

**DOCKET** 

11-AFC-3

DATE JUN 04 2012

**RECD.** JUN 05 2012

June 4, 2012

Siting Committee
Raoul Renaud, Hearing Officer
Eric Solorio, Project Manager
California Energy Commission
Docket No. 11-AFC-3
1516 9<sup>th</sup> St.
Sacramento, CA 95814

Cogentrix Quail Brush Generation Project - Docket Number 11-AFC-3, Initial Response to CEC Data Requests, 71 through 74

**Docket Clerk:** 

Pursuant to the provisions of Title 20, California Code of Regulations, and on behalf of Quail Brush Genco, LLC, a wholly owned subsidiary of Cogentrix Energy, LLC, Tetra Tech hereby submits the Initial Response to CEC's Data Requests, 71 through 74. The Quail Brush generation Project is a 100 megawatt natural gas fired electric generation peaking facility to be located in the City of San Diego, California.

The topics addressed in this letter include the following:

- Air Quality
- Worker Safety and Fire Protection

If you have any questions regarding this submittal, please contact Rick Neff at (704) 525-3800 or me at (303) 980.3653.

Sincerely,

Constance E. Farmer

Project Manager/Tetra Tech

Constance C. Frence

cc: Lori Ziebart, Cogentrix John Collins, Cogentrix Rick Neff, Cogentrix Proof of Service List



# BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

1516 NINTH STREET, SACRAMENTO, CA 95814 1-800-822-6228 – www.energy.ca.gov

# APPLICATION FOR CERTIFICATION FOR THE QUAIL BRUSH GENERATION PROJECT

DOCKET NO. 11-AFC-03 PROOF OF SERVICE (Revised 4/12/2012)

#### **APPLICANT**

Cogentrix Energy, LLC C. Richard "Rick" Neff, Vice President Environmental, Health & Safety 9405 Arrowpoint Boulevard Charlotte, NC 28273 rickneff@cogentrix.com

Cogentrix Energy, LLC
John Collins
Lori Ziebart
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#### **APPLICANT'S CONSULTANTS**

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\*Dorian S. Houser 7951 Shantung Drive Santee, CA 92071 dhouser@cox.net

\*Kevin Brewster 8505 Mesa Heights Road Santee, CA 92071 Izpup@yahoo.com

#### **INTERESTED AGENCIES**

California ISO
<u>e-mail service preferred</u>
<u>e-recipient@caiso.com</u>

City of Santee
Department of Development
Services
Melanie Kush
Director of Planning
10601 Magnolia Avenue, Bldg. 4
Santee, CA 92071
mkush@ci.santee.ca.us

\*Morris E. Dye Development Services Dept. City of San Diego 1222 First Avenue, MS 501 San Diego, CA 92101 mdye@sandiego.gov

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# <u>ENERGY COMMISSION – PUBLIC ADVISER</u>

Jennifer Jennings
Public Adviser's Office
<u>e-mail service preferred</u>
publicadviser@energy.state.ca.us

#### **DECLARATION OF SERVICE**

Qua 74.	onstance Farmer, declare that on _June 4, 2012, I served and filed a copy of the il Brush Generation Project (11-AFC-03) Initial Response to CEC's Data Requests, 71 through This document is accompanied by the most recent Proof of Service list, located on the web a for this project at: [http://www.energy.ca.gov/sitingcases/quailbrush/index.html].
	document has been sent to the other parties in this proceeding (as shown on the Proof of ice list) and to the Commission's Docket Unit or Chief Counsel, as appropriate, in the following ner:
•	eck all that Apply) service to all other parties:
$\boxtimes$	Served electronically to all e-mail addresses on the Proof of Service list;
	Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first- class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses <b>NOT</b> marked "e-mail preferred."
ANE	
For	filing with the Docket Unit at the Energy Commission:
$\boxtimes$	by sending an electronic copy to the e-mail address below (preferred method); OR
	by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:
	CALIFORNIA ENERGY COMMISSION – DOCKET UNIT Attn: Docket No. 11-AFC-3 1516 Ninth Street, MS-4 Sacramento, CA 95814-5512 docket@energy.state.ca.us
OR,	if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:
	Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:
	California Energy Commission Michael J. Levy, Chief Counsel 1516 Ninth Street MS-14 Sacramento, CA 95814 mlevy@energy.state.ca.us

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.



A Project Company of Cogentrix Energy, LLC

9405 Arrowpoint Boulevard Charlotte, North Carolina 28273-8110 (704) 525-3800 (704) 525-9934 - Fax

June 4, 2012

Siting Committee
Raoul Renaud, Hearing Officer
Eric Solorio, Project Manager
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Re: Quail Brush Generation Project (11-AFC-03)
Initial Response to CEC's Data Requests, 71 through 74

Dear Members of the Siting Committee and Mr. Solorio:

In response to the CEC's Data Requests, 71 through 74, dated May 14, 2012 and pursuant to Section 1716(f) of the CEC's regulations, Quail Brush Generation Project (Quail Brush) objects to data requests 71, 72, and 73 and requests additional time to respond to data request 74. Each of these Data Requests is itemized below along with a description of the grounds for the objection or the reasons for the inability to provide the information, as applicable.

- 71. <u>Perform source testing for nitrogen dioxide and nitric oxide on an existing Wartsila 20V34G-C2 engine or similar model</u>. The Applicant objects to this request as it is seeks information that is not reasonably available to the applicant. The Applicant is also not aware of any recently certified facilities that have been subjected to pre-AFC certification testing. Our reasons for the objection are as follows:
  - 1. The Applicant does not presently own a 20V34SG-C2 engine that can be tested to establish or verify the requested ratio data.
  - 2. The Applicant sought this information from the manufacturer but was informed that no such data for the 20V34SG engines or variants is available.
  - 3. The Applicant is not aware of any operating facility where it can obtain this information. The Applicant is aware of three (3) facilities in the US that have used the –C2 variant engine. These facilities are as follows:
    - a. Hutchinson Utilities Commission
      225 Michigan St.
      Hutchinson, MN 55350
      # of engines installed = 1 (not PSD)
      Permit most likely issued by the State of Minnesota-Dept of Health
      Contract awarded 10/2011, operations expected in late 2012.

b. Golden Spread Electric Coop
905 South Filmore
Suite 300
Amarillo, TX 79101
# of engines installed = 18 (not PSD, prior to GHG Tailoring Rule)
At the Antelope Station in Abernathy, TX
Permit most likely issued by Texas CEQ-Air Div
Operations began in 6/2011.

c. Lea County Electric Coop
1300 W Ave D
Lovington, NM 88260
# of engines installed = 5 (not PSD)
At the LCEC Generation, LLC site
Permit most likely issued by NM Environment Dept-Air Quality Bureau
Contract awarded early 2010, operations expected in early fall 2012.

Based on preliminary contacts with these sources, as well as searches on the websites of the above-referenced permitting agencies, the one facility that is operational (GSEC-Antelope) has either not tested for  $NO_2/NO_x$  ratios, or if tests have been done, they have not been released for public use. The Applicant cannot compel this facility to conduct such testing or to release the results of any non-publicly available testing that has been completed.

4. The Applicant also believes that this information is not reasonably necessary to evaluate the potential impacts of the proposed project or for the CEC to make a decision on the AFC. The justification presented in the background section preceding this data requests includes what the Applicant believes to be premised on a misunderstanding of the data already submitted in these proceedings.

The background section states that the Applicant's use of the CAPCOA "statistical average value" for the source category is not appropriate for an engine that is 3 times larger than the units proposed by QBPP. The Applicant disagrees with this statement because the CAPCOA recommended value and the data used in the Applicant's modeling, constitutes the best available scientific data and is appropriate. Further, as is discussed below, this data is representative of the source class.

The Applicant notes that both the CAPCOA referenced document as well as the San Joaquin Valley APCD modeling guidance document titled "Assessment of Non-Regulatory Options in AERMOD-Specifically OLM and PVMRM, 9/2010", indicate that "Currently, limited information is available on in-stack NO2/NOx ratios nation-wide. A literature search of available data revealed in-stack NO2/NOx ratios for a limited number of sources, see Appendix C. If a source is not listed, the source type that best represents the source under review will be used." The Applicant, in its use of the CAPCOA "recommended value" for large natural gas fired, lean burn engines, with controls such as SCR and CO catalysts, is simply following the guidance document. The value used may well be for an engine that is smaller than what is proposed by QBPP, but the basic engine characteristics for the category delineated in the CAPCOA listing are present, i.e., 4000 HP or above, natural gas fired, lean burn design, 4-stroke configuration, equipped with SCR and CO catalyst.

The Applicant used the "recommended value" which was established by CAPCOA (Engineering Managers) and was based on a statistical average. The Applicant did not use the range, because, as we stated in response to CEC Data Request #13 (docketed on March 8, 2012 as one of Applicant's responses to the CEC's Data Request Set 1), the calculation of a statistical average of 1.15%, with a range of values from 0% to 21.28% requires that an overwhelming majority of the values in the range be less than 1%. For this

reason the average or "recommended value" was used. Furthermore we note that the CAPCOA document was a collaborative effort between such agencies as the Air Resources Board, various APCDs/AQMDs, the CEC, and EPA Region 9. As such, the Applicant should be afforded the option of relying upon the CAPCOA document until such time as the database(s) provide a more robust data set covering a wider variety and size of sources, as well as operational scenarios. Additionally, the applicant notes that the data submitted in response to CEC Data Request #13 included data for similar engine configurations that shows very low  $NO_2/NO_x$  ratios which are consistent with the CAPCOA listing. The Applicant has used, to the best of its ability, the best data available.

At the request of EPA Region 9, the Applicant also contacted San Joaquin Valley APCD on March 26, 2012 in an effort to obtain information on potentially similar engines and their emissions. In response, Leland Villalvazo at the San Joaquin Valley APCD has recently supplied the Applicant with the following additional information:

- a. **Stationary Source data**, included as Attachment #1 was an excel spreadsheet that contains data on four (4) engine models. Data set 1 was for a Cooper-Bessemer, NG fired, 2-stroke engine rated at 4000 hp, this engine had no add-on controls for NOx or CO. Data set 2 was for a marine MaK/8M32 engine rated at 5046 hp, firing diesel fuel only, equipped with SCR and CO catalyst. Data set 3 was for a marine Stork/8TM410 engine rated at 5720 hp, firing diesel fuel only, with no controls. Data set 4 was for a Fairbanks Morse 38ETDD8-1/6, 2-stroke, dual-fueled engine rated at 4410 hp, equipped with SCR only. Applicant determined that none of these data sets were applicable to the proposed project. None of these engines are similar to the QBPP Wartsila engines in one or more of the following categories: fuel type, stroke configuration, HP, or service (peaking power units). Therefore, it does not make sense to rely on these data sets in analyzing the proposed project.
- b. **Compliance Verification Report**, included as Attachment #2 was a variance compliance report dated February 2010 for California Power Holdings, LLC, Unit 12, which is a Deutz, natural gas fired engine, rated at 4157 hp, equipped with SCR, with **no** CO catalyst. The compliance report was accompanied by a summary of 70 "short term" source tests on Unit 12 for CO, NO, NO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>. The statistical average NO<sub>2</sub>/NO<sub>x</sub> ratio from these tests was 0.67%, with 45 of the tests showing NO<sub>2</sub>/NO<sub>x</sub> ratios of 0.0%.

Data contained in Attachment #2 is for an engine with similar characteristics as the QBPP engines, but notably has no CO catalyst. Even without the CO catalyst, this engine showed  $NO_2/NO_x$  ratios that are consistent with the CAPCOA listed values, and as such, the Applicant believes its use of the CAPCOA value is both representative of the source class, and is a reasonable value for use in the impact analysis.

72. Provide NO<sub>2</sub>/NO<sub>x</sub> ratios during the times post combustion equipment are not operating or operating at reduced removal efficiencies. Quail Brush objects to this data request as it seeks information that is not reasonably available and which is not necessary to evaluate the proposed project's potential impacts. For the reasons discussed in response to DR 71 above, the current NO<sub>2</sub>/NO<sub>x</sub> ratio databases and available information do not provide any applicable data on which to establish such ratios for any operational scenario other than normal or steady state operations with respect to large, natural gas-fired, lean burn, 4-stroke, internal combustion engines such as those proposed for the Quail Brush project.

The Applicant is also not aware of any basis for utilizing a lower or different ratio for non-steady state operational periods such as start-ups and commissioning. Being unaware of any basis for utilizing a lower  $NO_2/NO_x$  ratio for periods such startup, commissioning, etc., the Applicant's decision to refrain from using different values for these non steady-state operational scenarios is reasonable and justified. Therefore, no further calculations should be required.

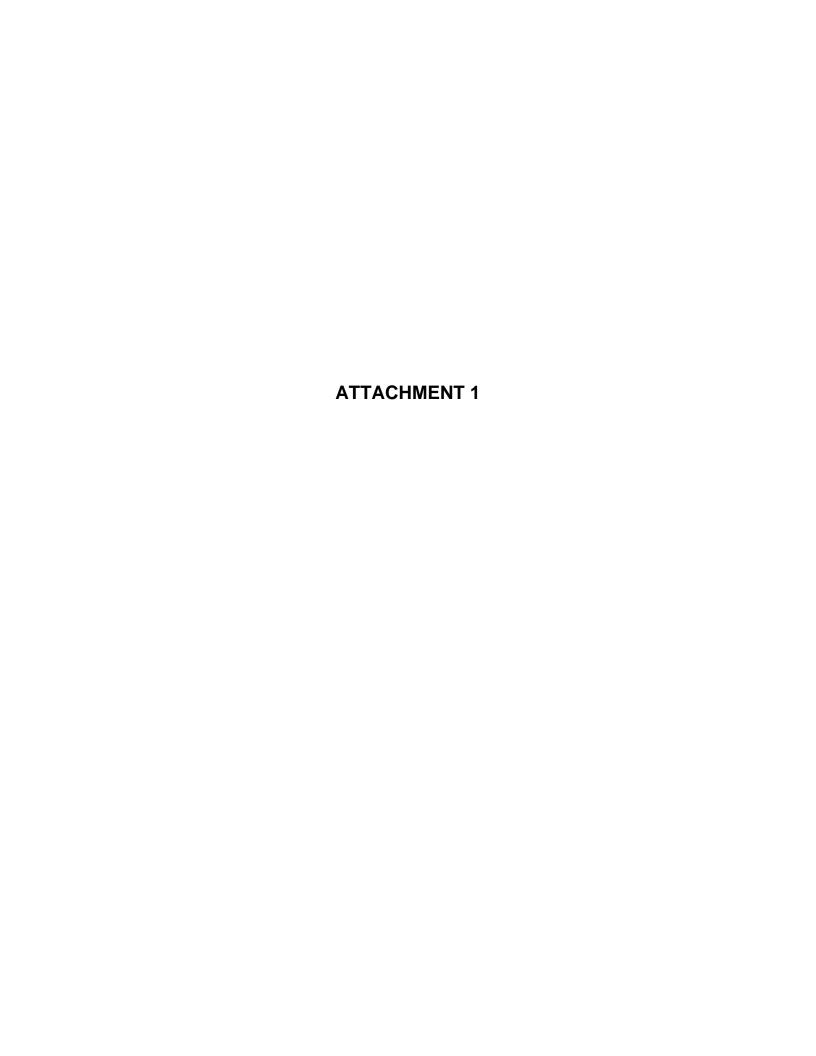
- 73. Remodel 1-hour NO<sub>2</sub> AAQS using the appropriate NO<sub>2</sub>/NO<sub>x</sub> ratios for each operating scenario. Quail Brush objects to this data request as it seeks information that is not reasonably available and is not necessary for the CEC to make a determination on the AFC. As discussed in responses to DR 71 and 72 above, there is no information available which can be utilized to further refine the anticipated NO2/NOx ratio for the proposed project. Therefore, remodeling is not necessary.
- 74. <u>Provide a plan to address safe temporary evacuation of the facility</u>. Quail Brush will be unable to provide this plan on June 13, 2012. Quail Brush is working on its Fire Emergency Plan, which will include the items addressed in this data request. Quail Brush anticipates docketing its draft Fire Emergency Plan on July 9, 2012.

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge

Regards,

C. Richard Neff

Vice President



# Compliance Verification Report

03/17/2010 11:41 am

Variance: C-10-05E

Type: Emergency

Hearing Date: 02/16/2010

Source:

CALIFORNIA POWER HOLDINGS LLC

**SJVAPCD** 

Variance

**Location: 16457 AVENUE 24 1/2** 

City: Chowchilla

Supervisor

Rule(s):

1081,2070,2201,4702

Equipment: The subject equipment consists of a 4,157 HP Deutz natural gas fired engine used to generate

electricity. The emissions are controlled by a selective catalytic reduction (SCR) system

Scope Of Variance: The variance shall allow for the operation of the subject engine with excess NOX while

CPH operates the engine to diagnose the reason behind the high NOX measurements. In

addition, the variance will allow for the postponement of the annual source test.

Please verify that the following increments of progress have been met. After verifying that final compliance has been achieved, send the report with any supporting documentation to the Central Region Office.

DATE	INCREMENTS OF PROGRESS	COMPLETED
02/16/2010	Variance Begins	2/16/2010
03/17/2010	Variance Ends/Compliance Required	3/01/2010
04/01/2010	Summary Report Due	3/15/2010

Compliance with all applicable District rules was	achieved	on <u>3</u>	01/	2010		
Compliance with all of the above increments was	s achieved	on <u>3</u>	10)	2010		
Final compliance with this variance was verified		1.17/2	010			
Method of verification: Summay Reflection (CEM Data, Correspondence, District Action, Email, Hearing Bo		spection, Pro	duction Da	ta, Report, Sou	urce Test, Not	ice, or VEE)
Excess emissions associated with variance:	7	·				
	Poliutant	Quantity	Units	Pollutant	Quantity	Units
Pollutant Quantity Units	Pollutant	Quantity	Units	Pollutant	Quantity	Units
$\sim$			(1	•		

# BEFORE THE HEARING BOARD OF THE SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT CENTRAL REGION STATE OF CALIFORNIA

In the matter of: California Power Holdings, LLC 16457 Avenue 24 ½ Chowchilla, CA 93610	DOCKET NO. (	C-10-05E
For a variance from:  1081 – Source Sampling  2070.7.0 – Operation According to the Permit to Operate Conditions  2201 – New and Modified Stationary Source Review Rule  4702 – Internal Combustion Engines	ORDER GRAN	
District Permit Number: C-3775-12-5	Granted on:	February 16, 2010
	Effective from:	February 16, 2010
EPA Airs Number: N/A )	Effective to:	March 17, 2010

On February 11, 2010, California Power Holdings, LLC, (CPH) filed with the Central Region Hearing Board a petition for an emergency variance. CPH requested that the Hearing Board grant an emergency variance from San Joaquin Valley Unified Air Pollution Control District (District) Rules 1081, 2070.7.0, 2201, and 4702.

On February 16, 2010, CPH came before Mr. Robert Schumacher, Vice Chair of the Central Region Hearing Board, to obtain an emergency variance. The hearing was held pursuant to California Health and Safety Code (CH&SC) Section 42359.5 and District Rule 5200 – *Emergency Variance*. Mr. Ron Dahlin represented CPH, while Mr. Patrick Houlihan, Senior Air Quality Specialist, represented the District.

#### **LOCATION AND EQUIPMENT**

- 1. CPH operates a "peaker plant" electrical power generating facility located at 16457 Avenue 24 ½ in Chowchilla, CA.
- 2. The subject equipment consists of a 4,157 HP Deutz natural gas fired engine used to generate electricity. The emissions are controlled by a selective catalytic reduction (SCR) system.
- 3. The operation of the subject equipment is authorized by duly issued District Permit to Operate (PTO) #C-3775-12-5.

Petitioner: California Power Holdings, LLC

Docket #: C-10-05E

Date: February 16, 2010

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#### **BACKGROUND**

CPH operates 16 natural gas fired engines that are used to generate electricity. Each engine is connected to a 3.1 mega-watt generator. CPH is a "peaker plant" and only operates their engines when called upon to provide electricity to the grid. These engines were due for their annual source test by February 26, 2010. In anticipation of the source test, CPH started the engines to pre-test the exhaust emissions and perform any maintenance if deemed necessary. CPH pre-tested the emissions with a portable exhaust analyzer. Engine #12 tested with high NO<sub>X</sub> emissions of 9.5 ppm. The PTO requires that NO<sub>X</sub> emissions stay below a concentration of 9 ppm. CPH shut the engine down and replaced the catalyst, adjusted the engine valves, and replaced the spark plugs. Unfortunately, this still did not reduce emissions down below the PTO limit. CPH preceded with the source tests on the other 15 engines, but had to postpone engine #12's source test. Since CPH still hadn't brought the engine into compliance, they had to request a variance to allow for excess emissions and to postpone the source test. CPH needs to evaluate the engine and control technology to bring the engine into compliance quickly because they stand the chance of losing revenue if called upon to provide electricity and can't do so.

#### **RULE REQUIREMENTS AND VIOLATIONS**

- 1. The equipment subject to this variance is regulated by the following District Rules:
  - A. 1081 Source Sampling
  - B. 2070.7.0 Operation According to the Permit to Operate Conditions
  - C. 2201 New and Modified Stationary Source Review Rule
  - D. 4702 Internal Combustion Engines
- 2. District Rule 2070.7.0 requires that the subject equipment be operated in accordance with the conditions of the applicable PTO. District Rules 2201 and 4702 limits NO<sub>X</sub> emissions. District Rules 1081 and 4702 require a source test every 12 months for this engine.
- 3. The subject equipment will be in violation of the applicable District Rules and PTO conditions if the subject engine operates during the variance period with excess NO<sub>X</sub> emissions.

#### FINDING OF FACT

Pursuant to CH&SC Sections 42352 - 53 and District Rule 5200 - Emergency Variance, the following findings have been made:

 That the petitioner for a variance is, or will be, in violation of Section 41701 or of any rule, regulation, or order of the District.

The Hearing Board finds that the operation of the engine with excess  $NO_X$  emissions is a violation of District Rules 2070.7.0, 2201, and 4702, in addition to the applicable PTO conditions. Not source testing every 12 months is a violation of District Rules 1081 and 4702 in addition to the applicable PTO conditions.

2. That, due to conditions beyond the reasonable control of the petitioner requiring compliance would result in either (1) an arbitrary or unreasonable taking of property, or (2) the practical closing and elimination of a lawful business.

Petitioner:

California Power Holdings, LLC

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C-10-05E

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The Hearing Board finds that CPH attempted to correct the emissions violation within the timeframe allotted by the conditions of the PTO. The attempts were unsuccessful and a proper cause of the excess emissions was not diagnosed. Because the PTO does not allow for anymore operation with excess emissions, CPH would not be allowed to operate this engine without receiving a Notice of Violation. CPH did shut down the engine after measuring the excess emissions and have not operated it since. Not allowing future operation of this engine would result in an arbitrary or unreasonable taking of property.

English address

3. That the closing or taking would be without a corresponding benefit in reducing air contaminants.

The Hearing Board finds that given the minimal excess emissions, the closing or taking would be without a corresponding benefit in reducing air contaminants. In addition, if the variance is not granted to allow CPH to fix the engine, CPH could lose approximately \$1000 a day each time the subject engine is called upon by the California Independent System Operator (Cal ISO) to provide electricity to the grid.

4. That the applicant for the variance has given consideration to curtailing operations of the source in lieu of obtaining a variance.

The Hearing Board finds that CPH shut down the engine upon discovering the excess emissions. However, a long term operational curtailment is not feasible due to the contractual requirements to provide power when called into service by the Cal ISO. Also, a curtailment will not allow CPH to diagnose the problem. The engine needs to be in operation for diagnosis.

5. During the period the variance is in effect, that the applicant will reduce excess emissions to the maximum extent feasible.

The Hearing Board finds that excess emissions will be reduced to the maximum extent feasible by only operating the engine as necessary to diagnose and fix the cause of the excess NO<sub>x</sub>.

6. During the period the variance is in effect, that the applicant will monitor or otherwise quantify emission levels from the source, if requested to do so by the District, and report these emissions levels to the District pursuant to a schedule established by the District.

The Hearing Board finds that during the variance period, CPH will continue to monitor emissions from the subject engine with a portable exhaust emissions analyzer. This information will be provided to the District upon request.

Petitioner:

California Power Holdings, LLC

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#### **CONCLUSIONS AND ORDER**

NOW, THEREFORE, the CENTRAL REGION HEARING BOARD ORDERS that an emergency variance be granted to California Power Holdings, LLC, subject to the following conditions:

- 1. The variance shall be effective from February 16, 2010 to March 17, 2010, or until such time the engine achieves compliance with the permitted emissions limit, whichever occurs first.
- Variance relief shall only be granted from the applicable sections of District Rules 1081, 2070.7.0, 2201, and 4702, in addition to conditions 9 and 18 of PTO #C-3775-12-5, but only as they pertain to the operation of the subject engine with excess NO<sub>X</sub> emissions and source testing every 12 months.
- 3. The variance shall allow for the operation of the subject engine with excess  $NO_X$  while CPH operates the engine to diagnose the reason behind the high  $NO_X$  measurements. In addition, the variance will allow for the postponement of the annual source test.
- 4. Excess NO<sub>X</sub> emissions shall not exceed 0.5 pounds per hour during operation of the subject engine during the variance period.
- 5. No relief from other excess emissions shall be provided.
- 6. No relief shall be provided from the results of the source test.
- 7. No exceedences of the Daily Emission Limit shall be allowed.
- 8. CPH shall maintain records in accordance with condition #31 of PTO C-3775-12-5 and shall report those on the summary report as required below.
- 9. CPH shall utilize a portable exhaust analyzer to measure the emissions every time the subject engine operates. The results reported to the District shall be the average of a consecutive 15 minute run corrected to 15% oxygen.
- 10. Should the District receive complaints or if the facility experiences operation conditions likely to cause a public nuisance, CPH shall cease the operations causing the complaints or problems and take all necessary actions to abate the problem immediately.
- 11. By April 1, 2010, or 15 days after the emergency variance is completed, whichever occurs first, CPH shall submit to the District a summary report. However, if another variance or series of variances regarding this same matter should be granted by the Central Region Hearing Board, submittal of said summary report should occur in accordance with the time frames established within said variances. The report shall include:
  - A. A summary of all corrective actions taken to bring the engine's emissions into compliance;
  - B. Date, time, and duration of operation of the engine;
  - C. Date of source test;

Petitioner:

California Power Holdings, LLC

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February 16, 2010

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- D. Copies of all emissions sampling and calibration data from the portable exhaust analyzer; and
- E. Calculation of the actual excess NO<sub>x</sub> emissions released during the variance period.
- 12. All notifications and submittals to the District pursuant to this variance shall be submitted to the attention of:

Mr. Ryan Hayashi, Supervising AQS SJVUAPCD - Compliance Department 1990 E. Gettysburg Avenue

Fresno, CA 93726

Telephone: (559) 230-6000

E-mail: ryan.hayashi@valleyair.org

13. Failure to comply with any condition of this variance may render the variance null and void.

#### THE FORGOING DECISION IS APPROVED:

hhn RAK	2-28-10	
Mr. Robert Schumacher, Vice Chair	Date	
√Hearing Board – Central Region	•	
San Joaquin Valley Unified APCD		
ATTEST:		
	3/1	
Angie DeSantiago, Clerk to the Boards	2/10	
Angie DeSantiago, Clerk to the Boards	Date	

#### **Corrective Actions Summary**

**PTQ Emissions Variance** 

California Power Holdings, Chow II Facility

Date: March 5, 2010

Asset Manager: John Walsh Facility Manager: Ron Dahlin

Operator: Gary Dean

RE: Statement of corrective actions taken to correct Engine 12 emissions problem including sampling & calibration data.

#### February 24, 2010

- Replaced worn ball joints for both A & B side speed governor throttle linkages after they
  were found to be sticky.
- Re-checked all valve clearances to confirm proper adjustment.
- The engine was not operated.

#### February 25, 2010

- During calibration of the two fuel stepper motors, a strange sound was noticed from the B-side unit. The motor was tested off the engine and found to be intermittently faulty. It failed to move properly in both directions.
- Replaced the faulting stepper motor with spare.
- At 10:28 engine 12 was started and brought to proper operating temperature then operated until 14:53. While monitoring with the portable analyzer the engine emission levels were below permit limits.
- Measured 15-min average NOx @ 15% O2 4.6ppm

#### February 26, 2010

- At 08:59 engine 12 was started and brought to normal operating temperature then operated until 13:48.
- Adjustments were made to the jacket water control valve to improve engine load fluctuations.
- Adjusted SCR dosing system back to standard operating levels.
- While monitoring with the portable analyzer emission levels were below permit limits.
- Measured 15-min average NOx @ 15% O2 4.5ppm

#### March 1, 2010

- At 08:34 engine 12 was started and brought to normal operating temperature then operated until 12:26.
- Made additional adjustments to jacket water control system to further improve engine load fluctuations. Engine load now running with very little fluctuation, improving overall engine performance.
- While monitoring with the portable analyzer emission levels were below permit limits.
- Measured 15-min average NOx @ 15% O2 5.8ppm

#### Conclusion

- Corrections for engine 12 are complete and the unit is available to operate normally with all emissions within compliance of the PTO.
- The follow-up source test for Engine 12 is scheduled for March 12, 2010.
- Copies of all emissions sampling and calibration data are attached.
- There were no excess NOx emissions during the period of time that the unit operated.

In accordance with Condition 1 of the Emergency Variance, Engine 12 achieved compli	iance with
the permitted emission limits and was returned to normal operation on March 1, 2010.	Therefore,
the Emergency Variance is no longer in effect.	

Asset Manager	Date	
•		

### Corrective Actions Summary PTO Emissions Variance

California Power Holdings, Chow II Facility

Date: March 8, 2010

Asset Manager: John Walsh Facility Manager: Ron Dahlin

Operator: Gary Dean

RE: Statement of corrective actions taken to correct Engine 12 emissions problem including sampling & calibration data.

#### February 24, 2010

- Replaced worn ball joints for both A & B side speed governor throttle linkages after they
  were found to be sticky.
- Re-checked all valve clearances to confirm proper adjustment.
- The engine was not operated.

#### February 25, 2010

- During calibration of the two fuel stepper motors, a strange sound was noticed from the B-side unit. The motor was tested off the engine and found to be intermittently faulty. I failed to move properly in both directions.
- Replaced the faulting stepper motor with spare.
- At 10:28 engine 12 was started and brought to proper operating temperature then operated until 14:53. While monitoring with the portable analyzer the engine emission levels were below permit limits.
- Measured 15-min average NOx @ 15% O2 4.6ppm

#### February 26, 2010

- At 08:59 engine 12 was started and brought to normal operating temperature then operated until 13:48.
- Adjustments were made to the jacket water control valve to improve engine load fluctuations.
- Adjusted SCR dosing system back to standard operating levels.
- While monitoring with the portable analyzer emission levels were below permit limits.
- Measured 15-min average NOx @ 15% O2 4.5ppm

#### March 1, 2010

- At 08:34 engine 12 was started and brought to normal operating temperature then operated until 12:26.
- Made additional adjustments to jacket water control system to further improve engine load fluctuations. Engine load now running with very little fluctuation, improving overall engine performance.
- While monitoring with the portable analyzer emission levels were below permit limits.
- Measured 15-min average NOx @ 15% O2 5.8ppm

#### Conclusion

- Corrections for engine 12 are complete and the unit is available to operate normally with all emissions within compliance of the PTO.
- The follow-up source test for Engine 12 is scheduled for March 12, 2010.
- Copies of all emissions sampling and calibration data are attached.
- There were no excess NOx emissions during the period of time that the unit operated.

In accordance with Condition 1 of the Emergency Variance, Engine 12 achieved compliance with the permitted emission limits and was returned to normal operation on March 1, 2010. Therefore the Emergency Variance is no longer in effect.

Asset Manager

Date

ECOM-A Plus Date Time

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Gas analysis

92, 25, 10

Fuel type Natural gas T. Air 68 65 ٥F T. Gas 02 9.1 % CO 15. 6% 12 ppm NO 15.0% 3.4 PPM NQ2 15.0% 0.0 PPM NOx 15.0% 3.5 FPM CO2 v 6.6 1. 76 71 Exc. air Sen. temp.

California Power Holdings, LLC. 16457 Avenue 24, 1/2 Blds. 6 Chowchilla, ¢A 93610 Phone: 559-665-4577 Fax: 559-665-4866

> Time Date 2:22:44 PM 02, 25, 19 Gas analysis Fuel type Natural sas 68 ٥F 65

ECOM-A Plus

T. Air T. Gas 9.1 % 25 PPM 7 02 CO 10.3 PPM HO 0.1 PPM N02 10,4 PPM NOx 6.6 C02 Exc.air 1. 76 71 ٥F Sen. temp.

California Power Holdines, LLC. 16457 Avenue 24 1/2 ECOM-A Plus

Date Time 62, 25, 10 02:24:10 PM Gas analysis Fuel type Natural gas T. Air 76 ٥F 68 T. Gas 7 02 9.3 CO 15.0% NO 15.0% NO2 15.0% 10 FFM 4,7 PPM 0.0 ppm NOx 15.0% 4,7 PPM 6, 5 × 002 1.79 Exc. air

California Power Holdings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

Sen. temp.

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Gas analysis

Fuel tyre Natural eas 76 T.Air 68 ٩F T. Gas G<sub>a</sub> 9, 5 02 21 PPM 00HO 9.1 PPM 9. 0 PP! M02 9.1 PPM HOx 002 1.79 Exc.air ٥F Sen. temp.

California Power Holdings, LLC. 16457 Avenue 24 1/2 61da. 6

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Gas analysis

	7 ,/
Fuel type Natural sas T. Air T. Gas O2	73 <sup>0</sup> °F 68 °F 9,3 %
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NO 15.0%	6.1 PPM
NO2 15.0%	0.0 PPM
NOX 15.0%	6.1 FPM
CO2	6.5 %
Exc.air	1.79
Sen.temp.	76 °F

California Power Holdings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

#### ECOM-A Plus

Date	Time
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#### Gas analysis

California Power Holdings, LLC. 16457 Avenue 24 1/2 31ds. 6 Thowchills, CA 93610 Thome: 559-665-4577 ax: 559-665-4866

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Fuel type Natural mas T.Air 74 °F T.Gas 68 °F 02 9.2 % CO 15 0% 10 PPM				17 F
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California Power Holdinas LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchills, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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#### Gas analysis

California Power, Holdings, LLC, L 16457 Avenue 24 1/2 81ds. 6 Chowchills. CA 93618 Phone: 559-665-4577 Fax: 559-663-4866

#### ECON-A Plus

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California Power Holdines, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chowchilla, CA 93610 Phone: 559 665-4577 Fax: 559-665\*4866

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#### Gas analysis

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California Power Holdinas, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax# 559-665-4866

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California Power Woldings, LLC. 16457 Avenue 24 1/2 91dg. 6 Chowchills, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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#### Gas analysis

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California Power Holdings LLC. 16457 (Wehue 24 1/2 - Blds. 46 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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#### ECON-A Plus

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Gas analysis

Fuel type Natural gas T. Air T. Gas 69 ٥F 02 % 00 15.0% NO 15.0% NO2 15.0% 19 sem 4.7 PPM 0.0 apm 30x 15.6% 4.7 ppm 0027 6.6 Exc. air 1, 78 Sen, temp.

California Power Holdinss, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax# 559-665-4866

#### ECOM-A Plus 522 Harrison Programme Section 1997

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Fuel type Natural eas ٥F T. Air ٥Ł. T. Gas 69 9, 3 % 0200 20 FFM 9. Ø ppm N02 0.0 ses MOx 9. 8 pen 6.5 % 1.79 002 Exclair 79 Sen. temp.

Dalifornia Power Holdings, M.C. 16457 Avenue 24 1/2 31ds. 6 Chowchilla, CA 93618 /hone: 559-665-4577 Pax: 559-565-4866

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Gas analysis

Fuel type Matural gas T. Air ٥F 76 T. 635 69 ۰F 02 9.3 % 15, 1% co. 10 sem NO 15, 9% NO2 15, 9% 5.0 apm 0.0 sem NUX 15, 8% 5, 9 >>m ¢02. 6. 5 7 Exc. zir 1.79 Sem temp.

California Power Holdings, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chduchilla, CA 93610 Phone: 559-665-4577 Fax: 559-565-4866

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Gas analysis

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California Power Holdings, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chowchilla, CA 93616 Phone: 359-665-4577 Fax: 559-665-4866

Engine #12 : 5 During Variance.

> ECOM-A Plus

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Gas analysis

Fuel type Natural sas T. Air T. Gas 59 92 0.5 9.2 % 00 15.9% NO 15.9% 10 ppm 4.7 FFM NO2 15. 8% 0.0 PPM NOx 15.6% 4.7 ppm 002 6.6 Exc. air Sen. temp.

California Power Holdinss, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

### ECOM-A Plus

Date Time 02.25.10 62:22:29 PM

Gas analysis

Fuel type Matural gas T. Air 76 ٥F T. Gas 69 ٥F 9.2 % 21 ppm 02CO HO 8.7 ppm M02O. O pom N0x8.7 FFM 002 6.6 Exc.air 1.78 Sen. temp.

California Power Holdings, LLC. 16457 Avenue 24 1/2 81ds. 6 Chowchilla, CA 93610 Phone: 559-665-4577

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California Power Holdinas, LLC. 16457 Avenue 24 1/2 Blda, 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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California Power Holdinas, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93618 Phone: 559-665-4577 Fax: 559-665-4866

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	California Power Holdings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610

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Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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California Power Holdings, LLC. 16457 Avenue 24 1/2 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866 Blds. 6

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92. 26. 19 11:11:15 Gas analysis

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California Power Holdings, LLC. 16457 Avenue 24 1/2 Chouchilla, CA 93610 Phone: 559-665-4577 Fax: 559-565-4866 B14a. 6

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California Power Holdings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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Gas analysis

California Power Holdinas, LLC. 16457 Aven∮e 24 1/2 81ds. 6 Chouchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

Fuel type Matural sas ٩F 74 T. Air OF 68 T. Gas 9.3 2 0222 PPM 009.0 ppm NO 0.2 PPM **HO2** M0x9. 2 PP% 6, 5 C02 1.79 Exc. air Sen temp. 78

California Power Moldines, LLC. 16457 Avenue 24 1/2 31ds. 6 Thouchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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Gas analy	sis
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California Hower Holdines, LUC. 16457 Avenue 24 1/2 61ds. 6 Chowchilla, CA 93619 Phone: 559-665-4577 Fax: 559-565-4866

#### -ECOM-6 Plus ---

Date 1:5 Time (62.26.18 11:51:52 AM Gas analysis Fuel tyre Natural sas T. Air ΦĊ. 0,5 T. Gas 68 9.3 02% CO 15.0% NO 15.0% NO2 15.0% 10 apm 4. 3 ppm 0.0 ppm 4.3 PPM NOX 15, 0% 6, 5 C02 Exc. air 1, 79 78 Sen. temp.

California Power Holdings, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

#### ECOM-A Plus ----

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California Power Holdinas, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

#### ECOM-A Plus

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Gas analysis

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California Power Holdings: LLC. 16457 Avenue 24 1/2 81ds. 6 Chowchills, CA 93610 Phone# 559-665-4577 Fax: 559-665-4866

#### ECOM-A Plus

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Gas analysis

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California Power · Höldings, LLC. 16457 Avenue 24 1/2 Bids. 6 Chowchilla, CA 93510 Phone: 559-665-4577 Fax: 559-665-4866

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California Power Holdings, LLC. 16457 Avenue 24 1/2 Bide. 6 Chowchilla, CA 93618 Phone: 559-665-4577 Fax: 559-665-4866

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California Power Holdinas, LLC. 16457 Avenue 24 1/2 Chowchilla, CA 93819 Phone: 559-665-4577 Fax: 559-665-4866

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California Power Holdinss, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

#### ECOM-A Plus Date Time 82.26.49 12:27:44 PM Gas analysis Fuel type Natural sas T. Air T. Gas 68 95 029.3 % Cũ 22 PPM 80.402 0.2 PPM

8.4 PFM

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California Power Holdines, LLC. 16457 Avenue 24 1/2 91ds. 6 Chowchilla, CA 93610 Phones 559-665-4577 Fax: 559-565-4866

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#### ECOM−A Plus - Data<sup>\*</sup> Time 7 pa ... 792, 26, 18 -12:33:47 PM Gas analysis Fuel type Natural sas T. Air ٥F T. Gas 68 0.7 02

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California Power Holdings, LLC. 16457 Avenue 24 1/2 B149. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

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California Power Holdings, LLC. 16457 Avenue 24 1/2 Blda. 6 Chowchills, 09 03619 Phone: 550-565-6377 Pax: 559-565-6866

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#### Gas analysis

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T. Air 7. Gas 02 CO 15. 0% NO 15. 0% NO2 15. 0% NOX 15. 0% CO2 Exc. air Sen. temp.	75 °F 68 °F 8.3 % 11 Feb 4.5 FFB 6.1 FFB 6.5 FFB 6.5 FFB 1.79 °F

California Power Holdings, ULC. 16457 Avanue 24 1/2 Bldg, 6 Chowchille, CA 93610 Phone: 559-665-457/ Fax: 559-665-4866

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Fuel type	
Natural sas	5
T. Gir	73 %
T. Sas	68 %
02	9, 2 %
CO	22 pem
MQ	9.0 ppm
N02	0.2 pm
NOx	9.2 ppg
<u>C</u> 02	5.6 %
Exc. air	1.78
Sen, temp.	79 PF

California Power Holdings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, Ca 93619 Phone: 555-865-4377 Fax: 559-11-1866

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Gas analysi: Fuel typs	
Matural sas	75 op
T.Air	40 op
T. Gas	68 97
02	9.3 %
00 15. <b>8</b> %	11 99m
NO 15. 8%	4.3 APM
NO2 15. 9%	0.1 PPM
NOx 15. 9%	4.4 APPM
CO2	6.5 %

California Power Holdines, LLC. 16457 Avenue 24 1/2 Blds. 6 Chouchilla, CA 93619 Phone: 559-665-4577 Fax: 559-665-4866

Exc. air Sen. temp.

### ECOM-A Plus

Date 82, 26, 19	Time 12:47:48 PM

#### Sas analysis

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Fuel tyre	<b>y</b>
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T.Air	75 °F
T. Gas	୫୫ ୧୮
02	9.2 %
C()	22 F=mi
Н0	8.6 ppm
NO2	0.2 ppm
NOx	ରିନ୍ତି ଅନ୍ତ
002	6.6 %
Excair	1. 78
Sen temp.	79 PF

California Power Moldings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

### ECOM-A Plus

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#### Gas analysis

Firel type	
Matural gas	
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	75 °F
ī. Gas	69 or
0.2 9,	3 %
CO 15.8%	11 sem
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NOx 15, 8% 4,	4 2PM
	5 %
Exc.air 1.	7 <b>5</b> 1
Sen. temp. 7	79 °F

California Power Holdings, LLC. 18457 Avenue 24 1/2 Blds. 6. Chowchilla, CA 93618 Phone: 559-665-4577 Fax: 559-665-4866

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#### Gus analysis

das sugras	1.5
Fuel type	
Matural sa:	5
T, Air	75 <b>°</b> F
T, Gas	63° 95
GB.	9.3 %
CD 15.8%	11 PPM
NO 15. 8%	4.4 PPM
NO2 15. 8%	8,0 թթա
MOx 15. 3%	4. 4 APIN
<u>C</u> 02	6.5 %
Exclair	1. 79
Sen temp.	79 °F

California Power Holdines: LLC, 16457 Avenue 24 1/2 Blds, 6 Chowchilla: CA 93618 Phone: 559-665-4577 Fax: 559-665-4866

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#### Gas analysis

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	15. 9%	9, 1	
	15. 9%	4.7	
002		6. 5	1,
Exc.		1.79	
gen.	temp.	79	ot.

California Power Holdings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93618 Phone: 559-665-4866

### ECOM-A Plus

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#### Gas analysis

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75	٥F
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9. 3	× .
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9, 9	FFM
0. 2	PP3
9, 2	0.2%
6, 5	%
1, 79	
79	op:
	75 69 9.3 22 9.8 0.2 9.2 6.5

California Power A Holdines LLC. 16457 Avenue 24 1/2 Blde. 6 Chowchilla, CA 93618 Phone: 559-665-4666 Fax: 559-565-4666

Gary Dean

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Date	Time
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Day a	day quatists			
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T. Air		71	٩F	
T. Gas	;	ક્રક્	oF.	
02		9.2	2	
CO 1	5, 9%	29	PPN	
80 1	5, 9%	4.8	PF Y	
M02 1	5, 9%	9. 9	PPM	
NOx 1	5. 8%	4.8	32m	
002		6. 8	%	
Exc. a	ir	1.79		
Sen.t	emp.	75	<b>়</b>	

California Power Holdings, LLC. 16457 Avenue 24 1/2 Elds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

### ECOM-A Plus

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#### Pas analysis

	• • • • •	
Fuel type		
Natural es		
T.Air	71 %	•
T.Gas	66 °F	•
02	9.2 %	
00	21 PPM	ţ
NQ	8.5 PF10	ı
802	<b>0.</b> 0 ppm	1
NOx	8.6 sem	i
C02	6.6 %	
Exc. air	1.78	
Sen. temp.	75 °F	

California Power Holdines, LLC. 16457 Avenue 24 1/7 Blds. 6 Chowchills, CA 93610 Phone: 550-665-4577 Fax: 559-565-4866

#### ECOM-A Plus 1 ------

	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Date 03.81.10	Time 89:41:47 9
Gas analy	sis
Fuel 1999 Natural 9 T.Air T.Gas 02 CO 15.03 NO 15.03 NO2 15.03 NOX 15.03 CO2 Exc.air Sen.temp.	15 72 °F 67 °F 9.2 % 10 FPF 5.4 7FM 6.0 PPM

California Power Holdings, LLC. 16457 Avenue 24 1/2 Bldg. wo Chowchills, CA 93610 Phone: ~559-665-4577 Fax: 559-66\$-4866

#### ECOM-A Plus napras napras na mana abas name

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gue auglas	15
Fuel type Natural es T. Air T. Gas O2 CO NO NO2 NO2 NOX CO2 Exc. air Sen. temp.	5 72 °F 67 °F 9.2 % 21 PFm 10.4 PFm 6.4 PFm 10.4 PFm 10.5 %
	)

California Hower Holdines, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4366

#### ECOM-A Plus

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#### Gas analysis

Fuel type		
Natural sas		
T. Air	73	of:
T. Gas	67	200
02	9, 2	i.
CO 15.0%	1 <u>1</u>	PPM
NO 15.9%	5. 3	25 M
NO2 15.9%	Ø. 6	mqe
NOx 15. 3%	5, 3	250
002	6. 6	×
Exc. sir	1.78	
Sen. temp.	76	야두

California Power Holdines: LLC. 16457 Avenue 24 1/2 Bld9. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4366

### ECOM-A Plus

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#### Gas analysis

Fuel type		
Natural sas		
T. Air	75	94.
T. 02.8	69	047
02	9, 2	X,
00 45, 6%	12	PPB
NC 13.9%	5.9	PPW
MC2 15.0%	Ø. 6	preg
NOx 15.9%	5. 9	
002	6.6	74
Exc. air	1, 78	
Sen. temp.	79	양

California Poser Holdings, LLC. 16457 Avenue 24 i/2 Bld9. 6 Chowchilla, CA 93615 Phone: 559-665-157 Fax# 559-665-4866

#### ECOM-A Plus

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#### Gas analysis

Fuel type Natural sa:	<del>.</del>	
T.Air	73	154.
1.625	67	:\f`
02	9, 2	%
CO	2.2	PPS
MO	9. 3	PPM
N02	9. 9	ppg
NOx	9, 3	PPS
CO2	6.6	- 24
Exc.air	1.78	
Sen temp.	76	9 <del>1</del>

California Power Holdinss, LLC. 16457 Avenue 24 1/2 Bldg. 6 Chowchilla, CA 93616 Phare: 359-665-4377 Fax: 559-565-4866

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#### Time **83.81.**10 11184029 (

#### Gas analysis

Fuel tyre	٠	
(Watural s	8.5	
T. Air	75	٥F
T. Gas	69	QÇ.
92	9, 2	4
00	23	P/FI0
NO	11,6	FPW
NO:2	S. 1	p.p.y
HOx	11.7	PFN
002	6.6	7.
Excair	1, 78	
Sen, teme.	?'9	٠,٠

California Power Foldinss/ LLC. 16457 Avenue 24 1/2 31de. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax# 559-665-4866

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# ECOM-A Plus :

Time Date 3. 91. 19

#### jas analysis

Fuel type	
Matural sas	
T. Sir	77 °F
r. Cas	71 °F
72	9.2 %
CO 15, 9%	12 pem
NO 15.8%	6.9 PPW
NO2 15.8%	9.0 een
40x 15.9%	6.9 sem
002	6.6 %
Exc. air	1, 78
Sen tenp.	80 °F

difornia Fower oldinasa LLC. 5457 Avenue 24 1/2 ide. 6 monchilla, CA 93616 apre: 559-665-4577 sxi 559-665-4866

#### ECOM-A Plus

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Gas analysis

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Fuel typ	e	
Natural	SRIS	
7. Air	77	야
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02	9.2	**
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NO 15. 0	5.5	226
NO2 15, 8	6 0.0	aistt
H0x 15. 9	5.5	SisW
002	6.6	2.
Excair	1, 78	
Sen temp	81	c E.

California Power Holdings, LLC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-565-4866

#### ECOMPA Plus

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Gas analysis

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Fuel	type		
Natu	mal sa	. <b>:\$</b>	
ī, ķi	i.r	77	٥F
Т. 6а	IS .	71	٥FT
02		9, 2	×
CQ	15.0%	11	⇒>iii
:10		5. 3	=Fili
N02		0, 9	$u_{k,M}$
M0x	15. 9%	5, 3	re m
002		8.3	7.
Exc.		1.78	
Sau	temp.	81	야

California Power Holdings, ULC. 16457 Avenue 24 1/2 Blds. 6 Chowchilla, CA 93610 Phone: 559-665-4577 Fax: 559-665-4866

#### ----SCOM-A Plus

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Gas analysis

Fuel type	
Matural sa	. <u></u>
T. Air	<u> </u>
ī, Gas	72 %
02	9,2 %
CO 15. %	Al Hem
MO 15, 0%	5.3 ppm
MO2 15, 9%	ស៊ី ស៊ី ភភព
MOx 15, 9%	5.8 eem
002	5.6 %
Dec. zir	1, 78
Sen. temp.	82 °F

California, Power Holdings, LLC. 16457 Avenue 24 1/2 Bids. 6 Chowchilla, CA 93618 Phone: 559-865-4877 Fax# 559-665-6868

#### ECOM-A Plus

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#### Gas analysis

Fuel type		
Hatural sa	₹.	
Hir	77	٥F
• •	71	op:
ii, Gas		•
02	9, 2	
ີເວັ	24	erm.
CO.		
:10	13, 5	PP PP
N0:2	9. 9	F-1-10
	13. 5	(PP9)
H0x		
0.02	6.6	.,
<b>-</b>	1.78	
Exc. air		
Sen tema.	89	Ŧ

California Fouer Holdings, LLC. 16457 Avenue 24 1/2 Bids. 6 Chowchilla, CA 93610 Phone: 559-565-4577 Fax: 559-565-4856

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Date Time 63. 01. 10 11:39:44 AM

Gas analy	ais
Foel type Natural s T. Gir T. Gas 02 00 NO2 NO2 CO2 Exc.air Sen. temp.	35 77 °F 71 °F 9.1 4 23 °P 14.1 °P 8.0 °P 14.1 °P 6.6 7 1.78
	1

California Power Holdings, L.C. 16457 Avenue 24 1/2 Blds. 6 Chowchille, CA 93618 Phone: 559-665-4577 Fax: 559-665-4866

#### ----ECOM-A Plus \*

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#### Sas analysis

Fuel typ	·e
Vatural	985
LAir	77 °F
ī. Gas	71 %
02	9, 2, 3
00	23 ppm
40	10.3 ppm
102	0.9 ppm
40x	10.3 ppm
002	6.6 %
Excuair	1.78
Sen, temp	. 81 °F

California Power Holdings, LLC. 16457 Avenue 24 1/2 91ds. 6 Chowchilla, CA 93618 Phone: 559-665-4877 Fax# 559-665-4866

### ECOM-A Plus

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Gas analysis

Fuel lape Matural sas T. Air 28 °F 72 . 643 31 029.2 % 23 ppm 00 40. 11.7 PP% 102 O. O men NO:: 11.7 pen 002 5. 5 1.73 "Exc. %i" Sen. teme. 82 °F

California Power Holdinss, LLC. 16457 Avenue 34 173 81da. 6 Chouchilla, CA 93616 Phone: 555-665-4377 Track 1859-265-4866

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T. Gas	;	71	of:
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H02 1		0. O	
NOx 1		6.9	
C02		6. 5	8
Exc. 8		1.78	
Sen. t	eme.	81	٥Ł

California Power Holdines, LLC. 16457 Avenue 24 1/2 Blds, € Chowchilla, CA 93610 Fhone: 559-665-4577 Fax# 559-665-4866

#### ECOM-A Plus # 1075 to 00000000 and no management of the con-

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#### Gas analysis

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Foel type		
Natural sa	5	
T. Air	77	÷.
T. Gas	71	oj:
02	9. 2	%
00	23	PPM
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M0x	12.9	SPM
C02	6. 6	%
Exc. air	1, 78	
Sen tempa	31	oji.

California Power Moldines, LLC. 16457 Avenue 24 1/2 814: 6 Chowchilla, CA 93618 Phones 559-665-4577 Fax: 559-665-4866

#### ECCM-A Plus ----

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Gas ភាគ	lysis
Fuel to	= <b>9</b>
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Fuel	ty Pal	> <b>9</b>		
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T. Ga - 02	33		71 9. 2	ু ১
C0	15. 15.	9% 0%	11 7. S	PPO
NO NO2	15. 15.		0, E	PPM PPM
NON	13.	0%	7, 5	PPM
CO2 Exc.	air		6.6 1.78	7,
Sen.	ter	P.,	31	ol:

California Power Holdings, LLC. 16457 Ovenue 24 1/2 Stde. 6 Chowchills, CA 93618 .Phone: 5\$9-665-4577 Fars 559-665-4866

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Fuel to	Pē	
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l. Gass	71	op.
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00	23	Pisin)
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California Power Holdinss LLC. 16457 Avenue 24 1/2 Chouchilla, CA 936:8 Phone: 559-665-4577 Fax: 559-665-4866

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#### ECOM-A Plus A CAMBOO CONTRACTOR OF THE PROPERTY OF THE PRO

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Fuel type	
Matural sa	g
T. Air	78 %
T. Gas	71 %
02	9. 2 %
CO 15, 9%	31 PFA
NO 15, 0%	6. 9 ppg
NO2 15, 9%	0. 9 500
HOx 15. 37	6, 8 FFM
503	6.6 %
Exc. air	1.78
Sen. temp.	82 %

California Power Holdinss, LLC. 16457 Avenue 24 1/2 81da, 5 Chewchilla, CA 93616

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ings wilding	HS.
Fuel type	
Matural sa	S
T. Air	78 %
I, Gas	71 %
02	9.2 %
CO 15. 9%	11 PM
NO 15, 0%	6. 9 ppg
NO2 13, 97	<b>8. 9</b> (1911)
MOx 15.37 362	6. 8 FFM
ouz Komanta	6.6 %
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Fuel ture	and an experience of the service of
Hatural e	B.13
Lair	7'9 op
T. Sag	71 %
02	9.3 %
00 80 -	23 FFM
no - No2	12.8 FFM
MOX	0.0 pen
002	12.8 FFM
Exa air	6.5 %
Sem temp,	. 1, 79
and the security of	82 %

lifornia Power ldinss, LLC. 157 Avenue 24 1/2 15 6 met 350-685-4577 : 559-665-4866

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#### Gas analysis

Fuel ture	
Mademal sa	.5
T. Sir	78 %
T. Gas	72 %
0:a	$9.\bar{3}.z$
CO 15. 9%	11 550
NO 15, 8%	4, 8 mm
H02 15.6%	3, g 21210
MOx 15, 2%	4.3 ppm
002	6.5 %
Exclair .	1.79
Sen temp.	82 %

California Poye · Holdinss, LLC. 16457 Avenue 24 1/2 3)ds. 8 Chowchilla, CA 93618 Phone: 559-665-4577 Dax: 559-665-4866

#### ECOK-A Plas Compagned sales to reserve the sales

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#### Sar analomie

cian analys	51,3 
Fuel type	
Natural sa	.5
T. Air	79 %
l, Gas	72 %
02	9.2 %
CO	23 pen
NO	9. 5 ppg
N02	0. 3 spm
MOx	9. J 1983
<u>C</u> 02	5. 5 %
Exc. air	1.78
Son, tame.	82 °F

California Power Holdinss, U.C. 15457 Avenue 24 1/2 - Sids. 5 Chowchilla, CA 93618 Phone: 559-665-457/ Faux 539-865-4866

ngine No.	Required Data	L		Ť																		A	oril	
	Reading No.	1	2	3	4	5 -	Avg.	1	2	3	4	5	Avg.	1	2	3	4	5	Avg.	1	2	3	4	5
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10	NOx PPM @ 15% O2			7	-		0.0						0.0						0.0					
	CO PPM @ 15% O2		-				0.0						0.0						0.0					
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12	NOx PPM @ 15% O2	4.7	4.4	4.2	4.7	5.0	4.6	4.2	4.4	4.4	4.6	4.9	4.5	6.8	6.0	5.5	5.5	5.3	5.8		ī			
	CO PPM @ 15% O2	10.0		10.0	10.0	10.0	10.0		11.0		11.0		10.8	12.0		11.0		11.0	11.2					
	O2 %	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.2	9.2	9.2	9.2	9.2	9.2		1			
	Reading No.	1	2	3	4	5	Avg.	1	2	3	4	5	Avg.	1	2	3	4	5	3.0	1	2	3	4	5
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	NOx PPM @ 15% O2						0.0						0.0						0.0		}			
	CO PPM @ 15% O2						0,0						0.0						0.0					Γ
	O2 %						0.0						0.0						0.0		1			
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	NOx PPM @ 15% O2						0.0						0.0						0.0		1			
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# ECOM AMERICA, LTD.

1628 Oakbrook Drive Gainesville, GA 30507

### \*Certificate of Calibration

This ECOM Model A Plus, Serial Number 9066, has been Calibrated and found to be within manufacturer specifications.

Technician. James Smith

Factory service performed February 2010.

Next factory service recommended August 2010.

### Certified Calibration Gases Used By ECOM

These gases are traceable to the National Institute of Standards and Technology.

CO Low 1000 PPM 2.00% Oxygen NO 30.0 PPM 0.00% Oxygen NO2 10.0 PPM Balanced In Air

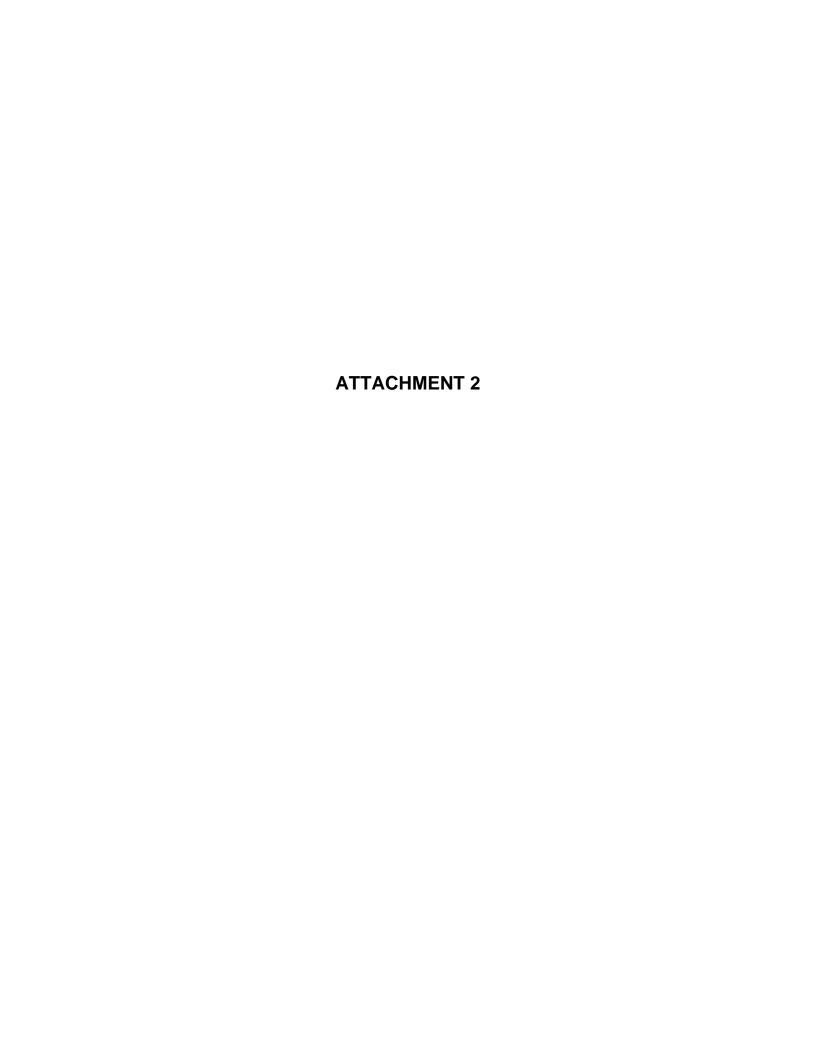
Lot # CC121897 Lot # SG9138680BAL Lot # XC002496B

#### **Calibration Data**

Type Gas	Actual Gas Value	As Found Data	Calibrated To Data
CO Low	1000 PPM	1359 PPM	1000 PPM
NO	30.0 PPM	37.9 PPM	30.0 PPM
NO2	10.0 PPM	10.1 PPM	10.0 PPM

<sup>\*</sup>Suitability for use is the sole responsibility of the user. Factors affecting the calibration and response of gas sensors include, but are not limited to Frequency & Duration of use, Concentration of gases measured, Shifts in ambient temperature (> 20 deg. F), & age of sensors.

This Certificate of Calibration verifies that the analyzer responded accurately, and within specification to the calibration gas concentrations listed above.



Stationary Source	Unit Description
CenterPoint Energy - Dunn	2 stroke lean burn RICE
CenterPoint Energy - Dunn	
CenterPoint Energy - Dunn	
CenterPoint Energy - Dunn	2 stroke lean burn RICE
CenterPoint Energy - Dunn	
CenterPoint Energy - Dunn	
Tor Viking II	Main Propulsion
Vladimir Ignatuk	Main Propulsion

EQUIP_DESC	Mfg
Cogeneration Engine, Fairbanks Morse, Model 38ETDD8-1/6. 4410 bhp, dual fired (98.5% natural gas, 1.5% fuel oil), S/N 38E201001TDFS12, lean burn driving 3165 kW electric generator, and exhausted to a selective catalytic reduction system and an oxidation catalyst.	Fairbanks Morse
Cogeneration Engine, Fairbanks Morse, Model 38ETDD8-1/6. 4410 bhp, dual fired (98.5% natural gas, 1.5% fuel oil), S/N 38E201001TDFS12, lean burn driving 3165 kW electric generator, and exhausted to a selective catalytic reduction system and an oxidation catalyst.	Fairbanks Morse

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Manufacture or	Emission Unit			Combustor	
Vendor	Number	Size	Fuel Type	Equipment	Control Equip
Cooper-bessemer	Unit 2	4000 HP	Natural Gas		none
Cooper-bessemer	Unit 4	4000 HP	Natural Gas		none
M = 17/0M00	T) / O	5040 hm	Discol		000 00
MaK/8M32	TV-2	5046 hp	Diesel		SCR, OxyC
MaK/8M32	TV-3	5046 hp	Diesel		SCR, OxyC
MaK/8M32	TV-2	5046 hp	Diesel		SCR, OxyC
MaK/8M32	TV-2	5046 hp	Diesel		SCR, OxyC
MaK/8M32	TV-2	5046 hp	Diesel		SCR, OxyC
MaK/8M32	TV-3	5046 hp	Diesel		SCR, OxyC
MaK/8M32	TV-3	5046 hp	Diesel		SCR, OxyC
MaK/8M32	TV-3	5046 hp	Diesel		SCR, OxyC
Stork/8TM410	VI-1	5720 hp	Diesel		None
Stork/8TM410	VI-2	5720 hp	Diesel		None
Stork/8TM410	VI-3	5720 hp	Diesel		None
Stork/8TM410	VI-4	5720 hp	Diesel		None
Stork/8TM410	VI-1	5720 hp	Diesel		None
Stork/8TM410	VI-1	5720 hp	Diesel		None
Stork/8TM410	VI-2	5720 hp	Diesel		None
Stork/8TM410	VI-2	5720 hp	Diesel		None
Stork/8TM410	VI-3	5720 hp	Diesel		None
Stork/8TM410	VI-3	5720 hp	Diesel		None
Stork/8TM410	VI-4	5720 hp	Diesel		None
Stork/8TM410	VI-4	5720 hp	Diesel		None

Model	BHP	Turbocharged	Aftercooled	Timing	Diesel Particulate Filter
38ETDD8-1/6	4410			_	_
38ETDD8-1/6	4410	-		_	_

38ETDD8-1/6	4410	_		_	_
38ETDD8-1/6	4410				_
38ETDD8-1/6	4410	_	_	_	_
38ETDD8-1/6	4410	l			_

Data Source		If Source	Source or	NO2	NO
(CEM, Source Test)	Test Run	Load Lev	Test Year	PPMv	PPMv
source test using	1	100	2000	442.72	1389.72
	2	100	2000	385.57	1299.45
	3	100	2000	341.11	1184.3
source test using	1	95	2000	416.07	1307.69
	2	95	2000	412.07	1328.61
	3	95	2000	498.88	1443.39
Methods 1 - 4, 7E	1	60%	2010	12	150.0
Methods 1 - 4, 7E	1	60%	2010	8	146.0
Methods 1 - 4, 7E	1	30%	2010	4	81.0
Methods 1 - 4, 7E	1	40%	2010	29	282.0
Methods 1 - 4, 7E	1	80%	2010	14	218.0
Methods 1 - 4, 7E	1	30%	2010	4	54.0
Methods 1 - 4, 7E	1	40%	2010	4	56.0
Methods 1 - 4, 7E	1	80%	2010	24	274.0
Methods 1 - 4, 7E	1	60%	2010	60	600.0
Methods 1 - 4, 7E	1	60%	2010	69	589.0
Methods 1 - 4, 7E	1	60%	2010	75	642.0
Methods 1 - 4, 7E	1	60%	2010	76	596.0
Methods 1 - 4, 7E	1	40%	2010	50	505.0
Methods 1 - 4, 7E	1	80%	2010	65	635.0
Methods 1 - 4, 7E	1	40%	2010	36	405.0
Methods 1 - 4, 7E	1	80%	2010	98	607.0
Methods 1 - 4, 7E	1	40%	2010	55	335.0
Methods 1 - 4, 7E		80%	2010	105	605.0
Methods 1 - 4, 7E	1	40%	2010	63	475.0
Methods 1 - 4, 7E	1	80%	2010	95	655.0

Add-on NOx Control	In-Combutor NOx Control	CO/VOC Control	Fuel	No. Tests	Average NOx, ppmv @ 15% O2
N/A	_	N/A	Natural Gas/Diesel	5	0.00
SCR	_	OxCat	Natural Gas/Diesel	5	7.42

N/A	_	N/A	Natural Gas/Diesel	5	0.00
SCR		OxCat	Natural Gas/Diesel	5	6.26
N/A	_	N/A	Natural Gas/Diesel	5	0.00
SCR	_	OxCat	Natural Gas/Diesel	5	6.40

NOx	NO2/NOx		
PPMv	Ratio	Company	Provided by
1832.44	0.24	Cetcon Inc.	Erik Snyder, R6
1685.02	0.23	Cetcon Inc.	Erik Snyder, R6
1525.41	0.22	Cetcon Inc.	Erik Snyder, R6
1723.76	0.24	Cetcon Inc.	Erik Snyder, R6
1740.68	0.24	Cetcon Inc.	Erik Snyder, R6
1942.28	0.26	Cetcon Inc.	Erik Snyder, R6
162.0	0.07	Emission Technologies, Inc.	Herman Wong R10
154.0	0.05	Emission Technologies, Inc.	Herman Wong R10
85.0	0.05	Emission Technologies, Inc.	Herman Wong R10
310.8	0.09	Emission Technologies, Inc.	Herman Wong R10
232.0	0.06	Emission Technologies, Inc.	Herman Wong R10
58.0	0.07	Emission Technologies, Inc.	Herman Wong R10
60.0	0.07	Emission Technologies, Inc.	Herman Wong R10
298.0	0.08	Emission Technologies, Inc.	Herman Wong R10
660.0	0.09	Emission Technologies, Inc.	Herman Wong R10
658.0	0.10	Emission Technologies, Inc.	Herman Wong R10
717.0	0.10	Emission Technologies, Inc.	Herman Wong R10
672.0	0.11	Emission Technologies, Inc.	Herman Wong R10
555.0	0.09	Emission Technologies, Inc.	Herman Wong R10
700.0	0.09	Emission Technologies, Inc.	Herman Wong R10
441.0	0.08	Emission Technologies, Inc.	Herman Wong R10
705.0	0.14	Emission Technologies, Inc.	Herman Wong R10
390.0	0.14	Emission Technologies, Inc.	Herman Wong R10
710.0	0.15	Emission Technologies, Inc.	Herman Wong R10
538.0	0.12	Emission Technologies, Inc.	Herman Wong R10
750.0	0.13	Emission Technologies, Inc.	Herman Wong R10

Average NO2/NOx	Maximum NO2/NOx	Minimum NO2/Nox	NO2/NOx Standard Deviation
23.38	35.40	12.20	8.48
57.80	61.00	54.60	2.30

29.72	43.90	19.40	9.76
54.08	55.80	52.90	1.16
27.12	35.30	19.40	6.11
42.26	62.10	19.60	19.29

Average Load, %	Notes	From
N/A	Sampled before the add-on control system.	San Diago AOMD
		San Diego AQMD
86.1%	Sampled after the add-on control system. Urea SCR.	
		San Diego AQMD

91.7%	Sampled before the add-on control system. Load only recorded during one test.	San Diego AQMD
87.4%	Sampled after the add-on control system. Urea SCR.	San Diego AQMD
92.0%	Sampled before the add-on control system. Load only recorded during one test.	San Diego AQMD
85.0%	Sampled after the add-on control system. Urea SCR.	San Diego AQMD