbs/hr)	SOx (lbs/hr)	CO (lbs/year)	NOX (lbs/year)	VOC (lbs/year)	PM10 (lbs/year)	SOx (lbs/year)
Start-Up	200	417.42	56.03	17.30	9.50	1.46	83,484.00	11,206.00	3,460.00	1,900.00	292.00
Normal Operation	5,056	9.40	15.44	5.37	9.50	1.46	47,526.40	78,064.64	27,150.72	48,032.00	7,381.76
Shutdown	200	221.18	35.50	9.74	9.50	1.46	44,236.00	7,100.00	1,948.00	1,900.00	292.00
Unit 5 Totals	**5,456**						**175,246.40**	**96,370.64**	**32,558.72**	**51,832.00**	**7,965.76**
Start-Up	200	417.42	56.03	17.30	9.50	1.46	83,484.00	11,206.00	3,460.00	1,900.00	292.00
Normal Operation	5,056	9.40	15.44	5.37	9.50	1.46	47,526.40	78,064.64	27,150.72	48,032.00	7,381.76
Shutdown	200	221.18	35.50	9.74	9.50	1.46	44,236.00	7,100.00	1,948.00	1,900.00	292.00
Unit 7 Totals	**5,456**						**175,246.40**	**96,370.64**	**32,558.72**	**51,832.00**	**7,965.76**
Total Annual Emissions (lb/year)							**350,492.80**	**192,741.28**	**65,117.44**	**103,664.00**	**15,931.52**

Appendix D - EL SEGUNDO POWER, LLC
First Year NOx RTC Calculations

		A/N 470652
BY KLC	DATE 8/26/07	

Data: (per turbine)
Operating Schedule (1st Year):
Startups = 200 hours/year
Shutdowns = 200 hours/year
Normal Operations = 4,641 hours/year
Commissioning Period = 415 hours

Operating Condition 3	Hours per Year	NOx (lb/hr)	NOx (lb/year) per device	NOx (lb/year) cumulative
Siemens SGT6-5000F CTGs				
Startup	200	56.03	11,206.00	22,412.00
Shutdown	200	35.46	7,092.00	14,184.00
Normal Operation	4,641	14.37	66,691.17	133,382.34
Commissioning	415	47.89	19,874.35	39,748.70
CTG Totals	5,456		104,863.52	209,727.04
Total 1st Year Emissions (lb/year)			104,863.52	209,727.04
Offset Ratio			1.00	1.00
1st year RTCs (lb/year)			**104,863.52**	**209,727.04**

Appendix E - EL SEGUNDO POWER, LLC
Subsequent Year NOx RTC Calculations

		A/N 470652
BY KLC	DATE 8/26/07	

Data: (per turbine)
Operating Schedule (After 1st Year):
Startups = 200 hours/year
Shutdowns = 200 hours/year
Normal Operations = 5,056 hours/year
Commissioning Period = 0 hours

Operating Condition 3	Hours per Year	NOx (lb/hr)	NOx (lb/year) per device	NOx (lb/year) cumulative
Siemens SGT6-5000F CTGs				
Startup	200	56.03	11,206.00	22,412.00
Shutdown	200	35.46	7,092.00	14,184.00
Normal Operation	5,056	14.37	72,654.72	145,309.44
Commissioning	0	47.89	0.00	
CTG Totals	5,456		90,952.72	181,905.44
Total (lb/year)			90,952.72	181,905.44
Offset Ratio			1.00	1.00
Subsequent year RTCs			**90,952.72**	**181,905.44**

Appendix F - EL SEGUNDO POWER, LLC
Emission Factors

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

Total Annual Hours of Operation = 5,456 hours
Total Hours of Commissioning = 415 hours

Emission Factors During the Commissioning Period			
	CO	NOX	VOC
Unit 8			
Emissions (lbs)	130,337	12,478	6,952
Fuel Use (MMscf)	754	754	754
Emission Factor (lbs/MMscf)	**172.89**	**16.55**	**9.22**
Unit 9			
Emissions (lbs)	130,337	12,478	6,952
Fuel Use (MMscf)	754	754	754
Emission Factor (lbs/MMscf)	**172.89**	**16.55**	**9.22**

Appendix F - EL SEGUNDO POWER, LLC
Emission Factors

PAGES	PAGE	A/N 470652
BY KLC	DATE 8/26/07	

Emission Factors During Non-Commissioning Period

Operating Condition 3	Hours per Year	Hourly Fuel Use (MMBtu/hr)	Natural Gas HHV (Btu/scf)	Fuel Use (MMscf/yr)	CO (lbs/year)	NOX (lbs/year)	VOC (lbs/year)	PM10 (lbs/year)	SOx (lbs/year)
Unit 8 Start-Up	200	2,096	1,028	408	83,484	11,206	3,460	1,900	292
Unit 8 Normal Operations	5,056	2,096	1,028	10,309	47,526	78,065	27,151	48,032	7,382
Unit 8 Shutdown	200	2,096	1,028	408	44,236	7,100	1,948	1,900	292
Unit 8 Totals	5,456			11,124	175,246	96,371	32,559	51,832	7,966
Unit 9 Start-Up	200	2,096	1,028	408	83,484	11,206	3,460	1,900	292
Unit 9 Normal Operations	5,056	2,096	1,028	10,309	47,526	78,065	27,151	48,032	7,382
Unit 9 Shutdown	200	2,096	1,028	408	44,236	7,100	1,948	1,900	292
Unit 9 Totals	5,456			11,124	175,246	96,371	32,559	51,832	7,966

	CO	NOX	VOC	PM10	SOx
Unit 8					
Annual Emissions (lbs/yr)	175,246	96,371	32,559	51,832	7,966
Annual Fuel Use (MMscf/yr)	11,124	11,124	11,124	11,124	11,124
Emission Factor (lbs/MMscf)	**15.75**	**8.66**	**2.93**	**4.66**	**0.72**
Unit 9					
Annual Emissions (lbs/yr)	175,246	96,371	32,559	51,832	7,966
Annual Fuel Use (MMscf/yr)	11,124	11,124	11,124	11,124	11,124
Emission Factor (lbs/MMscf)	**15.75**	**8.66**	**2.93**	**4.66**	**0.72**

CTG Commissioning Schedule (Days 1-30)

Commissioning Schedule for Each SGT6-5000F CTG

Day	Activity	Duration (hr)	GT Load (%)	Modeling Load (%)	Startup/Shutdown Emissions (lbs)				Fuel Use	Running Emissions (lbs)				Fuel Use	Total Emissions (lbs)				Fuel Use	Calculated Hourly Emissions (lbs/hr)			
					NOx	CO	VOC	PM	(lbs)	NOx	CO	VOC	PM	(lbs)	NOx	CO	VOC	PM	(lbs)	NOx	CO	VOC	PM
1	GT Testing (FSNL, Excitation Test, Dummy Synch Ch	8	0	FSNL	6	483	21	1	2474	370	30018	1289	92	153752	376	30501	1310	93	156226	47.0	3812.6	163.8	11.6
2	GT Testing @ 40% load	8	0-40	40	126	3712	105	12	35529	1475	13971	572	90	403519	1601	17683	677	102	439048	200.1	2210.4	84.6	12.8
3	Steam Blow/HRSG Tuning	12	0-25	25	69	2648	77	8	19888	1686	41064	892	136	462406	1755	43712	969	144	482294	146.3	3642.7	80.8	12.0
4	Steam Blow/HRSG Tuning	12	0-50	50	157	3971	120	15	48447	850	5176	593	96	697169	1007	9147	713	111	745616	83.9	762.3	59.4	9.3
5	Steam Blow	12	0-50	50	157	3971	120	15	48447	850	5176	593	96	697169	1007	9147	713	111	745616	83.9	762.3	59.4	9.3
6	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
7	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
10	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
11	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
12	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
13	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
14	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
15	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
16	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
17	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
18	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
19	Steam Blow restoration, install SCR/CO Catalyst	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
20	Establish vacuum/HSRG Tuning/BOP Tuning	18	60	60	86	805	73	9	32811	153	104	63	128	1046636	239	908	136	137	1079447	14.9	56.8	8.5	8.6
21	Establish vacuum/BOP Tuning	18	60	60	86	805	73	9	32811	153	104	63	128	1046636	239	908	136	137	1079447	14.9	56.8	8.5	8.6
22	GT Load Test & Bypass Valve Tuning	16	60	60	86	805	73	9	32811	153	104	63	128	1046636	239	908	136	137	1079447	14.9	56.8	8.5	8.6
23	GT Load Test & Bypass Valve Tuning	18	60	60	86	805	73	9	32811	153	104	63	128	1046636	239	908	136	137	1079447	14.9	56.8	8.5	8.6
24	GT Load Test & Bypass Valve Tuning / Safety Valve T	12	75	75	87	805	74	10	41264	135	36	18	96	919648	222	842	92	106	960910	18.5	70.2	7.7	8.8
25	GT Base Load / Commissioning of Ammonia system	12	100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
26	GT Load Test & Bypass Valve Tuning	12	100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
27	No Operation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
28	Install Emissions Test Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
29	Bypass Operation / STG Initial Roll & Trip Test	10	0-60	60	86	805	73	9	32811	96	65	39	80	654147	182	869	113	89	686958	18.2	86.9	11.3	8.9
30	Bypass Operation / STG Load Test	16	0-60	60	86	805	73	9	32811	153	104	63	128	1046636	239	908	136	137	1079447	14.9	56.8	8.5	8.6
	Totals	178			1,302	22,032	1,103	141	535,123	6,565	96,116	4,357	1,534	11,525,948	7,865	118,145	5,461	1,675	12,061,071				

CTG Commissioning Schedule (Days 31-49)

Commissioning Schedule for Each SGT6-5000F CTG

Day	Activity	Duration (hr)	GT Load (%)	Modeling Load (%)	Startup/Shutdown Emissions (lbs)				Fuel Use	Running Emissions (lbs)				Fuel Use	Total Emissions (lbs)				Fuel Use	Calculated Hourly Emissions (lbs/hr)			
					NOx	CO	VOC	PM	(lbs)	NOx	CO	VOC	PM	(lbs)	NOx	CO	VOC	PM	(lbs)	NOx	CO	VOC	PM
31	GT on Bypass / STG Load Test	16	0-100	100	92	806	74	13	71104	225	61	31	139	1536640	317	867	105	152	1607744	19.8	54.2	6.6	9.5
32	Combine Cycle testing / Drift Test	24	0-100	100	49	524	48	7	36789	338	91	46	208	2304961	386	615	93	215	2341750	16.1	25.6	3.9	9.0
33	Combine Cycle testing / Drift Test	24	100	100	43	282	27	6	34315	338	91	46	208	2304961	380	374	73	214	2339275	15.8	15.6	3.0	8.9
34	Emissions Tuning / Drift Test	12	50-100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
35	Emissions Tuning / Drift Test	12	50-100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
36	Pre-performance Testing / Drift Test	12	100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
37	Pre-performance Testing / Drift Test	12	100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
38	Pre-performance Testing / Drift Test	12	100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
39	RATA / Pre-performance Testing / Source Testing	15	100	100	92	806	74	13	71104	211	57	29	130	1440600	303	864	103	143	1511704	20.2	57.6	6.9	9.5
40	Pre-performance Testing / Source Testing	14	100	100	92	806	74	13	71104	197	53	27	122	1344560	289	860	101	134	1415664	20.6	61.4	7.2	9.6
41	Pre-performance Testing / Source Testing	12	50-100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
42	Remove Emissions Test Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
43	No Operation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
44	Water Wash & Performance preparation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
45	Water Wash & Performance preparation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
46	Performance Testing	24	100	100	92	806	74	13	71104	338	91	46	208	2304961	429	898	120	221	2376064	17.9	37.4	5.0	9.2
47	Performance Testing	24	100	100	92	806	74	13	71104	338	91	46	208	2304961	429	898	120	221	2376064	17.9	37.4	5.0	9.2
48	CALISO Certification	12	50-100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
49	CALISO Certification	12	100	100	92	806	74	13	71104	169	46	23	104	1152480	260	852	97	117	1223584	21.7	71.0	8.1	9.8
	Totals	**237**			**1,288**	**11,284**	**1,037**	**182**	**995,456**	**3,337**	**903**	**455**	**2,055**	**22,761,484**	**4,613**	**12,192**	**1,491**	**2,236**	**23,756,937**				

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

May 18, 2010

Mr. George L. Piantka, P.E.
Director, Environmental Business
El Segundo Energy Center, LLC
1817 Aston Avenue Suite 104
Carlsbad, CA 92008

Subject: Response to comment letter dated April 27, 2010 for the Addendum to the Determination of Compliance for the El Segundo Power Redevelopment Project (ESPR); Location: 301 Vista Del Mar, El Segundo, CA 90245; Facility ID No. 115663

Dear Mr. Piantka:

Thank you for the April 27, 2010 comment letter regarding the above described project in which ESPR filed applications for a Title V Permit to Construct with the South Coast Air Quality Management District (AQMD). As you know, ESPR has proposed to install and operate a 573 megawatt (MW) natural gas fired power plant located at the facility location shown above. During the 30-day public comment period, ESPR provided comments on the proposed Title V permit for the above facility. Below is AQMD's response to those comments:

Comment No. 1
El Segundo Energy Center, LLC (ESEC) requests that the requirement for a new emission control system (a two stage scrubber, Device D64) be removed from the draft permit because this is an existing ammonia storage tank that is not being modified.

AQMD Response
The existing ammonia storage tank is operating under a current permit and complies with Best Available Control Technology (BACT). Even though the ammonia storage tank is not being modified nor has any increase in emissions or operation, NRG has voluntarily opted to install the two stage venturi scrubber described as Device D64 in order to provide further control of any ammonia emissions.

Comment No. 2
ESEC requests that the requirements to comply with all California Energy Commission (CEC) mitigation measures as defined in Permit Conditions E193.1 and E193.2 be clarified to refer to "air quality" mitigation measures. As written, this condition would require compliance with non-air quality related mitigation measures, including noise, visual, land use, water quality, and cultural resources.

AQMD Response:
(a) Conditions A99.7, A99.8 and A99.9 will be reworded to state that the 415 hour commissioning period limitation refers only to turbine operational hours.

(b) ESEC's request for exemption from the 2.0 ppmv NOx BACT limit during periodic combustor tuning was further explained in the June 30, 2008 correspondence from your consultant, Sierra Research. As stated, combustor tuning is expected to occur every 12,500 equivalent baseload operating hours. Given that similar units typically operate from 30 to 70 percent load capacity, combustor tuning would occur between every 2 to 5 years depending on usage. AQMD does not agree to include this change in the permit and has determined that this type of infrequent occurrence will best be handled under AQMD's variance procedures.

Comment No. 7
ESEC had requests that all references to ROG be changed to VOC for consistency purposes.

AQMD Response
AQMD will revise the draft permit to refer to "VOC" rather than "ROG" as appropriate.

Comment No. 8
ESEC requests that Condition A433.1 refer to Permit Condition A99.7 rather than A99.1. In addition, ESEC requests that the NOx emission limit be corrected to 112 lb/hr rather than 112 lb/day to match the information and analysis provided in the permit application. Finally, ESEC requests that the annual number of start-ups per year be corrected to 200 start-ups per year rather than 100 start-ups per year to match the information and analysis in the permit application.

AQMD Response:
AQMD has reviewed this request and concludes that the emission calculations in the DOC were based on 200 start-up hours per year rather than 100, and that the basis for the emission limit in the engineering analysis was 112 lb/hr rather than 112 lb/day. Therefore these typographical errors will be corrected in the DOC and in the draft permit.

Comment No. 9
ESEC states that there appears to be a typographical error in permit condition E179.5. The permit condition should refer to Permit Conditions D12.11 and D12.12 rather than Permit Conditions D12.2 and D12.3. Therefore, ESEC requests that this correction be included in the final Title V permit.

AQMD Response:
AQMD concurs with these requests and will revise the facility permit and engineering analysis accordingly.

If you have any questions regarding this project, please contact Mr. Kenneth L. Coats at (909) 396-2527 kcoats@aqmd.gov or Mr. John Yee at (909) 396-2531 jyee@aqmd.gov.

Sincerely,

Mohsen Nazemi, P.E.
Deputy Executive Officer
Engineering & Compliance

cc: Mr. Joseph Douglas, CEC
Mr. Brenner Munger, CEC
Mr. Tom Andrews, Sierra Research
Mr. Brian L. Yeh, AQMD
Mr. Andrew Lee, AQMD
Engineering File

El Segundo Energy Center LLC
1817 Aston Avenue, Suite 104
Carlsbad, CA 92008
Phone: 760.710.2156
Fax: 760.710.2158

April 27, 2010

Mr. Kenneth L. Coats
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182

Subject: Draft Title V Permit for the El Segundo Power Redevelopment Project (Facility ID No. 115663)

Dear Mr. Coats:

El Segundo Energy Center, LLC (ESEC) is pleased to provide the following comments on the District's March 31, 2010 revised draft Title V permit for the proposed El Segundo Power Redevelopment (ESPR) Project located at El Segundo Generating Station (301 Vista Del Mar, El Segundo, CA). In the following paragraphs we discuss these comments in more detail.

Aqueous Ammonia Storage Tank (Device D30)

Section Affected: Section H, equipment summary table, Process 5, aqueous ammonia storage tank.

Requested Changes: In an April 18, 2008 letter commenting on the previous March 13, 2008 draft Title V permit for the ESPR Project, ESEC had requested that the requirement for a new emission control system (a two stage scrubber, Device C64) be removed from the draft permit because this is an existing ammonia storage tank that is not being modified. In a May 16, 2008 letter, the SCAQMD agreed to this request. However, it appears that the SCAQMD inadvertently kept this requirement for the new emission control system in the recently issued March 31, 2010 draft Title V permit. Therefore, ESEC requests that the requirement for this new emission control equipment be removed from the final revised Title V permit for the ESPR Project.

Section Affected: Engineering Evaluation, page 41 of 42, Condition E193.1.

Requested Changes: In an April 18, 2008 letter commenting on the previous March 13, 2008 draft Title V permit for the ESPR Project, ESEC had requested that the requirement to comply with all CEC mitigation measures be clarified to refer to "air quality" mitigation measures. As written, this condition would require compliance with non-air quality related mitigation

Requested Changes: In an April 18, 2008 letter commenting on the previous March 13, 2008 draft Title V permit for the ESPR Project, ESEC had requested that the requirement to comply with all CEC mitigation measures be clarified to refer to "air quality" mitigation measures. As written, this condition would require compliance with non-air quality related mitigation measures, including noise, visual, land use, water quality, and cultural resources. In a May 16, 2008 letter, the SCAQMD agreed to this request. However, it appears that the SCAQMD inadvertently did not include this change in the recently issued March 31, 2010 draft Title V permit. Therefore, ESEC requests that this correction be included in the final revised Title V permit for the ESPR Project.

Section Affected: Engineering Evaluation, page 33 of 42, Condition A99.7; Engineering Evaluation, page 34 of 42, Conditions A99.8 and A99.9; Section H, Permit Conditions A99.7, A99.8, and A99.9.

Requested Changes: These permit conditions limit the commissioning period to 415 hours per gas turbine. In an April 18, 2008 letter commenting on the previous March 13, 2008 draft Title V permit for the ESPR Project, ESEC had requested that the conditions clarify that the 415-hour limit refers to gas turbine operating hours. In a May 16, 2008 letter, the SCAQMD agreed to include this change provided that ESEC provide a definition for "operating hour." This definition was provided to the SCAQMD in a June 30, 2008 memorandum and reads as follows:

> *A gas turbine operating hour during the commissioning period consists of 60 operating minutes. An operating minute occurs when the gas turbine fuel flow during that minute is greater than zero.*

However, it appears that the SCAQMD inadvertently did not include this change in the recently issued March 31, 2010 draft Title V permit. Therefore, ESEC requests that this correction be included in the final revised Title V permit for the ESPR Project.

Section Affected: Engineering Evaluation, page 33 of 42, Condition A99.7; Engineering Evaluation, page 34 of 42, Conditions A99.8 and A99.9; Section H, Permit Conditions A99.7, A99.8, and A99.9.

Requested Changes: These permit conditions limit hourly average NOx, CO, and VOC emissions. In an April 18, 2008 letter commenting on the previous March 13, 2008 draft Title V permit for the ESPR Project, ESEC had requested an exemption from these emission limits during combustor tuning. Combustor tuning is required periodically and includes all testing, adjusting, tuning, and calibration activities recommended by the turbine manufacturer to ensure safe, reliable, and in-specification operation of the gas turbine. The emissions during combustor tuning are similar to startup/shutdown emissions. In a May 16, 2008 letter, the SCAQMD agreed to consider adding the exemption during combustor tuning activities provided that ESEC provide additional information regarding tuning activities. This additional information was provided to the SCAQMD in a June 30, 2008 memorandum. However, it appears that the SCAQMD inadvertently did not include this change in the recently issued March 31, 2010 draft Title V permit. Therefore, ESEC requests that this correction be included in the final revised Title V permit for the ESPR Project.

Therefore, ESEC requests that these corrections be included in the final revised Title V permit for the ESPR Project.

Section Affected: Section H, Permit Conditions D29.7 and D29.9.

Requested Changes: There appears to be a typographical error in these permit conditions regarding an incomplete sentence. The following correction should be made to the following sentence in both of these permit conditions:

> ***Because the VOC BACT level was set using data derived from various source test results, this alternative*** *VOC compliance method provides a fair comparison and represents the best sampling and analysis technique for this purpose at this time.*

Therefore, ESEC requests that these corrections be included in the final revised Title V permit for the ESPR Project.

If you have any questions or need further information, please don't hesitate to contact me at (760) 710-2156 (office) or (760) 707-6833 (cell).

Sincerely,

George L. Piantka, PE
El Segundo Energy Center, LLC
Director, Environmental Business
West Region

cc: Joseph Douglas, CEC
Brenner Munger, CEC
CEC Dockets 00-AFC-14C
John McKinsey, Stoel
Tom Andrews, Sierra Research

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

May 18, 2010

Ms. Lisa Lappin
207 Loma Vista
El Segundo, CA 90245

SUBJECT: Letter to AQMD dated May 1, 2010 concerning El Segundo Power, LLC; Facility ID No. 115663, Location: 301 Vista Del Mar, El Segundo, CA 90245

Dear Ms. Lappin:

The South Coast Air Quality Management District (AQMD) would like to thank you for your letter dated May 1, 2010 (copy attached) concerning the permitting of the El Segundo Power Redevelopment Project described above. Your interest and willingness to express your concern is the type of citizen involvement that is critical to the effort to achieve healthful air quality in Southern California. AQMD would like to provide the following responses to your questions and concerns.

Issue No. 1
You object to the authorizing of NRG to increase operations in the City of El Segundo.

AQMD Response
NRG is proposing to modernize its existing facility by replacing three older, dirtier and less efficient electric utility boilers (circa 1955), with a total combined capacity of 685 megawatts (MWs), with two new, state of the art, cleaner and more efficient natural gas fired combined cycle gas turbines with a total electrical generation capacity of 573 MWs. The replacement of the older, less efficient boilers with new electricity generation turbine units is an actual reduction (not an increase) in generation capacity and the more energy efficient turbines will provide electrical power similar to the older utility boilers while reducing the amount of pollution generated per unit of electricity produced at the facility.

Issue No. 2
You inquired whether the Health Risk Assessment considered the cumulative effects of toxic emissions when combined with other industries within a six mile radius of the project site.

AQMD Response
AQMD Rule 1401 specifies limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard index (HI) from new permit units,

AQMD Response

Through the long term efforts of the AQMD with cooperation from other environmental agencies and the regulated community, the South Coast Air Basin is currently in attainment with both State and Federal ambient air quality standards for Carbon Monoxide (CO). The control and regulation of greenhouse gases, such as carbon dioxide (CO2), is currently primarily done at the state (California Air Resources Board) and federal (U.S. Environmental Protection Agency) levels, both of which require the monitoring and reporting of greenhouse gases, as well as any applicable requirements for reduction of greenhouse gases. The NRG El Segundo facility will be subject to and would have to comply with any such applicable requirements.

Issue No. 4

You stated a concern that the amount of PM emissions from the proposed modification to the facility poses a potential health hazard to the local residents.

AQMD Response

The replacement of less efficient older boilers with smaller, more efficient natural gas fired turbines will allow the facility to reduce the amount of air pollutant emissions per unit of electrical power generated. Since the amount of PM10 emitted into the atmosphere is directly related to the amount of fuel consumed, the operation of the proposed new gas turbines should result in an overall reduction of emissions, including PM10, when compared to the emissions from the older, less efficient boilers if used to produce the same amount of electricity.

Issue No. 5

You inquired that given the July 29, 2008 LA County Superior Court Ruling regarding a facility's access to the AQMD Priority Reserve, has AQMD fully complied with the spirit and letter of the law?

AQMD Response

Although Judge Jones' decision was related to AQMD Rules 1309.1 and 1315 and NRG had previously proposed to partially use Rule 1309.1, the most recent proposed project will not access the AQMD's Priority Reserve (Rule 1309.1) for offsets. The project's reduced electrical generation capacity (685 MW to 573 MW) which is in conjunction with the removal of the third existing utility boiler (unit no. 3), qualifies the project to be permitted under Rule 1304(a)(2)-Electric Utility Steam Boiler Replacement. Also state law was recently changed that requires the AQMD to permit projects subject to Rule 1304 effective January 1, 2010 (Senate Bill 827). Therefore, the proposed permit is in compliance with all air quality rules and regulations.

Received 5/6/2010

May 1, 2010

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182

Attn: Mr. John Yee

I received correspondence from South Coast Air Quality Management District stating your intent to issue a permit to El Segundo Power Redevelopment (ESPR) Power Plant Project. Please review my comments before making your final determination. I object to AQMD authorizing NRG to increase its operations in El Segundo, a city already heavily polluted by a multitude of existing corporations. As you know, Southern California exceeds the federal standards for healthy air. I am concerned that El Segundo residents including myself and my husband as well as residents in surrounding communities could be adversely affected by increased emissions produced by the El Segundo Power Redevelopment Power Plant Project proposed by NRG.

AQMD correspondence states that emissions from the proposed project contain pollutants considered toxic under AQMD Rule 1401 but that they pose no significant health risk. While conducting your health risk assessment, did your study take into consideration the cumulative effect of toxic emissions when combined with other industries within a six mile radius? According to the data mailed to me by your organization, NRG's projected emissions for Carbon Monoxide will be 90,579 pounds per month. How can AQMD authorize this at a time that California is trying to set an example to the rest of the country on ways to reduce carbon emissions?

El Segundo already has a high level of particulate matter in the ambient environment. An additional 13,870 pounds per month of particulate matter poses a potential health hazard to residents who have to breathe the air. It is my understanding that emission credits must be issued for this type of pollutant. On July 29, 2010 LA County Superior Court Judge Ann Jones ruled that AQMD could not subsidize eleven power plants including NRG in El Segundo until it fully reported on the environmental impact under the CA Environmental Quality Act (CEQA). Has AQMD fully complied with this requirement in the spirit and letter of the law? How can AQMD authorize the operation of El Segundo Power Redevelopment Power Plant Project while legal questions related to this matter remain unresolved?

Sincerely,

Lisa Lappin

Lisa Lappin

cc: Mr. Adrian Martinez, NRDC
Dr. Joseph Lyou, SCAQMD Board of Directors
Ms. Yuki Kidokoro, Communities for a Better Environment

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
System 2: GAS TURBINE POWER GENERATION					

* (1) (1A) (1B) Denotes RECLAIM emission factor
(2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit
(4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit
(6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits
(10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
GAS TURBINE, UNIT NO.5, NATURAL GAS, SIEMENS, MODEL SGT6-5000F RAPID-RESPONSE, COMBINED CYCLE, 2,096 MMBTU/HR AT 78 DEGREES F, WITH DRY LOW-NOX COMBUSTORS WITH A/N:	D67	C75	NOX: MAJOR SOURCE**	**CO**: 2 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; **CO**: 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; **NOX**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1) -BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002;* RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; **NOX**: 8.66 LBS/MMSCF NATURAL GAS (1A) **[RULE 2012, 5-6-2005]**; **NOX**: 15 PPMV NATURAL GAS (8) **[40CFR 60 Subpart KKKK, 7-6-2006]**; **NOX**: 16.55 LBS/MMSCF NATURAL GAS (1) **[RULE 2012, 5-6-2005]**; **PM10**: 0.01 GRAINS/SCF NATURAL GAS (5) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM10**: 0.1 GRAINS/SCF NATURAL GAS (5A) **[RULE 409, 8-7-1981;** RULE 410, 10-6-2006]; **PM10**: 11 LBS/HR NATURAL GAS (5B) **[RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2**: (9) **[40CFR 72 - Acid Rain Provisions, 11-24-1997]**; **SOX**: 0.06 LBS/MMBTU NATURAL GAS (8) **[40CFR**	A63.2, A99.7, A99.8, A99.9, A99.10, A99.11, A195.8, A195.9, A195.10, A327.1, A433.1, B61.2, C1.6, D12.10, D29.7, D29.8, D29.9, D82.4, D82.5, E193.2, E193.3, I296.2, K40.4, K67.5

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
GENERATOR, HEAT RECOVERY STEAM, UNFIRED TURBINE, STEAM, 67.7 MW GENERATOR, 219 MW				**60 Subpart KKKK, 7-6-2006];** **VOC**: 2 PPMV NATURAL GAS (4) **[RULE 1303(a)(1) -BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	
CO OXIDATION CATALYST, UNIT NO. 5, BASF, 290 CUBIC FEET OF TOTAL CATALYST VOLUME A/N:	C75	D67 C76			
SELECTIVE CATALYTIC REDUCTION, UNIT NO. 5, CORMETECH, MODEL CM21HT, WITH 2,050 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 25 FT ; HEIGHT: 70 FT ; LENGTH: 24 FT 3 IN WITH A/N: AMMONIA INJECTION, GRID	C76	C75 S78		**NH3**: 5 PPMV NATURAL GAS (4) **[RULE 1303(a)(1) -BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A195.11, D12.11, D12.12, D12.13, E179.5, E179.6
STACK, NO. 5, HEIGHT: 210 FT ; DIAMETER: 20 FT 11 IN A/N:	S78	C76			

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
GAS TURBINE, UNIT NO.7, NATURAL GAS, SIEMENS, MODEL SGT6-5000F RAPID-RESPONSE, COMBINED CYCLE, 2,096 MMBTU/HR AT 78 DEGREES F, WITH DRY LOW-NOX COMBUSTORS WITH A/N:	D68	C79	NOX: MAJOR SOURCE**	**CO**: 2 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; **CO**: 2000 PPMV NATURAL GAS (5) [**RULE 407, 4-2-1982**]; **NOX**: 2 PPMV NATURAL GAS (4) [**RULE 1303(a)(1) -BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002;* RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; **NOX**: 8.66 LBS/MMSCF NATURAL GAS (1A) [**RULE 2012, 5-6-2005**]; **NOX**: 15 PPMV NATURAL GAS (8) [**40CFR 60 Subpart KKKK, 7-6-2006**]; **NOX**: 16.55 LBS/MMSCF NATURAL GAS (1) [**RULE 2012, 5-6-2005**]; **PM10**: 0.01 GRAINS/SCF NATURAL GAS (5) [**RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **PM10**: 0.1 GRAINS/SCF NATURAL GAS (5A) [**RULE 409, 8-7-1981**]; **PM10**: 11 LBS/HR NATURAL GAS (5B) [**RULE 475, 10-8-1976;** *RULE 475, 8-7-1978*]; **SO2**: (9) [**40CFR 72 - Acid Rain Provisions, 11-24-1997**]; **SOX**: 0.06 LBS/MMBTU NATURAL GAS (8) [**40CFR 60 Subpart KKKK, 7-6-2006**]; **VOC**: 2	A63.2, A99.7, A99.8, A99.9, A99.10, A99.11, A195.8, A195.9, A195.10, A327.1, A433.1, B61.2, C1.6, D12.10, D29.7, D29.8, D29.9, D82.4, D82.5, E193.2, E193.3, I296.2, K40.4, K67.5

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 1: INTERNAL COMBUSTION					
GENERATOR, HEAT RECOVERY STEAM, UNFIRED TURBINE, STEAM, 67.7 MW GENERATOR, 219 MW				PPMV NATURAL GAS (4) **[RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1) -BACT, 12-6-2002*]	
CO OXIDATION CATALYST, UNIT NO. 7, BASF, 290 CUBIC FEET OF TOTAL CATALYST VOLUME A/N:	C79	D68 C80			
SELECTIVE CATALYTIC REDUCTION, UNIT NO. 7, CORMETECH, MODEL CM21HT, WITH 2,050 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 25 FT ; HEIGHT: 70 FT ; LENGTH: 24 FT 3 IN WITH A/N: AMMONIA INJECTION, GRID	C80	C79 S82		**NH3**: 5 PPMV NATURAL GAS (4) **[RULE 1303(a)(1) -BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A195.11, D12.11, D12.12, D12.13, E179.5, E179.6
STACK, NO. 7, HEIGHT: 210 FT ; DIAMETER: 20 FT 11 IN A/N:	S82	C80			
Process 2: EXTERNAL COMBUSTION					
System 2: BOILER, POWER GENERATION					

* (1) (1A) (1B) Denotes RECLAIM emission factor (2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit (4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit (6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits (10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 2: EXTERNAL COMBUSTION					
SELECTIVE CATALYTIC REDUCTION, NORTH AND SOUTH DUCTS, VANADIUM/TITANIUM CATALYST BED, WITH 4058 CUBIC FEET OF TOTAL CATALYST VOLUME, WIDTH: 28 FT 6 IN; HEIGHT: 17 FT ; LENGTH: 68 FT WITH A/N: 464316 Permit to Construct Issued: 03/15/07	C31	D13		**NH3**: 20 PPMV (4) [**RULE 1303(a)(1)-BACT, 5-10-1996;** *RULE 1303(a)(1)-BACT, 12-6-2002*]	A195.4, D12.2, D12.3, D28.1, E73.2, E179.1, K48.2, K67.3
AMMONIA INJECTION, GRID; WITH 300 NOZZLES	C32				
Process 5: INORGANIC CHEMICAL STORAGE					
STORAGE TANK, UNDERGROUND, TK-001, 29% AQUEOUS AMMONIA, CARBON STEEL, DOUBLE WALLED, WITH 3 TRANSFER PUMPS AND A PRV SET AT 50 PSIG, 20000 GALS; DIAMETER: 10 FT 2 IN; LENGTH: 37 FT 10 IN WITH A/N:	D30				C157.1, E57.2, E144.2
SCRUBBER, VENTURI, TWO STAGE	C64				

* (1) (1A) (1B) Denotes RECLAIM emission factor
(2) (2A) (2B) Denotes RECLAIM emission rate
(3) Denotes RECLAIM concentration limit
(4) Denotes BACT emission limit
(5) (5A) (5B) Denotes command and control emission limit
(6) Denotes air toxic control rule limit
(7) Denotes NSR applicability limit
(8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
(9) See App B for Emission Limits
(10) See section J for NESHAP/MACT requirements

** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: DEVICE ID INDEX

The following sub-section provides an index to the devices that make up the facility description sorted by device ID.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: DEVICE ID INDEX

Device Index For Section H			
Device ID	**Section H Page No.**	**Process**	**System**
D30	6	5	0
C31	6	2	2
C32	6	2	2
C64	6	5	0
D67	3	1	2
D68	5	1	2
C75	3	1	2
C76	3	1	2
S78	3	1	2
C79	5	1	2
C80	5	1	2
S82	5	1	2

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

FACILITY CONDITIONS

F2.1 The operator shall limit emissions from this facility as follows:

CONTAMINANT	EMISSIONS LIMIT
PM	Less than 100 TONS IN ANY ONE YEAR

For the purpose of this condition, the PM emission limit shall be applicable to particulate matter with aerodynamic diameter less than 2.5 microns

For the purpose of this condition any one year shall be defined as a period of twelve (12) consecutive months determined on a rolling basis with a new 12 month period beginning on the first day of each calendar month.

[40CFR 51 Subpart S, 3-8-2007]

F9.1 Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

(a) As dark or darker in shade as that designated No.1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or

(b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

[RULE 401, 3-2-1984; RULE 401, 11-9-2001]

F14.1 The operator shall not use fuel oil containing sulfur compounds in excess of 0.05 percent by weight.

[RULE 431.2, 5-4-1990; RULE 431.2, 9-15-2000]

F14.2 The operator shall not purchase fuel oil containing sulfur compounds in excess of 15 ppm by weight as supplied by the supplier.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

This condition shall become effective on or after June 1, 2004.

[RULE 431.2, 9-15-2000]

F16.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

purchase records of fuel oil and sulfur content of the fuel

[RULE 3004(a)(4)-Periodic Monitoring, 8-11-1995; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

F18.1 Acid Rain SO2 Allowance Allocation for affected units are as follows:

Device ID	Boiler ID	Contaminant	Tons in any year
7	Boiler No. 1	SO2	437
9	Boiler No. 2	SO2	90
11	Boiler No. 3	SO2	182
13	Boiler No. 4	SO2	370

a). The allowance allocation(s) shall apply to calendar years 2000 through 2009.

b). The number of allowances allocated to Phase II affected units by U.S. EPA may change in a 1998 revision to 40CFR73 Tables 2,3, and 4. In addition, the number of allowances actually held by an affected source in a unit account may differ from the number allocated by U.S. EPA. Neither of the aforementioned conditions necessitate a revision to the unit SO2 allowance allocations identified in this permit (see 40 CFR 72.84)

[40CFR 73 Subpart B, 1-11-1993]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

F24.1 Accidental release prevention requirements of Section 112(r)(7):

a). The operator shall comply with the accidental release prevention requirements pursuant to 40 CFR Part 68 and shall submit to the Executive Officer, as a part of an annual compliance certification, a statement that certifies compliance with all of the requirements of 40 CFR Part 68, including the registration and submission of a risk management plan (RMP).

b). The operator shall submit any additional relevant information requested by the Executive Officer or designated agency.

[40CFR 68 - Accidental Release Prevention, 5-24-1996]

DEVICE CONDITIONS

A. Emission Limits

A63.2 The operator shall limit emissions from this equipment as follows:

CONTAMINANT	EMISSIONS LIMIT
PM10	Less than or equal to 6935 LBS IN ANY ONE MONTH
SOX	Less than or equal to 1065 LBS IN ANY ONE MONTH
VOC	Less than or equal to 4930 LBS IN ANY ONE MONTH

The operator shall calculate the monthly emissions for VOC, PM10, and SOx, using the equation below and the following emission factors: VOC 2.93 lb/mmcf; PM10 4.66 lb/mmcf; and SOx 0.72 lb/mmcf

Monthly Emissions, lb/month = X * (EF)

where X = monthly fuel usage, mmcf/month; and EF = emission factor indicated above

[**RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : D67, D68]

A99.7 The 2.0 PPM NOX emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. The commissioning period shall not exceed 415 gas turbine operating hours. Start-up shall not exceed 60 minutes for each start-up. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 start-ups per year. Written records of commissioning, start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.

A gas turbine operating hour during the commissioning period consists of 60 operating minutes. An operating minute occurs when the gas turbine fuel flow during that minute is greater than zero.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005**]

[Devices subject to this condition : D67, D68]

A99.8 The 2.0 PPM CO emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. The commissioning period shall not exceed 415 gas turbine operating hours. Start-up shall not exceed 60 minutes for each start-up. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 start-ups per year. Written records of commissioning, start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.

A gas turbine operating hour during the commissioning period consists of 60 operating minutes. An operating minute occurs when the gas turbine fuel flow during that minute is greater than zero.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D67, D68]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

A99.9 The 2.0 PPM VOC emission limit(s) shall not apply during turbine commissioning, start-up, and shutdown periods. The commissioning period shall not exceed 415 gas turbine operating hours. Start-up shall not exceed 60 minutes for each start-up. Shutdown periods shall not exceed 60 minutes for each shutdown. The turbine shall be limited to a maximum of 200 start-ups per year. Written records of commissioning, start-ups and shutdowns shall be maintained and made available upon request from the Executive Officer.

A gas turbine operating hour during the commissioning period consists of 60 operating minutes. An operating minute occurs when the gas turbine fuel flow during that minute is greater than zero.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : D67, D68]

A99.10 The 16.55 LBS/MMCF NOX emission limit(s) shall only apply during the interim reporting period during initial turbine commissioning to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.

[**RULE 2012, 5-6-2005**]

[Devices subject to this condition : D67, D68]

A99.11 The 8.66 LBS/MMCF NOX emission limit(s) shall only apply during the interim reporting period after initial turbine commissioning to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from entry into RECLAIM.

[**RULE 2012, 5-6-2005**]

[Devices subject to this condition : D67, D68]

A195.4 The 20 PPMV NH3 emission limit(s) is averaged over 60 minutes at 3 percent oxygen, dry. This limit shall be determined and measured in the combined exhaust from the North and South ducts.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : C31]

A195.8 The 2.0 PPMV CO emission limit(s) is averaged over 60 minutes at 15 percent O2, dry basis.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D67, D68]

A195.9 The 2.0 PPMV NOX emission limit(s) is averaged over 60 minutes at 15 percent O2, dry basis.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1303(b)(1)-Modeling, 5-10-1996;** RULE 1303(b)(1)-Modeling, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D67, D68]

A195.10 The 2.0 PPMV VOC emission limit(s) is averaged over 60 minutes at 15 percent O2, dry basis.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1303(b)(1)-Modeling, 5-10-1996;** RULE 1303(b)(1)-Modeling, 12-6-2002]

[Devices subject to this condition : D67, D68]

A195.11 The 5 PPMV NH3 emission limit(s) is averaged over 60 minutes at 15 percent O2, dry basis. The operator shall calculate and continuously record the NH3 slip concentration using the following:.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

NH3 (ppmv) = [a-b*c/1EE+06]*1EE+06/b; where

a = NH3 injection rate (lb/hr)/17 lb/lb-mol

b = dry exhaust gas flow rate (scf/hr)/385.3 scf/lb-mol

c = change in measured NOx across the SCR, (ppmvd at 15 percent O2)

The operator shall install and maintain a NOx analyzer to measure the SCR inlet NOx ppmv accurate to plus or minus 5 percent calibrated at least once every twelve months.

The NOx analyzer shall be installed and operated within 90 days of initial start-up.

The operator shall use the above described method or another alternative method approved by the Executive Officer.

The ammonia slip calculation procedures described above shall not be used for compliance determination or emission information without corroborative data using an approved refernce method for the determination of ammonia.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 2012, 5-6-2005**]

[Devices subject to this condition : C76, C80]

A327.1 For the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both limits at the same time.

[**RULE 475, 10-8-1976;** RULE 475, 8-7-1978]

[Devices subject to this condition : D67, D68]

A433.1 The operator shall comply at all times with the 2.0 ppm 1-hour BACT limit for NOx, except as defined in condition A99.7 and for the following scenario:

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Operating Scenario	Maximum Hourly Emission Limit	Operational Limit
Start-up	112 lb/hr	NOx emissions not to exceed 112 lbs total per start-up per turbine. Each turbine shall be limited to 200 start-ups per year, with each start-up not to exceed 60 minutes

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005**]

[Devices subject to this condition : D67, D68]

B. Material/Fuel Type Limits

B61.2 The operator shall not use natural gas containing the following specified compounds:

Compound	Range	grain per 100 scf
H2S	greater than	0.25

This concentration limit is an annual average based on monthly samples of natural gas composition or gas supplier documentation. The gaseous fuel sample shall be tested using District Method 307-91 for total sulfur calculated as H2S

[**RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : D67, D68]

C. Throughput or Operating Parameter Limits

C1.6 The operator shall limit the fuel usage to no more than 1500 MM cubic feet in any one calendar month.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

For the purpose of this condition, fuel usage shall be defined as the total natural gas usage of a single turbine.

The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition.

[**RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : D67, D68]

C157.1 The operator shall install and maintain a pressure relief valve with a minimum pressure set at 50 psig.

[RULE 402, 5-7-1976]

[Devices subject to this condition : D30]

D. Monitoring/Testing Requirements

D12.2 The operator shall install and maintain a(n) temperature reading device to accurately indicate the temperature at the inlet to the SCR reactor.

[**RULE 2012, 5-11-2001; RULE 2012, 12-5-2003**]

[Devices subject to this condition : C31]

D12.3 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH3).

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

[**RULE 2012, 5-11-2001; RULE 2012, 12-5-2003**]

[Devices subject to this condition : C31]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

D12.10 The operator shall install and maintain a(n) flow meter to accurately indicate the fuel usage of the turbine.

The operator shall also install and maintain a device to continuously record the parameter being measured.

[**RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 2012, 5-6-2005**]

[Devices subject to this condition : D67, D68]

D12.11 The operator shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia.

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The ammonia injection rate shall remain between 4.8 gallons per hour and 11.5 gallons per hour

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005**]

[Devices subject to this condition : C76, C80]

D12.12 The operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the in the exhaust at the inlet to the SCR reactor.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The temperature shall remain between 400 degrees F and 750 degrees F

The catalyst temperature shall not exceed 750 degrees F during the start-up period.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005**]

[Devices subject to this condition : C76, C80]

D12.13 The operator shall install and maintain a(n) pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches of water column.

The operator shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The pressure drop acorss the catalyst shall remain between 1 inch of water column and 4 inches of water column

The pressure drop across the catalyst shall not exceed 4 inches of water during the start-up period.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005**]

[Devices subject to this condition : C76, C80]

D28.1 The operator shall conduct source test(s) in accordance with the following specifications:

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

The test shall be conducted at least annually.

The test shall be conducted to determine the NH3 emissions at the outlet.

The test shall be conducted to determine the NH3 emissions using District method 207.1 measured over a 60 minute averaging time period.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : C31]

D29.7 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NOX emissions	District method 100.1	1 hour	Outlet of the SCR serving this equipment
CO emissions	District method 100.1	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	District Method 5	4 hours	Outlet of the SCR serving this equipment
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
NH3 emissions	AQMD Laboratory Method 307-91	1 hour	Outlet of the SCR serving this equipment

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

The test shall be conducted after AQMD approval of the source test protocol, but no later than 180 days after initial start-up. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the test shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in megawatts (MW).

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

The test shall be conducted when this equipment is operating at maximum, average, and minimum loads.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit.

For natural gas fired turbines only, VOC compliance shall be demonstrated as follows: a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters is done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA method TO-12 (with preconcentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD method 25.3, nor does it mean that it may be used in lieu of AQMD method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv calculated as carbon for natural gas fired turbines. The test results shall be reported with two significant digits.

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

For the purpose of this condition, alternative test methods may be allowed for each of the above pollutants upon concurrence of AQMD and EPA

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D67, D68]

D29.8 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	District method 207.1 and 5.3 or EPA method 17	1 hour	Outlet of the SCR serving this equipment

The test shall be conducted and the results submitted to the AQMD within 45 days after the test date. The AQMD shall be notified of the date and time of the test at least 7 days prior to the test.

The test shall be conducted at least quarterly during the first 12 months of operation and at least annually thereafter. The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

The test shall be conducted to determine compliance with the Rule 1303 BACT concentration limit.

If the equipment is not operated in any given quarter, the operator may elect to defer the required testing to a quarter in which the equipment is operated.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : D67, D68]

D29.9 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
SOX emissions	AQMD Laboratory Method 307-91	Not Applicable	Fuel sample
VOC emissions	District Method 25.3	1 hour	Outlet of the SCR serving this equipment
PM10 emissions	District Method 5	4 hours	Outlet of the SCR serving this equipment

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

The test(s) shall be conducted at least once every three years for SOx and PM10, and yearly for VOC.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the test shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine generating output in megawatts (MW).

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

The test shall be conducted when this equipment is operating at 100 percent load.

The test shall be conducted for compliance verification of the BACT VOC 2.0 ppmv limit.

For natural gas fired turbines only, VOC compliance shall be demonstrated as follows: a) Stack gas samples are extracted into Summa canisters maintaining a final canister pressure between 400-500 mm Hg absolute, b) Pressurization of canisters is done with zero gas analyzed/certified to contain less than 0.05 ppmv total hydrocarbon as carbon, and c) Analysis of canisters are per EPA method TO-12 (with preconcentration) and temperature of canisters when extracting samples for analysis is not below 70 deg F

The use of this alternative method for VOC compliance determination does not mean that it is more accurate than AQMD method 25.3, nor does it mean that it may be used in lieu of AQMD method 25.3 without prior approval except for the determination of compliance with the VOC BACT level of 2.0 ppmv calculated as carbon for natural gas fired turbines. The test results shall be reported with two significant digits.

For the purpose of this condition, alternative test methods may be allowed for

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

each of the above pollutants upon concurrence of AQMD and EPA

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D67, D68]

D82.4 The operator shall install and maintain a CEMS to measure the following parameters:

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

CO concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operated no later than 90 days after initial start-up of the turbine, and in accordance with an approved AQMD Rule 218 CEMS plan application. The operator shall not install the CEMS prior to receiving intial approval from AQMD. Within two weeks of turbine start-up, the operator shall provide written notification to the AQMD of the exact date of start-up.

The CEMS shall be installed and operated to measure the CO concentration over a 15 minute averaging time period.

The CEMS shall convert the actual CO concentrations to mass emission rates (lb/hr) using the equation below and record the hourly emission rates on a continuous basis.

CO Emission Rate, (lb/hr) = K Cco Fd[20.9/(20.9-%O2)][(Qg * HHV)/1000000], where

K = 7.267 EE-8 (lb/scf)/ppm

Cco = Average of four consecutive 15 min avg CO concentrations, ppm

Fd = 8710 dscf/MMBTU natural gas

%O2 = Hourly avg % by volume O2, dry basis, corresponding to Cco

Qg = Fuel gas usage during the hour, scf/hr

HHV = Gross high heating value of fuel gas, BTU/scf

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 218, 8-7-1981;** RULE 218, 5-14-1999]

[Devices subject to this condition : D67, D68]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

D82.5 The operator shall install and maintain a CEMS to measure the following parameters:

NOX concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine and shall comply with the requirements of Rule 2012. During the interim period between the initial start-up and the provisional certification date of the CEMS, the operator shall comply with the monitoring requirements of Rule 2012(h)(2) and 2012(h)(3). Within two weeks of the turbine start-up date, the operator shall provide written notification to the AQMD of the exact date of start-up.

The CEMS shall be installed and operating (for BACT purposes only) no later than 90 days after initial start-up of the turbine.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; **RULE 2005, 5-6-2005; RULE 2012, 5-6-2005**]

[Devices subject to this condition : D67, D68]

E. Equipment Operation/Construction Requirements

E57.2 The operator shall vent this equipment to the two-stage venturi scrubber described as Device C64 whenever the tank is undergoing loading of ammonia.

[RULE 1303(a)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : D30]

E73.2 Notwithstanding the requirements of Section E conditions, the operator may, at his discretion, choose not to use ammonia injection if any of the following requirement(s) are met:

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

the inlet exhaust temperature to the SCR reactor is 500 Deg F or less

[RULE 2012, 5-11-2001; RULE 2012, 12-5-2003]

[Devices subject to this condition : C31]

E144.2 The operator shall vent this equipment, during filling, only to the vessel from which it is being filled.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : D30]

E179.1 For the purpose of the following condition number(s), continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

Condition Number 12-3

[RULE 2012, 5-11-2001; RULE 2012, 12-5-2003]

[Devices subject to this condition : C31]

E179.5 For the purpose of the following condition number(s), continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

Condition Number D 12-11

Condition Number D 12-12

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : C76, C80]

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

E179.6 For the purpose of the following condition number(s), continuously record shall be defined as measuring at least once every month and shall be calculated based upon the average of the continuous monitoring for that month.

Condition Number D 12-13

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : C76, C80]

E193.2 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

In accordance with all air quality mitigation measures stipulated in the final California Energy Commission decision for the 00-AFC-14C project

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition : D67, D68]

E193.3 The operator shall upon completion of construction, operate and maintain this equipment according to the following specifications:

The combined cycle gas turbine units 5 and 7 shall not operate simultaneously with boiler units 1,2, or 3 except for the 90 day period as stipulated in AQMD Rule 1313. El Segundo Power shall surrender the Permit to Operate (P/N F14448) for boiler no. 3 within 90 days of the start-up of the combined cycle gas turbines.

[RULE 1313(d), 12-7-1995]

[Devices subject to this condition : D67, D68]

I. Administrative

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

I296.2 This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

To comply with this condition, the operator shall prior to the 1st compliance year hold a minimum NOx RTCs of 104,864 lb/yr. This condition shall apply to the 1st month of operation, commencing with the initial operatiom of the gas turbine.

To comply with this condition, the operator shall, prior to the beginning of all years subsequent to the 1st compliance year, hold a minimum of 90,953 lb/yr NOx RTCs for operatio of the gas turbine. In accordance with Rule 2005(f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the 1st compliance year. This condition shall apply to each turbine individually

[RULE 2005, 5-6-2005]

[Devices subject to this condition : D67, D68]

K. Record Keeping/Reporting

K40.4 The operator shall provide to the District a source test report in accordance with the following specifications:

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Source test results shall be submitted to the District no later than 60 days after the source test was conducted.

Emission data shall be expressed in terms of concentration (ppmv) corrected to 15 percent oxygen (dry basis), mass rate (lbs/hr), and lbs/MM Cubic Feet. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains per DSCF.

All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM).

All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.

Source test results shall also include the oxygen levels in the exhaust, fuel flow rate (CFH), the flue gas temperature, and the generator power output (MW) under which the test was conducted.

[**RULE 1303(a)(1)-BACT, 5-10-1996;** RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 1303(b)(2)-Offset, 5-10-1996;** RULE 1303(b)(2)-Offset, 12-6-2002; **RULE 1703 - PSD Analysis, 10-7-1988; RULE 2005, 5-6-2005**]

[Devices subject to this condition : D67, D68]

K48.2 The operator shall maintain records in a manner approved by the District, to demonstrate compliance with the following condition number(s):

Condition no. 12-2

Condition no. 12-3

[**RULE 2012, 5-11-2001; RULE 2012, 12-5-2003**]

[Devices subject to this condition : C31]

K67.3 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

FACILITY PERMIT TO OPERATE
EL SEGUNDO POWER, LLC

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

the total hourly amount of injected ammonia

[RULE 2012, 5-11-2001; RULE 2012, 12-5-2003]

[Devices subject to this condition : C31]

K67.5 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Natural gas fuel use after CEMS certification

Natural gas fuel use during the commissioning period

Natural gas fuel use after the commissioning period and prior to CEMS certification

[RULE 2012, 5-6-2005]

[Devices subject to this condition : D67, D68]