Brown AND Caldwell

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Technical Memorandum

Prepared for: Pima County

Project Title: Ina Road WRF Digester Gas Sampling Program

Project No: 143277

Technical Memorandum No. 1

Subject: Initial Digester Gas Sampling Activities

Date: October 22, 2012

To: Prakash R. Rao, P.E.

From: Jason Wiser, P.E.

Copy to: Jing Luo, P.E.

Prepared by: Jason Wiser, P.E., Senior Engineer, 54084, 12/31/12

Reviewed by: Gary Newman, P.E., Vice President

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ARIZONA, U.S.A.
Expires 12/31/12

Limitations:

This document was prepared solely for PCRWRD in accordance with professional standards at the time the services were performed and in accordance with the contract between PCRWRD and Brown and Caldwell dated 10/22/2012. This document is governed by the specific scope of work authorized by PCRWRD; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by PCRWRD and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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1. Introduction

The Pima County Regional Wastewater Reclamation Department (PCRWRD) owns and operates the Ina Road and Roger Road Water Reclamation Facilities (WRF). In addition, PCRWRD also owns and operates seven sub-regional wastewater treatment facilities in Pima County plus the Randolph Park WRF. As part of the Regional Optimization Master Plan, PCRWRD is upgrading the Ina Road WRF and developing a new Water Reclamation Campus (WRC). Sludge collected at the new WRC will be pumped to the Ina Road WRF where it will be anaerobically digested with Ina Road WRF sludge.

The Ina Road WRF has six anaerobic digesters, two of which were recently added during the ongoing plant expansion. Currently, digester gas is collected from each anaerobic digester in piping laterals that convey the gas to the digester head house. At the head house, digester gas from all six anaerobic digesters is pressurized and combined into a single header for conveyance to the cogeneration facility. The current digester gas utilization process does not include any form of gas treatment to remove contaminants such as siloxanes or hydrogen sulfide (H_2S). The raw digester gas is used to fuel engine-generators that produce electricity for onsite use to offset a portion of the WRF's electrical power demand. Heat is also recovered from the engine-generators and used to maintain the anaerobic digesters at their proper operating temperature. The exisiting cogeneration system is nearing the end of its useful life and will soon be decomissioned.

In the future, PCRWRD intends to purify its digester gas to pipeline quality and sell it for off-site utilization. To that end, PCRWRD is preparing a Request for Proposal (RFP) to solicit interested parties to submit proposals for the development of a project to collect, treat, and utilize all digester gas produced at the Ina Road WRF. The RFP will include Ina Road WRF digester gas characteristics so that proposers clearly understand the level of treatment that will be required to convert the raw gas to pipeline quality. Brown and Caldwell has been commissioned by the PCRWRD to support the RFP development by establishing a digester gas sampling and analysis program. It is anticipated that results from the digester gas sampling program will be included in the RFP.

This Technical Memorandum 1 (Tech Memo 1) describes the digester gas sampling program at the Ina Road WRF and includes results from the initial four sampling events.

1.1 Scope of Work

The intent of this program is to provide data on the characteristics of the digester gas produced at the Ina Road WRF over the course of a full year. The scope of work primarily includes analyzing digester gas samples. More specifically, the digester gas sampling program includes the following activites as described in the scope of work defined by PCRWRD.

1.1.1 Weekly Sampling

Collect digester gas samples on a weekly basis for a period of 4 weeks. Each sample shall be collected on a different day of the week so that any variability in gas characteristics can be recognized. Two of the four weekly sampling events shall occur on a Saturday and Sunday. Upon collection, samples shall be shipped overnight to the laboratory for immediate analysis.

Status: This activity has been completed by Brown and Caldwell.

1.1.2 Monthly Sampling

At the conclusion of the initial four sampling events, collect monthly digester gas samples for the remaining 11 months of the program. Digester gas sampling, shipment, and analysis protocols shall be

identical to those for the weekly samples; namely, samples will be collected on different days of the week and shipped overnight to the laboratory for immediate analysis.

Status: This activity will be performed by PCRWRD. Brown and Caldwell will work closely with PCRWRD to ensure a successful transition of digester gas sampling responsibilities.

1.1.3 Gas Analysis

The analytical laboratory shall perform a full BTU analysis on the first digester gas sample. The full BTU analysis will indicate the methane (CH_4), carbon dioxide (CO_2), nitrogen (N_2), and oxygen (O_2) concentrations of the gas sample. If the results of the analysis are in line with what is expected for typical anaerobic digester gas then a BTU analysis will not be required for any subsequent digester gas samples. If further BTU analyses are deemed unnecessary then subsequent BTU analyses will be replaced with a fixed gas analysis. Like the BTU analysis, the fixed gas analysis shall report CH_4, CO_2, N_2 and O_2 concentrations. In addition to being analyzed for the concentrations of key constituents, the digester gas samples shall also be analyzed for impurities, including siloxanes and H_2S. All laboratory reports shall be sent to Brown and Caldwell for interpretation and inclusion with project deliverables.

Status: This activity is in progress. A full BTU analysis was performed on the first digester gas sample. Based on results reported for the first digester gas sample, a full BTU analysis in not required for subsequent samples.

1.1.4 Technical Memorandum

Develop a technical memorandum summarizing the results of the initial four sampling events and deliver its findings to PCRWRD. Include laboratory reports for each gas sample as an appendix to the technical memorandum.

Status: This activity is complete with this submittal of this Tech Memo 1.

1.1.5 Final Report

At the conclusion of the entire sampling program, develop a final report, summarizing the results of all digester gas sampling events. The final report shall establish digester gas quality, which in turn will be used by PCRWRD to develop the Ina Road WRF digester gas utilization RFP. Compile and include all laboratory analysis reports as an appendix to the final report.

Status: This activity is in progress and will be completed after all digester gas samples have been collected and analyzed.

2. Preliminary Results

The initial four digester gas samples were collected by Brown and Caldwell on the following dates:

- Tuesday, August 28, 2012
- Saturday, September 8, 2012
- Thursday, September 13, 2012
- Sunday, September 23, 2012

As required by the scope of work, two of the four initial sampling events occurred on the weekend.

Digester gas sampling results are summarized in the following sections. Complete laboratory analysis reports can be found in Appendix A.

2.1.1 Fixed Gases

A full BTU analysis (see Appendix A) was preformed on the first digester gas sample, collected on August 28, 2012. The results of the analysis indicate that the Ina Road WRF digester gas is typical of what would be expected for anaerobically digested municipal sewage sludge. Based on this initial confirmation of digester gas quality, no further full BTU analyses are required. For PCRWRD information, the full BTU analysis of the first sample indicates that the higher (HHV) and lower heating values (LHV) of the digester gas are 617 and 556 BTU per cubic foot, respectively. Again, these values are very typical of digester gas produced from anaerobically digested municipal sewage sludge.

For the remaining three samples, a fixed gas analysis was preformed in lieu of the full BTU analysis. The results of the full BTU analysis and the subsequent fixed gas analyses indicate very consistent CH_4 and CO_2 concentrations. The average CH_4 concentration is 61.6 percent, while the average CO_2 concentration is 34.4 percent. The balance of the digester gas is made up primarily of N_2 and O_2, with trace amounts of other constituents including H_2S. The average N_2 concentration is 3 percent and the average oxygen concentration is just below 1 percent.

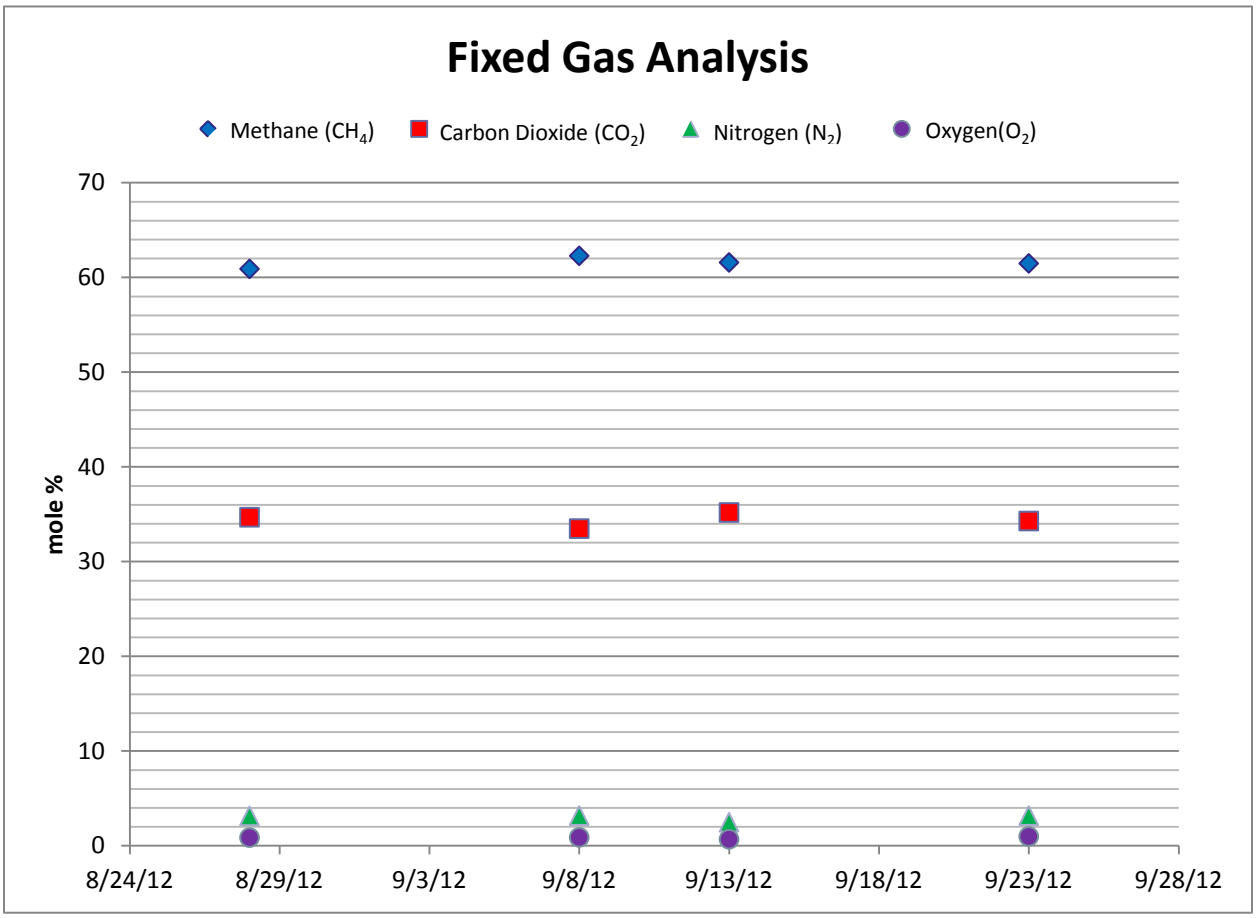

Figure 1. Results from Initial Fixed Gas Analyses

2.1.2 Hydrogen Sulfide

The concentration of H_2S in the digester gas shows some variability over the course of the initial sampling events. H_2S results range from approximately 2,700 to 4,300 parts per million (ppm), with three of the sample results near 3,000 ppm. Due to the small sample size it is difficult to determine if the 4,300 ppm data point is an outlier. Additional samples will aid in determing the average H_2S concentration in the Ina Road WRF digester gas.

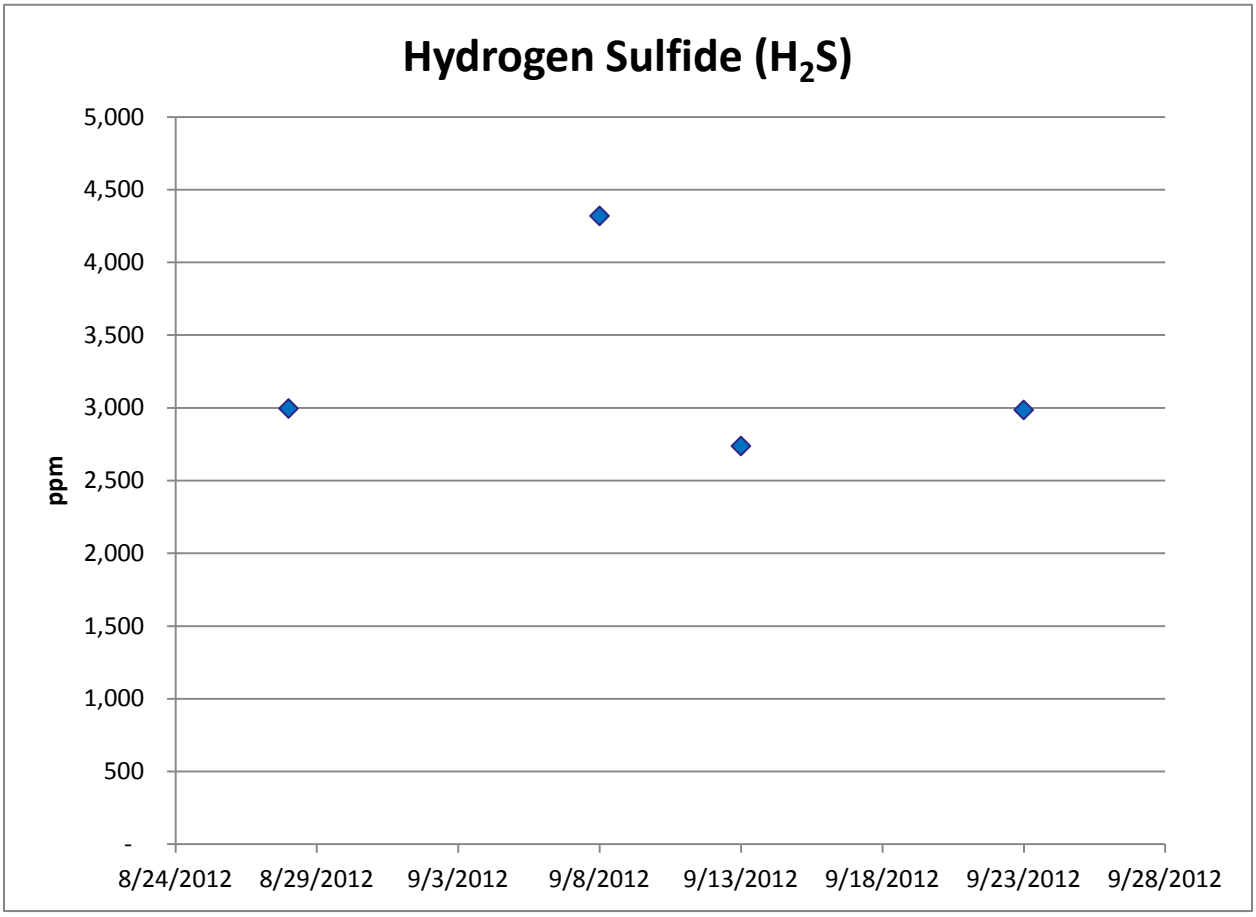

Figure 2. Results from Initial Hydrogen Sulfide Analyses

2.1.3 Siloxanes

Siloxanes are chemical compounds comprised of silicon (Si) and oxygen (O_2) linkages with two methyl (CH_3) groups attached to each Si atom. Siloxane species commonly found in biogas are characterized as being either cyclic or linear, which describes the basic shape of the O-Si-O linkage. Cyclic siloxanes are denoted "D", while linear siloxanes are denoted "L".

The siloxane analyses detected only D3, D4 and D5 species, with D5 being the most prevalent. No L-series species were detected. This is not surprising as D-series species are very common in digester gas. On the other hand, L-series species are commonly found in landfill gas but are far less common in digester gas. D_3 siloxanes were detected in only one of the four samples.

Siloxanes analysis is performed by EPA method TO-15, which also reports volatile organic compounds (VOC). VOC results are included in the laboratory analysis reports found in Appendix A.

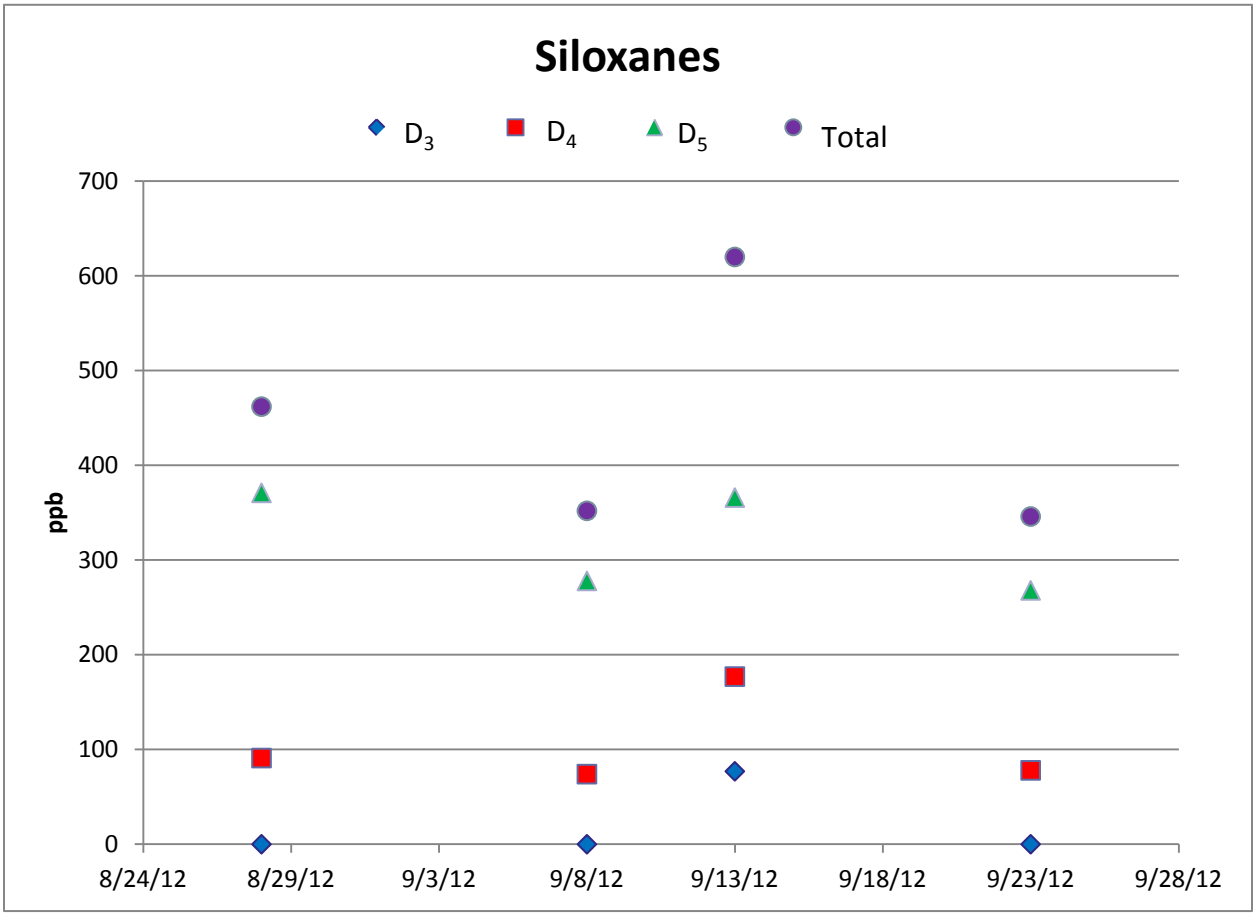

Figure 3. Results from Initial Siloxane Analyses

3. Digester Gas Sampling Protocol

PCRWRD will collect 11 monthly digester gas samples beginning in October 2012 and concluding in August 2013.

Digester gas sampling with tedlar bags is a simple and straight-forward procedure. However, a certain protocol should be adhered to in order to ensure a proper sample is obtained in the field, shipped, and then received at the laboratory. The gas sampling protocol described below was used throughout the initial four gas sampling events and should be followed by PCRWRD throughout the remainder of the digester gas sampling program.

3.1.1 Materials

The following materials are required for collecting and shipping digester gas samples:

- Two 1-Liter tedlar bags for each sampling event.
- Small diameter tubing for connecting the valve cock on the tedlar bag to the sample tap on the digester gas piping.
- Sharpie type pen for labeling tedlar bags.
- Bubble wrap or Styrofoam "peanuts" to protect digester gas samples during shipping.

Brown and Caldwell will provide PCRWRD with an initial set of tedlar bags and a piece of small diameter tubing. Additional 1-Liter tedlar bags can be ordered from SKC-West, Inc. Their contact information is as follows:

SKC-West, Inc.
P.O. Box 4133
Fullerton, CA 92834
(714) 992-2780

3.1.2 Digester Gas Collection

A digester gas sampling tap is located on the high pressure, raw digester gas piping in the cogeneration building, directly across from the engine-generators. The following instructions describe how to collect digester gas samples.

- Label tedlar bags. It is recommended that this be done prior to sample collection as it is difficult to label the tedlar bags once they are inflated.
- Attach the small diameter tubing to the end of the valve cock on the tedlar bag. Attach the other end of the tubing to the sampling tap.
- Once the tubing and tedlar bag are properly attached to the sampling tap, open the valve on the tedlar bag by twisting the knob counter-clockwise.
- With the tedlar bag's valve now open and attached to the sample tap, slowly actuate the valve on the sampling tap to allow only a small flow of gas to bleed through the valve into the bag. If the bag is filled too rapidly, it will likely rupture due to the high pressure of the incoming gas.
- Once the tedlar bag is approximately 75 percent full, close the valve on the sampling tap. Close the valve on the tedlar bag by rotating the knob clock-wise. Disconnect the tubing from the sampling tap and tedlar bag.
- Repeat the above instructions and fill a second tedlar bag. The purpose of collecting two (or more) samples is to ensure adequate digester gas volume is available for the laboratory to perform the required analyses. Typically a 1-Liter bag provides sufficient digester gas volume to complete the

required analyses. However, it is good practice to provide a backup sample in case a bag ruptures during shipping.

3.1.3 Shipping

The following instructions should be followed to ensure that digester gas samples arrive intact and in a timely fashion at the laboratory.

- Fill out the chain of custody (COC). Twelve partially completed COCs (one for each month plus one extra), populated with the required analyses are provided in the Appendix B. Provide the date and time the samples were collected. Sign at the top of the COC. Sign and date at the bottom of the COC.
- Carefully package the tedlar bags with bubble wrap or Styrofoam "peanuts" to prevent rupture during shipping. Include filled-out and signed COC in the package.
- Ship overnight to the laboratory.
- Notify the laboratory that samples are on the way. It is important that the laboratory be notified in advance so that it can schedule the necessary equipment and technicians needed to analyze the samples.
- Do NOT ship any samples for arrival on Friday. The laboratory is closed on the weekend and samples arriving on Friday may not be analyzed until the following Monday, which is beyond the prescribed hold time for digester gas.

Contact information for the laboratory and the technician handling the PCRWRD account is as follows:

Atmospheric Analysis & Consulting, Inc.
1534 Eastman Avenue, Suite A
Ventura, CA 93003

Eric Grosjean
(805) 650-1642
egrosjean@aaclab.com

4. Summary

Results from the weekly sampling effort indicate that Ina Road WRF digester gas quality is typical of what is expected from a normally operating anaerobic digestion process. This conclusion is supported by the fixed gas analyses, which report average CH_4 and CO_2 concentrations of approximately 62 and 34 percent, respectively. The full BTU analysis further supports this conclusion in that LHV and HHV levels were reported as 556 and 617 BTU per cubic foot, respectively. H_2S levels are high, but not outside the realm of what would be considered normal for digester gas. Likewise, siloxane levels fall well within the range of what is expected in digester gas.

PCRWRD is actively engaged in evaluating options for beneficially utilizing digester gas produced at the Ina Road WRF. To this end it intends to issue an RFP in 2013 to solicit proposals for the development of a digester gas utilization project. The digester gas sampling program described in this Tech Memo 1 will help define the characteristics of the digester gas produced at Ina Road WRF. This information will then be included in the RFP to help the various proposers define the level of gas treatment that will be required for a particular digester gas utilization process.

By issuing this Tech Memo 1, Brown and Caldwell has completed the first phase of the digester gas sampling program. Four weekly digester gas samples were collected and analyzed, with a summary of the results included herein. PCRWRD will collect monthly digester gas samples for a period of 11 months. Brown and Caldwell will evaluate the results of the remaining digester gas analyses and summarize the findings of the complete digester gas sampling program in a final report.

Attachment A: Laboratory Analysis Reports

Atmospheric Analysis & Consulting, Inc.

CLIENT	: Brown and Caldwell
PROJECT NAME	: Ina Road WRF
PROJECT NUMBER	: 143277
AAC PROJECT NO.	: 120794
REPORT DATE	: 08/29/2012

On August 29, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for BTU analysis by ASTM D-3588. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab No.
Ina Road	120794-58113

ASTM D-3588 Analysis - Up to a 1 mL aliquot of sample is injected into the GC/SCD/FID/TCD for analysis following ASTM D-3588 as specified in the SOW.

The client provided two extra bags as backup.

No problems were encountered during receiving, preparation and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-3588.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 7 pages.

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report
ASTM-D3588 (BTU and F-Factor)

CLIENT	**Brown and Calwell**	**SAMPLING DATE**	**8/28/2012**
PROJECT NO.	**120794**	**ANALYSIS DATE**	**8/29/2012**

	Client ID:	Ina Road	
	AAC ID:	120794-58113	
	Component	**Mole %**	**Weight %**
FIXED GASES	H_2	0.00	0.00
	O_2	0.88	1.07
	N_2	3.17	3.37
	CO	0.00	0.00
	CO_2	34.70	58.00
	CH_4	60.92	37.12
	He	NM	NM
	Ar	NM	NM
HYDROCARBONS	C_2 (as Ethane)	0.0000	0.0000
	C_3 (as Propane)	0.0001	0.0001
	C_4 (as Butane)	0.0000	0.0000
	C_5 (as Pentane)	0.0000	0.0000
	C_6 (as Hexane)	0.0000	0.0001
	C_{6+} (as Hexane)	0.0008	0.0027
TRS	TRS as H2S	0.3360	0.4350
H2O	Moisture content	NM	NM

All results have been normalized to 100% on a dry weight basis.

Fuel Gas Specifications			
Atomic Breakdown - (scf/lb) / %		*HHV Btu/lb*	8900
Carbon (C)	43.6	*LHV Btu/lb*	8014
Hydrogen (H)	9.4	*HHV Btu/dscf*	617
Oxygen (O)	43.3	*LHV Btu/dscf*	556
Nitrogen (N)	3.4	*F-Factor*	9169
Helium (He)	0.00	*Specific Gravity*	0.9091
Argon (Ar)	0.00	*C2-C6+ Weight %*	0.0030
Sulfur (S)	0.41	*MW lb/lb-mole*	26.327

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

Total Reduced Sulfur Compounds Analysis by ASTM D-5504

CLIENT **Brown and Calwell**
PROJECT NO. **120794**

SAMPLING DATE **08/28/12**
ANALYSIS DATE **08/29/12**

Client ID	**Ina Road**
AAC ID	**120794-58113**
Analyte	**Result**
Hydrogen Sulfide	2,996 ppmv
Carbonyl Sulfide	< 0.500 ppmv
Sulfur Dioxide	< 0.500 ppmv
Carbon Disulfide	< 0.500 ppmv
Total Inorganic Sulfur	2,996 ppmv

Methyl Mercaptan	< 0.500 ppmv
Ethyl Mercaptan	< 0.500 ppmv
Isopropyl Mercaptan	< 0.500 ppmv
sec-Butyl Mercaptan	< 0.500 ppmv
tert-Butyl Mercaptan	< 0.500 ppmv
n-Propyl Mercaptan	< 0.500 ppmv
iso-Butyl Mercaptan	< 0.500 ppmv
n-Butyl Mercaptan	< 0.500 ppmv
n-Pentyl Mercaptan	< 0.500 ppmv
n-Hexyl Mercaptan	< 0.500 ppmv
n-Heptyl Mercaptan	< 0.500 ppmv
n-Octyl Mercaptan	< 0.500 ppmv
Total Mercaptans	< 0.500 ppmv

Thiophene	< 0.500 ppmv
Tetrahydrothiophene	< 0.500 ppmv
2-Methylthiophene	< 0.500 ppmv
3-Methylthiophene	< 0.500 ppmv
2,5-Dimethyl Thiophene	< 0.500 ppmv
2-Ethyl Thiophene	< 0.500 ppmv
2-Propyl Thiophene	< 0.500 ppmv
2-Butyl Thiophene	< 0.500 ppmv
Bromothiophene	< 0.500 ppmv
Benzothiophene	< 0.500 ppmv
Total Thiophenes	< 0.500 ppmv

Dimethyl Sulfide	< 0.500 ppmv
Methylethylsulfide	< 0.500 ppmv
Diethyl Sulfide	< 0.500 ppmv
Phenyl Sulfide	< 0.500 ppmv
Total Organic Sulfides	< 0.500 ppmv

Dimethyl Disulfide	< 0.500 ppmv
Diethyl disulfide	< 0.500 ppmv
Total Organic Disulfides	< 0.500 ppmv

Total Unidentified Sulfur	< 0.500 ppmv
Total Reduced Sulfur	2,996 ppmv

All compound's concentrations expressed in terms of H_2S
Total Reduced Sulfur (TRS) does not include COS and SO2

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 08/29/2012
Analyst : DH
Units : %

Instrument ID : TCD#1
Calb Date : 04/13/2012
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - ASTM1945/1946

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.5	4.7	14.9	10.2	9.4	9.8
	% Rec *	102.1	91.4	103.6	99.4	94.7	95.0

II - Method Blank - ASTM1945/1946

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - ASTM1945/1946

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO	O_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	10.3	14.4	10.3	9.9	10.3	5.2
	LCS Result	10.5	14.2	9.8	9.0	9.3	4.6
	LCSD Result	10.6	14.4	10.1	9.1	9.5	4.7
	LCS % Rec *	102.0	98.9	95.3	90.1	89.5	89.3
	LCSD % Rec *	103.5	99.9	98.1	92.0	91.9	90.1
	% RPD ***	1.5	1.0	2.8	2.1	2.7	0.9

IV-Sample & Sample Duplicate - ASTM1945/1946

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
120793-58107	Sample	0.0	1.7	22.0	29.4	39.1	0.0
	Sample Dup	0.0	1.7	22.3	29.8	39.5	0.0
	Mean	0.0	1.7	22.2	29.6	39.3	0.0
	% RPD ***	0.0	2.1	1.1	1.3	0.9	0.0

V-Matrix Spike & Duplicate - ASTM1945/1946

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO
120793-58107	Sample Conc	0.0	11.1	14.8	19.7	0.0
	Spike Conc	10.3	9.2	10.3	9.9	10.3
	MS Result	9.9	20.2	23.3	28.8	9.1
	MSD Result	10.8	21.6	24.7	30.6	9.7
	MS % Rec **	96.5	99.5	82.5	91.6	88.0
	MSD % Rec **	105.2	114.5	96.3	110.4	94.2
	% RPD ***	8.5	14.0	15.5	18.6	6.8

VI - Closing Continuing Calibration Verification - ASTM1945/1946

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.7	4.8	15.1	10.5	9.6	10.0
	% Rec *	104.0	93.0	104.9	102.2	96.7	96.6

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 08/29/2012
Analyst : DH
Units : ppmv

Instrument ID : FID #3
Calb Date : 07/11/11
Reporting Limit : 0.5 ppmv

I - Opening Continuing Calibration Verification - ASTM1945/1946

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
CCV	Spike Conc	104.9	99.6	97.8	95.5	95.0	95.6
	Result	95.2	95.7	93.6	93.9	94.6	93.2
	% Rec *	90.7	96.1	95.7	98.4	99.7	97.4

II - Method Blank-ASTM1945/1946

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - ASTM1945/1946

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	104.9	99.6	97.8	95.5	95.0	95.6
	LCS Result	94.5	95.4	93.6	93.8	94.7	93.4
	LCSD Result	96.0	96.7	95.3	95.7	96.5	95.0
	LCS % Rec *	90.0	95.8	95.7	98.2	99.7	97.7
	LCSD % Rec *	91.5	97.1	97.4	100.2	101.6	99.4
	% RPD ***	1.6	1.4	1.8	2.0	1.9	1.7

IV-Sample & Sample Duplicate - ASTM1945/1946

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
120793-58107	Sample	NA	0.0	33.8	8.3	2.8	2.5
	Sample Dup	NA	0.0	33.6	8.3	2.5	2.4
	Mean	NA	0.0	33.7	8.3	2.6	2.5
	% RPD ***	NA	0.0	0.5	0.7	10.6	6.6

V-Matrix Spike & Duplicate- ASTM1945/1946

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
120793-58107	Sample Conc	NA	0.0	16.8	4.2	1.3	1.2
	Spike Conc	NA	49.8	48.9	47.8	47.5	47.8
	MS Result	NA	47.7	63.5	49.8	46.8	48.9
	MSD Result	NA	46.7	62.4	49.3	45.7	47.2
	MS % Rec **	NA	95.8	95.5	95.5	95.8	99.7
	MSD % Rec **	NA	93.7	93.1	94.6	93.4	96.1
	% RPD ***	NA	2.2	2.5	1.0	2.5	3.7

VI - Closing Continuing Calibration Verification - ASTM1945/1946

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
CCV	Spike Conc	104.9	99.6	97.8	95.5	95.0	95.6
	Result	98.3	94.0	92.7	90.7	89.9	94.7
	% Rec *	93.7	94.4	94.8	95.0	94.7	99.0

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report
ASTM D-5504

Date Analyzed: 08/29/12
Analyst: DH

Instrument ID: SCD#10
Calb. Date: 8/28/2012

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	12289	238.1	95.2	NA
Duplicate	12312	238.6	95.4	0.2
Triplicate	12520	242.6	97.0	1.9

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate **Sample ID 120793-58109 x40**

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	112.7	125.0	249.7	244.7	105.0	102.9	2.0

Duplicate Analysis **Sample ID 120793-58109**

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	4301.8	4715.9	4508.8	9.2

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	250.0	263.1	105.2

** Must be 95-105%*
*** Must be 90-110%*
**** Must be < 10%*
***** must be < 5% RPD from Initial result.*

Marcus Hueppe
Laboratory Director

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ATMOSPHERIC ANALYSIS & CONSULTING, INC.
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Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. _____

Page 1 of 1

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD

Project Name: Ina Road WRF

Project Mgr (Print Name): Jason Wiser

Project Number: 143277

Sampler's Name (Print Name): Beth Ann Scully

Sampler's Signature: Beth Ann Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	[redacted]	[redacted]	BTU	TD-15	BACKUP
Sample 1	8-28-12	1020	Gas	Ina Road	Tedlar 1	X	[redacted]	X	X	X	
(BACKUP) Sample [redacted]	8-28-12	1021	Gas	INA Road	Tedlar 1	[redacted]	[redacted]	[redacted]	[redacted]		X
(BACKUP) Sample [redacted]	8-28-12	1022	Gas	INA Road	Tedlar 1	X	[redacted]	X	X		X

Analysis Requested

Send report:
Attn: Jason Wiser
Phone#:
Fax#

Send invoice to:
Attn:
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Beth Ann Scully	Beth Ann Scully	8-28-12		
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name

Atmospheric Analysis & Consulting, Inc.

CLIENT : Brown and Caldwell
PROJECT NAME : Ina Road WRF
PROJECT NUMBER : 143277
AAC PROJECT NO. : 120794
REPORT DATE : 08/29/2012

On August 29, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for Volatile Organic Compounds and Siloxanes analysis by EPA method TO-15. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab ID
Ina Road	120794-58113

TO-15 Analysis - Up to a 500 mL aliquot of sample is concentrated, put through a water and CO_2 management system, cryofocused and injected into the GC/MS (full scan mode) for analysis following EPA Method TO-15 as specified in the SOW.

No problems were encountered during receiving, preparation and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP#TO.15.10.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized the release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 12 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate #E87837

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : Brown and Caldwell
PROJECT NO : 120794
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 08/29/2012
DATE REPORTED : 08/29/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	Ina Road			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	120794-58113				
Date Sampled	08/28/2012				
Date Analyzed	08/29/2012				
Can Dilution Factor	1.00				
	Result	Qualifier	Analysis DF		
Chlorodifluoromethane	<SRL	U	20	10	0.5
Propene	955		20	20	1.0
Dichlorodifluoromethane	<SRL	U	20	10	0.5
Chloromethane	<SRL	U	20	10	0.5
Dichlorotetrafluoroethane	<SRL	U	20	10	0.5
Vinyl Chloride	<SRL	U	20	10	0.5
Methanol	<SRL	U	20	100	5.0
1,3-Butadiene	<SRL	U	20	10	0.5
Bromomethane	<SRL	U	20	10	0.5
Chloroethane	<SRL	U	20	10	0.5
Dichlorofluoromethane	<SRL	U	20	10	0.5
Ethanol	<SRL	U	20	40	2.0
Vinyl Bromide	<SRL	U	20	10	0.5
Acetone	<SRL	U	20	40	2.0
Trichlorofluoromethane	<SRL	U	20	10	0.5
2-Propanol (IPA)	<SRL	U	20	40	2.0
Acrylonitrile	<SRL	U	20	20	1.0
1,1-Dichloroethene	<SRL	U	20	10	0.5
Methylene Chloride (DCM)	<SRL	U	20	20	1.0
Allyl Chloride	<SRL	U	20	10	0.5
Carbon Disulfide	NR	NA	20	10	0.5
Trichlorotrifluoroethane	<SRL	U	20	10	0.5
trans-1,2-Dichloroethene	<SRL	U	20	10	0.5
1,1-Dichloroethane	<SRL	U	20	10	0.5
Methyl Tert Butyl Ether (MTBE)	<SRL	U	20	10	0.5
Vinyl Acetate	<SRL	U	20	20	1.0
2-Butanone (MEK)	<SRL	U	20	20	1.0
cis-1,2-Dichloroethene	<SRL	U	20	10	0.5
Hexane	27.8		20	10	0.5
Chloroform	<SRL	U	20	10	0.5
Ethyl Acetate	<SRL	U	20	10	0.5
Tetrahydrofuran	<SRL	U	20	10	0.5
1,2-Dichloroethane	<SRL	U	20	10	0.5
1,1,1-Trichloroethane	<SRL	U	20	10	0.5

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : Brown and Caldwell
PROJECT NO : 120794
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 08/29/2012
DATE REPORTED : 08/29/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	Ina Road			Sample Reporting Limit (SRL) (MRLxDF's)	Method Reporting Limit (MRL)
AAC ID	120794-58113				
Date Sampled	08/28/2012				
Date Analyzed	08/29/2012				
Can Dilution Factor	1.00				
	Result	Qualifier	Analysis DF		
Benzene	<SRL	U	20	10	0.5
Carbon Tetrachloride	<SRL	U	20	10	0.5
Cyclohexane	<SRL	U	20	10	0.5
1,2-Dichloropropane	<SRL	U	20	10	0.5
Bromodichloromethane	<SRL	U	20	10	0.5
1,4-Dioxane	<SRL	U	20	10	0.5
Trichloroethene (TCE)	<SRL	U	20	10	0.5
2,2,4-Trimethylpentane	<SRL	U	20	10	0.5
Heptane	22.3		20	10	0.5
cis-1,3-Dichloropropene	<SRL	U	20	10	0.5
4-Methyl-2-pentanone (MiBK)	<SRL	U	20	10	0.5
trans-1,3-Dichloropropene	<SRL	U	20	10	0.5
1,1,2-Trichloroethane	<SRL	U	20	10	0.5
Toluene	218		20	10	0.5
2-Hexanone (MBK)	<SRL	U	20	10	0.5
Dibromochloromethane	<SRL	U	20	10	0.5
1,2-Dibromoethane	<SRL	U	20	10	0.5
Tetrachloroethene (PCE)	<SRL	U	20	10	0.5
Chlorobenzene	<SRL	U	20	10	0.5
Ethylbenzene	18.0		20	10	0.5
m & p-Xylenes	29.7		20	20	1.0
Bromoform	<SRL	U	20	10	0.5
Styrene	<SRL	U	20	10	0.5
1,1,2,2-Tetrachloroethane	<SRL	U	20	10	0.5
o-Xylene	16.5		20	10	0.5
4-Ethyltoluene	<SRL	U	20	10	0.5
1,3,5-Trimethylbenzene	<SRL	U	20	10	0.5
1,2,4-Trimethylbenzene	<SRL	U	20	10	0.5
Benzyl Chloride (a-Chlorotoluene)	<SRL	U	20	10	0.5
1,3-Dichlorobenzene	<SRL	U	20	10	0.5
1,4-Dichlorobenzene	<SRL	U	20	10	0.5
1,2-Dichlorobenzene	<SRL	U	20	10	0.5
1,2,4-Trichlorobenzene	<SRL	U	20	10	0.5
Hexachlorobutadiene	<SRL	U	20	10	0.5
BFB-Surrogate Std. % Recovery	111%				70-130%

U - Compound was analyzed for, but was not detected at or above the SRL.
NR - Not Reported on these analysis.

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : Brown and Caldwell
PROJECT NO : 120794
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 08/29/2012
DATE REPORTED : 08/29/2012

Client ID	Ina Road
AAC ID	120794-58113
Date Sampled	08/28/2012
Date Analyzed	08/29/2012
Can Dilution Factor	1.00

SILOXANES

Compound	*PPB(V/V)*	*Sample Reporting Limit*
Hexamethyldisiloxane (L2)	<SRL	40
Hexamethylcyclotrisiloxane (D3)	<SRL	40
Octamethyltrisiloxane (L3)	<SRL	40
Octamethylcyclotetrasiloxane (D4)	91	40
Decamethyltetrasiloxane (L4)	<SRL	40
Decamethylcyclopentasiloxane (D5)	371	40
Dodecamethylpentasiloxane (L5)	<SRL	40
BFB-Surrogate Std. % Recovery	111%	

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 08/29/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	Conc	Daily Conc	%REC*
4-BFB (surrogate standard)	10.00	10.00	100
Chlorodifluoromethane	10.30	10.57	103
Propene	11.00	12.16	111
Dichlorodifluoromethane	9.90	10.26	104
Chloromethane	10.10	9.97	99
Dichlorotetrafluoroethane	10.40	10.75	103
Vinyl Chloride	10.10	10.65	105
Methanol	6.00	6.30	105
1,3-Butadiene	10.30	10.69	104
Bromomethane	10.10	10.70	106
Chloroethane	10.10	9.68	96
Dichlorofluoromethane	10.30	10.81	105
Ethanol	10.50	10.74	102
Vinyl Bromide	10.20	11.24	110
Acetone	10.90	10.54	97
Trichlorofluoromethane	10.40	10.27	99
2-Propanol (IPA)	10.90	10.96	101
Acrylonitrile	10.50	11.01	105
1,1-Dichloroethene	10.50	10.85	103
Methylene Chloride (DCM)	11.00	11.02	100
Allyl Chloride	11.00	11.17	102
Carbon Disulfide	10.50	10.33	98
Trichlorotrifluoroethane	10.40	10.69	103
trans-1,2-Dichloroethene	10.40	11.12	107
1,1-Dichloroethane	10.40	10.61	102
Methyl Tert Butyl Ether (MTBE)	10.70	11.12	104
Vinyl Acetate	9.20	10.00	109
2-Butanone (MEK)	10.80	11.57	107
cis-1,2-Dichloroethene	10.60	10.95	103
Hexane	10.70	11.16	104
Chloroform	10.60	10.92	103
Ethyl Acetate	10.60	11.19	106
Tetrahydrofuran	10.90	11.52	106
1,2-Dichloroethane	10.50	10.87	104
1,1,1-Trichloroethane	10.50	10.65	101

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 08/29/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	Conc	Daily Conc	%REC*
Benzene	10.50	10.39	99
Carbon Tetrachloride	10.10	10.27	102
Cyclohexane	10.60	10.38	98
1,2-Dichloropropane	10.60	10.34	98
Bromodichloromethane	10.50	10.86	103
1,4-Dioxane	10.50	10.49	100
Trichloroethene (TCE)	10.50	10.68	102
2,2,4-Trimethylpentane	10.90	10.97	101
Heptane	10.70	10.89	102
cis-1,3-Dichloropropene	10.80	11.21	104
4-Methyl-2-pentanone (MiBK)	10.80	11.23	104
trans-1,3-Dichloropropene	9.80	10.28	105
1,1,2-Trichloroethane	10.70	10.94	102
Toluene	10.70	10.82	101
2-Hexanone (MBK)	10.90	11.44	105
Dibromochloromethane	11.00	11.32	103
1,2-Dibromoethane	10.50	10.83	103
Tetrachloroethene (PCE)	10.50	10.48	100
Chlorobenzene	10.70	10.81	101
Ethylbenzene	10.60	10.80	102
m & p-Xylenes	20.80	20.90	100
Bromoform	10.40	10.76	103
Styrene	10.60	11.10	105
1,1,2,2-Tetrachloroethane	10.70	11.02	103
o-Xylene	10.70	10.74	100
4-Ethyltoluene	10.40	10.91	105
1,3,5-Trimethylbenzene	10.50	10.92	104
1,2,4-Trimethylbenzene	10.60	11.01	104
Benzyl Chloride (a-Chlorotoluene)	10.20	11.33	111
1,3-Dichlorobenzene	10.20	10.60	104
1,4-Dichlorobenzene	10.40	10.64	102
1,2-Dichlorobenzene	10.30	10.40	101
1,2,4-Trichlorobenzene	9.80	10.00	102
Hexachlorobutadiene	10.30	10.13	98

* - %REC should be 70-130%

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

CLIENT ID	: Laboratory Control Spike	DATE ANALYZED	: 08/29/2012
AAC ID	: LCS/LCSD	DATE REPORTED	: 08/29/2012
MEDIA	: Air	UNITS	: ppbv

TO-15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-Dichloroethene	0.0	10.50	10.85	10.48	103	100	3.5
Methylene Chloride (DCM)	0.0	11.00	11.02	10.39	100	94	5.9
Benzene	0.0	10.50	10.39	10.59	99	101	1.9
Trichloroethene (TCE)	0.0	10.50	10.68	10.56	102	101	1.1
Toluene	0.0	10.70	10.82	10.65	101	100	1.6
Tetrachloroethene (PCE)	0.0	10.50	10.48	10.25	100	98	2.2
Chlorobenzene	0.0	10.70	10.81	10.87	101	102	0.6
Ethylbenzene	0.0	10.60	10.80	10.78	102	102	0.2
m & p-Xylenes	0.0	20.80	20.90	20.69	100	99	1.0
o-Xylene	0.0	10.70	10.74	10.46	100	98	2.6

* Must be 70-130%

** Must be < 25%

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX : AIR
UNITS : ppbv

ANALYSIS DATE : 08/29/2012
REPORT DATE : 08/29/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / AAC ID	Method Blank MB 082912	RL
Chlorodifluoromethane	<RL	0.5
Propene	<RL	1.0
Dichlorodifluoromethane	<RL	0.5
Chloromethane	<RL	0.5
Dichlorotetrafluoroethane	<RL	0.5
Vinyl Chloride	<RL	0.5
Methanol	<RL	5.0
1,3-Butadiene	<RL	0.5
Bromomethane	<RL	0.5
Chloroethane	<RL	0.5
Dichlorofluoromethane	<RL	0.5
Ethanol	<RL	2.0
Vinyl Bromide	<RL	0.5
Acetone	<RL	2.0
Trichlorofluoromethane	<RL	0.5
2-Propanol (IPA)	<RL	2.0
Acrylonitrile	<RL	1.0
1,1-Dichloroethene	<RL	0.5
Methylene Chloride (DCM)	<RL	1.0
Allyl Chloride	<RL	0.5
Carbon Disulfide	<RL	0.5
Trichlorotrifluoroethane	<RL	0.5
trans-1,2-Dichloroethene	<RL	0.5
1,1-Dichloroethane	<RL	0.5
Methyl Tert Butyl Ether (MTBE)	<RL	0.5
Vinyl Acetate	<RL	1.0
2-Butanone (MEK)	<RL	1.0
cis-1,2-Dichloroethene	<RL	0.5
Hexane	<RL	0.5
Chloroform	<RL	0.5
Ethyl Acetate	<RL	0.5
Tetrahydrofuran	<RL	0.5
1,2-Dichloroethane	<RL	0.5
1,1,1-Trichloroethane	<RL	0.5
Benzene	<RL	0.5
Carbon Tetrachloride	<RL	0.5
Cyclohexane	<RL	0.5
1,2-Dichloropropane	<RL	0.5
Bromodichloromethane	<RL	0.5
1,4-Dioxane	<RL	0.5
Trichloroethene (TCE)	<RL	0.5
2,2,4-Trimethylpentane	<RL	0.5
Heptane	<RL	0.5

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Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX	: AIR	ANALYSIS DATE	: 08/29/2012
UNITS	: ppbv	REPORT DATE	: 08/29/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / AAC ID	Method Blank MB 082912	RL
cis-1,3-Dichloropropene	<RL	0.5
4-Methyl-2-pentanone (MiBK)	<RL	0.5
trans-1,3-Dichloropropene	<RL	0.5
1,1,2-Trichloroethane	<RL	0.5
Toluene	<RL	0.5
2-Hexanone (MBK)	<RL	0.5
Dibromochloromethane	<RL	0.5
1,2-Dibromoethane	<RL	0.5
Tetrachloroethene (PCE)	<RL	0.5
Chlorobenzene	<RL	0.5
Ethylbenzene	<RL	0.5
m & p-Xylenes	<RL	1.0
Bromoform	<RL	0.5
Styrene	<RL	0.5
1,1,2,2-Tetrachloroethane	<RL	0.5
o-Xylene	<RL	0.5
4-Ethyltoluene	<RL	0.5
1,3,5-Trimethylbenzene	<RL	0.5
1,2,4-Trimethylbenzene	<RL	0.5
Benzyl Chloride (a-Chlorotoluene)	<RL	0.5
1,3-Dichlorobenzene	<RL	0.5
1,4-Dichlorobenzene	<RL	0.5
1,2-Dichlorobenzene	<RL	0.5
1,2,4-Trichlorobenzene	<RL	0.5
Hexachlorobutadiene	<RL	0.5
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	102%	--

RL - Reporting Limit

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 120794-58113	DATE ANALYZED	: 08/29/2012
MATRIX	: Air	DATE REPORTED	: 08/29/2012
		UNITS	: ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane	<SRL	<SRL	0.0
Propene	955	966	1.1
Dichlorodifluoromethane	<SRL	<SRL	0.0
Chloromethane	<SRL	<SRL	0.0
Dichlorotetrafluoroethane	<SRL	<SRL	0.0
Vinyl Chloride	<SRL	<SRL	0.0
Methanol	<SRL	<SRL	0.0
1,3-Butadiene	<SRL	<SRL	0.0
Bromomethane	<SRL	<SRL	0.0
Chloroethane	<SRL	<SRL	0.0
Dichlorofluoromethane	<SRL	<SRL	0.0
Ethanol	<SRL	<SRL	0.0
Vinyl Bromide	<SRL	<SRL	0.0
Acetone	<SRL	<SRL	0.0
Trichlorofluoromethane	<SRL	<SRL	0.0
2-Propanol (IPA)	<SRL	<SRL	0.0
Acrylonitrile	<SRL	<SRL	0.0
1,1-Dichloroethene	<SRL	<SRL	0.0
Methylene Chloride (DCM)	<SRL	<SRL	0.0
Allyl Chloride	<SRL	<SRL	0.0
Carbon Disulfide	NR	NR	NA
Trichlorotrifluoroethane	<SRL	<SRL	0.0
trans-1,2-Dichloroethene	<SRL	<SRL	0.0
1,1-Dichloroethane	<SRL	<SRL	0.0
Methyl Tert Butyl Ether (MTBE)	<SRL	<SRL	0.0
Vinyl Acetate	<SRL	<SRL	0.0
2-Butanone (MEK)	<SRL	<SRL	0.0
cis-1,2-Dichloroethene	<SRL	<SRL	0.0
Hexane	27.8	26.5	4.8
Chloroform	<SRL	<SRL	0.0
Ethyl Acetate	<SRL	<SRL	0.0
Tetrahydrofuran	<SRL	<SRL	0.0
1,2-Dichloroethane	<SRL	<SRL	0.0
1,1,1-Trichloroethane	<SRL	<SRL	0.0
Benzene	<SRL	<SRL	0.0
Carbon Tetrachloride	<SRL	<SRL	0.0

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 120794-58113	DATE ANALYZED	: 08/29/2012
MATRIX	: Air	DATE REPORTED	: 08/29/2012
		UNITS	: ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane	<SRL	<SRL	0.0
1,2-Dichloropropane	<SRL	<SRL	0.0
Bromodichloromethane	<SRL	<SRL	0.0
1,4-Dioxane	<SRL	<SRL	0.0
Trichloroethene (TCE)	<SRL	<SRL	0.0
2,2,4-Trimethylpentane	<SRL	<SRL	0.0
Heptane	22.3	21.1	5.5
cis-1,3-Dichloropropene	<SRL	<SRL	0.0
4-Methyl-2-pentanone (MiBK)	<SRL	<SRL	0.0
trans-1,3-Dichloropropene	<SRL	<SRL	0.0
1,1,2-Trichloroethane	<SRL	<SRL	0.0
Toluene	218	216	0.9
2-Hexanone (MBK)	<SRL	<SRL	0.0
Dibromochloromethane	<SRL	<SRL	0.0
1,2-Dibromoethane	<SRL	<SRL	0.0
Tetrachloroethene (PCE)	<SRL	<SRL	0.0
Chlorobenzene	<SRL	<SRL	0.0
Ethylbenzene	18.0	17.6	2.2
m & p-Xylenes	29.7	29.7	0.0
Bromoform	<SRL	<SRL	0.0
Styrene	<SRL	<SRL	0.0
1,1,2,2-Tetrachloroethane	<SRL	<SRL	0.0
o-Xylene	16.5	16.8	1.8
4-Ethyltoluene	<SRL	<SRL	0.0
1,3,5-Trimethylbenzene	<SRL	<SRL	0.0
1,2,4-Trimethylbenzene	<SRL	<SRL	0.0
Benzyl Chloride (a-Chlorotoluene)	<SRL	<SRL	0.0
1,3-Dichlorobenzene	<SRL	<SRL	0.0
1,4-Dichlorobenzene	<SRL	<SRL	0.0
1,2-Dichlorobenzene	<SRL	<SRL	0.0
1,2,4-Trichlorobenzene	<SRL	<SRL	0.0
Hexachlorobutadiene	<SRL	<SRL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	111%	109%	1.8

SRL - Sample Reporting Limit
NR - Not Reported on these analysis.

Marcus Hueppe
Laboratory Director

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Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. _____

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD

Project Name: Ina Road WRF

Project Mgr (Print Name): Jason Wiser

Project Number: 143277

Sampler's Name (Print Name): Beth Ann Scully

Sampler's Signature: Beth Ann Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	[redacted]	[redacted]	BTU	TD-15	BACKUP
Sample 1	8-28-12	1020	Gas	Ina Road	Tedlar 1	X	[redacted]	X	X	X	
(BACKUP) Sample [redacted]	8-28-12	1021	Gas	INA Road	Tedlar 1	[redacted]	[redacted]	[redacted]	[redacted]		X
(BACKUP) Sample [redacted]	8-28-12	1022	Gas	INA Road	Tedlar 1	X	[redacted]	[redacted]	X		X

Analysis Requested

Send report:

Attn: Jason Wiser

Phone#: _____

Fax# _____

Send invoice to:

Attn: _____

P.O. # _____

Turnaround Time

24-Hr ____ 48-Hr ____

5 Day ____ Normal X

Other (Specify) _____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Beth Ann Scully	Beth Ann Scully	8-28-12		
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name

Atmospheric Analysis & Consulting, Inc.

CLIENT	: Brown and Caldwell
PROJECT NAME	: Ina Road WRF
PROJECT NUMBER	: 143277
AAC PROJECT NO.	: 120842
REPORT DATE	: 09/11/2012

On September 10, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for H2S analysis by ASTM D-5504 and Fixed Gases analysis by EPA 3C. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab No.
09812 INA Road	120842-58316

ASTM D-5504 Analysis - Up to a 1 mL aliquot of sample is injected into the GC/SCD for analysis following ASTM D-5504 as specified in the SOW.

EPA 3C Analysis - Up to a 1 mL aliquot of sample is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW.

The client provided two extra bags as backup. The sample was received past the method holding time for sulfur analysis.

No problems were encountered during receiving, preparation and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-5504 and EPA 3C.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 6 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate #E87837

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : **Brown and Caldwell**
PROJECT NO. : **120842**
MATRIX : **Air**
UNITS : **%**

SAMPLING DATE : **09/08/2012**
RECEIVING DATE : **09/10/2012**
ANALYSIS DATE : **09/11/2012**
REPORT DATE : **09/11/2012**

EPA 3C

Client ID	09812 INA Road
AAC ID	120842-58316
Analyte	**Result**
H_2	<1.0%
O_2	0.9 %
N_2	3.2 %
CO	< 0.1 %
CO_2	33.5 %
CH_4	62.3 %

All fixed gases have been normalized to 100% on a dry weight basis

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Brown and Caldwell**
PROJECT NO. : **120842**
MATRIX : **Air**
UNITS : **ppmV**

SAMPLING DATE : **09/08/2012**
RECEIVING DATE : **09/10/2012**
ANALYSIS DATE : **09/11/2012**
REPORT DATE : **09/11/2012**

Total Reduced Sulfur Compounds Analysis by ASTM D-5504

Client ID	**09812 INA Road**
AAC ID	**120842-58316**
Analyte	**Result**
Hydrogen Sulfide	**4,320**

Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 09/10/2012
Analyst : DH
Units : %

Instrument ID : TCD#1
Calb Date : 04/13/2012
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.9	4.8	15.2	10.4	9.8	10.1
	% Rec *	105.7	92.9	105.7	101.3	98.3	97.9

II - Method Blank - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO	O_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	10.3	14.4	10.3	9.9	10.3	5.2
	LCS Result	10.2	14.5	9.9	9.2	9.6	4.5
	LCSD Result	10.2	15.4	10.5	9.9	10.2	4.8
	LCS % Rec *	99.4	100.5	96.7	93.1	93.2	86.9
	LCSD % Rec *	99.8	106.9	102.8	99.5	99.0	91.8
	% RPD ***	0.4	6.2	6.1	6.6	6.1	5.4

IV-Sample & Sample Duplicate - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
120831-58295	Sample	0.0	0.2	0.8	16.1	21.1	0.0
	Sample Dup	0.0	0.2	0.7	14.5	19.0	0.0
	Mean	0.0	0.2	0.7	15.3	20.1	0.0
	% RPD ***	0.0	15.6	22.2	10.9	10.2	0.0

V-Matrix Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO
120831-58295	Sample Conc	0.0	0.4	7.7	10.0	0.0
	Spike Conc	10.3	9.2	10.3	9.9	10.3
	MS Result	10.2	9.9	17.9	20.0	9.8
	MSD Result	10.5	10.3	18.6	20.6	10.1
	MS % Rec **	99.4	103.9	99.8	100.3	95.2
	MSD % Rec **	102.4	107.8	106.4	105.9	98.1
	% RPD ***	3.0	3.7	6.4	5.4	3.0

VI - Closing Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.2	4.66	14.9	10.1	9.5	9.9
	% Rec *	99.8	90.0	103.3	98.1	95.4	95.2

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report
ASTM D-5504

Date Analyzed: 09/11/12
Analyst: DH

Instrument ID: SCD#10
Calb. Date: 8/28/2012

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	18541	244.8	97.9	NA
Duplicate	19127	252.5	101.0	3.1
Triplicate	19210	253.6	101.4	3.5

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate **Sample ID 120848-58331 x4**

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	37.1	125.0	169.8	174.9	104.7	107.9	2.9

Duplicate Analysis **Sample ID 120848-58331**

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	151.9	145.2	148.6	4.5

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	250.0	250.5	100.2

** Must be 95-105%*

*** Must be 90-110%*

**** Must be < 10%*

***** must be < 5% RPD from Initial result.*

Marcus Hueppe
Laboratory Director

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Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. 120842

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD
Project Name: Ina Road WRF
Project Mgr (Print Name): Jason Wiser
Project Number: 143277
Sampler's Name (Print Name): Beth Ann Scully
Sampler's Signature: Beth Ann Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	H2S	Fixed Gas			
58316	9-8-12	1210	Gas	09812 INA Road	TEDLAR 3	X	X	X			

Analysis Requested

Send report:
Attn: Jason Wiser
Phone#:
Fax#:

Send invoice to:
Attn:
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Beth A Scully	Beth A Scully	9/8/12 1310		
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
		9/10/12 1005	[illegible]	WEI HURN

- Fed Ex

Atmospheric Analysis & Consulting, Inc.

CLIENT : Brown and Caldwell
PROJECT NAME : Ina Road WRF
PROJECT NUMBER : 143277
AAC PROJECT NO. : 120842
REPORT DATE : 09/11/2012

On September 10, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for Siloxanes analysis by EPA method TO-15. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab ID
09812 Ina Road	120842-58316

TO-15 Analysis - Up to a 500 mL aliquot of sample is concentrated, put through a water and CO_2 management system, cryofocused and injected into the GC/MS (full scan mode) for analysis following EPA Method TO-15 as specified in the SOW.

No problems were encountered during receiving, preparation and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP#TO.15.10.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized the release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 10 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate #E87837

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	: Brown and Caldwell	DATE RECEIVED	: 09/10/2012
PROJECT NO	: 120842	DATE REPORTED	: 09/11/2012
MATRIX	: AIR		
UNITS	: PPB (v/v)		

Client ID	09812 Ina Road	
AAC ID	120842-58316	
Date Sampled	09/08/2012	
Date Analyzed	09/10/2012	
Can Dilution Factor	1.00	
SILOXANES		
Compound	*PPB(V/V)*	*Sample Reporting Limit*
Hexamethyldisiloxane (L2)	<SRL	40
Hexamethylcyclotrisiloxane (D3)	<SRL	40
Octamethyltrisiloxane (L3)	<SRL	40
Octamethylcyclotetrasiloxane (D4)	74	40
Decamethyltetrasiloxane (L4)	<SRL	40
Decamethylcyclopentasiloxane (D5)	278	40
Dodecamethylpentasiloxane (L5)	<SRL	40
BFB-Surrogate Std. % Recovery	108%	

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 09/10/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15
Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	Conc	Daily Conc	%REC*
4-BFB (surrogate standard)	10.00	10.22	102
Chlorodifluoromethane	10.30	10.57	103
Propene	11.00	11.50	105
Dichlorodifluoromethane	9.90	10.11	102
Chloromethane	10.10	9.11	90
Dichlorotetrafluoroethane	10.40	10.46	101
Vinyl Chloride	10.10	10.11	100
Methanol	6.00	6.53	109
1,3-Butadiene	10.30	9.81	95
Bromomethane	10.10	9.63	95
Chloroethane	10.10	9.94	98
Dichlorofluoromethane	10.30	10.55	102
Ethanol	10.50	11.26	107
Vinyl Bromide	10.20	10.69	105
Acetone	10.90	10.54	97
Trichlorofluoromethane	10.40	10.62	102
2-Propanol (IPA)	10.90	11.19	103
Acrylonitrile	10.50	11.33	108
1,1-Dichloroethene	10.50	10.58	101
Methylene Chloride (DCM)	11.00	10.92	99
Allyl Chloride	11.00	11.59	105
Carbon Disulfide	10.50	10.03	96
Trichlorotrifluoroethane	10.40	10.50	101
trans-1,2-Dichloroethene	10.40	10.57	102
1,1-Dichloroethane	10.40	10.43	100
Methyl Tert Butyl Ether (MTBE)	10.70	10.76	101
Vinyl Acetate	9.20	10.19	111
2-Butanone (MEK)	10.80	10.94	101
cis-1,2-Dichloroethene	10.60	10.67	101
Hexane	10.70	10.72	100
Chloroform	10.60	10.77	102
Ethyl Acetate	10.60	10.90	103
Tetrahydrofuran	10.90	11.19	103
1,2-Dichloroethane	10.50	10.87	104
1,1,1-Trichloroethane	10.50	10.75	102

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 09/10/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	Conc	Daily Conc.	%REC*
Benzene	10.50	10.45	100
Carbon Tetrachloride	10.10	10.62	105
Cyclohexane	10.60	10.23	97
1,2-Dichloropropane	10.60	10.31	97
Bromodichloromethane	10.50	10.88	104
1,4-Dioxane	10.50	10.55	100
Trichloroethene (TCE)	10.50	10.67	102
2,2,4-Trimethylpentane	10.90	11.11	102
Heptane	10.70	10.79	101
cis-1,3-Dichloropropene	10.80	11.20	104
4-Methyl-2-pentanone (MiBK)	10.80	11.03	102
trans-1,3-Dichloropropene	9.80	10.16	104
1,1,2-Trichloroethane	10.70	10.81	101
Toluene	10.70	10.68	100
2-Hexanone (MBK)	10.90	11.36	104
Dibromochloromethane	11.00	11.50	105
1,2-Dibromoethane	10.50	10.69	102
Tetrachloroethene (PCE)	10.50	10.47	100
Chlorobenzene	10.70	10.65	100
Ethylbenzene	10.60	10.72	101
m & p-Xylenes	20.80	20.82	100
Bromoform	10.40	10.83	104
Styrene	10.60	10.87	103
1,1,2,2-Tetrachloroethane	10.70	11.11	104
o-Xylene	10.70	10.78	101
4-Ethyltoluene	10.40	11.15	107
1,3,5-Trimethylbenzene	10.50	10.52	100
1,2,4-Trimethylbenzene	10.60	10.92	103
Benzyl Chloride (a-Chlorotoluene)	10.20	11.21	110
1,3-Dichlorobenzene	10.20	11.03	108
1,4-Dichlorobenzene	10.40	10.70	103
1,2-Dichlorobenzene	10.30	10.51	102
1,2,4-Trichlorobenzene	9.80	10.10	103
Hexachlorobutadiene	10.30	10.46	102

* - %REC should be 70-130%

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

CLIENT ID	: Laboratory Control Spike	DATE ANALYZED	: 09/10/2012
AAC ID	: LCS/LCSD	DATE REPORTED	: 09/10/2012
MEDIA	: Air	UNITS	: ppbv

TO-15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-Dichloroethene	0.0	10.50	10.58	10.56	101	101	0.2
Methylene Chloride (DCM)	0.0	11.00	10.92	10.53	99	96	3.6
Benzene	0.0	10.50	10.45	10.38	100	99	0.7
Trichloroethene (TCE)	0.0	10.50	10.67	10.37	102	99	2.9
Toluene	0.0	10.70	10.68	10.50	100	98	1.7
Tetrachloroethene (PCE)	0.0	10.50	10.47	10.63	100	101	1.5
Chlorobenzene	0.0	10.70	10.65	10.59	100	99	0.6
Ethylbenzene	0.0	10.60	10.72	10.69	101	101	0.3
m & p-Xylenes	0.0	20.80	20.82	20.94	100	101	0.6
o-Xylene	0.0	10.70	10.78	10.70	101	100	0.7

* Must be 70-130%

** Must be < 25%

Marcus Hueppe
Laboratory Director

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Method Blank Analysis Report

MATRIX : AIR
UNITS : ppbv
ANALYSIS DATE : 09/10/2012
REPORT DATE : 09/10/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / AAC ID	Method Blank MB 091012	RL
Chlorodifluoromethane	<RL	0.5
Propene	<RL	1.0
Dichlorodifluoromethane	<RL	0.5
Chloromethane	<RL	0.5
Dichlorotetrafluoroethane	<RL	0.5
Vinyl Chloride	<RL	0.5
Methanol	<RL	5.0
1,3-Butadiene	<RL	0.5
Bromomethane	<RL	0.5
Chloroethane	<RL	0.5
Dichlorofluoromethane	<RL	0.5
Ethanol	<RL	2.0
Vinyl Bromide	<RL	0.5
Acetone	<RL	2.0
Trichlorofluoromethane	<RL	0.5
2-Propanol (IPA)	<RL	2.0
Acrylonitrile	<RL	1.0
1,1-Dichloroethene	<RL	0.5
Methylene Chloride (DCM)	<RL	1.0
Allyl Chloride	<RL	0.5
Carbon Disulfide	<RL	0.5
Trichlorotrifluoroethane	<RL	0.5
trans-1,2-Dichloroethene	<RL	0.5
1,1-Dichloroethane	<RL	0.5
Methyl Tert Butyl Ether (MTBE)	<RL	0.5
Vinyl Acetate	<RL	1.0
2-Butanone (MEK)	<RL	1.0
cis-1,2-Dichloroethene	<RL	0.5
Hexane	<RL	0.5
Chloroform	<RL	0.5
Ethyl Acetate	<RL	0.5
Tetrahydrofuran	<RL	0.5
1,2-Dichloroethane	<RL	0.5
1,1,1-Trichloroethane	<RL	0.5
Benzene	<RL	0.5
Carbon Tetrachloride	<RL	0.5
Cyclohexane	<RL	0.5
1,2-Dichloropropane	<RL	0.5
Bromodichloromethane	<RL	0.5
1,4-Dioxane	<RL	0.5
Trichloroethene (TCE)	<RL	0.5
2,2,4-Trimethylpentane	<RL	0.5
Heptane	<RL	0.5

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Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX : AIR
UNITS : ppbv

ANALYSIS DATE : 09/10/2012
REPORT DATE : 09/10/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / AAC ID	Method Blank MB 091012	RL
cis-1,3-Dichloropropene	<RL	0.5
4-Methyl-2-pentanone (MiBK)	<RL	0.5
trans-1,3-Dichloropropene	<RL	0.5
1,1,2-Trichloroethane	<RL	0.5
Toluene	<RL	0.5
2-Hexanone (MBK)	<RL	0.5
Dibromochloromethane	<RL	0.5
1,2-Dibromoethane	<RL	0.5
Tetrachloroethene (PCE)	<RL	0.5
Chlorobenzene	<RL	0.5
Ethylbenzene	<RL	0.5
m & p-Xylenes	<RL	0.5
Bromoform	<RL	1.0
Styrene	<RL	0.5
1,1,2,2-Tetrachloroethane	<RL	0.5
o-Xylene	<RL	0.5
4-Ethyltoluene	<RL	0.5
1,3,5-Trimethylbenzene	<RL	0.5
1,2,4-Trimethylbenzene	<RL	0.5
Benzyl Chloride (a-Chlorotoluene)	<RL	0.5
1,3-Dichlorobenzene	<RL	0.5
1,4-Dichlorobenzene	<RL	0.5
1,2-Dichlorobenzene	<RL	0.5
1,2,4-Trichlorobenzene	<RL	0.5
Hexachlorobutadiene	<RL	0.5
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	107%	--

RL - Reporting Limit

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID : 120842-58316
MATRIX : Air

DATE ANALYZED : 09/10/2012
DATE REPORTED : 09/10/2012
UNITS : ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane	<SRL	<SRL	0.0
Propene	912	963	5.4
Dichlorodifluoromethane	<SRL	<SRL	0.0
Chloromethane	<SRL	<SRL	0.0
Dichlorotetrafluoroethane	<SRL	<SRL	0.0
Vinyl Chloride	<SRL	<SRL	0.0
Methanol	<SRL	<SRL	0.0
1,3-Butadiene	<SRL	<SRL	0.0
Bromomethane	<SRL	<SRL	0.0
Chloroethane	<SRL	<SRL	0.0
Dichlorofluoromethane	<SRL	<SRL	0.0
Ethanol	<SRL	<SRL	0.0
Vinyl Bromide	<SRL	<SRL	0.0
Acetone	<SRL	<SRL	0.0
Trichlorofluoromethane	<SRL	<SRL	0.0
2-Propanol (IPA)	<SRL	<SRL	0.0
Acrylonitrile	<SRL	<SRL	0.0
1,1-Dichloroethene	<SRL	<SRL	0.0
Methylene Chloride (DCM)	<SRL	<SRL	0.0
Allyl Chloride	<SRL	<SRL	0.0
Carbon Disulfide	<SRL	<SRL	0.0
Trichlorotrifluoroethane	NR	NR	NA
trans-1,2-Dichloroethene	<SRL	<SRL	0.0
1,1-Dichloroethane	<SRL	<SRL	0.0
Methyl Tert Butyl Ether (MTBE)	<SRL	<SRL	0.0
Vinyl Acetate	<SRL	<SRL	0.0
2-Butanone (MEK)	<SRL	<SRL	0.0
cis-1,2-Dichloroethene	<SRL	<SRL	0.0
Hexane	41.3	41.0	0.7
Chloroform	133	137	3.0
Ethyl Acetate	<SRL	<SRL	0.0
Tetrahydrofuran	<SRL	<SRL	0.0
1,2-Dichloroethane	<SRL	<SRL	0.0
1,1,1-Trichloroethane	<SRL	<SRL	0.0
Benzene	<SRL	<SRL	0.0
Carbon Tetrachloride	<SRL	<SRL	0.0

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 120842-58316	DATE ANALYZED	: 09/10/2012
MATRIX	: Air	DATE REPORTED	: 09/10/2012
		UNITS	: ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane	<SRL	<SRL	0.0
1,2-Dichloropropane	<SRL	<SRL	0.0
Bromodichloromethane	35.3	37.6	6.3
1,4-Dioxane	<SRL	<SRL	0.0
Trichloroethene (TCE)	<SRL	<SRL	0.0
2,2,4-Trimethylpentane	<SRL	<SRL	0.0
Heptane	20.9	22.1	5.6
cis-1,3-Dichloropropene	<SRL	<SRL	0.0
4-Methyl-2-pentanone (MiBK)	<SRL	<SRL	0.0
trans-1,3-Dichloropropene	<SRL	<SRL	0.0
1,1,2-Trichloroethane	<SRL	<SRL	0.0
Toluene	403	401	0.5
2-Hexanone (MBK)	<SRL	<SRL	0.0
Dibromochloromethane	<SRL	<SRL	0.0
1,2-Dibromoethane	<SRL	<SRL	0.0
Tetrachloroethene (PCE)	<SRL	<SRL	0.0
Chlorobenzene	<SRL	<SRL	0.0
Ethylbenzene	13.2	13.3	0.8
m & p-Xylenes	24.8	24.6	0.8
Bromoform	<SRL	<SRL	0.0
Styrene	<SRL	<SRL	0.0
1,1,2,2-Tetrachloroethane	<SRL	<SRL	0.0
o-Xylene	14.8	15.0	1.3
4-Ethyltoluene	<SRL	<SRL	0.0
1,3,5-Trimethylbenzene	11.3	11.0	2.7
1,2,4-Trimethylbenzene	11.8	11.2	5.2
Benzyl Chloride (a-Chlorotoluene)	<SRL	<SRL	0.0
1,3-Dichlorobenzene	<SRL	<SRL	0.0
1,4-Dichlorobenzene	<SRL	<SRL	0.0
1,2-Dichlorobenzene	<SRL	<SRL	0.0
1,2,4-Trichlorobenzene	<SRL	<SRL	0.0
Hexachlorobutadiene	<SRL	<SRL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	108%	107%	0.4

SRL - Sample Reporting Limit
NR - Not Reported on these analysis.

Marcus Hueppe
Laboratory Director

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AAC Project No. 120842

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD
Project Name: Ina Road WRF
Project Mgr (Print Name): Jason Wiser
Project Number: 143277
Sampler's Name (Print Name): Beth Ann Scully
Sampler's Signature: Beth Ann Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	H2S	Fixed Gas			
58316	9-8-12	1210	Gas	9812 INA Road	TEDLAR 3	X	X	X			

Analysis Requested

Send report:
Attn: Jason Wiser
Phone#:
Fax#

Send invoice to:
Attn:
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Beth Ann Scully	Beth A Scully	9/8/12 1310		
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
		9/10/12 1005	[illegible]	WEI HURN

– Fed Ex

Atmospheric Analysis & Consulting, Inc.

CLIENT : Brown and Caldwell
PROJECT NAME : Ina Road WRF
PROJECT NUMBER : 143277
AAC PROJECT NO. : 120858
REPORT DATE : 09/14/2012

On September 14, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for H2S analysis by ASTM D-5504 and Fixed Gases analysis by EPA 3C. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab No.
INA Road	120858-58393

ASTM D-5504 Analysis - Up to a 1 mL aliquot of sample is injected into the GC/SCD for analysis following ASTM D-5504 as specified in the SOW.

EPA 3C Analysis - Up to a 1 mL aliquot of sample is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW.

The client provided one extra bag as backup.

No problems were encountered during receiving, preparation and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-5504 and EPA 3C.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 6 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate #E87837

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : Brown and Caldwell
PROJECT NO. : 120858
MATRIX : Air
UNITS : ppmV

SAMPLING DATE : 09/13/2012
RECEIVING DATE : 09/14/2012
ANALYSIS DATE : 09/14/2012
REPORT DATE : 09/14/2012

Total Reduced Sulfur Compounds Analysis by ASTM D-5504

Client ID	INA Road
AAC ID	120858-58393
Analyte	Result
Hydrogen Sulfide	2,738

Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : **Brown and Caldwell**
PROJECT NO. : **120858**
MATRIX : **Air**
UNITS : **%**

SAMPLING DATE : **09/13/2012**
RECEIVING DATE : **09/14/2012**
ANALYSIS DATE : **09/14/2012**
REPORT DATE : **09/14/2012**

EPA 3C

Client ID	INA Road
AAC ID	120858-58393
Analyte	**Result**
H_2	<1.0%
O_2	0.7 %
N_2	2.5 %
CO	< 0.1 %
CO_2	35.2 %
CH_4	61.6 %

All fixed gases have been normalized to 100% on a dry weight basis

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 09/14/2012
Analyst : DH
Units : %

Instrument ID : TCD#1
Calb Date : 04/13/2012
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.3	4.6	15.0	10.3	9.6	10.0
	% Rec *	99.9	89.7	104.1	100.4	96.6	96.4

II - Method Blank - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO	O_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	10.3	14.4	10.3	9.9	10.3	5.2
	LCS Result	10.6	15.0	10.3	9.6	10.0	4.7
	LCSD Result	10.5	14.9	10.3	9.6	9.9	4.6
	LCS % Rec *	103.1	103.9	100.7	96.6	96.5	90.1
	LCSD % Rec *	102.3	103.1	100.7	96.3	96.1	89.6
	% RPD ***	0.8	0.7	0.1	0.3	0.4	0.6

IV-Sample & Sample Duplicate - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
120587-58389	Sample	0.0	1.0	14.2	32.6	47.3	0.0
	Sample Dup	0.0	1.0	13.3	30.8	44.1	0.0
	Mean	0.0	1.0	13.8	31.7	45.7	0.0
	% RPD ***	0.0	5.1	6.6	5.7	6.9	0.0

V-Matrix Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO
120587-58389	Sample Conc	0.0	6.9	15.8	22.8	0.0
	Spike Conc	10.3	9.2	10.3	9.9	10.3
	MS Result	10.4	17.4	26.1	34.5	9.7
	MSD Result	10.8	17.3	26.2	34.8	9.7
	MS % Rec **	101.3	114.1	99.9	116.9	93.9
	MSD % Rec **	105.3	113.3	101.4	120.6	94.0
	% RPD ***	3.9	0.7	1.5	3.1	0.1

VI - Closing Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.2	4.71	14.7	10.2	9.4	9.7
	% Rec *	99.4	91.0	102.0	99.9	94.6	93.9

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report
ASTM D-5504

Date Analyzed: 09/14/12
Analyst: DH

Instrument ID: SCD#10
Calb. Date: 8/28/2012

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	12337	239.0	95.6	NA
Duplicate	12495	242.1	96.8	1.3
Triplicate	12412	240.5	96.2	0.6

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate **Sample ID Lab Air**

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	0.0	125.0	113.3	113.3	90.6	90.7	0.1

Duplicate Analysis **Sample ID 120858-58393**

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	2773390.8	2702079.4	2737735.1	2.6

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	250.0	226.3	90.5

** Must be 95-105%*

*** Must be 90-110%*

**** Must be < 10%*

***** must be < 5% RPD from Initial result.*

Marcus Hueppe
Laboratory Director

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ATMOSPHERIC ANALYSIS & CONSULTING, INC.
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Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. 120858

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD
Project Name: Ina Road WRF
Project Mgr (Print Name): Jason Wiser
Project Number: 143277
Sampler's Name (Print Name): Beth Ann Scully
Sampler's Signature: Beth Ann Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	H2S	Fixed Gas			
58393	9-13-12	10:58	GAS	091312 INA Road	TEDlar	X	X	X			

Analysis Requested

Send report:
Attn: Jason Wiser
Phone#: 480-370-5500
Fax#

Send invoice to:
Attn:
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Beth A Scully	Beth A Scully	09-13-12 1300		
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
		9/14/12 1010	John A Zuckerman	John A. Zuckerman

Fed Ex

Atmospheric Analysis & Consulting, Inc.

CLIENT : Brown and Caldwell
PROJECT NAME : Ina Road WRF
PROJECT NUMBER : 143277
AAC PROJECT NO. : 120858
REPORT DATE : 09/17/2012

On September 14, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for Siloxanes analysis by EPA method TO-15. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab ID
091312 Ina Road	120858-58393

TO-15 Analysis - Up to a 500 mL aliquot of sample is concentrated, put through a water and CO_2 management system, cryofocused and injected into the GC/MS (full scan mode) for analysis following EPA Method TO-15 as specified in the SOW.

No problems were encountered during receiving, preparation and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP#TO.15.10.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized the release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 10 pages.

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : Brown and Caldwell
PROJECT NO : 120858
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 09/14/2012
DATE REPORTED : 09/17/2012

Client ID	091312 Ina Road
AAC ID	120858-58393
Date Sampled	09/13/2012
Date Analyzed	09/17/2012
Can Dilution Factor	1.00

SILOXANES

Compound	*PPB(V/V)*	*Sample Reporting Limit*
Hexamethyldisiloxane (L2)	<SRL	40
Hexamethylcyclotrisiloxane (D3)	77	40
Octamethyltrisiloxane (L3)	<SRL	40
Octamethylcyclotetrasiloxane (D4)	177	40
Decamethyltetrasiloxane (L4)	<SRL	40
Decamethylcyclopentasiloxane (D5)	366	40
Dodecamethylpentasiloxane (L5)	<SRL	40
BFB-Surrogate Std. % Recovery	107%	

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 09/17/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	Conc	Daily Conc	%REC*
4-BFB (surrogate standard)	10.00	9.93	99
Chlorodifluoromethane	10.30	10.06	98
Propene	11.00	11.32	103
Dichlorodifluoromethane	9.90	9.58	97
Chloromethane	10.10	9.63	95
Dichlorotetrafluoroethane	10.40	10.32	99
Vinyl Chloride	10.10	10.36	103
Methanol	6.00	6.36	106
1,3-Butadiene	10.30	10.43	101
Bromomethane	10.10	10.27	102
Chloroethane	10.10	9.58	95
Dichlorofluoromethane	10.30	10.43	101
Ethanol	10.50	10.53	100
Vinyl Bromide	10.20	10.87	107
Acetone	10.90	10.23	94
Trichlorofluoromethane	10.40	10.04	97
2-Propanol (IPA)	10.90	10.61	97
Acrylonitrile	10.50	11.23	107
1,1-Dichloroethene	10.50	10.51	100
Methylene Chloride (DCM)	11.00	10.66	97
Allyl Chloride	11.00	11.53	105
Carbon Disulfide	10.50	9.96	95
Trichlorotrifluoroethane	10.40	10.10	97
trans-1,2-Dichloroethene	10.40	10.68	103
1,1-Dichloroethane	10.40	10.35	100
Methyl Tert Butyl Ether (MTBE)	10.70	10.44	98
Vinyl Acetate	9.20	10.01	109
2-Butanone (MEK)	10.80	11.53	107
cis-1,2-Dichloroethene	10.60	10.67	101
Hexane	10.70	11.31	106
Chloroform	10.60	10.48	99
Ethyl Acetate	10.60	10.80	102
Tetrahydrofuran	10.90	11.13	102
1,2-Dichloroethane	10.50	10.51	100
1,1,1-Trichloroethane	10.50	10.33	98

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 09/17/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	Conc	Daily Conc	%REC*
Benzene	10.50	10.42	99
Carbon Tetrachloride	10.10	10.19	101
Cyclohexane	10.60	10.22	96
1,2-Dichloropropane	10.60	10.42	98
Bromodichloromethane	10.50	10.56	101
1,4-Dioxane	10.50	10.59	101
Trichloroethene (TCE)	10.50	10.64	101
2,2,4-Trimethylpentane	10.90	10.72	98
Heptane	10.70	11.26	105
cis-1,3-Dichloropropene	10.80	11.27	104
4-Methyl-2-pentanone (MiBK)	10.80	11.18	104
trans-1,3-Dichloropropene	9.80	10.12	103
1,1,2-Trichloroethane	10.70	10.89	102
Toluene	10.70	10.87	102
2-Hexanone (MBK)	10.90	11.44	105
Dibromochloromethane	11.00	11.21	102
1,2-Dibromoethane	10.50	10.57	101
Tetrachloroethene (PCE)	10.50	10.30	98
Chlorobenzene	10.70	10.45	98
Ethylbenzene	10.60	10.43	98
m & p-Xylenes	20.80	20.40	98
Bromoform	10.40	10.35	100
Styrene	10.60	10.86	102
1,1,2,2-Tetrachloroethane	10.70	10.73	100
o-Xylene	10.70	10.52	98
4-Ethyltoluene	10.40	10.52	101
1,3,5-Trimethylbenzene	10.50	10.47	100
1,2,4-Trimethylbenzene	10.60	10.56	100
Benzyl Chloride (a-Chlorotoluene)	10.20	10.94	107
1,3-Dichlorobenzene	10.20	10.34	101
1,4-Dichlorobenzene	10.40	10.16	98
1,2-Dichlorobenzene	10.30	10.08	98
1,2,4-Trichlorobenzene	9.80	9.88	101
Hexachlorobutadiene	10.30	9.99	97

* - %REC should be 70-130%

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

CLIENT ID	: Laboratory Control Spike	DATE ANALYZED	: 09/17/2012
AAC ID	: LCS/LCSD	DATE REPORTED	: 09/17/2012
MEDIA	: Air	UNITS	: ppbv

TO-15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-Dichloroethene	0.0	10.50	10.51	10.62	100	101	1.0
Methylene Chloride (DCM)	0.0	11.00	10.66	11.16	97	101	4.6
Benzene	0.0	10.50	10.42	10.44	99	99	0.2
Trichloroethene (TCE)	0.0	10.50	10.64	10.34	101	98	2.9
Toluene	0.0	10.70	10.87	10.74	102	100	1.2
Tetrachloroethene (PCE)	0.0	10.50	10.30	10.27	98	98	0.3
Chlorobenzene	0.0	10.70	10.45	10.55	98	99	1.0
Ethylbenzene	0.0	10.60	10.43	10.58	98	100	1.4
m & p-Xylenes	0.0	20.80	20.40	20.21	98	97	0.9
o-Xylene	0.0	10.70	10.52	10.18	98	95	3.3

* Must be 70-130%

** Must be < 25%

Marcus Hueppe
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Method Blank Analysis Report

MATRIX	: AIR	ANALYSIS DATE	: 09/17/2012
UNITS	: ppbv	REPORT DATE	: 09/17/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / AAC ID	Method Blank MB 091712	RL
Chlorodifluoromethane	<RL	0.5
Propene	<RL	1.0
Dichlorodifluoromethane	<RL	0.5
Chloromethane	<RL	0.5
Dichlorotetrafluoroethane	<RL	0.5
Vinyl Chloride	<RL	0.5
Methanol	<RL	5.0
1,3-Butadiene	<RL	0.5
Bromomethane	<RL	0.5
Chloroethane	<RL	0.5
Dichlorofluoromethane	<RL	0.5
Ethanol	<RL	2.0
Vinyl Bromide	<RL	0.5
Acetone	<RL	2.0
Trichlorofluoromethane	<RL	0.5
2-Propanol (IPA)	<RL	2.0
Acrylonitrile	<RL	1.0
1,1-Dichloroethene	<RL	0.5
Methylene Chloride (DCM)	<RL	1.0
Allyl Chloride	<RL	0.5
Carbon Disulfide	<RL	0.5
Trichlorotrifluoroethane	<RL	0.5
trans-1,2-Dichloroethene	<RL	0.5
1,1-Dichloroethane	<RL	0.5
Methyl Tert Butyl Ether (MTBE)	<RL	0.5
Vinyl Acetate	<RL	1.0
2-Butanone (MEK)	<RL	1.0
cis-1,2-Dichloroethene	<RL	0.5
Hexane	<RL	0.5
Chloroform	<RL	0.5
Ethyl Acetate	<RL	0.5
Tetrahydrofuran	<RL	0.5
1,2-Dichloroethane	<RL	0.5
1,1,1-Trichloroethane	<RL	0.5
Benzene	<RL	0.5
Carbon Tetrachloride	<RL	0.5
Cyclohexane	<RL	0.5
1,2-Dichloropropane	<RL	0.5
Bromodichloromethane	<RL	0.5
1,4-Dioxane	<RL	0.5
Trichloroethene (TCE)	<RL	0.5
2,2,4-Trimethylpentane	<RL	0.5
Heptane	<RL	0.5

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Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX	: AIR	ANALYSIS DATE	: 09/17/2012
UNITS	: ppbv	REPORT DATE	: 09/17/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / AAC ID	Method Blank MB 091712	RL
cis-1,3-Dichloropropene	<RL	0.5
4-Methyl-2-pentanone (MiBK)	<RL	0.5
trans-1,3-Dichloropropene	<RL	0.5
1,1,2-Trichloroethane	<RL	0.5
Toluene	<RL	0.5
2-Hexanone (MBK)	<RL	0.5
Dibromochloromethane	<RL	0.5
1,2-Dibromoethane	<RL	0.5
Tetrachloroethene (PCE)	<RL	0.5
Chlorobenzene	<RL	0.5
Ethylbenzene	<RL	0.5
m & p-Xylenes	<RL	1.0
Bromoform	<RL	0.5
Styrene	<RL	0.5
1,1,2,2-Tetrachloroethane	<RL	0.5
o-Xylene	<RL	0.5
4-Ethyltoluene	<RL	0.5
1,3,5-Trimethylbenzene	<RL	0.5
1,2,4-Trimethylbenzene	<RL	0.5
Benzyl Chloride (a-Chlorotoluene)	<RL	0.5
1,3-Dichlorobenzene	<RL	0.5
1,4-Dichlorobenzene	<RL	0.5
1,2-Dichlorobenzene	<RL	0.5
1,2,4-Trichlorobenzene	<RL	0.5
Hexachlorobutadiene	<RL	0.5
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	101%	--

RL - Reporting Limit

Marcus Hueppe
Laboratory Director

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Quality Control/Quality Assurance Report

AAC ID	: 120858-58393	DATE ANALYZED	: 09/17/2012
MATRIX	: Air	DATE REPORTED	: 09/17/2012
		UNITS	: ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane	<SRL	<SRL	0.0
Propene	746	784	5.0
Dichlorodifluoromethane	<SRL	<SRL	0.0
Chloromethane	<SRL	<SRL	0.0
Dichlorotetrafluoroethane	<SRL	<SRL	0.0
Vinyl Chloride	<SRL	<SRL	0.0
Methanol	<SRL	<SRL	0.0
1,3-Butadiene	<SRL	<SRL	0.0
Bromomethane	<SRL	<SRL	0.0
Chloroethane	<SRL	<SRL	0.0
Dichlorofluoromethane	<SRL	<SRL	0.0
Ethanol	<SRL	<SRL	0.0
Vinyl Bromide	<SRL	<SRL	0.0
Acetone	55.2	58.4	5.6
Trichlorofluoromethane	<SRL	<SRL	0.0
2-Propanol (IPA)	<SRL	<SRL	0.0
Acrylonitrile	<SRL	<SRL	0.0
1,1-Dichloroethene	<SRL	<SRL	0.0
Methylene Chloride (DCM)	29.7	30.9	4.0
Allyl Chloride	<SRL	<SRL	0.0
Carbon Disulfide	NR	NR	NA
Trichlorotrifluoroethane	<SRL	<SRL	0.0
trans-1,2-Dichloroethene	<SRL	<SRL	0.0
1,1-Dichloroethane	<SRL	<SRL	0.0
Methyl Tert Butyl Ether (MTBE)	<SRL	<SRL	0.0
Vinyl Acetate	<SRL	<SRL	0.0
2-Butanone (MEK)	<SRL	<SRL	0.0
cis-1,2-Dichloroethene	<SRL	<SRL	0.0
Hexane	49.5	48.8	1.4
Chloroform	78.9	78.5	0.5
Ethyl Acetate	<SRL	<SRL	0.0
Tetrahydrofuran	<SRL	<SRL	0.0
1,2-Dichloroethane	<SRL	<SRL	0.0
1,1,1-Trichloroethane	<SRL	<SRL	0.0
Benzene	<SRL	<SRL	0.0
Carbon Tetrachloride	<SRL	<SRL	0.0

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 120858-58393	DATE ANALYZED	: 09/17/2012
MATRIX	: Air	DATE REPORTED	: 09/17/2012
		UNITS	: ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane	<SRL	<SRL	0.0
1,2-Dichloropropane	<SRL	<SRL	0.0
Bromodichloromethane	14.5	14.4	0.7
1,4-Dioxane	<SRL	<SRL	0.0
Trichloroethene (TCE)	<SRL	<SRL	0.0
2,2,4-Trimethylpentane	<SRL	<SRL	0.0
Heptane	22.9	21.9	4.5
cis-1,3-Dichloropropene	<SRL	<SRL	0.0
4-Methyl-2-pentanone (MiBK)	<SRL	<SRL	0.0
trans-1,3-Dichloropropene	<SRL	<SRL	0.0
1,1,2-Trichloroethane	<SRL	<SRL	0.0
Toluene	392	396	1.0
2-Hexanone (MBK)	<SRL	<SRL	0.0
Dibromochloromethane	<SRL	<SRL	0.0
1,2-Dibromoethane	<SRL	<SRL	0.0
Tetrachloroethene (PCE)	<SRL	<SRL	0.0
Chlorobenzene	<SRL	<SRL	0.0
Ethylbenzene	11.0	11.0	0.0
m & p-Xylenes	<SRL	<SRL	0.0
Bromoform	<SRL	<SRL	0.0
Styrene	<SRL	<SRL	0.0
1,1,2,2-Tetrachloroethane	<SRL	<SRL	0.0
o-Xylene	11.3	11.6	2.6
4-Ethyltoluene	<SRL	<SRL	0.0
1,3,5-Trimethylbenzene	<SRL	<SRL	0.0
1,2,4-Trimethylbenzene	<SRL	<SRL	0.0
Benzyl Chloride (a-Chlorotoluene)	<SRL	<SRL	0.0
1,3-Dichlorobenzene	<SRL	<SRL	0.0
1,4-Dichlorobenzene	<SRL	<SRL	0.0
1,2-Dichlorobenzene	<SRL	<SRL	0.0
1,2,4-Trichlorobenzene	<SRL	<SRL	0.0
Hexachlorobutadiene	<SRL	<SRL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	107%	109%	1.8

SRL - Sample Reporting Limit
NR - Not Reported on these analysis.

Marcus Hueppe
Laboratory Director

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AAC Project No. 120858

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD
Project Name: Ina Road WRF
Project Mgr (Print Name): Jason Wiser
Project Number: 143277
Sampler's Name (Print Name): Beth Ann Scully
Sampler's Signature: Beth Ann Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	H2S	Fixed Gas			
58393	9-13-12	10:58	GAS	091312 INA Road	TEDlar	X	X	X			

Analysis Requested

Send report:
Attn: Jason Wiser
Phone#: 480-370-5500
Fax#

Send invoice to:
Attn:
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Beth A Scully	Beth A Scully	09-13-12 1300		
Relinquished by (Signature):	Print Name:	Date/Time 10:10 9/14/12	Received by (signature):	Print Name: John A. Zachman

Fed Ex

Atmospheric Analysis & Consulting, Inc.

CLIENT	: Brown and Caldwell
PROJECT NAME	: Ina Road WRF
PROJECT NUMBER	: 143277
AAC PROJECT NO.	: 120893
REPORT DATE	: 09/25/2012

On September 25, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for H2S analysis by ASTM D-5504 and Fixed Gases analysis by EPA 3C. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab No.
INA Road	120893-58600

ASTM D-5504 Analysis - Up to a 1 mL aliquot of sample is injected into the GC/SCD for analysis following ASTM D-5504 as specified in the SOW.

EPA 3C Analysis - Up to a 1 mL aliquot of sample is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW.

The sample was received past the suggested holding time for sulfur analysis. The client provided one extra bag as backup, but it had no sample due to a leak.

No other problems were encountered during receiving, preparation and/or analysis of this sample. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI- ASTM D-5504 and EPA 3C.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 6 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate #E87837

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : **Brown and Caldwell**
PROJECT NO. : **120893**
MATRIX : **Air**
UNITS : **%**

SAMPLING DATE : **09/23/2012**
RECEIVING DATE : **09/25/2012**
ANALYSIS DATE : **09/25/2012**
REPORT DATE : **09/25/2012**

EPA 3C

Client ID	INA Road
AAC ID	120893-58600
Analyte	**Result**
H_2	<1.0%
O_2	1.0 %
N_2	3.2 %
CO	< 0.1 %
CO_2	34.3 %
CH_4	61.5 %

All fixed gases have been normalized to 100% on a dry weight basis

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

CLIENT : **Brown and Caldwell**
PROJECT NO. : **120893**
MATRIX : **Air**
UNITS : **ppmV**

SAMPLING DATE : **09/23/2012**
RECEIVING DATE : **09/25/2012**
ANALYSIS DATE : **09/25/2012**
REPORT DATE : **09/25/2012**

Total Reduced Sulfur Compounds Analysis by ASTM D-5504

Client ID	INA Road
AAC ID	120893-58600
Analyte	**Result**
Hydrogen Sulfide	2.986

Sample Reporting Limit (SRL) is equal to Reporting Limit x Canister Dil. Fac. x Analysis Dil. Fac.

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 09/25/2012
Analyst : DH
Units : %

Instrument ID : TCD#1
Calb Date : 04/13/2012
Reporting Limit : 0.1%

I - Opening Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.8	4.9	15.6	10.6	9.9	10.4
	% Rec *	105.3	95.1	107.9	103.5	99.4	100.3

II - Method Blank - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
MB	Concentration	ND	ND	ND	ND	ND	ND

III-Laboratory Control Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO	O_2
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	10.3	14.4	10.3	9.9	10.3	5.2
	LCS Result	10.6	14.3	9.9	9.2	9.5	4.6
	LCSD Result	11.0	15.3	10.7	10.0	10.4	4.8
	LCS % Rec *	103.5	99.5	96.4	92.1	91.9	89.2
	LCSD % Rec *	107.6	106.5	104.1	100.7	100.4	92.9
	% RPD ***	3.8	6.8	7.7	8.9	8.8	4.1

IV-Sample & Sample Duplicate - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
120888-58535	Sample	0.0	6.2	43.4	0.8	0.0	0.0
	Sample Dup	0.0	5.9	41.4	0.7	0.0	0.0
	Mean	0.0	6.0	42.4	0.7	0.0	0.0
	% RPD ***	0.0	4.4	4.6	11.1	0.0	0.0

V-Matrix Spike & Duplicate - EPA 3C

AAC ID	Analyte	H_2	N_2	CO_2	CH_4	CO
120888-58535	Sample Conc	0.0	21.2	0.4	0.0	0.0
	Spike Conc	10.3	9.2	10.3	9.9	10.3
	MS Result	10.4	32.6	10.5	9.5	9.9
	MSD Result	10.2	32.6	9.9	9.7	10.1
	MS % Rec **	101.2	123.4	99.2	95.6	95.3
	MSD % Rec **	99.4	123.7	93.2	97.2	97.3
	% RPD ***	1.7	0.2	6.3	1.6	2.1

VI - Closing Continuing Calibration Verification - EPA 3C

AAC ID	Analyte	H_2	O_2	N_2	CO_2	CH_4	CO
CCV	Spike Conc	10.3	5.2	14.4	10.3	9.9	10.3
	Result	10.5	4.64	14.8	10.2	9.5	9.9
	% Rec *	102.4	89.6	102.4	99.9	95.9	95.8

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*
ND = Not Detected
<RL = less than Reporting Limit

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report
ASTM D-5504

Date Analyzed: 09/25/12
Analyst: MH

Instrument ID: SCD#10
Calb. Date: 9/24/2012

Opening Calibration Verification Standard

	Resp. (area)	Result (ppbV)	% Rec *	% RPD ****
Initial	2258	238.7	95.5	NA
Duplicate	2312	244.4	97.8	2.4
Triplicate	2273	240.3	96.1	0.7

Method Blank

Analyte	Result
H2S	ND

Matrix Spike & Duplicate **Sample ID 120894-58601 x40**

Analyte	Sample Conc.	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD ***
H2S	237.4	250.0	461.3	456.0	94.6	93.6	1.1

Duplicate Analysis **Sample ID 120894-58601**

Analyte	Sample Result	Duplicate Result	Mean	% RPD ***
H2S	9573	9421	9497	1.6

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery **
H2S	250.0	240.8	96.3

** Must be 95-105%*
*** Must be 90-110%*
**** Must be < 10%*
***** must be < 5% RPD from Initial result.*

Marcus Hueppe
Laboratory Director

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E-mail: info@aaclab.com

AAC Project No. 120893

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD
Project Name: Ina Road WRF
Project Mgr (Print Name): Jason Wiser
Project Number: 143277
Sampler's Name (Print Name): Brian Scully
Sampler's Signature: Brian Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	H2S	Fixed Gas			
58600	9-23-12	1208	Gas	92312 INA ROAD	Tedlar 2	X	X	X			

Analysis Requested

Send report:
Attn: Jason Wiser
Phone#: 602-567-3813
Fax#

Send invoice to:
Attn: Jason Wiser
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Brian Scully	Brian Scully	9-24-12 1100		
Relinquished by (Signature):	Print Name:	Date/Time 9/25/12 0945	Received by (signature):	Print Name WEI HORN

- FED EX

Atmospheric Analysis & Consulting, Inc.

CLIENT : Brown and Caldwell
PROJECT NAME : Ina Road WRF
PROJECT NUMBER : 143277
AAC PROJECT NO. : 120893
REPORT DATE : 09/25/2012

On September 25, 2012, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for Siloxanes analysis by EPA method TO-15. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab ID
092312 Ina Road	120893-58600

TO-15 Analysis - Up to a 500 mL aliquot of sample is concentrated, put through a water and CO_2 management system, cryofocused and injected into the GC/MS (full scan mode) for analysis following EPA Method TO-15 as specified in the SOW.

No problems were encountered during receiving, preparation and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP#TO.15.10.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized the release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Marcus Hueppe
Laboratory Director

This report consists of 10 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate#E87837

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : Brown and Caldwell
PROJECT NO : 120893
MATRIX : AIR
UNITS : PPB (v/v)

DATE RECEIVED : 09/25/2012
DATE REPORTED : 09/25/2012

Client ID	092312 Ina Road	
AAC ID	120893-58600	
Date Sampled	09/23/2012	
Date Analyzed	09/25/2012	
Can Dilution Factor	1.00	
SILOXANES		
Compound	*PPB(V/V)*	*Sample Reporting Limit*
Hexamethyldisiloxane (L2)	<SRL	40
Hexamethylcyclotrisiloxane (D3)	<SRL	40
Octamethyltrisiloxane (L3)	<SRL	40
Octamethylcyclotetrasiloxane (D4)	78	40
Decamethyltetrasiloxane (L4)	<SRL	40
Decamethylcyclopentasiloxane (D5)	268	40
Dodecamethylpentasiloxane (L5)	<SRL	40
BFB-Surrogate Std. % Recovery	106%	

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 09/25/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC**
4-BFB (surrogate standard)	10.00	9.81	98
Chlorodifluoromethane	10.30	10.07	98
Propene	11.00	12.41	113
Dichlorodifluoromethane	9.90	9.62	97
Chloromethane	10.10	9.35	93
Dichlorotetrafluoroethane	10.40	9.89	95
Vinyl Chloride	10.10	10.46	104
Methanol	6.00	6.66	111
1,3-Butadiene	10.30	11.09	108
Bromomethane	10.10	10.26	102
Chloroethane	10.10	9.76	97
Dichlorofluoromethane	10.30	10.02	97
Ethanol	10.50	10.92	104
Vinyl Bromide	10.20	10.81	106
Acetone	10.90	10.36	95
Trichlorofluoromethane	10.40	9.50	91
2-Propanol (IPA)	10.90	10.76	99
Acrylonitrile	10.50	11.15	106
1,1-Dichloroethene	10.50	10.42	99
Methylene Chloride (DCM)	11.00	11.02	100
Allyl Chloride	11.00	10.57	96
Carbon Disulfide	10.50	10.16	97
Trichlorotrifluoroethane	10.40	10.04	97
trans-1,2-Dichloroethene	10.40	10.47	101
1,1-Dichloroethane	10.40	10.19	98
Methyl Tert Butyl Ether (MTBE)	10.70	9.34	87
Vinyl Acetate	9.20	10.33	112
2-Butanone (MEK)	10.80	11.11	103
cis-1,2-Dichloroethene	10.60	10.62	100
Hexane	10.70	11.18	104
Chloroform	10.60	10.37	98
Ethyl Acetate	10.60	10.50	99
Tetrahydrofuran	10.90	11.22	103
1,2-Dichloroethane	10.50	10.00	95
1,1,1-Trichloroethane	10.50	10.06	96

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Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 09/25/2012
ANALYST : JJG

INSTRUMENT ID : GC/MS-03
CALIBRATION STD ID : PS080612-01

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-15

Continuing Calibration Verification of the 08/28/2012 Calibration

Compounds	Conc	Daily Conc	%REC*
Benzene	10.50	10.48	100
Carbon Tetrachloride	10.10	9.86	98
Cyclohexane	10.60	10.43	98
1,2-Dichloropropane	10.60	10.35	98
Bromodichloromethane	10.50	10.55	100
1,4-Dioxane	10.50	10.65	101
Trichloroethene (TCE)	10.50	10.51	100
2,2,4-Trimethylpentane	10.90	11.03	101
Heptane	10.70	11.23	105
cis-1,3-Dichloropropene	10.80	11.01	102
4-Methyl-2-pentanone (MiBK)	10.80	11.19	104
trans-1,3-Dichloropropene	9.80	10.00	102
1,1,2-Trichloroethane	10.70	10.67	100
Toluene	10.70	10.78	101
2-Hexanone (MBK)	10.90	11.30	104
Dibromochloromethane	11.00	11.14	101
1,2-Dibromoethane	10.50	10.64	101
Tetrachloroethene (PCE)	10.50	10.28	98
Chlorobenzene	10.70	10.44	98
Ethylbenzene	10.60	10.62	100
m & p-Xylenes	20.80	20.48	98
Bromoform	10.40	10.29	99
Styrene	10.60	10.56	100
1,1,2,2-Tetrachloroethane	10.70	10.84	101
o-Xylene	10.70	10.41	97
4-Ethyltoluene	10.40	10.72	103
1,3,5-Trimethylbenzene	10.50	10.40	99
1,2,4-Trimethylbenzene	10.60	10.67	101
Benzyl Chloride (a-Chlorotoluene)	10.20	10.54	103
1,3-Dichlorobenzene	10.20	10.51	103
1,4-Dichlorobenzene	10.40	10.21	98
1,2-Dichlorobenzene	10.30	10.13	98
1,2,4-Trichlorobenzene	9.80	9.40	96
Hexachlorobutadiene	10.30	10.17	99

* - %REC should be 70-130%

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

CLIENT ID	: Laboratory Control Spike	DATE ANALYZED	: 09/25/2012
AAC ID	: LCS/LCSD	DATE REPORTED	: 09/25/2012
MEDIA	: Air	UNITS	: ppbv

TO-15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-Dichloroethene	0.0	10.50	10.42	10.28	99	98	1.4
Methylene Chloride (DCM)	0.0	11.00	11.02	10.44	100	95	5.4
Benzene	0.0	10.50	10.48	10.98	100	105	4.7
Trichloroethene (TCE)	0.0	10.50	10.51	10.64	100	101	1.2
Toluene	0.0	10.70	10.78	10.96	101	102	1.7
Tetrachloroethene (PCE)	0.0	10.50	10.28	10.43	98	99	1.4
Chlorobenzene	0.0	10.70	10.44	10.76	98	101	3.0
Ethylbenzene	0.0	10.60	10.62	10.95	100	103	3.1
m & p-Xylenes	0.0	20.80	20.48	20.72	98	100	1.2
o-Xylene	0.0	10.70	10.41	10.52	97	98	1.1

* Must be 70-130%

** Must be < 25%

Marcus Hueppe
Laboratory Director

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Method Blank Analysis Report

MATRIX : AIR
UNITS : ppbv
ANALYSIS DATE : 09/25/2012
REPORT DATE : 09/25/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / AAC ID	Method Blank MB 092512	RL
Chlorodifluoromethane	<RL	0.5
Propene	<RL	1.0
Dichlorodifluoromethane	<RL	0.5
Chloromethane	<RL	0.5
Dichlorotetrafluoroethane	<RL	0.5
Vinyl Chloride	<RL	0.5
Methanol	<RL	5.0
1,3-Butadiene	<RL	0.5
Bromomethane	<RL	0.5
Chloroethane	<RL	0.5
Dichlorofluoromethane	<RL	0.5
Ethanol	<RL	2.0
Vinyl Bromide	<RL	0.5
Acetone	<RL	2.0
Trichlorofluoromethane	<RL	0.5
2-Propanol (IPA)	<RL	2.0
Acrylonitrile	<RL	1.0
1,1-Dichloroethene	<RL	0.5
Methylene Chloride (DCM)	<RL	1.0
Allyl Chloride	<RL	0.5
Carbon Disulfide	<RL	0.5
Trichlorotrifluoroethane	<RL	0.5
trans-1,2-Dichloroethene	<RL	0.5
1,1-Dichloroethane	<RL	0.5
Methyl Tert Butyl Ether (MTBE)	<RL	0.5
Vinyl Acetate	<RL	1.0
2-Butanone (MEK)	<RL	1.0
cis-1,2-Dichloroethene	<RL	0.5
Hexane	<RL	0.5
Chloroform	<RL	0.5
Ethyl Acetate	<RL	0.5
Tetrahydrofuran	<RL	0.5
1,2-Dichloroethane	<RL	0.5
1,1,1-Trichloroethane	<RL	0.5
Benzene	<RL	0.5
Carbon Tetrachloride	<RL	0.5
Cyclohexane	<RL	0.5
1,2-Dichloropropane	<RL	0.5
Bromodichloromethane	<RL	0.5
1,4-Dioxane	<RL	0.5
Trichloroethene (TCE)	<RL	0.5
2,2,4-Trimethylpentane	<RL	0.5
Heptane	<RL	0.5

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Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX	: AIR	ANALYSIS DATE	: 09/25/2012
UNITS	: ppbv	REPORT DATE	: 09/25/2012

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID / *AAC ID*	Method Blank MB 092512	RL
cis-1,3-Dichloropropene	<RL	0.5
4-Methyl-2-pentanone (MiBK)	<RL	0.5
trans-1,3-Dichloropropene	<RL	0.5
1,1,2-Trichloroethane	<RL	0.5
Toluene	<RL	0.5
2-Hexanone (MBK)	<RL	0.5
Dibromochloromethane	<RL	0.5
1,2-Dibromoethane	<RL	0.5
Tetrachloroethene (PCE)	<RL	0.5
Chlorobenzene	<RL	0.5
Ethylbenzene	<RL	0.5
m & p-Xylenes	<RL	1.0
Bromoform	<RL	0.5
Styrene	<RL	0.5
1,1,2,2-Tetrachloroethane	<RL	0.5
o-Xylene	<RL	0.5
4-Ethyltoluene	<RL	0.5
1,3,5-Trimethylbenzene	<RL	0.5
1,2,4-Trimethylbenzene	<RL	0.5
Benzyl Chloride (a-Chlorotoluene)	<RL	0.5
1,3-Dichlorobenzene	<RL	0.5
1,4-Dichlorobenzene	<RL	0.5
1,2-Dichlorobenzene	<RL	0.5
1,2,4-Trichlorobenzene	<RL	0.5
Hexachlorobutadiene	<RL	0.5
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	102%	--

RL - Reporting Limit

Marcus Hueppe
Laboratory Director

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 120894-58601	DATE ANALYZED	: 09/25/2012
MATRIX	: Air	DATE REPORTED	: 09/25/2012
		UNITS	: ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane	<SRL	<SRL	0.0
Propene	1720	1730	0.6
Dichlorodifluoromethane	<SRL	<SRL	0.0
Chloromethane	<SRL	<SRL	0.0
Dichlorotetrafluoroethane	<SRL	<SRL	0.0
Vinyl Chloride	<SRL	<SRL	0.0
Methanol	<SRL	<SRL	0.0
1,3-Butadiene	<SRL	<SRL	0.0
Bromomethane	<SRL	<SRL	0.0
Chloroethane	<SRL	<SRL	0.0
Dichlorofluoromethane	<SRL	<SRL	0.0
Ethanol	<SRL	<SRL	0.0
Vinyl Bromide	<SRL	<SRL	0.0
Acetone	<SRL	<SRL	0.0
Trichlorofluoromethane	<SRL	<SRL	0.0
2-Propanol (IPA)	<SRL	<SRL	0.0
Acrylonitrile	<SRL	<SRL	0.0
1,1-Dichloroethene	<SRL	<SRL	0.0
Methylene Chloride (DCM)	<SRL	<SRL	0.0
Allyl Chloride	<SRL	<SRL	0.0
Carbon Disulfide	119	117	1.7
Trichlorotrifluoroethane	<SRL	<SRL	0.0
trans-1,2-Dichloroethene	<SRL	<SRL	0.0
1,1-Dichloroethane	<SRL	<SRL	0.0
Methyl Tert Butyl Ether (MTBE)	<SRL	<SRL	0.0
Vinyl Acetate	<SRL	<SRL	0.0
2-Butanone (MEK)	<SRL	<SRL	0.0
cis-1,2-Dichloroethene	<SRL	<SRL	0.0
Hexane	<SRL	<SRL	0.0
Chloroform	<SRL	<SRL	0.0
Ethyl Acetate	<SRL	<SRL	0.0
Tetrahydrofuran	<SRL	<SRL	0.0
1,2-Dichloroethane	<SRL	<SRL	0.0
1,1,1-Trichloroethane	<SRL	<SRL	0.0
Benzene	<SRL	<SRL	0.0
Carbon Tetrachloride	<SRL	<SRL	0.0

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 120894-58601	DATE ANALYZED	: 09/25/2012
MATRIX	: Air	DATE REPORTED	: 09/25/2012
		UNITS	: ppbv

TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane	<SRL	<SRL	0.0
1,2-Dichloropropane	<SRL	<SRL	0.0
Bromodichloromethane	<SRL	<SRL	0.0
1,4-Dioxane	<SRL	<SRL	0.0
Trichloroethene (TCE)	<SRL	<SRL	0.0
2,2,4-Trimethylpentane	<SRL	<SRL	0.0
Heptane	90.1	86.7	3.8
cis-1,3-Dichloropropene	<SRL	<SRL	0.0
4-Methyl-2-pentanone (MiBK)	<SRL	<SRL	0.0
trans-1,3-Dichloropropene	<SRL	<SRL	0.0
1,1,2-Trichloroethane	<SRL	<SRL	0.0
Toluene	1000	988	1.2
2-Hexanone (MBK)	<SRL	<SRL	0.0
Dibromochloromethane	<SRL	<SRL	0.0
1,2-Dibromoethane	<SRL	<SRL	0.0
Tetrachloroethene (PCE)	<SRL	<SRL	0.0
Chlorobenzene	<SRL	<SRL	0.0
Ethylbenzene	<SRL	<SRL	0.0
m & p-Xylenes	<SRL	<SRL	0.0
Bromoform	<SRL	<SRL	0.0
Styrene	<SRL	<SRL	0.0
1,1,2,2-Tetrachloroethane	<SRL	<SRL	0.0
o-Xylene	<SRL	<SRL	0.0
4-Ethyltoluene	<SRL	<SRL	0.0
1,3,5-Trimethylbenzene	<SRL	<SRL	0.0
1,2,4-Trimethylbenzene	<SRL	<SRL	0.0
Benzyl Chloride (a-Chlorotoluene)	<SRL	<SRL	0.0
1,3-Dichlorobenzene	<SRL	<SRL	0.0
1,4-Dichlorobenzene	<SRL	<SRL	0.0
1,2-Dichlorobenzene	<SRL	<SRL	0.0
1,2,4-Trichlorobenzene	<SRL	<SRL	0.0
Hexachlorobutadiene	<SRL	<SRL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	100%	102%	2.2

SRL - Sample Reporting Limit

Marcus Hueppe
Laboratory Director

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ATMOSPHERIC ANALYSIS & CONSULTING, INC.
1534 Eastman Avenue, Suite A
Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. 120893

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name: Brown and Caldwell / PCRWRD

Project Name: Ina Road WRF

Project Mgr (Print Name): Jason Wiser

Project Number: 143277

Sampler's Name (Print Name): Beth Ann Scully

Sampler's Signature: Beth Ann Scully

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	H2S	Fixed Gas			
58600	9-23-12	1208	Gas	92312 INA ROAD	Tedlar 2	X	X	X			

Analysis Requested

Send report:
Attn: Jason Wiser
Phone#: 602-567-3818
Fax#

Send invoice to:
Attn: Jason Wiser
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Beth Ann Scully	Beth Ann Scully	9-24-12 1100		
Relinquished by (Signature):	Print Name:	Date/Time 9/25/12 0915	Received by (signature):	Print Name WEI HORN

- FED EX

Attachment B: Chain of Custody

ATMOSPHERIC ANALYSIS & CONSULTING, INC.
1534 Eastman Avenue, Suite A
Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: info@aaclab.com

AAC Project No. _____ Page ____ of ___

CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name	Project Name
Brown and Caldwell / PCRWRD	Ina Road WRF – Digester Gas Sampling Program
Project Mgr (Print Name) Jason Wiser	Project Number 143277
Sampler's Name (Print Name)	Sampler's Signature

Analysis Requested

Send report:

Attn: Jason Wiser_____

Phone#:480-370-5500_____
Fax#_____

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of Containers	Siloxanes	H2S	Fixed Gas			
			Digester Gas	Ina Road WRF	Tedlar 2	X	X	X			

Send invoice to:

Attn:_____

P.O. # _____

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal __X__
Other (Specify) _____

Special Instructions/remarks:

Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name
Relinquished by (Signature):	Print Name:	Date/Time	Received by (signature):	Print Name