DOCKETED	
Docket Number:	01-AFC-19C
Project Title:	SMUD Cosumnes Power Plant - Compliance
TN #:	225863
Document Title:	Cosumnes Power Plant - Petition to Amend - AGP Upgrades - Staff Analysis
Description:	Staff Analysis of the Cosumnes Power Plant AGP Upgrades Petition to Amend.
Filer:	Mary Dyas
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	11/8/2018 2:16:00 PM
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CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

DATE: November 8, 2018

TO: Interested Parties

FROM: Mary Dyas, Compliance Project Manager

SUBJECT: **COSUMNES POWER PLANT (01-AFC-19C)**
Staff Analysis of Amendment Proposal to Operate Previously Installed Upgraded Components

On August 29, 2018, Sacramento Municipal Utility District Financing Authority filed a petition to amend with the California Energy Commission requesting to modify the Cosumnes Power Plant (CPP) to operate the previously installed GE "Power FlexEfficiency Package" including Advanced Gas Path components and Dry-Low-NOx combustors, and an oxidation catalyst emission control system.

The CPP is a 534 megawatt combined-cycle natural gas facility located adjacent to the former Rancho Seco Nuclear Plant in southern Sacramento County. The project was certified by the Energy Commission on September 9, 2003, and began commercial operation on February 24, 2006.

Energy Commission staff has reviewed the petition pursuant to Title 20, California Code of Regulations, section 1769 (Post Certification Amendments and Changes) and has concluded that the increase in electrical production and fuel consumption would not result in a significant impact on the environment, or cause the project to not comply with applicable laws, ordinances, regulations, and standards. Staff intends to recommend approval of the petition at the December 10, 2018 Business Meeting of the Energy Commission.

The Energy Commission's webpage for this facility, https://www.energy.ca.gov/sitingcases/smud/index.html, has a link to the petition and the Staff Analysis on the right side of the webpage in the box labeled "Compliance Proceeding." Click on the "Documents for this Proceeding (Docket Log)" option. If approved, the Energy Commission's Order approving this petition will also be available from the same webpage.

This letter has been mailed to the Commission's list of interested parties and property owners adjacent to the facility site. It has also been e-mailed to the Siting listserv. The listserv is an automated Energy Commission e-mail system by which information about this facility is e-mailed to parties who have subscribed. To subscribe, go to the Commission's webpage for this facility, cited above, scroll down the right side of the project's webpage to the box labeled "Subscribe," and provide the requested contact information.

Any person may comment on the Staff Analysis. Those who wish to comment on the analysis are asked to submit their comments by Friday, **December 7, 2018**. To use the Energy Commission's electronic commenting feature, go to the Energy Commission's webpage for this facility, cited above, click on the "Submit e-Comment" link, and follow the instructions in the on-line form. Be sure to include the facility name in your comments. Once submitted, the Energy Commission Dockets Unit reviews and approves your comments, and you will receive an e-mail with a link to them.

Written comments may also be mailed or hand-delivered to:

California Energy Commission
Dockets Unit, MS-4
Docket No. **01-AFC-19C**
1516 Ninth Street
Sacramento, CA 95814-5512

All comments and materials filed with and approved by the Dockets Unit will be added to the facility Docket Log and become publically accessible on the Energy Commission's webpage for the facility.

If you have questions about this notice, please contact Mary Dyas, Compliance Project Manager, at (916) 651-8891, or by fax to (916) 654-3882, or via e-mail at mary.dyas@energy.ca.gov.

For information on participating in the Energy Commission's review of the petition, call Alana Mathews, Public Adviser, at (916) 654-4489 or (800) 822-6228 (toll-free in California) or send your e-mail to publicadviser@energy.ca.gov.

News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail to mediaoffice@energy.ca.gov.

Mail List: 7124
Listserv: cosumnes

COSUMNES POWER PLANT (01-AFC-19C)
Petition to Amend Commission Decision
EXECUTIVE SUMMARY
Mary Dyas

INTRODUCTION

On August 29, 2018, Sacramento Municipal Utility District Financing Authority (SFA or project owner) filed a petition to amend (PTA or petition) with the California Energy Commission requesting to modify the Cosumnes Power Plant (CPP) to operate the previously installed GE "Power FlexEfficiency Package" including Advanced Gas Path (AGP) components and Dry-Low-NOx (DLN) combustors, and an oxidation catalyst emission control system. Staff has completed its review of all materials received.

The purpose of the Energy Commission's review process is to assess whether the proposed amendment would have a significant impact on the environment or cause the project to not comply with applicable laws, ordinances, regulations, and standards (Cal. Code Regs., tit. 20, § 1769).

The scope of the analysis conducted by staff under Section 1769 is limited to an evaluation of the incremental impacts, if any, of the proposed modifications to the project on the environment, as well as a determination of the consistency of the proposed modifications with the applicable laws, ordinances, regulations, and standards (LORS). The analysis of the proposed changes must be consistent with the requirements of CEQA Guidelines section 15162, which limits additional environmental review to any "substantial changes" that will result in greater environmental impacts than what was analyzed in the Commission Final Decision. Under section 15162, the Energy Commission may rely on the Final Decision for areas that will not have substantial changes. Here, staff has concluded that the proposed modifications to the project do not include any "substantial changes" that would result in any new significant environmental impacts or a substantial increase in the severity of previously identified significant effects that would require additional analysis.

This Staff Analysis contains the Energy Commission staff's evaluation of the affected technical area of **Air Quality**.

For the technical areas of **Public Health**, **Soil and Water Resources** and **Transmission System Engineering**, staff has concluded that the proposed changes would not result in a significant impact on the environment or cause the project to not comply with applicable LORS.

- **Public Health** staff has determined that the proposed modification of the project would not create any significant public health impacts. Although toxic air contaminant (TAC) emissions would increase, they would not create any acute or chronic health impacts of potential significance.

- **Soil and Water Resources** staff has determined that the proposed modifications would not require any changes to existing **Soil and Water Resources** conditions of certification. If the project owner continues to comply with the existing conditions of certification, potential impacts to water resources would be mitigated, and the project will remain in compliance with all applicable LORS.
- **Transmission System Engineering** staff has determined that the proposed upgrades to increase electrical production will not affect **Transmission System Engineering** conditions of certification or have any transmission impacts past the first point of interconnection with the existing network.

Staff has determined that for all other technical areas, the proposed changes would have no impact on the environment or cause the project o not comply with applicable LORS.

PROJECT LOCATION AND DESCRIPTION

The CPP is a 534 megawatt (MW) combined-cycle natural gas facility located adjacent to the former Rancho Seco Nuclear Plant in southern Sacramento County. The project was certified by the Energy Commission on September 9, 2003, and began commercial operation on February 24, 2006.

The CPP was licensed as a 1,000 MW project consisting of two power blocks of 500 MW each. To date, only one power block, consisting of two General Electric (GE) combustion turbines with unfired heat recovery steam generators, a condensing steam turbine generator (STG), an 8-cell cooling tower, and ancillary facilities, has been constructed.

On January 8, 2018, staff approved (Attachment 1) the installation of Advanced Gas Path upgrade components, installation of Dry-Low oxides of Nitrogen 2.6+ (DLN2.6+) combustors, and installation of an oxidation catalyst system in the heat recovery steam generator. Staff determined that the installation of the proposed components did not require a post-certification amendment as the hot gas path components were considered to be like-in-kind replacements. The approval of the equipment installation did not change the project design, operation, or performance requirements for the project. With the current petition, the project owner proposes to operate the previously installed components. In order to do so will require approval of an amendment to the Final Commission Decision pursuant to Title 20, California Code of Regulations, section 1769 (a)(3).

DESCRIPTION OF PROPOSED MODIFICATIONS

The modifications proposed in this petition to amend include the following:

- Use of the already installed AGP components, DLN combustors, and oxidation catalyst emission control systems.

- Increase electrical production from each of the two licensed CPP combustion turbine generators from 170 MW to 198 MW[1], an increase of 28 MW each and 56 MW total.
- Increase each combustion turbine's licensed fuel consumption from 1,865 million British thermal units per hour on a higher heating value (MMBtu/hr-HHV) basis to a heat input of 2,200 MMBtu/hour-HHV.
- The increased fuel consumption would increase the STG output from 194 MW to 207 MW[2].
- Overall CPP electrical output would increase from 534 MW to 603 MW, an increase of 69 MW. The proposed increase in electrical output is within the electrical generation envisioned for the site.
- Increase air emission limits commensurate with the increased fuel consumption.

NECESSITY FOR THE PROPOSED MODIFICATIONS

The primary purpose and need for this amendment is to increase electrical production and fuel consumption from the operation of previously installed, manufacturer upgraded turbine and emission control components that were not available at the time of licensing.

STAFF'S ASSESSMENT OF THE PROPOSED AMENDMENT

Energy Commission technical staff reviewed the petition to amend for potential environmental effects and consistency with applicable LORS. A summary of staff's conclusions reached in each technical area are summarized in **Executive Summary Table 1**. The details of the proposed changes to conditions of certification can be found under the **Air Quality** section in this Staff Analysis.

Staff has determined that the technical or environmental areas of **Biological Resources, Cultural Resources, Facility Design, Geological and Paleontological Resources, Hazardous Materials Management, Land Use, Noise and Vibration, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management**, and **Worker Safety and Fire Protection** are not affected by the proposed operation of the previously installed components.

Although staff determined that the technical areas of **Hazardous Materials Management** and **Worker Safety and Fire Protection** are not affected, staff has addressed public comments received in these technical areas. See **Response to Comments** section of the Executive Summary.

Staff determined that the technical area of **Air Quality** would be affected by the proposed project changes and has proposed new and revised conditions of certification

[1] At 59 degrees Fahrenheit (F) and 60 percent relative humidity.
[2] At 59 degrees Fahrenheit (F) and 60 percent relative humidity.

in order to assure compliance with LORS and/or to reduce potential environmental impacts to a less than significant level. Staff has also addressed relevant public comments within the body of the **Air Quality** section of this Staff Analysis.

Executive Summary Table 1
Summary of Impacts to Each Technical Area

Technical Areas Reviewed	Technical Area Not Affected	CEQA			Conforms with applicable LORS	Revised or New Conditions of Certification requested or recommended
		Potentially significant impact	Less than significant impact with mitigation	Less than significant impact		
Air Quality			X		X	X
Biological Resources	X					
Cultural Resources	X					
Facility Design	X					
Geological and Paleontological Resources	X					
Hazardous Materials Management	X					
Land Use	X					
Noise and Vibration	X					
Paleontological Resources	X					
Public Health				X	X	
Socioeconomics	X					
Soil and Water Resources				X	X	
Traffic and Transportation	X					
Transmission Line Safety & Nuisance	X					
Transmission System Engineering				X	X	
Visual Resources	X					
Waste Management	X					
Worker Safety and Fire Protection	X					

For the technical areas of **Public Health**, **Soil and Water Resources** and **Transmission System Engineering**, staff has concluded that the proposed changes would not result in a significant impact on the environment or cause the project to not comply with applicable LORS. Staff notes the following for these areas:

PUBLIC HEALTH

Though the proposed modifications would result in a slight increase in fuel consumption, which would increase TAC emissions, **Public Health** staff has determined that the changes would not results in a significant public health impact. The proposed modifications would not require any changes to **Public Health** conditions of certification. Compliance with existing conditions would mitigate potential impacts to public health, and the project would remain in compliance with all applicable LORS.

SOIL AND WATER RESOURCES

Water Supply: Due to the increase in the electricity production in the STG, a proportional increase in cooling water use would be expected. Blowdown wastewater in the cooling tower would also be expected to increase slightly. Average annual water use by the project has been about 2,200 acre-feet per year (AFY). Given the anticipated increase of 6.5 percent from electricity production by the STG and assuming a linear relationship with water consumption, that would bring the average up to 2,343 AFY. Phase 1 has been licensed to use up to 2,663 AFY, therefore increased water use would not exceed project limits.

Industrial Wastewater: Since the project uses a zero liquid discharge (ZLD) system, no liquid waste is generated by the project and all cooling water is processed to generate a salt cake that is disposed at a licensed facility. Any increase in wastewater that would result from the expected increase in the cooling tower blowdown rate would be processed in the ZLD and recycled for use in the cooling tower and STG.

The proposed modifications would not require any changes to **Soil and Water** conditions of certification. If the project owner continues to comply with the existing conditions, potential impacts to water resources would be mitigated, and the project will remain in compliance with all applicable LORS.

TRANSMISSION SYSTEM ENGINEERING

The proposed upgrades to increase electrical production will not affect **Transmission System Engineering** conditions of certification or have any transmission impacts past the first point of interconnection with the existing network. The SFA Cosumnes Power Plant Supplemental PTA NERC (North American Electric Reliability Corporation) Compliance Documentation showed that increasing the output of the Cosumnes Power Plant by 69 MW would increase load serving capability of the SMUD system without causing any reliability criteria violations.

RESPONSE TO COMMENTS

AIR QUALITY

Air Quality responses to relevant comments are contained within the Air Quality portion of this Staff Analysis.

HAZARDOUS MATERIALS MANAGEMENT / WORKER SAFETY AND FIRE PROTECTION

The Herald Fire Protection District (HFPD) provided comments on the PTA (TN 225075). The PTA proposes operational changes that would increase the plant's power output level from 534 MW to 603 MW, an approximate increase of 13 percent above the current power production ratings.

The HFPD stated in its comments that it found concerns in both the current petition and historical documents.

Staff's analysis of the PTA for potential Worker Safety and Fire Protection impacts and potential Hazardous Materials Management impacts resulting from the operational changes proposed by the project owner determined that there would be no impacts. Staff determined that with approval of the PTA, the project would remain in compliance with applicable LORS.

Staff has considered and summarized the comments provided by the HFPD and provides the following responses:

HFPD Comment #1:

HFPD states that results of review and redesign of the fire protection systems affected by the changes, to be done prior to construction, must be submitted to the HFPD for comment and approval.

Staff Response #1:

Staff notes that no construction related changes to the power plant infrastructure or fire protection systems would be required by the operational changes proposed in the PTA. Approval of the PTA would lead to an increase in the plant's power production capability from 534 MW to 603 MW. This increase is possible because of upgraded standard internal combustion turbine components which were installed as like-in-kind replacement parts during past routine maintenance operations. Such work required no modification of systems external to the combustion turbine. Such work is not considered to be any kind of construction that would trigger a design review of the plant's fire protection systems. Neither the modifications to the combustion turbine internals, nor the additional power production they make possible, would impact the plant's fire protection systems.

HFPD Comment #2:

HFPD states that the original hazardous materials Risk Management Plan (RMP) failed to consider infrastructure damage resulting from the deflagration of aqueous ammonia, and that a new computer model using updated equipment must be completed.

Staff Response #2:

The upgrades and operational changes proposed by the project owner in the PTA would not require any material changes to either the storage/containment facility or the quantity of aqueous ammonia stored at the plant. Therefore, the analysis provided in the Final Decision for the modelled worst case release of aqueous ammonia is still relevant and does not need to be redone. It should be noted that the Areal Locations of Hazardous Atmospheres (ALOHA) plume modeling software is still currently in use to model worst case release scenarios of aqueous ammonia. The RMP is required to be periodically reviewed and updated if necessary, under the authority of the local Certified Unified Program Authority (CUPA), the Sacramento County Environmental Management Department. During siting of the project, deflagration of aqueous ammonia (rapid combustion of an airborne plume) was not considered to be a potentially significant impact to be discussed in staff's final analysis because of the extreme unlikelihood of it occurring. Even in the extremely unlikely event of a worst case ammonia release, staff determined that it was implausible that the necessary airborne concentration of ammonia needed to make an offsite deflagration possible would occur (i.e., concentrations in the release would never be in the flammable range).

HFPD Comment #3:

The HFPD suggests that the permitted natural gas pipeline hazard classification, maintenance practices, and contingency plan must now be updated.

Staff Response #3:

The operational changes proposed by the project owner in the PTA would not require any material changes to the natural gas pipeline or related ancillary equipment serving the plant. The plant's pipeline was designed to serve a nominal 1,000 MW power plant. However, the project owner only built the phase 1 portion having a nominal nameplate capacity of 500 MW. With the increased power output proposed in the PTA, the power plant's maximum output and natural gas usage would be approximately 60 percent of the operating level for which it was designed and built.

Therefore, the increased gas usage would remain below its designed-for level, and would not have an impact on the safety of the natural gas pipeline or ancillary equipment serving the plant. The natural gas pipeline serving the Cosumnes Power Plant is subject to the federal Pipeline and Hazardous Materials Safety Administration (PHMSA), which provides the applicable regulatory framework for ensuring that natural gas pipelines are operated and maintained safely.

HFPD Comment #4:

The HFPD remarks that as the first responding fire agency to any hazardous material accidental release or fire at the plant, or to a hazardous materials transport accident, it does not have mandated equipment.

Staff Response #4:

The operational changes proposed by the project owner in the PTA would not require any material changes that would impact the existing fire protection infrastructure located on the plant site, nor would it be expected to have an impact on either the frequency or magnitude of incidents requiring emergency response to the project. The Herald Fire Department would be the first responder to the project in the event of an emergency at the plant or a transportation accident involving hazardous materials. However, in the event of an emergency at the plant or a hazardous materials transport accident, the HFPD could call upon the mutual aid agreements that are in place and listed in the Final Decision to assist in dealing with the incident if the HFPD did not have adequate equipment.

HFPD Comment #5:

The HFPD suggests that there are unaddressed emergency notification and evacuation concerns regarding visitors to Rancho Seco Park, which is owned and operated by Sacramento Municipal Utility District (SMUD). HFPD suggests that SMUD add a secondary exit from the park.

Staff Response #5:

Rancho Seco Park is not a part of the permitted project, and is outside of Energy Commission jurisdiction. Concerns with the park administration might be best addressed directly between SMUD and HFPD.

Staff determined that the operational changes proposed by the project owner in the PTA would not require any material changes to the project that would change the original assessment contained in the Final Decision about the worst case scenario release of aqueous ammonia. Rancho Seco Park is approximately 0.95 mile away from the plant boundary. The shortest distance from the ammonia tank to any point along the park entrance road is approximately 3000 feet (0.57 mile). Even in the extremely unlikely worst-case release scenario, the 75 parts per million level of concern would be limited to 801 feet (0.15 mile) from the plant. Thus, the 801 feet maximum distance is far short of Ranch Seco Park, and far short of the nearest point along the entrance road to the park. Therefore, as the project amendment would not result in any change to the amount of aqueous ammonia stored on site, or in the secondary containment structure, there would be no impact.

HFPD Comment #6:

The HFPD suggests that there is an “unacceptable” risk for hazardous material transports to the plant via Twin Cities Road.

Staff Response #6:

The operational changes proposed by the project owner in the PTA would not require any changes that would impact the permitted hazardous materials transportation or traffic to the plant. Due to efficiency improvements to the combustion turbine, it is reasonable to expect that any expected increase in aqueous ammonia use by the project would be proportionately less than the approximate 13 percent increase in power produced. Even if aqueous ammonia consumption by the project were to

increase commensurate with the power increase proposed in the PTA, aqueous ammonia consumption and transportation would still remain at a level far below what was originally analyzed and approved in the Final Decision. The project was licensed for 8,760 hours of operation – it has consistently operated in the 60 to 70 percent capacity, meaning it already uses less ammonia than permitted. Therefore, the original conditions of certification contained within the Final Decision would still apply to, and would continue to provide adequate mitigation for, the project so that a new traffic study would not be required or warranted.

TRANSMISSION SYSTEM ENGINEERING

Member of the public, Steve Uhler, provided comments (TN224945) on the SFA Cosumnes Supplemental PTA NERC [North American Electric Reliability Corporation] Compliance Documentation (TN 224837). Staff has considered and summarized the comments provided by Mr. Uhler and provides the following responses:

Uhler Comment #1:

Capacity for Hedge appears to be incorrect in Table 4.

Response #1:

The Hedge generator is listed at 1.5 MW and SMUD has verified that this is the correct output for this generator. Any error in the modelling of a plant this size (1.5 MW) would have very little impact on the results of the study.

Uhler Comment #2:

What are the CEC Plant IDs for the generation in Table 4?

Response #2:

Energy Commission staff is not certain what is meant by “plant IDs for the generation in Table 4.” These are not power plants that were licensed by the Energy Commission. The plant names and output (MW) generally serve as an identifier for power plants.

Uhler Comment #3:

Has the Energy Commission verified the modeling?

Response #3:

Staff is not certain what is meant by “verification, “but the study results are what staff expected.

Uhler Comment #4:

How was the verification done?

Response #4:

The power plant was originally licensed and analyzed at 1,000 MW. The PTA is proposing to increase the output by 69 MW, from 534 MW to a total of 603 MW, still well under the licensed 1,000 MW.

The power plant is connected to the transmission network near the retired Rancho Seco Nuclear Generating Station. The transmission network in this area was designed to

deliver the 2,700 MW from Rancho Seco. Increasing generation in the area by 69 MW, but still well under 2,700 MW, is not expected to have any adverse impacts on the transmission network. The SFA Cosumnes Supplemental PTA NERC Compliance Documentation (TN 224837) did not identify any adverse transmission impacts.

ENVIRONMENTAL JUSTICE

Environmental Justice – Figure 1 shows 2010 census blocks in the six-mile radius of the CPP with a minority population greater than or equal to 50 percent. The population in these census blocks represents an environmental justice (EJ) population based on race and ethnicity as defined in the United States Environmental Protection Agency's *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*. Staff conservatively obtains demographic data within a six-mile radius around a project site based on the parameters for dispersion modeling used in staff's air quality analysis. Air quality impacts are generally the type of project impacts that extend the furthest from a project site. Beyond a six-mile radius, air emissions have either settled out of the air column or mixed with surrounding air to the extent the potential impacts are less than significant. The area of potential impacts would not extend this far from the project site for most other technical areas included in staff's EJ analysis.

Based on California Department of Education data in the **Environmental Justice – Table 1**, staff concluded that the percentage of those living in the Arcohe Union Elementary School District (in a six-mile radius of the project site) and enrolled in the free or reduced price meal program is similar to those in the reference geography, and thus are not considered an EJ population based on low income as defined in *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*. **Environmental Justice – Figure 2** shows where the boundaries of the school district are in relation to the six-mile radius around the CPP site.

Environmental Justice – Table 1
Low Income Data within the Project Area

SCHOOL DISTRICTS IN SIX-MILE RADIUS	Enrollment Used for Meals	Free or Reduced Price Meals	
Arcohe Union Elementary	457	274	60.0%
REFERENCE GEOGRAPHY			
Sacramento County	245,910	148,221	60.3%

Source: CDE 2018. California Department of Education, DataQuest, Free or Reduced Price Meals, District level data for the year 2017-2018, <http://dq.cde.ca.gov/dataquest/>.

The following technical areas (if affected) consider impacts to EJ populations: Air Quality, Cultural Resources (indigenous people), Hazardous Materials Management, Land Use, Noise and Vibration, Public Health, Socioeconomics, Soil and Water resources, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, and Waste Management.

ENVIRONMENTAL JUSTICE CONCLUSIONS

The only technical areas that consider impacts to EJ populations that would be affected by the proposed project changes are **Public Health**, **Soil and Water Resources** and **Air Quality**. Staff concludes that continued compliance with the existing **Public Health** and **Soil and Water Resources** conditions of certification would ensure potential impacts to public health and water resources would be less than significant, and thus would be less than significant on the EJ population represented in **Environmental Justice – Figure 1**. In the **Air Quality** analysis, staff proposes additions and changes to conditions of certification. Staff has determined that by adopting the proposed additions and changes to the existing conditions of certification, the modified project would not cause significant air quality impacts for any population in the project's six-mile radius, including the EJ population.

STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff concludes that the following required findings mandated by Title 20, section 1769(a)(3) of the California Code of Regulations can be made and will recommend approval of the petition to the Energy Commission:

A. The modified project would not have a significant impact on the environment;

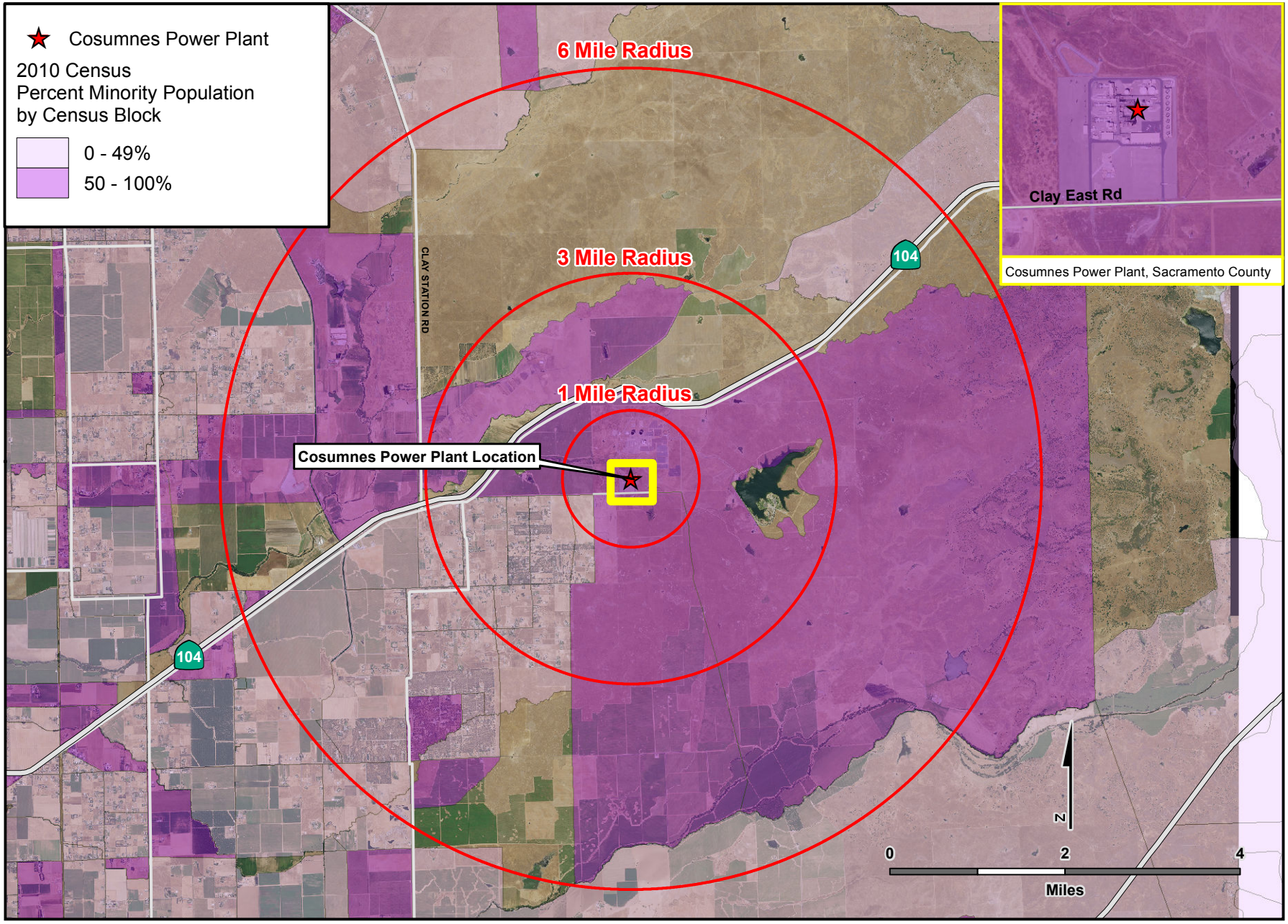
B. The facility will remain in compliance with all applicable laws, ordinances, regulations and standards;

C. The changes will be beneficial to the project owner and the public because the proposed project change would allow the Cosumnes Power Plant to continue to run efficiently, and to meet environmental goals and the current increased demand for electricity.

D. There has been a substantial change in circumstances since the Energy Commission certification justifying the changes. This Petition to Amend proposes to increase electrical production through the operation of previously installed manufacturer upgraded turbine and emission control system components that were not available at the time of licensing.

ENVIRONMENTAL JUSTICE - FIGURE 1

Cosumnes Power Plant - Census 2010 Minority Population by Census Block



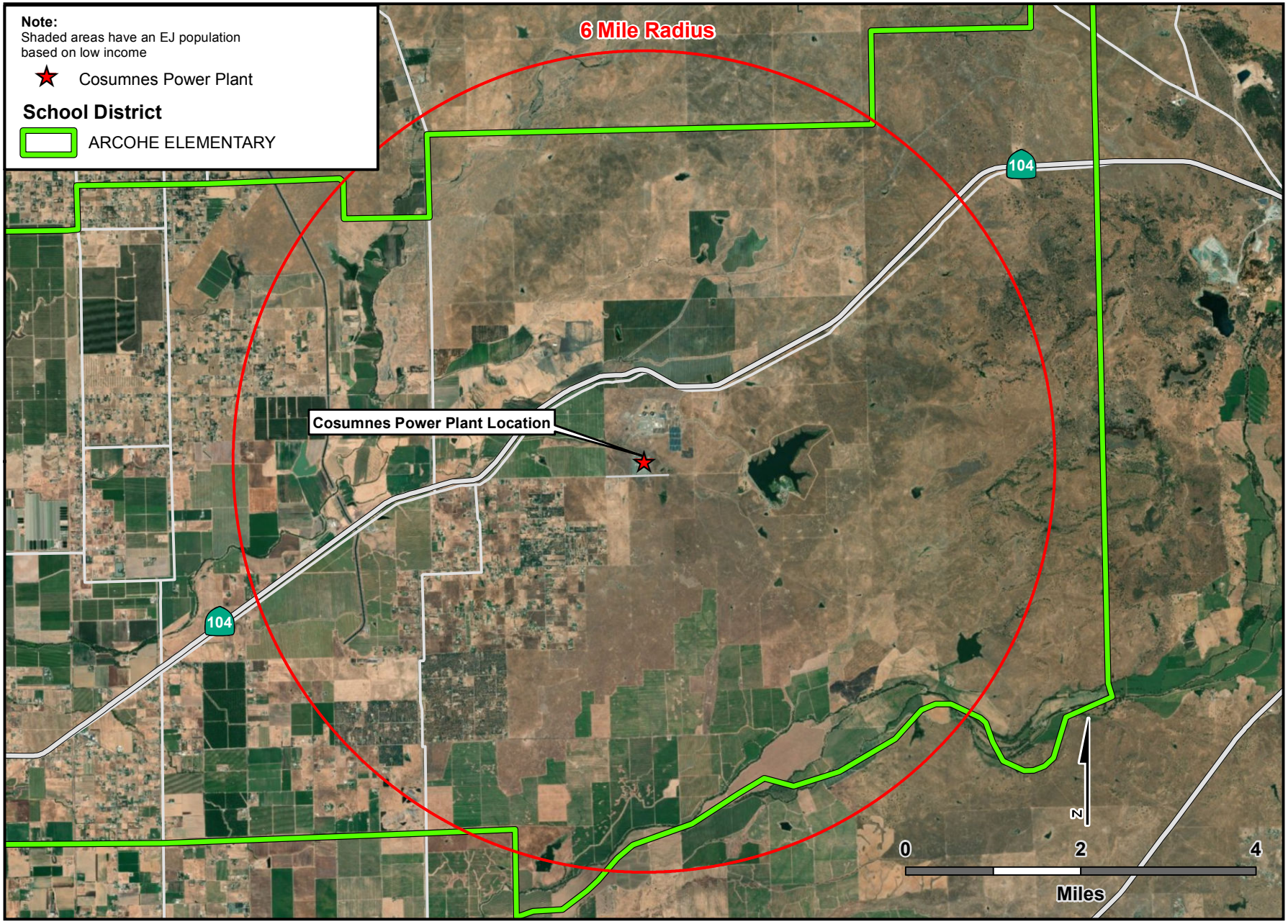
ENVIRONMENTAL JUSTICE

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCES: Census 2010 PL 94-171 Data

ENVIRONMENTAL JUSTICE - FIGURE 2

Cosumnes Power Plant - Environmental Justice Population Based on Low Income



ENVIRONMENTAL JUSTICE

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: TIGER Data, S1701 ACS 5-Year Estimates, CA Dept. of Education Data Quest

ATTACHMENT 1
Letter to SMUD Approving Equipment Upgrades

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

January 8, 2018

Dave Blevins, Plant Manager
Cosumnes Power Plant
14295A Clay East Rd.
Herald, CA 95638

SUBJECT: APPROVAL OF UPGRADED TURBINE AND EMISSION CONTROL SYSTEM COMPONENTS
COSUMNES POWER PLANT (01-AFC-19C)

Dear Mr. Blevins,

On December 5, 2017, the California Energy Commission (Energy Commission) received an inquiry regarding upgrading turbine and emission control system components at the Cosumnes Power Plant as part of a scheduled maintenance event. The proposed activities include installation of Advanced Gas Path upgrade components, installation of Dry-Low oxides of Nitrogen 2.6+ (DLN2.6+) combustors, and installation of an oxidation catalyst system in the heat recovery steam generator (HRSG).

Staff has reviewed the proposed activities to assess whether this request needs to be processed as a post-certification amendment pursuant to Title 20, California Code of Regulations, section 1769(a)(1), and has determined that the proposed activities do not require you to file a post-certification amendment.

Implementation of existing Conditions of Certification adopted in the Final Commission Decision, or as previously amended, would ensure continued compliance with applicable laws, ordinances, regulations, and standards, and ensure no significant impacts would occur. Specifically, the following:

BIOLOGICAL RESOURCES

BIO-2 and **BIO-3** Designated Biologist Duties

BIO-4 Worker Environmental Awareness Program

BIO-13 Construction Mitigation Management to Avoid Harassment or Harm

BIO-18 Conduct Pre-Construction Surveys

TRAFFIC AND TRANSPORTATION

TRANS-1 Overweight/oversized vehicles

TRANS-8 School Traffic Complaints

TRANS-10 Worker Traffic Safety Program

VISUAL RESOURCES

VIS-4 Construction Lighting

One or more of the above mentioned activities requires Delegate Chief Building Official (DCBO) oversight for plan review and inspections. Mary Dyas, Compliance Project Manager, will contact you to discuss the process for selecting a DCBO. No work can proceed on the above noted activities until a DCBO is assigned.

You are hereby approved to proceed with your activities as outlined above, pending the DCBO selection. Should the scope of the above noted activities change significantly, please contact us as this may change our decision that the activities do not require a post-certification amendment.

If you have any questions or concerns, please contact Mary Dyas, Compliance Project Manager, at (916) 651-8891, or by fax to (916) 654-3882, or via e-mail at mary.dyas@energy.ca.gov

Sincerely,

CHRISTINE ROOT
Compliance Office Manager
Siting, Transmission, & Environmental Protection Division

COSUMNES POWER PLANT (01-AFC-19C)

Petition to Amend Commission Decision

AIR QUALITY

Nancy Fletcher

INTRODUCTION AND SUMMARY

On September 29, 2018, the Sacramento Municipal Utility District Financing Authority (petitioner or SFA) filed a petition to amend (PTA or petition) with the California Energy Commission requesting an amendment to the Energy Commission license. SFA is proposing to operate the Cosumnes Power Plant (CPP) utilizing the enhanced capabilities of the General Electric (GE) 'Power FlexEfficiency Package' including Advanced Gas Path (AGP) components and 'Dry-Low NOx' (DLN) combustors, and an oxidation catalyst emission control system.

CPP is located 25 miles southeast of the City of Sacramento, in Sacramento County. The CPP was licensed on September 9, 2003 as a nominal 1,000 megawatt (MW) combined-cycle natural gas facility consisting of two 500 MW power blocks. Only one power block was constructed. Commercial operation of CPP began February 24, 2006. The CPP consists of two GE Model 7241FA gas combustion turbines (CTG) with unfired heat recovery steam generators (HRSG), one condensing steam turbine, one cooling tower, and supporting equipment.

CPP Air Quality conditions of certification were amended on June 4, 2008 to increase the total dissolved solid content in the circulating water, the daily emissions of particulate matter less than ten microns in size (PM10) from the cooling tower, and quarterly and yearly PM10 emissions corresponding to the cooling tower emission increase. CPP Air Quality conditions of certification were also amended on November 2, 2011, to include several changes that would allow CPP to combust digester gas.

On December 5, 2017, the Energy Commission received an inquiry regarding upgrading the turbine and emission control system components at the CPP. The Energy Commission approved the installation of Advanced Gas Path (AGP) upgrade components, DLN 2.6+ combustor, and an oxidation catalyst system in the heat recovery steam generator (HRSG). Energy Commission staff approved the installation of the components as a maintenance activity.

As of November 2018, the installation of the upgraded components and oxidation catalyst are completed for only one of the CTGs. The second installation is planned for the next major maintenance outage currently scheduled for the first quarter of 2019.

Full utilization of the installed components requires prior approval from the Energy Commission and Sacramento Metropolitan Air Quality Management District (SMAQMD). The changes proposed in the PTA would result in an increase in MW output, fuel consumption, and a change in emissions. Additional changes to the Air Quality conditions of certification would be required to operate the turbines utilizing the upgrade.

SFA submitted applications to the SMAQMD in two phases. The first phase was for the installation of the equipment on the two turbines without increasing emissions or firing rates. The second phase is to allow an increase in firing rate and emissions after the installation of the components. The SMAQMD issued Authorities to Construct (ATC) for the installation of the upgraded components including the oxidation catalyst system on April 6, 2018. An ATC to evaluate the operation of the installed upgraded equipment was evaluated by the SMAQMD. The preliminary SMAQMD decision to approve the project was publicly noticed for 30 days ending on October 29, 2018. U.S. EPA review is scheduled to be complete by November 14, 2018. The ATCs to increase performance can be issued after Energy Commission approval. The final Permit to Operate (PTO) will not be issued until the project owner notifies the SMAQMD that the equipment is fully installed and ready to operate.

Staff recommends California Environmental Quality Act (CEQA) mitigation measures described in this analysis to ensure potential air quality impacts from the proposed operation of the upgraded equipment are mitigated to a less than significant level. Therefore, with the proposed mitigation, there would be no significant air quality impacts related to The PTA and no environmental justice (minority or low-income) populations would be significantly or adversely impacted.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS COMPLIANCE

The SMAQMD reviewed the proposed project changes and determined the proposed changes would comply with their regulations. Energy Commission staff reviewed the permit evaluation and preliminary ATC which evaluate and incorporate the proposed changes. Staff evaluated the proposed changes for consistency with all federal, state, and SMAQMD laws, ordinances, regulations, and standards (LORS).

Air Quality Table 1 includes a summary of the LORS applicable to The PTA. The conditions of certification in the Energy Commission Final Decision, along with those conditions of certification amended thereafter, ensure that the facility would remain in compliance with all applicable LORS.

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards

Applicable Law	*Description*
Federal	**U.S. Environmental Protection Agency (EPA)**
Title 40 Code of Federal Regulations (CFR) Part 50 (National Primary and Secondary Ambient Air Quality Standards)	National Ambient Air Quality Standards (NAAQS) are set in this part. NAAQS defines levels of air quality necessary to protect public health.
Title 40 CFR Part 51 (Requirements for Preparation Adoption and Submittal of Implementation Plans)	Requires emission reporting and control strategies for the attainment and maintenance of national standards.

Applicable Law	*Description*
Title 40 CFR Part 52 (Approval and Promulgation of Implementation Plans)	Prevention of Significant Deterioration (PSD) requires review and facility permitting for construction of new or modified major stationary sources of pollutants at locations where ambient concentrations attain the NAAQS. PSD would not be required for the proposed upgrade since emissions would not exceed levels of significance.
Title 40 CFR Part 60, Subpart A (General Provisions)	Outlines general requirements for facilities subject to standards of performance including, notification, work practice, monitoring and testing requirements. Continued compliance is expected.
40 CFR 60, Subpart GG	Standards of Performance for Stationary Combustion Turbines– Requires the turbines to meet emission standards. This subpart is superseded by Subpart KKKK.
40 CFR 60, Subpart KKKK	New Source Performance Standards (NSPS) for Stationary Gas Turbines – Establishes emission standards for turbines installed after February 18, 2005 with heat inputs greater than 10 million British units per hour (MMBtu/hr). Although the turbines were installed prior to 2005, the modification would be subject to this subpart. Compliance with the Best Available Control Technology (BACT) requirements would insure compliance with the emission standards. The current continuous emission monitoring systems (CEMS) meet the CEMS monitoring requirements. Compliance with all other provisions including recordkeeping is expected.
40 CFR 60, Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions For Electric Generating Units. Establishes emission standards for units installed after January 8, 2014. The modification would not result in the upgraded turbines to be subject to this Subpart.
Title 40 CFR Part 61	Establishes National Emission Standards for Hazardous Air Pollutants (NESHAPS) provisions for specified pollutants. The list of adopted NESHAPS was reviewed. No standards were found that are applicable to the proposed changes.
40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Gas Turbines. This subpart establishes requirements for facilities that are major sources of hazardous air pollutants (HAPS). The facility is not considered a major source of HAPS since HAP emissions are less than 25 ton/year in combination and 10 ton/year for any single HAP. (Ammonia is not considered a HAP.)

Applicable Law	*Description*
40 CFR 64	Compliance Assurance Monitoring (CAM)–CAM regulations apply to major stationary sources that use control equipment to achieve emission limits. The turbines are major sources for oxides of nitrogen (NOx) and volatile organic compound (VOC) emissions. The facility took a cap to fall below the major source threshold for carbon monoxide (CO). The turbines are subject to emission limits for NOx and VOCs. Applicable new source review (NSR) limits are met by using external control equipment consisting of selective catalytic reduction (SCR) and oxidation catalysts. Compliance for NOx is demonstrated by continuous emission monitoring systems (CEMS). The oxidation catalyst also controls VOC emissions at specified temperatures but is not necessary to meet the emission limits. Therefore 40 CFR 64 is satisfied.
40 CFR 70	State Operating Permit Program. Part 70 establishes the Title V permitting program. CPP currently operates under a Title V permit. The project is being evaluated under SMAQMD enhanced NSR. An updated Title V application will be submitted as part of SMAQMD requirements. Continued compliance is expected
40 CFR 72	Permits Regulation. Part 72 establishes the Acid Rain Permit Program. The acid rain program requirements establish controls for sulfur dioxide (SO_2) and NOx emissions from fossil fuel-fired combustion used to generate electricity. Facilities are required to cover SO_2 emissions with allowances or offsets. CPP is subject to the acid rain program. The facility would continue to comply with program requirements.
State	**California Air Resources Board and Energy Commission**
California Health & Safety Code (H&SC) §41700 (Nuisance Regulation)	Prohibits discharge of such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance. Continued compliance is expected.
H&SC §40910-40930 (District Plans to Attain State Ambient Air Quality Standards)	State Ambient Air Quality Standards should be achieved and maintained. The permitting of the source needs to be consistent with the approved clean air plan. The SCAQMD NSR program needs to be consistent with regional air quality management plans.
H&SC §42301.6 (AB 3205)	Establishes noticing requirements for projects within 1,000 feet of a school site. CPP is not located within 1,000 feet of a school site and therefore the public noticing requirements do not apply.
California Code of Regulations	Greenhouse Gases Emission Performance Standard (EPS), Article 1 –Provisions Applicable to Power Plants 10 MW and Larger (SB1368) —The facility is considered a deemed-compliant power plant.
Local	**Sacramento Metropolitan Air Quality Management District**

Applicable Law	*Description*
Regulation I – General Provisions and Definitions	Outlines general requirements such as definitions, circumvention, exceptions, alternative compliance, minor violations, etc.
Regulation II - Permits Rule 201	General Permit Requirements — Establishes procedures for the review of new sources of air pollution and the modification of existing sources. Replacing or altering equipment that causes or controls the emissions of air pollutants require an ATC from the SMAQMD. SFA submitted applications to the SMAQMD for the installation of the upgraded components and oxidation catalyst. ATCs for the installation of the components were issued by the SMAQMD. This proposal is for the operation of the installed components.
Regulation II - Permits Rule 202	New Source Review — Provides for the issuance of ATCs and PTOs. Provides mechanisms, including best available control technology (BACT), emission offsets, and impact analysis to issue ATCs without interfering with the attainment or maintenance of the ambient air quality standards (AAQS). The SMAQMD reviewed the SFAs proposal applying the principles of NSR. See analysis for further analysis.
Regulation II - Permits Rule 203	Prevention of Significant Deterioration (PSD) – Establishes requirements for attainment emissions. PSD requirements apply on a pollutant specific basis for major stationary sources. Twenty-eight source categories are subject to PSD requirements for attainment pollutants if facility annual emissions exceed the established thresholds. SMAQMD has delegation of PSD authority from the United States Environmental Protection Agency (U.S. EPA). The CPP site is considered in attainment for NAAQS for NOx, sulfur oxide (SOx), CO, and PM10. CPP would not exceed the significant increase thresholds for all PSD pollutants.
Regulation II - Permits Rule 207	Title V Federal Operating Permit Programs – CPP is an existing Title V facility. CPP requested the application be reviewed through the enhanced NSR process. Enhanced NSR will allow the SMAQMD to administratively amend the Title V permit to reflect the proposed project. The permit action is subject to a 30-day public notice and 45-day U.S. EPA review process.
Regulation II - Permits Rule 208	Acid Rain – Incorporates by reference provisions of 40 CFR Parts 72, 75, and 76 for purposes of implementing an acid rain program that meets the requirements of Title IV of the Federal Clean Air Act. Rule 208 requires CPP to hold emission allowances for SOx and to monitor and report SOx, NOx, and carbon dioxide (CO_2) emissions. CPP was granted an alternative SO_2 monitoring plan due to the addition of digester gas to the fuel source. The requirements are incorporated into the Title V permit for the facility.

Applicable Law	*Description*
Regulation II - Permits Rule 214	Federal New Source Review – Establishes requirements for new major stationary sources or modifications to existing major stationary sources. Requires an analysis for BACT and offsets. CPP requested enhanced NSR.
Regulation II - Permits Rule 217	Public Notice Requirements for Permits – Provides a mechanism for public notification and review of ATCs and PTOs. Public notice is triggered under enhanced NSR.
Regulation IV - Prohibitions Rule 401	Ringelmann Chart — Limits visible emissions opacity to less than 20 percent (or Ringelmann No. 1) with specific exemptions. Properly maintained turbines are expected to meet the requirements. SMAQMD would inspect the equipment prior to issuance of the PTO and on a regular basis afterwards.
Regulation IV - Prohibitions Rule 402	Nuisance — Prohibits the discharge of air contaminants that could cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. SMAQMD regulates toxic air contaminants (TACs) under this rule. SMAQMD toxics policy requires proposed projects with TAC emission increases to perform a screening-level health risk assessment. CPP provided a health risk assessment (HRA). Energy Commission review of CPP and SMAQMD analysis are included in the Public Health Section. The proposed changes are not expected to create a nuisance due to health risk for air quality or public health.
Regulation IV - Prohibitions Rule 404	Particulate Matter — Prohibits emissions of particulate matter in excess of 0.1 grains per dry standard cubic foot (gr/dscf). Results of the annual source tests demonstrate compliance. Continued compliance is expected.
Regulation IV - Prohibitions Rule 406	Specific Contaminants — Established limits for emissions of combustion contaminants. PM emissions are limited to 0.1 gr/dscf at 12 percent carbon dioxide (12% CO_2) and SO_2 emissions are limited to 0.2% SO_2 by volume. Results of the annual PM10 source tests demonstrate compliance for PM10 emissions. The proposed upgrade is not expected to exceed SOx emission restrictions even under worst case assumptions. Continued compliance is expected.
Regulation IV - Prohibitions Rule 413	Stationary Gas Turbines — Prohibits the emission of NOx in excess of 9 parts per million by volume (ppmv) at 15 percent oxygen (15% O_2) based on a 15-minute average with exceptions for specific excursions. Rule 413 is applicable to the CPP turbines. The CPP turbines are subject to a 2.0 ppmv NOx limit and are considered in compliance with the Rule 413 threshold.
Regulation IV - Prohibitions Rule 420	Sulfur Content of Fuels — Limits the sulfur content in any gaseous fuel to 50 gr/100cf calculated as hydrogen sulfide (H_2S). SMAQMD expects the sulfur content of the blended fuel to be no more than 0.28 gr/100cf. Continued compliance is expected.

SETTING

AMBIENT AIR QUALITY STANDARDS

The U.S. EPA and the California Air Resources Board (ARB) have both established allowable maximum ambient concentrations of criteria air pollutants. Ambient air quality standards are designed to protect people who are most susceptible to respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. The ambient air quality standards are also set to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The California Ambient Air Quality Standards, established by ARB, are typically lower (more stringent) than the federally established NAAQS. See **Air Quality Table 2.** The averaging time for the various ambient air quality standards (the duration of time the measurements are taken and averaged) ranges from one hour to one year. The standards are read as a concentration, in parts per million (ppm), parts per billion (ppb), or as a weighted mass of material per unit volume of air, in milligrams (mg) or micrograms (µg) of pollutant in a cubic meter (m^3) of ambient air, drawn over the applicable averaging period.

Air Quality Table 2
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O_3)	8 Hour	0.070 ppm (137 µg/m^3)[a]	0.070 ppm (137 µg/m^3)
	1 Hour	—	0.09 ppm (180 µg/m^3)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual	53 ppb (100 µg/m^3)	30 ppb (57 µg/m^3)
	1 Hour	100 ppb (188 µg/m^3)[b]	180 ppb (339 µg/m^3)
Sulfur Dioxide (SO_2)	24 Hour	—	0.04 ppm (105 µg/m^3)
	3 Hour	0.5 ppm (1300 µg/m^3)	—
	1 Hour	75 ppb (196 µg/m^3)[c]	0.25 ppm (655 µg/m^3)
Respirable Particulate Matter (PM10)	Annual	—	20 µg/m^3
	24 Hour	150 µg/m^3	50 µg/m^3
Fine Particulate Matter (PM2.5)	Annual	12 µg/m^3	12 µg/m^3
	24 Hour	35 µg/m^3 [b]	—
Sulfates (SO_4)	24 Hour	—	25 µg/m^3
Lead	30 Day Average	—	1.5 µg/m^3
	Rolling 3-Month Average	1.5 µg/m^3	—
Hydrogen Sulfide (H_2S)	1 Hour	—	0.03 ppm (42 µg/m^3)
Vinyl Chloride (chloroethene)	24 Hour	—	0.01 ppm (26 µg/m^3)
Visibility Reducing Particulates	8 Hour	—	In sufficient amount to produce an extinction

Pollutant	Averaging Time	Federal Standard	California Standard
			coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

Source: ARB 2018b, U.S. EPA 2018 b
Notes: [a] Fourth- highest maximum 8 – hour concentration, averaged over 3 years.
[b] 98th percentile of daily maximum value, averaged over 3 years
[c] 99th percentile of daily maximum value, averaged over 3 years

METEOROLOGICAL CONDITIONS

CPP is located within the Sacramento Valley Air Basin (SVAB). The SVAB comprises nine air districts and eleven counties. The basin is approximately 216 miles from north to south and 95 miles from east to west at the widest part. The SVAB is bounded on the north and west by the Coastal Mountain Range and on the east by the southern portion of the Cascade Mountain Range, and the northern portion of the Sierra Nevada Mountains. The mountain ranges create a physical boundary which traps locally created and transported air pollution.

The area is characterized by relatively hot and dry summers, cold and moist winters, and cool and breezy springs and falls. During late fall and winter, cold air from the surrounding mountains, low dispersion and stable atmospheric conditions produce fog in the valley, which normally burns off by mid-day. Wind direction and intensity varies significantly by season, however the predominant wind direction is from the south.

AMBIENT AIR QUALITY ATTAINMENT STATUS

Federal and state ambient air quality attainment status designations have been revised since the latest CPP amendment. For convenience, staff includes **Air Quality Table 3**, which summarizes the area's current attainment status for AAQS for the SMAQMD. The air quality standards are health-based standards established by the U.S. EPA and Air Resources Board (ARB), and are set at levels to protect the health of all members of the public including those most sensitive to adverse air quality impacts such as the elderly, people with existing illnesses, children, and infants.

Air Quality Table 3
SMAQMD Attainment Status

Pollutants	Attainment Status	
	Federal Classification	**State Classification**
Ozone (1-hr)	**Attainment[a]**	**Nonattainment**
Ozone (8-hr)	**Nonattainment[b]**	**Nonattainment**
CO	Attainment	Attainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Unclassified/Attainment	Attainment
PM10 (24-hour)	Attainment	**Nonattainment**

PM10 (annual)	----------	**Nonattainment**
PM2.5 (24-hour)	**Nonattainment**	----------
PM2.5 (annual)	Attainment	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Unclassified

Source: SMAQMD website, ARB 2018a, U.S. EPA 2018a.
Note: Unclassified means the area is treated as if it is in attainment.
Note [a] 1-hour NAAQ ozone standard was revoked effective June 15, 2005.
[b.] 2008 8-hour standard designation severe, 2015 8-hour NAAQ standard designation moderate.

ANALYSIS

OPERATION SUMMARY AND EMISSIONS ANALYSIS

SFA is proposing to operate CPP utilizing the Power FlexEfficiency Package consisting of AGP and DLN2.6+ components. The proposal includes a turbine upgrade to both combustion turbines to increase generation capacity and operational efficiency. The efficiency is improved through increasing the turbine firing temperature and through the use of redesigned compressor blades. The upgrade would raise CPP's overall rating from 530 MW to 603.2 MW. The individual combustion turbine nameplate-capacity would increase from 170 MW to 198.1 MW, and the 2-on-1 steam generator would increase from 190 MW to 207 MW.

The upgrade requires the installation of components during a major facility shutdown. The turbine upgrade includes the installation of AGP and DLN2.6+ components and an oxidation catalyst system for emission control. The AGP components include redesigned compressor blades and stator vanes, and an improved control system designed to increase potential electrical output. The combustion upgrades include the DLN2.6+combustors, fuel nozzles, cap, transition pieces, and liners. Installation of the oxidation catalyst requires the creation of a space in the HRSG, a support structure within the HRSG, and the loading of the catalyst. The oxidation catalyst system does not require reactants to function. Installation of the components does not require earthmoving activities, trenching, drilling, or exterior structure erection. The Energy Commission approved the installation of the components as a maintenance activity in a signed letter dated January 8, 2018.

Authorization was required by the SMAQMD prior to the installation of the upgrade equipment. CPP had a planned major outage for combustion turbine number 3 (CT3) in April 2018. In order to assure adequate permit processing time and allow the installation of the equipment on CT3 during the planned outage, the SMAQMD permitted the project in two phases. Phase 1 authorized the installation of the components for combustion turbine number 2 (CT2) and CT3. The authorization was for the installation only, and did not authorize an increase in turbine emissions or turbine firing rate.

SMAQMD issued a total of four ATCs, two for installation of the upgraded components for each turbine and two for the installation of oxidation catalysts on each turbine on April 6, 2018. The installation of the upgraded components and oxidation catalyst for CT3 was completed as planned during the major maintenance outage for CT3 in April 2018. SFA plans to complete the installation of the upgraded components on CT2 in the first quarter of 2019.

The second permitting phase is to allow a change in operation for CT2 and CT3 to utilize the physical hardware authorized in Phase 1. Phase 2 would authorize the increased firing rate and overall power output rating. Once approved, CPP plans to immediately release CT3 from its current heat input restriction. No additional physical modification to CT3 would be required. A control logic adjustment by General Electric would allow CT3 to utilize the installed hardware.

The SMAQMD considers Phase 1 and Phase 2 as one project. The ATCs issued in Phase 2 would include Phase 1 requirements. Phase 1 ATCs would be cancelled after Phase 2 ATCs are issued.

The proposed increase firing rate for CT2 and CT3 would result in an increase in fuel consumption. The PTA originally proposed the following: an increase in the potential to emit for air emissions resulting from an increase in fuel consumption for CT2 and CT3; an increase for hourly and daily VOC, NOx, SO_2, PM10, and CO emissions; to limit the quarterly and annual emissions of VOC, NOx, and PM10 to current permit levels; to limit quarterly emissions of CO to current permit levels, to cap annual CO emissions below currently permitted levels; and to increase quarterly and annual levels of SO_2.

Changes to the PTA include proposed increases in hourly and daily potentials for NOx, SO_2, and CO only. The changes also propose to maintain the current permitted hourly and daily potential emission limits for VOC and PM10. The changes are documented in an email docketed by staff on November 7, 2018 (SFA 2018a).

Current PM10 limits are different in the Energy Commission license and SMAQMD permits. The differences are due to emission calculation methodologies from equipment other than CT2 or CT3. Facility potentials for PM10 include operations of CT2 and CT3, dust emissions from a perlite storage silo, and operation of a cooling tower. Emissions from the cooling tower were included in the original Decision and were amended in 2008 and 2011. The 2008 amendment was the result of a cooling tower design change. Potential daily emissions for the cooling tower were increased, as well as quarterly facility emission potentials reflecting the daily increase for the cooling tower. In addition, a table including cooling tower specifications was added to the 2008 Energy Commission Decision. In 2011, potential PM10 emissions were increased for the cooling tower due to an increase in total dissolved solids from the incoming water supply. The SMAQMD permit evaluation resulted in a different potential to emit for PM10 from the Energy Commission 2011 assessment.

In the 2011 amendment, SFA proposed the use of a 67.7% adjustment factor for calculating PM10 emissions from the cooling tower. The SMAQMD evaluation included the use of the proposed adjustment factor. The Energy Commission rejected the adjustment factor based on unverifiable assumptions used in the calculation methodology and the inability to

accurately measure or source test PM emissions from the cooling tower to support the assumptions. The Energy Commission approved the rejection of the proposed adjustment factor and approved the use of the recirculating water rate, total dissolved solids concentration, and design drift rate to calculate PM10 emissions from the cooling tower. The equation used assumes 100% of the emission are PM10. Staff is proposing the same equation to calculate PM10 emissions from the cooling tower in the proposed amendment, for consistency with prior Energy Commission decisions.

In addition, the PTA proposes to include PM2.5 emissions. PM2.5 was not a regulated pollutant at the time the CPP was licensed. PM2.5 was not previously included in the emissions evaluations. SMAQMD added PM2.5 to their project evaluation. SMAQMD applied a 0.998 PM2.5 to PM10 emission fraction to establish historical and proposed PM2.5 emissions. PM2.5 is considered a subset of PM10. Consistent with Energy Commission evaluations, staff conservatively assumes PM2.5 emissions are equivalent to PM10 emissions for when natural gas is combusted. This is supported by studies evaluating in-stack testing results. Energy Commission staff is not aware of any source testing evaluations that support the SMAQMD fraction. CPP is approved to fire on a combination of natural gas and digester gas. Energy Commission assumes the same PM10 to PM2.5 equivalency for the natural and digester gas blend.

Lead emissions are subject to AAQS and NSR requirements. However, CPP is not considered a significant source of lead emissions for air quality. Lead emissions are estimated at 2.8 pounds per year or 0.0014 tons per year from combustion of digester gas. The proposed changes would not increase the quantity of digester gas combusted and therefore, no changes to lead emission are expected.

The PTA proposes a change to operating profile for CT2 and CT3 and proposes to increase some mass emissions limits while maintaining the required emission concentration limits. CPP utilizes a selective catalytic reduction system (SCR) to meet NOx requirements. CPP installed an oxidation catalyst as part of Phase 1 CT3 and plans to install a second oxidation catalyst on CT2. The oxidation catalyst is used to control CO and VOC emissions. The emission concentration requirements and control strategies are summarized in **Air Quality Table 4.**

Air Quality Table 4
Emissions and Control Requirements

	Standard	Control Requirement
NOx	2.0 ppmvd at 15% O2, 1-hr average	SCR system
CO	4.0 ppmvd at 15% O2, 1-hr average	Oxidation Catalyst
VOC	1.17 ppmvd at 15% O2, 3-hr average	Oxidation Catalyst
SOx	Sulfur content less than 0.7 gr/100 scf	Natural gas or equivalent
PM10/2.5	Sulfur content less than 0.7 gr/100 scf	Air inlet filter cooler and lube oil vent coalescer

Source: SMAQMD 2018a, and Staff Analysis

Emission rates for criteria pollutants vary depending on the operational profile of the equipment. The PTA proposed updated emission rates for CT1 and CT2 operation based on

a combustion turbine heat input of 2,200 MMBtu/hr for NOx, CO, and SOx, but is proposing no increase for VOC and PM10/2.5 emissions.

Air Quality Table 5 includes the current maximum hourly emission rates for steady-state operations not including startup or shutdown emissions included in Condition of Certification **AQ-17** (renumbered **AQ-8**), the proposed upgraded emission rate, and the emission rate change. Maximum hourly emission rates including startup and shutdown emissions for the turbines have not changed since the 2003 Decision except for SOx. Maximum SOx emission rates were recalculated when digester gas was added as a fuel source in the 2011 amendment. The proposed emission rate for SOx is based on potential full load operation. The maximum hourly rates per turbine for SOx and PM are the same for steady state operations and operations including startup and shutdown emissions since maximum emissions rates for these pollutants are based on fuel combustion. These maximum emission rates are not explicitly listed in the conditions of certification but are used in determining the maximum daily emission rates. For reference, maximum emission rates including startup and shutdown operations are also included **Air Quality Table 5**.

Air Quality Table 5
Current and Proposed Maximum Hourly CTG Emission Rates

Per CTG	Maximum Hourly Steady-State Emission Rates[a] (pound/hour)					
	NOx	CO	VOC	SOx[b]	PM10/2.5[c]	PM2.5[d]
Current	13.51	16.46	3.30	1.67	9.00	8.98
Proposed	16.21	19.73	3.30	1.91	9.00	8.98
Change:	2.7	3.27	0	0.24	0	0
Per CTG	**Maximum Hourly Emission Rates[e] (pound/hour)**					
	NOx	CO	VOC	SOx[b]	PM10/2.5[c]	PM2.5[d]
Current	80	902	16	1.67	9.00	8.98
Proposed	80	902	16	1.91	9.00	8.98
Change:	0	0	0	0.24	0	0

Source: SMAQMD 2018a, SFA 2018, SFA 2018a, CEC 2011, CEC 2003, and staff analysis
Note: [a] Based on the operation of one turbine- excluding start-up and shutdown
[b] Based upon 2,107.37 mmBtu/hr natural gas combustion and 92.63 mmBtu/hr digester gas combustion.
[c] Energy Commission assumes emissions of PM10 are equivalent to PM2.5.
[d] SMAQMD proposed emissions rate based upon a 0.998 PM2.5 to PM10 fraction
[e] Based on the operation of either turbine- including start-up and shutdown operations.
Note: maximum hourly emission for both turbines is considered one turbine at maximum hourly emission rates and one turbine in steady state operations.

Air Quality Table 6 includes the current licensed maximum daily emission rates included in Condition of Certification **AQ-18** (renumbered **AQ-9**)**.** Daily emission rates NOx, CO, and VOC, are based on 21 hours of steady state operation and one 3-hour startup per CTG. Daily emission rates of SOx and PM10/2.5 are based on 24 hours of operation at the proposed maximum hourly emission rate. The daily emission rate for SOx assumes 24 hours of full load operation on a natural and digester gas mix. PM10/2.5 daily emissions are based on 24 hours of operation at the proposed capped hourly emission rate. The proposed upgraded emission rates and changes are included in **Air Quality Table 6**.

Air Quality Table 6

Current and Proposed Maximum Daily CTG Emission Rates

Per CTG	Maximum Daily Emission Rates (pound/day)					
	NOx	CO	VOC	SOx	PM10/2.5[a]	PM2.5[b]
Current	523.7	3,051.7	117.3	40.1	216.0	215.5
Proposed	580.4	3,120.3	117.3	45.8	216.0	215.5
Change:	56.7	68.6	0	5.7	0	0

Source: SMAQMD 2018a, SFA 2018, SFA 2018a, CEC 2011, and staff analysis
Note:[a] Energy Commission assumes emissions of PM10 are equivalent to PM2.5.
[b] SMAQMD proposed emissions rate based upon a 0.998 PM2.5 to PM10 fraction.

Air Quality Table 7 includes the current licensed maximum quarterly emission rates per CTG. Current Condition of Certification **AQ-19** (renumbered **AQ-10**) includes maximum allowable quarterly emissions for Phase 1 of the CPP facility. Phase 1 in **AQ-19** (renumbered **AQ-10**) includes emissions from each turbine, the perlite storage, and the cooling tower. Current Condition of Certification **AQ-19** (renumbered **AQ-10**) does not restrict emissions by category, however values associated to just the CTG operation were calculated to demonstrate the change in operation of the CTGs. PM10/2.5 is the only category of emissions that is different for CTG operation and facility operation. Quarterly emissions for all categories are included in **Air Quality Table 8**. The PTA is proposing no change to the quarterly emission limits for NOx, CO, VOC, and PM10/2.5. A quarterly emission increase is proposed for SOx. The proposed upgraded quarterly emission rates per CTG and calculated changes are included in **Air Quality Table 7**.

Air Quality Table 7
Current and Proposed Maximum Quarterly CTG Emission Rates

	NOx	CO	VOC	Sox	PM10/2.5[a]	PM2.5[b]
Per CTG	**Maximum 1st Quarter Operation (lbs/quarter)**					
Current Quarterly	31,010	73,965	7,403	3,095	19,440	19,401
Proposed Quarterly	31,010	73,965	7,403	4,126	19,440	19,401
Change:	0	0	0	1,031	0	0

Per CTG	Maximum 2nd Quarter Operation (lbs/quarter)					
Current Quarterly	31,321	74,343	7,479	3,130	19,656	19,617
Proposed Quarterly	31,321	74,343	7,479	4,171	19,656	19,617
Change:	0	0	0	1,041	0	0

Per CTG	Maximum 3rd Quarter Operation (lbs/quarter)					
Current Quarterly	31,632	74,722	7,555	3,164	19,872	19,832
Proposed Quarterly	31,632	74,722	7,555	4,217	19,872	19,832
Change:	0	0	0	1,053	0	0

Per CTG	Maximum 4th Quarter Operation (lbs/quarter)					
Current Quarterly	31,632	74,722	7,555	3,164	19,872	19,832
Proposed Quarterly	31,632	74,722	7,555	4,217	19,872	19,832
Change:	0	0	0	1,053	0	0

Source: SMAQMD 2018a, SFA 2018, CEC 2011 and staff analysis

Note: [a] Energy Commission assumes emissions of PM10 are equivalent to PM2.5.
[b] SMAQMD proposed emissions rate based upon a 0.998 PM2.5 to PM10 fraction.

The proposed upgraded quarterly emission rates for both CTGs, cooling tower, perlite storage and totals are included in **Air Quality Table 8**.

Air Quality Table 8
Current and Proposed Maximum Quarterly CTG Emission Rates

	NOx	CO	VOC	SOx	PM10/2.5[a]
	Maximum 1st Quarter Operation (lbs/quarter)				
CTGs	62,021	147,929	14,807	8,252	38,880
Cooling tower					1,255
Perlite					2.60
Total	62,021	147,929	14,807	8,252	40,138
	Maximum 2nd Quarter Operation (lbs/quarter)				
CTGs	62,643	148,687	14,958	8,342	39,312
Cooling tower					1,269
Perlite					2.60
Total	62,643	148,687	14,958	8,342	40,584
	Maximum 3rd Quarter Operation (lbs/quarter)				
CTGs	63,265	149,444	15,110	8,434	39,744
Cooling tower					1,283
Perlite					2.60
Total	63,265	149,444	15,110	8,434	41,030
	Maximum 4th Quarter Operation (lbs/quarter)				
CTGs	63,265	149,444	15,110	8,434	39,744
Cooling tower					1,283
Perlite					2.60
Total	63,265	149,444	15,110	8,434	41,030

Source: SMAQMD 2018a, SFA 2018, SFA 2018a, CEC 2011, and staff analysis
Note: No changes to the cooling tower or perlite storage operation are proposed. Any changes in calculated emissions are due to rounding.
[a] Energy Commission assumes emissions of PM10 are equivalent to PM2.5.
[b] SMAQMD proposed emissions rate based upon a 0.998 PM2.5 to PM10 fraction.

Air Quality Table 9 includes the current licensed maximum annual emission rates for CPP. The conditions of certification include maximum allowable annual emissions for Phase 1 of the CPP facility. As explained above, current **AQ-19** does not restrict emissions by category. The values presented in **Air Quality Table 9** are broken down into the emission unit categories for evaluation purposes. The PTA proposes to cap annual emissions for NOx and CO to below the current potential to emit. SFA is proposing no increase for annual emissions of VOC, SOx, or PM10/2.5. The proposed annual emission limits and changes are also included in **Air Quality Table 9**.

Air Quality Table 9
Current and Proposed Annual Facility Emission Rates

	Energy Commission					SMAQMD[b]	
	NOx	CO	VOC	SOx	PM10/2.5[a]	PM10	PM2.5
Equipment	**Current Annual Emission Rates[c] (pounds/year)**						
CTGs	251,194	595,505	59,986	25,105	78,842	---	---
Cooling Tower	----	----	----	----	5,080 [d]	---	---
Perlite Storage	----	----	----	----	10.4[e]	---	---
Total	251,194	595,505	59,986	25,105	162,775	---	---
	Current Annual Emission Rates[c] (tons/year)						
CTGs	125.6	297.8	30.0	12.6	78.84	78.84	78.68
Cooling Tower	----	----	----	----	2.54[d]	1.71	0.66
Perlite Storage	----	----	----	----	0.005[e]	0.01	0.01
Total	125.6	297.8	30.0	12.6	81.4	80.6	79.3
Total	**Facility Annual Emission Rates[f] (tons/year)**						
Current	125.6	297.8	30.0	12.6	81.4	80.6	79.3
Proposed	96.0	123.1	30.0	16.7	81.4	80.6	79.3
Change	-29.6	-198.4	0	4.1	0	0	0

Source: SMAQMD 2018a, SMAQMD 2011a, SMAQMD 2010, SFA 2018, SFA 2018a, CEC 2011, and staff analysis
Note: [a] Energy Commission assumes emissions of PM10 are equivalent to PM2.5.
[b] SMAQMD proposed emissions rates based upon a 0.998 PM2.5 to PM10 fraction for the CTGs, 0.677 PM10 fraction for the cooling tower, and 0.266 PM2.5 fraction for the cooling tower.
[c] Annual emission limits are not currently separated by equipment category in the license.
[d] Cooling tower annual emission limits are determined by applying the daily emission limit of 13.92 lbs/per day on an annual basis without operation restrictions.
[e] Perlite annual emission limits are equivalent to the emissions evaluated in the CEC 2011 amendment.
[f] Facility annual emissions include emissions from CT1, CT2, the cooling tower and perlite storage system.

NEW SOURCE REVIEW ANALYSIS

Per SMAQMD rules and regulations, the methodologies used to determine BACT, PSD, and offset requirements are based on whether CPP is considered a major stationary source and if the requested changes are classified as a major modification. The determination for major stationary source varies slightly between the SMAQMD Rule 202 - New Source Review (Rule 202), and Rule 214 – Federal New Source Review (Rule 214). The SMAQMD major source determination is summarized in **Air Quality Table 10**.

Air Quality Table 10
SMAQMD Major Source Determination

Facility Emissions	Major Source Determination (tons/year)					
	NOx	CO	VOC	SO_2	PM10	PM2.5
Major Source Threshold (Rule 202/Rule 214)	25	100/NA	25	NA	100[a]	100[b]
CPP Permit Limits[c]	125.6	297.8	30.0	12.6	80.6	79.3
Rule 202 Determination	Yes	Yes	Yes	No	No	Yes
Rule 214 Determination	Yes	NA	Yes	No	No	Yes

Source: SMAQMD 2018a and staff analysis
Note: The SMAQMD evaluates PM2.5 as 99.8 percent of PM10 emissions. Energy Commission assumes PM2.5 is equivalent to PM10. This difference does not impact the conclusion of major source determination.

[a] 100 tons per year of PM10 or 100 tons per year of SOx as a PM10 precursor.
[b] 100 tons per year of PM2.5 or 100 tons per year of NOx or SOx as a PM2.5 precursor.
[c] Current CPP SMAQMD permit limits.

CPP is considered a major source for NOx, VOC, PM2.5, and CO. The SMAQMD major modification determination is not dependent on whether there are proposed increases to the major source pollutants. The methodology first compares the actual emissions to potential emissions. If the actual baseline emissions are less than 80 percent of the potential emissions then the actual baseline emissions are considered the historical actual emissions. For pollutants over 80 percent of the potential emissions, the pollutants' potential to emit is considered the historical actual emission. To determine if a project is considered a major modification, the proposed permit limit is compared with the historical actual emissions. The SMAQMD major modification determination methodology for CPP is equivalent under Rules 202 and 214. The SMAQMD major modification determination is summarized in **Air Quality Table 11**.

Air Quality Table 11
SMAQMD Major Modification Determination

Facility Emissions	Major Modification (tons/year)			
	NOx	CO	VOC	PM2.5
Actual Baseline Emissions	71.1	23.2	19.7	66.4
CPP Permit Limits[b]	125.6	297.8	30.0	79.3
Percent of Potential	56.6%	7.8%	65.7%	83.7%
Over 80% Determination	No	No	No	Yes
CPP Proposed Permit Limits	96.0	123.1	30.0	79.3
Historical Actual Emission	71.1	23.2	19.7	79.3
Emission Increase	24.9	99.9	10.3	0
Major Modification Threshold	25	100	25	10[a]
Major Modification	No	No	No	No

Source: SMAQMD 2018a and staff analysis
Note: The SMAQMD evaluates PM2.5 as 99.8 percent of PM10 emissions. Energy Commission assumes PM2.5 is equivalent to PM10 emissions. This difference does not impact the conclusions of the major modification determination.
[a] 10 tons per year of PM2.5 or 40 tons per year of NOx or SOx as a PM2.5 precursor.
[b] Current CPP SMAQMD permit limits.

The proposed annual emissions cap for NOx and CO keeps the emission increase below the major modification threshold. Therefore, the SMAQMD calculation methodology for determining BACT and/or offset triggers is the difference between the proposed potential emissions and the current permitted potential emissions. PSD requirements are only applicable to project changes classified as major modifications.

The BACT analysis was performed according to SMAQMD Rule 202 methodology. Per Rule 202, BACT is triggered if the proposed daily emissions increase is above the specified BACT trigger levels. The proposed daily emission increase calculation is included in **Air Quality Table 6.** BACT is evaluated for all pollutants for each equipment unit. The only equipment with proposed emission changes are CT1 and CT2. SMAQMD rules require BACT to be applied to each regulated pollutant that triggers major modification requirements. As demonstrated above, this project is not considered a major modification and therefore BACT

is only applicable to pollutants with daily emission increases above the threshold. The BACT applicability determination is summarized in **Air Quality Table 12**.

Air Quality Table 12
BACT Applicability

Per CTG	Emission Limits (pounds/day)						
	NOx	CO	VOC	SOx	PM10	PM2.5	Lead[a]
Difference	57	69	0	6	0	0	0
BACT Threshold	>0	>0	>550	>0	>0	>0	>3.3
BACT Required	Yes	No	No	Yes	No	No	No

Source: SMAQMD 2018a and staff analysis
Note: The SMAQMD evaluates PM2.5 as 99.8 percent of PM10 emissions. Energy Commission assumes PM2.5 is equivalent to PM10 emissions. This difference does not impact the conclusion of the BACT determination.
[a] The proposed changes would not change any lead emissions from the facility.

The SMAQMD analysis determined BACT for NOx and SOx is required for CPP. SMAQMD Rule 202 Section 205.2 states that when making a BACT determination for each regulated air pollutant, the district may consider the overall effect of the determination on other regulated air pollutants. It states these considerations may be discussed in the preliminary SMAQMD decision. A regulated air pollutant is defined as any air pollutant for which there is a national or state AAQS, or a precursor to such air pollutant.

There is currently no AAQS for ammonia (NH_3), however under some scenarios it can contribute to the formation of PM2.5. Per **Air Quality Table 3,** the SMAQMD is currently classified as nonattainment for the federal 24-hour PM2.5 standard. Per the U.S. EPA requirements for implementing the NAAQS, ammonia is identified as a PM2.5 precursor to be addressed in attainment planning and nonattainment NSR permitting. EPA guidelines allow states to not adopt control requirements to reduce emissions of a particular PM2.5 precursor if the state adequately demonstrates that the precursor does not contribute significantly to PM2.5 levels that exceed NAAQS in a nonattainment area.

SMAQMD Rule 202 discusses the ammonia precursor-secondary air contaminant relationship for PM2.5 in the definition of precursor. Ammonia is considered a nitrate faction of PM2.5 if ammonia is determined to be a necessary part of the PM2.5 control strategy in the attainment demonstration approved by EPA in the State Implementation Plan. Ammonia control is currently not included as part of the strategy to attain the federal 24-hour PM2.5 standard. The region is considered to be ammonia rich and therefore reducing ammonia emissions would not necessarily lead to significant reduction in PM2.5. Staff notes that the highest CPP ammonia slip measured during source testing performed over the last 6 years has been 2.23 ppm at 15 percent O_2. The proposed changes in operation are not expected to change CPP ammonia slip levels. The CPP ammonia slip limit was approved at 10 ppm at 15 percent O_2. The 10 ppm slip requirement is included in the conditions of certification. Current BACT ammonia slip in some regions is considered 5 ppm at 15 percent O_2. Although CPP is not subject to those ammonia slip BACT levels, it operates well below those established limits.

Current BACT requirements for NOx and SOx are included in **Air Quality Table 13**. The CTGs are already required to operate to meet these current BACT requirements.

Air Quality Table 13
CTG BACT Requirements

	BACT Standard	Compliance Demonstration
NOx	2 ppm at 15% O_2, 1-hr average	The turbines use an SCR system to meet emission limits. CEMs are used to verify compliance. CEMs are tested for accuracy annually.
SOx	Sulfur content less than 0.7 gr/100 scf	The natural/digester gas mixture has an average sulfur content of 0.28 grains per 100 scf. SOx emissions are tested annually.

Source: SMAQMD 2018, and Staff Analysis

IMPACTS ANALYSIS

Ambient air quality impacts occur when project emissions cause the ambient concentrations of a pollutant to increase. CPP emits pollutants on a mass basis. Emissions associated with CPP are the actual mass of emitted pollutants dispersed in the atmosphere before reaching the ground. Impacts refer to the concentration of pollutants at ground level. An impact analysis includes quantifying the emissions released from the equipment during operation and the use of an atmospheric dispersion model to determine the probable impact at ground level. The analysis focuses on the predicted change to the ground level impact due to the additional emissions from the proposed project amendment.

Air dispersion models provide a means of predicting the location and ground level magnitude of the impacts of a new emissions source or a change in emissions. These models consist of several complex series of mathematical equations, which are repeatedly calculated by a computer for many ambient conditions to provide theoretical maximum offsite pollutant concentrations for short-term (one-hour, three-hour, eight-hour, and 24-hour) and annual periods. The model results are generally described as maximum concentrations, often described as a unit of mass per volume of air, such as micrograms per cubic meter ($\mu g/m^3$).

The project owner conducted air dispersion modeling using American Meteorological Society/Environmental Protection Agency Regulatory Model known as AERMOD to analyze potential ambient air quality impacts associated with the operation of CPP (SFA 2018). The U.S. EPA designates AERMOD as a “preferred” model for refined modeling in all types of terrain. AERMOD considers emissions in the context of various ambient meteorological conditions, local terrain and nearby structures that could affect air flow.

The inputs for the air dispersion models include stack information (exhaust flow rate, temperature, and stack dimensions), specific emission data and meteorological data, such as wind speed and atmospheric conditions, and site elevation. SFA used AERMOD version 18081 to perform the modeling and followed the U.S. EPA Guideline on Air Quality Models. The analysis includes the following:

- Use of AERMOD meteorological data provided by ARB. The ARB meteorological data was processed with AERMET version 14134.

- Receptor grids with locations and spacing at the project site boundary and beyond that increase in spacing with distance from the origin.

- Receptor elevations and hill slope factors computed by AERMAP from National Elevation Database files.

- Use of Breeze®-AERMOD software to simulate the impacts of building downwash. Breeze®-AERMOD software incorporates the algorithms of U.S. EPA Building Profile Input Program (BPIP-PRIME)

- NO_2 modeling concentrations were determined from NOx emissions using the AERMOD Ambient Ratio Method 2.

Guidelines require meteorological data to be representative of the project site. Considerations for this determination include examining meteorological conditions for the site such as prevailing winds, mixing height, surrounding land use and surface characteristics, and proximity. ARB provided pre-processed meteorological data for a 5-year range from 2009-2013. The surface readings are from the Sacramento Mather Airport and upper air readings are from the Oakland International Airport. Staff considers the meteorological data used to be representative of the project site.

The PTA impact analysis modeled the CTGs and eight operating cooling tower fans to assess the potential impacts of the proposed changes to the facility operations. Operation scenarios were evaluated to determine worst-case operating conditions. Startup scenarios and maximum permitted baseload operating cases were evaluated for the 1-hour NOx, CO, and SO_2 inputs. The 8-hour CO inputs assumed 3 hours of startup and five hours of baseload operation. The 24-hour SO_2 and PM10 inputs assumed 24-hours of baseload operation. The annual averaged modeled NOx and PM10 inputs assumed the annual limits divided by 8,760 hours per year of operation.

Staff reviewed the modeling files used for the SFA impact analysis. Staff re-modeled the project using the emission rates used by the Energy Commission to assess emissions. The Energy Commission emission rate for PM10 is higher than the emission rate used by the SMAQMD. In addition, staff assumes the PM10 emissions are equivalent to PM2.5 for the project whereas SMAQMD applies an emission ratio.

The modeled concentrations from the worst case scenarios of facility operation was combined with background or baseline concentrations to evaluate the total impact from the proposed changes to the facility operation. Background or baseline concentrations are determined from the measured pollutant values at surrounding representative air monitoring sites. Staff uses the highest background concentrations to determine the total impacts of a project. This is a conservative approach because it assumes the greatest project impacts occur concurrently with the worst case background concentrations.

The PTA used U.S. EPA design values as background values. Design values are statistics that describe the air quality status of a location relative to the AAQS. They are used to designate and classify larger areas as attainment or nonattainment and do not necessarily

describe the conditions directly at the facility site. Background data used to evaluate the potential air quality impacts needs to be representative but it is not required to be collected at the facility site.

Staff revised the background concentrations provided by the project owner where necessary to reflect the most recent worst-case background values representative of site conditions. The ambient concentrations of criteria pollutants for at least three years from certified monitoring sites was evaluated by staff to determine appropriate background ambient concentrations of criteria pollutants at the proposed project site. The selection of background data was based on location, data quality and time period of the data collected.

There are twelve air monitoring stations identified in the SMAQMD 2015 Air Monitoring Network Assessment measuring pollutants in the SMAQMD. Qualified monitoring data is available on ARB and U.S. EPA websites. Available monitoring data varies by station depending on the station objective. Trend and county summaries are included for some pollutants. The Rancho Seco station is the closest station to the project site but only monitors seasonal PM2.5 for public information. The data is not submitted to the EPA database as qualified data. The data is not included in the evaluation because it is not qualified and is not representative of year-round operations. The Sloughhouse site is approximately 11 miles north-north-west of the facility and monitors ozone, PM2.5, and meteorological data. The Elk-Grove Bruceville station measures ozone, PM2.5, NO_2, and meteorological data and is approximately 16 miles to the west and slightly south of the facility site. The Sacramento-Branch Center station monitors PM10 and is almost 19 miles north-north-west. The Sacramento Del Paso station is the most comprehensive site located approximately 23 miles north-north-west of the facility site. Measured data at the Del Paso site includes ozone, PM2.5, PM10, NO_2, CO, SO_2, lead, and meteorological data.

Air Quality Table 14 contains air monitoring data from 2015 to 2017. Qualified data is included from the closest monitoring sites as well as county summaries for some pollutants when appropriate.

Air Quality Table 14
Criteria Pollutants Concentrations, 2015-2017 (ppb, ppm, or µg/m^3)

Pollutant	Averaging Time	Station	2015	2016	2017
NO_2 (ppb)	1-hour (Max)	County	59	56	61
		Del Paso	52	41	37
	1-hour (98th)	County	52	43.9	49.6
		Del Paso	45	34	31
	Annual	County	11	13	9
		Del Paso	7	6	6
PM10 (µg/m^3)	24-hour (Sta)	Branch Center	45	44	81
		Del Paso	51.4	42.2	65.8
	24-hour (Nat)	Branch Center	44	45	79
		Del Paso	42	31	59
	Annual	Branch Center	19.5	18.9	21.3
		Del Paso	18	17.6	20.5
PM2.5 (µg/m^3)	24-hour (Max)	County	54.5	46.8	46.9
		Del Paso	54.5	46.8	42
		Sloughhouse	---	---	34.5
PM2.5 (µg/m^3)	1-hour (98th)	County	37.8	28.2	34.9
		Del Paso	37.8	28.2	34.9
		Sloughhouse	---	---	27
PM2.5 (µg/m^3)	Annual	County	12.3	9.7	14
		Del Paso	10.4	8.7	9.7
		Sloughhouse	---	---	9
CO (ppm)	1-hour (Max)	Del Paso	2.2	2.4	1.9
CO (ppm)	8-hour (Max)	Del Paso	2	2.1	1.8
SO_2 (ppb)	1-hour (Max)	Del Paso	8.9	9.7	7.5
SO_2 (ppb)	1-hour (99th)	Del Paso	8	9	7
SO_2 (ppb)	24-hour	Del Paso	8.2	8.9	5.9

Source: SFA 2018a, ARB 2018a, and U.S. EPA 2018b and staff analysis.
Note: Max = maximum, Sta = state, Nat = national, 98th = 98th percentile, 99th = 99th percentile

Staff selected the highest criteria pollutant concentration from the last three years of available data collected from surrounding monitoring stations and county summaries to represent background values. For the national 1-hour NO_2 standard, staff included a refined background value using the 3-year average based on the form of the standard. For the national 24-hour PM2.5 standard staff included the 24-hour 98th percentile value from 2017 at the Sloughhouse monitoring station. The Sloughhouse station is closer to the project site and more representative of the conditions in the area. While the Del Paso station has a complete record of data, it is located in a densely populated area and records some of the highest PM2.5 values in the county. The project site is located in a significantly less populated area of the county where combined emission, population, and concentration models for 24-hour PM2.5 indicate the project area is not located in an area critical for monitoring PM2.5 (SMAQMD 2018d). Review of mapped 24-hour PM10 data indicates low concentrations of particulates for both the summertime and wintertime in the area surrounding the facility.

Selecting data from the Sloughhouse station is still considered conservative because the station is located in an area more densely populated than the area surrounding the project site and review of area wind rose and PM2.5 pollutant trajectories indicate the area is upwind from the facility.

Staff selected the Branch Center monitoring site for background PM10. There are no PM10 monitors located close to the project site. The Branch Center station is closer to the project site but it represents a more densely populated area than the Del Paso site (SMAQMD 2018d). Both stations are considered conservative and have similar background trends. As shown in **Air Quality Table 14**, data from 2017 for both the monitors is much higher than previous years. Staff reviewed the PM10 24-hour concentration trend for both the sites starting from 2005. The trend lines indicate PM10 concentrations have not reached the 2017 peaks since 2008 and 2009. Data indicates the 2017 monitoring values are not representative and therefore selected the maximum values from 2014 to 2016 as representative background.

The background values selected by staff as well as comparative county background levels for PM2.5 are included in **Air Quality Table 15**. Concentrations in excess of their ambient air quality standard are shown in bold. Based on the discussion above, staff concurs the highest county PM2.5 values are not representative of the background PM2.5 at the project site. The representative background values used by staff in the analysis are included in **Air Quality Table 16.**

Air quality Table 15
Staff-Recommended Background Concentrations and Comparison Values (µg/m^3)

Pollutant	Averaging Time	Background Values	Limiting Standard	Percent of Standard
NO_2 [1]	State 1-hour	115	339	34%
	Max. Nat. 1-hour	98	188	52%
	Ave. Nat 1-hour	91	188	49%
	Annual	24	57	43%
PM10	Nat. 24-hour	45	150	30%
	State 24-hour	46	50	92%
	Annual	19.5	20	98%
PM2.5	County 24-hour	33.6	35	96%
	Sloughhouse 24-hour	27	35	77%
	County Annual	14	12	**117%**
	Sloughhouse Annual	9	12	75%
CO	1-hour	4,515	23,000	15%
	8-hour	3,951	10,000	34%
SO_2	State 1-hour	25.4	655	4%
	Federal 1-hour	24	196	6%
	24 hour	23.3	105	5%

Source: ARB 2016a, U.S. EPA 2016b, and staff analysis

Staff combined the Energy Commission modeled impacts with the appropriate background concentrations, and compared the results with the ambient air quality standards for each respective air contaminant to determine whether the project's emission impacts after the modifications would cause a new exceedance of the ambient air quality standards or would contribute to an existing exceedance. Staff modeled impacts resulted in slightly lower project PM10 impacts and higher project PM2.5 impacts than the values included in the PTA. Total impacts were compared with the AAQS for NO_2, CO, SO_2, PM10, and PM2.5. **Air Quality Table 16** summarizes the maximum predicted concentrations for the modeled scenario with the corresponding averaging period. **Air Quality Table 16** includes background values and compares the total impact to the limiting AAQS.

Air Quality Table 16
Proposed Operation Impacts

Pollutant	Averaging Period	Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)[a]	Total Impact ($\mu g/m^3$)	Limiting Standard ($\mu g/m^3$)	Percent of Standard
NO_2	1-hr (Sta.)	43.4	115	158	339	47%
	1-hr (Nat.)	43.4	91	135	188	72%
	Annual	0.27	24	25	57	43%
PM10	24-hour (Nat.)	1.93	45	47	50	31%
	24-hour (Sta.)	1.93	46	48	50	96%
	Annual	0.31	19.5	20	20	99%
PM2.5	24-hour	1.93	27	28	35	83%
	Annual	0.31	9	9	12	78%
CO	1-hour	690.06	4,515	5,205	23,000	23%
	8-hour	114.35	3,951	4,065	10,000	41%
SO_2	1-hr (Sta.)	1.46	25.4	27	655	4%
	1-hr (Nat.)	0.72	24	24	196	12%
	24-hour	0.35	23.3	24	105	23%

Source: SFA 2018a, staff analysis.
Notes: [a] Staff's representative background values are presented in **Air Quality Table 16** and 0.35 $\mu g/m^3$ (annual averaging period).

Air Quality Table 16 demonstrates that the proposed project is not expected to cause a significant impact from the change in operation. However, routine operation impacts could contribute to existing violations of PM10 and PM2.5 ambient air quality standards.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) MITIGATION

As documented in **Air Quality Table 3**, the SMAQMD is in non-attainment with the AAQS for ozone, CAAQS for PM10, and NAAQS for PM2.5. The Energy Commission requires mitigation for the emissions of pollutants and/or their precursors that are in non-attainment with state and federal air quality standards or may result in any violation of any air quality standard. Precursors of ozone, PM10, and PM2.5 include VOC, SOx and NOx. Therefore,

the Energy Commission requires the mitigation of PM10, PM2.5, SOx, NOx, and VOC emissions in areas designated as non-attainment for ozone, PM10 and PM2.5 standards.

A mitigation package was provided when CPP was originally licensed. Mitigation for the project included a combination of clean fuel requirements, emission control requirements, and emission reduction credits (ERCs). The 2003 Decision required the project to be offset under the SMAQMD requirements utilizing interpollutant trading at specified ratios and road paving credit generation.

The 2003 Decision identified specific ERC certificates that would be surrendered to mitigate CPP operation in current Condition of Certification **AQ-38**. The 2003 Decision noted the allocation of the ERCs and any excess amount would be identified at the time the credit is surrendered to the SMAQMD. The SMAQMD has since amended the language in the ERC permit requirement to reflect the amounts from the identified ERCs that were surrendered to the SMAQMD. In addition, the ERC requirements have been modified by the SMAQMD in response to changes of operation at the CPP. The CPP cooling tower was redesigned due to space consideration at the facility. The result was an eight-cell cooling tower. The design change included an increased recirculation flowrate and maximum total dissolved solids (TDS) of the redesigned cooling tower. The SMAQMD required CPP to surrender ERCs to offset a potential increase in PM10. In 2008, the Energy Commission approved the change. The 2008 amendment included an increase to the potential PM10 emissions and TDS content but did not update the mitigation table in current **AQ-38** (renumbered **AQ-21**). The staff analysis noted the change reflected a potential increase in PM10 emissions but an actual emission increase was not expected.

In 2011, CPP was amended to accommodate the addition of digester gas to the fuel supply. The addition of the digester gas resulted in an increase to the potential emission of SOx from combustion. The analysis noted the potential increase in SOx emissions was slight and the increase would be accompanied by a decrease in the combustion of the digester gas at another location. The amendment also included a potential increase to cooling tower particulate emissions as well as the addition of a perlite storage silo. Additional ERCs were required to be surrendered to mitigate the potential increases from the cooling tower and perlite storage. The SMAQMD does not require CPP to mitigate the SOx emissions from the facility because they fall below the SMAQMD threshold. The 2011 Energy Commission staff analysis concluded previously surrendered ERCs adequately mitigated the project emissions when taking into consideration the offset ratios applied by the SMAQMD and the ratios evaluated by the Energy Commission.

Air Quality Table 16 summarizes the ERCs surrendered to SMAQMD to mitigate CPP operations per SMAQMD requirements. The SMAQMD requires offsets on a quarterly basis and a full inventory of the ERCs and the offset ratios used per ERC are included in the SMAQMD permits as an attachment. **Air Quality Table 16** includes mitigation for CT2, CT3, cooling tower, and perlite storage silo. The values in **Air Quality Table 16** represent the value of the ERCs after the SMAQMD applied offset and interpollutant trading ratios. The offset ratio varies depending on the distance of the source of the ERC and the facility and the pollutant. The interpollutant ratio applied to the SOx ERCs to fully offset the PM10 emissions per SMAQMD is included in the SMAQMD permit(s) to operate and Condition of Certification

current **AQ-40** (reorganized as an attachment to the conditions). The SMAQMD notes in the ERC inventory that CPP surrendered slightly more PM10 ERCs than necessary.

Air Quality Table 16
CPP SMAQMD Mitigation Requirements

	Quarter 1 (lb)	Quarter 2 (lb)	Quarter 3 (lb)	Quarter 4 (lb)
VOC	14,807	14,958	15,110	15,110
NOx	62,021	62,643	63,265	63,265
Required PM10	39,724.6	40,166.6	40,607.6	40,607.6
Surrendered PM10	39,724.6	40,168.3	40,608.4	40,607.7

Source: SMAQMD 2018, SMAQMD 2018a, and staff analysis

Staff notes there are no proposed increases in the quarterly or annual potentials to emit for NOx, VOC, PM10 or PM2.5. These pollutants have already been fully offset for the proposed potentials to emit. Therefore, no additional mitigation is required for these pollutants.

As discussed above, the Energy Commission requires CEQA mitigation for SOx because it is considered a precursor to PM10/2.5 emissions. Staff typically evaluates mitigation on an annual basis. However, staff also considers the seasonal variations of pollutants when applicable. The SMAQMD offset requirement on a quarterly basis accounts for these variations. Staff further evaluated the PM10 and PM2.5 emission concentration profiles for the area surrounding the project site taking into consideration measurements made on a seasonal basis. Staff notes the monitoring data from the SMAQMD basin on a whole borders on the attainment/nonattainment designation. The region has a clean data finding from the U.S. EPA and has maintained a 3-year Design Value below the PM2.5 24-hour standard. In years when the 24-hour average was exceeded the cause of the non-attainment is attributed to winter nitrate and residential woodsmoke.

Staff reviewed PM10 and PM2.5 data from the monitoring stations in the basin. Staff reviewed maps depicting PM10 and PM2.5 concentrations surrounding monitor locations. The highest PM10 and PM2.5 values are in densely populated areas where monitors are placed to capture data in areas of concern. Staff notes that the project site is located in a sparsely populated location with expected PM10 and PM2.5 background concentrations well below the maximum concentrations recorded in the county and basin.

Staff reviewed the offsets previously surrendered to the SMAQMD in detail. **Air Quality Table 17** summarizes the ERCs surrendered for PM10 and SOx prior to the application of the offset ratios. In addition, **Air Quality Table 17** summarizes the annual ERCs totals calculated by staff and includes the proposed project potential quarterly and annual emission levels.

Air Quality Table 17
CPP ERC Surrendered and Project Totals

	Quarter 1 (lb)	Quarter 2 (lb)	Quarter 3 (lb)	Quarter 4 (lb)	Annual (lb)
Surrendered SOx	27,950.7	----	----	12,029.8	39,980.5
Proposed SOx	8,252	8,342	8,434	8,434	33,462
Difference					6,518.5
Surrendered PM10/2.5	42,363.4	48,558.4	57,610.8	49,995.1	198,527.8
Proposed PM10/2.5	40,138	40,584	41,030	41,030	162,780
Difference					35,747.4

Source: SCAQMD 2018 (AFC) and staff analysis

Staff notes that the ERCs surrendered for SOx were in Quarter 1 and Quarter 4 which captures wintertime periods of emissions (October through March). Evaluating these emissions on a 1:1 basis adequately offsets the project SOx potential emissions. Similarly, evaluating the PM10 emissions surrendered to the SMAQMD on a 1:1 basis exceed the proposed project annual potentials to emit for PM10.

Staff evaluated the proposed project changes taking into consideration the attainment status, the emission concentrations modeled in the region surrounding the project site, and potential populations surrounding the facility. Staff finds the mitigation surrendered in the form of ERCs adequate for CEQA purposes.

The ERCs already surrendered in combination with staff-proposed CEQA mitigation measures noted as conditions of certification would reduce the direct and cumulative air quality impacts of the proposed facility modifications to a less than significant level, including impacts to any environmental justice population. There are no air quality environmental justice issues related to the proposed facility modifications and no populations, including the identified minority population, would be significantly or adversely impacted.

GREENHOUSE GAS

The proposed changes are expected to result in a potential increase of GHG steady state emissions due to increasing the turbine firing rate from 1,865 MMBtu/hr to 2,200 MMBtu/hr. CPP is limited to how much digester gas can be combusted and no changes in combustion are proposed for the digester gas supply. The facility is currently restricted to 2,500 standard cubic feet per minute (SCFM) of digester gas combustion.

The maximum potential GHG emissions are based on a maximum heat rate of 2,200 MMBtu/hr operating continuously on natural gas. This assumption is conservative as it assumes continuous operation at the maximum heat rate. The actual heat rate varies with operation and emissions are expected to be lower during startup and shutdown operation. In addition, combustion of a digester gas blend is associated with lower greenhouse gas emissions than combustion of natural gas alone. The calculated greenhouse emissions based on the proposed maximum heat input for natural gas are included in **Air Quality Table**

18. The carbon dioxide equivalent (CO_2e) is calculated by applying the global warming potential factors with the GHG emissions included in the table.

Air Quality Table 18
Estimated Maximum Potential Greenhouse Gas Emissions

Pollutant	Emission Factor[a] (kg/MMBtu)	Global Warming Potential[b]	GHG Emissions (tons per year)	
			per CTG	CT2 and CT3
CO_2	53.06	1	1,127,193	2,254,386
CH_4	0.001	25	531	1,062
N_2O	0.0001	298	633	1,266
CO_2e:	----	----	1,128,357	2,256,714

Source: SFA 2018, Staff analysis
Kg/MMBtu = kilograms per million British thermal units
Notes: [a]Emission factors from Table 1 of EPA's Emission Factors for Greenhouse Gas Inventories
[b]Table A-1 of 40 CFR Part 98, Subpart A

The calculated greenhouse emissions based off of the proposed maximum heat input for natural gas are included in **Air Quality Table 19**. The carbon dioxide equivalent (CO_2e) is calculated by applying the global warming potential factors with the GHG emissions included in the table.

Air Quality Table 19
Estimated Potential Greenhouse Gas Emissions

Pollutant	GHG Emissions					
	Current		Modified		Potential Increase[b]	
	NG Only	Blend[a]	NG Only	Blend[a]	NG Only	Mixed[c]
Hourly CO_2e	218	208	258	245	39	50
Daily CO_2e	5,241	4,985	6,183	5,880	941	1,198
1st Quarter CO_2e	471,718	448,642	556,450	529,163	84,732	107,808
2nd Quarter CO_2e	476,959	453,627	562,633	535,042	85,674	109,006
3rd Quarter CO_2e	482,201	458,611	568,816	540,922	86,615	110,204
4th Quarter CO_2e	482,201	458,611	568,816	540,922	86,615	110,204
Annual CO_2e	1,913,078	1,819,491	2,256,714	2,146,048	343,636	437,223

Source: SFA 2018, Staff analysis
NG = Natural gas
Blend = Natural gas and digester gas blend
Notes: [a] Blend assumes 4.97% digester gas and 95.03% natural gas. For Digester gas, CO2 is considered 100% CO2e.
[b] Potential increase is the post modification value minus the current value.
[c] Mixed assumes maximum NG only post modification minus digester/natural gas blend gas. This represents a worst case increase if digester gas supply is interrupted.

Senate Bill 1368,[1] enacted in 2006, and regulations adopted by the Energy Commission and the California Public Utility Commission pursuant to that bill, prohibits California utilities from

[1] Public Utilities Code § 8340 et seq.

entering into long-term commitments with any base load facilities that exceed the EPS of 0.5 metric tonnes CO_2 per megawatt-hour[2] (1,100 pounds CO_2/MWh). If a project, instate or out-of-state, plans to sell base load electricity to California utilities, those utilities will have to demonstrate that the project meets the EPS. Base load units are defined as units that are expected to operate at a capacity factor higher than 60 percent. Compliance with the EPS is determined by dividing the annual average carbon dioxide emissions by the annual average net electricity production in MWh.

CPP is considered a base load facility and can be operated at more than a 60 percent annual capacity factor. The facility was licensed in March 2003 and commenced operation in 2005, prior to the applicability date for the Greenhouse Gases Emission Performance Standard (Title 20, California Code of Regulations, section 2900 et seq.). The regulation considers power plants licensed prior to June 30, 2007 as 'deemed–compliant' power plants.

PROPOSED UPGRADE CONDITION CHANGES

Staff is proposing to amend several conditions of certification pertaining to the proposed upgrade. Staff is proposing to amend the conditions of certification to reflect the additional equipment, new emission limits, and updated mitigation requirements as included in the preliminary ATC issued by the SMAQMD. The ATC also includes updated language to some of the existing conditions of certification that are proposed for this amendment or already incorporated in the SMAQMD permits. Staff is also proposing to add citations of the rules and regulations the condition language is based on.

Staff is proposing to renumber the conditions of certification and reorganize air quality sub-sections for consistency with the SMAQMD issued ATC. Staff notes additional updates may be required after the Title V permit is issued (see discussion in Additional Condition Changes below).

Staff is proposing to add an equipment list of the licensed equipment authorized to operate at the CPP. The list would include the proposed CO oxidation catalysts approved with the upgrade.

Staff is proposing to update the term CPP/SMUD to project owner where applicable.

Staff is proposing to update the language in **AQ-1**, **AQ-2**, **AQ-3**, and **AQ-4.** The proposed language reflects current SMAQMD language and proper referencing of documents. Although some language reflects the language in the preliminary ATC, the SMAQMD has multiple permits issued for the operation of CPP.

Staff is proposing to move current **AQ-5** and **AQ-6** to the end of the conditions under a new sub-category General Facility Requirements to maintain consistency with SMAQMD numbering. **AQ-5** and **AQ-6** would be renumbered as **AQ-33** and **AQ-34** respectively.

[2] The Emission Performance Standard only applies to carbon dioxide and does not include emissions of other greenhouse gases converted to carbon dioxide equivalent.

Staff is proposing the addition of a new condition of certification **AQ-5**. This condition prohibits the facility from emitting air contaminants or material that cause a nuisance to the public or cause damage to business and property. This is a standard condition included in SMAQMD permits.

Staff is proposing to delete existing conditions **AQ-7** through **AQ-15**. These conditions were applicable to initial commissioning and are no longer needed or included in the SMAQMD permits.

Staff is proposing to amend **AQ-16,** renumbered **AQ-6**. Staff is proposing the addition of an opacity requirement included in SMAQMD language. SMAQMD language includes the Ringelmann restriction which is used for dark smoke and an opacity requirement which is used for light smoke. In addition, staff is proposing to delete **AQ-46** since it is a duplicate of **AQ-6**. All equipment would be subject to the requirements in **AQ-6**.

Staff is proposing the addition of new Condition of Certification **AQ-7**. **AQ-7** summarizes the emission limits for CT2 and CT3. This condition would replace existing conditions **AQ-20**, **21**, **22**, and **23**. There are no changes proposed to the concentration restrictions already included in **AQ-20**, **21**, **22**, and **23**. **AQ-7** would include additional NOx requirements with defined restrictions. These changes are already included in the SMAQMD permits. **AQ-7** is directed only at CT2 and CT3, whereas the existing condition specifies the combined-cycle combustion turbine. Specifying CT2 and CT3 is more accurate since they are the only two turbines built and in operation. If the additional power block is constructed, new permits would have to be issued through the SMAQMD NSR process.

Staff is proposing to amend **AQ-17,** renumbered **AQ-8**. Staff is proposing to update the allowable emissions and update the heading for consistency with SMAQMD requirements.

Staff is proposing to incorporate emissions from perlite loading into existing **AQ-18,** renumbered **AQ-9**. CPP uses perlite to aid filtration of solids from the incoming raw water supply. CPP has a silo used to store the perlite. The perlite is brought onsite by truck and pneumatically transferred from the delivery truck to the silo. A dust collector is used to control emissions from the transfer. Emissions from this process were assessed and added to several conditions of certification in the 2011 amendment. **AQ-9** includes daily facility emission limitations. Staff is proposing to add the emissions from the perlite storage silo dust collector to **AQ-9** to accurately reflect the emissions from the facility. No changes to the perlite loading emissions are proposed.

Staff is proposing to update existing **AQ-18,** renumbered **AQ-10**. Proposed changes to **AQ-10** include an additional table documenting quarterly emissions from the CTGs only and updates to the facility quarterly emission table. These tables are consistent with SMAQMD except for differences in PM10 and PM2.5 assumptions.

Staff is proposing to move current **AQ-44** and **AQ45,** renumbered **AQ-11** and **AQ-12**. Staff is proposing to make minor language updates to **AQ-11**.

Staff is proposing to move current **AQ-25,** renumbered **AQ-13.** Staff is proposing to make minor language updates to **AQ-13**.

Staff is proposing to update the language in existing **AQ-26,** renumbered **AQ-14.** Staff is proposing the addition of Condition of Certification **AQ-15** to supplement the requirement in **AQ-14** consistent with definitions in the SMAQMD permits.

Staff is proposing to delete existing conditions **AQ-29** and **AQ-30**. These conditions are no longer applicable, needed, or included in the SMAQMD permits.

Staff is proposing minor language updates to existing **AQ-31** and **AQ-32,** renumbered as **AQ-16** and **AQ-17**. The language is consistent with updated monitoring requirements to ensure compliance.

Staff is proposing to combine the subcategories Record Keeping, and Reporting, to Record Keeping and Reporting Requirements. Staff is also proposing to update the language in existing **AQ-33** and **AQ-34,** renumbered **AQ-18** and **AQ-19**. The updated language is consistent with SMAQMD requirements.

Staff is proposing to reorganize the Emission Reduction Credit and Compliance Testing Requirements sections. In addition, the Compliance Testing Requirements section will be renamed 'Emission Testing Requirements'. These changes will provide consistency with the numbering and formats of the SMAQMD permit.

Staff is proposing to update the language for the ERC requirements in existing **AQ-37,** renumbered **AQ-20.** The updated language demonstrates the project has been mitigated to SMAQMD requirements. The proposed changes include attaching detailed summaries of the ERCs surrendered to mitigate the project. This format provides for easier accounting of ERCs surrendered to demonstrate compliance with Energy Commission requirements.

Staff is proposing to delete existing conditions **AQ-39** through **AQ-42**. These conditions are no longer needed because all applicable ERC requirements will be moved to other conditions of certification or the proposed attachment.

Staff is proposing minor updates to current **AQ-43,** renumbered **AQ-22**. The proposed update is consistent with SMAQMD requirements.

Staff is proposing to delete existing condition **AQ-35. AQ-35** condition requirements are longer applicable, needed, or included in the SMAQMD permits.

Staff is proposing to update the language in existing **AQ-36,** renumbered **AQ-22.** The proposed changes are consistent with SMAQMD requirements.

Staff is proposing the addition of new Condition of Certification **AQ-24**. This condition will ensure the facility operates in compliance with LORS. This condition is included in the SMAQMD permit.

Staff is proposing updates that include text that clarifies **AQ-25** through **AQ-27** pertain to the cooling towers. Existing conditions **AQ-24**, **AQ-27**, and **AQ-28** would be renumbered as **AQ-25**, **AQ-26**, and **AQ-27.** Clustering these conditions together allows greater clarity for the equipment requirements. Staff is proposing additional updates to **AQ-27** language to reflect the evaluated emission restriction for the equipment. This language is consistent with SMAQMD requirements.

Staff is proposing to renumber existing conditions **AQ-46** through **AQ-51** for consistency with the rest of the condition changes.

Staff is proposing to delete conditions **AQ-52** and **AQ-53.** These requirements are captured in the changes proposed for **AQ-20.**

ADDITIONAL CONDITION CHANGES

Staff is proposing to update the license to reflect the changes in preliminary ATC 2500, 25801, 25634 and 25635. Staff notes additional updates are needed to incorporate updates that have been made to the Title V permit over the years. These updates include more detailed reporting procedures for federal requirements and breakdown or malfunction, general facility requirements such as the use of solvents and architectural coatings, other detailed district procedures such as emergency variance and fees, and other general requirements. The current Title V permit expires December 24, 2018. At this point, CPP would operate under a shield until the next Title V permit is issued. Staff is proposing to wait until the next Title V permit is issued, after EPA review public comment, to incorporate additional changes to the conditions of certification. All conditions with emission limitations and testing requirements for the licensed equipment are evaluated in this amendment. Condition of Certification **AQ-SC6** already requires the project owner to submit any issued permit to the CPM.

CONCLUSIONS AND RECOMMENDATIONS

Energy Commission staff recommends approving the request to operate the CPP utilizing the enhanced capabilities of the‘Power FlexEfficiency Package’ including AGP components and ‘Dry-Low NOx’ (DLN) combustors, and an oxidation catalyst emission control system.

Staff recommends restructuring and updating the Conditions of Certification to ensure the facility operates in compliance with all LORs. The changes includes:

1. The addition of a description of the applicable equipment;
2. The addition of three Conditions of Certification: **AQ-5**, **AQ-7**, and **AQ-24**;
3. The deletion of duplicate and outdated conditions;
4. Amending conditions to incorporate the operation changes including the resulting emission increases;
5. Updating the mitigation conditions to ensure they accurately reflect the actual mitigation surrendered for the project and to clarify the project has been mitigated to a

level that would reduce the direct and cumulative air quality impacts of the proposed facility modifications to a less than significant level, including impacts to any environmental justice population.

With the additional conditions requested by staff, the proposed changes will conform with the applicable LORS related to air quality and will not result in significant air quality impacts.

PROPOSED AND AMENDED CONDITIONS OF CERTIFICATION

The proposed conditions of certification include staff-recommended conditions of certification and the applicable SMAQMD operating permit conditions. Staff conditions are additional conditions of certification recommended to provide CEQA mitigation for the project. Staff-recommended conditions of certification make up the '**AQ-SCx**' series of conditions. **Bold underline** is used to indicate new language. ~~Strikethrough~~ is used to indicate deleted language.

CONDITIONS OF CERTIFICATION

Equipment list:

- **Gas Turbine, No. 3, General Electric, Model 7FA, Combined Cycle - 2,200 MMBtu/hr. Fueled by Natural Gas/Digester Gas**
- **Air Pollution Control Selective Catalytic Reduction System- Serving the Turbine Unit 3**
- **Gas Turbine, No. 2, General Electric, Model 7FA, Combined Cycle - 2,200 MMBtu/hr. Fueled by Natural Gas/Digester Gas**
- **Air Pollution Control Selective Catalytic Reduction System- Serving the Turbine Unit 2**
- **CO Oxidation Catalyst For CTG No. 2**
- **CO Oxidation Catalyst For CTG No. 3**
- **Perlite Storage Silo and attached Dust Collector**
- **Cooling Tower, -eight cell, counterflow, mechanical-draft, 0.0005% drift eliminator and 155,000 gallon per minute water circulation rate**

District Conditions of Certification:

GENERAL CONDITIONS

AQ-1 The equipment shall be properly maintained **and operated in accordance with the information submitted with the application and the manufacturer's recommendation at all times.**

[Basis: SMAQMD Rule 201, Section 405 and Rule 202, Section 408.1]

Verification: The project owner shall provide the District and the CPM quarterly and annual reports as required in condition **AQ-~~34~~19**.

AQ-2 The Air Pollution Control Officer and/or authorized representatives **must be permitted to do all of the following**~~, upon the presentation of credentials, shall be permitted~~:

a. **Enter the premises or any location at which any records required by this license are kept.** ~~To enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this permit to operate, and~~

b. **Access and copy any records required by this license.** ~~At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit to operate, and~~

c. ~~To inspect~~ **Inspect** any equipment, operation, or method required **under this license.** ~~in this permit to operate, and~~

d. ~~To sample~~ **Sample** emissions from the source or require samples to be taken.

[Basis: SMAQMD Rule 201, Section 405]

Verification: Not necessary.

AQ-3 This **license** ~~permit~~ does not authorize the emission of air contaminants in excess of those allowed by Division 26, Part 4, Chapter 3, of the California Health and Safety Code or the rules and regulations of the Air Quality Management District.
[Basis: SMAQMD Rule 201, Sections 303.1 and 405]

Verification: The project owner shall provide the District and the CPM quarterly and annual reports as required in condition **AQ-~~34~~19**.

AQ-4 A legible copy of ~~this~~ **the** permit**(s)** shall be maintained on the premises with the equipment.
[Basis: SMAQMD Rule 201, Sections 303.1 and 405]

Verification: Not necessary.

AQ-5 **The facility may not discharge air contaminants or other materials that cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.**
[Basis: SMAQMD Rule 402, Sections 301]

Verification: Not necessary.

COMMISSIONING ACTIVITIES

Conditions **AQ-7** through **15** shall only apply during the commissioning period. The commissioning period is defined as, "The Period shall commence when all mechanical, electrical, and control systems are installed and individual start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The Period shall terminate when the plant has successfully completed both performance and compliance testing."

AQ-7 The owner/operator of the CPP combustion gas turbines #1 and #2 (CTG's #1 & #2) shall minimize emissions of carbon monoxide and nitrogen oxides to the maximum extent possible during the commissioning period.

Verification: The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with.

AQ-8 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the gas turbine combustors of CTG's #1 & #2 shall be tuned to minimize the emissions of carbon monoxide and nitrogen oxides.

Verification: The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with.

AQ-9 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the Selective Catalytic Reduction (SCR) systems #1 & #2 shall be installed, adjusted, and operated to minimize the emissions of nitrogen oxides from CTG's #1 & #2.

Verification: The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with.

AQ-10 The owner/operator of the CPP shall submit a plan to the District and the Energy Commission CPM at least 4 weeks prior to first firing of CTG's #1 & #2 describing the procedures to be followed during the commissioning of the gas turbines and HRSGs. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but is not limited to, the tuning of the dry-low-NOx combustors, the installation and operation of the SCR systems, the installation, calibration, and testing of the NOx, CO, and O2 continuous emission monitors, and any activities requiring the firing of the CTG's #1 & #2 without abatement by their respective SCR systems.

Verification: The project owner shall submit a commissioning plan to the District and CPM for review at least four weeks prior to the first firing of CTG's 1 and 2.

AQ-11 During the commissioning period, the owner/operator of CTG's #1 & #2 shall demonstrate compliance with conditions AQ-13 through 16 through the use of

properly operated and maintained continuous emission monitors and data recorders for the following parameters:

a. Firing hours for each CTG,
b. Fuel flow rates to each CTG,
c. Stack gas nitrogen oxide emission concentrations of each CTG,
d. Stack gas carbon monoxide emission concentrations of each CTG, and
e. Stack gas oxygen concentrations of each CTG.

The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the CTG's #1 & #2. The owner/operator shall use District approved methods to calculate heat input rates, NOx, CO, ROC, SO_x and PM_{10} mass emission rates, and NOx and CO emission concentrations, summarized for each clock hour and each calendar day.

Verification: The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel and CPM upon request.

AQ-12 The District approved continuous emission monitors specified in condition 11 shall be installed, calibrated, and operational prior to first firing of the CTG's #1 & #2. After first firing of the turbines, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the resulting range of NOx and CO emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

Verification: The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with. In addition, the project owner shall provide evidence of the District's approval of the emission monitoring system to the CPM prior to first firing of the gas turbines.

AQ-13 The total number of firing hours of each CTG without abatement of nitrogen oxide emissions by SCR systems #1 & #2 shall not exceed 400 hours during the commissioning period. Such operation of CTG's #1 & #2 shall be limited to discrete commissioning activities that can only be properly executed without the SCR systems fully operational. Upon completion of these activities, the owner/operator shall provide written notice to the District and the unused balance of the 400 firing hours without abatement shall expire.

Verification: The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with.

AQ-14 The total mass emissions of nitrogen oxides, carbon monoxide, reactive organic compounds, sulfur oxides, and PM_{10} that are emitted by the CTG's #1 & #2 during

~~the commissioning period shall accrue towards the quarterly emission limitations specified in condition **AQ-19.**~~

~~**Verification:** The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with.~~

~~**AQ-15** Combined pollutant mass emissions from CTG's #1 & #2 shall not exceed the following limits during the commissioning period.~~

~~**Maximum Allowable Emissions During the Commissioning Period, Including Start-ups and Shutdowns.**~~		
~~**Pollutant**~~	~~**Lbs./hr**~~	~~**Lbs./day**~~
~~NOx~~	~~142~~	~~2,095~~
~~CO~~	~~918.46~~	~~7,844~~
~~ROC~~	~~--~~	~~159~~
~~SO_x~~	~~--~~	~~48~~
~~PM_{10}~~	~~--~~	~~324~~

~~Note: Hourly limits for NOx and CO will be monitored using CEMS. For those pollutants that are not directly monitored (ROC, SO_x, and PM_{10}), the mass emissions shall be calculated based on District approved emission factors contained in footnotes to condition **AQ-17**.~~

~~**Verification:** The project owner shall submit in the monthly compliance report to the CPM a discussion about how this condition is being complied with.~~

EMISSION LIMITS

AQ-~~16~~ The equipment shall not discharge into the atmosphere any visible air contaminant other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour, **if the discharge is as dark or darker than** ~~which is~~ Ringelmann No. 1 or **is equal to or greater than 20% opacity.** ~~greater.~~ **[Basis: SMAQMD Rule 401, Section 301]**

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-7 Emissions from the following equipment must not exceed the following emission limits.
[Basis: SMAQMD Rule 202, Rule 413, Section 302.1(d), and 40 CFR Part 60.4320(a)]

Pollutant	**Maximum Allowable Emissions and**	
	Gas Turbine No. 2	**Gas Turbine No. 3**
VOC	**A. 1.17 ppmvd corrected to 15% O_2, averaged over any 3-hour period (A)**	**A. 1.17 ppmvd corrected to 15% O_2, averaged over any 3-hour period (A)**

Pollutant	Maximum Allowable Emissions and	
	Gas Turbine No. 2	Gas Turbine No. 3
NOx	B. 2.0 ppmvd corrected to 15% O_2, averaged over any 1 hour period (A) (B) C. 9.0 ppmvd corrected to 15% O_2 (C), the average of three runs for 15 minutes, determined by using EPA Method 20. D. 30 ppmvd corrected to 15% O_2, averaged over any 1-hour period (D) E. 15 ppmvd corrected to 15% O_2 (E)	B. 2.0 ppmvd corrected to 15% O_2, averaged over any 1 hour period (A) (B) C. 9.0 ppmvd corrected to 15% O_2 (C), the average of three runs for 15 minutes, determined by using EPA Method 20. D. 30 ppmvd corrected to 15% O_2, averaged over any 1-hour period (D) E. 15 ppmvd corrected to 15% O_2 (E)
CO	F. 4.0 ppmvd at 15% O_2 averaged over any 3-hour period (A)	F. 4.0 ppmvd at 15% O_2 averaged over any 3-hour period (A)
Ammonia	G. 10 ppmvd corrected to 15% O_2 averaged over any 3-hour period (A)	G. 10 ppmvd corrected to 15% O_2 averaged over any 3-hour period (A)

(a) Excluding periods containing startups or shutdowns as defined in AQ-14.
(b) Excluding periods containing short term excursions as defined in AQ-14.
(c) Excluding the startup, shutdown, short term excursion periods defined in AQ-15. Compliance with the 9-ppm NOx emission standard is determined pursuant to SMAQMD Rule 413, as amended March 24, 2005.
(d) Applicable only for periods containing short term excursions as defined in AQ-14.
(e) Compliance requirements are listed in 40 CFR Part 60.4400

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-8~~17~~ Emissions from the following equipment shall not exceed the following **emission** limits, ~~not including~~ **excluding** periods containing start-ups**, shutdowns,** and short-term excursions as defined in ~~condition AQ-26~~ **AQ-14**.
[Basis: SMAQMD Rule 202]

Pollutant	Maximum Allowable Emissions	
	~~CTG #1~~ Gas Turbine No. 2 (lb~~s.~~/hr)	~~CTG #2~~ Gas Turbine No. 3 (lb~~s./~~hr)
NOx	~~13.51~~ **16.21** (a)	~~13.51~~ **16.21** (a)
CO	~~16.46~~ **19.73** (b)	~~16.46~~ **19.73** (b)
~~R~~**V**OC	3.30 (c)	3.30 (c)
SOx	~~1.67~~ **1.91** (d)	~~1.67~~ **1.91** (d)
PM10**/2.5**	9.00 (e)	9.00 (e)

(a) ~~Based~~ **Emissions based** on data submitted in the **SMAQMD Rule 201 permit** application and is monitored by the turbine's NOx CEM system (1-hour average).

(b) ~~Based~~ **Emissions based** on data submitted in the **SMAQMD Rule 201 permit** application and is monitored by the turbine's CO CEM system (3-hour average)

(c) ~~Based~~ **Emissions based** on a turbine ~~R~~**V**OC emission factor of 0.001**5**~~77~~ lb/mmbtu and ~~firing at full~~ **operating at maximum** capacity.

(d) ~~Based~~ **Emissions based** on a turbine aggregate usage of 2,500 scfm (92.63 mmbtu/hr) digester gas (4.626577E-3 **lb** SO_2~~x~~/mmbtu) and ~~1,772.37~~ **2,107.37** mmbtu/hr natural gas (7.00967E-4 **lb** SO_2~~x~~/mmbtu.

(e) ~~Based~~ **Emissions based** on a turbine PM_{10} emission factor of ~~0.00483~~ **0.004091** lb/mmbtu and firing at full capacity.

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-9~~18~~ Emissions ~~of NOx, CO, ROC, SO_x, and PM_{10} from Phase 1 of the CPP facility~~ **from the following equipment must not exceed the following emission limits,** including **periods containing** start-ups**,** ~~and~~ shut-downs **or short term excursions as defined in AQ-14** ~~shall not exceed the following limits.~~ **[Basis: SMAQMD Rule 202]**

Pollutant	Maximum Allowable Emissions (lbs./day)				
	~~CTG #1~~ Gas Turbine No. 2	~~CTG #2~~ Gas Turbine No. 3	Cooling Tower	Perlite Storage Silo	Facility Total
NOx	~~523.7~~ **580.4**	~~523.7~~ **580.4**	NA	**NA**	~~1,047.4~~ **1,160.8**
CO	~~3,051.7~~ **3,120.3**	~~3,051.7~~ **3,120.3**	NA	**NA**	~~6,103.3~~ **6,240.6**
~~R~~**V**OC	117.3	117.3	NA	**NA**	~~234.6~~ **234.6**
SOx	~~40.1~~ **45.8**(a)	~~40.1~~ **45.8**(a)	NA	**NA**	~~71.6~~ **82.8(a)**
PM10**/2.5**	216.0	216.0	13.9(b)	**0.2(b)**	~~445.9~~ **523.9**(b)

(a) Facility SO_2~~x~~ **total** equates to the total usage of the proposed natural gas/digester gas mixture. Individual turbines equate to the total usage of the digester gas and **the** balance **using** natural gas.

(b) Values of PM10 reflect changes **proposed in SMAQMD applications 22673,** ~~to~~ cooling tower TDS change**, and 22702, perlite storage silo dust collector addition**. ~~**No emission ratio was applied to PM10 from the cooling tower.**~~

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-1~~0~~9 Emissions ~~of NOx, CO, ROC, SO_x, and PM_{10}~~ from ~~Phase 1 of the CPP facility~~ **from the following equipment must not exceed the following emission limits,** including **periods containing** start-ups**,** ~~and~~ shut-downs **or short term excursions as defined in AQ-XX.** ~~shall not exceed the following limits.~~ **[Basis: SMAQMD Rule 202]**

Pollutant	Maximum Allowable Emissions							
	Qtr 1 (lbs./quarter)		Qtr 2 (lbs./quarter)		Qtr 3 (lbs./quarter)		Qtr 4 (lbs./quarter)	
	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3
NOx	31,010	31,010	31,321	31,321	31,632	31,632	31,632	31,632
CO	73,965	73,965	74,343	74,343	74,722	74,722	74,722	74,722
VOC	7,403	7,403	7,479	7,479	7,555	7,555	7,555	7,555
SOx	3,095	3,095	3,130	3,130	3,164	3,164	3,164	3,164
PM10/2.5	19,440	19,440	19,656	19,656	19,872	19,872	19,872	19,872

Pollutant	Maximum allowable emissions Gas Turbine No. 2, Gas Turbine No. 3, Perlite Storage Silo Dust Collector and Cooling Tower Combined				
	Qtr 1 (lbs./quarter)	Qtr 2 (lbs./quarter)	Qtr 3 (lbs./quarter)	Qtr 4 (lbs./quarter)	Total (~~lbs.~~tons/year)
NOx	62,021	62,643	63,265	63,265	~~251,194~~ **96.0**
CO	147,929	148,687	149,444	149,444	~~595,505~~ **123.1**
~~R~~VOC	14,807	14,958	15,110	15,110	~~59,986~~ **30.0**
SOx	**8,252**~~6,190~~	**8,342**~~6,259~~	**8,434**~~6,328~~	**8,434**~~6,328~~	~~25,105~~ **16.7**
PM**10/2.5**[a]~~10~~	40,13**8**~~7~~	40,584~~2~~	41,0**30**~~28~~	41,0**30**~~28~~	~~162,775~~ **81.4**

(a) Values reflect changes to cooling tower TDS change and perlite storage silo addition.

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-20** Each combined cycle combustion turbine shall not emit more than 2.0 ppmvd NOx at 15% O_2, averaged over any one-hour period, excluding periods containing start-ups/shut-downs and short term excursions as defined in condition **AQ-26**.~~

~~**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-21** Each combined cycle combustion turbine shall not emit more than 4.0 ppmvd CO at 15% O_2, averaged over any consecutive three-hour period, excluding periods containing start-ups/shut-downs as defined in condition **AQ-26**.~~

~~**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-22** Each combined cycle combustion turbine shall not emit more than 1.4 ppmvd ROC at 15% O_2, averaged over any consecutive three-hour period, excluding periods containing start-ups/shut-downs as defined in condition **AQ-26**.~~

~~**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-23** Each combined cycle combustion turbine shall not emit more than 10 ppmvd ammonia at 15% O_2, measured as NH_3, averaged over any consecutive three-hour period, excluding start-ups/shut-downs as defined in condition **AQ-26**.~~

~~**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.~~

EQUIPMENT OPERATION

AQ-1144 The ~~use~~ **total consumption rate** of digester gas ~~used at~~ **by** the Cosumnes Power Plant is restricted to 2.500 scfm**.** ~~and shall not commence until approval of the Acid Rain Program Petition.~~ **[Basis: SMAQMD Rule 201, 202 amd 208]**

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 reports.

AQ-1245 The digester gas used at this facility shall not exceed 50 ppm of H_2S, measured prior to the commingling with the natural gas.
[Basis: SMAQMD Rule 201, 202]

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 reports.

AQ-1325 Each combined cycle turbine shall not be operated without a functioning selective catalytic reduction **and oxidation catalyst** air pollution control system**s**, excluding periods of start-ups and shut-downs **as defined in AQ-14**.
[Basis: SMAQMD Rule 201, and 202]

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-1426 ~~The duration of each combined cycle turbine's start-up period shall not exceed 180 minutes. Start-ups are defined as time periods commencing with the introduction of fuel to the gas turbine, and ending at the time that 15-minute average NOx and CO concentrations do not exceed 2.0 ppmvd and 4.0 ppmvd respectively, but in no case exceeding 180 consecutive minutes.~~

~~The duration of each combined cycle turbine's shut-down period shall not exceed 30 minutes. Shut-downs are defined as the 30-minute period immediately prior to the termination of fuel flow to the gas turbine.~~

~~Compliance with the concentration and hourly NOx emission limitations specified in conditions AQ-17 and AQ-20 shall not be required during short-term excursions limited to a cumulative total of 10 hours per combustion turbine per calendar year. Short-term excursions are defined as 15-minute periods designated by the owner/operator that are the direct result of transient load conditions, not to exceed four consecutive 15-minute periods, when the 15-minute average NOx concentration exceeds 2.0 ppmvd @ 15% O_2. Examples of transient load conditions include, but are not limited to the following:~~

~~a. Initiation/shutdown of combustion turbine inlet air cooling and~~

~~b. Rapid combustion turbine load changes~~

~~The maximum 1-hour average NOx concentration for periods that include short-term excursions shall not exceed 30 ppmvd @ 15% O2.~~

~~All emissions during start-ups/shut-downs and short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.~~

Startup, shutdown and short term excursions are defined as follows:

A. Startup is defined as the time period commencing with the introduction of fuel to the gas turbine and ending at the time that the 15 minute average NOx and CO concentrations do not exceed 2.0 ppmvd at 15% O_2 and 4.0 ppmvd at 15% O_2 respectively.

i. In no case may the startup time period exceed 180 consecutive minutes.

B. Shutdown is defined as the 30 minute time period immediately prior to the termination of fuel flow to the gas turbine.

C. Short term excursion is defined as a 15-minute period designated by the owner/operator, that is the direct result of transient load conditions, when the 15 minute average NOx concentration exceeds 2.0 ppmvd at 15% O_2.

i. No more than four consecutive 15-minute periods may be designated as short term excursions.

ii. For each gas turbine, no more than 40 15-minute periods/calendar year (10 hours/calendar year) may be designated as short term excursions.

iii. Examples of transient load conditions include, but are not limited to the following:

(a) initiation/shutdown of combustion turbine inlet air cooling.

(b) rapid combustion turbine load changes.

[Basis: SMAQMD Rules 201 and 202]

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-15 For purposes of determining compliance with SMAQMD Rule 413:

A. Startup is defined as the time period commencing with the introduction of

fuel to the gas turbine and ending at the time that the 15 minute average NOx concentrations do not exceed 9.0 ppmvd at 15% O_2.

i. **The startup period must not exceed 4 hours following a shutdown of the associated steam turbine or associated HRSG and steam piping of greater than 72 hours.**
ii. **The startup period must not exceed 3 hours following a shutdown of the associated steam turbine or associated HRSG and steam piping between 8 hours and 72 hours.**
iii. **The startup period must not exceed 1 hour following a shutdown of the associated steam turbine or associated HRSG and steam piping of less than 8 hours.**

B. The shutdown period of a gas turbine must not exceed 1 hour.

C. Short term excursion is defined as a period of time not exceeding 6 hours and not more than four consecutive 15 minute blocks. The total of all 15 minute blocks must not exceed 10 hours per calendar year per gas turbine.

[Basis: SMAQMD Rule 413, Sections 113 and 114]

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 reports.

~~**NEW SOURCE PERFORMANCE STANDARDS COMPLIANCE**~~

~~**AQ-29** The project owner shall provide written notification to the Air Pollution Control Officer for the following:~~

~~A. The date construction is commenced postmarked no later than 30 days after such date.~~

~~B. The anticipated date of initial start-up of the plant not more than 60 days or less than 30 days prior to such date.~~

~~C. The actual date of initial start-up of the plant within 15 days after such date.~~

~~D. A notification of any physical or operational change to the facility which may increase the emission rate to which a standard applies except exempted modifications as defined in 40 CFR 60.14(e), postmarked 60 days or as soon as practicable before the change is commenced.~~

~~E. The date upon which the demonstration of the continuous monitoring system performance commences postmarked not less than 30 days prior to such date.~~

Verification: ~~The project owner shall provide a copy of each required written notification, in the same time frame of condition **AQ-29** to the CPM.~~

~~**AQ-30** The following tests, reports and conditions shall be met:~~

~~A. Within 60 days of achieving the maximum production rate but no later than 180 days after initial start-up the owner or operator shall conduct performance~~

~~test(s) as per Condition AQ-35 and furnish the Air Pollution Control Officer a written report of the results of such performance test(s).~~

~~B. The owner or operator shall provide the Air Pollution Control Officer 30 days prior notice of the performance test(s).~~

~~**Verification:** Approval of the source test protocols, as required in condition AQ-35, and the source test reports shall be deemed as verification for this condition. The project owner shall notify the District and the CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CPM within 60 days of the date of the tests.~~

MONITORING SYSTEMS

AQ-16~~31~~ The ~~CPP~~ **project owner** shall operate a continuous emission monitoring system **(CEMS)** that has been approved by the Air Pollution Control Officer for each combined cycle turbine's emissions.

A. The **(CEMS)** ~~continuous emission monitoring (CEM) system~~ shall monitor and record nitrogen oxides **(NOx)**, carbon monoxide **(CO)**, and oxygen **(O_2)**.

B. ~~The CEM system shall comply with the EPA performance specifications (title 40, Code of Federal Regulations, Part 60, Appendix B, Performance Specifications 2, 3, and 4).~~**For NOx and O_2, the CMS must comply with U.S. EPA Performance Specification in 40 CFR 75 Appendix A.**

C. For CO, the CEMS must comply with U.S. EPA Performance Specification in 40 CFR 60 Appendix B Performance Specification 4.

[Basis: SMAQMD Rules 201 and 202]

Verification: ~~At least sixty (60) days prior to purchase of the CEM system, the project owner shall submit to the District, for approval, and to the CPM, for review, a copy of the manufacturer specifications for the continuous emission monitoring system, which demonstrates compliance with the EPA performance specifications.~~ **The project owner shall make the site and records available for inspection by representatives of the District and Energy Commission upon request,**

AQ-17~~32~~ The ~~CPP~~ **project owner** shall operate a continuous monitoring system that has been approved by the Air Pollution Control Officer that either measures or calculates and records the following:
[Basis: SMAQMD Rule 201, 202, and Rule 413 Section 303.3]

Parameter to be monitored	Units
Total ~~F~~**f**uel consumption of each **gas** ~~combined cycle~~ turbine.	Mmbtu/hr of **natural gas and/or** natural gas/digester gas combination
Exhaust gas flow rate of turbine ~~and duct burner~~.	Kscfh or lb/hr
~~Total dissolved solids content of the circulating water in the cooling towers.~~	~~PPMW~~

Verification: ~~At least sixty (60) days prior to purchase of the continuous monitoring system, the project owner shall submit to the District, for approval, and to the CPM, for review, a copy of the manufacturer specifications for the continuous monitoring system, which demonstrates compliance with the District's monitoring requirements~~. **The project owner shall make the site and records available for inspection by representatives of the District and Energy Commission upon request,**

RECORD KEEPING AND REPORTING REQUIREMENTS

AQ-18~~33~~ The following record shall be continuously maintained on site for the most recent five-year period and shall be made available to the **SMAQMD** Air Pollution Control Officer upon request. Quarterly and yearly records shall be made available for inspection within 30 days of the end of the previous quarter or year respectively.

Frequency	Information to be recorded
~~General~~ **At all times**	~~**A. Record of the occurrence and duration of any start-up, short-term excursion, or shut-down.**~~ ~~**B. Malfunction in operation of each turbine.**~~ ~~**C. Measurements from the continuous monitoring system.**~~ ~~**D. Monitoring device and performance testing measurements.**~~ ~~**E. All continuous monitoring system performance evaluations.**~~ ~~**F. All continuous monitoring system or monitoring device calibration checks.**~~ ~~**G. All continuous monitoring system adjustments and maintenance.**~~ **A. Permit number of each gas turbine.** **B. Manufacturer, model number and rating in megawatts of each gas turbine.** **C. Actual startup and shutdown time.** **D. Date and results of most recent emission test reported as ppmv at 15% O_2 and pounds per unit time.** **E. A summary of any emissions corrective maintenance taken.** **F. Malfunction in operation of each turbine.** **G. Measurements from the continuous emissions monitoring system and continuous parameter monitoring system.** **H. Continuous emission monitoring device and performance testing measurements.** **I. Continuous emissions monitoring system performance evaluations.** **J. Continuous emissions monitoring system calibration checks.** **K. Continuous emission monitoring system (CEMS adjustments, maintenance and downtime (i.e., any unit operating hour in which sufficient data are not obtained to validate emissions over the hour; and/or any period when a fuel sample cannot be validated), and periods of fuel sulfur content monitor downtime (i.e., any period when required sampling is not taken by its due date, or if invalid sampling results are obtained).** **L. For short-term excursions, as defined in AQ-14, record the following information:**

	i. The number of consecutive 15-minute periods when the 15-minute average NOx concentration exceeded the limits of AQ-7 during each short-term excursion. **ii. The qualified condition(s) under which each short-term excursion occurred.** **iii. The maximum 1-hour average NOx concentration during the period that includes each short-term excursion, pursuant to Condition AQ-7.** **iv The cumulative total, per calendar year per gas turbine, of all 15-minute periods when the 15-minute average NOx concentration exceeded the limits of AQ-7.**
	M. Using the methodologies specified in U.S. EPA's alternative monitoring approval letter dated October 11, 2011, the permitee must: **i. As applicable determine the fuel sulfur content, gross caloric value, and F-factor for natural gas, digester gas, and combined fuel stream** **ii. Calculate the hourly NOx (in lb/hour), CO_2 (in tons/hour), and SOx (in lb/hour) emissions from each combustion turbine.**
Hourly	**N. Each gas turbine's natural gas and digester gas fuel consumption (MMbtu/hr).** **O. Indicate when each gas turbine startup or shutdown time period occurred.** **P. Each gas turbine's VOC, NOx, SO_2, PM10 and CO hourly mass emissions.** **i. For those pollutants directly monitored (NOx and CO), the hourly mass emissions must be calculated based on concentration measurements from the CEM system required pursuant to AQ-16.** **ii. For those pollutants that are not directly monitored (VOC, SO_2 and PM10), the hourly mass emissions must be calculated based on SMAQMD approved emission factors contained in footnotes to the table in AQ-8.** **Q. Each gas turbine's NOx and CO concentration measured in ppmvd at 15% O_2.**

~~Hourly~~	~~A. Each combined cycle turbine's natural gas and digester gas combination fuel consumption (mmbtu/hr).~~ ~~B. Indicate when each combined cycle turbine start-up/shut-down occurred.~~ ~~C. Each combined cycle turbine's NOx, CO, ROC, SO_x, and PM_{10} hourly mass emissions. For those pollutants directly monitored (NOx and CO), the hourly mass emissions shall be calculated based on concentration measurements from the CEM system required pursuant to condition AQ-31. For those pollutants that are not directly monitored (ROC, SO_x, and PM_{10}), the hourly mass emissions shall be calculated based on District approved emission factors contained in footnotes to condition AQ-17.~~ ~~D. Each combined cycle turbine's NOx and CO concentration measured in ppmvd at 15% O_2.~~

	~~E. Total dissolved solids content of the circulating water in the cooling towers in ppmw.~~ ~~F. Cooling tower hourly PM_{10} mass emission rate. The hourly emissions shall be calculated based on the cooling water circulation rate multiplied by the cooling tower drift rate, density of water, and the measured TDS level.~~
Daily	**R. Number of hours of operation each day for each gas turbine.** **S. Actual daily combined fuel usage, by turbine** **T.** Total facility NOx, CO, ~~R~~**V**OC, SOx, and PM10 daily mass emissions.
Quarterly	**V.** Total facility NOx, CO, ~~R~~**V**OC, SOx, and PM10 quarterly mass emissions.

Verification: All quarterly and annual reports shall be maintained on site for a minimum of five (5) years and shall be provided to the CPM or District personnel upon request.

~~**REPORTING**~~

AQ-19~~34~~ ~~For each calendar quarter submit to the Air Pollution Control Officer a written report which contains the following. Each quarterly report is due by the 30th day following the end of the calendar quarter.~~ **A written report which contains the following information for each calendar quarter must be submitted to the SMAQMD Air Pollution Control Officer.**
[Basis: SMAQMD Rules 201 and 202, and 40 CFR Part 60.4375 , and 40 CFR Part 60.4380]

Frequency	Information to be submitted
~~Whenever the continuous emissions monitoring system is inoperative except for zero and span checks.~~	~~A. Date and time of non operation of the continuous emission monitoring system~~ ~~B. Nature of the continuous emission monitoring system repairs or adjustments.~~
~~Whenever an emission occurs as measured by the required continuous monitoring equipment that is in excess of any emission limitation~~	~~A. Magnitude of the emission which has been determined to be in excess.~~ ~~B. Date and time of the commencement and completion of each period of excess emissions~~ ~~C. Periods of excess emissions due to start-up, shut-down, short-term excursion, and malfunction shall be specifically identified.~~ ~~D. The nature and cause of any malfunction (if known).~~ ~~E. The corrective action taken or preventive measures adopted.~~
~~If there were no excess emissions for a quarter~~	~~A report shall be submitted indicating that there were no excess emissions~~

Quarterly **Submit the report by:** **January 30** **April 30** **July 30** **October 30** **for the previous calendar quarter.**	**A. All CEMS downtime (i.e., whenever inoperative excluding periods of monitor zero and span checks:** **i. Date and time of non-operation of the continuous emission monitoring system.** **ii. Nature of the continuous emission monitoring system repairs or adjustments.** **B. Whenever an emission occurs as measured by the required continuous monitoring equipment that is in excess of any emission limitation:** **i. Magnitude of the emission which has been determined to be in excess.** **ii. Date and time of the commencement and completion of each period of excess emissions.** **iii. Periods of excess emissions due to start-up, shut-down, short-term excursion and malfunction must be specifically identified.** **iv. The nature and cause of any malfunction (if known).** **v. The corrective action taken or preventive measures adopted.** **C. If there were no excess emissions for a calendar quarter:** **i. A report must be submitted indicating that there were no excess**

Verification: The project owner shall submit to the District and CPM, quarterly reports for the proceeding calendar quarter within 30 days from the end of the quarter. The report for the fourth quarter can be an annual compliance summary for the preceding year.

In addition, this information shall be maintained on site for a minimum of five (5) years and shall be provided to the CPM or District personnel upon request.

EMISSION REDUCTION CREDITS

AQ-20~~37~~ ~~The project owner shall provide the District emission reduction credit certificates in sufficient quantity to show compliance with the quarterly emission limits by the use of the following calculation procedure.~~

~~**For NOx or ROC**~~ ~~**For PM_{10}**~~

$$QTR_q = \frac{P_{q\le 15}}{1.3} + \frac{P_{q>15}}{1.5} \qquad QTR_q = \frac{P_{q\le 15}}{1.2} + \frac{P_{q>15}}{1.5}$$

~~Pq = Emission offset credit for pollutant in lb/quarter~~

~~q = Quarter (1, 2, 3, or 4)~~

~~QTR = This is the quarterly limit specified in Condition 19~~

~~<=15 = THOSE EMISSION REDUCTION CREDIT CERTIFICATES WHOSE POINT OF ORIGIN WAS WITHIN 15 MILES OF THE CPP PROJECT~~

~~>15 = Those emission reduction credit certificates whose point of origin was greater than 15 miles but less than 50 from the CPP Project.~~

The project owner must surrender (and has surrendered - see AQ-21) ERCs to the SMAQMD Air Pollution Control Officer to offset the following amount of emissions:
[Basis: SMAQMD Rules 202 Section 302]

Equipment - Gas Turbine No. 2 Gas Turbine No. 3 Cooling Tower & Perlite Storage Silo	Amount Of Emission Offsets For Which ERCs Are To Be Surrendered Lb/Quarter			
	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4
VOC	14,807	14,958	15,110	15,110
NOx	62,021	62,643	63,265	63,265
PM10	39,724.6	40,166.6	40,607.6	40,607.6

Verification: ~~At least thirty (30) working days prior to starting any ground disturbance for construction, the project owner shall provide valid emission reduction credits specified in AQ-38 to 40 to the District for approval and to the CPM for review.~~ **The project owner shall make the site and records available for inspection by representatives of the District and Energy Commission upon request,**

AQ-2~~138~~ ~~Except as provided in condition AQ-41, the following list of emission reduction credits shall be surrendered to the APCO prior to commencement of actual on-site construction. The values in the tables below represent the value of the credit after the appropriate distance ratio has been applied.~~

	~~District/Certificate #~~	~~Quarter 1~~	~~Quarter 2~~	~~Quarter 3~~	~~Quarter 4~~
~~ROC~~					
~~Formica~~	~~PCAPCD/2000-0007~~	~~45,333~~	~~46,667~~	~~46,667~~	~~41,333~~
~~Formica~~	~~PCAPCD/2001-17~~	~~41,799~~	~~2,767~~	~~32,263~~	~~19,306~~
~~Swansons Cleaners~~	~~SMAQMD/653~~	~~10,657~~	~~13,631~~	~~7,762~~	~~16,389~~
~~Procter & Gamble~~	~~SMAQMD/755~~	~~16,667~~	~~16,667~~	~~16,667~~	~~16,667~~
~~Donner Furniture~~	~~SMAQMD/750~~	~~263~~	~~505~~	~~439~~	~~523~~
~~Burns Philp Food~~	~~YSAQMD/EC-0121~~	~~0~~	~~3~~	~~13~~	~~6~~
~~Holly Sugar~~	~~YSAQMD/C-0174 – EC 0178~~	~~48~~	~~798~~	~~820~~	~~843~~
~~Blue Diamond Growers~~	~~SMAQMD/836~~	~~1,060~~	~~1,030~~	~~1,067~~	~~1,037~~
~~Ag Containers~~	~~SMAQMD/776~~	~~453~~	~~827~~	~~1,040~~	~~347~~
~~Ag Containers~~	~~SMAQMD/852~~	~~876~~	~~1,610~~	~~2,030~~	~~656~~
~~American River Asphalt~~	~~SMAQMD/851~~	~~167~~	~~421~~	~~792~~	~~675~~

Rancho Seco	SMAQMD/471,473, 477,479	355	189	116	196

	District/Certificate #	Quarter 1	Quarter 2	Quarter 3	Quarter 4
NOx					
Burns Philp Food	YSAQMD/EC-0121	0	195	801	333
General Mills	YSAQMD/EC-0123	510	501	716	671
Holly Sugar	YSAQMD/EC-0174 – EC 0178	1059	19,706	20,743	21,000
Blue Diamond Growers	SMAQMD/00849	3,795	3,946	4,106	3,659
Procter & Gamble	SMAQMD/777, 823, 826, 827	5,565	5,565	5,565	5,565
American River Asphalt	SMAQMD/851	215	540	1,019	869
Campbell Soup Company	SMAQMD/737,838	1,190	2,545	6,887	0

	District/Certificate #	Quarter 1	Quarter 2	Quarter 3	Quarter 4
PM_{10}					
Campbell Soup	SMAQMD/737	382	224	1,239	438
Poppy Ridge Partners	SMAQMD/726,727	685	663	493	659
Blue Diamond Growers	SMAQMD/849	2,320	2,214	2,289	2,138
Procter & Gamble	SMAQMD/Various	7,513	7,513	7,513	7,513
Grace Industries	SMAQMD/833-835	2,394	2,393	2,383	2,343
Elk Grove Ready Mix	SMAQMD/758	850	1,004	1,043	965
Rancho Seco	SMAQMD/471,473, 475,477,479	1,722	821	424	859
Road Paving	SMAQMD/768,769, 772-776	14,823	20,448	28,300	21,156
American River Asphalt	SMAQMD/851	343	819	1,429	1,131

	District/Certificate #	Quarter 1	Quarter 2	Quarter 3	Quarter 4
SO_x					
Grace Industries	SMAQMD/388, 390	471	775	770	390
Campbell Soup	SMAQMD/737	34	44	116	31
Poppy Ridge Partners	SMAQMD/726,727	17	36	36	15
Rancho Seco	SMAQMD/471,473, 475,477,479	21,741	13,377	3,511	7,383
American River Asphalt	SMAQMD/851	62	256	483	212

The specific allocation of ERC's to satisfy the offset requirement for those pollutants where SMUD possess an excess amount of ERC's shall be determined at the time of the surrender of the credits.

The following ERCs have been surrendered to the SMAQMD Air Pollution Control Officer to comply with the emission offset requirements as stated in AQ-20:

Equipment - Gas Turbine No. 2 Gas Turbine No. 3 Cooling Tower & Perlite Storage Silo	Amount Of Emission Offsets For Which ERCs Are To Be Surrendered Lb/Quarter			
	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4
VOC – See Attachment A	14,807	14,958	15,110	15,110
NOx– See Attachment B	62,021	62,643	63,265	63,265
PM10– See Attachment C	39,724.6	40,166.6	40,607.6	40,607.6

[Basis: SMAQMD Rules 202 Section 302]

Verification: ~~Thirty (30) days prior to start any ground disturbance for construction, the project owner shall provide the necessary emission reduction credit certificates. If the credits deviate from those listed in this condition, the applicant shall include detailed calculations showing that the District's offset requirements are fully satisfied.~~ **The project owner shall make the site and records available for inspection by representatives of the District and Energy Commission upon request,**

~~**AQ-39** ROC emission reduction credits may be traded for NOx emission reduction credits at a ratio of 2.6 lb ROC for 1 lb NOx.~~

~~**Verification:** Thirty (30) days prior to start any ground disturbance for construction, the project owner shall provide the necessary emission reduction credit certificates. If the credits deviate from those listed in Condition **AQ-38**, the applicant shall include detailed calculations showing that the District's offset requirements are fully satisfied.~~

~~**AQ-40** SO_x emission reduction credits may be traded for PM_{10} emission reduction credits at the following ratios:~~

~~a) 2.8 lb SO_x for 1 lb PM_{10} for Calendar Quarter 1~~

~~b) 1.7 lb SO_x for 1 lb PM_{10} for Calendar Quarter 2 and 3~~

~~c) 3.3 lb SO_x for 1 lb PM_{10} for Calendar Quarter 4.~~

~~**Verification:** Thirty (30) days prior to start any ground disturbance for construction, the project owner shall provide the necessary emission reduction credit certificates. If the credits deviate from those listed in Condition **AQ-38**, the applicant shall include detailed calculations showing that the District's offset requirements are fully satisfied.~~

~~**AQ-41** Those credits that that are being generated contemporaneous with the construction of the CPP (i.e. road paving ERC applications 00768, 00769, & 00772-00776) will only be required to be submitted prior to operation.~~

~~**Verification:** Not later than thirty (30) days after the issuance of the District emission reduction credit certificates, the project owner shall surrender the necessary certificates to~~

~~the District, with a copy to the CPM. In the event that the reductions indicated on those certificates are lower than the values shown in Condition **AQ-38**, the applicant shall also submit detailed calculations showing that the District's offset requirements are fully satisfied.~~

~~**AQ-42** SMUD shall pave the roadways described in SMAQMD ERC applications 00768, 00769, 00772-00776.~~

~~**Verification:** Prior to issuance of the District emission reduction credit certificates, the project owner shall provide the District and the CPM the work order completion and pictures of the roadways before and after paving is performed~~.

AQ-~~22~~43 ~~SMUD~~ **The project owner** shall ensure that the paved roads described in SMAQMD ERC applications 00768, 00769, 00772-00776 are properly maintained and repaired for the life of the Cosumnes Power Plant **to confirm PM10 emission reductions**.

Verification: The project owner shall include pictures of the roadways after being paved for credits in the annual compliance report as required in the verification requirement for ~~Condition~~ **AQ-34~~19~~**.

~~COMPLIANCE~~ EMISSION TESTING REQUIREMENTS

~~**AQ-35** A NOx, ROC, CO, SO_x, PM_{10}, ammonia, and CEM accuracy source test of each combined cycle turbine shall be performed during the time frame pursuant to Condition AQ-30.~~

~~A. The project owner shall submit a test plan to the Air Pollution Control Officer for approval at least 30 days before the source test is to be performed.~~

~~B. The Air Pollution Control Officer shall be notified at least 7 days prior to the emission testing date.~~

~~C. During the test(s), each turbine is to be operated at its maximum firing capacity defined as ≥ 90% of rated heat input capacity and taking into account ambient conditions.~~

~~D. The source test results shall be submitted to the Air Pollution Control Officer within 60 days from the completion of the source test(s).~~

~~**Verification:** No later than thirty (30) working days before the commencement of the source tests, the project owner shall submit to the District and the CPM a detailed source test plan designed to satisfy the requirements of this condition. The District and the CPM will notify the project owner of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The project owner shall incorporate the District and the CPM comments into the test plan. The project owner shall notify the District and the CPM within 7 working days prior to the planned source testing date. The source test results shall be submitted to the District and the CPM within 60 days from the completion of the source test.~~

AQ-2336 ~~A NOx, ROC, CO, SOx, PM_{10}, ammonia, and CEM accuracy source test of each combined cycle turbine shall be performed once each calendar year. The Air Pollution Control Officer may waive the annual PM10 and/or ROC source test requirement if, in the Air Pollution Control Officer's sole judgment, prior test results indicate an adequate compliance margin has been maintained~~. **The project owner must perform a VOC, NOx, SO_2, PM10, CO and Ammonia source test and CEM accuracy (RATA) test of each gas turbine once each calendar year (no more than 14 calendar months following the previous performance test). The SMAQMD Air Pollution Control Officer may waive the annual PM10 and/or VOC source test requirement if, in the SMAQMD Air Pollution Control Officer's sole judgment, prior source test results indicate an adequate compliance margin has been maintained**

A. The project owner shall submit a test plan to the **SMAQMD** Air Pollution Control Officer for approval at least 30 days before the source test is to be performed.

B. The **SMAQMD** Air Pollution Control Officer shall be notified at least 7 days prior to the emission testing date.

C. During the test(s), each turbine is to be operated at its maximum firing capacity defined as ≥ 90% of rated heat input capacity and taking into account ambient conditions.

D. The source test results shall be submitted to the **SMAQMD** Air Pollution Control Officer within 60 days from the completion of the source test(s).

E. Source testing shall occur with a representative flow of digester gas into the pipeline feeding the fuel supplv to the turbine being tested so that the turbine being tested is using the digester gas.
[Basis: SMAQMD Rule 201, Section 405, 40 CFR Part 60.4400, 40 CFR Part 60.4415, and 40 CFR Part 60.4375]

Verification: The project owner shall notify the District and the CPM within 7 working days prior to the planned source testing date. The source test results shall be submitted to the District and the CPM within 60 days from the completion of the source test.

AQ-24 The project owner permittee must, upon determination of applicability and written notification by the SMAQMD, comply with all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act (California Health and Safety Code Section 44300 et seq.)
[Basis: SMAQMD Rule 201, Section 303.1]

Verification: The project owner shall make the site and records available for inspection by representatives of the District and Energy Commission upon request,.

~~AQ-44 and AQ-45 pertain to the incorporation of digester fuel into the fuel supply:~~
AQ-25 through AQ-27 pertain to the cooling tower:

AQ-25~~24~~ The total dissolved solids content of the circulating cooling water shall not exceed 1,500 ppmw, averaged over any consecutive three-hour period.

Verification: The project owner shall sample and test cooling tower water at least once per day to verify compliance with this TDS limit. In addition, the project owner shall include information on the date, time, and duration of any violation of this permit condition in the quarterly and annual reports.

AQ-26~~27~~ The cooling towers shall not use any chromium-containing water treatment chemicals.

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 reports.

AQ-27~~28~~ ~~The cooling tower drift rate shall not exceed 0.0005%. The project owner shall provide a written vendor statement, prior to installation, declaring that the cooling towers mist eliminators used meet the drift criteria stated above.~~ **Emissions from the cooling tower shall not exceed the following limits averaged over a three hour period.**
[Basis: SMAQMD Rule 202]

Pollutant	Maximum Allowable Emissions Cooling Tower lb/hour
PM10/2.5	0.58 (a)

(a) Based on a water circulation rate of 155,000 gal/min, cooling tower drft rate of 0.0005% and a TDS level of 1,500 ppmw.

Verification: ~~Sixty (60) days prior to installation, the project owner shall provide a manufacturer design specification of the cooling tower mist eliminator, which demonstrates compliance with the drift limit.~~ **The project owner shall include information on the date, time and duration of any violation of this permit condition in the quarterly and annual reports.**

~~**AQ-46 to AQ-53**~~ **AQ-28 -** pertains to the installation of the perlite Storage Silo and attached APC Dust Collector Cyclonaire. ~~AQ-53 also reflects the increase in PM10 emissions from the cooling tower:~~

~~**AQ-46** The process shall not discharge into the atmosphere any visible air contaminants for a period or periods aggregating more than three minutes in anyone hour. which are as dark or darker than ringelmann no. 1 or equivalent to or greater than 20% opacity.~~

~~**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 reports~~.

AQ-28~~47~~ The emissions from the dust collector shall not exceed the following limit:

Pollutant	Maximum Allowable Emissions (A) Quarterly (lb/quarter)
PM10	2.6

(A) Based on maximum capacity 26 hours/gtr, and particulate emissions of 0.02 gr/dscf at 585 cfm.

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 reports.

PROCESS OPERATION

AQ-29~~48~~ The dust collector shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The average pressure drop shall not exceed the manufacturer's recommendation.

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 reports.

AQ-30~~49~~ The dust collector shall be equipped with a pressure differential gauge to indicate the pressure drop across the bags. The average pressure drop shall not exceed the manufacturer's recommendation.

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 reports.

AQ-31~~50~~ Total perlite delivered to the silo per quarter cannot exceed 101.4 tons.

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 reports.

RECORD KEEPING

AQ-32~~51~~ The following record shall be continuously maintained on site for the most recent five-year period and shall be made available to the air pollution control officer upon request. Quarterly and yearly records shall be made available for inspection within 30 days of the end of the previous quarter or year respectively.

Frequency:	Information to be recorded:
Quarterly	Total perlite delivered to the silo (tons/qtr)

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 reports. The owner shall make the records available to the CPM upon request.

~~**EMISSION OFFSETS**~~

~~**AQ-52**~~ ~~The following table depicts the PM1O emission increase that will require to be offset.~~

~~Pollutant~~	~~Qtr1 - lb/qtr~~	~~Qtr2 - lb/qtr~~	~~Qtr3 - lb/qtr~~	~~Qtr4 - lb/qtr~~
~~PM10~~	~~2.6~~	~~2.6~~	~~2.6~~	~~2.6~~

~~**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 reports.~~

~~**AQ-53**~~ ~~ERC 07-01030 is expected to be surrendered in accordance with SMAQMD Authority to Construct 22702 and 22672.~~

	~~Face Value of Certificates Surrendered~~					~~Value Applied to the Emission Liability~~			
~~From ERC 1030~~	~~Qtr1~~	~~Qtr2~~	~~Qtr3~~	~~Qtr4~~	~~Offset Ratio~~	~~Qtr1~~	~~Qtr2~~	~~Qtr3~~	~~Qtr4~~
~~ERC's Surrendered~~	~~262~~	~~267~~	~~270~~	~~270~~	~~1.5~~	~~174.6~~	~~177/6~~	~~179.6~~	~~179.6~~

~~**Notes**: The quantities of ERCs include the increase in PM10 emissions from the cooling tower as required by SMAQMD. For CEQA purposes, a surplus of ERC's provided in ATCs 22673 and 22674 would be used to offset Staff recommended mitigation as discussed in Air Quality Table 7.~~

~~**Verification**: Prior to operation of the equipment, the project owner shall provide valid emission reduction credits specified in AQ-53 to the district for approval and to the CPM for review.~~

FACILITY REQUIREMENTS

AQ-33~~5~~ Malfunction - the Air Pollution Control Officer shall be notified of any breakdown of the emissions monitoring equipment, any equipment, or any process which results in an increase in emissions above the allowable emissions limits stated as a condition of this permit or any applicable state or federal regulation or which affects the ability for the emissions to be accurately determined. Such breakdowns shall be reported to the District in accordance with the procedures and reporting times specified in Rule 602 - Breakdown Conditions; Emergency Variance.

Verification: The project owner shall provide the District and the CPM quarterly and annual reports as required in condition **AQ-34~~1~~9**.

AQ-34~~6~~ Severability – if any provision, clause, sentence, paragraph, section, or part of these conditions for any reason is judged to be unconstitutional or invalid, such judgment shall not affect or invalidate the remainder of these conditions.

Verification: Not necessary.

ATTACHMENT A

The following VOC ERCs have been surrendered the SMAQMD Air Pollution Control Officer to comply with the VOC emission offset requirements as stated in AQ-21:

Emission Reduction Credit Certificate No.	Face Value Of VOC ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project VOC Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
PCAPCD 2000-0007 (A) FORMICA CORPORATION	22211 (OF 68000)	22437 (OF 70000)	22665 (OF 70000)	22665 (OF 62000)	N/A	1.5:1	14807	14958	15110	15110
						Total VOC	14807	14958	15110	15110

(A) This is a partial surrender of the total amount of the ERC certificate. The remaining VOC ERCs are surrendered for the required NOx offsets using an interpollutant trading ratio.

ATTACHMENT B

The following NOx/VOC ERCs have been surrendered to the SMAQMD Air Pollution Control Officer to comply with the NOx emission offset requirements as stated in AQ-21:

Emission Reduction Credit Certificate No.	Face Value Of NOx/VOC ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project NOx Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
SMAQMD 00-00653 SWANSONS VOC	15985	20446	11643	24584	2.6:1	1.5:1	4099	5243	2985	6304
SMAQMD 01-00750 DONNER FURN. VOC	394	757	659	784	2.6:1	1.5:1	101	194	169	201
SMAQMD 00-00776 AG CONTAINERS VOC	680	1240	1560	520	2.6:1	1.5:1	174	318	400	133
SMAQMD 02-00777 P&G NOX	829	829	829	829	NA	1.5:1	553	553	553	553
SMAQMD 02-00823 P&G NOX	1518	1518	1518	1518	NA	1.5:1	1012	1012	1012	1012
SMAQMD 02-00826 P&G NOX	4514	4514	4514	4514	NA	1.5:1	3009	3009	3009	3009
SMAQMD 02-00827 P&G NOX	1486	1486	1486	1486	NA	1.5:1	991	991	991	991
SMAQMD 02-00836 BLUE DIAMOND VOC	1590	1545	1600	1556	2.6:1	1.5:1	408	396	410	399
SMAQMD 02-00838 CAMPBELL SOUP NOX	0	0	7303	0	NA	1.5:1	0	0	4869	0

Emission Reduction Credit Certificate No.	Face Value Of NOx/VOC ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project NOx Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
SMAQMD 02-00849 BLUE DIAMOND NOX	5693	5919	6159	5489	NA	1.5:1	3795	3946	4106	3659
SMAQMD 00-00852 AG CONTAINER VOC	1314	2415	3045	984	2.6:1	1.5:1	337	619	781	252
SMAQMD 03-00867 RANCHO SECO VOC	40	40	40	40	2.6:1	1.3:1	11.8	11.8	11.8	11.8
SMAQMD 03-00869 RANCHO SECO VOC	28	28	28	28	2.6:1	1.3:1	8.3	8.3	8.3	8.3
SMAQMD 03-00873 RANCHO SECO VOC	52	52	52	52	2.6:1	1.3:1	15.4	15.4	15.4	15.4
SMAQMD 03-00875 RANCHO SECO VOC	341	125	30	134	2.6:1	1.3:1	101	37	9	40
SMAQMD 03-00881 CAMPBELL NOX	1785.7	3817.4	3028.9	0	NA	1.5	1191	2545	2019	0
SMAQMD 03-00883 P&G VOC	25000	25000	21630	25000	2.6:1	1.5:1	6410	6410	5546	6410
SMAQMD 03-00887 AM RIV AGGREG. VOC	250	631	1188	1013	2.6:1	1.5:1	64	162	304	260
SMAQMD 03-00887 AM RIV AGGREG. NOX	322	810	1528	1303	NA	1.5:1	215	540	1019	869
YSAQMD EC-0121 BURNS PHILP VOC	0	5	20	9	2.6:1	1.5:1	0	1	5	2

Emission Reduction Credit Certificate No.	Face Value Of NOx/VOC ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project NOx Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
YSAQMD EC-0121 BURNS PHILP NOX	0	292	1201	500	NA	1.5:1	0	195	801	333
YSAQMD EC-0123 GENERAL MILLS NOX	765	751	1074	1007	NA	1.5:1	510	501	716	671
YSAQMD EC-0174 SPRECKLES VOC	10	230	233	243	2.6:1	1.5:1	3	59	60	62
YSAQMD EC-0174 SPRECKLES NOX	32	1271	1158	1307	NA	1.5:1	21	847	772	871
YSAQMD EC-0175 SPRECKLES VOC	21	485	491	503	2.6:1	1.5:1	5	124	126	129
YSAQMD EC-0175 SPRECKLES NOX	430	10044	10173	10410	NA	1.5:1	287	6696	6782	6940
YSAQMD EC-0176 SPRECKLES VOC	20	0	0	0	2.6:1	1.5:1	5	0	0	0
YSAQMD EC-0176 SPRECKLES NOX	487	0	0	0	NA	1.5:1	325	0	0	0
YSAQMD EC-0177 SPRECKLES VOC	19	397	403	421	2.6:1	1.5:1	5	102	103	108
YSAQMD EC-0177 SPRECKLES NOX	550	11844	12003	12552	NA	1.5:1	367	7896	8002	8368
YSAQMD EC-0178 SPRECKLES VOC	1	86	104	97	2.6:1	1.5:1	0	22	27	25

Emission Reduction Credit Certificate No.	Face Value Of NOx/VOC ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project NOx Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
YSAQMD EC-0178 SPRECKLES NOX	90	6401	7780	7232	NA	1.5:1	60	4267	5186	4821
PCAPCD 2000-0007 FORMICA CORP VOC	45790	47563	47335	39335	2.6:1	1.5:1	11741	12196	12137	10086
PCAPCD 2001-17 FORMICA CORP VOC	62698	4151	48395	28959	2.6:1	1.5:1	16076	1064	12409	7425
SUBTOTAL NOX							51899	59981	75344	63970
Move 9417 lb of surplus ERCs from QTR 3 to QTR 1 (A)							+9417		-9417	
Move 2662 lb of surplus ERCs from QTR 3 to QTR 2 (A)								+2662	-2662	
Move 705 lb of surplus ERCs from QTR 4 to QTR 1 (B)							+705			-705
TOTAL NOX							62021	62643	63265	63265

(A) SMAQMD Rule 202 Section 302.3.a allows VOC and NOx ERCs created in calendar quarters 2 and 3 to be used as offsets in any calendar quarter with certain restrictions.

(B) SMAQMD Rule 202 Section 302.3.b allows VOC and NOx ERCs created in calendar quarters 1 and 4 to be used as offsets in either of calendar quarters 1 and 4.

ATTACHMENT C

The following PM10/SO2 ERCs have been surrendered to the SMAQMD Air Pollution Control Officer to comply with the PM10 emission offset requirements as stated in AQ-21:

Emission Reduction Credit Certificate No.	Face Value Of PM10 ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project PM10 Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
SMAQMD 01-00758 E G READY MIX PM10	1275	1506	1564	1448	NA	1.5:1	850.0	1004.0	1042.7	965.3
SMAQMD CERTIFICATE NUMBERS FOLLOW P&G PM10										
02-00779	1	1	1	1	NA	1.5	0.7	0.7	0.7	0.7
02-00780	2	2	2	2	NA	1.5	1.3	1.3	1.3	1.3
02-00781	0.5	0.5	0.5	0.5	NA	1.5	0.3	0.3	0.3	0.3
02-00782	0.4	0.4	0.4	0.4	NA	1.5	0.3	0.3	0.3	0.3
02-00783	6	6	6	6	NA	1.5	4.0	4.0	4.0	4.0
02-00784	48	48	48	48	NA	1.5	32.0	32.0	32.0	32.0
02-00785	2	2	2	2	NA	1.5	1.3	1.3	1.3	1.3
02-00786	4	4	4	4	NA	1.5	2.7	2.7	2.7	2.7
02-00787	0.03	0.03	0.03	0.03	NA	1.5	0.0	0.0	0.0	0.0
02-00788	80	80	80	80	NA	1.5	53.3	53.3	53.3	53.3
02-00789	0.3	0.3	0.3	0.3	NA	1.5	0.2	0.2	0.2	0.2
02-00790	7	7	7	7	NA	1.5	4.7	4.7	4.7	4.7
02-00791	31	31	31	31	NA	1.5	20.7	20.7	20.7	20.7
02-00792	1	1	1	1	NA	1.5	0.7	0.7	0.7	0.7
02-00793	0.3	0.3	0.3	0.3	NA	1.5	0.2	0.2	0.2	0.2
02-00794	35	35	35	35	NA	1.5	23.3	23.3	23.3	23.3

Emission Reduction Credit Certificate No.	Face Value Of PM10 ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project PM10 Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
02-00795	199	199	199	199	NA	1.5	132.7	132.7	132.7	132.7
02-00796	186	186	186	186	NA	1.5	124.0	124.0	124.0	124.0
02-00797	2	2	2	2	NA	1.5	1.3	1.3	1.3	1.3
02-00798	0.1	0.1	0.1	0.1	NA	1.5	0.1	0.1	0.1	0.1
02-00799	2	2	2	2	NA	1.5	1.3	1.3	1.3	1.3
02-00800	1	1	1	1	NA	1.5	0.7	0.7	0.7	0.7
02-00801	208	208	208	208	NA	1.5	138.7	138.7	138.7	138.7
02-00802	1	1	1	1	NA	1.5	0.7	0.7	0.7	0.7
02-00803	35	35	35	35	NA	1.5	23.3	23.3	23.3	23.3
02-00804	28	28	28	28	NA	1.5	18.7	18.7	18.7	18.7
02-00805	105	105	105	105	NA	1.5	70.0	70.0	70.0	70.0
02-00806	58	58	58	58	NA	1.5	38.7	38.7	38.7	38.7
02-00807	162	162	162	162	NA	1.5	108.0	108.0	108.0	108.0
02-00808	13	13	13	13	NA	1.5	8.7	8.7	8.7	8.7
02-00809	2	2	2	2	NA	1.5	1.3	1.3	1.3	1.3
02-00810	121	121	121	121	NA	1.5	80.7	80.7	80.7	80.7
02-00811	235	235	235	235	NA	1.5	156.7	156.7	156.7	156.7
02-00812	99	99	99	99	NA	1.5	66.0	66.0	66.0	66.0
02-00813	193	193	193	193	NA	1.5	128.7	128.7	128.7	128.7
02-00814	2	2	2	2	NA	1.5	1.3	1.3	1.3	1.3
02-00815	0.3	0.3	0.3	0.3	NA	1.5	0.2	0.2	0.2	0.2
02-00816	186	186	186	186	NA	1.5	124.0	124.0	124.0	124.0
02-00817	26	26	26	26	NA	1.5	17.3	17.3	17.3	17.3
02-00818	30	30	30	30	NA	1.5	20.0	20.0	20.0	20.0
02-00819	0.4	0.4	0.4	0.4	NA	1.5	0.3	0.3	0.3	0.3
02-00820	3	3	3	3	NA	1.5	2.0	2.0	2.0	2.0

Emission Reduction Credit Certificate No.	Face Value Of PM10 ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project PM10 Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
02-00821	48	48	48	48	NA	1.5	32.0	32.0	32.0	32.0
02-00822	104	104	104	104	NA	1.5	69.3	69.3	69.3	69.3
02-00823	7	7	7	7	NA	1.5	4.7	4.7	4.7	4.7
02-00827	261	261	261	261	NA	1.5	174.0	174.0	174.0	174.0
02-00828	238	238	238	238	NA	1.5	158.7	158.7	158.7	158.7
02-00829	253	253	253	253	NA	1.5	168.7	168.7	168.7	168.7
02-00830	19	19	19	19	NA	1.5	12.7	12.7	12.7	12.7
02-00831	503	503	503	503	NA	1.5	335.3	335.3	335.3	335.3
SMAQMD 02-00833 GRACE INDUST. PM10	135	135	135	136	NA	1.5	90.0	90.0	90.0	90.7
SMAQMD 02-00834 GRACE INDUST. PM10	1962	2116	2079	1963	NA	1.5	1308.0	1410.7	1386.0	1308.7
SMAQMD 02-00835 GRACE INDUST. PM10	1494	1338	1360	1415	NA	1.5	996.0	892.0	906.7	943.3
SMAQMD 02-00849 BLUE DIAMOND PM10	3480	3321	3433	3207	NA	1.5	2320.0	2214.0	2288.7	2138.0
SMAQMD 03-00863 GRACE INDUST. SO2	1118	0	0	1117	(B)	1.5	266.2	0.0	0.0	225.7
SMAQMD 03-00865 GRACE INDUST. SO2	861	0	0	812	(B)	1.5	205.0	0.0	0.0	164.0
SMAQMD 03-00867 RANCHO SECO										
SO2	174	0	0	174	(B)	1.2	51.8	0.0	0.0	43.9
PM10	60	60	60	60	NA	1.2	50.0	50.0	50.0	50.0

Emission Reduction Credit Certificate No.	Face Value Of PM10 ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project PM10 Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
SMAQMD 03-00869 RANCHO SECO										
SO2	126	0	0	126	(B)	1.2	37.5	0.0	0.0	31.8
PM10	47	47	47	47	NA	1.2	39.2	39.2	39.2	39.2
SMAQMD 03-00871 RANCHO SECO										
SO2	260	0	0	260	(B)	1.2	77.4	0.0	0.0	65.7
PM10	129	129	129	129	1	1.2	107.5	107.5	107.5	107.5
SMAQMD 03-00873 RANCHO SECO										
SO2	260	0	0	260	(B)	1.2	77.4	0.0	0.0	65.7
PM10	122	122	122	122	NA	1.2	101.7	101.7	101.7	101.7
SMAQMD 03-00875 RANCHO SECO										
SO2	24682	0	0	8008	(B)	1.2	7345.8	0.0	0.0	2022.2
PM10	1707	626	150	672	NA	1.2	1422.5	521.7	125.0	560.0
SMAQMD 03-00877 POPPY RIDGE										
SO2	16	0	0	15	(B)	1.5	3.8	0.0	0.0	3.0
PM10	899	804	546	853	NA	1.5	599.3	536.0	364.0	568.7
SMAQMD 03-00879 POPPY RIDGE										
SO2	54	0	0	57	(B)	1.5	12.9	0.0	0.0	11.5
PM10	129	191	194	135	NA	1.5	86.0	127.3	129.3	90.0
SMAQMD 03-00881 CAMPBELL SOUP										

Emission Reduction Credit Certificate No.	Face Value Of PM10 ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project PM10 Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
SO2	140.7	0	0	150.8	(B)	1.5	33.5	0.0	0.0	30.5
PM10	573.1	336.1	1858.8	656.8	NA	1.5	382.1	224.1	1239.2	437.9
SMAQMD 03-00887 AM RIV AGGREG.										
SO2	259	0	0	1050	(B)	1.5	61.7	0.0	0.0	212.1
PM10	515	1229	2143	1695	NA	1.5	343.3	819.3	1428.7	1130.0
SMAQMD 03-00885 P&G PM10	7719	7719	5479.7	7719	NA	1.5	5146.0	5146.0	3653.1	5146.0
SMAQMD 05-00767 ROAD PAVING PM10	1085	1491	2054	1537	NA	1.2	904.2	1242.5	1711.7	1280.8
SMAQMD 05-00768 ROAD PAVING PM10	2004	2770	3844	2871	NA	1.2	1670.0	2308.3	3203.3	2392.5
SMAQMD 05-00769 ROAD PAVING PM10	3237	4463	6172	4615	NA	1.2	2697.5	3719.2	5143.3	3845.8
SMAQMD 05-00772 ROAD PAVING PM10	5242	7247	10061	7515	NA	1.2	4368.3	6039.2	8384.2	6262.5
SMAQMD 05-00773 ROAD PAVING PM10	3316	4564	6293	4709	NA	1.2	2763.3	3803.3	5244.2	3924.2
SMAQMD 05-00774 ROAD PAVING PM10	2326	3209	4441	3320	NA	1.2	1938.3	2674.2	3700.8	2766.7
SMAQMD 05-00775 ROAD PAVING PM10	577	795	1096	821	NA	1.2	480.8	662.5	913.3	684.2

Emission Reduction Credit Certificate No.	Face Value Of PM10 ERC Certificates Surrendered Lb/Quarter				Inter-Pollutant Trading Ratio	Offset Ratio	Value Applied To The Project PM10 Emission Liability Lb/Quarter			
	QTR 1	QTR 2	QTR 3	QTR 4			QTR 1	QTR 2	QTR 3	QTR 4
SMAQMD 01031 CHINET CO. PM10	519	524	530	530	NA	1.5	346	349	353	353
SMAQMD 11-01143 Chinet Co.	258	263	266	266	N/A	1.5	172	175	177	177
SMAQMD 11-01144 Chinet Co.	4	4	4	4	N/A	1.5	2.6	2.6	2.6	2.6
SUBTOTAL PM10							39,723.8	36,625.4	44,151.3	40,608.5
MOVE 3542.9 LB OF SURPLUS ERCS FROM QUARTER 3 TO QUARTER 2 (A)								3,542.9	-3,542.9	
MOVE 0.8 LB OF SURPLUS ERCS FROM QUARTER 4 TO QUARTER 1 (A)							0.8			-0.8
TOTAL PM10							39,724.6	40,168.3	40,608.4	40,607.7
TOTAL PM10 TO COMPARE TO CONDITION NO. 20 (BECAUSE MORE ERCS WERE SURRENDERED THAN REQUIRED)							39,724.6	40,166.6	40,607.6	40,607.6

(A) SMAQMD Rule 202 allows PM10 ERCs:

i. Created in calendar quarters 2 and 3 to be used as offsets in either calendar quarters 2 or 3.

ii. Created in calendar quarters 1 and 4 to be used as offsets in all calendar quarters.

(B) SO2 interpollutant trading ratio varies by quarter -

1st quarter = 2.8

2nd quarter = 1.7

3rd quarter = 1.7

4th quarter = 3.3

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