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Emissions Test Report

One (1) Caterpillar G3516 Spark-Ignited Engine
ID No. EGBLGEN-C (SN# 3RC10643)

Permit Testing

TRANSCANADA CORPORATION—ANR STORAGE COMPANY
BLUE LAKE GAS STORAGE COMPANY
MANCELONA, MI

Permit Number: MI-ROP-B7198-2008

Test Date: August 28, 2013

Test Report Date: September 23, 2013

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CECO Test Leader:

Brad Jones
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Table of Contents

| | |
|---|----|
| Revision History | 3 |
| Project Information | 3 |
| Contact Information | 3 |
| Facility Information | 3 |
| Testing Group Information | 3 |
| Introduction | 4 |
| Process Description | 4 |
| Test Purpose and Objectives | 4 |
| Summary of Results | 4 |
| Table 1: Summary of Results: EGBLGEN-C (SN# 3RC10643) Caterpillar G3516 | 4 |
| Methodology and Sampling Procedures | 5 |
| Methodology | 5 |
| Sampling System | 5 |
| Figure 1: Sampling System Schematic | 6 |
| Instrument Specifications | 7 |
| Description of Sampling Point | 9 |
| Appendices | 10 |
| Appendix A: Emission Calculations | 10 |
| Emissions Source Operational Data | 16 |
| Appendix B: Fuel Calculations | 19 |
| Appendix C: Sampling System Calibration Data | 24 |
| Bias Corrections | 27 |
| Appendix D: Reference Method QA/QC | 29 |
| Appendix E: Raw Data | 34 |
| Appendix F: Calibration Certificates | 60 |
| Appendix G: Visual Engine Documentation | 65 |
| Picture of Engine | 66 |
| Picture of Engine Plate | 66 |
| Appendix H: Test Personnel Qualifications/Attendees | 67 |
| Appendix I: Notes | 71 |
| Appendix J: Enthalpy Analytical, Inc. Analytical Report (0813-166) | 73 |

Introduction

CECO Training & Technical Services, a division of Compressor Engineering Corporation, conducted source emissions testing for volatile organic compounds (VOCs) at the TransCanada Corporation, Blue Lake Gas Storage Company on one (1) Caterpillar G3516 natural gas-fired, four stroke, lean burn internal combustion generator engine, rated at 1,125 brake horsepower (BHP). The performance of this test fulfilled the requirements outlined in Permit. This test report details the test purpose, objectives, testing procedures, including sampling and analysis methodology, and test results of the source emissions testing conducted on August 28, 2013.

Process Description

The Caterpillar G3516 reciprocating engine with a catalytic oxidizer is a natural gas-fired, four stroke, lean burn internal combustion engine driving an auxiliary generator for critical facility power.

Test Purpose and Objectives

The purpose of this test was to conduct the required three (3) 60-minute test runs to measure the selected emission species at the maximum achievable load. This test was conducted in fulfillment of Permit. The objective was to determine the emission concentrations of VOCs. TABLE 1 presents the emission units and emission species measured during the testing along with the permitted emissions limits.

Summary of Results

| Pollutant | pounds / hour | |
|-----------|---------------|-----------|
| | Permitted | Emitted * |
| VOCs | 0.9 | ND |

* Zero or negative numbers treated as non-detect (ND)

Table 1: Summary of Results: EGBLGEN-C (SN# 3RC10643) Caterpillar G3516

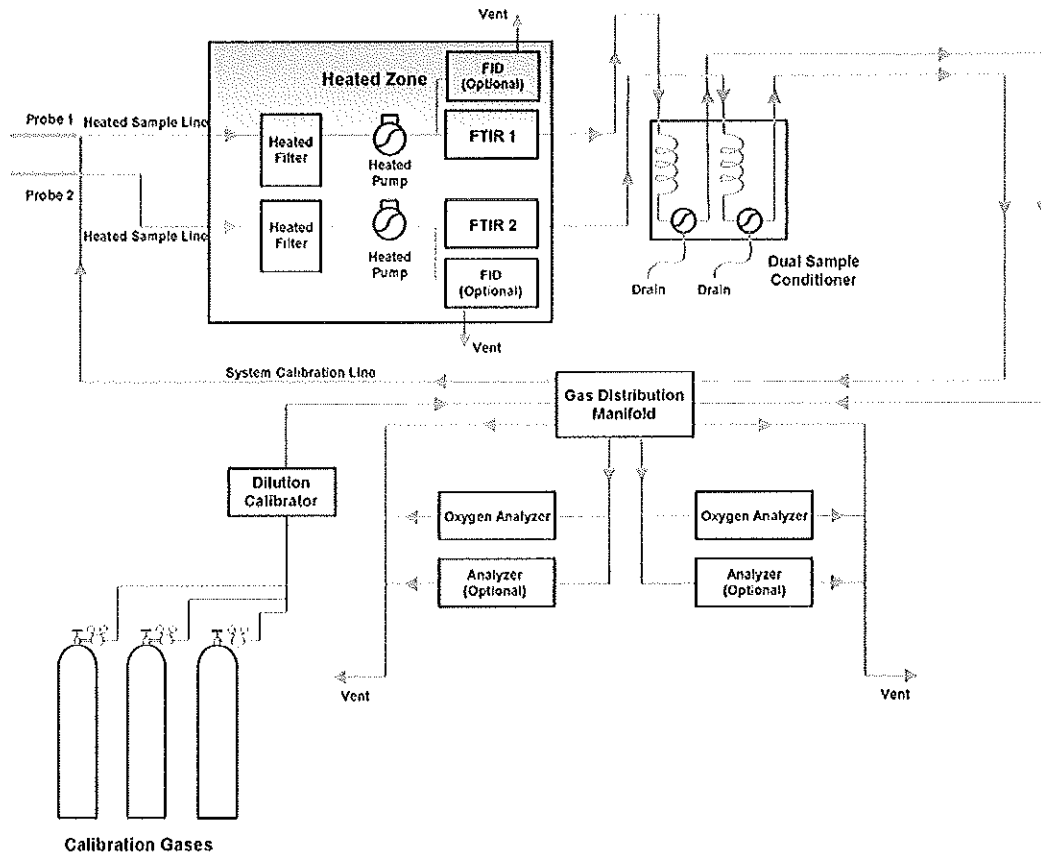


Figure 1: Sampling System Schematic

Sample Flow Rate: 2,5 Liters/Minute
Response Time (90% FSD): < 1.2 seconds
Linearity: Up to 10,000 ppm within 1% FSD

Manufacturer: Vaisala

Model: PTU300

Serial Number: D2120007

Barometric pressure

Pressure range 500 ... 1100 hPa

Accuracy 500 ... 1100 hPa 500

Linearity +/-0.05 hPa

Hysteresis +/-0.03 hPa

Repeatability +/-0.03 hPa

Calibration uncertainty +/-0.07 hPa

Accuracy at +20 deg C +/-0.10 hPa

Temperature Dependence +/-0.1 hPa

Total accuracy (-40 ... +60 deg C/-40 ... +140 deg F) +/-0.15 hPa

Relative humidity

Measurement range 0 ... 100 % RH

Accuracy (including non-linearity, hysteresis and repeatability

at +15 ... +25 deg C +/-1 %RH (0 ... 90 % RH)

+/-1.7 %RH (90 ... 100 %RH)

at -20 ... +40 deg C +/- (1.0 + 0.008 x reading) %RH

at -40 ... +60 deg C +/- (1.5 + 0.015 x reading) %RH

Factory calibration uncertainty (+20 deg C)

(Defined as +/-2 std deviation limits. Small variations possible)

+/- 0.6 % RH (0 ... 40 %RH)

+/- 1.0 % RH (40 ... 97 %RH)

Sensor: Vaisala HUMICAP(c) 180(R)

Response time (90 %) at +20 deg C (+68 deg F)

Temperature

Measurement range, all probes -40 ... +60 deg C (-40 ... +140 deg F)

Accuracy at +20 deg C (+68 deg F) +/- 0.2 deg C (+/- 0.4 deg F)

Temperature units deg C, deg F

Temperature sensor: PT100 RTD 1/3 Class B IEC 751