

CALIFORNIA ENERGY COMMISSION

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SACRAMENTO, CA 95814-5512



Mr. Dana Petrin
Compliance Manager
Calpine South Bay Projects
Los Esteros Critical Energy Facility
3800 Cisco Way
San Jose, CA 95134

Dear Mr. Petrin,

Los Esteros Critical Energy Facility (LECEF) Data Requests

Compliance staff needs additional information to review and analyze the Petition to amend the project's air quality conditions of certification. Your prompt response to staff's data requests will assist in the timely preparation of staff's analysis.

Sincerely,

Lance Shaw, CPM

Enclosures:

Data Requests
Report of Conversation

Los Esteros Critical Energy Facility (03-AFC-2C)
Air Quality Data Requests:
Petition to Modify Air Quality Conditions of Certification
Prepared by Gabriel D. Taylor
August 2005

On June 22, 2005, Calpine Corporation (Calpine) submitted a petition to amend the Energy Commission Decision air quality conditions of certification for the Los Esteros Critical Energy Facility (LECEF) to effect seven separate modifications to the Decision (Calpine 2005). The seven requested modifications can be summarized as follows:

- Modify the ammonia slip testing methodology (AQ-19b),
- Increase the permitted heat rate (AQ-24a),
- Increase the permitted fuel sulfur content (AQ-24b),
- Decrease the frequency of source testing (AQ-26),
- Eliminate sulfur acid mist source testing (AQ-27),
- Correct a reference in the periodic reporting requirement (AQ-34), and
- Delete the satisfied offset condition (AQ-35)

Staff has the following Data Requests concerning this petition. These data requests reflect the discussions during the teleconference between California Energy Commission (CEC) staff and Calpine on August 3, 2005 (CEC 2005b). The participants in that teleconference were: Gabriel Taylor (CEC, Air Quality Engineer), Dana Petrin (Calpine, Compliance Manager), Barbara McBride (Calpine, Environmental Director), Lance Shaw (CEC, Compliance Project Manager), Mike Ringer (CEC, Air Quality Unit Supervisor) and Bob Worl (CEC, Siting Project Manager). See attached Report of Communication.

BACKGROUND

On page 3 of the petition, Calpine states that the requested changes "*...are based on new information that was learned as a result of operating experience gained at the facility and was not known at the time of certification.*" It is not clear from this language whether Calpine is referencing the original certification proceedings or the more recent recertification proceedings. The application for recertification (AFC) for the Energy Commission conditions of certification was submitted in December 2003 (Los Esteros 2003, 03-AFC-2C) and the Energy Commission recertified the Los Esteros Critical Energy Facility simple cycle configuration (Phase 1) on March 16, 2005.

In that AFC, Calpine included justification for increasing the SO₂ limits, the fuel sulfur limit, and the heat rate for the combined cycle configuration (Phase 2) of the project, but did not propose any of those changes for the existing simple cycle configuration of the equipment.

Section 1769(C) states, "*If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at the time...*" is required. It is staff's understanding that many of the modifications

were previously requested for these turbines in relation to their conversion to combined cycle.

DATA REQUEST

1. Please provide an explanation why each of the requested seven modifications was not raised at the time of the simple cycle project recertification, or during that recertification process prior to final approval on March 16, 2005.
2. Please also provide an explanation of the facts and circumstances that will allow the Energy Commission to make the required findings in 1769(a)(3)(D) concerning this matter.

BACKGROUND

Calpine requests that the required ammonia monitoring technique be changed to allow monitoring of ammonia slip concentration levels as opposed to ammonia molar ratios. Calpine claims that this methodology will be more accurate, user friendly, and more consistent with the required monitoring technique at other Calpine facilities.

DATA REQUEST

3. Please provide a clear description of the proposed ammonia slip monitoring technique, including a discussion of how the technique differs from the currently required technique.

BACKGROUND

The current SO₂ emissions limits (in AQ-19f and AQ-22) are based on an assumed fuel sulfur content of 0.25 gr/100 scf, and a heat rate of 472.6 MMBtu as follows (BAAQMD 2002 and CEC 2005a):

$$(0.25 \text{ gr}/100\text{scf})(10^6 \text{ Btu}/\text{MMBtu})(2 \text{ lb-SO}_2/\text{lb-S})(1 \text{ lb}/7000 \text{ gr})(1 \text{ scf}/1022 \text{ Btu}) \\ = 0.000699 \text{ lb-SO}_2/\text{MMBtu}$$

$$(0.000699 \text{ lb-SO}_2/\text{MMBtu})(472.6 \text{ MMBtu}/\text{hr}) \\ = \mathbf{0.33 \text{ lb-SO}_2/\text{hr}} \text{ (Condition AQ-19f)}$$

$$(0.33 \text{ lb-SO}_2/\text{hr-start/stop})(1 \text{ start}) + (0.33 \text{ lb-SO}_2/\text{hr})(23 \text{ hr}) \\ = \mathbf{7.9 \text{ lb-SO}_2/\text{day-turbine}} \text{ (Condition AQ-22)}$$

$$(7.9 \text{ lb-SO}_2/\text{day-turbine})(4 \text{ turbines})(365 \text{ days}/\text{year})(1 \text{ ton}/2000 \text{ lb}) \\ = \mathbf{5.8 \text{ tons}/\text{year}} \text{ (AQ-22)}$$

Calpine is proposing to change the maximum heat rate (to 500 Btu/hr) and the maximum sulfur content (to 1 gr/100 scf).

DATA REQUEST

4. How does Calpine propose to prove compliance with the hourly, daily, and annual SO₂ emissions limits if the fuel sulfur content limit is increased to 1.0 gr/100 scf and the heat rate limit is increased to 500 Btu/hr?

5. Does Calpine propose changing, or amending at a later date, the hourly, daily, and/or annual SO₂ emissions limits? If yes, does Calpine propose providing SO_x emission reduction credits (ERC) to mitigate the additional permitted SO₂ emissions levels and their potential contribution to regional PM10 and PM2.5 levels?

BACKGROUND

Calpine proposes to change the source testing requirement to allow up to 8,000 operational hours in between required source tests. Calpine reasons that the source test requirement was intended for facilities that are in frequent operation, not for an infrequently operated peaking facility such as Los Esteros.

Staff is concerned that because Los Esteros does not operate frequently, such a modification could lead to excessively long periods between source tests.

DATA REQUEST

6. Please provide a summary of the monthly hours of operation for each turbine at Los Esteros since the facility began commercial operation.
7. Based on the above summary of monthly hours of operation, please estimate how many years between source tests would be allowed if the facility were only required to source test every 8,000 hours.
8. Please discuss if Calpine would accept a further limit on the maximum amount of time between source tests (e.g. a maximum of three years between source tests), in addition to the proposed hours of operation trigger.

REFERENCES

BAAQMD 2002 (Bay Area Air Quality Management District). Final Determination of Compliance, Los Esteros Critical Energy Facility, Plant No. 13289. February 1, 2002.

Calpine 2001 (Calpine Corp.) Application for Certification for the Los Esteros Critical Energy Facility. Pleasanton, CA. August 2001.

Calpine 2005 (Calpine Corp.). Letter to Mr. Lance Shaw (CEC, Compliance Project Manager) from Mr. Dana Petrin (Calpine, Compliance Manager), "Re: Petition to Amend Los Esteros Critical Energy Facility's Conditions of Certification," Enclosed: *Petition for Insignificant Amendments to Operations Conditions of Certification*. San Jose, CA. June 22, 2005.

CEC 2005a (California Energy Commission). Los Esteros Critical Energy Project Commission Decision. P800-02-005. Sacramento, CA. July 2005.

CEC 2005b (California Energy Commission). *ROC: Los Esteros Amendment*. Sacramento, CA. August 3, 2005.

Los Esteros 2003 (Los Esteros Critical Energy Facility, LLC). Application for Certification for the Los Esteros Critical Energy Facility, Phase 1 Relicense and Phase 2 Combined-Cycle Conversion. December 2003.

Lance Shaw - Fwd: ROC: Los Esteros 6/22 Amendment

From: Lance Shaw
To: Dana Petrin
Date: 8/10/2005 12:01 PM
Subject: Fwd: ROC: Los Esteros 6/22 Amendment
CC: Barbara McBride; Bob Nishimura; Gabriel Taylor; Robert Worl

Dana,

I am attaching the Data Requests which we discussed by phone last week. The Report of Conversation (of that discussion) e-mail message is being forwarded. Your responses to these data requests are required for staff's analysis of the petition to amend the Commission Decision of the project.

The requests are being docketed and you will receive a hard copy in the mail.

Thanks,

Lance Shaw

Lance Shaw
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California Energy Commission
1516 9th St., MS 15
Sacramento, CA 95814-5504

>>> Gabriel Taylor 8/3/2005 12:30:22 PM >>>

This is a Record of Conversation (ROC) for the conference call on August 3rd, 2005, regarding the amendment request submitted by Calpine on June 22nd, 2005, for the Los Esteros Critical Energy Facility. The participants discussed the amendment request, and the Data Requests that California Energy Commission (CEC) staff plans to submit in the near future concerning the amendment request. The participants were: Gabriel Taylor (CEC, Air Quality Engineer), Dana Petrin (Calpine, Compliance Specialist), Barbara McBride (Calpine, Environmental Director), Lance Shaw (CEC, Compliance Project Manager), Mike Ringer (CEC, Air Quality Unit Supervisor) and Bob Worl (CEC, Project Manager).

After introductions, the discussion was broken into four topic areas:

1) The requested change in the ammonia monitoring technique.

I (Gabriel Taylor) asked what other Calpine facilities use the concentration methodology, as opposed to the molar ratio methodology. Calpine indicated that most other facilities (including Los Medanos, King City, Gilroy Cogen, and many others) used this new method. Calpine further provided a brief description of the differences between the requested and the old methods. I indicated that I would submit a data request asking for a written description of the differences between the two methods, and

Calpine acknowledged.

2) The requested 8000 operational hours between source tests.

I indicated that I had discussed this requested modification with Keith Golden (CEC, Senior Engineer) and that we were considering recommending the same modification as was approved for Calpine's King City project in May 2005. The King City amendment allowed 4000 hours between source tests, with a requirement that source tests occur every three years at a minimum. Calpine was concerned with this approach, and said that a number of other Calpine peaker projects in the Bay Area already had an 8000 hour allowance, possibly including Gilroy. Calpine further stated that the 4000 hour & three year requirement on King City was proposed by the Monterey County Air District, and that Bay Area would likely not require it. I said that we were concerned that a simple 8000 hour allowance could allow unreasonably long periods between source tests. Calpine asked if an 8000 hour allowance with a three year maximum time period between tests would be acceptable, similar to the King City modification. I indicated that including the three year maximum time period would likely resolve all of our concerns, but that I would have to consider it further. I asked Calpine to provide a written justification for the change in the responses to my data request.

3) The requested increase in fuel sulfur content limit.

I described our concern that the SO₂ emissions limits (hourly, daily & annual) are based on an assumed fuel sulfur content limit of 0.25 gr/100-scf, and that if the fuel sulfur content allowance were increased, it would be difficult to confirm compliance with short term SO₂ emission limits. I also mentioned that we had similar concerns about demonstrating compliance with the PM₁₀ emission limits, given the requested increase in heat rate. Calpine said that they understood the concern and believed they could come up with a solution. I indicated that I would submit a data request on the subject, and Calpine indicated that they would provide their proposal in response to that data request.

Calpine further asked about their request to eliminate the Sulfur Acid Mist (SAM) condition AQ-27. I indicated that this condition was likely included only to maintain conformance with the District conditions, and that if the district agreed to eliminate it then we would likely do the same.

4) The justification for submitting this amendment request.

I explained our need for a justification for the proposed amendment, as required by Section 1769(C). I said that I would include a data request asking for this justification. I explained that we not only need this justification because it is required by the 1769(C), but also to provide a clear explanation in our analysis for the Committee. Mr. Shaw mentioned that we also need this justification to inform any interveners on either this case or the LECEF2 case. Mr. Worl agreed. Calpine mentioned that this amendment request was originally submitted in mid 2004, but was withdrawn because the facility was currently undergoing review for re-licensing. Calpine indicated that they would prepare a justification as a response to my data request.

Please feel free to contact me if you have any questions, comments, or corrections to this Record of Conversation.

Sincerely,

Gabriel D. Taylor (Engineer -- Air Quality)
California Energy Commission