

**EMISSION SURVEY
MONITORING REPORT
(July 2009 Survey)**

**Prepared for
B.C. Ministry of Agriculture
(Rodear Meats)
Abbotsford, B.C.**

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SUMMARY

The averaged results of triplicate emission tests for particulate, nitrogen oxides, CO, total hydrocarbons and flowrates from the Incinerator at Rodear Meats on July 02, 2009 are as follows:

PARAMETER	Incinerator Results
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Particulate (mg/Sm ³)	51.5
Particulate (mg/Sm ³ at 11 % O ₂)	44.1
Particulate (kg/hr)	0.05
NO _x as NO ₂ (mg/Sm ³ @ 11% O ₂)	214
THC (mg/Sm ³ @ 11% O ₂)	27.6
CO (mg/Sm ³ @ 11% O ₂)	156
Opacity (%)	<5
Flowrate (Sm ³ /min)	16.4
Stack Temperature (°C)	694
O ₂ (vol % dry)	10.6
CO ₂ (vol % dry)	7.9

All results are at standard conditions of 25°C and 101.3 KPa (dry).

1.0 INTRODUCTION

B.C. Ministry of Agriculture of Abbotsford, B.C. retained A. Lanfranco and Associates Inc. of Surrey, B.C., to conduct an emission survey on the exhaust of an animal waste combustor unit located at Rodear Meats near Williams Lake, B.C.

The purpose of the survey was to measure and report emission parameters from the stack associated with the animal waste incinerator. The testing was conducted to provide emission information in support or in anticipation of a MOE emission permit application. The data was also gathered to compare to the incinerator manufacturer's performance specifications guarantee.

This report documents the methods used and results found for triplicate emission tests conducted on the incinerator on July 2, 2009.

2.0 PROCESS DESCRIPTION

The Incinerator unit monitored in this survey utilized diesel as the primary combustion fuel. The incinerator off gases were passed through a diesel fired secondary combustion unit prior to exhaust to the atmosphere via a 12 inch diameter smokestack.

3.0 METHODOLOGY

The sampling and analytical methods used throughout this survey conform, in principle to the procedures outlined in the B.C. "Source Testing Code for the Measurement of Emissions of Particulates from Stationery Sources" 1982 Edition, and the B.C. air analytical manual, or EPA Reference Methods (RM). One modification to the test procedures was to measure HCl from a portion (10.0 ml) of the impinger solution prior to condensable organics analysis.

3.1 Sampling Techniques

The incinerator stack test ports were about six diameters downstream and greater than two diameters upstream of the nearest disturbances. From this criteria, a 16 point sampling regime was calculated. (Fig. A). The 16 points were sampled for four minutes (test 2) each. Test one was sampled for a total of 60 minutes from five points only, resulting in final sample volumes of about 1.6 to 1.7 Sm³.

The contaminants investigated during this survey were collected with two independent sampling systems as follows:

Train 1 – Particulate/Condensable Organics

Sampling of particulate and condensable organics (EPA Method 5/202) from the incinerator stack was conducted using Napp (now Baldwin) sampling trains equipped with heated filter assemblies and a three foot quartz probe and nozzle. (Fig. 1). The impinger sections of the sampling trains were charged with D.I. water for moisture and condensable organics collection. Cyclones were not used as part of the sampling apparatus.

All tests were conducted using 3 – 100 ml portions of deionized water in the impingers as required by EPA 202. The EPA 202 optional back filter was not used for this test program.

CEM System for NO_x, THC, CO, CO₂ and O₂

Continuous emission monitoring (CEM) was conducted for NO_x/THC/O₂/CO₂/CO using A. Lanfranco and Associates Inc. CEM monitoring mobile laboratory. This unit is a trailer outfitted with the following instrumentation:

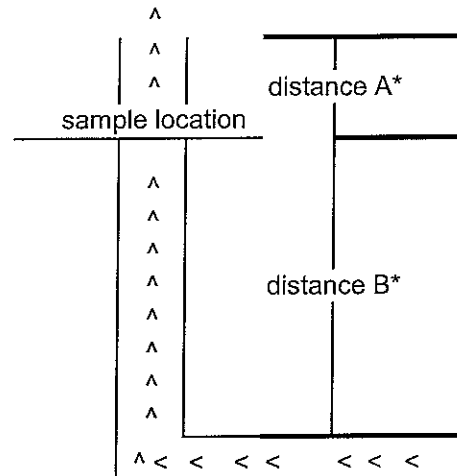
Figure - A Location of Traverse Points in Circular Stacks

(inches from inside wall to traverse point)

Client Stack I.D.: Rodear Meats

Diameter (inches)	12	
Total Points	16	Diameters Upstream: < 2
# of Ports Used	2	
Points / Traverse	8	Diameters Downstream: 6

Point	Distance from Wall
1	0.4
2	1.3
3	2.3
4	3.9
5	8.1
6	9.7
7	10.7
8	11.6



* distance A : duct diameters upstream from flow disturbance
 * distance B : duct diameters downstream from flow disturbance
 < < < < : flow direction

Figure 2a Location of Traverse Points in Circular Stacks

(percent of diameter from inside wall to traverse point)

Traverse Point Number on a Diameter	<u>Number of Traverse Points on a Diameter</u>					
	2	4	6	8	10	12
1	14.6%	6.7%	4.4%	3.2%	2.6%	2.1%
2	85.4%	25.0%	14.6%	10.5%	8.2%	6.7%
3		75.0%	29.6%	19.4%	14.6%	11.8%
4		93.3%	70.4%	32.3%	22.6%	17.7%
5			85.4%	67.7%	34.2%	25.0%
6			95.6%	80.6%	65.8%	35.6%
7				89.5%	77.4%	64.4%
8				96.8%	85.4%	75.0%
9					91.8%	82.3%
10					97.4%	88.2%
11						93.3%
12						97.9%

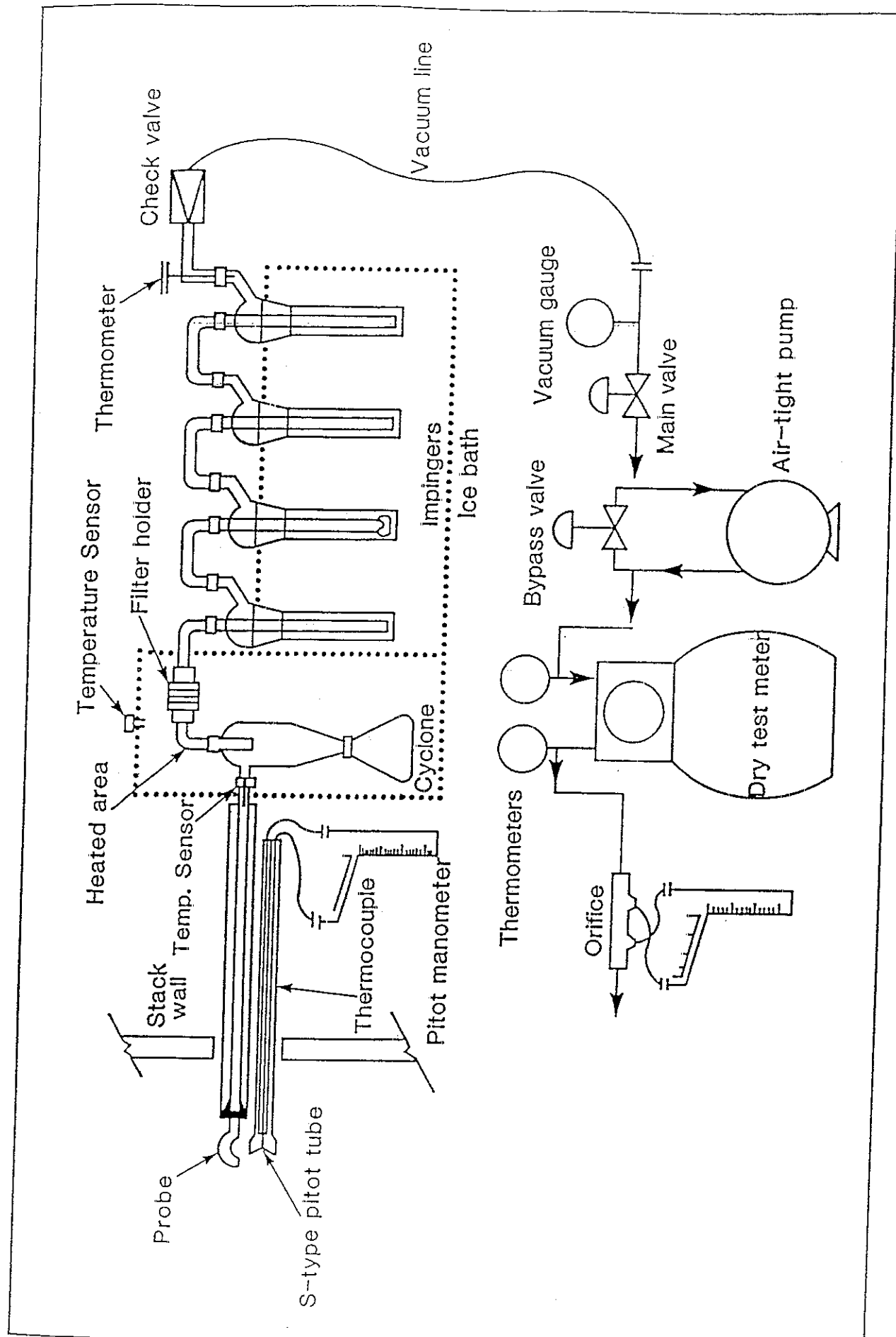


Figure 1 Particulate Sampling Train

NO _x	API Chemiluminescence Monitor, Model 252 for NO/NO ₂ /NO _x with ranges from 0 to 2000 ppm
CO/CO ₂ /O ₂	California Analytical Model 300 Infrared Analyzer with ranges 0 to 2000 ppm CO, and 0 to 40% CO ₂ , and 0 to 25% O ₂
THC	California Analytical Model 300, Hot FID Analyzer with ranges 0 to 100000 ppm as methane.

A diagram of the sampling, conditioning and analyzer system is provided in Figure 2. With this system the stack gas sample is withdrawn from the source through a coarse filter and stainless steel probe with associated pumps, filters and water removal components.

Prior to compliance testing and between each test all measuring instrumentation was calibrated with Protocol 1 and NIST Traceable, 1% certified calibration gas standards.

Calibration gas certificates are appended.

Opacity

Visual opacity readings were conducted manually with EPA Method 9.

3.2 Analytical Techniques

Sample clean-up of the probe and front half glassware from the particulate trains was conducted with sequential rinses of deionized H₂O and acetone. Impingers 1 to 3 were measured from each test for moisture determination and were saved for oil and grease analysis by Bodycote Laboratories in Surrey, B.C. The impingers were rinsed using DCM (dichloromethane) and de-ionized water to recover any oily residues from the impinger walls.

The particulate sampling filter was removed from the filter holder (after cooling) with tweezers and placed in a labelled petri dish for transportation to the laboratory. Any filter material adhering to the silicone gasket was removed and added to the filter.

Gravimetric analysis of the particulate samples was conducted by A. Lanfranco and Associates Inc. at their Surrey laboratory. Following 105°C drying and desiccation, the filters and probe washings particulate were determined by the difference in initial and final weights, adjusted for blank values.

Analysis of gaseous components was done on-site by the continuous analyzer system. Additionally, combustion gas analysis for O₂ and CO₂ was conducted on site by grab sample Fyrite analysis.

3.3 Quality Assurance / Quality Control (QA/QC)

QA/QC of this survey was accomplished by the following mechanisms.

1. Pre and Post test leak checks.
2. Use of EPA Protocol calibration gases
3. Calibration of volume measuring and monitoring instrumentation
4. Analysis of all blank solutions and filters
5. Calibration of CEM system to EPA/EC specifications

CEM Calibration Sequences

All calibrations for the survey were conducted by challenging the analyzers with calibration gas introduced at the probe end of the system. This provided a QA/QC check on system bias and showed the integrity of the overall sampling/conditioning system. The initial and between test calibrations consisted of a check of zero and span drift, followed by calibration with a zero gas and at least two span gases. Span gases utilized were selected as those which most closely approximated the anticipated pollutant/diluent concentrations.

Calibration gas mixtures used were:

Cylinder No.	NO _x (ppm)	CO (ppm)	O ₂ (Vol %)	IHC ppm as methane
Zero Gas	0	0	0	0
No. 1 Gas	240	235	-	-
No. 3 Gas	469	461	-	-
No. 4 Gas	-	1485	-	-
Ambient Air	-	-	20.9	
Low O ₂ Span	0	0	10.13	
High Methane	-	-	-	975
Mid Methane	-	-	-	450
Low Methane	-	-	-	87.4

4.0 RESULTS

The results of the particulate and stack parameters were calculated using a computer program consistent with reporting requirements of the GVRD and MOE. The computer outputs were checked by hand calculation. Some of the computer output results were converted by hand calculations to appropriate units for presentation in Tables 1 to 3.

In the following table, particulate and flowrate are shown in actual, standard or corrected standard terms. The "std" particulate results are mg/m^3 at standard conditions of 25°C and 101.3 KPa (dry) while the "corrected" results are "std" corrected to 11% O_2 by the formula

$$9.9$$

$$20.9 - \% \text{O}_2$$

The "actual" flowrate results are volumetric flowrate at stack conditions while the standard flowrates are flowrates corrected to 25°C and 101.3 KPa (dry).

Point by point isokinetic rates are presented in Appendix 1.

Detailed test results are presented in Tables 1, 2 and 3. Supporting data is presented in the Appendices.

Cyclonic flow was checked for and was not present in the stack and all points were sampled isokinetically (100+/- 10%).

TABLE 1 INCINERATOR EMISSION RESULTS

Parameter	Test 1	Test 2	Test 3	Average
Test Date	July 2/09	July 2/09	July 2/09	
Test Time	10:51 - 11:56	13:11 - 14:17	15:36 - 16:42	
Duration (minutes)	64	64	64	64
Particulate (mg/dscm)	105.0	32.6	17.0	51.5
Particulate (mg/dscm @ 11% O ₂)	74.3	38.4	19.5	44.1
Condensible Organics (mg/dscm)				
Front Half:	94.3	27.3	15.1	45.6
Back Half:	10.7	5.3	1.8	5.9
Particulate (Kg/hr)	0.1	0.03	0.02	0.05
Particulate (Kg/day)	2.4	0.8	0.4	1.2
Opacity (%)	7.5	< 5	< 5	< 5
Flowrate (dscm/min)	15.8	17.0	16.3	16.4
Flowrate (acm/min)	62.1	59.3	58.3	59.9
Temperature (°C)	721	670	690	694
O ₂ (vol % dry)	6.9	12.5	12.3	10.6
CO ₂ (vol % dry)	10.7	6.3	6.5	7.9
H ₂ O (vol %)	15.0	9.3	9.4	11.2
Isokinetic Variation (%)	102.0	94.9	95.3	97.4

standard conditions of 20 deg C and 101.3kPa

TABLE 2 GRAVIMETRIC RESULTS

Test	Filter Particulate (mg)	Probe and Washings Particulate (mg)	Condensable Particulate (mg)	Total Particulate (mg)
1	61.3	97.7	18.0	177.0
2	16.9	29.2	9.0	55.1
3	20.6	4.1	3.0	27.7

TABLE 3 INCINERATOR STACK GASEOUS EMISSIONS

Parameter		Test 1	Test 2	Test 3	Average
CEM Test Time		10:36-11:36	13:15-14:15	15:46-16:46	
Test Duration	(min)	60	60	60	60
NOx as NO ₂	(mg/Sm ³ @ 11% O ₂)	164.7	232.3	245.1	214.1
THC as CH ₄	(mg/Sm ³ @ 11% O ₂)	81.8	0.5	0.5	27.6
CO	(mg/Sm ³ @ 11% O ₂)	442.6	13.6	11.7	156.0

5.0 DISCUSSION

The emission tests conducted on the Rodear Meats incinerator were conducted during two separate charges; each about 400 kg in weight. Test 1 was conducted at the beginning of a "burn" and Test 3 was conducted at the end of the same "burn". Test 2 was conducted in the middle portion of a second "burn".

Significant variation in test results was found, showing the change in emissions with time of charge combustion. The initial combustion phase, as in past surveys, yields the highest emissions, with the final phase usually yielding the lowest emissions. In this case, the third test, which was intended to represent the middle phase, yielded the lowest emissions of particulate matter. Similar patterns were observed for gaseous emissions, except the Tests 2 and 3 showed NO_x, THC and CO were very similar following the initial combustion phase.

THC and CO showed large spikes during Test 1, but did not show large variations (except one time in Test 3)

Although the reported opacity was <5% (six minute observations), there was a period during Test 1 where opacity would have increased to 40% or greater for a brief period.

There were no problems encountered in sample collection or analysis. Samples were collected isokinetically at all points, and all sampling was conducted by certified technical staff. Test equipment and methodology used complied with provincial requirements of the B.C. Field Sampling Manual, and all equipment was operated within its calibrated range. The test results, therefore, are considered to be an accurate representation of emission characteristics for the process conditions maintained on the test date.

APPENDIX 1

COMPUTER OUTPUTS OF MEASURED AND CALCULATED DATA

Client: Rodear Meats
Jobsite: Williams Lake B.C.
Source: Incinerator

Date: July 2/09
Run: 1 - Partic./Condens.
Run Time: 10:51 - 11:56

Particulate Concentration:	105.0 mg/dscm	0.0459 gr/dscf
	26.7 mg/Acm	0.0117 gr/Acf
Front Half:	94.3 mg/dscm	
Back Half:	10.7 mg/dscm	

	74.3 mg/dscm (@ 11% O2)	0.0325 gr/dscf (@ 11% O2)
Emission Rate:	0.10 Kg/hr	0.220 lb/hr

Sample Gas Volume:	1 6855 dscm	59.522 dscf
Total Sample Time:	64.0 minutes	

Average Isokineticity:	102.0 %
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Flue Gas Characteristics

Moisture:	15.01 %	
Temperature	721.3 oC	1330.4 oF
Flow	15.8 dscm/min	558 dscf/min
	0.26 dscm/sec	9.3 dscf/sec
	62.1 Acm/min	2193 Acf/min
Velocity	14.183 m/sec	46.53 f/sec
Gas Analysis	6.90 % O2	10.70 % CO2
	29.988 Mol Wt (g/gmole) Dry	28.189 Mol Wt (g/gmole) Wet

*** Standard Conditions:** Metric: 25 deg C, 101.325 kPa
 Imperial: 77 deg F, 29.92 in Hg

Client: Rodear Meats
Jobsite: Williams Lake B.C.
Source: Incinerator

Date: July 2/09
Run: 1 - Partic./Condens.
Run Time: 10:51 - 11:56

Control Unit (Y) 1 0179
Nozzle Diameter (in.) 0 4860
Pitot Factor 0 8370
Baro. Press. (in. Hg) 29 90
Static Press. (in. H₂O) -0 18
Stack Height (ft) 30
Stack Diameter (in.) 12 0
Stack Area (sq ft.) 0 785
Minutes Per Reading 4 0
Minutes Per Point 4 0

Gas Analysis (Vol. %):

CO ₂	O ₂
10 70	6 90

Average = 10.70 6.90

Condensate Collection:

Impinger 1 (grams)	152.0
Impinger 2 (grams)	52.0
Impinger 3 (grams)	6.0
Impinger 4 (grams)	9.0

Total Gain (grams) 219.0

Collection:

Filter (grams)	0.0613
Washings (grams)	0.0977
Impinger (grams)	0.0180
Total (grams)	<u>0.1770</u>

Traverse	Point	Time (min.)	Dry Gas Meter (ft ³)	Pitot ^P (in. H ₂ O)	Orifice ^H (in. H ₂ O)	Dry Gas Temperature		Stack (°F)	Wall Dist (in.)	Isokin (%)
						Inlet (°F)	Outlet (°F)			
		0 0	613 000							
1	1	4 0	616 740	0 240	2 78	74	72	1526	0 5	101.1
	2	8 0	620 560	0 250	2 90	78	70	1360	1 3	96.7
	3	12 0	624 600	0 280	3 25	85	74	1593	2 3	101.7
	4	16 0	628 620	0 250	2 98	88	75	1388	3 9	101.1
	5	20 0	632 320	0 200	2 31	92	76	1330	8 1	101.8
	6	24 0	635 730	0 170	1 96	95	77	1270	9 7	99.6
	7	28 0	639 060	0 150	1 80	99	79	1251	10 7	102.3
	8	32 0	642 390	0 150	1 80	99	79	1230	11 6	101.7
		0 0	642 390							
2	1	4 0	646 240	0 200	2 56	102	83	1278	0 5	102.8
	2	8 0	650 080	0 200	2 56	105	84	1296	1 3	102.7
	3	12 0	653 930	0 200	2 76	106	86	1303	2 3	102.9
	4	16 0	657 830	0 200	2 70	108	88	1295	3 9	103.7
	5	20 0	661 740	0 200	2 70	111	88	1300	8 1	103.8
	6	24 0	665 350	0 170	2 32	112	91	1297	9 7	103.4
	7	28 0	668 960	0 170	2 32	112	91	1288	10 7	103.1
	8	32 0	672 576	0 170	2 32	113	91	1281	11 6	103.0
			Average:	0 200	2 501	98 7	81 5	1330 4		102 0

Client: Rodear Meats
Jobsite: Williams Lake B.C.
Source: Incinerator

Date: July 2/09
Run: 2 - Partic./Condens.
Run Time: 13:11 - 14:17

Particulate Concentration:	32.6 mg/dscm	0.0142 gr/dscf
	9.3 mg/Acm	0.0041 gr/Acf
Front Half:	27.3 mg/dscm	
Back Half:	5.3 mg/dscm	

	38.4 mg/dscm (@ 11% O2)	0.0168 gr/dscf (@ 11% O2)
Emission Rate:	0.03 Kg/hr	0.073 lb/hr

Sample Gas Volume:	1.6910 dscm	59.717 dscf
Total Sample Time:	64.0 minutes	

Average Isokineticity:	94.9 %
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Flue Gas Characteristics

Moisture:	9.26 %	
Temperature	670.1 oC	1238.2 oF
Flow	17.0 dscm/min	600 dscf/min
	0.28 dscm/sec	10.0 dscf/sec
	59.3 Acm/min	2094 Acf/min
Velocity	13.544 m/sec	44.43 f/sec
Gas Analysis	12.50 % O2	6.32 % CO2
	29.511 Mol. Wt (g/gmole) Dry	28.445 Mol. Wt (g/gmole) Wet

*** Standard Conditions:** Metric: 25 deg C, 101.325 kPa
 Imperial: 77 deg F, 29.92 in Hg

Client: Rodear Meats
Jobsite: Williams Lake B.C.
Source: Incinerator

Date: July 2/09
Run: 2 - Partic./Condens.
Run Time: 13:11 - 14:17

Control Unit (Y) 1 0179
Nozzle Diameter (in.) 0.4860
Pitot Factor 0.8370
Baro. Press. (in. Hg) 29.90
Static Press. (in. H₂O) -0.18
Stack Height (ft) 30
Stack Diameter (in.) 12.0
Stack Area (sq ft) 0.785
Minutes Per Reading 4.0
Minutes Per Point 4.0

Gas Analysis (Vol. %):

	CO ₂	O ₂
	6.32	12.50
Average =	<u>6.32</u>	<u>12.50</u>

Condensate Collection:

Impinger 1 (grams)	84.0
Impinger 2 (grams)	26.0
Impinger 3 (grams)	6.0
Impinger 4 (grams)	11.0

Total Gain (grams) **127.0**

Collection:

Filter (grams)	0.0169
Washings (grams)	0.0292
Impinger (grams)	0.0090
Total (grams)	<u>0.0551</u>

Traverse	Point	Time (min.)	Dry Gas Meter (ft ³)	Pitot ΔP (in. H ₂ O)	Orifice ΔH (in. H ₂ O)	Dry Gas Temperature Inlet (oF)	Outlet (oF)	Stack (oF)	Wall Dist (in.)	Isokin (%)
		0.0	673.142							
1	1	4.0	677.250	0.230	3.15	85	82	1240	0.5	96.9
	2	8.0	681.190	0.210	2.82	91	82	1228	1.3	96.3
	3	12.0	685.130	0.210	2.82	96	82	1268	2.3	97.0
	4	16.0	688.970	0.200	2.68	105	85	1257	3.9	95.5
	5	20.0	692.910	0.210	2.82	112	89	1236	8.1	94.1
	6	24.0	696.850	0.210	2.82	113	89	1232	9.7	93.9
	7	28.0	700.760	0.200	2.74	113	90	1216	10.7	95.0
	8	32.0	704.480	0.180	2.46	117	92	1236	11.6	95.2
		0.0	704.480							
2	1	4.0	708.390	0.200	2.73	112	95	1234	0.5	95.1
	2	8.0	712.310	0.200	2.73	119	97	1235	1.3	94.7
	3	12.0	716.320	0.210	2.84	120	97	1250	2.3	94.8
	4	16.0	720.240	0.200	2.73	123	97	1236	3.9	94.3
	5	20.0	723.850	0.170	2.32	124	99	1230	8.1	93.7
	6	24.0	727.460	0.170	2.32	125	100	1242	9.7	93.9
	7	28.0	730.860	0.150	2.05	126	101	1231	10.7	93.6
	8	32.0	734.259	0.150	2.05	126	101	1240	11.6	93.8
			Average:	0.194	2.630	112.9	92.4	1238.2		94.9

Client: Rodear Meats
Jobsite: Williams Lake B.C.
Source: Incinerator

Date: July 2/09
Run: 3 - Partic /Condens.
Run Time: 15:36 - 16:42

Particulate Concentration: **17.0 mg/dscm** 0.0074 gr/dscf
 4.8 mg/Acm 0.0021 gr/Acf

Front Half: 15.1 mg/dscm
 Back Half: 1.8 mg/dscm

19.5 mg/dscm (@ 11% O2) 0.0085 gr/dscf (@ 11% O2)

Emission Rate: 0.02 Kg/hr 0.037 lb/hr

Sample Gas Volume: 1.6315 dscm 57.617 dscf
Total Sample Time: 64.0 minutes

Average Isokineticity: 95.3 %

Flue Gas Characteristics

Moisture: 9.36 %

Temperature 690.4 oC 1274.8 oF

Flow 16.3 dscm/min 577 dscf/min
 0.27 dscm/sec 9.6 dscf/sec
 58.3 Acm/min 2058 Acf/min

Velocity 13.311 m/sec 43.67 f/sec

Gas Analysis 12.30 % O2 6.54 % CO2

29.538 Mol. Wt (g/gmole) Dry 28.458 Mol. Wt (g/gmole) Wet

*** Standard Conditions:** Metric: 25 deg C, 101.325 kPa
 Imperial: 77 deg F, 29.92 in Hg

Client: Rodear Meats
Jobsite: Williams Lake B.C.
Source: Incinerator

Date: July 2/09
Run: 3 - Partic./Condens.
Run Time: 15:36 - 16:42

Control Unit (Y) 1 0179
 Nozzle Diameter (in.) 0.4860
 Pitot Factor 0.8370
 Baro. Press. (in. Hg) 29.90
 Static Press. (in. H₂O) -0.18
 Stack Height (ft) 30
 Stack Diameter (in.) 12.0
 Stack Area (sq.ft.) 0.785
 Minutes Per Reading 4.0
 Minutes Per Point 4.0

Gas Analysis (Vol. %):

	CO ₂	O ₂
	6.54	12.30

Average = 6.54 12.30

Condensate Collection:

Impinger 1 (grams)	86.0
Impinger 2 (grams)	22.0
Impinger 3 (grams)	6.0
Impinger 4 (grams)	10.0

Total Gain (grams) 124.0

Collection:

Filter (grams)	0.0206
Washings (grams)	0.0041
Impinger (grams)	0.0030
Total (grams)	<u>0.0277</u>

Traverse	Point	Time (min.)	Dry Gas Meter (ft ³)	Pitot ΔP (in. H ₂ O)	Orifice ΔH (in. H ₂ O)	Dry Gas Temperature		Stack (°F)	Wall Dist (in.)	Isokin (%)
						Inlet (°F)	Outlet (°F)			
		0.0	734.771							
1	1	4.0	738.990	0.230	3.15	100	96	1310	0.5	99.0
	2	8.0	743.190	0.230	3.14	113	95	1311	1.3	97.6
	3	12.0	747.390	0.230	3.14	115	96	1297	2.3	96.9
	4	16.0	751.400	0.210	2.87	119	99	1292	3.9	96.1
	5	20.0	755.410	0.210	2.87	125	104	1254	8.1	94.1
	6	24.0	758.910	0.160	2.16	128	106	1229	9.7	92.8
	7	28.0	762.360	0.150	2.05	130	107	1220	10.7	94.0
	8	32.0	765.810	0.150	2.05	130	107	1238	11.6	94.5
		0.0	765.810							
2	1	4.0	769.790	0.200	2.78	130	110	1281	0.5	95.5
	2	8.0	773.780	0.200	2.78	133	111	1292	1.3	95.7
	3	12.0	777.460	0.170	2.36	134	111	1274	2.3	95.1
	4	16.0	781.140	0.170	2.36	135	113	1268	3.9	94.7
	5	20.0	784.810	0.170	2.36	136	113	1260	8.1	94.1
	6	24.0	788.390	0.160	2.23	137	114	1254	9.7	94.3
	7	28.0	791.820	0.150	2.09	137	114	1311	10.7	94.8
	8	32.0	795.278	0.150	2.09	137	115	1305	11.6	95.3
			Average:	0.184	2.530	127.4	106.9	1274.8		95.3

A. Lanfranco and Associates Inc.
METLab CEM Report

Client: Rodcar Meats
Source: Incinerator
Run: 1

Moisture % =
 15.01

O2 Correction 11
Year: 2009
Date:

Date	Time	O2 (Vol. %)	CO2 (Vol. %)	CO (ppm)	THC (ppm as CH4)	NOx (ppm)
2-Jul	1036	13.94	5.11	8.5	-0.6	117.4
2-Jul	1037	14.15	4.96	9.3	-0.6	125.6
2-Jul	1038	10.18	8.10	18.5	-0.6	132.3
2-Jul	1039	0.74	15.36	559.3	32.1	214.4
2-Jul	1040	0.40	15.59	1080.9	41.8	222.7
2-Jul	1041	0.52	15.53	717.3	24.2	212.7
2-Jul	1042	0.42	15.61	1312.1	54.5	199.2
2-Jul	1043	2.84	13.74	604.0	13.2	190.0
2-Jul	1044	1.43	14.95	443.5	14.1	205.1
2-Jul	1045	0.73	15.43	632.9	13.6	175.9
2-Jul	1046	2.31	14.24	418.0	12.4	177.1
2-Jul	1047	0.44	15.62	1756.4	98.4	179.2
2-Jul	1048	3.04	13.64	1106.1	70.8	181.9
2-Jul	1049	0.18	15.68	2656.1	726.7	180.5
2-Jul	1050	3.18	13.44	1183.9	187.5	173.5
2-Jul	1051	4.14	12.74	1078.8	80.4	210.5
2-Jul	1052	10.85	7.51	21.9	1.9	123.5
2-Jul	1053	2.05	14.48	1702.9	632.1	112.7
2-Jul	1054	0.14	15.72	2677.3	978.9	129.7
2-Jul	1055	2.03	14.31	1701.9	434.8	150.2
2-Jul	1056	1.72	14.61	1796.8	692.1	248.9
2-Jul	1057	7.46	10.15	234.6	10.9	180.3
2-Jul	1058	9.56	8.63	15.4	4.4	127.6
2-Jul	1059	8.95	9.17	60.1	35.1	92.7
2-Jul	1100	0.16	15.70	2650.1	1348.6	120.5
2-Jul	1101	0.25	15.51	2595.6	1144.0	127.8
2-Jul	1102	10.76	7.67	527.6	24.7	143.6
2-Jul	1103	8.50	9.50	15.4	7.5	170.4
2-Jul	1104	8.39	9.58	12.3	5.1	144.4
2-Jul	1105	0.62	15.41	2354.2	1238.9	161.5
2-Jul	1106	0.63	15.18	2364.3	1020.4	46.8
2-Jul	1107	9.52	8.72	175.8	24.0	120.9
2-Jul	1108	7.87	9.98	13.8	9.5	169.9
2-Jul	1109	8.36	9.61	13.8	6.2	139.3
2-Jul	1110	8.54	9.47	14.4	4.5	99.6
2-Jul	1111	8.94	9.16	15.7	3.6	79.2
2-Jul	1112	9.03	9.10	15.9	3.4	71.2
2-Jul	1113	9.01	9.11	14.5	3.0	72.8
2-Jul	1114	8.95	9.16	14.3	2.3	75.1
2-Jul	1115	8.98	9.15	13.5	1.8	75.5
2-Jul	1116	9.18	8.99	13.5	1.7	79.0
2-Jul	1117	9.37	8.85	13.0	1.7	78.2
2-Jul	1118	9.47	8.76	12.7	1.7	78.1
2-Jul	1119	9.51	8.73	12.1	1.6	82.1
2-Jul	1120	9.88	8.43	12.5	1.2	84.8
2-Jul	1121	10.23	8.16	13.0	1.0	83.1
2-Jul	1122	10.31	8.08	13.1	1.0	80.1
2-Jul	1123	10.47	7.96	13.6	1.0	79.1
2-Jul	1124	10.55	7.90	14.5	1.0	78.9
2-Jul	1125	10.53	7.93	14.3	1.0	77.6
2-Jul	1126	10.49	7.97	14.3	0.8	78.1
2-Jul	1127	10.35	8.09	14.2	0.6	79.2
2-Jul	1128	10.23	8.18	14.4	0.4	81.8
2-Jul	1129	10.16	8.23	14.1	0.3	80.4
2-Jul	1130	10.08	8.29	14.2	0.3	75.4
2-Jul	1131	10.20	8.21	14.1	0.3	73.1
2-Jul	1132	10.21	8.20	13.6	0.3	74.2
2-Jul	1133	10.23	8.18	13.7	0.2	74.8
2-Jul	1134	10.16	8.25	13.9	-0.1	76.6
2-Jul	1135	10.02	8.36	14.0	-0.3	73.7

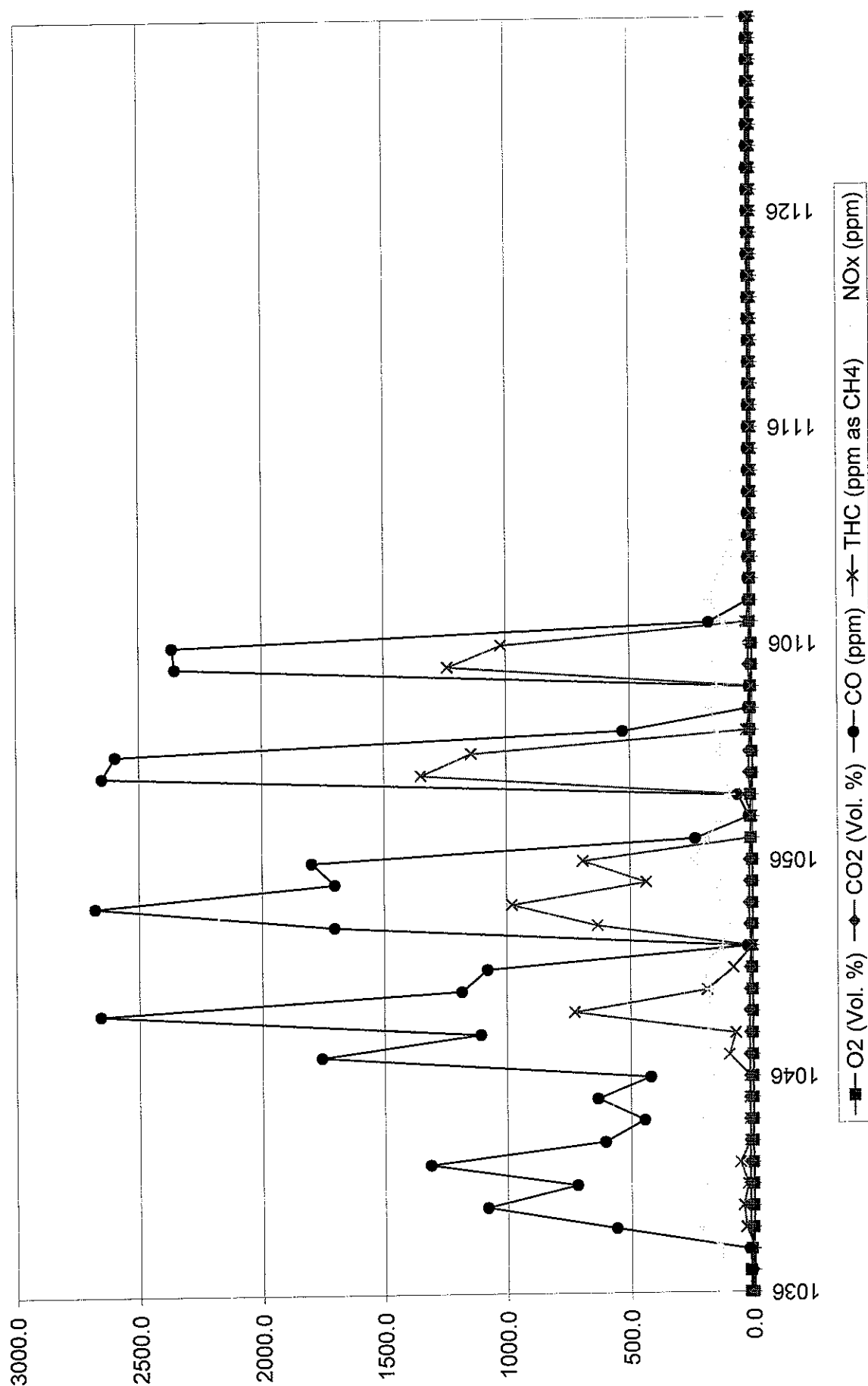
Average	6.9	10.70	548.0	150.4	124.2
Minimum	0.1	4.96	8.5	-0.8	46.8
Maximum	14.2	15.72	2677.3	1348.6	248.9

Mass Concentration (mg/m3 dry)	n/a	n/a	627.8	116.1	233.6
Mass Concentration (mg/m3 dry) Corrected to 11% O2			442.6	81.8	164.7

Calibration Summary	O2	CO2	CO	THC	NOx
Gas (Cert. Value)	10.13	9.92	235.0	87.4	240.0
Initial Gas Check	10.12	9.85	234.2	91.6	237.5
Final Gas Check	10.11	9.95	234.5	87.2	238.8
Initial Zero Drift	0.04	-0.07	0.4	1.3	0.5
Final Zero Drift	0.03	0.05	2.9	0.7	0.5

Incinerater Stack - Run 1 (July 2, 2009)

Rodear Meats
METLab CEM Results



A. Lanfranco and Associates Inc.
METLab CEM Report

Client: Rodear Meats
Source: Incinerator
Run: 2

Moisture % =
9.26

O2 Correction Year: Date	11 2009 Time	O2 (Vol. %)	CO2 (Vol. %)	CO (ppm)	THC (ppm as CH4)	NOx (ppm)
2-Jul	1316	13.21	5.76	15.2	1.2	136.0
2-Jul	1317	13.42	5.61	13.9	1.2	137.2
2-Jul	1318	13.57	5.51	13.1	1.2	133.0
2-Jul	1319	13.71	5.39	12.0	1.0	128.5
2-Jul	1320	13.85	5.29	11.0	0.6	124.2
2-Jul	1321	9.19	8.78	7.9	0.6	108.4
2-Jul	1322	9.43	8.61	7.6	0.5	71.3
2-Jul	1323	12.43	6.40	12.6	0.6	89.7
2-Jul	1324	12.73	6.16	12.6	0.6	109.6
2-Jul	1325	13.01	5.93	12.4	0.6	118.6
2-Jul	1326	13.21	5.77	12.6	0.6	119.5
2-Jul	1327	13.35	5.65	12.0	0.6	119.4
2-Jul	1328	13.49	5.54	10.9	0.6	114.7
2-Jul	1329	13.60	5.47	10.3	0.6	109.2
2-Jul	1330	13.35	5.67	10.9	0.5	108.6
2-Jul	1331	6.68	10.63	3.5	-0.1	84.1
2-Jul	1332	11.56	7.02	8.9	0.5	79.7
2-Jul	1333	12.79	6.10	13.4	0.6	101.9
2-Jul	1334	13.03	5.91	14.0	0.6	111.9
2-Jul	1335	13.18	5.78	13.2	0.6	115.5
2-Jul	1336	13.29	5.70	11.8	0.6	111.9
2-Jul	1337	13.32	5.67	10.6	0.6	105.2
2-Jul	1338	13.42	5.60	10.2	0.6	102.2
2-Jul	1339	13.49	5.54	10.0	0.6	100.2
2-Jul	1340	13.53	5.52	10.1	0.6	99.7
2-Jul	1341	13.43	5.61	11.7	0.5	99.9
2-Jul	1342	6.78	10.57	3.6	-0.1	84.3
2-Jul	1343	11.50	7.07	7.7	0.5	81.5
2-Jul	1344	12.79	6.12	11.9	0.6	101.9
2-Jul	1345	12.97	5.96	12.3	0.6	106.0
2-Jul	1346	13.02	5.91	13.1	0.6	109.5
2-Jul	1347	13.07	5.87	13.7	0.6	110.3
2-Jul	1348	13.22	5.75	12.6	0.6	113.6
2-Jul	1349	13.28	5.70	11.3	0.6	110.2
2-Jul	1350	13.32	5.67	10.8	0.6	105.1
2-Jul	1351	13.31	5.67	10.4	0.6	103.0
2-Jul	1352	13.27	5.71	10.5	0.6	102.0
2-Jul	1353	13.21	5.75	10.3	0.6	100.8
2-Jul	1354	13.31	5.68	10.9	0.6	100.0
2-Jul	1355	11.33	7.20	9.4	0.3	100.2
2-Jul	1356	7.82	9.79	4.2	0.0	78.4
2-Jul	1357	11.88	6.85	6.5	0.4	98.5
2-Jul	1358	12.31	6.49	8.2	0.5	100.5
2-Jul	1359	12.58	6.28	8.9	0.5	94.0
2-Jul	1400	12.64	6.23	9.0	0.5	94.7
2-Jul	1401	12.68	6.19	9.5	0.6	95.7
2-Jul	1402	12.71	6.16	9.4	0.6	96.8
2-Jul	1403	12.85	6.05	9.4	0.6	99.5
2-Jul	1404	12.95	5.97	9.7	0.6	100.7
2-Jul	1405	12.99	5.94	9.9	0.6	103.9
2-Jul	1406	12.99	5.94	10.0	0.6	109.6
2-Jul	1407	13.08	5.87	9.5	0.6	111.4
2-Jul	1408	13.14	5.82	9.4	0.6	111.6
2-Jul	1409	13.11	5.85	9.2	0.6	111.2
2-Jul	1410	13.15	5.81	8.9	0.6	111.5
2-Jul	1411	13.20	5.77	8.5	0.6	110.5
2-Jul	1412	13.30	5.70	8.5	0.8	109.0
2-Jul	1413	12.67	6.20	8.2	0.4	108.2
2-Jul	1414	6.92	10.44	2.7	-0.1	89.1
2-Jul	1415	11.97	6.78	4.3	0.1	101.2
Average		12.5	6.32	10.1	0.5	105.0
Minimum		6.7	5.29	2.7	-0.1	71.3
Maximum		13.8	10.63	15.2	1.2	137.2

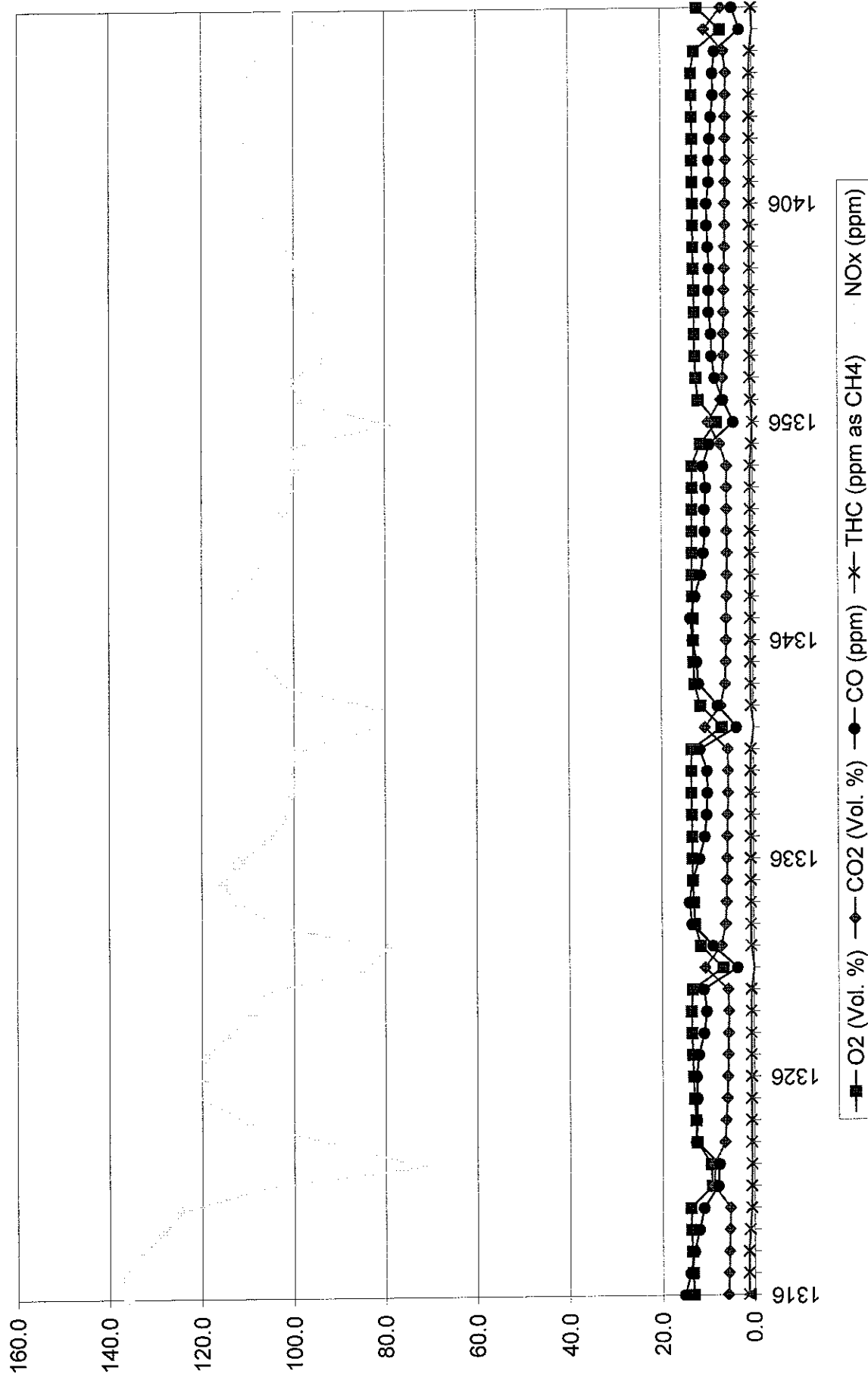
Mass Concentration (mg/m3 dry) n/a n/a 11.5 0.4 197.6

Mass Concentration (mg/m3 dry) Corrected to 11% O2 13.6 0.5 232.3

Calibration Summary	O2	CO2	CO	THC	NOx
Gas (Cert. Value)	10.13	9.92	235.0	87.4	240.0
Initial Gas Check	10.12	9.86	232.2	88.5	239.2
Final Gas Check	10.10	9.92	232.8	86.5	239.1
Initial Zero Drift	0.03	0.08	0.6	0.7	0.9
Final Zero Drift	0.02	0.08	-2.1	-1.8	0.3

Incinerater Stack - Run 2 (July 2, 2009)

Rodear Meats
METLab CEM Results



A. Lanfranco and Associates Inc.
METLab CEM Report

Client: Rodcar Meats
Source: Incinerator
Run: 3

Moisture % =
9.36

O2 Correction 11
Year: 2009
Date:

Date	Time	O2 (Vol. %)	CO2 (Vol. %)	CO (ppm)	THC (ppm as CH4)	NOx (ppm)
2-Jul	1547	12.34	6.50	6.1	1.2	135.0
2-Jul	1548	12.36	6.49	5.6	1.1	132.5
2-Jul	1549	12.34	6.51	5.3	0.8	133.0
2-Jul	1550	12.40	6.47	5.6	0.6	131.3
2-Jul	1551	12.47	6.41	5.5	0.5	130.1
2-Jul	1552	12.59	6.33	5.3	0.5	127.6
2-Jul	1553	12.63	6.29	5.3	0.5	123.9
2-Jul	1554	12.67	6.26	5.3	0.5	122.3
2-Jul	1555	12.60	6.31	5.3	0.5	120.9
2-Jul	1556	12.34	6.51	4.7	0.5	124.7
2-Jul	1557	12.23	6.59	4.2	0.5	129.2
2-Jul	1558	12.15	6.67	5.0	0.5	131.0
2-Jul	1559	11.79	6.94	4.9	0.5	133.2
2-Jul	1600	11.67	7.05	3.8	0.5	138.3
2-Jul	1601	11.57	7.12	3.4	0.5	141.5
2-Jul	1602	11.80	6.95	4.3	0.5	139.8
2-Jul	1603	11.80	6.96	4.6	0.5	134.2
2-Jul	1604	11.73	7.01	4.2	0.5	132.4
2-Jul	1605	11.87	6.90	4.3	0.5	134.8
2-Jul	1606	12.11	6.71	4.8	0.5	132.6
2-Jul	1607	12.31	6.55	5.6	0.5	127.2
2-Jul	1608	12.56	6.36	7.4	0.5	121.6
2-Jul	1609	12.70	6.24	7.6	0.5	111.8
2-Jul	1610	12.85	6.13	7.3	0.5	105.8
2-Jul	1611	12.97	6.03	7.3	0.5	103.8
2-Jul	1612	12.82	6.15	6.9	0.5	108.4
2-Jul	1613	12.85	6.13	7.2	0.5	109.7
2-Jul	1614	12.87	6.11	7.3	0.5	105.4
2-Jul	1615	12.85	6.12	7.2	0.5	104.0
2-Jul	1616	12.92	6.06	7.4	0.5	101.4
2-Jul	1617	12.97	6.02	7.4	0.5	97.9
2-Jul	1618	13.07	5.95	7.4	0.5	96.5
2-Jul	1619	13.18	5.86	7.3	0.5	94.8
2-Jul	1620	13.28	5.78	7.2	0.5	94.1
2-Jul	1621	13.34	5.74	6.8	0.5	93.1
2-Jul	1622	13.38	5.70	7.0	0.5	93.5
2-Jul	1623	13.40	5.68	7.0	0.5	92.3
2-Jul	1624	13.47	5.64	7.3	0.5	91.9
2-Jul	1625	13.51	5.62	7.6	0.5	92.1
2-Jul	1626	13.56	5.57	7.6	0.5	91.8
2-Jul	1627	13.60	5.54	7.2	0.5	93.6
2-Jul	1628	13.66	5.50	7.2	0.5	93.9
2-Jul	1629	13.73	5.44	6.9	0.5	93.3
2-Jul	1630	13.81	5.38	7.2	0.8	94.2
2-Jul	1631	13.89	5.32	7.3	1.2	94.9
2-Jul	1632	13.93	5.29	7.3	1.3	95.4
2-Jul	1633	9.37	8.86	14.8	1.2	102.0
2-Jul	1634	4.21	12.76	160.1	2.3	132.3
2-Jul	1635	9.55	8.73	3.0	0.7	123.7
2-Jul	1636	10.64	7.89	4.0	0.5	110.1
2-Jul	1637	11.48	7.22	5.8	0.5	106.0
2-Jul	1638	12.16	6.68	7.1	0.5	105.8
2-Jul	1639	12.49	6.43	7.1	0.5	105.0
2-Jul	1640	12.77	6.20	7.0	0.5	101.1
2-Jul	1641	12.99	6.02	6.8	0.5	99.1
2-Jul	1642	13.14	5.90	6.6	0.5	99.7
2-Jul	1643	13.25	5.81	6.4	0.5	100.1
2-Jul	1644	13.33	5.74	6.5	0.5	101.5
2-Jul	1645	12.61	6.32	6.5	0.5	102.7
2-Jul	1646	3.87	12.98	5.0	0.4	161.0

Average	12.3	6.54	8.9	0.6	113.0
Minimum	3.9	5.29	3.0	0.4	91.8
Maximum	13.9	12.98	160.1	2.3	161.0

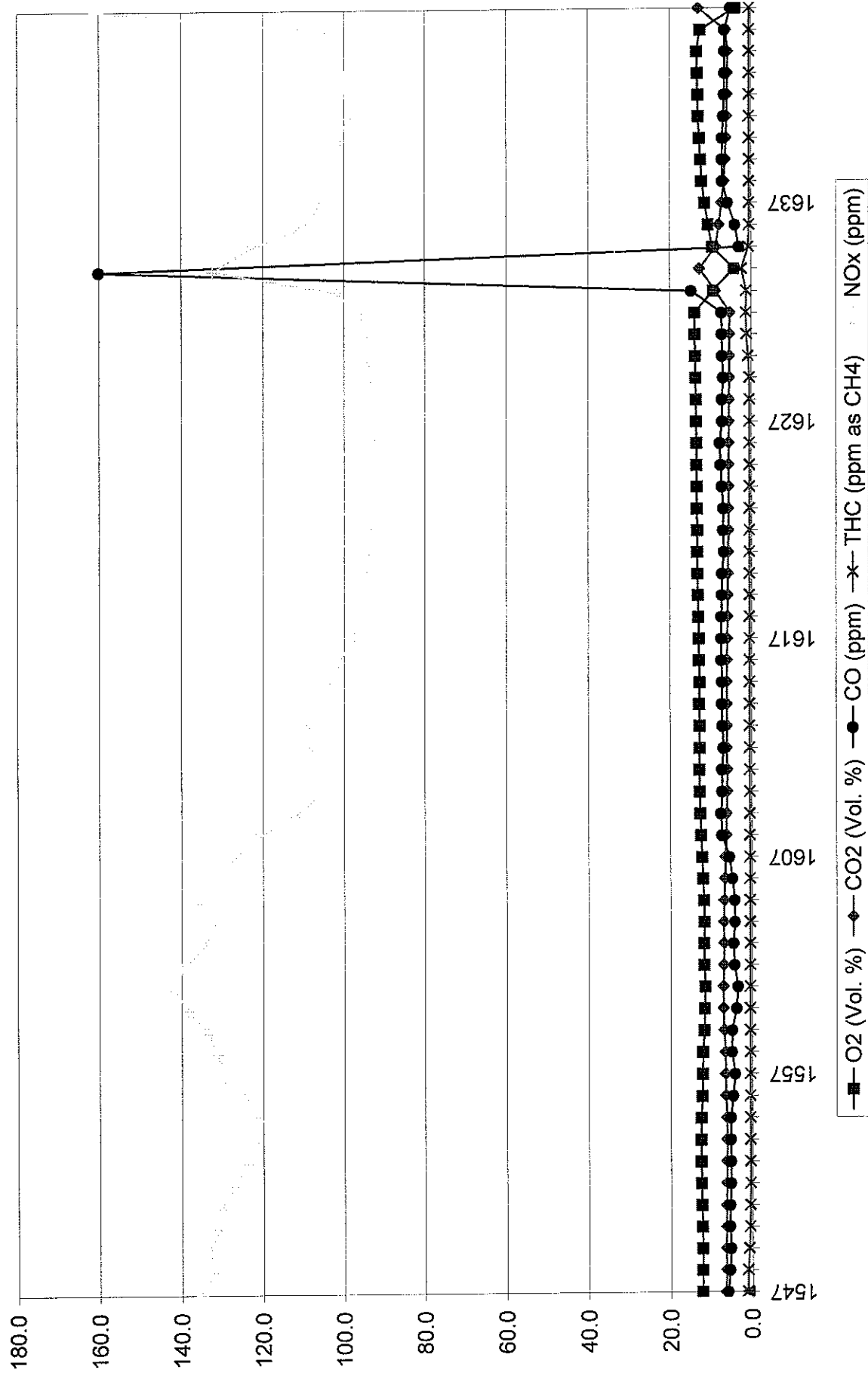
Mass Concentration (mg/m3 dry)	n/a	n/a	10.1	0.4	212.6
Mass Concentration (mg/m3 dry) Corrected to 11% O2			11.7	0.5	245.1

Calibration Summary	O2	CO2	CO	THC	NOx
Gas (Cert. Value)	10.13	9.92	235.0	87.4	240.0
Initial Gas Check	10.11	9.84	231.7	86.5	239.6
Final Gas Check	10.10	9.86	232.3	87.4	239.0
Initial Zero Drift	0.02	0.03	-2.2	0.7	0.5
Final Zero Drift	0.02	0.04	-3.3	-1.7	0.0

Incinerator Stack - Run 3 (July 2, 2009)

Rodear Meats

METLab CEM Results



APPENDIX 2

ANALYTICAL DATA

**Methodology and Notes**

Bill To: A Lanfranco & Associates	Project:	Lot ID: 690860
Report To: A Lanfranco & Associates	ID:	Control Number: A094131
#101, 9488 - 189 Street	Name: Williams Lake, BC	Date Received: Jul 6, 2009
Surrey BC Canada	Location: July 2/09	Date Reported: Jul 10, 2009
V4N 4W7	LSD:	Report Number: 1232601
Attn: Al LanFranco	P O :	
Sampled By:	Acct code:	
Company:		

Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Oil and Grease in water by DCM (Surrey)	BCELM	* Oil & Grease in Water - Direct Hexane Extraction, Oil & Grease	07-Jul-09	BTG Surrey

** Bodycote method(s) based on reference method***References**

BCELM B C Environmental Laboratory Manual

Comments:

Please direct any inquiries regarding this report to our Client Services group

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

**Analytical Report**

Bill To: A Lanfranco & Associates
Report To: A Lanfranco & Associates
#101, 9488 - 189 Street
Surrey, BC, Canada
V4N 4W7
Attn: Al LanFranco
Sampled By:
Company:

Project:
ID: Rodear Meats
Name: Williams Lake, BC
Location: July 2/09
LSD:
P.O.:
Acct code:

Lot ID: **690860**
Control Number: A094131
Date Received: Jul 6, 2009
Date Reported: Jul 10 2009
Report Number: 1232601

Aggregate Organic Constituents

Reference Number	Date/Time Sampled	Sample Information	Analyte Description Units Nominal Detection Limit	Volume Sample volume mL	Oil and Grease Total - DCM extraction mg/sample
690860-1		Blank	Sample Matrix Stack Samples	427	<1
690860-2		Run 1	Stack Samples	510	18
690860-3		Run 2	Stack Samples	412	9
690860-4		Run 3	Stack Samples	410	3

Approved by:

Carol Nam, Dipl. T
Quality Officer



Quality Control

Bill To: A. Lanfranco & Associates
 Report To: A. Lanfranco & Associates
 #101, 9488 - 189 Street
 Surrey BC Canada
 V4N 4W7
 Attn: Al LanFranco
 Sampled By:
 Company:

Project:
 ID: Rodear Meats
 Name: Williams Lake, BC
 Location: July 2/09
 LSD:
 P.O.:
 Acct code:

Lot ID: **690860**
 Control Number: A094131
 Date Received: Jul 6, 2009
 Date Reported: Jul 10 2009
 Report Number: 1232601

Aggregate Organic Constituents

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/L	0	0	-1	1	yes
Date Acquired: July 07 2009						

Replicates	Units	Replicate 1	Replicate 2	% RSD Criteria	Absolute Criteria	Passed QC
Oil and Grease	mg/L	195	195	20	5	yes
Date Acquired: July 07, 2009						

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/L	195	176	216	yes
Date Acquired: July 07 2009					

Certified Reference Material	Units	Measured	Target	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/sample	<1	0	-1	1	yes
Date Acquired: July 07 2009						

Control Sample	Units	Measured	Lower Limit	Upper Limit	Passed QC
Oil and Grease	mg/sample	195	176	216	yes
Date Acquired: July 07, 2009					

APPENDIX 3

FIELD DATA SHEETS

1.91 HP (1960) / 2.01 HP (1800) / 2.01 HP (1760) 22.55 HP (1760, 580) 2.19 HP (1760, 580)

11.62 HP (1960) / 12.34 HP (1800) / 11.58 HP (1760) 12.01 HP (1760, 580)

PLANT RODEAR MEATS

RUN No 1

LOCATION WASTE INC.

DATE July 2/69

OPERATOR J. H. Burch

CONTROL UNIT / V. D. G. S. C. 1.0179

PROBE TIP DIAMETER, IN. 0.4860

PROBE LENGTH, FT / Cp 0.8370

FILTER NUMBER 8-37

STATIC PRESSURE, IN. H₂O -0.18

STACK DIAMETER 12.0

STACK HEIGHT

INITIAL LEAK TEST 9.88

FINAL LEAK TEST 15"

UPSTREAM DIAMETERS 6.5

DOWNSTREAM DIAMETERS 7.2

IMPINGER VOLUMES

Imp. # 1 100

Imp. # 2 100

Imp. # 3 100

Imp. # 4 200

INITIAL (mL) 252

FINAL (mL) 152

TOTAL GAIN (mL) 106

2.19 HP (1760, 580)

493.88

1720

72

Point	Clock Time	Dry Gas Meter Ft ³	Pilot IN. H ₂ O ΔP	Orifice ΔH IN. H ₂ O	Dry Gas Temp.		Pump Vac. IN. Hg Gauge	Temperature °F		Temperature °F		Fyrites	
					Inlet °F	Outlet °F		Box	Probe	Impinger Exit	Stack	CO ₂ Vol. %	O ₂ Vol. %
1	10:53	613.00	0.24	2.78	74	72	4	250	250	50	1526		
2	11:00	620.56	0.25	2.90	78	70	4	250	250		1360		
3	12:00	624.60	0.28	3.25	85	74	4	286	STACK		1593		
4	16:00	628.62	0.25	2.90	86	75	4	300			1388		
5	20:00	632.32	0.20	2.31	92	76	4	302			1330		
6	24:00	635.73	0.17	1.96	95	77	4	304			1270		
7	28:00	639.06	0.15	1.80	99	77	5	303			1251		
8	32:00	642.35	0.15	1.80	95	75	5	303			1230		
1	40	646.24	0.20	2.56	102	83	5	315		50	1278		
2	8:00	650.08	0.20	2.56	105	84	5	318			1296		
3	12:00	653.93	0.20	2.76	106	86	5	320			1303		
4	16:00	657.83	0.20	2.40	108	88	5	313			1285		
5	20:00	661.74	0.20	2.40	111	88	5	334			1300		
6	24:00	665.35	0.17	2.32	112	91	5	331			1297		
7	28:00	668.96	0.17	2.32	112	91	5	330			1288		
8	32:00	672.576	0.17	2.32	113	91	5	344			1281		
	11:56	END OF TEST											
		59.57											
		(58.27)											
		68.09											

NOX

70

* 219 50p (1760)
13.68 2p (500)

PLANT	PROBE TIP DIAMETER, IN.	IMPIINGER	INITIAL	FINAL	TOTAL GAIN
	PROBE LENGTH, FT / Cp	VOLUMES	(mL)	(mL)	(mL)
RUN No. 2	FILTER NUMBER	Imp. # 1	100	184	
LOCATION WASTE INC		Imp. # 2	100	126	
DATE July 2/09	STATIC PRESSURE, IN. H ₂ O -0.18	Imp. # 3	100	106	
OPERATOR John Barker	STACK DIAMETER 12.0"	Imp. # 4	200	211	
CONTROL UNIT / Y D545C	STACK HEIGHT				
BAROMETRIC PRESSURE, IN. Hg 29.90	INITIAL LEAK TEST 0.006 @ 15"				
ASSUMED MOISTURE, BW	FINAL LEAK TEST 0.006 @ 15"				
	Upstream Diameters				
	Downstream Diameters				

[illegible]

445

[illegible]

SOURCE TEST LTD. - CEM FIELD DATA SHEET

ml

Plant	: Rodear Meats	Stack Diameter	:
Location	:	Stack Height	:
Date	: July 2, 2009	Baro. Pressure	:
Operator	: Maf	Page	: of:

Time	Source	O ₂	CO ₂	CO	THC	SO ₂	NO _x	Temp.			
	Stack										
	N ₂	.03	.02	.64	.67	1.34	11.94				
	3	.03	.02	458.59		230.05	468.92				
	2	.04	.05	232.23	.67	150.64	239.22				
	Mid	10.12	9.86		88.53						
	Hi	12.49	15.96		459.43						
	Hi LO				971.16	1486.64					
Run #2	13:15-14:21										
	N ₂	.02	.02	-2.1	-1.00	1.34	.27				
	3	.04	.01	456.31	.67	234.7	468.06				
	2	.02	.00	232.76	.67	150.21	239.12				
	Mid	10.10	9.92		86.50						
Prelim	Run #2 14:48-15:35										
	N ₂	.02	.03	-2.21	.67	1.68	.54				
	3			458.14		228.6	468.63				
	2			231.66		149.16	239.56				
	Mid	10.11	9.84		86.47						
Run #3	15:46-16:46										
	N ₂	.02	.04	-3.34	-1.67	1.68	0.00				
	3	.03	.05	455.62	.67	229.24	468.61				
	2	0.04		232.32		149.16	238.95				
	Mid	10.10	9.86		87.38						

SOURCE TEST LTD. - CEM FIELD DATA SHEET

ml

Plant	: Robert	Stack Diameter	:
Location	:	Stack Height	:
Date	: July 2, 2009	Baro. Pressure	: 29.90
Operator	: Mat	Page	: of:

Time	Source	O ₂	CO ₂	CO	THC	SO ₂ ^{ppm}	NO _x ^{ppm}	Temp.			
	Manifold										
	O ₂	20.93									
	N ₂	.03	0.00	-.33	-.67	0.00	.13				
	3	.04	-.01	454.54	-.67	234.27	.13				
	2	.04	-.04	229.7	-.67	149.58	.13				
	Hi	12.61	16.00								
	Mid	10.22	9.83								
	Hi CO			1487.95							
	Stack										
	N ₂	.06	-.07	-.24	.00	.00	.13.67				
	3	.06	-.09	453.49	.00	230.09		468.48			
	2	.05	-.10	228.68	.00	147.57		238.40			
	Hi	12.49	15.46	1.77	462.77	2.68	.00				
	Mid	10.13	9.77	1.77	89.22	.00	.00				
	Hi CO	.06	-.03	1495.95	970.64	.00	.13				
Run	09:29										
	10:08										
	N ₂	.04	-.07	.41	1.34	2.68	.54				
	3	.04	-.09	460.6	1.34	233.85	466.40				
	2	.03	-.10	234.22	1.34	149.64	237.47				
	Mid	10.12	9.85		91.59						
Run	10:36 - 11:50										
	N ₂	.03	.05	2.85	.67	2.68	.54				
	3	.06	.06	459.33	.67	236.80	466.22				
	2	.04	.07	234.49	.67	153.62	238.78				
	Mid	10.11	9.95		87.21						
	Manifold										
	O ₂	20.95									
	N ₂	.04	.02	2.74	.67	.00	.27				
	3	.04	.03	459.14	.67	240.78	467.21				
	2	.04	.04	233.79	.67	151.9	238.1				
	Mid	10.12	9.96		.67	0					
	Hi	12.49	16.07								
	Hi CO			1495.04							

Lower
Blower

VISIBLE EMISSIONS FORM

(Make copies for Future Use For Each Equipment)

Permit No.: 0265-01-C

Company Name: Rodear Meats

Equipment and Fuel: Diesel July 2/09

Site Conditions:

Stack height above ground (ft): 25

Stack distance from observer (ft): 20

Emission color (black or white): BLK & White

Sky conditions (% cloud cover): 0

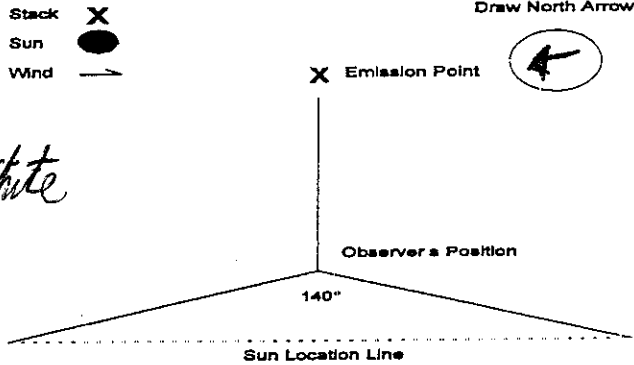
Wind speed (mph): 5 mph

Temperature (°F): 70°

Observer Name: P. Harrington

Certified? (Yes/No): _____

Observation Date and Start Time: 11:02 - 11:08



SECONDS	0	15	30	45	COMMENTS
MINUTES					
1	5	5	5	5	
2	15	25	40	40	
3	15	5	5	5	
4	0	0	0	0	
5	0	0	0	0	
6	5	0	0	5	Avg 7.5

Six (6) Minute Average Opacity Reading (%):

Observation Date and Start Time: 13:24 - 13:30

SECONDS	0	15	30	45	COMMENTS
MINUTES					
1	0	0	0	0	
2	5	5	0	0	
3	5	0	0	0	
4	0	0	0	0	
5	5	0	0	0	
6	5	5	0	0	<5 Avg

Six (6) Minute Average Opacity Reading (%):

VISIBLE EMISSIONS FORM

(Make copies for Future Use For Each Equipment)

Permit No.: 0265-01-C

Company Name:

Rodean Meats

Equipment and Fuel:

Diesel July 2/09

Site Conditions:

Stack height above ground (ft): 25

Stack distance from observer (ft): 20

Emission color (black or white): Blk + White

Sky conditions (% cloud cover): 0

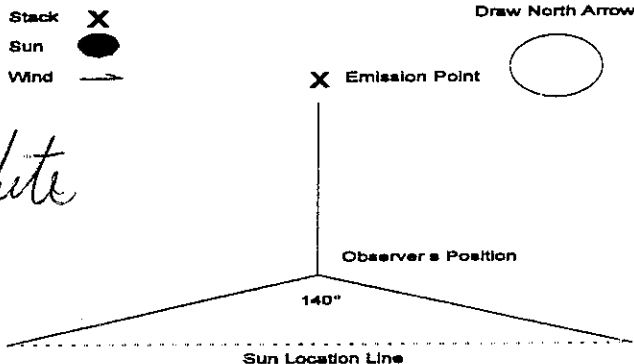
Wind speed (mph): 10.0

Temperature (°F): 75

Observer Name: _____

Certified? (Yes/No): _____

Observation Date and Start Time: 15:42 - 15:48



SECONDS	0	15	30	45	COMMENTS
MINUTES					
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	5	5	0	0	
5	0	0	0	0	
6	5	5	0	0	25 Avg
Six (6) Minute Average Opacity Reading (%):					

Observation Date and Start Time: _____

SECONDS	0	15	30	45	COMMENTS
MINUTES					
1					
2					
3					
4					
5					
6					
Six (6) Minute Average Opacity Reading (%):					

APPENDIX 4

CALIBRATION DATA

- (a) D1, D2, D3 = three different nozzle diameters; each diameter must be measured to within (0.025mm) 0.001 in
- (b) Difference = maximum difference between any two diameters; must be less than or equal to (0.1mm) 0.004 in
- (c) Average = average of D1, D2 and D3

Date: June 17/09

S - TYPE PITOT CALIBRATION FORM

Date: Jan-08-09
 Technician: Jordan Lang
 Pitot I.D.: A.L. B - 37
 Nozzle I.D.: None

Approx. Wind Vel.	Pitot Vel. Pressure	S-Type Pitot Vel. Press.			Pitot Coefficient
Ft/sec.	Δ Pref.	Cref. SQRT(Δ Pref.)	Δ Ps	SQRT(Δ Ps)	Cp
10.00	0.090	0.29700	0.130	0.36056	0.82373
20.00	0.330	0.56871	0.450	0.67082	0.84779
30.00	0.470	0.67871	0.640	0.80000	0.84839
40.00	0.770	0.86872	1.100	1.04881	0.82829

AVERAGE Cp = 0.8370

Calibration Equation: $C_p = C_{ref} * \text{SQRT}(\Delta P_{ref} / \Delta P_s)$

$C_{ref} = 0.99$

Where:

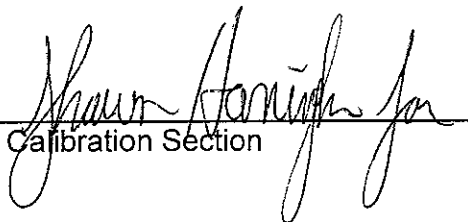
ΔP_{ref} = velocity pressure measured by reference pitot

C_{ref} = coefficient of reference pitot

ΔP_s = velocity pressure measured by S - type pitot

C_p = coefficient of S - type pitot

AUTHORIZATION


 Calibration Section



DocNumber: 00000013647

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

SOURCE TEST

Praxair Order Number: 08753253-00
Customer P. O. Number:
Customer Reference Number: PD999

Fill Date
Part Number NI CQ225NS1E-AS
Lot Number 109902204
Cylinder Style & Outlet: AS 660
Cylinder Pressure & Volume: 2000 psi 140 cu ft

Certified Concentration:

Expiration Date:	2/6/2011		
Cylinder Number:	CC 231935	Analytical Uncertainty:	
170 ppm	SULFUR DIOXIDE	± 1 %	
235 ppm	CARBON MONOXIDE	± 1 %	
240 ppm	NITRIC OXIDE	± 1 %	
Balance	NITROGEN		

NOx ppm = 240 ppm

NOX Values for Reference Only

Certification Information: Certification Date: 2/6/2009 Term: 24 Months Expiration Date: 2/6/2011

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121 using Procedure G1
Do Not Use this Standard if Pressure is less than 150 PSIG

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1 Component: SULFUR DIOXIDE

Requested Concentration: 170 ppm
Certified Concentration: 170 ppm
Instrument Used: Siemens Ultramat 5E S/N C1-009
Analytical Method: NDIR
Last Multipoint Calibration: 1/12/2009

First Analysis Data:	Date:	1/28/2009
Z: 0 R: 251 C: 170 Conc: 170		
R: 251 Z: 0 C: 170 Conc: 170		
Z: 0 C: 170 R: 251 Conc: 170		
UOM: ppm	Mean Test Assay:	170 ppm

Reference Standard Type: GMIS
Ref Std Cylinder #: SA 15723
Ref Std Conc: 251.1 ppm
Ref Std Traceable to SRM #: vs. 1661a
SRM Sample #: 94-H-05
SRM Cylinder #: FF28146

Second Analysis Data:	Date:	2/4/2009
Z: 0 R: 251 C: 171 Conc: 171		
R: 251 Z: 0 C: 171 Conc: 171		
Z: 0 C: 172 R: 251 Conc: 172		
UOM: ppm	Mean Test Assay:	171 ppm

2 Component: CARBON MONOXIDE

Requested Concentration: 225 ppm
Certified Concentration: 235 ppm
Instrument Used: HORIBA, VIA-510 576 876 015
Analytical Method: INFRARED
Last Multipoint Calibration: 1/10/2009

First Analysis Data:	Date:	1/28/2009
Z: 0 R: 252 C: 235 Conc: 235		
R: 252 Z: 0 C: 235 Conc: 235		
Z: 0 C: 235 R: 252 Conc: 235		
UOM: ppm	Mean Test Assay:	235 ppm

Reference Standard Type: GMIS
Ref Std Cylinder #: CC 170513
Ref Std Conc: 252 PPM
Ref Std Traceable to SRM #: 2636a
SRM Sample #: 57-9-C
SRM Cylinder #: CLM-004482

Second Analysis Data:	Date:	2/4/2009
Z: 0 R: 252 C: 235 Conc: 235		
R: 252 Z: 0 C: 235 Conc: 235		
Z: 0 C: 235 R: 252 Conc: 235		
UOM: ppm	Mean Test Assay:	235 ppm

3 Component: NITRIC OXIDE

Requested Concentration: 225 ppm
Certified Concentration: 240 ppm
Instrument Used: HORIBA, VIA-510 S/N 570 423 05
Analytical Method: NDIR
Last Multipoint Calibration: 1/12/2009

First Analysis Data:	Date:	1/28/2009
Z: 0 R: 255 C: 241 Conc: 241		
R: 255 Z: 0 C: 241 Conc: 241		
Z: 0 C: 240 R: 255 Conc: 240		
UOM: PPM	Mean Test Assay:	241 PPM

Reference Standard Type: GMIS
Ref Std Cylinder #: CC 121337
Ref Std Conc: 254.9 ppm
Ref Std Traceable to SRM #: vs. 1685b
SRM Sample #: 43-K-57
SRM Cylinder #: FF28103

Second Analysis Data:	Date:	2/4/2009
Z: 0 R: 255 C: 240 Conc: 240		
R: 255 Z: 0 C: 240 Conc: 240		
Z: 0 C: 240 R: 255 Conc: 240		
UOM: PPM	Mean Test Assay:	240 PPM

Analyzed by:

Helena Tran

Certified by:

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.

Making Our Planet More Productive



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Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER SOURCE TEST

P.O NUMBER 330016

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
MEIHANE GMIS	vs SRM#2751	SA 20384	85.6 ppm
CARBON DIOXIDE GMIS	vs SRM#2745	HA 8215	9.97 %
OXYGEN GMIS	vs SRM#2658	CC 74692	9.98 %

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	MEIHANE	GMIS	ANALYZER MAKE-MODEL-S/N	HP 5890 SERIES II	S/N 3310A48533		
ANALYTICAL PRINCIPLE	GC/ FLAME IONIZATION			LAST CALIBRATION DATE	03/02/07		
FIRST ANALYSIS DATE	03/20/07			SECOND ANALYSIS DATE			
Z 0	R 374419	C 382117	CONC. 87.4	Z	R	C	CONC.
R 374881	Z 0	C 383296	CONC. 87.5	R	Z	C	CONC.
Z 0	C 382281	R 375176	CONC. 87.2	Z	C	R	CONC.
U/M uV-s		MEAN TEST ASSAY	87.4	U/M uV-s		MEAN TEST ASSAY	
2. COMPONENT	CARBON DIOXIDE	GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Ultramat 5E	S/N A12-730		
ANALYTICAL PRINCIPLE	NDIR			LAST CALIBRATION DATE	03/02/07		
FIRST ANALYSIS DATE	03/20/07			SECOND ANALYSIS DATE			
Z 0.00	R 9.97	C 9.92	CONC. 9.92	Z	R	C	CONC.
R 9.97	Z 0.00	C 9.92	CONC. 9.92	R	Z	C	CONC.
Z 0.00	C 9.92	R 9.97	CONC. 9.92	Z	C	R	CONC.
U/M %		MEAN TEST ASSAY	9.92	U/M %		MEAN TEST ASSAY	
3. COMPONENT	OXYGEN	GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Oxymat 5E	S/N A12-839		
ANALYTICAL PRINCIPLE	Paramagnetic			LAST CALIBRATION DATE	03/02/07		
FIRST ANALYSIS DATE	03/20/07			SECOND ANALYSIS DATE			
Z 0.00	R 9.98	C 10.13	CONC. 10.13	Z	R	C	CONC.
R 9.98	Z 0.00	C 10.12	CONC. 10.12	R	Z	C	CONC.
Z 0.00	C 10.13	R 9.98	CONC. 10.13	Z	C	R	CONC.
U/M %		MEAN TEST ASSAY	10.13	U/M %		MEAN TEST ASSAY	

THIS CYLINDER NO. SA 6460

HAS BEEN CERTIFIED ACCORDING TO SECTION

EPA-600/R97/121

OF TRACEABILITY PROTOCOL NO.

Rev 9/97

PROCEDURE G1

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 03/20/07

EXPIRATION DATE 03/20/10 TERM 36 MONTHS

CERTIFIED CONCENTRATION

MEIHANE	87.4 ppm
CARBON DIOXIDE	9.92 %
OXYGEN	10.13 %
NITROGEN	BALANCE

Values not valid below 150 psig

ANALYZED BY

KING CHEUNG

CERTIFIED BY

ERIC YOUNG

IMPORTANT
Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Distribution, Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.



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CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER SOURCE IESI

P.O NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
MEIHANE GMIS	vs SRM#2751	SA 20384	85.6 ppm
CARBON DIOXIDE GMIS	vs SRM#2745	ND 20110	17.95 %
OXYGEN GMIS	vs SRM#2659	SA 3633	15.03 %

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	MEIHANE	GMIS	ANALYZER MAKE-MODEL-S/N	HP 5890 SERIES II	S/N 3310A48533			
ANALYTICAL PRINCIPLE	GC/ FLAME IONIZATION		LAST CALIBRATION DATE	12/22/06				
FIRST ANALYSIS DATE	01/19/07		SECOND ANALYSIS DATE					
Z 0	R 360100	C 378770	CONC.	90.0	Z	R	C	CONC.
R 360976	Z 0	C 378635	CONC.	89.8	R	Z	C	CONC.
Z 0	C 360296	R 360296	CONC.	90.2	Z	C	R	CONC.
U/M	uV-s	MEAN TEST ASSAY	90.0	U/M	uV-s	MEAN TEST ASSAY		
2. COMPONENT	CARBON DIOXIDE	GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Ultramat SE	S/N A12-730			
ANALYTICAL PRINCIPLE	NDIR		LAST CALIBRATION DATE	01/22/07				
FIRST ANALYSIS DATE	01/24/07		SECOND ANALYSIS DATE					
Z 0.00	R 17.96	C 16.04	CONC.	16.03	Z	R	C	CONC.
R 17.96	Z 0.00	C 16.04	CONC.	16.03	R	Z	C	CONC.
Z 0.00	C 16.04	R 17.96	CONC.	16.03	Z	C	R	CONC.
U/M	%	MEAN TEST ASSAY	16.03	U/M	%	MEAN TEST ASSAY		
3. COMPONENT	OXYGEN	GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Oxymat SE	S/N A12-839			
ANALYTICAL PRINCIPLE	Paramagnetic		LAST CALIBRATION DATE	01/22/07				
FIRST ANALYSIS DATE	01/24/07		SECOND ANALYSIS DATE					
Z 0.00	R 15.02	C 12.50	CONC.	12.51	Z	R	C	CONC.
R 15.02	Z 0.00	C 12.50	CONC.	12.51	R	Z	C	CONC.
Z 0.00	C 12.50	R 15.02	CONC.	12.51	Z	C	R	CONC.
U/M	%	MEAN TEST ASSAY	12.51	U/M	%	MEAN TEST ASSAY		

THIS CYLINDER NO CC 243251

HAS BEEN CERTIFIED ACCORDING TO SECTION

OF TRACEABILITY PROTOCOL NO

PROCEDURE G1

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 01/24/07

EXPIRATION DATE 01/24/10

TERM 36 MONTHS

CERTIFIED CONCENTRATION

MEIHANE ($\pm 2\%$)	450 ppm
CARBON DIOXIDE	16.03 %
OXYGEN	12.51 %
NITROGEN	BALANCE

Values not valid below 150 psig G2 for CH4@20% split.

Stec Inc. Result: CH4=450 ppm.

ANALYZED BY

KING CHEUNG

CERTIFIED BY

CHARLES BURDELL WILLIAMS

IMPORTANT

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Distribution Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.



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DocNumber: 00000014157

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

SOURCE TEST

Praxair Order Number 0875294500
Customer P O Number NI CO450NS1E-A
Customer Reference Number

Fill Date
Part Number NI CO450NS1E-AS
Lot Number 109902807
Cylinder Style & Outlet AS 660
Cylinder Pressure & Volume 2000 psi 140 cu ft

Certified Concentration:

Expiration Date:	2/20/2011		
Cylinder Number:	CC 107752	Analytical Uncertainty:	
469	ppm	NITRIC OXIDE	± 1 %
461	ppm	CARBON MONOXIDE	± 1 %
277	ppm	SULFUR DIOXIDE	± 1 %
Balance		NITROGEN	

NOx ppm = 469 ppm

NOX Values for Reference Only

Certification Information: Certification Date 2/20/2009 Term: 24 Months Expiration Date: 2/20/2011

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1
Do Not Use this Standard if Pressure is less than 150 PSIG

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1 Component: NITRIC OXIDE

Requested Concentration: 450 ppm
Certified Concentration: 469 ppm
Instrument Used: Thermo Electron 42i S/N 0726024320
Analytical Method: Chemiluminescence
Last Multipoint Calibration: 2/12/2009

First Analysis Data:	Date:	2/3/2009
Z: 0 R: 392 C: 372.1 Conc: 469		
R: 394.2 Z: 0 C: 372.9 Conc: 468		
Z: 0 C: 373.6 R: 394.6 Conc: 468		
UOM: ppm	Mean Test Assay:	468 ppm

Reference Standard Type: GMS
Ref Std Cylinder #: CC 213852
Ref Std Conc: 494.4 ppm
Ref Std Traceable to SRM #: 1686b
SRM Sample #: 42-K-23
SRM Cylinder #: FF 14756

Second Analysis Data:	Date:	2/20/2009
Z: 0 R: 494 C: 470 Conc: 470		
R: 494 Z: 0 C: 470 Conc: 470		
Z: 0 C: 470 R: 494 Conc: 470		
UOM: ppm	Mean Test Assay:	470 ppm

2 Component: CARBON MONOXIDE

Requested Concentration: 450 ppm
Certified Concentration: 461 ppm
Instrument Used: HORIBA VIA-510 576 876 015
Analytical Method: INFRARED
Last Multipoint Calibration: 2/10/2009

First Analysis Data:	Date:	2/3/2009
Z: 0 R: 994 C: 461 Conc: 461		
R: 994 Z: 0 C: 461 Conc: 461		
Z: 0 C: 461 R: 994 Conc: 461		
UOM: ppm	Mean Test Assay:	461 ppm

Reference Standard Type: GMS
Ref Std Cylinder #: A 5869
Ref Std Conc: 994 ppm
Ref Std Traceable to SRM #: vs. 1681b
SRM Sample #: 1-28-I
SRM Cylinder #: CLM-009404

Second Analysis Data:	Date:	2/20/2009
Z: 0 R: 994 C: 461 Conc: 461		
R: 994 Z: 0 C: 461 Conc: 461		
Z: 0 C: 461 R: 994 Conc: 461		
UOM: ppm	Mean Test Assay:	461 ppm

3 Component: SULFUR DIOXIDE

Requested Concentration: 275 ppm
Certified Concentration: 277 ppm
Instrument Used: Siemens Ultramat 5E S/N C1-009
Analytical Method: NDIR
Last Multipoint Calibration: 2/12/2009

First Analysis Data:	Date:	2/3/2009
Z: 0 R: 502 C: 277 Conc: 277		
R: 502 Z: 0 C: 278 Conc: 278		
Z: 0 C: 277 R: 502 Conc: 277		
UOM: ppm	Mean Test Assay:	277 ppm

Reference Standard Type: SRM
Ref Std Cylinder #: XF003163B
Ref Std Conc: 97.9 ppm
Ref Std Traceable to SRM #: 1694a
SRM Sample #: 95-I-03
SRM Cylinder #: XF003163B

Second Analysis Data:	Date:	2/20/2009
Z: 0 R: 502 C: 276 Conc: 276		
R: 502 Z: 0 C: 277 Conc: 277		
Z: 0 C: 277 R: 502 Conc: 277		
UOM: ppm	Mean Test Assay:	277 ppm

Analyzed by:

Helena Tran

Certified by:

Jack Fu

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Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

SOURCE TEST

Praxair Order Number: 08753460-00
Customer P O Number:
Customer Reference Number: PD999

Fill Date:
Part Number: NI CQ1500M1E-AS
Lot Number: 109902201
Cylinder Style & Outlet: AS 350
Cylinder Pressure & Volume: 2000 psi 140 cu ft

Certified Concentration:

Expiration Date:	2/11/2012	Analytical Uncertainty:
Cylinder Number:	CC 86082	
1485 ppm	CARBON MONOXIDE	± 1 %
975 ppm	METHANE	± 2 %
Balance	NITROGEN	

NOx ppm = N/A

NOX Values for Reference Only

Certification Information: Certification Date: 2/11/2009 Term: 36 Months Expiration Date: 2/11/2012

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1

Do Not Use this Standard if Pressure is less than 150 PSIG

G2 DONE ON CH4 @ 10% W/SGD-710C (CF=0 1000)

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1 Component: CARBON MONOXIDE

Requested Concentration: 1500 ppm
Certified Concentration: 1485 ppm
Instrument Used: Siemens Ultramat 5E S/N A12-729
Analytical Method: NDIR
Last Multipoint Calibration: 1/13/2009

First Analysis Data:	Date:	2/4/2009
Z: 0 R: 1716 C: 1486 Conc: 1486		
R: 1716 Z: 0 C: 1486 Conc: 1486		
Z: 0 C: 1486 R: 1716 Conc: 1486		
UOM: ppm	Mean Test Assay:	1486 ppm

Reference Standard Type: GMS
Ref Std Cylinder #: GG 11757
Ref Std Conc: 1716 ppm
Ref Std Traceable to SRM #: vs. 2637a
SRM Sample #: 56-E-40
SRM Cylinder #: FF23073

Second Analysis Data:	Date:	2/11/2009
Z: 0 R: 1716 C: 1484 Conc: 1484		
R: 1716 Z: 0 C: 1484 Conc: 1484		
Z: 0 C: 1486 R: 1716 Conc: 1486		
UOM: ppm	Mean Test Assay:	1485 ppm

2 Component: METHANE

Requested Concentration: 950 ppm
Certified Concentration: 975 ppm
Instrument Used: HORIBA, FIA-510, 851135122
Analytical Method: Flame Ionization Detector
Last Multipoint Calibration: 1/10/2009

First Analysis Data:	Date:	2/4/2009
Z: 0 R: 101 C: 97 Conc: 97		
R: 101 Z: 0 C: 97.3 Conc: 97.3		
Z: 0 C: 97.2 R: 101 Conc: 97.2		
UOM: PPM	Mean Test Assay:	97.2 PPM

Reference Standard Type: GMS
Ref Std Cylinder #: CC 115659
Ref Std Conc: 101 ppm
Ref Std Traceable to SRM #: vs. 2751
SRM Sample #: 212-09-AL
SRM Cylinder #: SX-20000

Second Analysis Data:	Date:	
Z: 0 R: 0 C: 0 Conc: 0		
R: 0 Z: 0 C: 0 Conc: 0		
Z: 0 C: 0 R: 0 Conc: 0		
UOM: PPM	Mean Test Assay:	0 PPM

Analyzed by:

Pablo Reyes

Certified by:

Eric Young

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