PETITION FOR POST CERTIFICATION LICENSE AMENDMENT SMUD COSUMNES POWER PLANT

01-AFC-19C

Sacramento Municipal Utility District Financing Authority

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1.0 INTRODUCTION

1.1 Overview of Amendment

In September 2003, the California Energy Commission (CEC or Commission) approved the Cosumnes Power Plant (CPP) project. The project is located adjacent to the Rancho Seco Plant in southern Sacramento County. Submitted in September 2001, the Application for Certification (AFC) for the CPP analyzed the impacts associated with four General Electric Model 7241FA gas turbines exhausting into four unfired heat recovery steam generator (HRSG) units. The project included two condensing steam turbine generators and two nine-cell cooling towers. The preliminary design concept assumed eight of the nine cells in the cooling tower would operate concurrently, with the ninth used as a spare. The initial operation of Phase 1 of the CPP (two gas turbines, two HRSGs, one condensing steam turbine, one cooling tower) began in October 2005 and this phase of the project was available for commercial operation in February 2006.

As part of the Commission's approval of Phase 1 of the CPP project (01-AFC-19C), the Commission summarized the plant's operational characteristics in the project description, and imposed a number of air quality and visual conditions of certification on the project. The project description and conditions of certification included those specific to the cooling tower and other plant equipment. At this time, the Sacramento Municipal Utility District Financing Authority (SFA) is seeking approval for minor changes to the project description, cooling tower specifications, and operating parameters based upon final design, the desire to optimize plant operation, and concurrent data collected during plant operation.

Specifically for the cooling tower project description: during final design, the equipment vendors determined that there would be insufficient space for all nine cells, and proposed an eight cell cooling tower that met the heat rejection parameters. Prior to ordering the cooling tower, the project applicant, Sacramento Municipal Utility District (SMUD), submitted updated information to the CEC for the purchase of this long-lead item. SMUD's vendor heat rejection curves specified an eight-cell design; however, it was not clearly stated in a submittal to the CEC that the ninth cell was eliminated from the design. SMUD did not detect the project description discrepancy during its review of the Presiding Members Preliminary Decision in August 2003. The license was issued by the CEC in September 2003 containing the original nine-cell language in the project description. In preparing this petition to address cooling tower specifications, SFA became aware of the project description discrepancy and reviewed the CPP project license in light of any potential environmental impacts based on the eight-cell design.

1.2 Summary of Environmental Impacts

Section 1769(a)(1)(E) of the CEC Siting Regulations requires that an analysis be conducted to address any potential impacts the proposed modification may have on the environment and proposed measures to mitigate significant adverse impacts. Section 1769(a)(1)(F) requires a discussion of the impact of proposed modification on the facility's ability to comply with

applicable laws, ordinances, regulations, and standards (LORS). Section 3.0 of this document discusses the potential impacts of the Amendment on the environment, as well as the consistency of the requested change with LORS. Section 3.0 concludes that there will be no significant adverse environmental impacts associated with this Amendment and that the project, as amended, will comply with applicable LORS.

1.3 Consistency of Amendment with License

Section 1769(a)(1)(D) of the CEC Siting Regulations requires a discussion of whether the modification being sought is based on new information that changes or undermines the assumptions, rationale, findings, or other basis of the final decision. If the project is no longer consistent with the license, an explanation of why the modification should be permitted must be provided. The changes proposed herein are consistent with the project's CEC license and do not undermine any basis for the CEC's licensing decision.

2.0 DESCRIPTION OF PROJECT AMENDMENT

Consistent with the CEC Siting Regulations section 1769(a)(1)(A) and (B), this section includes a complete description of the proposed project modification as well as the necessity for the Amendment.

When the Commission approved Phase 1 of the project in September 2003 (01-AFC-19C), the Commission imposed a number of air quality and visual resources conditions of certification and described the project based on the project design information used at that time. Included in the Commission's approval were air quality and visual resources conditions of certification specific to the cooling tower at CPP. Subsequent to the Commission's approval, SFA determined that minor changes to the specifications and operating parameters for the cooling tower would enhance the plant's operations.

Specifically, electrical conductivity of the circulating cooling water is continuously monitored and a correlation factor is used to convert measured conductivity to total dissolved solids (TDS) values. Based upon information supplied by the conductivity meter supplier, SMUD employed a factor of 0.46 parts per million TDS per microSiemens per centimeter for the CPP project,. Recently, during a routine inspection by the Sacramento Metropolitan Air Quality Management District, SFA was asked for additional information on TDS and conductivity. Cooling water grab samples were taken and analyzed in the laboratory. The results showed the TDS levels of the cooling water were higher than expected, which also meant that the correlation factor for the instrument needed to be adjusted to the higher factor of 0.7. SFA immediately adjusted its operations so that cooling tower PM_{10} limits would not be exceeded. This initially meant restricting power output so that the rate of heat rejection would be reduced. Furthermore, the plant operator was directed by SFA to install new electrical conductivity probes at both the cooling tower basin and cooling tower make-up water line. This is expected to provide plant operations staff with better data from which to assess cooling tower conditions and predict operational change. Although 2001 AFC water data was obtained from several sources, and

grab samples were obtained, it appears that TDS from the raw water source has varied from the data that was collected and used in the AFC.

Also, CPP's preliminary engineering design specified a nominal cooling tower circulating water flow rate of 125,867 gpm. After consultation with CPP's engineer-of-record for final plant design, Utility Engineering, the as-built nominal circulating water flow rate that optimizes cooling tower performance for system curves is 155,000 gpm. The increase in flow rate means water is being re-circulated faster in the cooling tower at any one time. This will not result in an increase in plant water use, which is already restricted under condition Water Res-1 and is closely monitored. The unexpected increase in TDS and the increased cooling tower flow rate that optimizes efficiency and power production are independent of one another. The unexpected increase in TDS though, in combination with the optimized increase in cooling tower flow rate, will result in an increase in PM_{10} emissions from the cooling tower drift, however this increase is small and certified air emissions testing has determined that CPP's total, actual PM_{10} emissions – including those from the cooling tower - are well below permitted levels.

In order to obtain the maximum plant efficiency and enhance power output during all ambient weather conditions, SFA is seeking permission from the CEC to make adjustments to cooling tower specifications.

Because these revised specifications and parameters are different than those analyzed during the Commission certification process, it is necessary to revise the CEC air quality conditions of certification to match the revised cooling tower specifications. In addition, due to the oversight in the number of cooling tower cells and dimensions, SFA is seeking minor changes to the project description section that describes the physical characteristics of the cooling tower. No changes to the visual resources conditions of certification are believed to be necessary.

The following table summarizes the revised specifications for the cooling tower at the CPP as compared with the cooling tower specifications in the 2001 AFC and the existing CEC conditions of certification. As shown in Table 1, the main difference between the cooling tower specifications in the existing conditions of certification and the proposed changes is the increase in the maximum total dissolved solids (TDS) level from 470 to 800 ppmw. This change is necessary due to higher than expected maximum TDS levels in the cooling water. The table also shows the maximum water circulation rate is increased to optimize cooling tower performance during all ambient weather conditions without restricting design power output.

Table 1
Cooling Tower Specifications

Parameter	2001 AFC	Existing COCs	Proposed Revised Specifications
Number of cells	9 (8 operating)	N/A*	8 (8 operating)
Maximum water circulation rate (gpm)	125,867 (tower total)	N/A*	155,000 (tower total)
Maximum water TDS level (ppmw)	470	470	800
Drift rate (%)	0.0005	0.0005	0.0005

Table 1
Cooling Tower Specifications

Parameter	2001 AFC	Existing COCs	Proposed Revised Specifications
Diameter of each cell vent (ft)	36	N/A*	30
Height of each cell vent (ft)	6	N/A*	14
Exhaust flow rate per cell (acfm)	1,436,258	N/A*	1,613,000
Average exhaust temperature (deg. F)	68	N/A*	68
Length of cooling tower (ft)	431	N/A*	440
Width of cooling tower (ft)	53	N/A*	74
Height of cooling tower from ground level to top deck (ft)	34	N/A*	39

Notes (Table 1):
* These parameters are not included in the existing COCs for the cooling tower.

The purpose of the proposed Amendment is to make the project description and air quality conditions of certification consistent with the revised specifications and parameters for the cooling tower at the CPP.

2.1 Necessity of Proposed Amendment

Sections 1769(a)(1)(B) and (C) of the CEC Siting Regulations require a discussion of the necessity for the proposed modifications and whether the modifications are based on information known by the petitioner during the certification proceeding.

As discussed above, the purpose of the proposed Amendment is to make the project description and air quality conditions of certification consistent with the revised specifications and operating parameters for the cooling tower at the CPP. The proposed changes to the air quality conditions of certification relating to TDS are the result of unexpected variations in raw water parameters and the associated instrument correlation factor that were discovered during plant operation, well after the completion of the CPP's certification process. The proposed changes for circulating water flow rate are the result of consultation with the final design engineer for optimum cooling tower operation in comparison with the corresponding system curve that were deemed necessary after the completion of the CPP's certification process. The proposed project description changes will correct the oversight that was carried through from the original project

description. SFA proposes to change the description from two nine-cell cooling towers to two eight-cell cooling towers.

3.0 ENVIRONMENTAL ANALYSIS OF THE AMENDMENT

This section examines whether the project change set forth in this Amendment may result in additional environmental impacts. An environmental analysis for the modification identified in this Amendment is included below. The analysis concludes that there will be no significant unmitigated adverse environmental impacts associated with this Amendment and that the project, as amended, will comply with all applicable LORS.

3.1 Air Quality

The following paragraphs discuss the effect on the Commission air quality conditions of certification (COCs) associated with the proposed changes to the cooling tower specifications and operating parameters. As discussed below, while there is a request to increase the hourly and daily respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}) emission levels for the cooling tower, SFA believes there is no need to increase the existing facility-wide PM_{10} quarterly or annual emission limits for the CPP. However, the Sacramento Metropolitan Air Quality Management District (SMAQMD), in its Authority to Construct issued June 12, 2007, determined that under their rules, the quarterly and annual facility-wide PM_{10} limits should be increased, thus triggering the need for additional emission PM_{10} offsets, as a result of the change in cooling tower specifications. On June 19, 2007, SFA surrendered the additional PM_{10} offsets required by the SMAQMD. As a result, no additional air quality mitigation is required for the proposed amendment. In addition, because the revised PM_{10} emissions associated with the cooling tower are less than the SMAQMD Best Available Control Technology (BACT) trigger level of 10 lbs/day, the requested change for the cooling tower does not trigger BACT requirements. Since the original AFC analysis restricted cooling tower operations to eight cells concurrently, there is no change in the analysis due to the project describing a nine-cell cooling tower.

PM_{10} Emission Limit for Cooling Tower

Conditions Affected:

- Condition AQ-18
- Condition AQ-19

Proposed Change:

- Condition AQ-18: Increase daily PM_{10} limit for cooling tower from 3.6 lbs/day to 7.4 lbs/day. Increase daily PM_{10} limit for facility from 435.6 to 439.4 lbs/day.
- Condition AQ-19: Increase maximum allowable PM_{10} emissions from the facility as follows:
    - Quarter 1: from 39,204 pounds to 39,550 pounds

- Quarter 2: from 39,640 pounds to 39,989 pounds
- Quarter 3: from 40,075 pounds to 40,428 pounds
- Quarter 4: from 40,075 pounds to 40,428 pounds
- Annual total: from 158,994 pounds to 160,395 pounds

Reason for Change:

As shown by the detailed emission calculations included as Attachment 1, the cooling tower PM_{10} emissions are based on the maximum cooling water recirculation rate, maximum TDS level in the cooling water, and drift rate. Because the maximum expected cooling water TDS level is increasing, there is a corresponding increase in the maximum hourly and daily PM_{10} emission rates for the cooling tower. While the maximum hourly and daily PM_{10} emission rates increase for the cooling tower, SFA believes there is no need to change the existing facility-wide quarterly and annual PM_{10} emission limits included in the COCs (i.e., Condition AQ-19). This is because SFA is confident that despite the increase in cooling tower PM_{10} emission levels, the overall facility-wide PM_{10} emissions will continue to remain below the existing quarterly and annual COC PM_{10} limits, which were designed with a substantial margin of safety with respect to worst-case plant operations. However, as discussed above, SMAQMD has determined that the facility total quarterly and annual PM_{10} emission limits must be changed as a result of the revised cooling tower specifications. The proposed revised quarterly and annual emission limits are those contained in the SMAQMD's June 12, 2007 Authority to Construct for the cooling tower specification modifications.

Will Change Result in any New Significant Impacts

To determine if there are any new significant air quality impacts associated with this requested change, a revised PM_{10} ambient air quality impact analysis was performed for the cooling tower. As with the analysis included in the 2001 AFC for the CPP, the revised ambient impact analysis for the CPP cooling tower was performed using the EPA-approved Industrial Source Complex Short-Term (ISCST3) model. In addition, as in the previous analysis, the revised modeling was performed using the SMAQMD-approved meteorological data collected at the Sacramento Executive Airport for the period from 1985 to 1989. Furthermore, the same receptor grids used for the 2001 analysis were also used for the revised ambient impact analysis. The revised modeling analysis includes the changes to the stack parameters and cooling tower dimensions shown in Table 1.

The following table compares the maximum PM_{10} impacts from the cooling tower shown in the 2001 AFC for the CPP with the revised impacts. As shown in Table 2, while the proposed maximum daily PM_{10} emissions have increased, the maximum modeled 24-hour average impacts have decreased due to the slightly higher exhaust flow rate. For annual average PM_{10} impacts, the maximum modeled impact has increased

slightly.[1] However, because this increase is well below the Prevention of Significant Deterioration (PSD) significance level for PM_{10} of 1.0 μg/m^3, this small net increase is negligible. Consequently, there are no new significant PM_{10} ambient impacts associated with the proposed changes to the COCs for the cooling tower. The detailed modeling files are included on the enclosed compact disc.

Table 2
PM_{10} Ambient Impacts (Single Cooling Tower)

	2001 AFC for CPP	Revised Impacts	Net Change
24-hour Impact (μg/m^3)	0.198*	0.177	-0.021
Annual Impact (μg/m^3)	0.017*	0.020	0.003

Note:
* Calculated based on one-half of combined impacts for both cooling towers that were analyzed in the 2001 AFC for the CPP (i.e., 0.396 μg/m^3 24-hr impact, 0.0337 μg/m^3 annual impact). The second cooling tower is part of Phase 2, which has not yet been licensed.

Cooling Water TDS Level

Conditions Affected:

- Condition AQ-24

Proposed Change:

- Condition AQ-24: Increase maximum circulating water TDS level from 470 to 800 ppmw.

Reason for Change:

This change is necessary due to higher than anticipated maximum cooling water TDS levels.

Will Change Result in any New Significant Impacts

As discussed above, the proposed increase in cooling water TDS levels will result in a corresponding increase in the maximum hourly and daily PM_{10} emission levels for the cooling tower. In addition, as discussed above, SMAQMD has determined that the

[1] The SMAQMD's June 12, 2007 ATC for the revised cooling tower specifications would increase facility annual PM_{10} emissions by 0.9%. This increase does not affect the values shown in Table 2.

increase in TDS levels would result in slightly higher PM_{10} emissions on a quarterly and annual basis. As discussed above for COCs AQ-18 and AQ-19, there are no new significant air quality impacts associated with this change.

3.2 Biological Resources

The proposed Amendment will not result in biological resource impacts any different than those analyzed by the CEC during licensing of the project. Neither the proposed project description change nor the TDS increase, nor cooling tower recirculation flow rate increase will enlarge the footprint of the plant or extend its boundaries. There will be no increase in the currently established instantaneous or annual water limits that could affect biological resources.

3.3 Cultural Resources

The proposed Amendment will not result in cultural resource impacts any different than those analyzed by the CEC during licensing of the project. Neither the proposed project description change nor the TDS increase, nor cooling tower recirculation flow rate increase will enlarge the footprint of the plant or extend its boundaries.

3.4 Land Use

The proposed Amendment will not result in land use impacts any different than those analyzed by the CEC during licensing of the project. Neither the proposed project description change nor the TDS increase, nor cooling tower recirculation flow rate increase will enlarge the footprint of the plant or extend its boundaries.

3.5 Noise

The proposed Amendment will not result in noise impacts any different than those analyzed by the CEC during licensing of the project. Since only eight cooling tower fans would have operated at any given time even with a nine-cell cooling tower, there is neither an increase nor a reduction in noise associated with the change to the project description or cooling tower specifications.

3.6 Public Health

The cooling water used at CPP may contain some metal compounds that are classified as toxic air contaminants (TACs). Due to the possible presence of these compounds in the cooling water, it was necessary to calculate TAC emissions associated with the cooling tower. The detailed TAC emission calculations for the cooling tower are included in Attachment 2. Some of these compounds have both carcinogenic and non-cancer health effects. Under the Sacramento Metropolitan Air Quality Management District's (SMAQMD) toxics policy, new or modified projects with TAC emissions are required to perform a screening level risk assessment. Under

this policy, new or modified projects with TAC emissions are considered de minimis if the maximum excess cancer risk (MECR) is less than 0.1 in one million and the non-cancer Hazard Index (HI) is less than 1.0. A project with MECR greater than or equal to 0.1 in one million and less than 1.0 in one million is approvable with no further requirements. If the MECR is greater than or equal to 1.0 in one million, Toxics Best Available Control Technology (TBACT) is required. The MECR is capped at 10 in one million for all projects except for those that receive special overriding approval by the Air Pollution Control Officer. Additionally, the HI is capped at 1.0, except when special consideration is given in consultation with the State Office of Environmental Health Hazard Assessment (OEHHA).

As part of the 2001 AFC for the CPP project, a screening level risk assessment was performed for the gas turbines and cooling towers. This analysis determined the MECR and chronic/acute impacts for the project. While the proposed change to the TDS level of the cooling water is not expected to affect the TAC emissions associated with the cooling tower, as shown in Table 1 the proposed cooling tower water circulation rate and stack parameters are different than those analyzed as part of the 2001 AFC for the CPP. Consequently, to determine the change (if any) in the MECR and/or chronic/acute impacts associated with the proposed cooling tower specification changes, a revised screening level health risk assessment (HRA) was performed examining the impacts from only the cooling tower. This analysis was prepared using the California Air Resources Board's (CARB) Hotspots Analysis and Reporting Program (HARP) computer model (Version 1.2a, August 26, 2005) and associated guidance in the OEHHA's *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (August 2003). The HARP model was used to assess cancer risk as well as chronic and acute risk impacts. The following paragraphs describe the procedures used to prepare this screening level risk assessment.

Modeling Inputs

The risk assessment module of the HARP model was run using unit ground level impacts to obtain derived cancer risks for each TAC of interest.[2] Cancer risks were obtained for the average point estimate and high-end point estimate options. The HARP model output was cancer risk by pollutant and route for each type of analysis, based on an exposure of 1.0 $\mu g/m^3$. HARP model output showing the unit values is included as Attachment 3. Individual cancer risks are expressed in units of risk per $\mu g/m^3$ of exposure. To calculate the weighted risk, the annual average emission rate in g/s for each TAC was multiplied by the individual cancer risk for that pollutant in $(\mu g/m^3)^{-1}$. The resulting weighted cancer risks for each TAC were then summed for the cooling tower. An identical approach was used to determine the acute and chronic health impacts associated with the cooling tower. Details of the calculations of risk "rates" for modeling are shown in Attachment 4.

[2] Procedure is described in Part B of Topic 8 of the HARP How-To Guides: How to Perform Health Analyses Using a Ground Level Concentration.

Risk Analysis Method

The total weighted risk "rate" was used in place of emission rates in the modeling analysis. The weighted risk "rates" used for the cooling tower screening level risk assessment modeling are summarized in Attachment 4. The value calculated by the dispersion model was then total cancer risk at each receptor. As discussed above, the PM_{10} modeling analysis for the cooling tower was performed using the ISCST3 model, the 1985 through 1989 Sacramento Executive Airport meteorological data, and the stack parameters for the cooling tower shown on Table 1. Consequently, this same modeling approach was used for the HRA modeling. The contribution of each TAC to total cancer risk and total HI for each analysis method was then determined using the individual contribution of each compound to the total weighted risk "rate."

Summary of Results

The results of the screening level health risk assessment are summarized in the following table.

Table 3
Revised Screening Level Risk Assessment

Risk Methodology	2001 AFC for the CPP	Revised Impacts
Modeled Residential Cancer Risk (in one million)		
Residential: Average Point Estimate	0.107*	0.228
Residential: High-end Point Estimate	0.107*	0.329
Modeled Acute and Chronic Impacts		
Acute HI	0.005*	0.005
Chronic HI	<0.001*	<0.001

Notes:
* AFC for the SMUD Cosumnes Power Plant, September 2001, Appendix 8.1E, Tables 8.1E-1, 8.1E-2, and 8.1E-3. To calculate the impacts from a single cooling tower, the combined impact from two cooling towers shown on these tables of the 2001 AFC were divided by two.

As shown in Table 3, the revised MECR associated with the cooling tower is below both the TBACT trigger level of 1 in a million and the significance level of 10 in one million. In addition, the revised acute and chronic health hazard indices for the cooling tower are well below the significance level of one. As shown in Table 3, there is an increase in the MECR for the cooling tower. This is due to two factors. First, as discussed above, the HARP model was used for the

revised analysis compared to the Health Risk Assessment (HRA) program that was used for the 2001 analysis of the CPP. Second, as shown in the TAC emission calculations included in Attachment 2, the revised emission rates include two new TACs, hexavalent chromium and chloroform.

Hexavalent chromium was included in the revised analysis because this compound is shown in one of the water quality tables[3] in the 2001 AFC for the CPP. There is some uncertainty regarding the actual presence of hexavalent chromium in the raw water supply to the CPP since the hexavalent chromium concentration shown in the 2001 AFC is equal to the detection level of the water quality test method. Despite this uncertainty, for consistency purposes hexavalent chromium was included in the revised screening level risk assessment for the cooling tower.

Chloroform was included in the revised analysis as a result of a study performed in 2004 on industrial process cooling towers for the EPA as part of the National Emission Standard for Hazardous Pollutants (NESHAP) program. The results of this study[4] indicate the presence of chloroform in the drift from cooling towers due to the use of chlorine in the cooling water as a biocide. Since chlorine is used in the cooling water at the CPP, chloroform was included in the revised TAC emissions calculations for the cooling tower.

While Table 3 shows an increase in the modeled MECR for the cooling tower from approximately 0.1 to 0.3 in one million, since the modeled MECR for the gas turbines in the 2001 AFC for the CPP was only about 0.1 in one million,[5] the overall MECR for the project remains below the TBACT trigger level of 1 in a million. Therefore, the proposed Amendment will not result in any new significant public health impacts.

3.7 Worker Safety & Health

The proposed Amendment will not result in worker safety and health impacts any different than those analyzed by the CEC during licensing of the project. Neither the proposed project description change, nor the TDS increase, nor cooling tower recirculation flow rate increase will affect the CPP operations Injury and Illness Prevention Plan.

3.8 Socioeconomics

The proposed Amendment will not result in socioeconomic impacts any different than those analyzed by the CEC during licensing of the project. There are no socioeconomic impacts, such as increase or decrease in construction or operations crew, or increase in operating costs associated with the proposed changes.

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[3] Cosumnes Power Plant, Application for Certification, September 2001, Table 7.1-2, Folsom-South Canal Raw Water Sampling Results.

[4] Estimated Worst-Case HAP Emissions for Industrial Process Cooling Tower and Chromium Electroplating Residual Risk Standards, EPA Contract 68-D-01-079, Prepared by RTI, Revised April 20, 2005.

[5] Cosumnes Power Plant, Application for Certification, September 2001, Table 8.1-3, Screening Level Risk Assessment SMUD Cosumnes Power Plant.

3.9 Agriculture & Soils

The proposed Amendment will not result in agricultural and soil impacts any different than those analyzed by the CEC during licensing of the project. Neither the proposed project description change nor the TDS increase, nor cooling tower recirculation flow rate increase will enlarge the footprint of the plant or extend its boundaries.

3.10 Traffic & Transportation

The proposed Amendment will not result in traffic and transport impacts any different than those analyzed by the CEC during licensing of the project. There are no traffic and transportation impacts, such as increases or decreases in the volume or flow of traffic associated with the proposed changes.

3.11 Visual Resources

Project Description for Cooling Tower Configuration

Conditions Affected

The proposed Amendment will not result in visual resource impacts any different than those analyzed by the CEC during licensing of the project. There are no conditions of certification affected; however, the project description and figures used in describing the cooling tower configuration are affected.

Proposed Change

Describe the cooling tower configuration as two eight-cell cooling towers rather than two nine-cell cooling towers, and update the descriptive text to match the dimensions of the eight-cell cooling tower listed in Table 1 of this Petition (Section 2.0).

Reason for Change

The proposed project modification related to the cooling tower specifications and operating parameters were not known and could not have been known at the time of the AFC submittal in September 2001. Preliminary engineering provided a best estimate of parameters from similar cooling tower designs and similar projects. All power plant cooling towers are custom designed by individual vendors who provide their unique margins for warranties and guarantees. Due to SMUD's status as a public agency, it could not pre-select a vendor and obtain a specific design for this item during AFC development in 2001. Formal cooling tower bids were solicited by SMUD in November 2002. Furthermore, SMUD did not detect the project description discrepancy during its review of the Presiding Members Preliminary Decision in August 2003. The license was issued by the CEC in September 2003. As SFA was reviewing the documentation involving the TDS and cooling tower circulation flow rate increase during preparation of this petition, it came to our attention that the project description was inaccurate.

Will Change Result in Any New Significant Impacts

To determine if there are any significant impacts due to this description change, the visual simulations from the key observation points (KOPs) were reviewed.

KOP 1 is located at Clay East Road, approximately 0.2 mile southwest of the project site. The cooling tower is slightly visible at this location and is similarly slightly visible in the visual simulation. There is no significant change since the predominant features are the combustion turbine air intake structures, the heat recovery steam generators, and plant features on the west side. The cooling tower(s) is located on the east side of the plant and mostly obscured from view.

KOP 2 is located at the back yard of 11615 Kirkwood Street, near the intersection with Clay East Road. This viewpoint is approximately 1.1 miles southwest of the project site. The cooling tower is visible at this location and is visible in the visual simulation. There is no significant change since the predominant features are the combustion turbine air intake structures, the heat recovery steam generators, and the plant features on the west side. The cooling tower(s) is located on the east side of the plant and mostly obscured from view.

KOP 3 is located at the backyard of 11540 Clay Station Road, slightly over two miles northwest of the project site. The cooling tower is slightly visible at this location and it is slightly visible in the visual simulation. There is no significant change since the predominant features are the combustion turbine air intake structures, the heat recovery steam generators, and the plant features on the west side. The cooling tower(s) is located on the east side of the plant and mostly obscured from view.

KOP 4 is located at the swimming and picnic area at Rancho Seco Park. This viewpoint is approximately 1.6 miles southeast of the project site. The cooling tower is not visible at this location and is not visible in the visual simulation. There is no significant change since it is not visible.

The original AFC analysis restricted cooling tower operations to eight cells concurrently, so there is no change in the analysis due to the project describing a nine-cell cooling tower. This analysis is verified by referring to Data Responses, Set 1C, Data Request 108 (February 4, 2002). The response to this request notes, "…The data previously submitted for cooling tower performance is correct for 8 cells operating in each 9-cell cooling tower."

In addition, there is no change in the expected frequency or duration of cooling tower visible plumes. Visible plumes for cooling towers are mainly affected by exhaust temperatures. An increase in exhaust temperature will result in a corresponding decrease in the frequency and duration of visible plumes. Since there is no change in the exhaust temperature associated with the proposed revised cooling tower specifications, there is no expected impact on the frequency or duration of visible plumes for the proposed revised cooling tower specifications compared to the cooling tower analyzed in the 2001 AFC for CPP.

This review of the KOPs and licensing information has determined that there is no significant impact due to the dimensional changes and revised number of cooling tower cells proposed in Table 1 (Section 2.0).

3.12 Hazardous Materials Management

The proposed Amendment will not result in hazardous materials management impacts any different than those analyzed by the CEC during licensing of the project. There are no additional hazardous materials produced as a result of the proposed changes.

3.13 Waste Management

The proposed Amendment will not result in waste management impacts any different than those analyzed by the CEC during licensing of the project. There are no increases in the amount of plant waste as a result of the proposed changes.

3.14 Water Resources

The proposed Amendment will not result in water resource impacts any different than those analyzed by the CEC during licensing of the project. The proposed cooling tower recirculating water flow rate increases from 125,867 gpm to 155,000 gpm. Cooling tower makeup water rates are nearly the same. Although the circulation rate increases to provide optimum cooling efficiency, there is no increase in either near-instantaneous (gpm) or annual plant water use, which is currently restricted by Condition of Certification Water Res-1.

3.15 Geologic Hazards and Resources

The proposed Amendment will not result in geologic hazard and resource impacts any different than those analyzed by the CEC during licensing of the project. Since there is no increase in project footprint or boundaries, the proposed cooling tower changes neither reduce nor increase geological hazards and resources. The cooling tower, in its current configuration, was engineered to withstand geological and seismic events in accordance with the California Building Code.

3.16 Paleontological Resources

The proposed Amendment will not result in paleontological resource impacts any different than those analyzed by the CEC during licensing of the project. Since there is no increase in project footprint or boundaries there will be no earth moving activities, and the proposed cooling tower changes neither reduce nor increase impacts to paeleontological resources.

3.17 Cumulative Impacts

The proposed Amendment will not result in cumulative impacts any different than those analyzed by the CEC during licensing of the project.

3.18 Laws, Ordinances, Regulations, & Standards

The Final Decision certifying the CPP project found the project to be in compliance with applicable LORS. As described in this Amendment, the proposed changes to the air quality conditions of certification are also consistent with all applicable LORS, and the Amendment will not alter the assumptions or conclusions made in the CEC's Final Decision for the CPP project. Furthermore, with the exception of those COCs noted above, there are no changes to any other COCs with respect to changes in the TDS, the cooling tower water recirculation flow rate and the project description. Hence, the proposed changes are consistent with all applicable LORS, and the Amendment will not alter the assumptions or conclusions made in the CEC's Final Decision for the CPP project.

4.0 PROPOSED MODIFICATIONS TO THE CONDITIONS OF CERTIFICATION

Consistent with the requirements of CEC Siting Regulations Section 1769(a)(1)(A), potential modifications to the project's COCs were evaluated. SFA is requesting approval of the proposed changes to the COCs discussed in this petition and detailed in Attachment 5. Requested changes are shown in underline/strikeout format.

5.0 POTENTIAL EFFECTS ON THE PUBLIC

Consistent with the CEC Siting Regulations Section 1769(a)(1)(G), this section discusses the proposed project modification effects on the public. The proposed project modifications contained in this Amendment will have no significant impacts on the environment, and will be in compliance with all applicable LORS. Accordingly, there will be no adverse impacts on the public associated with this Amendment.

6.0 LIST OF PROPERTY OWNERS

CEC Siting Regulations Section 1769(a)(1)(H) requires a list of the property owners potentially affected by the proposed Amendment. SFA reviewed all property owners within the same corridor analyzed in the CPP AFC approved by the CEC in September 2003. There are no property owners potentially affected by the proposed Amendment.

7.0 POTENTIAL EFFECTS ON PROPERTY OWNERS

Consistent with the CEC Siting Regulation Section 1769(a)(1)(I), this section addresses potential effects of the proposed Amendment on nearby property owners, the public, and parties in the application proceeding. Because the proposed Amendment will have no significant impacts on the environment, there will not be any significant impacts to nearby property owners, the public, or nearby businesses.

ATTACHMENT 1

DETAILED PM_{10} EMISSION CALCULATIONS

ATTACHMENT 2

DETAILED TAC EMISSION CALCULATIONS

ATTACHMENT 3

HARP MODEL OUTPUTS

ATTACHMENT 4

HRA CALCULATIONS

ATTACHMENT 5

PROPOSED CHANGES TO CONDITIONS OF CERTIFICATION

AQ-18 Emissions of NOx, CO, ROC, SOx, and PM_{10} from Phase 1 of the CPP facility including start-ups and shut-downs shall not exceed the following limits.

Pollutant	Maximum Allowable Emissions (lbs/day)			
	CTG #1	CTG #2	Cooling Tower	Total
NOx	523.7	523.7	NA	1,047.4
CO	3,051.7	3,051.7	NA	6,103.3
ROC	117.3	117.3	NA	234.6
SOx	31.4	31.4	NA	62.9
PM_{10}	216.0	216.0	~~3.6~~ **7.4**	~~435.6~~ **439.4**

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQ-19 Emissions of NOx, CO, ROC, SOx, and PM10 from Phase 1 of the CPP facility including start-ups and shut-downs shall not exceed the following limits.

Pollutant	Maximum allowable emissions				
	Qtr 1 (lbs./quarter)	Qtr 2 (lbs./quarter)	Qtr 3 (lbs./quarter)	Qtr 4 (lbs./quarter)	Total (lbs./year)
NOx	62,021	62,643	63,265	63,265	251,194
CO	147,929	148,687	149,444	149,444	595,505
ROC	14,807	14,958	15,110	15,110	59,986
SOx	5,405	5,465	5,525	5,525	21,922
PM10	~~39,204~~ 39,550	~~39,640~~ 39,989	~~40,075~~ 40,428	~~40,075~~ 40,428	~~158,994~~ 160,395

Verification: As part of the quarterly and annual compliance reports, the project owner shall include information on the date, time, and duration of any violation of this permit condition.

AQ-24 The total dissolved solids content of the circulating cooling water shall not exceed ~~470~~ **800** ppmw, averaged over any consecutive three-hour period.

Verification: The project owner shall include information on the date, time, and duration of any violation of this permit condition in the quarterly and annual compliance reports.

ATTACHMENT 6

SMAQMD AUTHORITY TO CONSTRUCT

NO. 20185

ISSUED JUNE 12, 2007