

DOCKETED

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CALIFORNIA ENERGY COMMISSION

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



DATE: December 20, 2013

TO: Interested Parties

FROM: Joseph Douglas, Compliance Project Manager

SUBJECT: Petition to Amend Air Quality Conditions of Certification for the Malburg Generating Station (01-AFC-25C)

On May 15, 2013, Bicent (California) Malburg, L.L.C. (Bicent), filed a petition with the California Energy Commission requesting to amend the conditions of certification for the Malburg Generating Station (MGS).

The MGS, a 134 megawatt project, was certified by the Energy Commission on May 20, 2003, and began commercial operation on October 17, 2005. The facility is located in the City of Vernon, in Los Angeles County.

The petition requests to modify Air Quality Conditions of Certification **AQ-6** and **AQ-7** to allow a maximum of two (rather than one) startups and shutdowns per day of MGS's two combustion generating turbines. Bicent also petitions for an increase in the maximum allowable time for startup from 120 minutes to 150 minutes to accommodate annual maintenance of the turbines, pursuant to South Coast Air Quality Management District Hearing Board requirements.

Energy Commission staff reviewed the petition, assessed the impacts of this proposal on environmental quality and on public health and safety, and in the attached Staff Analysis now proposes revisions to several existing Air Quality Conditions of Certification. It is staff's opinion that, with the implementation of the revised conditions, the project would remain in compliance with applicable laws, ordinances, regulations, and standards, and the proposed modifications would not result in any significant adverse direct, indirect, or cumulative impacts to the environment (20 Cal. Code Regs., § 1769).

The amendment petition and staff's analysis have been posted on the Energy Commission's MGS webpage at <http://www.energy.ca.gov/sitingcases/malburg/compliance/index.html>. The Energy Commission's Order (if approved) will also be posted on the webpage. Staff intends to recommend approval of the petition at the February 12, 2013, Business Meeting of the Energy Commission.

Agencies and members of the public who wish to provide comments on the Staff Analysis are asked to submit their comments by January 24, 2013, using the Energy Commission's e-commenting feature, <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=01-AFC-25C>. A full name, e-mail address, comment title, and either a comment or an attached document (in the .doc, .docx, or .pdf format) is mandatory. After entering CAPTCHA (a

challenge-response test used by the system to ensure that responses are generated by a human user and not a computer), click on the “Agree & Submit Your Comment” button to submit the comment to the Energy Commission Dockets Unit. Written comments may also be mailed or hand delivered to:

California Energy Commission
Dockets Unit, MS-4
Docket No. 01-AFC-25C
1516 Ninth Street
Sacramento, CA 95814-5512

All comments and materials filed with the Dockets Unit will become part of the public record of the proceeding. Additionally, your comments will be posted on the Energy Commission’s MGS webpage.

Questions about staff’s analysis should be directed to Joseph Douglas, Compliance Project Manager, at (916) 653-4677, or by e-mail to joseph.douglas@energy.ca.gov.

For further information on how to participate in this proceeding, please contact the Energy Commission Public Adviser’s Office at (916) 654-4489, or at (800) 822-6228 (toll free in California), or by e-mail at 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.

Enclosure: Staff Analysis

Mail List #7095

MALBURG GENERATING STATION (01-AFC-25C)
Petition for Modification of Air Quality Conditions of Certification
EXECUTIVE SUMMARY
Prepared by Joseph Douglas
December 20, 2013

INTRODUCTION

On May 15, 2013, Bicent (California) Malburg, L.L.C. (Bicent), filed a petition with the California Energy Commission (Energy Commission) to amend the Energy Commission Final Decision (Decision) for the Malburg Generating Station (MGS). Staff has completed its review of all materials received.

The purpose of the Energy Commission's review process is to assess any impacts the proposed modifications would have on environmental quality and on public health and safety. The process includes an evaluation of the consistency of the proposed changes with the Energy Commission's 2003 Decision and an assessment of whether the project, as modified, would remain in compliance with applicable laws, ordinances, regulations, and standards (LORS) (20 Cal. Code Regs., § 1769).

This analysis contains staff's evaluation of MGS's proposal to change Air Quality Conditions of Certification **AQ-6 and AQ-7**.

PROJECT LOCATION AND DESCRIPTION

The MGS, a 134-megawatt project, was certified by the Energy Commission on May 20, 2003, and began commercial operation on October 17, 2005. The facility is located at 2715 E. 50th St. in the City of Vernon, in Los Angeles County.

DESCRIPTION OF PROPOSED MODIFICATIONS

The petition requests to modify Air Quality Conditions of Certification **AQ-6** and **AQ-7** to allow a maximum of two (rather than one) startups and shutdowns per day of MGS's two combustion generating turbines. Bicent also petitions for an increase in the maximum allowable time for startup from 120 minutes to 150 minutes. Staff is proposing changes to several Air Quality conditions to ensure consistency with the South Coast Air Quality Management District (SCAQMD) requirements.

NECESSITY FOR THE PROPOSED MODIFICATIONS

The additional plant startups and shutdowns, as well as the additional allowed startup time, are required to accommodate scheduled maintenance and testing of the turbines and to provide operational flexibility pursuant to SCAQMD Hearing Board requirements.

STAFF'S ASSESSMENT OF THE PROPOSED PROJECT CHANGES

The technical area sections contained in this Staff Analysis include staff-recommended changes to various existing Air Quality Conditions of Certification that would reduce potential impacts resulting from the proposed modifications to less than significant levels. A summary of staff's conclusions reached in each technical area are summarized in the **Executive Summary Table 1** below.

Energy Commission technical staff reviewed the petition for potential environmental effects and consistency with applicable LORS. Staff has determined that the technical or environmental areas of Biological Resources, Cultural Resources, Geological Hazards and Resources, Hazardous Materials Management, Land Use, Noise and Vibration, Paleontological Resources, Public Health, Socioeconomics, Soil and Water, Traffic and Transportation, Transmission Line Safety and Nuisance, Transmission System Engineering, Visual Resources, Waste Management, and Worker Safety and Fire Protection are not affected by the proposed changes, and no revised or new conditions of certification are needed to ensure the MGS remains in compliance with all applicable LORS for these areas.

Staff determined, however, that the technical area of Air Quality would be affected by the proposed project changes and has proposed revising several Conditions of Certification to assure compliance with LORS and to reduce potential environmental impacts to a less than significant level. The proposed revisions to the Conditions of Certification are provided in the **Air Quality** section of the Staff Analysis.

**Executive Summary Table 1
Summary of Impacts for Each Technical Area**

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			New or Revised Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environmental Impact*	Process As Amendment	
Air Quality			X	X
Biological Resources	X			
Cultural Resources	X			
Geological Hazards & Resources	X			
Hazardous Materials Management	X			
Facility Design	X			
Land Use	X			
Noise and Vibration	X			
Paleontological Resources	X			
Public Health	X			
Socioeconomics	X			
Soil and Water Resources	X			

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			New or Revised Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environmental Impact*	Process As Amendment	
Traffic and Transportation	X			
Transmission Line Safety & Nuisance	X			
Transmission System Engineering	X			
Visual Resources	X			
Waste Management	X			
Worker Safety and Fire Protection	X			

*There is no possibility that the proposed modifications would have a significant effect on the environment, and the modifications would not result in a change or deletion of a condition adopted by the Commission in the Final Decision or make changes that would cause project noncompliance with any applicable laws, ordinances, regulations, or standards (20 Cal. Code Regs., § 1769 (a) (2)).

STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff concludes that, with its proposed changes to Air Quality Conditions of Certification, the following required findings mandated by Title 20, California Code of Regulations, section 1769 (a)(3) can be made, and staff recommends approval of the petition by the Energy Commission:

- A. The modification will not change the findings in the Energy Commission’s Final Decision pursuant to Title 20, California Code of Regulations, section 1755;
- B. There will be no new or additional unmitigated, significant environmental impacts associated with the proposed changes;
- C. The facility will remain in compliance with all applicable LORS;
- D. The changes will be beneficial to MGS because it will avoid undue delay in turbine operations due to current startup and shutdown limitations; and
- E. There has been a substantial change in circumstances—the need for more than one startup and shutdown to provide operational flexibility—since the Energy Commission certification, thus justifying the change.

MALBURG GENERATING STATION (01-AFC-25C)
Request to Amend Final Commission Decision
Air Quality Analysis
Nancy Fletcher

INTRODUCTION

On May 15, 2013, Bicent (California) Malburg, L.L.C. (Bicent) filed a petition (Bicent 2013) with the California Energy Commission (Energy Commission) requesting minor amendments to Air Quality Conditions of Certification **AQ-6** and **AQ-7** for the Malburg Generating Station (MGS).

MGS is a 134-megawatt (MW) natural gas-fired, combined-cycle power plant located in the City of Vernon in Los Angeles County. The facility consists of two identical power units comprised of a combustion turbine and heat recovery steam generator (HRSG). The steam from the two HRSGs drives a shared electrical generator. Each combustion turbine is equipped with a dry, low-NO_x (oxides of nitrogen) combustor, and emissions from each HRSG are controlled by a selective catalytic reduction (SCR) system and a carbon monoxide (CO) catalyst.

MGS was certified by the Energy Commission on May 20, 2003, and began commercial operation on October 17, 2005. The conditions of certification were modified on August 13, 2008, increasing the startup emissions limits to reflect the operational startup characteristics of the facility's combustion turbines.

In March 2009, Bicent submitted a request to the South Coast Air Quality Management District (SCAQMD) for a short-term variance to enable them to install, test, and certify a power system stabilizer for each of the two MGS turbines. These stabilizers were required by the Western Electricity Coordinating Council (WECC) to continue operation and ensure grid reliability. The WECC certification testing required multiple start-ups per day. The Energy Commission's Air Quality Conditions of Certification, along with the SCAQMD permit conditions, only allow one startup and shutdown per day. Therefore, a short-term variance was granted by the SCAQMD in order to complete the WECC certification testing.

In May 2010, Bicent submitted another short-term variance request to the SCAQMD to accommodate original equipment manufacturer (OEM) required maintenance. Following the maintenance, testing of the equipment is required. During the testing, MGS could not maintain compliance with permit emission limits and could not adhere to the number of allowable startups. Scheduled maintenance is required after 10,000 equivalent hours of operation and enables the OEM to test and adjust operating parameters to ensure efficient and low-emissions operations once the units are returned to service.

The Energy Commission does not currently have a variance procedure, and Energy Commission staff (staff) was not involved in either of the two requests for the SCAQMD variances. The SCAQMD granted each variance, but during the hearing for the last variance, the SCAQMD Hearing Board directed Bicent to seek a permit revision from SCAQMD to accommodate multiple startups and shutdowns per day and operational flexibility during these periods in lieu of seeking a variance for return to service after any future outages.

In the current petition, Bicent is requesting the Energy Commission to approve revisions to Air Quality Conditions of Certification **AQ-6** and **AQ-7** to modify language regarding startup activities. Bicent is requesting a maximum of two startups and shutdowns per day for each of the two MGS combustion turbines. In addition, Bicent is requesting to increase the maximum allowable time to complete a startup from 120 to 150 minutes. The revisions are being requested in order to accommodate annual maintenance and testing activities. During maintenance activities the turbines are shut down. When the turbines are brought back on-line after this annual shutdown, periodic problems can occur. The problems cannot always be diagnosed and repaired quickly enough to allow for a successful startup within the current limitations.

On December 16, 2010, an application was filed with the SCAQMD on behalf of Bicent to change startup and shutdown conditions for the two turbines. On February 11, 2011, a RECLAIM/Title V facility permit amendment application was also filed with the U.S. Environmental Protection Agency (EPA). Bicent and the SCAQMD worked together to draft language that accommodates multiple startups in a single day, extends the duration of startup periods to accommodate mechanical trips, and incorporates new language to accommodate additional requirements imposed by the EPA since the original permits were issued. The new language addressing additional EPA requirements is intended to minimize emissions during startup and shutdown periods. Bicent is not proposing any increase to the emission limitations imposed in the existing Air Quality Conditions of Certification. The revised Title V permit was submitted to EPA on April 16, 2013, for a 45-day regulatory review. The EPA has accepted the revised Title V permit.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

The SCAQMD reviewed the requested modifications and determined the changes would comply with their regulations. However, the SCAQMD determined that additional changes were needed to minimize emissions during startups and shutdowns. The facility owner submitted to staff for review the SCAQMD's engineering evaluation of the proposed amendments. The SCAQMD analysis included both the changes proposed in Bicent 2013, as well as the changes to the Air Quality Conditions of Certification approved in 2008 (CEC 2008c), described below in the Analysis section below.

The SCAQMD analysis identified the following Air Quality laws, ordinances, regulations, and standards (LORS) included in **Air Quality Table 1** as applicable to Bicent’s most recent and proposed amendments. The conditions of certification in the original Energy Commission Decision and any and all amendments thereafter, including the presently proposed changes to the conditions, ensure that MGS would remain in compliance with all applicable LORS.

**Air Quality Table 1
Laws, Ordinances, Regulations, and Standards (LORS)**

Applicable LORS	Description
Regulation II Permits Rule 212	Standards for Approving Permits and Issuing Public Notice—Outlines specific criteria for approving permits and issuing public notice. Outlines requirements for RECLAIM facilities. For the proposed condition changes, public notice is not required because the facility is not located within 1,000 feet of a school and there is no emission increase exceeding any of the daily maximums specified in subdivision (g) of this rule. In addition, there are no increases in toxic emissions from the combustion turbine generators (CTGs).
Regulation IV Prohibitions Rule 401	Visible Emissions—Establishes limits on visible emissions. Visible emissions are not expected from the MGS CTGs under normal operation.
Regulation IV Prohibitions Rule 402	Nuisance—Prohibits the discharge of air contaminants or other material which could detrimentally impact the public. Nuisance problems are not expected from the MGS CTGs under normal operation.
Regulation IV Prohibitions Rule 407	Liquid and Gaseous Air Contaminants—Establishes a CO (carbon monoxide) emission limit of 2,000 parts per million by volume (ppmv) from the CTGs. The CO emissions from the two MGS turbines are controlled to 2 ppmvd (ppmv dry) at 15 percent oxygen (% O ₂).
Regulation IV Prohibitions Rule 431.1	Sulfur Content of Gaseous Fuels—Limits the sulfur concentration to 16 ppmv (calculated as hydrogen sulfide) in natural gas. Continued compliance is expected because commercial grade natural gas has an average sulfur content of 4 ppm.
Regulation XIII New Source Review Rule 1303(a)	Requirements—Best Available Control Technology (BACT) is required for a modified source resulting in an emission increase that is greater than 1 pound per day (lb/day) of any criteria pollutant, any ozone-depleting compound, or ammonia. No increases to the permitted emission limits are proposed, and the MGS turbines meet current BACT requirements.
Regulation XIII New Source Review Rule 1303(b)(1)	Requirements—Modeling are required for any new facility or modification resulting in a net emission increase of nonattainment pollutants to demonstrate the emission increase will not cause a violation or make an existing violation significantly worse. This rule was applicable to the Energy Commission-approved 2008 emissions increases. The SCAQMD analysis concluded that the changes comply with the rule requirements.
Regulation XIII New Source Review Rule 1303(b)(2)	Requirements—Offsets required for facilities or amendments are outlined. The SCAQMD analyzed offset requirements for the 2008 Energy Commission amendment and the proposed amendment. SCAQMD determined offsets for PM ₁₀ , VOC and SO _x are not required.
Regulation XIV Toxics and Other Non-Criteria Pollutants Rule 1401	New Source Review of Toxic Air Contaminants (TAC)—The SCAQMD Final Determination of Compliance (FDOC) for the original project identified the highest TAC emissions as occurring when both the two CTGs with their duct burners and the cooling tower were operating at full load for the entire year. This overestimated the TACs when compared on a unit-by-unit basis. In addition, emission reductions from the CO oxidation catalyst were not applied to the TAC emissions. The SCAQMD determined that the proposed startup- and shutdown-related changes would not increase the risk assessment results.

Applicable LORS	Description
Regulation XVII Prevention of Significant Deterioration (PSD) Rule 1701(b)(1) Rule 1701(b)(2) Rule 1703(a)(2)	General, PSD Analysis – Requires each permit unit to be constructed using BACT for each criteria pollutant with a net increase. BACT was applied during construction. BACT is only required for a modified source which results in an emissions increase greater than one pound per day for CO, volatile organic compounds (VOC), particulate matter less than 10 microns in diameter (PM10) and oxides of sulfur (SOx), any ozone depleting compound or ammonia. The present amendment proposes no increases in these pollutants. Because the SCAQMD concurrently evaluated the present amendment and the 2008 amendment, they calculated an increase in CO and NOx emissions, but determined the facility changes are not subject to PSD requirements, other than BACT requirements. The CO emission increase is below the 1 lb/day BACT threshold and the MGS turbines currently meet BACT NOx requirements.
Regulation XX Regional Clean Air Incentives Market (RECLAIM) Rule 2005	New Source Review for RECLAIM—Establishes requirements for new or modified facilities subject to the RECLAIM program. BACT is required for a modified source resulting in specified emission increases. The MGS turbines already meet BACT requirements. The SCAQMD's joint evaluation of the 2008 amendment and the present amendment determined that the changes would result in an increase in NOx emissions. The SCAQMD estimated the increases in the modeling results performed in the FDOC and evaluated impacts with updated background concentrations. The SCAQMD determined that the estimated nitrogen oxide (NO ₂) air quality impacts are less than the most stringent NO ₂ standard. The SCAQMD revised the MGS offset requirement based on the amendments. The Energy Commission determined that adequate offsets had been provided to satisfy CEQA requirements for the 2008 MGS amendment.
Regulation XXX Title V Permits Rule 3003	Applications—Establishes application procedures for facilities subject to Title V requirements. The SCAQMD determined that the requested MGS amendments are considered a minor permit revision and require a 45-day EPA review. The SCAQMD submitted the revised MGS Title V permit to EPA for review on April 16, 2013.
40 CFR Part 60 Subpart GG	Standards of Performance for Stationary Gas Turbines—Establishes emission standards and monitoring requirements, including a standard of 110 ppm for NOx and 150 ppm for SOx. The MGS turbines currently meet a lower BACT standard of 2 ppm for NOx. Natural gas has a sulfur content of approximately 4 ppm, and MGS SOx emissions are estimated to be below 1 ppm. The facility has a continuous emission monitoring system (CEMS) measuring NOx emissions.
40 CFR Part 63 Subpart YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines—This standard is applicable to major sources of hazardous air pollutants (HAPS). The MGS facility emits less than 10 tons per year of a single hazardous air pollutant (HAP) and less than 25 tons per year of a combination of HAPs; therefore the requirements are not applicable.
40 CFR Part 64	Compliance Assurance Monitoring—This standard specifies monitoring, reporting, and recordkeeping criteria required for Title V facilities. Emissions of NOx, CO, and VOCs are subject to BACT requirements. Emissions from each MGS CTG are controlled with SCR and CO catalysts to meet these requirements. CO and NOx emissions are monitored through CEMS. Compliance with BACT VOC limits are verified by periodic source testing.
Regulation XXXI	Acid Rain Permit Program—Acid rain requirements establish controls for 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. The MGS facility would continue to comply with SO ₂ emissions monitoring by using the gas meter in conjunction with natural gas composition analysis.

SETTING

The facility is located in the City of Vernon in Los Angeles County in the South Coast Air Basin. It is situated on approximately 3.4 acres in the western portion of the City of Vernon, and the surrounding land is largely in industrial use. For convenience, staff includes **Air Quality Table 2**, which summarizes the area's current attainment status for state and federal ambient air quality standards for the South Coast Air Basin.

Air Quality Table 2
Current Federal and State Attainment Status,
Los Angeles County, South Coast Air Basin

Pollutant	State Classification	Federal Classification
Ozone (O ₃) (1-hour and 8-hour) ^a	Non-attainment	Non-attainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO ₂)	Non-attainment	Attainment/Unclassifiable
Sulfur Dioxide (SO ₂)	Attainment	Attainment
Particulate Matter Less Than 10 Microns In Diameter (PM ₁₀)	Non-attainment	Non-attainment
Particulate Matter Less Than 2.5 Microns In Diameter (PM _{2.5})	Non-attainment	Non-attainment

Source: <http://www.arb.ca.gov/regact/2012/area12/areaattc.pdf>

^a Federal designation reflects the 8-hour standard. The national 1-hour standard was revoked on June 15, 2005.

ANALYSIS

Conditions of Certification **AQ-1** through **AQ-36** are the Energy Commission-adopted conditions recommended by the SCAQMD. Conditions of Certification **AQ-C1** through **AQ-C14** are the Commission-adopted conditions recommended by staff. Bicent's current petition to amend Energy Commission Decision Conditions of Certification **AQ-6** and **AQ-7** would increase the number of startups and shutdowns allowed per day for the two MGS combustion turbines. Specifically, Bicent is requesting to increase the daily number of allowable startups from one per combustion turbine to two per combustion turbine. In addition, Bicent is requesting to extend the startup time and to define emissions limits for NO_x and CO during the startup periods. Bicent is also requesting to change the language, "City of Vernon," to "plant owner" in the Air Quality Conditions of Certification. Although Bicent is requesting to increase the number and duration of allowable startups, they are not requesting an increase in any emission limits.

Condition of Certification **AQ-C10** contains emission limits for the combustion turbines on an hourly, daily, and annual basis. The hourly limits are maximum limits based on a maximum hourly operation profile during a cold startup. The maximum daily emissions were determined assuming a cold startup and continuous full-load operation thereafter with duct firing. The annual emission limits were determined assuming either 4 cold starts and full-load operation with the duct burner, or 4 cold starts, 52 warm starts and 1,314 hours of full-load operation with the duct burners firing. Cold startup events

assumed a two-hour duration period, warm startups assumed a one-and-a-half-hour duration period, and shutdown events assumed a half-hour duration period. Although Condition of Certification **AQ-C10** lists the assumptions used to determine the emission limits, it does not restrict operation according to the assumptions included in the text used to determine the emission restrictions, such as number of startups, shutdowns, or duration. Additionally, Condition of Certification **AQ-C10** is not included in the SCAQMD Permit to Operate for the facility. The SCAQMD does, however, use the operating scenarios as the basis to determine RECLAIM Trading Credit (RTC) requirements (see discussion below).

The emission limits included in Condition of Certification **AQ-C10** were amended in the Energy Commission's 2008 Amended Decision to reflect the actual, rather than the expected, operational startup characteristics of the facility's combustion turbines. The limits in the original Decision were based on emission estimates provided by the turbine vendor. The amended limits were based on assumptions used for the same model turbine at the Roseville Energy Center. The environmental impacts from the increases were quantified by Energy Commission staff. Staff determined there was no significant impact from the emission increases approved in CEC 2008c for both CO and NOx. The changes proposed in Bient 2013 would not result in an increase to the emission limits contained in Condition of Certification **AQ-C10**, approved by the Energy Commission in 2008, nor result in a need to amend the noted assumptions included in the emissions table, as they are not restrictions specifically included in the condition, as explained above.

Conditions of Certification **AQ-6** and **AQ-7** limit the emissions concentration of NOx and CO to 2 parts per million (ppm) for each pollutant, based on Best Available Control technology (BACT) determinations, and are applicable to the normal, steady-state operation of the turbines. However, emissions during startup and shutdown events are generally higher than the BACT limits during turbine steady-state operation. Therefore, the turbines are exempt from these BACT limits during startup and shutdown events. In order to minimize emissions from the turbines during the time period they are exempt from BACT limits on emission concentrations, the Conditions of Certification **AQ-6** and **AQ-7** include limits on the number of startups and shutdowns, as well as the duration of the exemption periods. These restrictions minimize potential impacts to air quality. Conditions of Certification **AQ-6** and **AQ-7** include language limiting startup periods to two hours, shutdowns to half an hour, and the number of startup and shutdowns to one per day for each turbine. In the present petition, the facility owner is proposing to increase the allowable duration of a startup to two-and-a-half hours and to allow two startup and shutdown events per turbine per day. The facility owner is requesting to increase the period that the emissions concentration may be higher than during routine operations without requesting to increase the limits for the amount of emissions that can be released on an hourly, daily, and annual basis that are in effect at all times, including startup and shutdown events.

The facility owner already submitted an application to the SCAQMD to amend the conditions in the RECLAIM/Title V permit for the facility. The SCAQMD worked with Bicent to develop language that incorporated the requested changes but also included additional restrictions to ensure that emissions are minimized during startup periods and do not exceed a specified amount for NO_x, CO, and VOCs (see discussion for VOCs, below). The language defines a startup period, allows for equipment trips during the startup period, and increases the number of allowed startups per turbine from one per day to two per day. These requests were made because the turbines are shut down at least annually and can experience mechanical trips during their return from maintenance outages. These situations require restarts. Limiting the number of startups to one per day can prevent a successful restart of a turbine if tripped. The facility then has to wait an additional day to attempt another start. In these situations, the turbines are unavailable to satisfy the electrical load needs of the City of Vernon and the California Independent System Operator (CAISO). The incorporation of the proposed language developed by Bicent and the SCAQMD into the Energy Commission Conditions of Certification would allow the facility to operate more reliably while complying with all LORS and minimizing emissions and impacts to air quality.

The conditions developed by Bicent and the SCAQMD, as evaluated in the SCAQMD analysis, add additional limits and clarifications. The revised SCAQMD conditions include emission limits for NO_x and CO on a per-event basis. The limits for cold start events are documented in the Energy Commission analysis for Bicent 2007. Limits for non-cold start and shutdown events are proposed by the SCAQMD and are based on actual data from the facility's CEMS with a 15 percent safety margin. The SCAQMD is also proposing to include language limiting the facility to a maximum of 10 startup events per month, which includes no more than 5 cold startups per month and no more than 2 startups in any day. In addition, the owner would be limited to 56 total startups per year, with a maximum of 30 cold starts, and the proposed conditions include clear definitions of cold and warm startups without proposing any increase in annual emission restrictions. The original analysis included 56 total startups including 4 cold startups. The owner requested the SCAQMD to consider changing the definition for cold starts to be reduced from 72 hours offline to 48 hours offline because the owner says that the equipment is just as cold at 48 hours as it is at 72 hours. This change was proposed so the plant could be run in a peaking mode, if needed. (The plant generally operates as a base-load facility) Allowing these more flexible operating conditions would ensure the facility can operate as needed in today's electricity market. Incorporating these same proposed changes in the conditions of certification would facilitate compliance with air quality requirements.

In addition, the SCAQMD is proposing to add a new condition limiting emissions of VOCs during startup and shutdown. Since the permits were issued, the EPA has imposed additional requirements to minimize emissions during periods when BACT limits are not met. The permits already contain the same limits in Conditions of Certification **AQ-6** and **AQ-7**, minimizing emissions for NO_x and CO during startup and shutdown events when BACT limits are not attainable. In addition to the other changes discussed above, the SCAQMD is proposing to add a further condition to minimize emissions of VOC during turbine startup and shutdown. With the exception of the

applicable limits, the proposed language is identical to the permit requirements proposed for NO_x and CO. The condition would limit the emission concentration of VOC to 2 ppm except during startup and shutdown events. VOC emissions would be limited to 1.75 lbs for cold start events, 1.55 lbs for non-cold start events, and 0.71 lbs for shutdown events. The facility operates CEMs for NO_x and CO to verify compliance with the emissions restrictions. The facility is not required to continuously monitor VOC emissions. Instead, VOC emissions are monitored using a combination of source testing and fuel usage. The addition of requirements for VOC emissions would provide consistency with the SCAQMD proposed requirements to limit emissions during startup and shutdown events.

In order to provide additional clarity, the conditions of certification would have one condition containing the proposed requirements discussed above for NO_x, CO, and VOC. The proposed language is nearly identical for each pollutant, with the exception specified for individual pollutant limits for cold-startup, non-cold startup, and shutdown events. In addition, the proposed verifications are the same for each pollutant. The requirements would be in Condition of Certification **AQ-6**. Consequently, Condition of Certification **AQ-7** would be designated "reserved." Having all the requirements in one condition would simplify the requirements for the facility.

In addition, Bicent is requesting to modify the language, "City of Vernon", to "plant owner" where appropriate in the verifications for the conditions of certification. Transfer of ownership of MGS from the City of Vernon to Colorado Energy Management, an affiliate of Bicent, was approved by the Energy Commission on May 21, 2008. Bicent agreed to comply with the conditions of certification in the Energy Commission's Decisions for MGS. However, at that time the language in the conditions and verifications was not updated to reflect the change in ownership. The SCAQMD uses the term "operator" throughout the conditions in their Permit to Operate for the facility. The SCAQMD conditions do not contain separate verifications for each condition, and the conditions themselves can contain verifications to the requirements. For consistency with other Energy Commission projects, staff proposes to use the term, "project owner" and to change the language in both the conditions and verifications to this term. This language change would be applied to the complete list of conditions and verifications, regardless of whether or not the verification has been completed.

Finally, the SCACMD analysis includes other changes that would not require corresponding changes to the Energy Commission conditions of certification. As stated previously, the SCAQMD did not perform a complete analysis of the previous changes approved by the Energy Commission on August 13, 2008. These changes increased the combustion turbine startup-related emissions. Therefore, the SCAQMD's current analysis includes the current proposal and the previous emission increase. The SCAQMD-determined adjustment to the RECLAIM Trading Credits (RTCs) allocations would be required for operation due to the increases in startup emissions. Condition of Certification **AQ-32** requires the facility to hold sufficient RTCs at the commencement of each compliance year but does not list the specific amount needed. Therefore, conforming changes do not need to be made to Condition of Certification **AQ-32**. In addition, the SCAQMD updated the references to the rules and regulations applicable to

their conditions to reflect the most current versions. These changes were only applied to the references, and the actual conditions did not require updates because the conditions of certification do not include the references contained in the SCAQMD permit.

CONCLUSIONS AND RECOMMENDATIONS

The Energy Commission staff recommends amending the conditions of certification for consistency with the SCAQMD requirements. Specific changes include updating condition language referencing the City of Vernon, increasing the number of allowable startups per turbine, increasing the allowable time period for a startup, adding additional language to define cold startups and warm startups, adding emission limits for cold and warm startup events, adding restrictions to the total number of cold and warm startups allowed per year, adding limitation to VOC emissions consistent with the amendments proposed for NO_x and CO, and updating compliance monitoring language. The requested changes would conform to applicable LORS related to air quality and would not result in significant air quality impacts. The requested changes have already been reviewed by the SCAQMD staff and submitted to EPA for comments.

PROPOSED AND AMENDED CONDITIONS OF CERTIFICATION

Staff recommends the modification of the following existing Air Quality Conditions of Certification. **Bold underline** is used to indicate new language. ~~Strikethrough~~ is used to indicate deleted language.

AQ-C1 The project owner (~~City of Vernon~~) shall develop and submit to the CPM for approval an Air Quality Construction Mitigation Plan (AQCMP) using any or all of the elements listed below to maintain construction-related emissions so that the difference between upwind and downwind ambient air concentration does not exceed 235 ug/m³ (averaged over 1 hour) for NO₂ and 50 ug/m³ (averaged over 24 hours) for PM~~10~~₄₀. The City **project owner** shall identify the placement of upwind and downwind monitoring for NO₂ and PM~~10~~₄₀ in the AQCMP. In addition to the measures described below, the City **project owner** may develop supplemental measures to be approved by the CPM in order to achieve the identified goals.

1. Redirect pedestrian traffic from the square block area described by the intersections of Leonis, 50th, Seville and Soto Avenues.
2. Restrict the use of multiple heavy construction equipment at the MGS project site.
3. Unless shown to be impractical, use a water emulsion diesel fuel in all diesel powered construction equipment to reduce both PM~~10~~₄₀ and NO~~x~~_x emissions (equipment tanks must be emptied and refilled with this fuel prior to operation on-site). Otherwise, use ultra low sulfur diesel fuel

(equipment tanks must be emptied and refilled with this fuel prior to operation on-site).

4. Use only 1996 CARB or EPA-Certified or better diesel engines. In the event that a 1996 CARB or EPA-certified engine is not available, use in conjunction with ultra low sulfur diesel fuel, catalyzed diesel particulate filters (CDPF) on all diesel engines over 100 bhp with the exemptions listed. All exempted equipment must use water emulsion diesel fuel if available on-site. If water emulsion diesel fuel is not available on-site, then all exempted equipment must use CARB-certified ultra low sulfur diesel fuel. Exempted equipment includes:
 - Cranes;
 - On-road licensed vehicles; and,
 - Loaders, skiffs, or backhoes that operate less than 2 hours at a time.
5. Identify the employee parking area(s) and surface composition of those parking area(s).
6. Watering of all disturbed areas twice daily.
7. Use sandbags to prevent run off.
8. Use wheel-washing areas prior to large trucks leaving the project site.
9. Describe methods that will be used to clean mud and dirt that has been tracked-out from the project site onto public roads.
10. For any transportation of solid bulk material
 - Use vehicle covers
 - Wet the transported material
 - Use appropriate amount of freeboard
11. Identify methods for the stabilization of storage piles and disturbed areas.
12. Employ windbreaks at appropriate locations.

Verification: The City of Vernon project owner shall submit the AQCMP for approval to the CPM no later than 45 days prior to site mobilization.

AQ-C2 The City of Vernon project owner shall identify the individual(s), for approval by the CPM, that will be on-site during all construction activities to ensure that all measures called for in the AQCMP are carried out.

Verification: The ~~City of Vernon~~ **project owner** shall submit the name and contact information along with a resume of the individual(s) for approval to the CPM 10 days prior to site mobilization.

AQ-C3 The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval a monthly compliance report signed by the individual(s) identified in Condition of Certification **AQ-C2**, that identifies all upwind-downwind monitoring results and mitigation measures implemented per the AQCMP. The ~~City of Vernon~~ **project owner** shall submit for approval the format of this monthly report to the CPM.

Verification: The ~~City of Vernon~~ **project owner** shall submit the format for the Monthly Compliance Report to the CPM no later than 10 days prior to site mobilization. The ~~City of Vernon~~ **project owner** shall submit the Monthly Compliance Report for each month that construction activities occur for approval by the CPM no later than the 15th of the following month.

AQ-C4 The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval prior to construction of the cooling tower, the cooling tower design details including following elements:

1. materials of construction,
2. drift eliminator design and details (to be designed to a drift rate of 0.0005%),
3. vendor specific justification for the correction factor to be used to correlate blowdown total dissolved solid (TDS) to drift TDS in Condition of Certification **AQ-C7**, and
4. the circulating water recirculation rate.

Verification: The ~~City of Vernon~~ **project owner** shall submit the information required above for approval to the CPM, no later than 45 days prior to commencement of construction of the cooling towers.

AQ-C5 No chromium containing compounds shall be added to cooling tower circulating water.

Verification: The ~~City of Vernon~~ **project owner** shall make the site available for inspection by representatives of the **South Coast Air Quality Management District (District)**, GARB and the Commission.

AQ-C6 The ~~City of Vernon~~ **project owner** shall determine the TDS levels in the blowdown water by independent laboratory testing prior to initial operation and periodically thereafter.

Verification: The ~~City of Vernon~~ **project owner** shall submit for approval to the CPM, a protocol for initial and weekly testing and the identification of the independent laboratory to be used 90 days prior to cooling tower operation. The ~~City of Vernon~~ **project owner** shall submit weekly TDS reports for the blowdown water as part of the quarterly emission report to the CPM for approval.

AQ-C7 PM₁₀₄₀ emissions from the cooling tower (in total) shall not exceed 6.2 lb/day.

Protocol: Compliance with the PM₁₀₄₀ daily emission limit shall be demonstrated as follows:

PM₁₀₄₀ lb/day = A*B*C*D where:

A = circulating water recirculation rate (Condition of Certification **AQ-C4**)

B = total dissolved solids concentration in the blowdown water to be updated on a weekly basis (Condition of Certification **AQ-C6**)

C = design drift rate (Condition of Certification **AQ-C4**)

D = correction factor (Condition of Certification **AQ-C4**)

Verification: The ~~City of Vernon~~ **project owner** shall calculate the daily PM₁₀₄₀ emissions from the cooling tower and submit all calculations and results on a quarterly basis in the quarterly emission reports to the CPM for approval.

AQ-C8 The ~~City of Vernon~~ **project owner** shall refrain from testing the firewater pump on the same day as either gas fired combustion turbines have been started up or shutdown as defined by Condition of Certification **AQ-C9**.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all testing times and results of the diesel fired emergency firewater pump in the quarterly emissions report.

AQ-C9 The ~~City of Vernon~~ **project owner** shall use the following definitions to determine compliance with startup, shutdown and any related emission or operational limitations.

Startup is defined as beginning when fuel is first delivered to the combustors of the combustion turbine and ending when the combustion turbine reaches all NO_x and CO emission limits for normal operation.

Shutdown is defined as beginning during normal operation with the intent to shutdown and ends with the secession of fuel being delivered to the combustors of the combustion turbine.

Verification: See Verification for Condition of Certification **AQ-6**.

AQ-C10 The project owner shall commission and operate the Malburg Generating Station within the following emission limits.

Commissioning

During the first year of commissioning and operation, the following emission limits shall apply.

Annual Commissioning Emission Limits

Units are in pounds per year

	Gas Turbines (2)	Cooling Tower	Firewater Pump	Facility Total	Assumptions
CO	112,743	0	478	113,221	a,b,c
NO _x *	229,531	0	1,377	230,908	a,b,c
PM ₁₀ ₄₀	48,873	2,190	58	51,121	a,b,c
ROG	40,518	0	35	40,553	a,b,c
SO _x *	4,294	0	2	4,296	a,b,c
Ammonia	49,514	0	0	49,514	a,b,c
Assumptions					
a The gas turbines are undergoing initial commissioning for three months (2,160 hours) then 3 cold startups, 39 warm startups, 42 shutdowns and 4,355 hours at full load with the duct burners on @ 65 deg F.					
b The cooling tower at full load for 8760 hours/year.					
c The Firewater pump is being tested 199 hours/year.					

Post-Commissioning

After the end of the commissioning period, the following hourly and daily emission limits shall apply. The following annual emission limits shall only apply until after the first calendar year of operation is complete.

Hourly Emission Limits

Units are in pounds per hour

	Gas Turbines (2)	Cooling Tower	Firewater Pump	Facility Total	Assumptions
CO	140	0	0.59	140 ^e	a,c,d
NO _x *	55	0	1.73	55 ^e	a,c,d
PM ₁₀ ₄₀	7.78	0.26	0.08	8.12	b,c,d
VOC	3.3	0	0.05	3.35	a,c,d
SO _x *	0.3	0	0.002	0.30	b,c,d
Ammonia	7.6	0	0.00	7.60	b,c,d
Assumptions					
a The gas turbines are undergoing a cold startup					
b The gas turbines are at full load @ 38 deg F with the duct burners on.					
c The cooling tower is at full load.					
d The Firewater pump is being tested for ½ hour.					
e. The "Facility Total" limit does not explicitly include the "Firewater Pump" and the "Gas Turbine (2)" emissions as the test firing of the firewater pump is infrequent and not expected to coincide with the infrequent high CO and NO _x emissions events from the gas turbines.					

Daily Emission Limits

Units are in pounds per day

	Gas Turbines (2)	Cooling Tower	Firewater Pump	Facility Total	Assumptions
CO	245	0	0.59	245 ^f	a,d,e,f
NO _x *	230	0	1.73	230 ^f	a,d,e,f
PM ₁₀ ⁴⁰	158.00	6.20	0.08	164.28	a,d,e
VOC	36.00	0	0.05	36.05	a,d,e
SO _x *	6.00	0	0.002	6.00	a,d,e
Ammonia	182.4	0	0.00	182.40	a,d,e
Assumptions					
a The gas turbines are undergoing 1 cold startup (2 hours) per day and 22 hours of full load with duct firing, @ 65 deg F. b The gas turbines are at full load for 24 hours @ 38 deg F with the duct burners on c The gas turbines are undergoing cold startup (2 hours) and baseload operation for 22 hours @ 38 deg F. d The cooling tower is at full load for 24 hours/day e The Firewater pump is being tested 0.5 hours/day f. The "Facility Total" limit does not explicitly include the "Firewater Pump" and the "Gas Turbine(2)" emissions as the test firing of the firewater pump is infrequent and not expected to coincide with the infrequent high CO and NO _x emissions events from the gas turbines.					

Annual Emission Limits

Units are in pounds per year

	Gas Turbines (2)	Cooling Tower	Firewater Pump	Facility Total		Assumptions
				Lbs/yr	Tons/yr	
CO	37,768	0	235	38,003	19.00	a,c,d
NO _x *	53,044	0	689	53,733	26.87	b,c,d
PM ₁₀ ⁴⁰	56,676	2,278	32	58,986	29.49	a,c,d
VOC	13,027	0	20	13,047	6.52	a,c,d
SO _x *	2,122	0	1	2,123	1.06	a,c,d
Ammonia	66,576	0	0	66,576	3.29	a,c,d
Assumptions						
a The gas turbines are undergoing 4 cold starts per turbine per year with the balance of full load operation with the duct burner, and one shutdown per month. b The gas turbines are undergoing 4 cold starts (2 hours), 52 warm starts (1.5 hours) 1314 hours of full load operation with the duct burner, 5782 hours of full load operation without the duct burner and 56 shutdowns (0.5 hours) per year. c The cooling tower at full load for 8760 hours/day <u>year</u> . d The Firewater Pump is being tested 199 hours/day <u>year</u> .						

Verification: The project owner shall submit to the CPM for approval on a quarterly basis all emission records and calculations to demonstrate compliance with the emission limits stated herein as part of the quarterly emissions report.

AQ-C11 The City of Vernon **project owner** shall submit a quarterly emissions report on a quarterly basis to the CPM for approval. The quarterly emissions report shall generally report all ammonia, NO_x, SO_x, CO, PM₁₀⁴⁰ and VOC emissions from the Malburg Generating Station as necessary to demonstrate compliance with all emission limits. The fourth quarter emission

report shall include an annual summary of all emissions of ammonia, NO_x, SO_x, CO, PM₁₀ and VOC as necessary to demonstrate compliance with all annual emission limits.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM the quarterly emissions report no less than 30 days after the end of each calendar quarter.

AQ-C12 The project owner shall commit specific emission reduction credits certificates for the MGS to offset the project emissions provided as provided for in **Table AQ-C12-1**. The project owner shall not use any ERCs identified in **Table AQ-C12-1** for purposes other than offsetting the MGS.

TABLE AQ-C12-1 – Emission Offset Requirements

Certificate Number	Amount (lbs/day)	Pollutant
AQ004457	8	CO
AQ004458	13	CO
AQ004466	13	CO
AQ004474	2	CO
AQ004475	4	CO
AQ004847	14	CO
AQ004840	60	CO
AQ004801	45	CO
AQ004798	2	CO
Additional ERCs Certificate numbers not available, but are purchased and total	144	CO
Total	305	CO
AQ004367	108	VOC
AQ004493	22	VOC
Total	130	VOC
AQ004763	3	PM ₁₀
Priority Reserve – Purchased by the City	160	PM ₁₀
Priority Reserve – p Provided by the District	32	PM ₁₀
Total	195	PM ₁₀
1304 Exempted Emissions – p Provided by the District	7	SO ₂

The project owner shall request from the District a report of the NSR Ledger Account for the MGS after the District has granted the ~~City of Vernon~~ **project owner** a Permit to Construct and Temporary Permit to Operate. This report is to specifically identify the ERCs, Priority Reserve Credits and Rule 1304 Exempted Emissions used to offset the project emissions. The project owner shall submit this report to the CPM prior to turbine first fire.

Verification: No more than 15 days following the issuance of the District’s Permit to Construct, the project owner shall request from the District the report of the NSR Ledger Account for the MGS. The project shall submit the report of the NSR Ledger Account for the MGS to the CPM no less than 30 days prior to turbine first fire.

AQ-C13 The ~~City of Vernon~~ **project owner** shall submit to the CPM for review and approval any modification proposed by either the ~~City~~ **project owner** or issuing agency to any project air permit.

Verification: The ~~City of Vernon~~ **project owner** shall submit any proposed air permit modification to the CPM within five working days of its submittal either by 1) the ~~City~~ **project owner** to an agency, or 2) receipt of proposed modifications from an agency. The ~~City of Vernon~~ **project owner** shall submit all modified air permits to the CPM within 15 days of receipt.

AQ-C14 The ~~City of Vernon~~ **project owner** shall install an oxidation catalyst prior to initiating operation for commissioning.

Verification: The ~~City of Vernon~~ **project owner** shall submit engineering drawing or other such material showing the intended location of installation of the oxidation catalyst 90 days prior to initial startup to the CPM and District for review and approval. The ~~City of Vernon~~ **project owner** shall notify the CPM of the intended installation date at least 30 days prior to the date of installation. The ~~City of Vernon~~ **project owner** shall notify the CPM of the date of completed installation no less than 10 days following the date of completed installation.

South Coast Air Quality Management District Conditions of Certification

AQ-1 Except for open abrasive blasting operations, the ~~City of Vernon~~ **project owner** shall not discharge into the atmosphere from any single source of emissions whatsoever any contaminant for a period or periods aggregating more than three minutes in any one hour which is:

- a) As dark or darker in shade as that designated No. 1 on the Ringlemann Chart, as published by the United States Bureau of Mines; or
- b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (a) of this condition.

Verification: The ~~City of Vernon~~ **project owner** shall make the Malburg Generating ~~Station~~ Facility **Station** site accessible for inspection to the District, CARB and Commission.

AQ-2 The ~~City of Vernon~~ **project owner** shall not use diesel oil containing sulfur compounds in excess of 15 ppm by weight as supplied by the supplier.

Verification: The ~~City of Vernon~~ **project owner** shall submit fuel purchase records for approval to the CPM on a quarterly basis in the quarterly emissions report.

AQ-3 The ~~City of Vernon~~ **project owner** shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Purchase records of fuel oil and sulfur content of the fuel

Verification: The ~~City of Vernon~~ **project owner** shall submit fuel purchase records for approval to the CPM on a quarterly basis in the quarterly emissions report.

AQ-4 Accident release prevention requirements of Section 112 (r)(7):

- a). The ~~City of Vernon~~ **project owner** shall comply with the accidental release prevention requirements pursuant to 40CFR Part 68 and shall submit to the Executive Officer and the CPM, as a part of an annual compliance certification, a statement that certifies compliance with all of the requirements of 40 CFR Part 68, including the registration and admission of a risk management plan (RMP).
- b). The ~~City of Vernon~~ **project owner** shall submit any additional relevant information requested by the Executive Officer, designated agency or CPM.

Verification: The ~~City of Vernon~~ **project owner** shall submit for approval to the CPM the above required statement of compliance and any further information requested on an annual basis as part of the annual compliance report.

AQ-5 The ~~City of Vernon~~ **project owner** shall limit the emissions from both gas fired combustion turbine-heat recovery steam generator train exhaust stacks as follows:

Contaminant	Emissions Limit
CO	7,633 lbs in any one month
PM 10 ₄₀	4,876 lbs in any one month
VOC	3,236 lbs in any one month
SO x *	214 lbs in any one month

For the purpose of this condition, the limit(s) shall be based on the total combined emissions from the exhaust stacks **for both gas turbines and both duct burners.**

~~The City of Vernon shall calculate the emissions limit(s) for CO during commissioning period, using fuel consumption data and the following emission factor: 78.43 lb/mm scf~~

~~The City of Vernon shall calculate the emissions limit(s) for CO after commissioning period and prior to the CO CEMS certification, using fuel consumption data and the following emission factors: 23.80 lbs/startup and 43.94 lb/mm scf~~

The ~~City of Vernon~~ **project owner** shall calculate the emissions limit(s) for CO after the CO CEMS certification, based on readings from the certified CEMS. In the event the CO CEMS is not operating or the emissions exceed the valid upper range of the analyzer, the emissions shall be calculated in accordance with the approved CEMS plan.

The ~~City of Vernon~~ **project owner** shall calculate the emissions limit(s) by using the monthly fuel use data and the following emission factors: PM~~10~~₄₀ \equiv 7.397 lb/mm scf; VOC \equiv 1.63 lb/mm scf; & **and** SO~~x~~* \equiv 0.28lb/mm scf.

The project owner shall maintain records in a manner approved by the District to demonstrate compliance with this condition and the records shall be made available to District upon request.

Verification: The City of Vernon **project owner** shall submit all emission calculations, fuel use, CEM records and a summary demonstrating compliance of all emission limits stated in this Condition for approval to the CPM on a quarterly basis in the quarterly emissions report.

AQ-6 ~~The 2 ppm NO_x emission limit shall not apply during turbine commissioning, start-up and shutdown. The commissioning period shall not exceed 573 operating hours per turbine from the initial start-up. Following commissioning, start-ups shall not exceed 2 hours and the number of start-ups shall not exceed one per day per turbine. Following commissioning, shutdowns shall not exceed 30 minutes and the number of shutdowns shall not exceed one per day per turbine. The City of Vernon shall provide the District and the CPM with the written notification of the initial start-up date. Written records of commissioning, start-ups and shutdowns shall be kept and made available to District and submitted to the CPM for approval.~~

The 2 ppm NO_x, CO, and VOC emission limits shall not apply during turbine startups and shutdowns.

For the purposes of this condition, a startup begins with the initiation of combustion and concludes at the end of the 15-minute quadrant in which BACT is achieved or the startup is aborted by a trip. A startup may include one or more trips and restart attempts. A trip is an event in which the turbine experiences an automatic equipment shutdown to prevent equipment damage or as a result of equipment malfunction.

A cold startup shall be defined as a startup which occurs after the turbine has been shut down for more than 48 hours. Each cold startup, without a trip, shall not exceed 120 minutes. Each cold startup, with one or more trips shall not exceed 150 minutes. Emissions for a cold startup, with or without trips, shall not exceed the following:

Contaminant	Cold Startup Emissions Limit
NO_x	122.8 lbs
CO	204.8 lbs
VOC	1.75 lbs

A non-cold startup shall be defined as a startup which occurs after the turbine has been shut down for 48 hours or less. Each non-cold startup, without a trip, shall not exceed 90 minutes. Each non-cold startup, with one or more trips, shall not exceed 120 minutes. Emissions for a non-cold startup, with or without trip(s), shall not exceed the following:

<u>Contaminant</u>	<u>Non-Cold Startup Emissions Limit</u>
<u>NOx</u>	<u>51.3 lbs</u>
<u>CO</u>	<u>59.9 lbs</u>
<u>VOC</u>	<u>1.55 lbs</u>

A shutdown is a controlled process of unloading the turbine/generator and opening the generator breaker. A shutdown begins 30 minutes prior to cessation of combustion and ends with cessation of combustion. Each shutdown shall not exceed 30 minutes. Emissions for a shutdown shall not exceed the following:

<u>Contaminant</u>	<u>Non-Cold Startup Emissions Limit</u>
<u>NOx</u>	<u>4.5 lbs</u>
<u>CO</u>	<u>10.8 lbs</u>
<u>VOC</u>	<u>0.71lbs</u>

The turbine shall be limited to a maximum of 10 startups per month, which includes no more than 5 cold starts per month, with no more than 2 startups in any day. The turbine shall be limited to a maximum of 56 startups per year, which includes no more than 30 cold startups per year.

The project owner shall maintain records in a manner approved by the District to demonstrate compliance with this condition, and the records shall be made available to the District upon request.

Verification: The City of Vernon shall provide the District and the CPM with the written notification of the initial start-up date no later than 60 days prior to the startup date. The City of Vernon shall report to the CPM for approval all emissions, fuel use and emission calculations during the commissioning period on a monthly basis as part of the monthly compliance report. The City of Vernon **project owner** shall submit to the CPM for approval all required records including a record of all startups and shutdowns including duration and date of occurrence on a quarterly basis as part of the quarterly emission report.

AQ-7 **RESERVED** ~~The 2 ppm CO emission limit shall not apply during turbine commissioning, start-up and shutdown. The commissioning period shall not exceed 573 operating hours per turbine from the initial start-up. Following commissioning, start-ups shall not exceed 2 hours and the number of start-ups shall not exceed one per day per turbine. Following commissioning, shutdowns shall not exceed 30 minutes and the number of shutdowns shall not exceed one per day per turbine. The City of Vernon shall provide the District and CPM with the written notification of the initial start-up date. Written records of commissioning, start-ups and shutdowns shall be kept and made available to District and reported for approval to the CPM.~~

Verification: ~~See Verification for Condition of Certification **AQ-6**.~~

AQ-8 The 80.13 lb/mmscf NO_x emission limit(s) shall only apply during interim period to report RECLAIM emissions. The interim period shall not exceed 12 months from the initial start-up date.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

AQ-9 The 2 PPM NO_x emissions limit(s) are averaged over 1 hour at 15 percent oxygen, dry basis.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

AQ-10 The 2 ppm CO emission limit(s) are averaged over 3 hours at 15 percent oxygen, dry basis.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

AQ-11 The 2 ppm ROG emission limit(s) are averaged over 1 hour at 15 percent oxygen, dry basis.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

AQ-12 The 5 ppm NH₃ emission limit(s) are averaged over 1 hour at 15 percent oxygen, dry basis. The ~~City of Vernon~~ **project owner** shall calculate and continuously record the ammonia slip concentration using the following:

$$\text{NH}_3 \text{ (ppmv)} = [a - (b \cdot c / 1,000,000)] \cdot (1,000,000 / b) \text{ where}$$

a = ammonia injection rate (lbs/hr)/17 (lbs/lb-mole)

b = dry exhaust gas flow rate (lbs/hr)/29 (lbs/lb-mole)

c = change in measured NO_x across the SCR (ppmv dry basis)

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

AQ-13 For the purpose of determining compliance with District Rule 475, combustion contaminant emissions may exceed the concentration limit or the mass emission limit listed, but not both emission limits at the same time.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

AQ-14 The City of Vernon **project owner** shall not use engine cylinder lubricating oil containing the following specified compounds:

Compound		Weight percent
Ash Content	Greater than	0.038

Verification: The City of Vernon **project owner** shall submit fuel purchase records for approval to the CPM on a quarterly basis in the quarterly emissions report.

AQ-15 The City of Vernon **project owner** shall limit the operating time of the diesel fueled emergency backup generators and the firewater pump to no more than 199 hours each in any one year.

Verification: See Verification for Condition of Certification **AQ-C8**.

AQ-16 The City of Vernon **project owner** shall install and maintain a pressure relief valve set at 25 psig in the ammonia storage tank.

Verification: The City of Vernon **project owner** shall make the ammonia storage tank available for inspection by the District, Commission or CARB.

AQ-17 The City of Vernon **project owner** shall install and maintain a(n) non-resettable elapsed time meter into the firewater pump to accurately indicate the elapsed operating time of the engine.

Verification: The City of Vernon **project owner** shall make the firewater pump available for inspection by the District, Commission or CARB.

AQ-18 The City of Vernon **project owner** shall install and maintain a(n) non-resettable totalizing fuel meter to accurately indicate the fuel usage of the turbines.

Verification: The City of Vernon **project owner** shall make the firewater pump available for inspection by the District, Commission or CARB.

AQ-19 The City of Vernon **project owner** shall install and maintain a(n) flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH₃).

The City of Vernon **project owner** shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

Verification: The City of Vernon **project owner** shall submit to CPM for approval the design drawing that clearly show the flow meter and recording device for the ammonia injection grid no less than 90 days prior to installation of the ammonia injection grid. The City of Vernon **project owner** shall submit to the CPM for approval the annual calibration report for the flow meter and recording device as part of the annual compliance report.

AQ-20 The ~~City of Vernon~~ **project owner** shall install and maintain a(n) temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor.

The ~~City of Vernon~~ **project owner** shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

Verification: The ~~City of Vernon~~ **project owner** shall submit to CPM for approval the design drawing that clearly show the temperature gauge and recording device for the inlet to the SCR reactor no less than 90 days prior to installation of the SCR. The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval the annual calibration report for the temperature gauge and recording device as part of the annual compliance report.

AQ-21 The ~~City of Vernon~~ **project owner** shall install and maintain a(n) pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches of water column.

The ~~City of Vernon~~ **project owner** shall also install and maintain a device to continuously record the parameter being measured.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

Verification: The ~~City of Vernon~~ **project owner** shall submit to CPM for approval the design drawing that clearly show the pressure gauge and recording device across the SCR reactor no less than 90 days prior to installation of the SCR. The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval the annual calibration report for the pressure gauge and recording device as part of the annual compliance report.

AQ-22 The ~~City of Vernon~~ **project owner** shall conduct source test (s) for the pollutant(s) identified below:

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
CO Emissions	District Method 100.1	1 hour	Outlet of SCR
NO _x Emissions	District Method 100.1	1 hour	Outlet of SCR
PM Emissions	Approved District Method	District approved averaging time	Outlet of SCR
VOC Emissions	Approved District Method	1 hour	Outlet of SCR
SO _x Emissions	Approved District Method	District approved averaging time	Fuel Sample
NH ₃ Emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of SCR

The test (s) shall be conducted after approval of the source test protocol, but no later than 180 days after initial start up.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the test shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine and steam turbine generating output (MW).

The test shall be conducted in accordance with a District approved source test protocol. The protocol shall be submitted to the District engineer and the CPM no later than 45 days before the proposed test date and shall be approved by the District and the CPM before the test commences. The test protocol shall include the proposed operating conditions of the turbines during the test the identity of the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted with and without duct burner firing when this equipment is operating at loads of 100, 75, and 50 percent of maximum load for the NO_x, CO, VOC and ammonia tests. For all other pollutants, the test shall be conducted with and without the duct burner firing at 100% load only.

The District and the CPM shall be notified of the date and time of the test at least 10 days prior to the test.

Verification: The City of Vernon **project owner** shall submit for approval to the District and the CPM the required initial source testing protocol no less than 45 days prior to the date of the source test. The City of Vernon **project owner** shall notify the District and CPM of the date and time of the source test no less than 10 days prior to the test. City of Vernon **project owner** shall submit to the District and CPM for approval the results of the initial source test no later than 60 days following the date of the source test.

AQ-23 The City of Vernon **project owner** shall conduct source test(s) for the pollutant(s) identified below:

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
VOC Emissions	Approved District Method	1 hour	Outlet of SCR
SO _x Emissions	Approved District Method	District approved averaging time	Fuel Sample
PM Emissions	Approved District Method	District approved averaging time	Outlet of SCR

The test shall be conducted at least once every three years.

The test shall be conducted and the results submitted to the District and the CPM within 60 days after the test date The District and the CPM shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limits.

The test shall be conducted 1) when the gas turbine and the duct burners are operating simultaneously at 100 percent of maximum heat input and 2) when the gas turbine is operating alone at 100 percent of maximum heat input.

Verification: The ~~City of Vernon~~ **project owner** shall submit for approval to the District and the CPM the required source testing protocol no less than 45 days prior to the date of the source test. The ~~City of Vernon~~ **project owner** shall notify the District and CPM of the date and time of the source test no less than 10 days prior to the test. ~~City of Vernon~~ **project owner** shall submit to the District and CPM for approval the results of the source test no later than 60 days following the date of the source test.

AQ-24 The ~~City of Vernon~~ **project owner** shall conduct source test(s) for the pollutant(s) identified below:

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH ₃ Emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of SCR

The test shall be conducted and the results submitted to the District and the CPM within 60 days after the test date. The District and the CPM shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration limit.

The test shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The NO_x concentration, as determined by the certified CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable or not yet certified, a test shall be conducted to determine the NO_x emissions using District Method 100.1 measured over a 60-minute averaging period.

Verification: The ~~City of Vernon~~ **project owner** shall submit for approval to the District and the CPM the required source testing protocol no less than 45 days prior to the date of the source test. The ~~City of Vernon~~ **project owner** shall notify the District and CPM of the date and time of the source test no less than 10 days prior to the test. ~~City of Vernon~~ **project owner** shall submit to the District and CPM for approval the results of the source test no later than 60 days following the date of the source test.

AQ-25 The ~~City of Vernon~~ **project owner** shall install and maintain a CEMS in each exhaust stack of the combustion turbine-HRSG trains to measure the following parameters:

CO concentration in ppmv

Concentrations shall be corrected to 15 percent oxygen on a dry basis

The CEMS will convert the actual CO concentrations to mass emission rates (lb/hr) and record the hourly emission rates on a continuous basis.

The CEMS shall be installed and operated in accordance with an approved District Rule 218 CEMS plan application. The ~~City of Vernon~~ **project owner** shall not install the CEMS prior to receiving initial approval from District.

The CEMS shall be installed and operated to measure CO concentration over a 15minute averaging time period.

The CEMS shall be installed and operating no later than 90 days after initial start-up of the turbine.

Verification: The ~~City of Vernon~~ **project owner** shall make the Malburg Generating~~gen~~ Station available for inspection by the District, Commission or CARB.

AQ-26 The ~~City of Vernon~~ **operator** shall install and maintain a CEMS to measure the following parameters:

NO~~x~~_x concentration in ppmv

Concentration shall be corrected to 15 percent oxygen on a dry basis.

The CEMS shall be installed and operating no later than 12 months after the initial start-up of the turbine and shall comply with the requirements of Rule 2012. During the interim period between the initial start-up and the provisional certification date of the CEMS, the ~~City of Vernon~~ **project owner** shall comply with the monitoring requirements of Rule 2012 (h)(2) and Rule 2012 (h)(3). Within two weeks of the turbine start-up date, the ~~City of Vernon~~ **project owner** shall provide written notification to the District of the exact date of start-up.

Verification: The ~~City of Vernon~~ **project owner** shall make the Malburg Generating~~gen~~ Station available for inspection by the District, Commission or CARB.

AQ-27 The ~~City of Vernon~~ **project owner** shall limit the fuel usage of each turbine-duct burner pair to no more than 330 million cubic feet per month. ~~City of Vernon~~ **project owner** shall keep records, in a manner approved by the District, for the operational status of the duct burners and their fuel use.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM for approval all emissions and emission calculations on a quarterly basis as part of the quarterly emissions report.

AQ-28 The ~~City of Vernon~~ **project owner** shall vent combustion turbines and HRSGs to the CO oxidation/SCR control system whenever the turbines are in operation.

Verification: The ~~City of Vernon~~ **project owner** shall make the Malburg Generating~~gen~~ Station available for inspection by the District, Commission or CARB.

AQ-29 The City of Vernon project owner shall vent ammonia storage tank, during filling, only to the vessel from which it is being filled.

Verification: The City of Vernon project owner shall make the Malburg Generating Station available for inspection by the District, Commission or CARB.

AQ-30 For the purpose of the following condition number(s), “continuously record” shall be defined as recording at least once every hour and shall be calculated upon the average of the continuous monitoring for that hour.

Condition of Certification **AQ-17**

Condition of Certification **AQ-18**

Verification: The City of Vernon project owner shall make the Malburg Generating Station available for inspection by the District, Commission or CARB.

AQ-31 For the purpose of the following condition number(s), “continuously record” shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that month.

Condition of Certification **AQ-19**

Verification: The City of Vernon project owner shall make the Malburg Generating Station available for inspection by the District, Commission or CARB.

AQ-32 The MGS electric generating equipment shall not be operated unless the City of Vernon project owner demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the City of Vernon project owner demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility hold sufficient RTCs in an amount equal to the annual emission increase. The City of Vernon project owner shall submit all such information to the CPM for approval.

Verification: The City of Vernon project owner shall submit all identified evidence demonstrating compliance to the CPM on an annual basis as part of the annual compliance report.

AQ-33 The City of Vernon project owner shall provide to the District a source test report in accordance with the following specifications:

Source test results shall be submitted to the District no later than 60 days after the source test was conducted.

Emissions data shall be expressed in terms of concentration (ppmv), corrected to 15 percent oxygen, dry basis.

All exhaust flow rates shall be expressed in terms of dry standard cubic feet per minute (DCFM) and dry actual cubic feet per minute (DACFM).

All moisture concentration shall be expressed in terms of % corrected to 15% oxygen.

Emissions data shall be expressed in terms of mass rate (lb/hr), and lbs/mm cubic feet. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains per DSCF.

Source test results shall also include turbine fuel flow rate under which the test was conducted.

Source test report shall also include the oxygen level in the exhaust, fuel flow rate (CFH), the flue gas temperature, and the turbine and generator output (MW) under which the test was conducted.

Verification: The ~~City of Vernon~~ **project owner** shall submit to the CPM the required source test of Conditions of Certification **AQ-21**, **AQ-22**, and **AQ-23** in compliance with this condition.

AQ-34 The ~~City of Vernon~~ **project owner** shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

For architectural applications where no thinners, reducers, or other VOC containing materials are added, maintain semi-annual records for all coatings consisting of (a) coating type, (b) VOC content as supplied in grams per liter (g/l) of materials for low-solids coatings, (c) VOC content as supplied in g/l of coating, less, water and exempt solvent, for other coatings.

For architectural applications where thinners, reducers, or other VOC containing materials are added, maintain daily records for each coating consisting of (a) coating type, (b) VOC content as applied in grams per liter (g/l) of materials for low-solids coatings, (c) VOC content as applied in g/l of coating, less, water and exempt solvent, for other coatings.

Verification: The ~~City of Vernon~~ **project owner** shall make these records available to the CPM upon request.

AQ-35 The ~~City of Vernon~~ **project owner** shall keep records, in a manner approved by the District, for the following parameters or items:

Date of operation, the elapsed time, in hour and the reason for operation of the emergency diesel powered generators and/or the firewater pump.

Verification: The ~~City of Vernon~~ **project owner** shall submit these records to the CPM on an annual basis in the annual compliance report.

AQ-36 The ~~City of Vernon~~ **project owner** shall keep records, in a manner approved by the District, for the following parameters or items:

Natural gas fuel use during the commissioning period in the combustion turbines and HRSGs.

Verification: See verification of Condition of Certification **AQ-6**.

REFERENCES

The tn: ##### in a reference below indicates the transaction number under which the item is catalogued in the Energy Commission's Dockets Unit. The transaction number allows for quicker location and retrieval of individual items docketed for a case or used for ease of reference and retrieval of exhibits cited in briefs and used at hearings.

Bicent 2007—Petition to Modify the Malburg Generating Station Project Final Decision. Dated December 19, 2007. Docketed December 21, 2007.

Bicent 2013—Malburg Generating Station Decision Modification Request (tn 70904). Dated May 15, 2013. Docketed May 21, 2013.

CEC 2008a—California Energy Commission (tn 45797) Malburg Staff Analysis of Proposed Modifications of Conditions Relating to Startup Emission Limits for Combustion Turbines. Dated March 27, 2008. Docketed March 27, 2008.

CEC 2008b—California Energy Commission (tn 46462) Order Approving Transfer of Ownership to Bicent (California) Malburg, L.L.C, Order No. 08-521-1b. Dated May 21, 2008. Docketed May 23, 2008.

CEC 2008c—California Energy Commission (tn 47579) Order Approving a Petition to Modify Condition AQ-C10 Regarding Air Emission Limits Related to Cold Startups. Dated August 13, 2008. Docketed August 15, 2008.

Malburg 2002a—City of Vernon (tn 23568). Malburg Generating Station Application for Certification. Docketed December 21, 2001.

Malburg 2002b—Malburg Generating Station Application for Certification, Appendix H, Air Quality Data Table H.3.3. January 8, 2002.