



Mojave Desert Air Quality Management District

14306 Park Avenue, Victorville, CA 92392

(760) 245-1661 fax (760) 245-2699

Visit our web site: <http://www.mdaqmd.ca.gov>

Charles L. Fryxell, Air Pollution Control Officer

DOCKET
02-AFC-1
DATE MAY 03 2004
RECD. MAY 10 2004

May 3, 2004

City of Adelanto

Larry Carpenter, Executive Vice President
Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 10017-2478

Town of Apple Valley

Re: Final Determination of Compliance for the Blythe Energy Project II

City of Barstow

Dear Mr. Carpenter:

City of Blythe

The Mojave Desert Air Quality Management District (MDAQMD) has completed the final decision on the proposed Blythe Energy Project II (BEP II). Enclosed please find the Final Determination of Compliance (FDOC), prepared pursuant to MDAQMD Rule 1306. The final decision incorporates changes made in response to comments on the Preliminary Determination of Compliance, your own revisions to the proposed project, and additional supporting information. In particular, the FDOC requires 2 ppm NO_x, 4 ppm CO, and has substantially higher startup CO emissions. These changes have been deemed sufficient to warrant a public notice of this issuance, which is expected to occur at the end of this week (around May 7, 2004). Authorities-To-Construct for this project will be issued shortly.

City of Hesperia

City of Needles

If you have any questions regarding this action or the enclosure, please contact me at (760) 245-1661, x6726.

County of Riverside

Sincerely,

County of San Bernardino

Alan De Salvio
Supervising Air Quality Engineer

City of Twentynine Palms

enclosure

City of Victorville

cc: Director, USEPA Region IX Air Division
Chief, CARB Stationary Source Division
Gerardo Rios, USEPA Region IX
Stephanie Kato, CARB
Bill Pfanner, CEC
Gabriel Taylor, CEC
Brewster Birdsall, Aspen

Town of Yucca Valley

AJD BEPII FDOC cover.doc

NOTICE OF FINAL DETERMINATION OF COMPLIANCE

NOTICE IS HEREBY GIVEN that the Mojave Desert Air Quality Management District (MDAQMD) has completed the final decision on an Application for New Source Review for the Blythe Energy Project II (BEP II), an electrical generating facility employing natural gas-fueled combined cycle turbines as its primary heat units. The BEP II has been proposed for a 152 acre site five miles east of the City of Blythe, California. This application was received from Caithness Blythe II, LLC, 565 5th Avenue, 29th Floor, New York, NY, 10017-2478. The MDAQMD has prepared a Final Determination of Compliance (FDOC) for BEP II pursuant to MDAQMD Rule 1306. The FDOC finds that, subject to specified permit conditions, the proposed project will comply with all applicable MDAQMD rules and regulations.

The FDOC is available for review at the MDAQMD office located at 14306 Park Avenue, Victorville, California 92392-2310. Please contact Alan De Salvio, Air Quality Engineer, at the above address or (760) 245-1661, x6122 to obtain a copy of the FDOC.

MICHELE BAIRD
Clerk of the Governing Board
Mojave Desert Air Quality Management District

Final
Determination of Compliance
(New Source Review Document)

Blythe Energy Project II
Blythe, California



Charles L. Fryxell
Air Pollution Control Officer

Mojave Desert Air Quality Management District

May 3, 2004

This page intentionally left blank.

Table of Contents

<i>Table of Contents</i>	<i>i</i>
<i>List of Abbreviations</i>	<i>ii</i>
1. <i>Introduction</i>	<i>1</i>
2. <i>Project Location</i>	<i>1</i>
Site Description.....	<i>1</i>
3. <i>Description of Project</i>	<i>1</i>
Overall Project Emissions.....	<i>2</i>
5. <i>Control Technology Evaluation</i>	<i>4</i>
NO _x BACT.....	<i>5</i>
CO BACT.....	<i>5</i>
PM ₁₀ BACT.....	<i>6</i>
SO _x BACT.....	<i>6</i>
VOC and Trace Organic BACT.....	<i>7</i>
6. <i>Class I Area Visibility Protection</i>	<i>7</i>
Findings.....	<i>7</i>
Inputs and Methods.....	<i>7</i>
7. <i>Air Quality Impact Analysis</i>	<i>7</i>
Findings.....	<i>8</i>
Inputs and Methods.....	<i>8</i>
8. <i>Health Risk Assessment and Toxics New Source Review</i>	<i>9</i>
Findings.....	<i>9</i>
Inputs and Methods.....	<i>9</i>
9. <i>Offset Requirements</i>	<i>9</i>
Required Offsets.....	<i>10</i>
Identified Emission Reduction Credits.....	<i>10</i>
Inter-District, Inter-Basin and Inter-Pollutant Offsetting.....	<i>11</i>
10. <i>Applicable Regulations and Compliance Analysis</i>	<i>11</i>
Regulation II – Permits.....	<i>11</i>
Regulation IV - Prohibitions.....	<i>11</i>
Regulation IX – Standards of Performance for New Stationary Sources.....	<i>13</i>
Regulation XII – Federal Operating Permits.....	<i>13</i>
Regulation XIII – New Source Review.....	<i>13</i>
Maximum Achievable Control Technology Standards.....	<i>13</i>
11. <i>Conclusion</i>	<i>14</i>
12. <i>Permit Conditions</i>	<i>14</i>
<i>Appendix A - Emission Calculation Detail</i>	<i>1</i>

List of Abbreviations

ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
BEP	Blythe Energy Project
BEPII	Blythe Energy Project Phase II
CARB	California Air Resources Board
CBII	Caithness Blythe II, LLC
CEC	California Energy Commission
CO	Carbon Monoxide
CTG	Combustion Turbine Generator
HAP	Hazardous Air Pollutant
HDPP	High Desert Power Project
HRA	Health Risk Assessment
HRSR	Heat Recovery Steam Generator
LAER	Lowest Achievable Emission Rate
MDAQMD	Mojave Desert Air Quality Management District
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
O ₂	Molecular Oxygen
PM _{2.5}	Fine Particulate, Respirable Fraction ≤ 2.5 microns in diameter
PM ₁₀	Fine Particulate, Respirable Fraction ≤ 10 microns in diameter
PSD	Prevention of Significant Deterioration
SCIA	Southern California International Airport
SCR	Selective Catalytic Reduction
SO ₂	Sulfur Dioxide
SO _x	Oxides of Sulfur
STG	Steam Turbine Generator
TOG	Total Organic Gases
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

1. Introduction

The Mojave Desert Air Quality Management District (MDAQMD) received an Application for New Source Review for the Blythe Energy Project Phase II (BEP II) from Caithness Blythe II, LLC (CBII) on February 28, 2002. The MDAQMD notified the applicant that the application was complete but missing an adequate emissions offset package on March 20, 2002. CBII submitted a revised application on April 19, 2002. The applicant submitted a proposed offset package on May 28, 2002. The MDAQMD received documentation that completed the offset package on September 19, 2002. The MDAQMD notified the applicant that this application was complete with a letter dated October 30, 2002.

The MDAQMD released a Preliminary Determination of Compliance (PDOC) on November 14, 2002. Subsequent comments and discussions led the proponent to modify the proposed project.¹ This document represents the final new source review document, or Final Determination of Compliance (FDOC), for the proposed project.

As required by MDAQMD Rule 1306(E)(1)(a), this document will review the proposed project, evaluating worst-case or maximum air quality impacts, and establish control technology requirements and related air quality permit conditions. This document represents the preliminary pre-construction compliance review of the proposed project, to determine whether construction and operation of the proposed project will comply with all applicable MDAQMD rules and regulations.

2. Project Location

The BEP II will be located on the westerly half of a 152 acre site five miles west of the City of Blythe, on a parcel bounded on the south by Hobsonway and on the east by Buck Boulevard. The project site is presently within the incorporated area of the City of Blythe. The project is immediately adjacent to the existing and previously permitted Blythe Energy Project (BEP).

Site Description

The BEP II site will include two combustion turbine trains with exhaust stacks, two heat recovery steam generator units, a steam turbine generator, a de-aerating surface condenser, an evaporative condenser, a cooling tower, water treatment, a lined evaporation pond, and three 16kV/500kV generator step-up transformers. Natural gas will be delivered to BEP II by interconnecting on site with the existing 11.5 mile, 20 inch natural gas pipeline currently serving BEP. Water will be obtained from underlying groundwater through on-site wells.

3. Description of Project

CBII proposes to construct an electrical generating facility employing natural gas fired combined-cycle (combined Brayton and Rankine cycle) gas combustion turbine trains. CBII is intending to sell electricity to the regional power pool and other consumers. The project will produce approximately 520 MW with an expected availability of 95 percent. Construction is scheduled to commence in 2005, with commercial operation scheduled to commence in 2007.

¹ "Application to Revise NO_x, CO and PM₁₀ Emission Limits and Add a New Emissions Unit - Blythe Energy Project Phase II," Greystone Environmental Consultants, March 4, 2004

BEPII is considered a major modification to the existing BEP.

The project will have twin F Class Siemens V84.3A combustion turbine generators (CTGs) driving dedicated duct burner-equipped heat recovery steam generators (HRSGs). The CTGs and HRSG duct burners will be exclusively fueled by pipeline-quality natural gas, without back-up liquid fuel firing capability. The CTG power blocks each include a turbine air compressor section, gas combustion system combustors, power turbine, and a 60-hertz generator. Inlet air will be filtered and conditioned, with inlet cooling provided by an evaporative type cooling system. Ambient air is filtered and compressed in a multiple-stage axial flow compressor. Compressed air and natural gas are mixed and combusted in the turbine combustion chamber. Lean pre-mix low NO_x combustors are used to minimize NO_x formation during combustion. Exhaust gas from the combustion chamber is expanded through a multi-stage power turbine which drives both the air compressor and the electric power generator. Heat from the exhaust gas is then recovered in a heat recovery steam generator (HRSG).

Each HRSG is a horizontal, natural circulation type unit with three pressure levels of steam generation. A duct burner in each HRSG will provide supplementary firing during high ambient temperatures to maintain constant steam production to the condensing steam turbine generator (STG). A Selective Catalytic Reduction (SCR) system and sufficient space for a high temperature oxidation catalyst will be located within each HRSG. Steam will be produced in each HRSG and flow to the STG. The STG will drive an electric generator to produce electricity. STG exhaust steam will be condensed in a surface condenser with water from a mechanical draft wet cooling tower.

Overall Project Emissions

The BEPII will produce exhaust emissions during three basic performance modes: startup; operations mode; and shutdown. In addition to combustion related emissions, the project will have evaporative and entrained particulate emissions due to the operation of an evaporative condenser and cooling tower. The project is proposing the use of Siemens F Class V84.3A turbines. Operation at less than 70 percent load mode has been defined by CBII as transient operations, or startup/shutdown. Operational emissions are estimated by Siemens, with transient emissions estimations based on actual V84.3A turbine transient data.²

Maximum Annual Emissions

Table 1 presents maximum annual facility operational emissions (Table 1A presents maximum annual facility hazardous air pollutant (HAP) emissions). Maximum annual VOC, NO_x, CO and exhaust PM₁₀ emissions are calculated by assuming ten cold starts, 50 warm starts, 186 hot starts, 246 shutdowns and 6590 hours of operation at the 59° F at 100 percent load hourly rate. PM₁₀ front and back half emissions are estimated. Maximum annual SO_x emissions are calculated by assuming 8760 hours at the maximum fuel use rate (with duct burners) with a fuel sulfur content of 0.5 grains/100 dry standard cubic feet and complete conversion of fuel sulfur to exhaust SO_x. The maximum annual cooling tower and evaporative condenser PM₁₀ emissions are calculated by assuming 8760 hours of operation and are included in the facility totals. An unknown fraction of total SO_x emissions (calculated from fuel sulfur) are accounted for in the PM₁₀ emissions (as the

² "Application for Certification for Blythe Energy Project Phase II, Rev. 1," Caithness Blythe II, LLC, April 2002

PM₁₀ estimate includes filterable and condensable particulate). Detailed emission calculations are presented in Appendix A.

	NO_x	CO	VOC	SO_x	PM₁₀
Existing BEP	202	306	24	24	103
BEPII	202	685	25	23	61
Total	404	991	49	47	164

	BEP	BEPII	Total	Threshold
<i>1,3-Butadiene</i>	0.0067	0.0067	0.0134	10
Acetaldehyde	0.62	0.62	1.24	10
Acrolein	0.1	0.1	0.2	10
Benzene	1.9	1.9	3.8	10
Ethylbenzene	0.5	0.5	1.0	10
Formaldehyde	3	3	6	10
Hexane	2.2	2.2	4.4	10
Naphthalene	0.02	0.02	0.04	10
PAH	0.034	0.034	0.068	10
Propylene Oxide	0.45	0.45	0.90	10
Tolulene	2	2	4	10
Xylene	1	1	2	10
TOTAL HAPS	12	12	24	25
Ammonia	280	280	560	n/a

Maximum Daily Emissions

Table 2 presents maximum daily facility emissions calculated under worst case conditions. Maximum daily NO_x, VOC and CO emissions are calculated by assuming one cold start, two hot starts, two shutdowns and 16.9 hours of operation (20° F/100% load for NO_x and CO, and 59° F/100% load for VOC and SO_x). Maximum daily SO_x emissions are calculated by assuming the maximum fuel use rate (with duct burners) with a fuel sulfur content of 0.5 grains/100 scf and complete conversion of fuel sulfur to exhaust SO_x. Maximum daily PM₁₀ emissions are calculated by assuming 24 hours of operation at the 59° F at 100 percent load with duct burner hourly rate (PM₁₀ front and back half emissions are estimated).

	NO_x	CO	VOC	SO_x	PM₁₀
Pounds per day	2924	17016	187	128	336

Equivalent Hourly Emission Rates

Table 3 presents maximum hourly emission rates for each turbine in operational mode. The cooling tower and evaporative condenser will emit a maximum of 2.00 pounds of PM₁₀ per hour. Cooling tower emissions are not included in this table.

Mode	NO _x	CO	VOC	SO _x	PM ₁₀
20° F at 100% load	14.82	18.04	2.89	2.46	
59° F at 100% load with duct burner	14.49	17.64	2.90	2.66	6.0

5. Control Technology Evaluation

Best Available Control Technology (BACT) is required for all new permit units at any modified facility that emits, or has the potential to emit, 25 tons per year or more of any non-attainment pollutant or its precursors (MDAQMD Rule 1303(A)(3)). The proposed project site is non-attainment for ozone and PM₁₀, and their precursors (NO_x, VOC, and SO_x). Note that the proposed project site is attainment/unclassified for all federal ambient air quality standards. Based on the proposed project's maximum emissions as calculated in §4 above, each permit unit at the proposed BEPII must be equipped with BACT/Lowest Achievable Emission Rate (LAER) for NO_x, VOC, PM₁₀ and SO_x, and BACT for CO. The project will trigger BACT for CO through PSD review; the District specifies CO BACT here to shorten the overall permitting process. The applicant has submitted a BACT analysis that evaluates the BACT and LAER for these pollutants, trace organics, and trace metals.³

All concentration levels presented in the following BACT determinations are corrected to 15% oxygen, unless otherwise specified.

Ammonia is a by-product of the selective catalytic reduction process, as some ammonia does not react and remains in the exhaust stream. As ammonia is not a regulated criteria air pollutant, but is a hazardous and toxic compound, the District will address ammonia emissions as an element of the toxics new source review analysis (§8).

The District recently (October 2000) determined BACT for the similar first phase of this project (the Blythe Energy Project (BEP)) proposing identical combined cycle gas turbines.⁴ This document will identify differences between this determination and the determination for the BEP. USEPA has made recommendations regarding BACT for combined cycle gas turbines,⁵ and the CARB has published a guidance document that suggests BACT for power plants.⁶ This determination will address both documents.

³ *ibid*

⁴ "Final Determination of Compliance, Blythe Energy Project," MDAQMD, October 25, 2000

⁵ Letter from M. Haber (USEPA Region IX) to C. Fryxell (MDAQMD), March 24, 2000

⁶ "Guidance for Power Plant Siting and Best Available Control Technology," CARB Stationary Source Division, September 1999.

NO_x BACT

NO_x is a precursor of ozone and PM₁₀, and both ozone and PM₁₀ are non-attainment pollutants at the proposed facility location. NO_x will be formed by the oxidation of atmospheric nitrogen during combustion within the gas turbine generating systems.

USEPA has identified an "achieved in practice" BACT value of 2.0 ppmv averaged over three hours (rolling) based on the recent performance of a Vernon, California natural gas-fired 32 megawatt combined cycle turbine (without duct burners) equipped with the patented SCONOX system. USEPA has accepted 2.5 ppmv averaged over a one hour as equivalent to the lower standard at the longer averaging time. CARB guidance suggests 2 ppmvd averaged over three hours or 2.5 ppmvd averaged over one hour as BACT. CBII proposes 2.0 ppmvd averaged over a three hours with an ammonia slip of 10 ppmvd. The District determined that 2.5 ppmvd averaged over one hour with an ammonia slip of 10 ppmvd was BACT for BEP.

USEPA has asked that the NO_x control technologies referred to as SCONOX and XONON be specifically addressed in this BACT determination. The District has established that the 2.5 ppmvd averaged over one hour limit is equivalent to the "achieved in practice" SCONOX performance. To date, SCONOX has not been determined to establish a lower achieved in practice NO_x emission concentration. XONON is an emerging internal catalyst technology. To date, XONON has publicized a demonstrated 2 ppmv NO_x emission concentration at Silicon Valley Power. The District considers 2.0 ppmvd averaged over three hours to be equivalent to this preliminary performance.

The District therefore determines that a maximum NO_x concentration of 2.0 ppmvd averaged over three hours, with an ammonia slip of 10 ppmvd averaged over three hours, is acceptable as NO_x BACT for the BEPII combined cycle gas turbines, achieved with low-NO_x burners and selective catalytic reduction in the presence of ammonia. Due to the technology-forcing nature of this proposed limit, malfunctions include temporary excursions due to the turbine switching from lean pre-mix to diffusion mode.

CO BACT

Carbon monoxide is formed as a result of incomplete combustion of fuel within the gas turbine generating systems. CO is an attainment pollutant at the proposed facility location.

SCAQMD established a BACT value of 6 ppmvd CO (averaged over one hour) for the Mountainview natural gas-fired combined cycle turbine project. Goldendale represents the most stringent gas turbine CO limit in the BACT/LAER clearinghouse at 2.0 ppmvd (averaged over one hour). CARB guidance suggests 6 ppmvd averaged over three hours as BACT. The District determined that a maximum CO concentration of 4 ppmvd averaged over twenty-four hours was BACT for the High Desert Power Project (with an oxidation catalyst optimized for VOC control). CBII proposes 4 ppmvd at loads greater than 70 percent (including duct firing) averaged over twenty-four hours as a CO BACT emission limit through combustion controls.

The District therefore determines that a maximum CO concentration of 4 ppmvd (at loads greater than 70 percent, including duct firing) averaged over twenty-four hours is acceptable as CO BACT for the BEPII combined cycle gas turbines, achieved with combustion controls.

PM₁₀ BACT

PM₁₀ is a non-attainment pollutant at the proposed facility location. Particulate will be emitted by the gas turbine generating systems due to fuel sulfur, inert trace contaminants, mercaptans in the fuel, dust drawn in from the ambient air and particulate of carbon, metals worn from the equipment while in operation, and hydrocarbons resulting from incomplete combustion. Particulate will also be emitted by the cooling towers through evaporation and particulate mist entrainment.

Gas Turbines

There have not been any add-on particulate control systems developed for gas turbines from the promulgation of the first New Source Performance Standard for Stationary Turbines (40 CFR 60 Subpart GG, commencing with §60.330) in 1979 to the present. The cost of installing such a device has been and continues to be prohibitive and performance standards for particulate control of stationary gas turbines have not been proposed or promulgated by EPA.

The most stringent particulate control method for gas turbines is the use of low ash fuels such as natural gas. Combustion control and the use of low or zero ash fuel (such as natural gas) is the predominant control method listed for turbines with PM limits. CARB guidance suggests a requirement to burn natural gas with a fuel sulfur content not greater than 1 grain/100 scf is PM₁₀ BACT. The District determined that sole use of natural gas with a sulfur content not greater than 0.5 grains/100 scf was PM₁₀ BACT for BEP. CBII proposes the sole use of natural gas with a sulfur content not greater than 0.5 grains/100 scf as fuel as PM₁₀ BACT.

The District therefore determines that the sole use of natural gas fuel with a fuel sulfur content not greater than 0.5 grain per 100 scf is acceptable as PM₁₀ BACT for the BEPII combined cycle gas turbines.

Cooling Towers

The District determined the use of mist eliminators limiting drift to 0.0006 percent as PM₁₀ BACT for the BEP cooling towers. The applicant proposes mist eliminators designed to this same criteria as cooling tower BACT for BEPII.

The District therefore determines that mist eliminators limiting drift to 0.0006 percent are acceptable as PM₁₀ BACT for the BEPII cooling towers.

SO_x BACT

SO_x is a precursor to PM₁₀, a non-attainment pollutant at the proposed facility location. SO_x is exclusively formed through the oxidation of sulfur present in the fuel.

The emission rate is a function of the efficiency of the source and the sulfur content of the fuel, since virtually all fuel sulfur is converted to SO_x. CARB guidance suggests that a requirement to burn natural gas with a fuel sulfur content not greater than 1 grain/100 scf is SO_x BACT. The District determined that sole use of natural gas with a fuel sulfur content not greater than 0.2 grains per 100 scf as fuel was SO_x BACT for the High Desert Power Project. CBII proposes the sole use of natural gas with a sulfur content not greater than 0.5 grains/100 scf as fuel as PM₁₀ BACT. Pipeline quality natural gas regulated by the California Public Utilities Commission typically must meet one grain per 100 scf. The District will limit fuel sulfur content by permit condition.

The District determines that the exclusive use of natural gas fuel with no more than 0.5 grains of sulfur per 100 dry standard cubic feet is acceptable as SO_x BACT for the BEPII combined cycle gas turbines.

VOC and Trace Organic BACT

VOC is a precursor for ozone and PM₁₀, which are non-attainment pollutants at the proposed facility location. VOCs and trace organics are emitted from natural gas-fired turbines as a result of incomplete combustion of fuel and trace organics contained in pipeline-quality natural gas.

The most stringent VOC control level for gas turbines has been achieved by those which employ catalytic oxidation for CO control. An oxidation catalyst designed to control CO would provide a side benefit of controlling VOC emissions. CARB guidance suggests that a 2 ppmvd averaged over three hours VOC emissions limit is VOC BACT. The District determined that a maximum VOC concentration of 1 ppmvd averaged over one hour was VOC BACT for the High Desert Power Project (achieved through the use of an oxidation catalyst optimized for VOC control). CBII proposes a VOC emission limit of 1 ppmvd averaged over three hours as VOC BACT, achieved with combustion controls.

The District therefore determines that a maximum VOC concentration of 1 ppmvd averaged over one hour is acceptable as VOC and trace organic BACT for the BEPII combined cycle gas turbines, achieved with combustion controls.

6. Class I Area Visibility Protection

CBII evaluated the visibility reduction potential of project emissions on Prevention of Significant Deterioration (PSD) Class I areas.⁷ The MDAQMD approves of the visibility analysis methods and findings.

Findings

The BEPII was estimated to generate a maximum 24-hour increase in the light extinction coefficient of 2.05 percent, which is less than the significant change level of 5 percent.

Inputs and Methods

Visibility impacts were evaluated at the Joshua Tree National Monument (70 km from the proposed site), the only applicable site within 100 km. Three dimensional gridded prognostic meteorological data for 1990, 1992 and 1996 were used for the analysis. Worst-case one-hour emissions were used for the analysis. Visibility impacts were evaluated using the USEPA CALPUFF model.

7. Air Quality Impact Analysis

CBII performed the ambient air quality standard and Prevention of Significant Deterioration impact analyses for CO, PM₁₀, SO₂ and NO₂ emissions.⁸ Subsequent dispersion modeling was

⁷ "Assessment of Air Quality Impacts from the Proposed Blythe II Energy Project at the Joshua Tree National Park," Earth Tech, March 2003.

performed to evaluate revised startup CO emissions.⁹ The MDAQMD approves of the analysis methods used in these impact analyses and the findings of these impact analyses.

Findings

The impact analysis calculated a maximum incremental increase for each pollutant for each applicable averaging period, as shown in Table 4 below. This analysis was performed for BEPII as modified (existing project plus proposed additional emissions), with the nearby Southern California Gas Company Blythe Compressor Station included as a background source. Table 4 conservatively presents cumulative impacts as project impact. When added to the maximum recent background concentration, the BEPII did not exceed the most stringent (or lowest) standard for any pollutant except PM₁₀, which is already in excess of the standard without the project. The BEPII modification was estimated to consume a maximum NO₂ increment of 0.009 µg/m³ in a PSD Class I area, which is less than the NO₂ increment threshold of 2.5 µg/m³. The BEP was estimated to consume a maximum NO₂ increment of 0.29 µg/m³ in a PSD Class II area, which is less than the overall NO₂ increment threshold of 25 µg/m³ and the 1.0 µg/m³ Class II significant impact level.

Table 4 – BEPII Worst Case Ambient Air Quality Impacts

Pollutant	Project Impact	Background	Total Impact	Federal Standard	State Standard
	<i>All values in µg/m³</i>				
CO (1 hour)	6233	3191	9424	40000	23000
CO (8 hour)	754	1891	2645	10000	10000
PM ₁₀ (24 hour)	35.4	62	97	150	50
PM ₁₀ (annual)	3.7	18.5	22	50	30
SO ₂ (1 hour)	12.2	7.8	20	n/a	655
SO ₂ (3 hour)	6.1	10.4	17	1300	n/a
SO ₂ (24 hour)	0.83	5.2	6	365	105
SO ₂ (annual)	0.05	2.9	3	80	n/a
NO ₂ (1 hour)	365	68	433	n/a	470
NO ₂ (annual)	4.9	16.2	21	100	N/a

Inputs and Methods

Worst case emissions were used as inputs, meaning 100 percent full load or mixed full load and startup for averaging times longer than one hour, and uncontrolled startup conditions for one hour averaging times. Data from a Southern California Edison site near Blythe for 1989 through 1993 was used as the meteorological inputs. Maximum ambient concentration data for 1993 through 1998 from the Twentynine Palms site was used for background concentrations (maximum background ambient air concentrations Palm Springs 2000 through 2002 were used for CO). Mixing heights were determined from Desert Rock, Nevada data. For determining annual impacts, the conservative assumption of 100 percent conversion of NO_x to NO₂ was used.

The USEPA Industrial Source Complex Short Term (ISCST356) dispersion model was used to estimate ambient concentrations resulting from BEPII emissions. The dispersion modeling was

⁸ “Blythe Energy Project Phase II Major Modification Modeling Protocol,” Greystone Environmental Consultants, September 2001.

⁹ Greystone, March 4, 2004

performed according to requirements stated in the Guideline on Air Quality Models (EPA-450/2-78-027R).

8. Health Risk Assessment and Toxics New Source Review

CBII performed a Health Risk Assessment (HRA) for carcinogenic, non-carcinogenic chronic, and non-carcinogenic acute toxic air contaminants. The MDAQMD approves of the HRA methods and findings.

Findings

The HRA calculated a peak 70-year cancer risk of 0.73 per million. The calculated peak 70-year residential cancer risk is less than 1.0 per million (for all receptors). The maximum non-cancer chronic and acute Hazard Indices are both less than the significance level of 1.0 (0.09 and 0.19, respectively). As these risks make the project a "low priority" project, and as the project emits less than 10 tons per year of every single HAP and 25 tons per year of any combination of HAPs, no further toxics new source review is required for this project (Rule 1320(E)(2)(b)). Please refer to Table 1A above.

Inputs and Methods

BEPII will emit toxic air contaminants as products of natural gas combustion, equipment wear, ammonia slip from the SCR systems, and cooling tower emissions. Combustion emissions were estimated using emission factors from SCAQMD and USEPA, and the California Air Toxics Emission Factors (CATEF) database. Ammonia slip was assumed to be 10 ppm in the stack exhaust. Cooling tower emissions were estimated using USEPA emission factors for evaporative emissions and engineering calculation for drift droplets.

The SCREEN3 dispersion model was used to estimate ambient concentrations of toxic air pollutants. The CAPCOA Assessment of Chemical Exposure for AB2588 Version 93288 (ACE2588) risk assessment model was used to estimate health risks due to exposure to emissions. Surface data from the Blythe SCE site (1989 through 1993) and upper air data from Desert Rock, Nevada were used as meteorological inputs.

9. Offset Requirements

MDAQMD Regulation XIII – *New Source Review* requires offsets for non-attainment pollutants and their precursors emitted by large, new sources. CBII has prepared and submitted a proposed offset package for the proposed project as required by Rule 1302(C)(3)(b).¹⁰ BEPII is proposed for a location that has been designated non-attainment by CARB for ozone and PM₁₀. MDAQMD Rule 1303(B)(1) specifies offset threshold amounts for the non-attainment pollutant PM₁₀. MDAQMD Rule 1303(B)(1) also specifies offset threshold amounts for precursors of non-attainment pollutants: NO_x (precursor of ozone and PM₁₀), SO_x (precursor of PM₁₀), and VOC (precursor of ozone and PM₁₀). A modified facility which emits or has the potential to emit more than these offset thresholds must obtain offsets equal to the facility's entire potential to emit. As Table 5 shows, maximum BEPII (total facility, or BEP plus BEPII) annual emissions exceed the offset thresholds for all four non-attainment pollutants and/or precursors. The table

¹⁰ "Offset Package for Blythe Energy Project Phase II," Greystone Environmental Consultants, May 28, 2002

uses BEPII maximum or worst-case annual emissions. The table also includes all applicable emissions, including the emissions increases from proposed new permit units (turbines, duct burners, SCR and wet cooling equipment), cargo carriers (none are proposed), fugitive emissions (none are proposed), and non-permitted equipment (none are proposed). For this analysis the MDAQMD assumes VOC is equivalent to ROC and SO₂ is equivalent to SO_x. Note that some fraction of sulfur compounds are included in both the SO_x and the PM₁₀ totals, as the PM₁₀ total includes front and back half particulate.

Table 5 - Comparison of BEPII Emissions with Offset Thresholds
All emissions in tons per year

	NO _x	VOC	SO _x	PM ₁₀
BEP	202	24	24	103
BEPII	202	25	23	61
Maximum BEP + BEPII Emissions	404	49	47	164
Offset Threshold	25	25	25	15

Required Offsets

MDAQMD Rule 1305 increases the amount of offsets required based on the location of the facility obtaining the offsets (on a pollutant category specific basis). As BEPII is located in two non-attainment areas, a state ozone non-attainment area and a state PM₁₀ non-attainment area, the largest applicable offset ratio applies. Table 6 calculates the offsets required for BEPII.

Table 6 – Emission Offsets Required for BEPII
All emissions in tons per year

	NO _x	VOC	SO _x	PM ₁₀
Combined Emissions	404	49	47	164
Offsets provided for BEP	202	0	0	103
Net BEPII Offset Requirement	202	49	47	61
Offset Ratio	1.0	1.0	1.0	1.0
Required Offsets	202	49	47	61

Identified Emission Reduction Credits

CBII has identified several sources of emission reduction credits (ERCs). CBII has purchased some or all credits from these sources. CBII has submitted sufficient information in advance of an actual ERC application for the local road paving projects to support the ERC numbers presented here. The District supports the use of road paving PM₁₀ reductions to offset natural gas combustion PM₁₀ emissions within a PM₁₀ non-attainment area. The proposed BEPII ERC sources are summarized in Table 7.

Table 7 – ERC Sources Identified by CBII
All emissions in tons per year

Source	Location	NO _x	VOC	SO _x	PM ₁₀
CRIT Road Paving	MDAQMD (pending)				126
Compressor Changes	MDAQMD - 0051	175			

Confidential Source Option Contract	MDAQMD - pending	76			
Total ERCs Identified:		251	0	0	126

Inter-District, Inter-Basin and Inter-Pollutant Offsetting

CBII has proposed to use inter-pollutant ERC trading to make up for the limited amount of ozone precursor ERCs available within the MDAQMD. The use of inter-pollutant offsets is specifically allowed for by Rule 1305(B) (in consultation with CARB and with the approval of USEPA).

The District has previously approved the use of inter-pollutant ERC trading (specifically VOC for NO_x) for both the HDPP and the BEP. In each case CARB and USEPA Region IX did not object. CBII is proposing to use NO_x ERCs to offset VOC emissions at a 1.0:1 ratio, and PM₁₀ ERCs to offset SO_x emissions at a 1.0:1 ratio. The proposed NO_x for VOC trade is between ozone precursors and is greater than the reciprocal of 1.6:1 (0.625:1), the previously approved VOC for NO_x ratio. The proposed PM₁₀ for SO_x trade is between PM₁₀ precursors and is consistent with previous PM₁₀ precursor trades (all have been at 1.0:1). The District finds that the proposed use of inter-pollutant ERCs for BEPII is consistent with prior inter-pollutant actions.

The District determines that this inter-pollutant trade is technically justified and will not cause or contribute to a violation of an ambient air quality standard. The District concludes that a NO_x to VOC ratio of 1.0:1 and a PM₁₀ to SO_x ratio of 1.0:1 are acceptable for BEPII. Table 8 summarizes the total offset requirements for the BEPII.

	NO_x	VOC	SO_x	PM₁₀
New Offset Obligation for BEPII	202	49	47	61
Newly Identified Offsets	251	0	0	126
Remaining Offset Burden	0	49	47	0
Inter-Pollutant Ratio (NO _x for VOC and PM ₁₀ for SO _x)		1.0	1.0	
Inter-Pollutant Offset Use	-49	49	47	-47
Net Offset Requirement	0	0	0	0

10. Applicable Regulations and Compliance Analysis

Selected MDAQMD Rules and Regulations will apply to the proposed project:

Regulation II – Permits

Rule 221 – *Federal Operating Permit Requirements* requires certain facilities to obtain Federal Operating Permits. The proposed project will be required to submit an application for a Federal Operating Permit within twelve months of the commencement of operations.

Regulation IV - Prohibitions

Rule 401 – *Visible Emissions* limits visible emissions opacity to less than 20 percent (or Ringelmann No. 1). During start up, visible emissions may exceed 20 percent opacity.

However, emissions of this opacity are not expected to last three minutes or longer. In normal operating mode, visible emissions are not expected to exceed 20 percent opacity.

Rule 402 – *Nuisance* prohibits facility emissions that cause a public nuisance. The proposed turbine power train exhaust is not expected to generate a public nuisance due to the sole use of pipeline-quality natural gas as a fuel. In addition, due to the location of the proposed project, no nuisance complaints are expected.

Rule 403 – *Fugitive Dust* specifies requirements for controlling fugitive dust. The proposed project does not include any significant sources of fugitive dust so the proposed project is not expected to violate Rule 403.

Rule 403.2 – *Fugitive Dust Control for the Mojave Desert Planning Area* specifies requirements for construction projects. The construction of the proposed project will be required to comply with the requirements of Rule 403.2.

Rule 404 – *Particulate Matter – Concentration* specifies standards of emissions for particulate matter concentrations. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 404.

Rule 405 – *Solid Particulate Matter - Weight* limits particulate matter emissions from fuel combustion on a mass per unit combusted basis. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 405.

Rule 406 – *Specific Contaminants* limits sulfur dioxide emissions. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 406.

Rule 408 – *Circumvention* prohibits hidden or secondary rule violations. The proposed project is not expected to violate Rule 408.

Rule 409 – *Combustion Contaminants* limits total particulate emissions on a density basis. The sole use of pipeline-quality natural gas as a fuel will keep proposed project emission levels in compliance with Rule 409.

Rule 430 – *Breakdown Provisions* requires the reporting of breakdowns and excess emissions. The proposed project will be required to comply with Rule 430 by permit condition.

Rule 431 – *Sulfur Content in Fuels* limits sulfur content in gaseous, liquid and solid fuels. The sole use of pipeline-quality natural gas as a fuel will keep the proposed project in compliance with Rule 431.

Rule 475 – *Electric Power Generating Equipment* limits NO_x and particulate matter emissions with mass rate and concentration standards. Permit conditions for the proposed project will establish limits which are in compliance with Rule 475.

Regulation IX – Standards of Performance for New Stationary Sources

Regulation IX includes by reference the New Source Performance Standard (NSPS) for gas turbines (40 CFR 60 Subpart GG, §§60.330 through 60.334). Permit conditions for the proposed project will establish limits which are in compliance with the gas turbine NSPS referenced in Regulation IX.

Regulation XII – Federal Operating Permits

Regulation XII contains requirements for sources which must have a Federal Operating Permit and an acid rain permit. The proposed project will be required to submit applications for a Federal Operating Permit and an acid rain permit by the appropriate date.

Regulation XIII – New Source Review

Rule 1300 – *General* ensures that Prevention of Significant Deterioration (PSD) requirements apply to all projects. The proposed project has submitted an application to the USEPA for an NO₂ and CO PSD permit, complying with Rule 1300.

Rule 1302 – *Procedure* requires certification of compliance with the Federal Clean Air Act, applicable implementation plans, and all applicable MDAQMD rules and regulations. The ATC application package for the proposed project includes sufficient documentation to comply with Rule 1302(D)(5)(b)(iii). Permit conditions for the proposed project will require compliance with Rule 1302(D)(5)(b)(iv).

Rule 1303 – *Requirements* requires BACT and offsets for selected large new sources. Permit conditions will limit the emissions from the proposed project to a level which has been defined as BACT for the proposed project, bringing the proposed project into compliance with Rule 1302(A). Prior to the commencement of construction the proposed project shall have obtained sufficient offsets to comply with Rule 1303(B)(1).

Rule 1306 – *Electric Energy Generating Facilities* places additional administrative requirements on projects involving approval by the California Energy Commission (CEC). The proposed project will not receive an ATC without CEC's approval of their Application for Certification, ensuring compliance with Rule 1306.

Maximum Achievable Control Technology Standards

Health & Safety Code §39658(b)(1) states that when USEPA adopts a standard for a toxic air contaminant pursuant to §112 of the Federal Clean Air Act (42 USC §7412), such standard becomes the Airborne Toxic Control Measure (ATCM) for the toxic air contaminant. Once an ATCM has been adopted it becomes enforceable by the MDAQMD 120 days after adoption or implementation (Health & Safety Code §39666(d)). USEPA has not to date adopted a Maximum Achievable Control Technology (MACT) standard that is applicable to the proposed project. Should USEPA adopt an applicable MACT in the future, the MDAQMD will be required to enforce said MACT as an ATCM on the proposed project. MACT is also required for each major source of toxic air contaminants. BEPII will not emit more than ten tons of any individual toxic air contaminant, and will not collectively emit more than 25 tons of all toxic air contaminants, so MACT is not required.

11. Conclusion

The MDAQMD has reviewed the proposed project's Application for New Source Review and subsequent supplementary information. The MDAQMD has determined that the proposed project, after application of the permit conditions (including BACT requirements) given below, will comply with all applicable MDAQMD Rules and Regulations. This FDOC will be publicly noticed no later than May 7, 2004, including copies to USEPA, CARB and CEC. This FDOC will remain available for public inspection.

12. Permit Conditions

The following permit conditions will be placed on the Authorities to Construct for the project. Separate permits will be issued for each turbine power train. Separate permits will also be issued for each SCR system, duct burner and cooling tower/evaporative condenser. The electronic version of this document contains a set of conditions that are essentially identical for each of multiple pieces of equipment, differing only in District permit numbers. The signed and printed version of this document has printed permits (with descriptions and conditions) in place of condition language listings.



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661

AUTHORITY TO CONSTRUCT

B008877

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 5

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

COMBUSTION TURBINE GENERATOR POWER BLOCK (CT 3) consisting of:

Natural gas fueled Siemens F Class V84.3A combustion turbine generator power block producing approximately 260 MW(e) with a connected heat recovery steam generator and a steam condensing turbine (shared with B008878), maximum turbine heat input of 1776 MMBtu/hr. Manufacturer, model and serial numbers will be specified when available.

CONDITIONS:

- 1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be exclusively fueled with pipeline quality natural gas with a sulfur content not exceeding 0.5 grains per 100 dscf on a rolling twelve month average basis, and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. This equipment is subject to the federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and GG (Standards of Performance for Stationary Gas Turbines). This equipment is also subject to the Prevention of Significant Deterioration (40 CFR 51.166) and Federal Acid Rain (Title IV) programs. Compliance with all applicable provisions of these regulations is required.
4. Emissions from this equipment (including its associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx, and VOC during periods of startup, shutdown and malfunction:
a. Hourly rate, computed every 15 minutes, verified by CEMS and annual compliance tests:
i. NOx as NO2 - 14.82 lb/hr (based on 2.0 ppmvd corrected to 15% oxygen and averaged over three hours)
ii. CO - 18.04 lb/hr (based on 4.0 ppmvd corrected to 15% oxygen and averaged over 24 hours)
b. Hourly rates, verified by annual compliance tests or other compliance methods in the case of SOx:
i. VOC as CH4 - 2.90 lb/hr (based on 1 ppmvd corrected to 15% oxygen)
ii. SOx as SO2 - 2.66 lb/hr (based on 0.5 grains/100 dscf fuel sulfur)
iii. PM10 - 6.0 lb/hr

COPY
NOT A VALID PERMIT

Fee Schedule: 2(f) Rating: 1776.0 SIC: 4911 SCC: 20100201 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY: [Signature] DATE: 5/4/2004
For: Charles L. Fryxell
Air Pollution Control Officer

5. Emissions of CO and NOx from this equipment shall only exceed the limits contained in Condition 4 during startup and shutdown periods as follows:
 - a. Startup is defined as the period beginning with ignition and lasting until the equipment has reached operating permit limits. Shutdown is defined as the period beginning with the lowering of equipment from base load and lasting until fuel flow is completely off and combustion has ceased.
 - b. During a startup emissions shall not exceed the following, verified by CEMS:
 - i. NOx - 376 lb
 - ii. CO - 3700 lb
6. Emissions from this equipment, including the duct burner, shall not exceed the following emission limits, based on a calendar day summary:
 - a. NOx - 2924 lb/day, verified by CEMS
 - b. CO - 17,016 lb/day, verified by CEMS
 - c. VOC as CH4 - 187 lb/day, verified by compliance tests and hours of operation in mode
 - d. SOx as SO2 - 128 lb/day, verified by fuel sulfur content and fuel use data
 - e. PM10 - 336 lb/day, verified by compliance tests and hours of operation
7. Emissions from this facility, including the cooling towers, shall not exceed the following emission limits, based on a rolling 12 month summary:
 - a. NOx - 202 tons/year, verified by CEMS
 - b. CO - 685 tons/year, verified by CEMS
 - c. VOC as CH4 - 25 tons/year, verified by compliance tests and hours of operation in mode
 - d. SOx as SO2 - 23 tons/year, verified by fuel sulfur content and fuel use data
 - e. PM10 - 61 tons/year, verified by compliance tests and hours of operation
8. Particulate emissions from this equipment shall not exceed an opacity equal to or greater than twenty percent (20%) for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor.
9. This equipment shall exhaust through a stack at a minimum height of 130 feet.
10. The owner/operator (o/o) shall not operate this equipment after the initial commissioning period without the selective catalytic NOx reduction system with valid District permit C008881 installed and fully functional.
11. The o/o shall provide stack sampling ports and platforms necessary to perform source tests required to verify compliance with District rules, regulations and permit conditions. The location of these ports and platforms shall be subject to District approval.
12. Emissions of NOx, CO, oxygen and ammonia slip shall be monitored using a Continuous Emissions Monitoring System (CEMS). Turbine fuel consumption shall be monitored using a continuous monitoring system. Stack gas flow rate shall be monitored using either a Continuous Emission Rate Monitoring System (CERMS) meeting the requirements of 40 CFR Part 75 Appendix A or a stack flow rate calculation method. The o/o shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and MDAQMD Rule 218, and they shall be installed prior to initial equipment startup. Six (6) months prior to installation the operator shall submit a monitoring plan for District review and approval.

COPY
NOT A VALID PERMIT

13. The o/o shall conduct all required compliance/certification tests in accordance with a District-approved test plan. Thirty (30) days prior to the compliance/certification tests the o/o shall provide a written test plan for District review and approval. Written notice of the compliance/certification test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such compliance/certification tests shall be submitted to the District within forty-five (45) days after testing.
14. The o/o shall perform the following annual compliance tests in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:
- NOx as NO₂ in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).
 - VOC as CH₄ in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).
 - SOx as SO₂ in ppmvd at 15% oxygen and lb/hr.
 - CO in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Method 10).
 - PM₁₀ in mg/m³ at 15% oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5)
 - Flue gas flow rate in dscfm.
 - Opacity (measured per USEPA Reference Method 9).
 - Ammonia slip in ppmvd at 15% oxygen.
15. The o/o shall, at least as often as once every five years (commencing with the initial compliance test), include the following supplemental source tests in the annual compliance testing:
- Characterization of cold startup VOC emissions;
 - Characterization of warm startup VOC emissions;
 - Characterization of hot startup VOC emissions;
 - Characterization of shutdown VOC emissions.
16. Continuous monitoring systems shall meet the following acceptability testing requirements from 40 CFR 60 Appendix B:
- For NOx, Performance Specification 2.
 - For oxygen, Performance Specification 3.
 - For CO, Performance Specification 4.
 - For stack gas flow rate, Performance Specification 6 (if CERMS is installed).
 - For ammonia, a District approved procedure that is to be submitted by the o/o.
 - For stack gas flow rate (without CERMS), a District-approved procedure that is to be submitted by the o/o.

COPY
NOT A VALID PERMIT

17. The o/o shall submit to the APCO and USEPA Region IX the following information for the preceding calendar quarter by January 30, April 30, July 30 and October 30 of each year this permit is in effect. Each January 30 submittal shall include a summary of the reported information for the previous year. This information shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request:
 - a. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NOx emission rate and ammonia slip.
 - b. Total plant operation time (hours), number of startups, hours in cold startup, hours in warm startup, hours in hot startup, and hours in shutdown period.
 - c. Date and time of the beginning and end of each startup and shutdown period.
 - d. Average plant operation schedule (hours per day, days per week, weeks per year).
 - e. All continuous emissions data reduced and reported in accordance with the District-approved CEMS protocol.
 - f. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, VOC and SOx (including calculation protocol).
 - g. Fuel sulfur content (monthly laboratory analyses, monthly natural gas sulfur content reports from the natural gas supplier(s), or the results of a custom fuel monitoring schedule approved by USEPA for compliance with the fuel monitoring provisions of 40 CFR 60 Subpart GG).
 - h. A log of all excess emissions, including the information regarding malfunctions/breakdowns required by Rule 430.
 - i. Any permanent changes made in the plant process or production which would affect air pollutant emissions, and indicate when changes were made.
 - j. Any maintenance to any air pollutant control system (recorded on an as-performed basis).
18. The o/o must surrender to the District sufficient valid Emission Reduction Credits for this equipment before the start of construction of any part of the project for which this equipment is intended to be used. In accordance with Regulation XIII the operator shall obtain 202 tons of NOx, 49 tons of VOC, 47 tons of SOx, and 61 tons of PM10 offsets (NOx ERCs may be substituted for VOC ERCs at a rate of 1.0:1, and PM10 ERCs may be substituted for SOx ERCs at a rate of 1.0:1).
19. During an initial commissioning period of no more than 120 days, commencing with the first firing of fuel in this equipment, NOx, CO, VOC and ammonia concentration limits shall not apply. The o/o shall minimize emissions of NOx, CO, VOC and ammonia to the maximum extent possible during the initial commissioning period.
20. The o/o shall tune each CTG and HRSG to minimize emissions of criteria pollutants at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor.
21. The o/o shall install, adjust and operate each SCR system to minimize emissions of NOx from the CTG and HRSG at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor. The NOx and ammonia concentration limits shall apply coincident with the steady state operation of the SCR systems.
22. The o/o shall submit a commissioning plan to the District and the CEC at least four weeks prior to the first firing of fuel in this equipment. The commissioning plan shall describe the procedures to be followed during the commissioning of the CTGs, HRSGs and steam turbine. The commissioning plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purposes of the activity. The activities described shall include, but not be limited to, the timing of the dry low NOx combustors, the installation and testing of the CEMS, and any activities requiring the firing of the CTGs and HRSGs without abatement by an SCR system.

COPY
NOT A VALID PERMIT

23. The total number of firing hours of each CTG and HRSG without abatement of NOx by the SCR shall not exceed 350 hours during the initial commissioning period. Such operation without NOx abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place and operating. Upon completion of these activities, the o/o shall provide written notice to the District and CEC and the unused balance of the unabated firing hours shall expire.
24. During a period that includes a portion of the initial commissioning period, emissions from this facility shall not exceed the following CO emission limits (verified by CEMS): 421 tons/year (rolling twelve month summary), 44,000 pounds/calendar day and 3700 pounds/hour.
25. During a period that includes a portion of the initial commissioning period, prior to the steady state operation of the SCR system, emissions from this facility shall not exceed the following NOx emission limits (verified by CEMS): 273 tons/year (rolling twelve month summary), 22,000 pounds/calendar day and 1000 pounds/hour.
26. Within 60 days after achieving the maximum firing rate at which the facility will be operated, but not later than 180 days after initial startup, the operator shall perform an initial compliance test. This test shall demonstrate that this equipment is capable of operation at 100% load in compliance with the emission limits in Condition 4 above.
27. The initial compliance test shall include tests for the following. The results of the initial compliance test shall be used to prepare a supplemental health risk analysis:
 - a. Formaldehyde;
 - b. Certification of CEMS and CERMS (or stack gas flow calculation method) at 100% load, startup modes and shutdown mode;
 - c. Characterization of cold startup VOC emissions;
 - d. Characterization of warm startup VOC emissions;
 - e. Characterization of hot startup VOC emissions; and
 - f. Characterization of shutdown VOC emissions.
28. The o/o shall provide sufficient space and appurtenances within the Heat Recovery Steam Generator to allow the subsequent installation of a high temperature oxidation catalyst.

COPY
NOT A VALID PERMIT



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661

AUTHORITY TO CONSTRUCT

B008878

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 5

OWNER OR OPERATOR (1437)

Caitness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

COMBUSTION TURBINE GENERATOR POWER BLOCK (CT 4) consisting of:

Natural gas fueled Siemens F Class V84.3A combustion turbine generator power block producing approximately 260 MW(e) with a connected heat recovery steam generator and a steam condensing turbine (shared with B008877), maximum turbine heat input of 1776 MMBtu/hr. Manufacturer, model and serial numbers will be specified when available.

CONDITIONS:

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be exclusively fueled with pipeline quality natural gas with a sulfur content not exceeding 0.5 grains per 100 dscf on a rolling twelve month average basis, and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. This equipment is subject to the federal NSPS codified at 40 CFR Part 60, Subparts A (General Provisions) and GG (Standards of Performance for Stationary Gas Turbines). This equipment is also subject to the Prevention of Significant Deterioration (40 CFR 51.166) and Federal Acid Rain (Title IV) programs. Compliance with all applicable provisions of these regulations is required.
4. Emissions from this equipment (including its associated duct burner) shall not exceed the following emission limits at any firing rate, except for CO, NOx, and VOC during periods of startup, shutdown and malfunction:
 - a. Hourly rate, computed every 15 minutes, verified by CEMS and annual compliance tests:
 - i. NOx as NO2 - 14.82 lb/hr (based on 2.0 ppmvd corrected to 15% oxygen and averaged over three hours)
 - ii. CO - 18.04 lb/hr (based on 4.0 ppmvd corrected to 15% oxygen and averaged over 24 hours)
 - b. Hourly rates, verified by annual compliance tests or other compliance methods in the case of SOx:
 - i. VOC as CH4 - 2.90 lb/hr (based on 1 ppmvd corrected to 15% oxygen)
 - ii. SOx as SO2 - 2.66 lb/hr (based on 0.5 grains/100 dscf fuel sulfur)
 - iii. PM10 - 6.0 lb/hr

COPY

NOT A VALID PERMIT

Fee Schedule: 2(f) Rating: 1776.0 SIC: 4911 SCC: 20100201 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caitness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY:

DATE: 5/4/2004

For: Charles L. Fryxell
Air Pollution Control Officer

5. Emissions of CO and NOx from this equipment shall only exceed the limits contained in Condition 4 during startup and shutdown periods as follows:
 - a. Startup is defined as the period beginning with ignition and lasting until the equipment has reached operating permit limits. Shutdown is defined as the period beginning with the lowering of equipment from base load and lasting until fuel flow is completely off and combustion has ceased.
 - b. During a startup emissions shall not exceed the following, verified by CEMS:
 - i. NOx - 376 lb
 - ii. CO - 3700 lb
6. Emissions from this equipment, including the duct burner, shall not exceed the following emission limits, based on a calendar day summary:
 - a. NOx - 2924 lb/day, verified by CEMS
 - b. CO - 17,016 lb/day, verified by CEMS
 - c. VOC as CH4 - 187 lb/day, verified by compliance tests and hours of operation in mode
 - d. SOx as SO2 - 128 lb/day, verified by fuel sulfur content and fuel use data
 - e. PM10 - 336 lb/day, verified by compliance tests and hours of operation
7. Emissions from this facility, including the cooling towers, shall not exceed the following emission limits, based on a rolling 12 month summary:
 - a. NOx - 202 tons/year, verified by CEMS
 - b. CO - 685 tons/year, verified by CEMS
 - c. VOC as CH4 - 25 tons/year, verified by compliance tests and hours of operation in mode
 - d. SOx as SO2 - 23 tons/year, verified by fuel sulfur content and fuel use data
 - e. PM10 - 61 tons/year, verified by compliance tests and hours of operation
8. Particulate emissions from this equipment shall not exceed an opacity equal to or greater than twenty percent (20%) for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor.
9. This equipment shall exhaust through a stack at a minimum height of 130 feet.
10. The owner/operator (o/o) shall not operate this equipment after the initial commissioning period without the selective catalytic NOx reduction system with valid District permit C008882 installed and fully functional.
11. The o/o shall provide stack sampling ports and platforms necessary to perform source tests required to verify compliance with District rules, regulations and permit conditions. The location of these ports and platforms shall be subject to District approval.
12. Emissions of NOx, CO, oxygen and ammonia slip shall be monitored using a Continuous Emissions Monitoring System (CEMS). Turbine fuel consumption shall be monitored using a continuous monitoring system. Stack gas flow rate shall be monitored using either a Continuous Emission Rate Monitoring System (CERMS) meeting the requirements of 40 CFR Part 75 Appendix A or a stack flow rate calculation method. The o/o shall install, calibrate, maintain, and operate these monitoring systems according to a District-approved monitoring plan and MDAQMD Rule 218, and they shall be installed prior to initial equipment startup. Six (6) months prior to installation the operator shall submit a monitoring plan for District review and approval.

COPY
NOT A VALID PERMIT

13. The o/o shall conduct all required compliance/certification tests in accordance with a District-approved test plan. Thirty (30) days prior to the compliance/certification tests the o/o shall provide a written test plan for District review and approval. Written notice of the compliance/certification test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such compliance/certification tests shall be submitted to the District within forty-five (45) days after testing.
14. The o/o shall perform the following annual compliance tests in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:
 - a. NOx as NO2 in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).
 - b. VOC as CH4 in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).
 - c. SOx as SO2 in ppmvd at 15% oxygen and lb/hr.
 - d. CO in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Method 10).
 - e. PM10 in mg/m3 at 15% oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5)
 - f. Flue gas flow rate in dscfm.
 - g. Opacity (measured per USEPA Reference Method 9).
 - h. Ammonia slip in ppmvd at 15% oxygen.
15. The o/o shall, at least as often as once every five years (commencing with the initial compliance test), include the following supplemental source tests in the annual compliance testing:
 - a. Characterization of cold startup VOC emissions;
 - b. Characterization of warm startup VOC emissions;
 - c. Characterization of hot startup VOC emissions;
 - d. Characterization of shutdown VOC emissions.
16. Continuous monitoring systems shall meet the following acceptability testing requirements from 40 CFR 60 Appendix B:
 - a. For NOx, Performance Specification 2.
 - b. For oxygen, Performance Specification 3.
 - c. For CO, Performance Specification 4.
 - d. For stack gas flow rate, Performance Specification 6 (if CERMS is installed).
 - e. For ammonia, a District approved procedure that is to be submitted by the o/o.
 - f. For stack gas flow rate (without CERMS), a District-approved procedure that is to be submitted by the o/o.

COPY
NOT A VALID PERMIT

7. The o/o shall submit to the APCO and USEPA Region IX the following information for the preceding calendar quarter by January 30, April 30, July 30 and October 30 of each year this permit is in effect. Each January 30 submittal shall include a summary of the reported information for the previous year. This information shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request:
 - a. Operating parameters of emission control equipment, including but not limited to ammonia injection rate, NOx emission rate and ammonia slip.
 - b. Total plant operation time (hours), number of startups, hours in cold startup, hours in warm startup, hours in hot startup, and hours in shutdown period.
 - c. Date and time of the beginning and end of each startup and shutdown period.
 - d. Average plant operation schedule (hours per day, days per week, weeks per year).
 - e. All continuous emissions data reduced and reported in accordance with the District-approved CEMS protocol.
 - f. Maximum hourly, maximum daily, total quarterly, and total calendar year emissions of NOx, CO, PM10, VOC and SOx (including calculation protocol).
 - g. Fuel sulfur content (monthly laboratory analyses, monthly natural gas sulfur content reports from the natural gas supplier(s), or the results of a custom fuel monitoring schedule approved by USEPA for compliance with the fuel monitoring provisions of 40 CFR 60 Subpart GG).
 - h. A log of all excess emissions, including the information regarding malfunctions/breakdowns required by Rule 430.
 - i. Any permanent changes made in the plant process or production which would affect air pollutant emissions, and indicate when changes were made.
 - j. Any maintenance to any air pollutant control system (recorded on an as-performed basis).
18. The o/o must surrender to the District sufficient valid Emission Reduction Credits for this equipment before the start of construction of any part of the project for which this equipment is intended to be used. In accordance with Regulation XIII the operator shall obtain 202 tons of NOx, 49 tons of VOC, 47 tons of SOx, and 61 tons of PM10 offsets (NOx ERCs may be substituted for VOC ERCs at a rate of 1.0:1, and PM10 ERCs may be substituted for SOx ERCs at a rate of 1.0:1).
19. During an initial commissioning period of no more than 120 days, commencing with the first firing of fuel in this equipment, NOx, CO, VOC and ammonia concentration limits shall not apply. The o/o shall minimize emissions of NOx, CO, VOC and ammonia to the maximum extent possible during the initial commissioning period.
20. The o/o shall tune each CTG and HRSG to minimize emissions of criteria pollutants at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor.
21. The o/o shall install, adjust and operate each SCR system to minimize emissions of NOx from the CTG and HRSG at the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor. The NOx and ammonia concentration limits shall apply coincident with the steady state operation of the SCR systems.
22. The o/o shall submit a commissioning plan to the District and the CEC at least four weeks prior to the first firing of fuel in this equipment. The commissioning plan shall describe the procedures to be followed during the commissioning of the CTGs, HRSGs and steam turbine. The commissioning plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purposes of the activity. The activities described shall include, but not be limited to, the timing of the dry low NOx combustors, the installation and testing of the CEMS, and any activities requiring the firing of the CTGs and HRSGs without abatement by an SCR system.

COPY
NOT A VALID PERMIT

23. The total number of firing hours of each CTG and HRSG without abatement of NOx by the SCR shall not exceed 350 hours during the initial commissioning period. Such operation without NOx abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place and operating. Upon completion of these activities, the o/o shall provide written notice to the District and CEC and the unused balance of the unabated firing hours shall expire.
24. During a period that includes a portion of the initial commissioning period, emissions from this facility shall not exceed the following CO emission limits (verified by CEMS): 421 tons/year (rolling twelve month summary), 44,000 pounds/calendar day and 3700 pounds/hour.
25. During a period that includes a portion of the initial commissioning period, prior to the steady state operation of the SCR system, emissions from this facility shall not exceed the following NOx emission limits (verified by CEMS): 273 tons/year (rolling twelve month summary), 22,000 pounds/calendar day and 1000 pounds/hour.
26. Within 60 days after achieving the maximum firing rate at which the facility will be operated, but not later than 180 days after initial startup, the operator shall perform an initial compliance test. This test shall demonstrate that this equipment is capable of operation at 100% load in compliance with the emission limits in Condition 4 above.
27. The initial compliance test shall include tests for the following. The results of the initial compliance test shall be used to prepare a supplemental health risk analysis:
 - a. Formaldehyde;
 - b. Certification of CEMS and CERMS (or stack gas flow calculation method) at 100% load, startup modes and shutdown mode;
 - c. Characterization of cold startup VOC emissions;
 - d. Characterization of warm startup VOC emissions;
 - e. Characterization of hot startup VOC emissions; and
 - f. Characterization of shutdown VOC emissions.
28. The o/o shall provide sufficient space and appurtenances within the Heat Recovery Steam Generator to allow the subsequent installation of a high temperature oxidation catalyst.

COPY
NOT A VALID PERMIT



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661

AUTHORITY TO CONSTRUCT

B008879

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 1

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

HRSG DUCT BURNER (HRSG 3) consisting of:

Natural gas burner located within the heat recovery steam generator covered by B008877, maximum heat output of 132 MMBtu/hr. Manufacturer, model and serial numbers will be specified when available.

CONDITIONS:

1. Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be exclusively fueled with natural gas and shall be operated and maintained in strict accord with the recommendations of the manufacturer/supplier and/or sound engineering principles.
3. This duct burner shall not be operated unless the combustion turbine generator with valid District permit B008877, selective catalytic reduction system with valid District permit C008881, and oxidation catalyst (if installed) are in operation.
4. Fuel use by this equipment shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.


COPY
NOT A VALID PERMIT

Fee Schedule: 2(f) Rating: 132.0 SIC: 4911 SCC: 20100201 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY:


For: Charles L. Fryxell
Air Pollution Control Officer

DATE: 5/4/2004



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661
AUTHORITY TO CONSTRUCT

B008880

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 1

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

HRSG DUCT BURNER (HRSG 4) consisting of:

Natural gas burner located within the heat recovery steam generator covered by B008878, maximum heat output of 132 MMBtu/hr. Manufacturer, model and serial numbers will be specified when available.

Table with 2 columns: Capacity, Equipment Description. Rows: 1.0 First, 2.0 Second, 3.0

CONDITIONS:

- 1. Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be exclusively fueled with natural gas and shall be operated and maintained in strict accord with the recommendations of the manufacturer/supplier and/or sound engineering principles.
3. This duct burner shall not be operated unless the combustion turbine generator with valid District permit B008878, selective catalytic reduction system with valid District permit C008882, and oxidation catalyst (if installed) are in operation.
4. Fuel use by this equipment shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.

COPY
NOT A VALID PERMIT

Fee Schedule: 2(f) Rating: 132.0 SIC: 4911 SCC: 20100201 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY: [Signature]
For: Charles L. Fryxell
Air Pollution Control Officer

DATE: 5/4/2004



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661
AUTHORITY TO CONSTRUCT

C008881

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 1

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR 3) consisting of:

Selective catalytic reduction system with a catalyst located within the power train covered by B008877, and an ammonia injection system. Manufacturer, model and serial numbers will be specified when available.

CONDITIONS:

- 1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. This equipment shall be operated concurrently with the combustion turbine generator with valid District permit B008877.
4. Ammonia shall be injected whenever the selective catalytic reduction system has reached or exceeded 550 deg Fahrenheit. Except during periods of startup and shutdown, ammonia slip shall not exceed 10 ppmvd (corrected to 15% oxygen), averaged over three hours.
5. Ammonia injection by this equipment in pounds per hour shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to MDAQMD personnel on request.

COPY
NOT A VALID PERMIT

Fee Schedule: 7(h) Rating: 1.0 SIC: 4911 SCC: 20100201 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY: [Signature] DATE: 5/4/2004
For: Charles L. Fryxell
Air Pollution Control Officer



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661

AUTHORITY TO CONSTRUCT

C008882

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 1

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR 4) consisting of:

Selective catalytic reduction system with a catalyst located within the power train covered by B008878, and an ammonia injection system. Manufacturer, model and serial numbers will be specified when available.

CONDITIONS:

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. This equipment shall be operated concurrently with the combustion turbine generator with valid District permit B008878.
4. Ammonia shall be injected whenever the selective catalytic reduction system has reached or exceeded 550 deg Fahrenheit. Except during periods of startup and shutdown, ammonia slip shall not exceed 10 ppmvd (corrected to 15% oxygen), averaged over three hours.
5. Ammonia injection by this equipment in pounds per hour shall be recorded and maintained on site for a minimum of five (5) years and shall be provided to MDAQMD personnel on request.

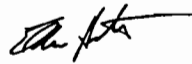
COPY
NOT A VALID PERMIT

Fee Schedule: 7(h) Rating: 1.0 SIC: 4911 SCC: 20100201 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY: _____


For: Charles L. Fryxell
Air Pollution Control Officer

DATE: 5/4/2004



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661

AUTHORITY TO CONSTRUCT

B008884

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 2

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

COOLING TOWER consisting of:

Water circulation, treatment and handling equipment, and air circulation equipment. Manufacturer, model and serial numbers will be specified when known.

Table with 2 columns: Capacity, Equipment Description. Rows include 2750.0 Eleven 250 hp Cooling Cell Fans, 4000.0 Four 1000 hp Water Circulation Pumps, 6750.0

COPY
NOT A VALID PERMIT

CONDITIONS:

- 1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. The drift rate shall not exceed 0.0006 percent with a maximum circulation rate of 146,000 gallons per minute, and the maximum Total Dissolved Solids shall not exceed 8190 ppm. The maximum hourly PM10 emission rate from this device and the evaporative condenser shall not exceed 2.00 pounds per hour, as calculated per the written District-approved protocol.
4. The operator shall perform weekly tests of the blow-down water quality. The operator shall maintain a log which contains the date and result of each blow-down water quality test, and the resulting mass emission rate. This log shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.
5. The operator shall conduct all required cooling tower water quality tests in accordance with a District-approved test and emissions calculation protocol. Thirty (30) days prior to the first such test the operator shall provide a written test and emissions calculation protocol for District review and approval.

Fee Schedule: 1(d) Rating: 6750.0 SIC: 4911 SCC: 99999999 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY: [Signature] DATE: 5/4/2004
For: Charles L. Fryxell
Air Pollution Control Officer

6. A maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators. This procedure is to be kept on-site and available to District personnel on request.

COPY
NOT A VALID PERMIT



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661
AUTHORITY TO CONSTRUCT

B008883

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 2

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

DESCRIPTION:

EVAPORATIVE CONDENSER (INLET CHILLER) consisting of:

Water circulation, treatment and handling equipment, and air circulation equipment. Manufacturer, model and serial numbers will be specified when known.

<u>Capacity</u>	<u>Equipment Description</u>
320.0	Four 60 hp Cooling Cell Fans
500.0	Water Circulation Pump
820.0	

COPY
NOT A VALID PERMIT

CONDITIONS:

1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.
3. The drift rate shall not exceed 0.0006 percent with a maximum circulation rate of 17,000 gallons per minute, and the maximum Total Dissolved Solids shall not exceed 8190 ppm. The maximum hourly PM10 emission rate from this device and the cooling tower shall not exceed 2.00 pounds per hour, as calculated per the written District-approved protocol.
4. The operator shall perform weekly tests of the blow-down water quality. The operator shall maintain a log which contains the date and result of each blow-down water quality test, and the resulting mass emission rate. This log shall be maintained on site for a minimum of five (5) years and shall be provided to District personnel on request.
5. The operator shall conduct all required cooling tower water quality tests in accordance with a District-approved test and emissions calculation protocol. Thirty (30) days prior to the first such test the operator shall provide a written test and emissions calculation protocol for District review and approval.

Fee Schedule: 1(C) Rating: 820.0 SIC: 4911 SCC: 99999999 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY:

DATE:

5/4/2004

For: Charles L. Fryxell
Air Pollution Control Officer

6. A maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators. This procedure is to be kept on-site and available to District personnel on request.

COPY
NOT A VALID PERMIT



Mojave Desert AQMD
14306 Park Avenue, Victorville, CA 92392-2310 (760) 245-1661

AUTHORITY TO CONSTRUCT

E008885

If construction is not completed by the expiration date of this permit, it may be renewed for one additional year upon payment of applicable fees. Any additional extension will require the written approval of the Air Pollution Control Officer. This Authority to Construct may serve as a temporary Permit to Operate provided the APCO is given prior notice of intent to operate and the Permit to Operate is not specifically denied.

EXPIRES LAST DAY OF: JANUARY 2005

Page 1 of 1

OWNER OR OPERATOR (1437)

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

EQUIPMENT LOCATION: (02472)

Blythe Energy Project II
15560 West Hobson Way
Blythe, CA 92225

**COPY
NOT A VALID PERMIT**

DESCRIPTION:

IC ENGINE, FIRE PUMP consisting of:

One Caterpillar, Diesel fired internal combustion engine, Model No. 3306B and Serial No. tbd, Direct Injected, Turbo Charged, producing 303 bhp with 6 cylinders at 2200 rpm while consuming a maximum of 14 gal/hr. This equipment powers a Pump.

CONDITIONS:

1. Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be installed, operated and maintained in strict accord with those recommendations of the manufacturer/supplier and/or sound engineering principles which produce the minimum emissions of contaminants.
3. This unit shall be limited to use for emergency fire fighting, and as part of a testing program which does not exceed 60 minutes of testing operation per week (up to two hours once per year for annual testing and up to four hours once every three years for triennial testing).
4. The owner/operator (o/o) shall use only diesel fuel whose sulfur concentration is less than or equal to 0.05% on a weight per weight basis in this unit.
5. The o/o shall maintain a log for this unit, which, at a minimum, contains the information specified below. This log shall be maintained current and on-site for a minimum of five (5) years and shall be provided to District personnel on request:
 - a. Date of each test;
 - b. Duration of each test, in minutes;
 - c. Annual operation summary, in calendar year fuel consumption (gallons) or hours;
 - d. Fuel sulfur concentration (the o/o may use the supplier's certification of sulfur content if it is maintained as part of this log).

Fee Schedule: 7(g) Rating: 1.0 SIC: 4911 SCC: 20100102 Location/UTM(Km): 715E/3725N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Caithness Blythe II, LLC
565 5th Avenue, 29th Floor
New York, NY 100172478

BY:

DATE: 5/4/2004

For: Charles L. Fryxell
Air Pollution Control Officer

Appendix A - Emission Calculation Detail

NO_x, CO and VOC Calculations

Based on S-W data sheet at 59 F, w/duct firing, but no inlet cooling.

Enter data in yellow cells:

Actual Exhaust Gas = 3,562,120 lb/hr

	Exhaust Gas Mole percent	Dry percentages	In 100 moles:
N ₂ + AR	75.4	0.823144105	82.31441
O ₂	12.18	0.132969432	13.29694
CO ₂	4.02	0.043886463	4.388646
H ₂ O	8.4		
Total	100		100

Net, dry 91.6

Solve: $(O_2 \text{ moles} + 0.209X) / (N_2 \text{ moles} + O_2 \text{ moles} + CO_2 \text{ moles} + X \text{ moles}) = 0.15$

Where, X = no. of moles of excess air needed for exhaust mixture to have 15% O₂)

Hence, $O_2 + 0.209X = 0.15N_2 + 0.15O_2 + 0.15CO_2 + 0.15X$

$$\begin{aligned}
 13.29694323 &+ .209X = 12.34716157 & 1.994541 & 0.658297 & + .15X \\
 &0.059X = 1.703056769 \\
 &X = 28.86536896 \text{ moles of excess air needed for 15\% O}_2
 \end{aligned}$$

Therefore,	O ₂	N ₂ +Ar	CO ₂	Total
	19.32980534	105.1469173	4.388646	128.8654
Percentages:	0.15	0.815943943	0.034056	1

Compute MW of dry exhaust:

$$4.8 \quad 22.84643042 \quad 1.498466 \quad \mathbf{29.1449 \text{ lb/mole}}$$

Turbine Exhaust for 15% O₂, dry = 4,590,339.08 lb/hr or 157500.6 mole/hr

Pollutant	Conc. (ppmvd)	Emission Rate
NO _x	2.0	14.49 lb/hr
CO	4.0	17.64 lb/hr
VOC	1.15	2.90 lb/hr

NOx, CO and VOC Calculations

Based on S-W data sheet at 20 F, w/no duct firing, no inlet cooling.

Enter data in yellow cells:

Actual Exhaust Gas = 3,768,897 lb/hr

	Exhaust Gas Mole percent	Dry percentages	In 100 moles:
N2 + AR	75.88	0.822012783	82.20128
O2	12.51	0.135521612	13.55216
CO2	3.92	0.042465605	4.246561
H2O	7.69		
Total	100		100

Net, dry 92.31

Solve: $(O_2 \text{ moles} + 0.209X) / (N_2 \text{ moles} + O_2 \text{ moles} + CO_2 \text{ moles} + X \text{ moles}) = 0.15$

Where, X = no. of moles of excess air needed for exhaust mixture to have 15% O2)

Hence, $O_2 + 0.209X = 0.15N_2 + 0.15O_2 + 0.15CO_2 + 0.15X$

$$13.5521612 + .209X = 12.33019175 + 2.032824 + 0.636984 + .15X$$

$$0.059X = 1.447838804$$

$$X = 24.53964075 \text{ moles of excess air needed for 15\% O}_2$$

Therefore,

	O2	N2+Ar	CO2	Total
	18.68094611	101.6121341	4.246561	124.5396
Percentages:	0.15	0.815901937	0.034098	1

Compute MW of dry exhaust:

$$4.8 \times 22.84525424 + 1.500315 \times 29.14557 = 29.14557 \text{ lb/mole}$$

Turbine Exhaust for 15% O2, dry = 4,693,770.78 lb/hr or 161045.8 mole/hr

Pollutant	Conc. (ppmvd)	Emission Rate
NOx	2	14.82 lb/hr
CO	4	18.04 lb/hr
VOC	1.12	2.89 lb/hr

		Main Cooling Tower	Evaporative Condenser	Totals
Flow Rate	<i>gallons/minute</i>	146000	17000	
Mass Flow Rate	<i>pounds/minute</i>	1217640	141780	
Max Drift Rate	<i>Percentage</i>	0.0006	0.0006	
Drift Rate	<i>pounds/minute</i>	7.31	0.85	
Max Solids	<i>TDS (ppm)</i>	8190	8190	
PM Rate	<i>pounds PM/minute</i>	0.06	0.01	
PM Rate	<i>pounds PM/hour</i>	3.59	0.42	
PM10 Rate	<i>pounds PM10/hour</i>	1.795	0.209	2.00

Notes:

Drift rate assumes 0.0006 percent thanks to drift eliminators

Calculation assumes max Total Dissolved Solids of 8190 ppm in each device

PM10 assumes 50 percent PM10

SOx Calculations

	units	Without Duct Firing	With Duct Firing
Max heat input	MMBTU/hr	1628	1760
Max fuel use	scf/hr	1721840	1861449
Sulfur	grains/hr	8609	9307
Sulfur	lb/hr	1.23	1.33
As SOx	lb/hr	2.46	2.66

Calculation assumes 945.5 BTU/scf and 0.5 gr/100 dscf

Pounds per transient event:

		Duration	NOx	CO	VOC	SO2	PM
CT3	Cold	221	376	3700	20	8	22
	Warm	121	278	2200	12	4	12
	Hot	74	260	2200	9	3	7
	Shutdown	30	170	48	4	1	3
CT4	Cold	186	341	3700	17	6	19
	Warm	89	246	2200	10	3	8
	Hot	64	247	2200	8	2	6
	Shutdown	30	170	48	4	1	3
Pounds per hour:							
CT3	Cold		102.08	1004.52	5.43	2.17	5.97
	Warm		137.85	1090.91	5.95	1.98	5.95
	Hot		210.81	1783.78	7.30	2.43	5.68
	Shutdown		340.00	96.00	8.00	2.00	6.00
CT4	Cold		110.00	1193.55	5.48	1.94	6.13
	Warm		165.84	1483.15	6.74	2.02	5.39
	Hot		231.56	2062.50	7.50	1.88	5.63
	Shutdown		340.00	96.00	8.00	2.00	6.00

Maximum Annual Emissions with Startups/Shutdowns

	No.	min per	total hours	NOx	pounds per hour			
					CO	VOC	SOx	PM10
Cold Start (CT3)	10	221	36.8	102.08	1004.52	5.43	2.17	5.97
Cold Start Downtime (CT3)	10	2880	480.0					
Warm Start (CT3)	50	121	100.8	137.85	1090.91	5.95	1.98	5.95
Warm Start Downtime (CT3)	50	1440	1200.0					
Hot Start (CT3)	186	74	229.4	210.81	1783.78	7.30	2.43	5.68
Shutdown (CT3)	246	30	123.0	340.00	96.00	8.00	2.00	6.00
Operation (CT3)			6589.9	14.49	17.64	2.90	2.66	6.00
		Total CT3 Hours:	8760.0					
Cold Start (CT4)	10	186	31.0	110.00	1193.55	5.48	1.94	6.13
Cold Start Downtime (CT4)	10	2880	480.0					
Warm Start (CT4)	50	89	74.2	165.84	1483.15	6.74	2.02	5.39
Warm Start Downtime (CT4)	50	1440	1200.0					
Hot Start (CT4)	186	64	198.4	231.56	2062.50	7.50	1.88	5.63
Shutdown (CT4)	246	30	123.0	340.00	96.00	8.00	2.00	6.00
Operation (CT4)			6653.4	14.49	17.64	2.90	2.66	6.00
		Total CT4 Hours:	8760.0					
Cooling Towers			8760.0	0	0	0	0	2.0
Facility Annual Total (pounds)				403209	1369630	44979	37129	102320
Facility Annual Total (tons)				202	685	22	19	51

Notes:

- Operation NOx estimated using 59 deg F V84.3A @ 100% load with duct firing (2.0 ppmvd)
- Operation CO estimated using 59 deg F V84.3A @ 100% load with duct firing (4.0 ppmvd)
- Operation VOC estimated using 59 deg F V84.3A @ 100% load with duct firing (1.15 ppmvd)
- Operation SOx estimated as SO2 using 0.5 gr/100 dscf and maximum fuel use (w/duct firing)
- Operation PM10 uses estimate for front and back half
- Startup and shutdown NOx and VOC emissions using Siemens V84.3A2 specific data
- Startup and shutdown emissions for CO use actual test data from BEP I
- Annual hours assumes minimum outage length prior to operations

Maximum Daily Emissions with Startups/Shutdowns

	No.	min per	total hours	pounds per hour				
				NOx	CO	VOC	SOx	PM10
Cold Start (CT3)	1	221	3.7	102.08	1004.52	5.4299	2.172	5.9729
Hot Start (CT3)	2	74	2.5	210.81	1783.78	7.2973	2.432	5.6757
Shutdown (CT3)	2	30	1.0	340.00	96.00	8.00	2.00	6.00
Operation (CT3)			16.9	14.82	18.04	2.89	2.66	6.00
Total CT3 Hours:			24.0					
Cold Start (CT4)	1	186	3.1	110.00	1193.55	5.48	1.94	6.13
Hot Start (CT4)	2	64	2.1	231.56	2062.50	7.50	1.88	5.63
Shutdown (CT4)	2	30	1.0	340.00	96.00	8.00	2.00	6.00
Operation (CT4)			17.8	14.82	18.04	2.89	2.66	6.00
Total CT4 Hours:			24.0					
Cooling Towers			24	0	0	0	0	2.0
Facility Daily Total (pounds)				2924	17016	187	120	335

Notes:

No outages

Operation NOx uses 20 deg F V84.3A @ 100% load without duct firing (2.0 ppmvd)

Operation CO uses 20 deg F V84.3A @ 100% load without duct firing (4.0 ppmvd)

Operation VOC uses 59 deg F V84.3A @ 100% load with duct firing (1.15 ppmvd)

Operation PM10 uses estimate for front and back half

Operation SOx estimated as SO2 using 0.5 gr/100 dscf and maximum fuel use (with duct firing)

Startup and shutdown NOx and VOC emissions using Siemens V84.3A2 specific data

Startup and shutdown emissions for CO use actual test data from BEP I

Maximum Annual Emissions by Operation Hours

	Hrs	NOx	CO	VOC	SOx	PM10
Operation (CT3)	8760	14.49	17.64	2.90	2.66	6.00
Operation (CT4)	8760	14.49	17.64	2.90	2.66	6.00
Cooling Towers	8760	0	0	0	0	2.0
Facility Annual Total (pounds)		253866	309054	50773	46589	122676
Facility Annual Total (tons)		127	155	25	23	61

Same assumptions as with transients for operation hours

Maximum Daily Emissions by Operation Hours

	Hrs	NOx	CO	VOC	SOx	PM10
Operation (CT3)	24	14.82	18.04	2.89	2.66	6.00
Operation (CT4)	24	14.82	18.04	2.89	2.66	6.00
Cooling Towers	24	0	0	0	0	2.0
Facility Daily Total (pounds)		711	866	139	128	336

Same assumptions as with transients for operation hours

Blythe Energy Project II	NOx	CO	VOC	SOx	PM10
Annual with Transients (tons)	202	685	22	19	51
Annual by hours (tons)	127	155	25	23	61
Max Annual (tons)	202	685	25	23	61
Daily with Transients (pounds)	2924	17016	187	120	335
Daily by hours (pounds)	711	866	139	128	336
Max Daily (pounds)	2924	17016	187	128	336