AIR QUALITY RESPONSES

Request #1 - Please explain the apparent discrepancy between the text of the AFC (p. 5.2-27) and Technical Appendices (AFC Appendix K-2 Table K.2-5) regarding violations of the state-level 1-hour standard for NO_2.

Response #1 - Please see the responses to Data Requests #2 and #3. The revised modeling performed for construction impacts shows that the modeled impacts will not exceed the 1-hour NO_2 standard.

Request #2 - The short-term NO_x emissions from the peak month of activity of construction equipment were modeled (AFC Appendix K-2) to determine compliance with the NO_2 standard. This equipment is capable of generating about 130 lb/day of NO_x (AFC Appendix K-2, Table K.2-2). Preliminary review of the modeling files submitted electronically indicates that the area source of NO_x emissions was modeled at an hourly average emission rate of 1.712×10^{-5} grams per second per square meter. Please provide supporting calculations explaining how the modeled short-term NO_x emission rate (in terms of g/s-m^2) is derived from the daily emission rate of approximately 130 lb/day, and reevaluate ambient impacts with use of the ozone limiting method (OLM), if necessary.

Response #2 - The active construction area used for the construction impact analysis is 27,834 m^2. Consequently, the NO_x emission flux for this area source is 7.3×10^{-5} grams per second per square meter based on a maximum expected daily NO_x emission rate of 129.7 lbs/day and 8 hours per day of construction equipment operation. However, an incorrect NO_x emission flux of 1.7×10^{-5} grams per second per square meter was used in the construction impact modeling analysis. However, as discussed in the response to Data Request #3, a new set of construction impact modeling runs were performed based on the daily emissions shown in Appendix K-2 spread over a 12-hour period rather than an 8-hr period. As shown in the revised construction impact modeling summary table included in the response to Data Request #3, the maximum modeled 1-hour NO_2 impacts have increased from 217 $\mu g/m^3$ to 230 $\mu g/m^3$. The revised maximum modeled impact when added to the background level is below the 1-hour NO_2 standard. A compact disk containing the revised construction impact modeling files will be submitted to the CEC as a separate submittal.

Request #3 - Preliminary review of the modeling files submitted electronically indicates that the construction considers area sources are modeled with emissions occurring only between the hours of 8 a.m. and 4 p.m. These hours are inconsistent with the 7 a.m. to 7 p.m. construction schedule anticipated for the project (AFC p. 3-50). Please describe the basis for modeling source operation for an eight-hour duration when a 12-hour duration is anticipated to be necessary, and reevaluate ambient impacts based on the 12-hour daily schedule, if necessary.

Response #3 - The daily mass emission rate during the construction phase of the project is based on the type of construction equipment, number of construction equipment, and number of equipment operating hours. The number of equipment operating hours per day is based on the type of equipment and specific construction operation being performed. Included in the construction impact analysis is a detailed summary of the daily hours of operation expected for each equipment category. In the construction impact analysis included in the AFC, it was assumed that the daily mass emissions occurred over 8 calendar hours (i.e., 8 a.m. to 4 p.m.). However, to be consistent with the 12-hr construction period discussed in the AFC on page 3-50, the construction impact modeling was revised by spreading the daily construction

emissions shown in Appendix K-2 over a 12 calendar hour period (7 a.m. to 7 p.m.). The results on the revised construction impact modeling are shown in the following table. A compact disk containing the revised construction impact modeling files will be submitted to the CEC as a separate submittal.

Table 3-1
Modeled Maximum Construction Impacts
(Revised 2/03/02 AFC Table K.2-5)

Pollutant	Averaging Time	Maximum Construction Impacts ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	State Standard ($\mu g/m^3$)	Federal Standard ($\mu g/m^3$)
NO_2[a]	1-Hour	~~217~~ 230 [a, d]	211	~~428~~ 441	470	--
	Annual	~~6~~ 11 [a]	36	~~42~~ 47	--	100
SO_2	1-Hour	~~39~~ 31[d]	278	~~317~~ 309	650	--
	24-Hour	~~7~~ 5[d]	92	~~99~~ 97	109	365
	Annual	~~0.2~~ 0.4	5	5	--	80
CO	1-Hour	~~379~~ 299 [d]	12,650	~~13,029~~ 12,949	23,000	40,000
	8-Hour	~~194~~ 129 [d]	6,302	~~6,496~~ 6,431	10,000	10,000
PM_{10}	24-Hour	~~121.8~~ 80 [e]	139	~~261~~ 219	50	150
	Annual[b]	~~5.2~~ 6.0	44	~~49~~ 50	30	--
	Annual[c]	~~5.2~~ 6.0	50	~~55~~ 56	--	50

Notes: a. OLM_ISC used for 1-hr average impact and ARM applied for annual average, using EPA default ratio of 0.75.
b. Annual Geometric Mean.
c. Annual Arithmetic Mean.
d. Based on maximum daily emissions during Month 15.
e. Based on maximum daily emissions during Month 5.

Request #4 - The emission calculation methods for the auxiliary boiler and emergency engines (AFC Tables K.3-5 and 6) are not clear. Please provide supporting emission calculations and identify the source of the emission factors used in these calculations. For example, identify if these emission factors are design specifications or defined by a specific vendor.

Response #4 - Tables K.3-5 and K.3-6 of the AFC include the following information:

- Maximum expected equipment operating levels (i.e., MMBtu/hr, bhp);
- Maximum expected number of daily and annual operating hours;
- Maximum expected exhaust concentrations and/or emission factor; and
- Maximum expected hourly and annual mass emission rates.

Consequently, there is sufficient information in the AFC to calculate the emission levels used in the air quality impact analysis. With regards to the exhaust concentrations/emission factors, the auxiliary boiler and emergency engine emission factors shown in Tables K.3-5 and K.3-6 of the AFC are based on project design specifications that will comply with the South Coast AQMD best available control technology (BACT) requirements.

Request #5 - The Summary of ERC/RTC (emission reduction credits and RECLAIM Trading Credits) Requirements (AFC Table 5.2-32 p. 5.2-56) refers to a net emission increase caused by the combustion turbines/HRSGs and auxiliary boiler. According to Tables K.3-8 and 9, the auxiliary boiler is not included in the calculation of required credits. Please explain why the boiler should not be included in Tables K.3-8 and 9 and Table 5.2-32. Please update the tables and supporting calculations as necessary.

Response #5 - The ERC/RTC calculations are based on the operating case with the highest potential emissions. The purpose of the auxiliary boiler is to provide steam when the gas turbines/HRSGs are not operating. As shown on Table 5.2-21 of the AFC, the maximum hourly emissions for a gas turbine/HRSG are significantly higher than the maximum hourly emissions for the auxiliary boiler. Consequently, as discussed on page 5.2-57 of the AFC, full-time operation of the gas turbines/HRSGs is expected to result in higher monthly and annual emissions than less operation of the gas turbines with operation of the auxiliary boiler. Therefore, the NO_x RECLAIM trading credit (RTC) and emission reduction credit (ERC) calculations shown on Tables K.3-8 and K.3-9 assume full time operation of the gas turbines/HRSGs (i.e., 24 hours per day, 8760 hours per year) and no operation of the auxiliary boiler.

Request #6 - The Summary of ERC/RTC Requirements (AFC Table 5.2-32 p. 5.2-56) refers to a net emission increase of CO of 689 lb/day based on operation of combustion turbines/HRSGs at 11.08 lb/hr (Table K.3-9). According to Table K.3-1 normal operation of these sources will cause between 23 and 33 lb/hr of CO, and according to Table 5.2-21 (p. 5.2-31) maximum daily emissions would be 8339 lb/day. Please explain why the CO emission calculations in Table K.3-9 and Table 5.2-32 rely on the lower emission rate. Please update the tables and supporting calculations as necessary.

Response #6 - Under the South Coast AQMD new source review (NSR) regulations, CO ERCs are based on expected monthly average emission levels. Therefore, the CO ERCs calculations shown on Table K.3-9 of the AFC are based on an expected actual monthly average CO emission level of 2.0 ppm @ 15% O_2 and 11.08 lbs/hr. Unlike ERC emission levels, which are based on expected 30-day average actual emission levels, the emission levels shown on Table K.3-1 are based on worst-case levels (CO concentration of 6.0 ppm @ 15% O_2, 23 to 33 lbs/hr depending on gas turbine/HRSG operating mode). The worst-case emission levels shown on Table K.3-1 were used for the ambient air quality modeling analysis.

Request #7 - Please discuss how the emission levels proposed in AFC Table 5.2-18 adequately characterize the actual emissions that may occur during both hot and cold start conditions. This discussion should address staff concerns that vendor-specified or site-specific factors should be considered in the determination of IEEC startup emission rates, and it should explain why vendor-specified emission rates were not used.

Response #7 - As shown on Table K.3-3 of the AFC, the startup emission rates used for the project were developed based on a review of source test results for the Crockett Cogeneration plant, vendor supplied startup emission levels for other projects, and startup emission levels used in the AFCs for previous projects. Similar startup emission rates used for the IEEC project have been submitted to the CEC, and accepted, for the Delta Energy Center, Metcalf Energy Center, Moss Landing Power Plant Modernization Project, Morro Bay Power Plant Modernization Project, Mountainview Power Plant Project, and El Segundo Power

Redevelopment Project. Neither Inland Empire Energy Center LLC nor its consultants rely strictly upon data provided by the turbine vendor for the determination of facility startup and shutdown emission rates because these data do not reflect site-specific, non-turbine related issues and are not guaranteed.

Request #8 - Please discuss in more detail and provide all assumptions and calculations, including the safety margins, used to derive the emission rates in AFC Table 5.2-18 from the data in Table K.3-3.

Response #8 - The startup emission rates used for previous projects are summarized on Table K.3-3 of the AFC. The NO_x startup emission rate of 80 lbs/hr used for the IEEC project is based on a 30% safety margin added to the Crockett Cogeneration June 1996 average startup source test results shown on Table K.3-3. The CO startup emission rate of 902 lbs/hr used for the project is based on the 902 lbs/hr startup emission rate shown on Table K.3-3 for the Sutter Power Plant project. This startup CO emission rate was provided by Westinghouse for the Sutter project. The VOC startup emission rate of 16 lbs/hr shown on Table K.3-3 is based on multiplying the IEEC project maximum baseload VOC emission rate of 6.34 lbs/hr by a safety factor of approximately 2.5. As discussed in footnote 6 on Table K.3-3, the SO_x and PM_{10} startup emission rates of 1.8 lbs/hr and 15.9 lbs/hr, respectively, are based on full-load emission rates.

Request #9 - Please identify why this project, as opposed to other proposed and certified projects, cannot meet an ammonia slip level of 5 ppm at 15 percent O_2. In this discussion, please identify measures, including increasing catalyst surface area that might allow the project to meet the BACT guideline level for ammonia, and identify the associated costs of such measures.

Response #9 - A 10 ppm ammonia slip level is proposed for the IEEC project due to the difficulties experienced by the Sutter and South Point projects in meeting a 5 ppm ammonia slip level.

Request #10 - Please identify the emission control technologies that will be used to achieve BACT levels for the emergency engines.

Response #10 - No add-on emission control technologies are being proposed for the emergency generator engine and emergency fire pump engine for the IEEC project. The emergency engines will meet BACT emission levels based on engine design.

Request #11 - Please identify proposed BACT levels for NO_x and CO from the gas turbines that match the 2 ppmvd LAER levels specified by the U.S. EPA, or provide an analysis that demonstrates such limitations are not achievable. Please refer to the October 25, 2001 letter from Mr. Gerardo Rios, Chief, Permits Office, U.S. EPA Region IX to Mr. Mohsen Nazemi, South Coast Air Quality Management District (as attached to SCAQMD November 8, 2001 letter to Mr. Michael Hatfield, Calpine).

Response #11 - Calpine has serious concerns regarding the ability of advanced combustion and emission control systems to meet levels as low as those described in the data request on a consistent basis. To the best of Calpine's knowledge, these low emission rates have been proposed based on vendor guarantees. While Calpine has designed the IEEC project to meet a NO_x level of 2.0 ppm on a short-term basis, and anticipates receiving a vendor guarantee to

support that design, this does not, in fact, ensure that such a low level can be met on a consistent basis.

For example, in the letter to the South Coast AQMD cited by staff above, EPA expressed the opinion that a 2.0 ppm NO_x level "has been consistently achieved in a Region IX facility". In response to that letter, Calpine's air quality consultants filed a Freedom of Information Act request seeking all of the information in EPA's possession to confirm that opinion. In a response dated December 10, 2001, EPA confirmed that it has no such information in its possession, and has not independently verified the claim that a 2.0 ppm NO_x level was being consistently achieved. Consequently, we believe that EPA's comment letter to the South Coast AQMD should be discounted in the CEC's review of the IEEC project. A copy of the Freedom of Information Act request, and EPA's response, are enclosed as AQ Attachment 1.

With respect to carbon monoxide, Calpine expects that the IEEC project, as designed, will achieve a CO level of 2.0 ppm on a routine basis. However, again, Calpine does not believe that such a level should be required for this facility, unless and until there is sufficient data that demonstrates that this low level can be achieved on a consistent basis. EPA's letter to the SCAQMD acknowledges that there are a number of projects that have had permits issued recently with CO limits of 4.0 ppm. EPA's position regarding the 2.0 ppm level is solely based on a permit issued to a facility in Massachusetts. Calpine does not believe that it is appropriate to establish BACT levels based on permit conditions in the absence of demonstrations that these low levels can, in fact, be achieved in use on a consistent basis.

Request #12 - For further consideration by staff, please analyze the sensitivity of modeled ambient impacts with respect to merging the gas turbine/HRSG sources under different loading and operating scenarios.

Response #12 - The screening level modeling results based on the merged stack design is shown in Table K.5-2 of the AFC. These screening level runs were performed for the full range of gas turbine/HRSG operating loads/scenarios.

Request #13 - Please provide an updated dispersion modeling analysis with the combustion turbine/HRSG stacks modeled as separate sources.

Response #13 - Because the applicant is proposing a merged stack design, all of the air dispersion modeling performed for the project is based on merged stacks. Since separate exhaust stacks are not included as a design feature or project alternative, it is not necessary to perform air dispersion modeling based on separate exhaust stacks.

Request #14 - Please provide confirmation that the South Coast Air Quality Management District has been consulted and that the modeling approach to merge the gas turbine/HRSG sources has been reviewed and approved by the District.

Response #14 - On September 14, 2001 the application for a Determination of Compliance (DOC) and Permit to Construct (PTC) for the IEEC project was submitted to the South Coast AQMD for review. A copy of this permit application was also sent to the CEC. As part of the South Coast AQMD's review of the permit application, the District staff will also review the air dispersion modeling performed for the IEEC project (including a review of the use of a merged stack). The South Coast AQMD staff is still reviewing the permit application and will issue a final approval of the modeling analysis when the Preliminary Determination of Compliance (PDOC) is issued for the project. However, with regards to the merged stack

modeling approach IEEC does not expect the District to raise any issues since this identical modeling approach was reviewed and approved by the District for the El Segundo Power Redevelopment project and the Mountainview Power Company project.

Request #15 - Because site-specific meteorological data was not used, please examine if alternative data may be available from other locations closer to the project site. Specifically address whether data from March Air Force Base can be obtained. If meteorological data is available from a closer station, please update the dispersion modeling analysis using five years of data. More recent meteorological data may also be available from a station in Perris (please refer to the letter to Mr. Freitas of Riverside County, from Rutan & Tucker dated January 4, 2002 in CEC Docket 01-AFC-17, which also addresses this issue).

Response #15 - The meteorological data used in the modeling analysis for the project was obtained from the South Coast AQMD, and was collected in Riverside in 1981. The South Coast AQMD maintains a database of approved meteorological data sets, which can be obtained from their web site at the following address: http://www.aqmd.gov/metdata/

These approved met data sets are the only met data sets that the South Coast AQMD allows to be used for evaluating project air quality impacts, except under unusual circumstances. No such unusual circumstances exist with respect to the IEEC project. The Perris data cited in the January 4, 2002 Rutan & Tucker letter is not available from the South Coast AQMD's web site, and is not one of the approved met data sets. *

The South Coast AQMD's collection of approved met data sets was developed specifically to ensure that project applicants use high-quality met data that had been collected, processed, and analyzed in accordance with South Coast AQMD and U.S. Environmental Protection Agency requirements. The 1981 Riverside met data satisfy those requirements; the Perris data do not, which is why they are not available from the South Coast AQMD's web site.

IEEC's air quality consultants discussed this issue with Joe Cassmassi, Senior Meteorologist at the South Coast AQMD - the South Coast AQMD staff member who created the wind rose for the Perris site that was attached to the January 4 Rutan & Tucker letter. During this discussion, IEEC's consultants learned that while the data had been provided to the Rutan & Tucker, as requested, it had not been subjected to any quality control reviews that would typically be applied to such data if it were to be used for a dispersion modeling analysis. South Coast AQMD staff expressed skepticism that the 40% frequency for calms that is shown in the Perris wind rose reflected actual meteorological conditions at the site, given how high that value is relative to other sites in the eastern portion of the South Coast Air Basin. Other explanations for the high frequency of calms shown in the Perris wind rose were provided to IEEC's consultants by the South Coast AQMD staff; these include (1) whether the software program used to create the wind roses interpreted missing data (which sometimes are reported to have a wind speed of 0 mph) as calm weather conditions; (2) whether the wind speed sensor at the Perris site has been properly calibrated and maintained; and (3) whether the starting threshold for the anemometer at the Perris site is sufficiently low to comply with EPA requirements. As discussed above, the Perris data are not routinely used by South Coast AQMD staff for dispersion modeling analyses, and thus have not been subjected to the rigorous quality control procedures that such data sets require.

* The SCAQMD web site does not list any met data from the March Air Reserve Base.

In summary, the meteorological data used for analyzing the air quality impacts for the IEEC project were high-quality meteorological data specified for use by the South Coast AQMD. The met data cited in the January 4 Rutan & Tucker letter are of uncertain quality, and are not suitable for air quality modeling analyses performed in accordance with South Coast AQMD and EPA guidelines.

Request #16 - For staff to verify that the worst-case commissioning scenarios were identified in the AFC (p. 5.2-40 to 42), please identify each of the necessary commissioning tasks, the anticipated duration of each task, the fractional load of the turbines during the task, and the maximum expected total duration of the commissioning period.

Response #16 - A detailed analysis of the gas turbine commissioning tests for the project was submitted to the South Coast AQMD on November 16, 2001. This analysis includes a discussion of the various commissioning tests, expected duration of each test, the expected gas turbine operating load during each test, emission calculations for each test, and the maximum expected total duration of the commissioning period. A copy of this submittal was also sent to the CEC.

Request #17 - Please demonstrate why the two scenarios in the AFC would conservatively characterize commissioning conditions by summarizing the emissions and stack parameters assumed for other commissioning tasks.

Response #17 - As discussed on page 5.2-41 of the AFC, two gas turbine commissioning scenarios were analyzed for the IEEC project. Under these two scenarios, the maximum CO emission rate analyzed is 902 lbs/hr and the maximum NO_x emission rate is 472 lbs/hr. These CO and NO_x emission levels are higher than the maximum CO and NO_x emission rates shown in the detailed commissioning summary submitted to the CEC on November 16, 2001 (i.e., 60% load test—154.7 lbs/hr for NO_x and 385.0 lbs/hr for CO, full-load test without SCR—163.2 lbs/hr for NO_x and 31.5 lbs/hr for CO). A modeling analysis was performed using the revised commissioning phase NO_x and CO emission levels. Based on the results of the screening level modeling, Cases 3 and 5 resulted in the maximum impacts during low and full-load operation, respectively. Therefore, the stack parameters shown in Table K.5-1 of the AFC for Case 3 were used for the modeling of the 60% load commissioning test. For the full load without SCR commissioning test, the Case 5 stack parameters shown in Table K.5-1 of the AFC were used. The results of the revised commissioning modeling analysis are shown in the following table. As shown in this table, during the commissioning tests the maximum 1-hr average NO^2 impact is 161 $\mu g/m^3$ and the maximum CO impact is 389 $\mu g/m^3$. In addition, as shown in this table, when the background levels are added to the maximum commissioning test impacts, there is no modeled violation of the state or federal standards. Copies of the modeling files for the revised commissioning modeling analysis will be submitted to the CEC as a separate submittal.

Table 17-1
Revised Gas Turbine Commissioning Impacts
IEEC Project

Pollutant/ Averaging Time	Maximum Impact $\mu g/m^3$	Background Concentrations $\mu g/m^3$	Total Impacts $\mu g/m^3$	State Standard $\mu g/m^3$	Federal Standard $\mu g/m^3$
60% Load Commissioning Test					
NO_2/1-hr Avg.	156	211	367	470	--
CO/1-hr Avg.	389	12,650	13,039	23,000	40,000
Full-Load Commissioning Test Without SCR					
NO_2/1-hr Avg.	161	211	372	470	--
CO/1-hr Avg.	31	12,650	12,681	23,000	40,000

Request #18 - Please discuss whether simultaneous commissioning of both combustion turbines could occur and update the impacts assessment as necessary.

Response #18 - The simultaneous operation of both gas turbines without operational emission controls is not expected to occur during the commissioning phase of the project.

Request #19 - Please verify that ambient air quality impacts during commissioning are correctly represented between the electronic modeling files and the text of the AFC (p. 5.2-42). As discussed in Data Requests above, simultaneous commissioning of each unit should be considered. If necessary, identify mitigation steps to ensure that the commissioning of each gas turbine will not cause a new violation of the state 1-hour NO_2 standard.

Response #19 - As discussed in the response to Data Request #17, a revised modeling analysis of the commissioning phase impacts was performed and the impacts are not expected to cause or contribute to a violation of the state 1-hr NO_2 standard.

Request #20 - Maximum modeled impacts of one-hour NO_2 in AFC Table 5.2-26 are noted to be modeled with ISC OLM. Electronic modeling files submitted with the AFC (AFC File NO2_SHRT.dat, submitted electronically on CD-R) do not include any runs incorporating OLM. Please clarify whether maximum one-hour NO_2 impacts presented in Table 5.2-26 (AFC p. 5.2-43) reflect use of the ozone limiting method.

Response #20 - Table 5.2-26 has a typographical error that references the use of ISC-OLM to model one-hour NO_2 impacts for the project. ISC-OLM was not used for the IEEC project modeling analysis. A corrected version of Table 5.2-26 is enclosed as AQ Attachment 2 with the reference to ISC-OLM removed.

Request #21 - Please clarify whether maximum annual NO_2 impacts presented in Table 5.2-26 (AFC p. 5.2-43) reflect use of the Ambient Ratio Method (ARM) and the default ratio of 0.75 NO_2/NOx.

Response #21 - The maximum annual NO_2 impacts shown on Table 5.2-26 of the AFC reflects the use of the Ambient Ratio Method (ARM) default ratio of 0.75.

Request #22 - Please clarify whether maximum project impacts presented in Table 5.2-26 (AFC p. 5.2-43) for PM_{10} reflect use of the CTSCREEN model.

Response #22 - The PM_{10} modeling results shown on Table 5.2-26 do not reflect the use of CTSCREEN modeling and are based on ISCST modeling.

Request #23 - Please summarize why maximum modeled impacts for the entire facility would be presented differently between Tables 5.2-24, 5.2-26, 5.2-29, and 5.2-33.

Response #23 - As discussed in the Section 5.2.3.2.2 of the AFC, both the ISCST and CTSCREEN models were used to analyze ambient impacts from the project. The ISCST model was used to analyze all project impacts except for PM_{10} impacts in elevated terrain where the CTSCREEN modeling was used. There are several tables in the AFC that summarize the results of the modeling analysis performed for the project. Some of the tables show only the results of the ISCST results and others include the results of the CTSCREEN modeling. In an attempt to avoid confusion and clarify the modeling results for the project, the modeling summary tables in the AFC have been revised to clearly identify which model was used and which emission sources were modeled. These revised summary tables are included as AQ Attachment 2.

Request #24 - Please acknowledge the modeled exceedance of the annual NO_2 PSD Significance Level identified in AFC Table 5.2-26 p. 5.2-43 and electronic modeling files, or provide additional analysis, if necessary, to demonstrate that the PSD Significance Level would not be exceeded.

Response #24 - As discussed in the response to Data Request #23, the CTSCREEN model was used to analyze ambient impacts in elevated terrain. The modeled exceedance of the annual NO_2 PSD level shown on AFC Table 5.2-26 are based on the results of the ISCST modeling. Because this modeled impact occurs in elevated terrain, the CTSCREEN was used to re-evaluate the NO_2 impacts in elevated terrain. As shown in the revised modeling summary tables that are enclosed as AQ Attachment 2, based on the results of the CTSCREEN model the maximum NO_2 annual impacts are below the PSD significance level. Consequently, the project does not trigger the PSD requirements for an NO_2 increment analysis. Copies of the NO_2 CTSCREEN modeling files will be submitted to the CEC as a separate submittal.

Request #25 - For any exceedances of the PSD Significance Level, please provide a supplemental modeling protocol for the increments analysis. The protocol would identify how the impacts of the project would be characterized in conjunction with other emission sources in the impact area so that the increase in annual NO_2 concentrations can be compared with the maximum allowable increase (Class II Increment). If the maximum allowable increase would be exceeded, the protocol should identify mitigation measures that would to reduce the impact to a less than significant level.

Response #25 - As discussed in the response to Data Request #24, the revised maximum modeled impacts for the project do not trigger the PSD NO_2 increment analysis requirements.

Request #26 - Please discuss the likelihood of both combustion turbines operating simultaneously in startup mode during a worst-case condition. If technical or operational constraints preclude operating both turbines in startup mode simultaneously, please identify

them. If no constraints exist and both turbines could potentially operate in startup mode simultaneously, please reevaluate the maximum hourly emissions of Table 5.2-21 and reassess the associated ambient air quality impacts.

Response #26 - It is Calpine's standard operating practice to avoid the simultaneous startup of two gas turbines within the same 2x1 train. Consequently, the startup analysis included in the AFC did not include the simultaneous startup of the two gas turbines. To ensure that simultaneous startup of two gas turbines does not occur, we understand that the air quality permit for the project will include conditions prohibiting the simultaneous startup of two gas turbines.

Request #27 - Please continue to submit to staff timely updates of the ERC/RTC document (AFC Appendix K-10) reflecting current ERC/RTC status. The details of the offset package may remain confidential, given the status of purchase and option negotiations. The offset strategy will then be summarized in the Preliminary Staff Assessment.

Response #27 - The requested materials will be submitted to the staff in a timely manner.

Request #28 - The NO_x emission rates used in the near-field visibility analysis (AFC Appendix K-6) are inconsistent with the maximum hourly emissions presented in the text of the AFC (Table 5.2-21 p. 5.2-31). Please discuss the basis of the NO_x emission rates used in the visibility analysis (AFC Appendix K-6, Table K.6-3) in relationship to the maximum hourly emissions in Table 5.2-21.

Response #28 - The NO_x emission rate shown in the near-field visibility analysis in Appendix K-6 (i.e., 7.93 g/sec) is based on the maximum daily average NO_x emissions shown on Table 5.2-21 of the AFC rather than the maximum hourly emission rate.

Request #29 - The background ozone levels used in the near-field visibility analysis are inconsistent with the ozone levels recently observed in Perris (AFC Table 5.2-7 p. 5.2-15). Please discuss the basis of the background ozone levels used in the visibility analysis (AFC Appendix K-6, Table K.6-3) in relationship to the ozone levels in Table 5.2-7.

Response #29 - The background ozone level of 0.04 ppm used for the near-field visibility is the standard default ozone background level recommended in the EPA's workbook[•] for VISCREEN screening-level modeling analyses for Class I areas.

Request #30 - Please characterize the project effects on sulfur and nitrogen deposition in the affected Class I areas. In the discussion, identify the source of the significance thresholds used to characterize the effects, and provide mitigation steps if necessary to avoid a significant impact. Please note that Data Request #40 addresses this issue as well.

Response #30 - The project's modeled nitrogen and sulfur deposition impacts on the nearby Class I areas are summarized in Table 5.3-11 of the AFC. As shown on Table 5.3-11, because the maximum modeled deposition rates at the nearby Class I areas are several orders of magnitude below the USFS significance levels of 5 Kg/ha-yr for sulfur deposition and 3 Kg/ha-yr for nitrogen deposition, the impacts are not considered significant.

[•] EPA's "Workbook For Plume Visual Impact Screening And Analysis", October 1992.

Request #31 - Please identify any and all emission sources that would be associated with construction of the compressor station.

Response #31 - Per the Applicant's notification of January 24, 2002, the projected filing date for this response is February 20, 2002.

Request #32 - Please discuss any ancillary equipment that would be located at the compressor station and would have potential emissions (e.g. stand-by generators or backup prime movers that may be diesel- or natural gas-fired), and identify the impacts associated with operation of these sources.

Response #32 - The gas compressor station will be equipped with electric motor-driven compressors and will not include any combustion or particulate sources. Consequently, it is not necessary to perform an air quality impact analysis for the operating phase of the gas compressor station.

Request #33 - Please continue to provide staff with a copy of permitting-related submittals to or official correspondence from the District relating to the IEEC. Also, please continue to provide to staff copies of all documents sent/received to/from the District until such time as the Commission decision for this AFC has been finalized.

Response #33 - The requested materials will be submitted to the staff in a timely manner.

AQ Attachment 1

Letters Regarding BACT for Gas Turbines

sierra
research

1801 J Street
Sacramento, CA 95814
(916) 444-6666
Fax: (916) 444-8373

November 12, 2001

Regional Freedom of Information Officer
U.S. EPA, Region IX
75 Hawthorne Street (CGR-3-1)
San Francisco, CA 94105

Subject: FOIA Request
EPA Region IX Air and Toxics Division

Dear FOIA Officer:

Pursuant to the Freedom of Information Act (5 U.S.C. §552), please provide copies of all of the information that EPA possesses that indicates that a 2 ppm NOx level "has been consistently achieved in a Region IX facility" (UC San Diego), as indicated in EPA's October 25, 2001 letter to Mohsen Nazemi of the South Coast AQMD.

Thank you for your attention in this matter. Please bill Sierra Research for reasonable costs associated with assembling this material. Please call me at (916) 444-6666 with any questions regarding this request.

Sincerely,

Gary Rubenstein

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

December 10, 2001

Gary Rubenstein
Sierra Research
1801 J St.
Sacramento, CA 95814

Re: Freedom of Information Act Request RIN 00066-02

Dear Mr. Rubenstein,

This letter is in response to your Freedom of Information Act request dated November 12, 2001, regarding information that indicates that a NOx emission rate of 2.0 ppm has been achieved in practice at a Region 9 facility. The San Diego County Air Pollution Control District has informed EPA that it has data that indicates that a NOx emission rate of 2.0 ppm has been achieved in practice at the UC San Diego facility. However, EPA does not have this data, and cannot independently verify the emission level. In addition, EPA has CEMS data from the Sunlaw Cogeneration Partners facility in Vernon CA. EPA has not yet evaluated this data to determine whether it demonstrates that a NOx emission level of 2.0 ppm has been achieved at that facility.

If you have any further questions regarding this matter, please contact Roger Kohn of my staff at (415) 972-3973.

Sincerely,

Gerardo Rios
Chief, Permits Office
Air Division

AQ Attachment 2

Revised Air Quality Impact Tables

Table 5.2-3 Summary of Modeling Results

(Revised 2/01/02)

Pollutant	Averaging Time	~~ISCST3~~ Refined Modeling[c]	Fumigation	Startup
NOx	1-hour	244.3[b]	4.4	87.1
	Annual	~~0.9~~ 0.5[a]	--	--
SO_2	1-hour	30.1[b]	0.4	3.0
	3-hour	2.7[b]	0.3	2.6
	24-hour	~~0.7~~ 0.9[b]	--	--
	Annual	0.1[b]	--	--
CO	1-hour	~~325.7~~ 792.8[b]	6.5	792.8
	8-hour	~~306.9~~ 418.7[b]	4.5	--
PM_{10}	24-hour	~~2.48~~[a] 9.9[b]	--	--
	Annual	~~0.50~~[a] 1.4[b]	--	--

Notes:

[a] Impacts include all sources and are based on ~~ISCST3~~ CTSCREEN modeling results. Annual NOx corrected to NO_2 using ARM default value of 0.75.

[b] Based on ISCST3 modeling results.

[c] Gas Turbines/HRSG duct burners, auxiliary boiler, emergency engines, and cooling tower.

Table 5.2-4 Modeled Maximum Project Impacts

(Revised 2/01/02)

Pollutant	Averaging Time	Maximum Project Impact[3] ($\mu g/m^3$)	Background Concentrations ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	State Standard ($\mu g/m^3$)	Federal Standard ($\mu g/m^3$)
NO_2	1-hour[1,5]	244.3	211	455	470	--
	Annual[2,3]	~~0.9~~ 0.5	36	37	--	100
SO_2	1-hour[5]	30.1	~~105~~ 278	~~135~~ 308	650	--
	24-hour[5]	~~0.7~~ 0.9	92	93	109	365
	Annual[5]	0.1	5	5	--	80
CO	1-hour[5]	~~325.7~~ 792.8	12,650	~~12,976~~ 13,443	23,000	40,000
	8-hour[5]	~~306.9~~ 418.7	6,302	~~6,609~~ 6,721	10,000	10,000
PM_{10}[3]	24-hour[5]	~~2.5~~ 9.9	139	~~141.5~~ 148.9	50	150
	AGM[4,5]	~~0.5~~ 1.4	44	~~44.5~~ 45.4	30	--
	AAM[4,5]	~~0.5~~ 1.4	50	~~50.5~~ 51.4	--	50

[1] ~~Modeled using ISC_OLM and 1981 Perris hourly ozone data.~~ Worst-case one-hour NO_2 impacts are dominated by the emergency generator, which will be operated for testing purposes less than one hour per week. Worst-case hourly average NO_2 impacts during other periods will be only 40.2 ug/m^3.

[2] Modeled using CTSCREEN. Modeled annual NOx corrected to NO_2 using ARM default value of 0.75.

[3] ~~Impacts include all sources and are based on ISCST3 modeling results.~~ Gas turbines/HRSG duct burners, auxiliary boiler, emergency engines, and cooling tower.

[4] AGM: Annual Geometric Mean; AAM: Annual Arithmetic Mean

[5] Modeled using ISCST3.

Table 5.2-24 Summary of Results from Refined Modeling Analyses Maximum Impacts ($\mu g/m^3$)

(Revised 2/01/02)

		Refined Modeling			
		Gas Turbines Only	Entire Facility[a]	Fumigation[b]	Startup[c]
NO_2	1-hour	38.2[f]	244.3[f]	4.4	87.1
	Annual	~~0.9~~ 0.5[d,e]	~~0.9~~ 0.5[d,e]	--	--
SO_2	1-hour	3.0[f]	30.1[f]	0.4	2.9
	3-hour	2.6[f]	2.7[f]	0.3	2.6
	24-hour	0.6[f]	~~0.7~~ 0.9[f]	--	--
	Annual	0.1[f]	0.1[f]	--	--
CO	1-hour	55.9[f]	325.7[f]	6.5	793
	8-hour	304.0[f]	~~306.9~~ 418.7[f]	4.5	--
PM_{10}	24-hour	2.48[d]	~~2.48~~[d] 9.9[f]	--	--
	Annual	0.5[d]	~~0.5~~[d] 1.4[f]	--	--

[a] Gas Turbines/HRSG duct burners, auxiliary boiler, emergency engines, and cooling tower.

[b] Gas Turbines/HRSG Duct Burners.

[c] Gas Turbines/HRSG Duct Burners.

[d] Based on CTSCREEN modeling results.

[e] ARM corrected using EPA correction factor of 0.75.

[f] Based on ISCST3 modeling results.

Table 5.2-26 Modeled Maximum Project Impacts, IEEC Project (Revised 2/01/02)

Pollutant	Averaging Time	Maximum Project Impact[a] ($\mu g/m^3$)	Background Concentrations ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	State Standard ($\mu g/m^3$)	Federal Standard ($\mu g/m^3$)
NO_2	1-hour	~~231.0~~ 244.3[df]	211	~~442~~ 455	470	--
	Annual	~~1.1~~ 0.5[d,e]	36	37	--	100
SO_2	1-hour	30.1[f]	278	308	650	--
	24-hour	~~0.7~~ 0.9[f]	92	93	109	365
	Annual	0.1[f]	5	5	--	80
CO	1-hour	792.8[f]	12,650	13,443	23,000	40,000
	8-hour	~~423.9~~ 418.7[f]	6,302	~~6,726~~ 6,721	10,000	10,000
PM_{10}	24-hour	9.9[f]	139	149	50	150
	Annual[b]	~~1.1~~ 1.4[f]	44	45.4	30	--
	Annual[c]	~~1.1~~ 1.4[f]	50	51.~~14~~	--	50

[a] Entire facility including gas turbines/HRSGs, auxiliary boiler, emergency engines, cooling tower.

[b] Annual Geometric Mean (State).

[c] Annual Arithmetic Mean (Federal).

[d] Modeled using CTSCREEN ~~ISC_OLM and 1981 Perris ozone data~~.

[e] ARM corrected using EPA correction factor of 0.75..

[f] Includes all sources; modeled using ISCST3.

Table 5.2-33 Comparison of Maximum Modeled Impacts from ISCST3 and PSD Significance Thresholds and Class II Increments IEEC Project (Gas Turbines/HRSGs, Auxiliary Boiler, Emergency Engines, and Cooling Tower)

(Revised 2/02/02)

Pollutant	Averaging Time	Maximum Modeled Impacts ~~from ISCST3~~, $\mu g/m^3$	Federal PSD Significance Threshold, $\mu g/m^3$	Federal PSD Class II Increment, $\mu g/m^3$	Significant Under Federal PSD?
NO_2	Annual	~~0.9~~ 0.5[a]	1.0	25	No
SO_2	3-Hour	2.7[b]	25	512	No
	24-Hour	~~0.7~~ 0.9[b]	5	91	No
	Annual	0.1[b]	1.0	20	No
PM_{10}	24-Hour	~~2.48~~[a] 9.9[b]	5	30	~~No~~ Yes
	Annual	~~0.5~~[a] 1.4[b]	1.0	17	~~No~~ Yes
CO	1-Hour	793[b]	2,000	-	No
	8-Hour	~~310~~ 419[b]	500	-	No

Notes:

[a] Based on CTSCREEN modeling results. Modeled annual NOx corrected to NO_2 using ARM default value of 0.75.

[b] Based on ISCST3 modeling results.