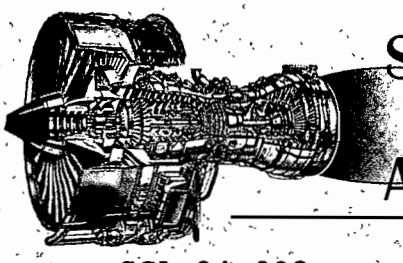

Sacramento Cogeneration Authority

P.O. Box 15830, Sacramento, CA 95852-1830, 916/732-5218

Procter & Gamble Cogeneration Project

SCA 94-092

May 20, 1994

Mr. Darrel "H" Woo
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

PROCTER & GAMBLE COGENERATION PROJECT--COLOR SAMPLES AND COMMENTS ON AIR QUALITY SECTION OF PSA (Docket No. 93 AFC 2).

Dear Mr. Woo:

SCA is docketing two color samples for CEC staff review and comment in response to the Procter & Gamble Cogeneration Project PSA's concern that the colors identified are not compatible with the surroundings. SCA's first choice is Mist Gray. SCA's second choice is Light Buff.

SCA is also submitting comments on the Air Quality section of the PSA. Fugitive dust and revised air quality modeling and results reflecting equipment changes to date will follow. Please telephone if you have any questions.

With Regards,

Diana Parker
Environmental Specialist

Enclosures (Note: paint samples provided to Darrel Woo)

cc: Ron Simms, Walsh
Rich Chapman, Black & Veatch

STATE OF CALIFORNIA

State Resources Conservation
and Development Commission

In the matter of:	)	Docket No. 93-AFC-2
	)	
Application for Certification	)	PROOF OF SERVICE
of the Sacramento Cogeneration	)	(rev. 12/3/93)
Authority's Procter & Gamble	)	
Cogeneration Project	)	
	)	

PROOF OF SERVICE

I, Evangeline B. Parchamento, declare that on May 20, 1994, I deposited copies of the attached Procter & Gamble Cogeneration Project - Color Samples and Comments on Air Quality Section of PSA(Docket No. 93-AFC-2), in the United States mail at Sacramento, California, with first class postage thereon fully prepaid and addressed to the following:

APPLICANT

Ms. Susan Strachan, Manager
Projects Permitting & Licensing
SMUD
Box 15830
Sacramento, CA 95852-1830

Steve Cohn
Senior Attorney
SMUD
P.O. Box 15830
Sacramento, CA 95852-1830

INTERESTED AGENCIES

Richard Johnson
Division Chief
Sacramento Metro AQMD
8411 Jackson Road
Sacramento, CA 95826

Ray Menebroker, Chief Project
Assessment Branch
Stationary Source Division
California Air Resources Board
P. O. Box 2815
Sacramento, CA 95814

Ed Schnabel
Sacramento Metropolitan Water District
5331 Walnut Avenue
Sacramento, CA 95841

CALIFORNIA ENERGY COMMISSION
(Docket Unit - 12 copies required)

Docket Unit, MS-4
1516 Ninth Street
Sacramento, CA 95814

I declare under penalty of perjury that the foregoing is true and correct.

Evangeline B. Parchamento
Signature

Attachment

STATE OF CALIFORNIA

State Resources Conservation
and Development Commission

In the matter of:	)	Docket No. 93-AFC-2
	)	
Application for Certification	)	PROOF OF SERVICE
of the Sacramento Cogeneration	)	(rev. 12/3/93)
Authority's Procter & Gamble	)	
Cogeneration Project	)	
	)	

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Sacramento, CA 95814

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Evangeline B. Parchamento
Signature

Attachment

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MEMORANDUM

Sacramento Cogeneration Authority
Procter & Gamble Cogeneration Project
Comments on the CEC Preliminary
Staff Assessment of the AFC Air
Quality Section

B&V Project 23933
B&V File 32.0406
May 19, 1994

To: D. C. Timpe

From: B. A. Petermann BAP / J. G. Tangeman JGT

The CEC's 4/15/94 Preliminary Staff Assessment (PSA) for the Air Quality Section of the AFC has been reviewed. This memorandum provides item by item comprehensive comments, responses and rebuttals to the PSA. In addition, the revised air quality impact analysis being conducted is also discussed.

Responses to PSA Conclusions and Recommendations Items 1, 2, and 3 will be provided later, after completion of the Construction Fugitive Dust Analysis and revised Air Quality Impact Analysis. The fugitive dust modeling analysis is being performed to predict impacts from the construction of the project and the relative effectiveness of mitigation measures.

Revised Air Quality Impact Analysis (AQIA)

Since the submittal of the AFC in October 1993, changes in the proposed project configuration and operation have occurred, certain of which have been noted to the CEC. In addition, the CEC has suggested in the PSA that in addition to revising the AQIA to reflect the noted project changes, that certain data assumptions for the cumulative impact analysis be incorporated in the AQIA. Thus, the AQIA which was previously conducted, described in the October 1993 AFC (Section 6.1), and reviewed by the CEC as the basis for their PSA, is currently undergoing revision. The analysis is currently scheduled for completion and delivery to the CEC by June 6, 1994. Our PSA comments as listed in the following section, although they respond to many non-AQIA issues, make numerous reference to the revised AQIA to be submitted later.

The CEC had been informed (March 1994) of several of the project configuration changes which were subsequently reflected in the PSA. These changes include the elimination of the standby diesel generator and the reduction of the auxiliary boiler annual capacity factor. In addition, the PSA discusses several changes to the cumulative analysis data assumptions, such as the background air quality data and cumulative source information. Several other changes to the configuration and operation will also be made. These include operation of the auxiliary boiler at a reduced (standby) load, lengthened combined cycle unit startup period, revised combustion turbine performance data, and changes to the cooling tower design assumptions. When completed, the revised

AQIA will reflect changes in the proposed project configuration, changes in the proposed project operation, and changes in certain data assumptions regarding the cumulative impact analysis.

PSA Comments

The following comments/responses/rebuttals to the PSA have been prepared, noting, as appropriate for certain issues, that a revised AQIA and a construction fugitive dust modeling analysis are being conducted and will be submitted later. Thus, a full response to some issues will not be available until after the AQIA and construction fugitive dust analysis are submitted.

The comments have been listed according to a rating category of either 1 or 2. Category 1 comments are minor corrections and clarifications. Category 2 comments are items that need to be discussed with the CEC at the workshop and for which supporting materials to support the workshop discussion may be developed.

CATEGORY 1 COMMENTS (MINOR COMMENTS AND CLARIFICATIONS)

1. Page 34[1], AIR QUALITY: Table 8. Replace "Max. 1-hr Avg" under the North Highlands-Blackfoot with "Max. 24-hr Avg".

2. Page 36, Last paragraph. Project will be owned by the Sacramento Cogeneration Authority (SCA).

3. Page 37, Paragraph 2. Replace "Highly purified water is injected in the combustors to quench the flame and thereby reduce NO_x emissions." with "Highly purified water is injected in the combustors to control the temperature gradient across the combustion chamber by lowering the peak temperature at the center of the chamber, thereby lowering NO_x formation."

4. Page 37, Paragraph 3. Replace "Unfired, the two HRSGs produce enough steam to generate 21 MW..." with "Unfired, the two HRSGs produce enough steam to generate 28 MW...".

[1]The page number refers to the CEC PSA dated April 15, 1994.

5. Page 38, Top of page. The proposed stack height for the CTG/HRSGs has been lowered from 150 feet to 115 feet. (This will be reflected in the revised AQIA.) Replace "150 foot tall stack" with "115 foot tall stack for each CTG/HRSG".

6. Page 38, Paragraph 1. The simple cycle unit will now have chilled water inlet air cooling, not evaporative cooling. (This will be reflected in the revised AQIA.)

7. Page 38, Paragraph 2. Replace "The CO and SCR catalysts are located in an intermediate position in the exhaust duct to maintain a narrow temperature range to optimize the catalytic reactions." with "The CO and SCR catalysts in the simple cycle CTG are high temperature catalysts located in the exhaust duct."

8. Page 38, Last paragraph. Delete standby diesel generator section.

9. Page 42, Top of page. Delete last sentence referencing standby diesel generator.

10. Page 42, Paragraph 2. Delete end of second sentence referencing the standby diesel generator.

11. Page 42, Paragraph 2. Delete third to last sentence referencing the standby diesel generator.

12. Page 42, Paragraph 3. Delete reference to standby diesel generator.

13. Page 42, Paragraph 4. Delete reference to standby diesel generator.

14. Page 43, AIR QUALITY: Table 11. The table will need to be revised based on the revised AQIA.

15. Page 43, Bottom of page. Peak load has been eliminated from the operation of the simple cycle CTG. Delete ", and up to peak load (a small percentage above base load capacity)" from the last line of the paragraph. (This will be reflected in the revised AQIA.)

16. Page 44, Paragraph 1. Delete standby diesel generator section.

17. Page 44, Paragraph 4. Although the PSA refers to an hour long start-up, it should be made clear that the emissions shown in Table 12 are not to be construed as being limits because the units are exempt from emission limits during the start-up period. However, the start-up emissions will be accumulative to the total daily and quarterly emissions per unit. Insert the following sentence at the beginning of the paragraph, "The project units will be exempt from specific emission limits during the one hour startup period." Revise former sentence 1 from "...are for an hour long start-up." to "...are estimates for an hour long start-up."

18. Page 44, Paragraph 4. Delete "standby generator" from the second sentence.

19. Page 44, Paragraph 4. Delete second to last sentence referencing the standby diesel generator.

20. Page 44, Paragraph 4. Delete "standby generator" from the last sentence.

21. Page 45, Paragraph 1. One of the changes to be reflected in the revised AQIA is to revise the assumptions used to calculate the total hourly emission levels during a combined cycle unit start-up period. (The assumptions for the simple cycle CTG start-up remain unchanged.) Previously, for the AFC, it was assumed that a combined cycle unit would attain full load within 20 minutes. This assumption has been revised to account for the need for an extended warmup time before full load is attained. For the revised start-up period emission estimates it will be assumed that the unit operates for 30 minutes at 50 percent load, uncontrolled, then for the balance of the start-up hour, it will be assumed that the unit will be controlled while the equipment completes its warmup period before full load is achieved. The resulting updated start-up emission estimates will be reflected in the revised AQIA and offsets calculations. Paragraph 1 will need to be updated accordingly for the combined cycle units.

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MEMORANDUM

Sacramento Cogeneration Authority
Procter & Gamble Cogeneration Project
Comments on the CEC Preliminary
Staff Assessment of the AFC Air
Quality Section

B&V Project 23933
May 19, 1994

22. Page 45, AIR QUALITY: Table 12. Update the start-up emissions numbers based on the revised start-up assumptions and project emissions to be reflected in the revised AQIA. Delete the reference to the standby diesel generator.

23. Page 45, Paragraph 2. Delete "at" in the second line.

24. Page 46, Top of the page. Update paragraph based on the revised AQIA.

25. Page 46, AIR QUALITY: Table 13. Update table based on the revised AQIA.

26. Page 46, Bottom of the page. Update paragraph based on the revised AQIA.

27. Page 47, Paragraph 2. Delete paragraph referencing the standby diesel generator.

28. Page 47, Paragraphs 4 and 5. Update paragraphs based on the revised AQIA.

29. Pages 48 and 49, AIR QUALITY: Tables 14 and 15. Update tables based on the revised AQIA.

30. Page 50, Paragraph 4. The combined cycle CTG stack heights will be revised from 150 foot to 115 foot and their corresponding GEP stack heights will be 115 feet instead of 136 feet. (This will be reflected in the revised AQIA.)

31. Page 50, Paragraph 4. As a result of changes to the project configuration, the dominant building dimensions have changed such that the calculated GEP stack height has decreased. Replace "The GEP stack heights for the auxiliary boiler and the standby generator were calculated by SCA to be 115 feet, which is above the proposed 80 foot stack heights for the two sources." with "The GEP stack height for the auxiliary boiler was calculated by SCA to be 105 feet. Although the proposed stack height of 80 feet for the auxiliary boiler is below GEP, dispersion modeling results for

the AQIA demonstrate acceptable air quality impacts from the emission source."

32. Page 50, Paragraph 4. Delete reference to the standby diesel generator in the last sentence.

33. Page 51, Paragraph 2. Delete second to last sentence referencing the standby diesel generator.

34. Page 51, AIR QUALITY: Table 16. Update table based on revised AQIA.

35. Pages 52 to 58, Update Air Dispersion Modeling Results section to correspond to the revised AQIA.

36. Page 59, Paragraph 3. Replace "...quenches the flame and absorb heat..." with "...absorbs heat..." in sentence 2 of the paragraph.

37. Page 60, Paragraph 5. Replace "...quench the flame." with "...reduce the temperature of the flame." in sentence 2 of the paragraph.

38. Page 60, Paragraph 5. Delete last sentence in the paragraph referencing the standby diesel generator.

39. Page 61, Paragraph 2. Delete paragraph referencing the standby diesel generator.

40. Page 61, Paragraph 5. Delete paragraph referencing the standby diesel generator.

41. Page 61, Paragraph 6. Delete the last sentence in the paragraph referencing the standby diesel generator.

42. Page 63, Item #3 under Operating Emissions. Revise "...0.02 percent to 0.006 percent." to "...0.002 percent to 0.0006 percent."

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B&V Project 23933
May 19, 1994

CATEGORY 2 COMMENTS (SUBSTANTIVE ISSUES)

1. Page 18, Last paragraph. (Also Page 25, paragraph 1.) Although the PSA states that the project is within an air basin being in attainment of the CO air quality standards, there seems to be some confusion whether the CO nonattainment area within Sacramento (thought by the CEC to end at Power Inn Road) actually extends eastward to Florin-Perkins Road which would put the project within the CO nonattainment area. Although this issue does not appear to impact the results of the air quality analysis and level of required mitigation, it is recommended that CEC and SMAQMD come into agreement as to the exact boundary of the CO nonattainment area.

2. Page 25, Paragraphs 4 and 5. We agree with the CEC's conclusion that the NO_2 and CO ambient air quality data measured at the North Highlands - Blackfoot monitoring station is more representative of conditions at the project site as compared to the data measured at the Del Paso Manor station. As a result of the PSA conclusion with this regard, the revised AQIA will reflect the North Highlands - Blackfoot NO_2 and CO air quality data and rationale for its use in lieu of that recorded at the Del Paso Manor station.

3. Page 38, Paragraph 3. SCA is committing to a NO_x emission limit, but not committing to specific boiler designs. SCA is committing to the use of appropriate control technology and/or boiler design necessary to meet the proposed emission limit. To reflect this point, replace "The auxiliary boiler uses a combination of low-NO_x burners and flue gas recirculation to limit NO_x emissions." with "The auxiliary boiler will utilize NO_x control technology as appropriate, such as low-NO_x burners, to meet the NO_x emission limit."

4. Page 39, Paragraph 3. Fugitive dust during construction will be controlled by watering in accordance with normal construction practices and local requirements. A control effectiveness of 50 percent was made as a conservative assumption to estimate fugitive dust emission rates for the AFC. (It should be noted that a more realistic effectiveness level of 80 percent will be assumed in the fugitive modeling analysis to be submitted later.) This comment

also applies to page 40, last paragraph (as noted in Comment #5, below) and page 58, paragraph 4 (as noted in Comment #15, below).

5. Page 40, Last paragraph. See comment #4, above.

6. Page 42, Paragraph 2. SCA is not prepared to accept a condition which restricts the operation of the duct burners to 100 percent load only. Although the emissions and impacts were only presented for the worst-case duct burner load of 100 percent, it should be noted that the partial load condition for the duct burners is covered in the AQIA because partial load conditions will generate lower emissions and air quality impacts. Replace "The duct burners are only operated at 100 percent of rated capacity." with "The duct burners can be operated from 10 to 100 percent of rated capacity."

7. Page 42, Paragraph 4. SCA is not prepared to accept a condition which specifically limits the combined cycle CTGs to a certain number of start-ups per quarter. An estimated 10 start-ups per quarter (40 per year) was used to conservatively calculate maximum quarterly emissions. It should be noted that there will be a quarterly emission limit for the units. Although emissions during each start-up hour will not be specifically limited, the emissions during each hour will be accumulative to the total quarterly emissions for each unit. Thus, there should be no limit on the actual number of start-ups other than that which is actually necessary to meet the quarterly emission limit for each unit. If the actual start-up period emissions are lower than the start-up emissions used in the emission calculations, SCA desires the flexibility to start up the combined cycle CTG more than 10 times per quarter. Delete the last sentence in the paragraph, "The units will be limited to 40 start-ups annually.".

8. Page 42, Paragraph 5. See Comment #6, above. Replace "The duct burners are either off or fired at 100 percent of base load capacity." with "The duct burners can be operated from 10 to 100 percent of rated capacity.".

9. Page 42, Paragraph 5. One of the project operational changes desired by SCA is that the operational limitation of limiting the

number of hours per day at 50 percent load be deleted. This is a result of realizing lower CO emission levels at 50 percent load per updated CTG performance data received from General Electric. Therefore, delete the last sentence, "The CTG is limited to a maximum of 8 hours at 50 percent load per day, and only two of the three CTGs will operate at 50 percent load at one time." The revised AQIA will reflect this change.

10. Page 43, Bottom of page. Similar to Comment #7, SCA is not prepared to accept a condition which specifically limits the simple cycle CTG to a certain number of start-ups per quarter. An estimated 50 start-ups per quarter (200 per year) was used to conservatively calculate maximum quarterly emissions. It should be noted that there will be a quarterly emission limit for the units. Although emissions during each start-up hour will not be specifically limited, the emissions during each hour will be accumulative to the total quarterly emissions for the unit. Thus, there should be no limit on the actual number of start-ups other than that which is actually necessary to meet the quarterly emission limit for the unit. If the actual start-up period emissions are lower than the start-up emissions used in the emission calculations, SCA desires the flexibility to start up the simple cycle CTG more than 50 times per quarter. Delete "and 200 start-ups" from the first sentence of the paragraph.

12. Page 44, Top of page. See Comment #9. Delete sentence at the top of the page.

13. Page 44, Paragraph 1 (Auxiliary Boiler). One of the project operational changes desired by SCA is that the auxiliary boiler continuously operate at a low, standby load to allow it to quickly pick up the process steam load for P&G in case the combined cycle units trip off-line. It is proposed by SCA that the auxiliary boiler operate at this reduced load for 90 percent of the year, and at full load for 10 percent of the year. This results in a combined annual capacity factor for the auxiliary boiler greater than previously proposed in the AFC. The 10 percent annual capacity factor previously proposed assumed that the auxiliary boiler would be kept warm with steam coils, and not through actual firing of fuel within the boiler. As a result of the proposed

higher annual capacity factor, SCA proposes the use of SCR as BACT to control boiler NO_x emissions. This change in auxiliary boiler operation, which affects unit emission levels and project air quality impact levels, will be reflected in the revised AQIA. The applicable paragraph in the PSA will need to be revised accordingly.

14. Page 50, Paragraphs 1 and 2. A construction fugitive dust impact analysis is being performed and will be submitted later. Preliminary results confirm CEC's opinion stated in the PSA that construction dust impacts are predicted to be localized, and concentrations fall off quickly with distance from the project site.

15. Page 58, Paragraph 4. See Comment #4, above.

16. Page 60, Paragraph 2. SCA is proposing use of SCR and a NO_x emission limitation from the combined cycle units of 5 ppmdv (referenced to 15 percent oxygen) and an associated lb/h emission rate assumed in the AQIA. SCA is not prepared to accept a condition which specifies a 90 percent removal efficiency through the SCR. The required efficiency to meet the outlet emission limitation will vary depending on the inlet NO_x level from the CTG, which itself varies depending on unit load and ambient temperature. Thus, BACT and the appropriate emission limitation is the use of SCR to achieve an outlet concentration of 5 ppmdv. Replace "SCA is proposing a NO_x reduction of 90 percent with the SCR system, with an undefined ammonia slip, to achieve a stack NO_x concentration of 5 ppmdv." with "SCA is proposing the use of SCR to achieve a NO_x emission limitation of 5 ppmdv (referenced to 15 percent oxygen)."

17. Page 60, Paragraph 5. SCA is proposing a NO_x emission limitation from the CTG/HRSG stack of 5 ppmdv (referenced to 15 percent oxygen). The 40 ppmdv emission level from the CTGs is an estimate. SCA is not prepared to accept a condition which limits the emission level of the CTG before it passes through the HRSG and SCR. Replace "The NO_x emissions from the CTGs are limited to 40 ppm." with "The NO_x emissions from the CTGs (before passing

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through the HRSG and SCR) will be approximately 40 ppmdv and be controlled through water injection."

18. Pages 61 to 69, Emissions Offsets Discussion. The discussion of emissions offsets will be updated as a result of the revised AQIA and incorporation of changed project configuration and operation. In addition, the response to the PSA Conclusions and Recommendations Item 3 will be prepared and submitted with the revised AQIA. The response to this item will attempt to address unresolved emissions offsets and interpollutant trading issues.