APPENDIX E

MOST RECENT NOC

Notification of Compliance (NOC) Report

Veolia ES Technical Solutions, L.L.C. hereby submits the Notification of Compliance (NOC) Report in compliance with 40 CFR 63.1210(b) and 40 CFR 63.1207(j)

Applicable Rule: 40 CFR Part 63.1200, Subpart EEE — National Emission Standards for Hazardous Air Pollutants for Hazardous Waste Combustors. This NOC is being made in accordance with §63.9(h).

SECTION I
GENERAL INFORMATION

A. If you have been issued a Title V permit, do not complete this form. Submit your NOC in accordance with your Title V permit. [§63.9(h)(3)]

B. If you have not been issued a Title V permit, complete the remaining portions of this section and also complete Sections II-IX. [§63.9(h)(2)(i)]

C. Print or type the following information for each facility for which you are making notification of compliance status:

Operating Permit Number (OPTIONAL): V-IL-1716300103-08-01
Facility I.D. Number (OPTIONAL): ILD098642424
Responsible Official's Name/Title: Doug Harris
Street Address: #7 Mobile Ave.
City: Sauget
State: IL
ZIP Code: 62201-1069
Facility Name (if different from Responsible Official's Name): Veolia ES Technical Solutions, L.L.C.
Facility Street Address (If different than Responsible Official's Street Address):
Facility Local Contact Name: Doug Harris
Title: General Manager
Phone (OPTIONAL): 618-271-2804
City: Sauget
State: IL
ZIP Code: 62201-1069

D. Indicate the relevant standard or other requirement that is the basis for this notification and the source's compliance date: (§63.9(b)(2)(iii))

Basis for this notification (relevant standard or other requirement)	Compliance Date (mm/dd/yy)
40 CFR 63.1200	**October 14, 2008**

SECTION II

CERTIFICATION *(Note: you may edit the text in this section as deemed appropriate)*

Based upon information and belief formed after a reasonable inquiry, I, as a responsible official of the above-mentioned facility, certify the information contained in this report is accurate and true to the best of my knowledge. The above-mentioned facility has complied with the relevant standard or and other applicable requirements referenced in the relevant standard. [§63.9(h)(2)(i)(G)]

Name of Responsible Official (Print or Type)	Title	Date (mm/dd/yy)
Doug Harris	General Manager	03/16/2010

Signature of Responsible Official

Doug Harris

SECTION III

Describe the methods you used to determine compliance. [§63.9(h)(2)(i)(A)]

RCRA Trial Burn Data from EPA approved testing as required by the RCRA Part B permit and using all approved EPA methods were used to demonstrate compliance with all applicable emission standards defined in 40 CFR 63.1219. In addition, Comprehensive Performance Testing approved by USEPA, Region 5 on August 8, 2008 and conducted in August and September of 2008 and Comprehensive Performance Testing approved by USEPA, Region 5 on November 25, 2009 and conducted in December, 2009. See the attached Operating Parameters Tables and HWC MACT Emission Standards table for Units 2/3 and Unit 4, that define the operating parameters established during testing that ensures compliance with the performance standards.

SECTION IV

Describe the results of any performance tests, opacity or visible emission observations, continuous monitoring system (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted. [§63.9(h)(2)(i)(B)]

See attached test results that were used to develop the limits defined in the Operating Parameter Tables referenced in Section III of this report. These results also include CMS Performance evaluations and monitoring methods.

SECTION V

Describe the methods you will use to determine continuous compliance, including a description of monitoring and reporting requirements and test methods. [§63.9(h)(2)(i)(C)]

Continuous compliance is based on the operating parameter limits established from compliance testing, defined in the attached Operating Parameters Table referenced in Section III of this report. These incinerator operating parameters are monitored continuously to verify compliance by a process monitoring and control system. The details of these systems are defined in detail in Section 2.0, Incinerator Process description referenced in Section VIII of this report and attached.

SECTION VI

Describe the type and quantity of hazardous air pollutants (HAP) emitted by the source (or surrogate pollutants if specified in the relevant standard), reported in units and averaging times and in accordance with the test methods specified in the relevant standard. [§63.9(h)(2)(i)(D)]

See attached test results from compliance testing that was conducted to demonstrate compliance with the HAP's and other pollutants defined in Subpart EEE.

SECTION VII

If the relevant standard applies to both major and area sources, present an analysis demonstrating whether the affected source is a major source (using the emissions data generated for this notification. [§63.9(h)(2)(i)(E)]

This facility is a major source due to its applicability to the NESHAP regulations, specifically Subpart EEE and Subpart DD. Regardless of the facility's emission concentrations, this facility is a major source by definition.

SECTION VIII

Describe the air pollution control equipment (or method) for each emission point, including each control device (or method) for each hazardous air pollutant and the control efficiency (percent) for each control device (or method). [§63.9(h)(2)(i)(F)]

See attached Section 2.0, Incinerator Process Description from 2009 Performance Test Plans for Incinerators 2, 3 and 4 that describes the air pollution control equipment for each emission point. Also, see attached the compliance testing data defined in Section IV of this report that details the control efficiency for each control device.

SECTION IX

A. Did you submit an application for construction or reconstruction under §63.5(d) that contained preliminary or estimated data? [§63.9(h)(5)]

Yes ☐, No ☐, Not applicable ☐ (did not submit an application for construction or reconstruction).

B. If you answered yes, provide actual emission data or other corrected information below.

END OF FORM. ***A Responsible Official must sign this form*** **– See Section II.**

HWC MACT Emission Standards

Parameter	Units	Standard (@7% O2)	Method of Compliance
Dioxin/Furan (D/F)	ng/dscm TEQ	0.20 (>400 deg F) 0.40 (≤400 deg F)	Operating Parameter Limits
Mercury (Hg)	ug/dscm	130	Operating Parameter Limits
Semivolatile Metals (SVM) Cadmium, Lead	ug/dscm	230	Operating Parameter Limits
Low Volatile Metals (LVM) Arsenic, Beryllium, Chromium	ug/dscm	92	Operating Parameter Limits
Carbon Monoxide (CO)	ppmv	100	Continuous Emissions Monitor
Hydrogen Chloride/Chlorine (HCl/Cl2)	ppmv	32	Operating Parameter Limits
Particulate	gr/dscf	0.013	Operating Parameter Limits

UNITS 2/3 OPERATING PARAMETER LIMITS [1]

Operating Parameter	Units	Limits	Test Date	Performance Standards
Maximum Total Pumpable Waste (Hourly Rolling Total)	Lb/hr	3107	Jan, 1993	DRE, D/F
Maximum Total Hazardous Waste (Hourly Rolling Total)	Lb/hr	4017	Jan, 1993	DRE, D/F
Maximum Stack Gas Flow Rate (Hourly Rolling Average)	Acfm	15,147	Jan, 1993	DRE, D/F, Part., SVM, LVM
Minimum Primary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1686	Dec, 2009	DRE, D/F
Minimum Secondary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1877	Dec., 2009	DRE, D/F
Maximum Baghouse Inlet Temperature (Hourly Rolling Average)	Deg F	420	Dec, 2009	D/F, SVM, LVM
Max. Pump. Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	46	Sep, 2008	LVM
Max. Total Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	47	Sep, 2008	LVM
Maximum Semi Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	63	Sep, 2008	SVM
Maximum Mercury Feedrate (12 Hour Rolling Total)	Lb/hr	0.0019	Aug, 2008	Hg
Maximum Chlorine Feedrate (12 Hour Rolling Total)	Lb/hr	218	Aug, 2008	SVM, LVM HCl/Cl2
Maximum Ash Feedrate (12 Hour Rolling Total)	Lb/hr	617	Dec, 2009	Part.
Minimum Sorbent Feedrate (Hourly Rolling Average)	Lb/lb Cl_2	1.57	Dec, 2009	HCl/Cl2
Minimum Carrier Fluid Flowrate (Hourly Rolling Average)	Gal/lb Cl_2	1.46	Dec, 2009	HCl/Cl2

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[1] Operating parameter limits in table reflect more conservative value between Unit 2 and Unit 3 test data.

UNIT 4 OPERATING PARAMETER LIMITS

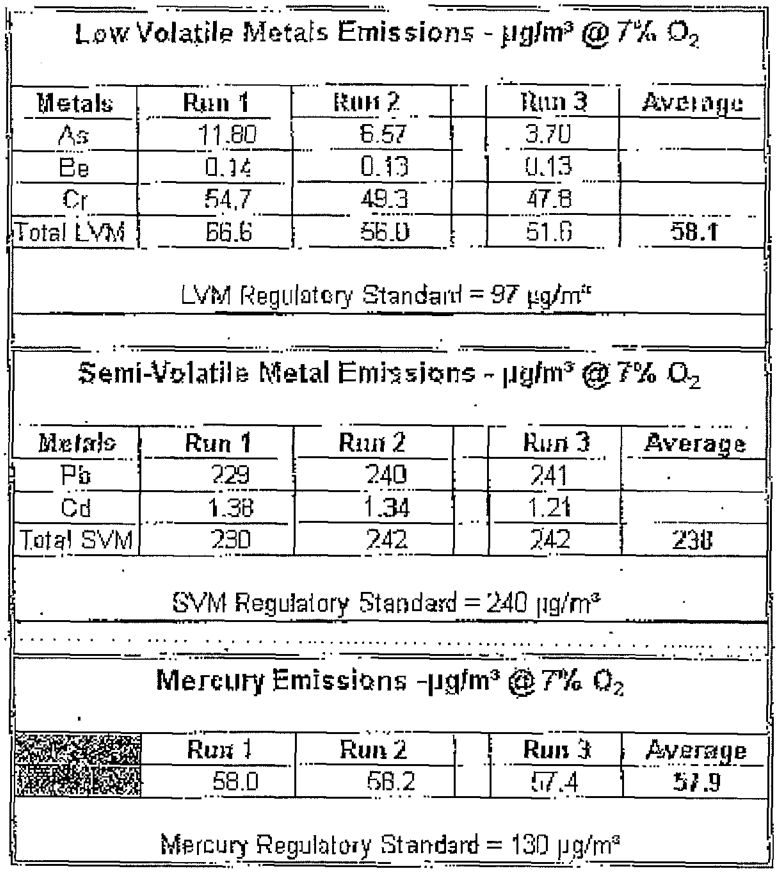
Operating Parameter	Units	Limits	Test Date	Performance Standards
Maximum Total Pumpable Waste (Hourly Rolling Total)	Lb/hr	PCC - 3291 SCC - 1176	Dec, 2009	DRE, D/F
Maximum Total Hazardous Waste (Hourly Rolling Total)	Lb/hr	PCC - 12,897 SCC - 1176	Dec, 2009	DRE, D/F
Maximum Stack Gas Flow Rate (Hourly Rolling Average)	Acfm	37,432	Dec, 2009	DRE, D/F, Part., SVM, LVM
Minimum Primary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1499	Dec, 2009	DRE, D/F
Minimum Secondary Combustion Chamber Temperature (Hourly Rolling Average)	Deg F	1886	Dec, 2009	DRE, D/F
Maximum Baghouse Inlet Temperature (Hourly Rolling Average)	Deg F	400	Dec, 2009	D/F, SVM, LVM
Max. Pump. Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	47	Aug., 2008	LVM
Max. Total Low Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	50	Aug., 2008	LVM
Maximum Semi Volatile Metals Feedrate (12 Hour Rolling Total)	Lb/hr	64	Aug., 2008	SVM
Maximum Mercury Feed rate (12 Hour Rolling Total)	Lb/hr	0.026	Aug., 2008	Hg
Maximum Chlorine Feed rate (12 Hour Rolling Total)	Lb/hr	229	Dec, 2009	SVM, LVM, HCl/Cl2
Maximum Ash Feed Rate (12 Hour Rolling Total)	Lb/hr	6444	Dec. 2009	Part.
Carbon Injection Feedrate (Hourly Rolling Average)	Lb/hr	6.2	Dec, 2009	D/F, Hg
Minimum Sorbent Feedrate (Hourly Rolling Average)	Lb/lb Cl_2	2.25	Dec, 2009	HCl/Cl2
Minimum Carrier Fluid Flowrate (Hourly Rolling Average)	Gal/lb Cl_2	3.10	Dec, 2009	HCl/Cl2

UNIT 2
EMISSION RESULTS

Table 3-3 RM 29 Sampling Parameters and Emission Results – Week of August 11, 2008

Run No.		1	2	3	
Date		11-Aug-08	12-Aug-08	13-Aug-08	
Start Time	Units	11:40	11:05	10:39	
Stop Time		16:50	13:16	12:47	AVGS
Sampling Parameters –					
Barometric Pressure	in. Hg	29.60	29.55	29.50	29.61
Volume Metered	dcf	83.850	86.044	85.611	84.996
Sample Volume	dscf	76.760	80.233	78.036	78.340
Moisture	% v/v	39.9	40.1	41.4	40.5
O_2 at Stack	% dry	11.72	11.54	11.30	11.52
Avg. Stack Temp	°F	369	370	358	365
Stack Flowrate	dscfm	5,495	5,572	5,357	5,475
Isokinetics	%	93	96	97	95
Mercury (Hg) –					
Quantity Collected	µg	83.5	89.4	87.9	87.0
Stack Conc. @ 7% O_2	µg/m³	58.0	58.2	57.4	57.9
Stack Emission Rate	lb/hr	7.91E-04	8.22E-04	7.99E-04	8.04E-04
	g/sec	9.96E-05	1.04E-04	1.01E-04	1.01E-04
Total Chromium (Cr) –	LVM				
Quantity Collected	µg	78.75	75.66	73.15	75.85
Stack Conc. @ 7% O_2	µg/m³	54.66	49.28	47.76	50.57
Stack Emission Rate	lb/hr	7.46E-04	6.95E-04	6.64E-04	7.02E-04
	g/sec	9.40E-05	8.76E-05	8.37E-05	8.84E-05
Cadmium (Cd) –	SVM				
Quantity Collected	µg	1.99	2.03	1.88	1.97
Stack Conc. @ 7% O_2	µg/m³	1.39	1.34	1.21	1.31
Stack Emission Rate	lb/hr	1.88E-05	1.89E-05	1.68E-05	1.82E-05
	g/sec	2.37E-06	2.38E-06	2.12E-06	2.29E-06
Lead (Pb) --	SVM				
Quantity Collected	µg	329.5	369.2	369.5	356.06
Stack Conc. @ 7% O_2	µg/m³	228.7	240.5	241.3	236.8
Stack Emission Rate	lb/hr	3.12E-03	3.39E-03	3.36E-03	3.29E-03
	g/sec	3.93E-04	4.27E-04	4.23E-04	4.14E-04
Arsenic (As) –					
Quantity Collected	µg	17.00	10.08	5.67	10.92
Stack Conc. @ 7% O_2	µg/m³	11.80	6.57	3.70	7.36
Stack Emission Rate	lb/hr	1.61E-04	9.26E-05	5.15E-05	1.02E-04
	g/sec	2.03E-05	1.17E-05	6.49E-06	1.28E-05
Beryllium (Be) –					
Quantity Collected	µg	0.20	0.20	0.20	0.20
Stack Conc. @ 7% O_2	µg/m³	0.14	0.13	0.13	0.13
Stack Emission Rate	lb/hr	1.89E-06	1.84E-06	1.82E-06	1.85E-06
	g/sec	2.39E-07	2.32E-07	2.29E-07	2.33E-07
LVM Total =	µg/m³		56.0	51.6	**53.8**
SVM Total =	µg/m³	230.1	241.8	242.5	**238.1**

Table 3-4 Summary of HWC MACT Metals – August 11, 2008



Low Volatile Metals Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2		Run 3	Average
As	11.80	6.57		3.70	
Be	0.14	0.13		0.13	
Cr	54.7	49.3		47.8	
Total LVM	66.6	56.0		51.6	**58.1**

LVM Regulatory Standard = 97 µg/m³

Semi-Volatile Metal Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2		Run 3	Average
Pb	229	240		241	
Cd	1.38	1.34		1.21	
Total SVM	230	242		242	238

SVM Regulatory Standard = 240 µg/m³

Mercury Emissions -µg/m³ @ 7% O_2

▨	Run 1	Run 2		Run 3	Average
▨	58.0	58.2		57.4	**57.9**

Mercury Regulatory Standard = 130 µg/m³

Table 3-5 RM 29 Sampling Parameters and Emission Results – Week of September 8, 2008

Run No.		1	2	3	
Date		08-Sep-08	09-Sep-08	10-Sep-08	
Start Time	Units	14:36	12:20	09:44	
Stop Time		16:46	14:30	11:53	AVGS
Sampling Parameters –					
Barometric Pressure	in. Hg	29.60	29.75	29.72	29.71
Volume Metered	dcf	77.382	79.269	78.905	77.059
Sample Volume	dscf	75.296	78.407	78.654	77.452
Moisture	% v/v	41.4	41.2	41.8	41.5
O_2 at Stack	% dry	11.21	10.91	11.36	11.16
Avg. Stack Temp.	°F	385	381	384	383
Stack Flowrate	dscfm	4,698	5,099	5,248	5,015
Isokinetics	%	107	103	100	104
Total Chromium (Cr) --	LVM				
Quantity Collected	µg	12.15	2.79	9.10	8.04
Stack Conc. @ 7% O_2	µg/m³	8.16	1.74	5.98	5.29
Stack Emission Rate	lb/hr	1.00E-04	2.40E-05	8.10E-05	6.85E-05
	g/sec	1.26E-05	3.02E-06	1.02E-05	8.63E-06
Cadmium (Cd) –	SVM				
Quantity Collected	µg	2.73	2.74	2.20	2.55
Stack Conc. @ 7% O_2	µg/m³	1.83	1.71	1.43	1.66
Stack Emission Rate	lb/hr	2.25E-05	2.35E-05	1.94E-05	2.18E-05
	g/sec	2.83E-06	2.96E-06	2.44E-06	2.75E-06
Lead (Pb) –	SVM				
Quantity Collected	µg	45.6	13.9	36.6	32.04
Stack Conc. @ 7% O_2	µg/m³	30.6	8.7	25.4	21.6
Stack Emission Rate	lb/hr	3.76E-04	1.20E-04	3.45E-04	2.80E-04
	g/sec	4.74E-05	1.51E-05	4.34E-05	3.53E-05
Arsenic (As) --					
Quantity Collected	µg	2.80	2.10	2.10	2.33
Stack Conc. @ 7% O_2	µg/m³	1.88	1.31	1.37	1.52
Stack Emission Rate	lb/hr	2.31E-05	1.81E-05	1.85E-05	1.99E-05
	g/sec	2.91E-06	2.28E-06	2.34E-06	2.51E-06
Beryllium (Be) --					
Quantity Collected	µg	0.20	0.20	0.20	0.20
Stack Conc. @ 7% O_2	µg/m³	0.13	0.12	0.13	0.13
Stack Emission Rate	lb/hr	1.65E-06	1.72E-06	1.77E-06	1.71E-06
	g/sec	2.08E-07	2.17E-07	2.22E-07	2.16E-07
LVM Total =	µg/m³	10.2	3.2	7.5	6.9
SVM Total =	µg/m³	32.4	10.4	26.9	23.2

Table 3-6 Summary of LWC MACT Metals – September 8, 2008

Low Volatile Metals Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2		Run 3	Average
As	1.88	1.31		1.37	
Be	0.13	0.12		0.13	
Cr	8.2	1.7		6.0	
Total LVM	10.2	3.2		7.5	6.9

LVM Regulatory Standard = 92 µg/m³

Semi-Volatile Metal Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2		Run 3	Average
Pb	30.6	8.7		25.4	
Cd	1.83	1.71		1.43	
Total SVM	32.4	10.4		26.9	23.2

SVM Regulatory Standard = 230 µg/m³

Table 3-2 RM 5/26A Sampling Parameters and Emission Results – Total Chloride/PM

Run Identification	Run 1	Run 2	Run 3	Average
Run Date	12/08/09	12/09/09	12/10/09	
Start Time	10:05	9:46	11:00	
Stop Time	11:11	10:49	12:03	
Exhaust Gas Conditions				
Temperature (deg. F)	378	363	380	**374**
Moisture (volume %)	44.4	42.9	43.2	**43.5**
Oxygen (dry volume %)	10.3	10.4	9.3	**10.0**
Carbon Dioxide (dry volume %)	8.6	8.2	8.1	**8.3**
Volumetric Flow Rate				
acfm	15,453	16,634	16,661	**16,250**
dscfm	5,352	5,963	5,921	**5,745**
Total Chlorine				
ppmv, dry @ 7% O_2	13.4	16.0	23.5	**17.7**
% of Standard [a]	42.0%	50.2%	73.5%	**55.2%**
Total Particulate Matter				
gr/dscf @ 7% O_2	0.0013	0.0017	0.0008	**0.0013**
% of Standard [b]	9.7%	13.2%	6.2%	**9.7%**

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[a] HCl/Cl_2 Standard = 32 ppmv, dry @ 7% O_2

[b] Particulate Matter Emission Standard = 0.013 gr/dscf @ 7% O_2

Table 3-3 RM 0023A Sampling Parameters and Emission Results – Dioxin and Furan

	Run No.	1		2		3		Average
	Date	08-Dec-09		09-Dec-09		10-Dec-09		
	Start Time	12:30		12:59		13:00		
	Stop Time	15:36		16:54		16:06		
	Units							
Sample Volume	dscf	107.857		121.809		121.529		**117.065**
Sample Volume	m^3	3.05		3.45		3.44		**3.31**
Moisture Content	% v/v	47.3		43.9		46.1		**45.8**
O_2 Concentration	% v/v (dry)	9.10		9.30		8.20		**8.87**
CO_2 Concentration	% v/v (dry)	8.43		8.14		7.90		**8.16**
Isokinetics	%	98		95		97		**97**
Stack Flowrate	dscfm	4,994		5,852		5,699		**5,515**
PCDD / PCDF Parameters	TEF (a)	pg	ng/m^3 TEQ	pg	ng/m^3 TEQ	pg	ng/m^3 TEQ	
2,3,7,8-TCDD	1.00	7.01	2.3E-03	5.61	1.6E-03	7.17	2.1E-03	
1,2,3,7,8-PeCDD	0.50	25.2	4.1E-03	21.9	3.2E-03	20.8	3.0E-03	
1,2,3,4,7,8-HxCDD	0.10	32.2	1.1E-03	29.6	8.6E-04	22.7	6.6E-04	
1,2,3,6,7,8-HxCDD	0.10	53.1	1.7E-03	49.2	1.4E-03	36.1	1.0E-03	
1,2,3,7,8,9-HxCDD	0.10	35.3	1.2E-03	31.0	9.0E-04	27.8	8.1E-04	
1,2,3,4,6,7,8-HpCDD	0.01	211	6.9E-04	199	5.8E-04	158	4.6E-04	
OCDD	0.001	176	5.8E-05	200	5.8E-05	131	3.8E-05	
2,3,7,8-TCDF	0.10	25.1	8.2E-04	18.8	5.5E-04	17.1	5.0E-04	
1,2,3,7,8-PeCDF	0.05	36.4	6.0E-04	26.1	3.8E-04	20.1	2.9E-04	
2,3,4,7,8-PeCDF	0.50	108	1.8E-02	60.9	8.8E-03	53.8	7.8E-03	
1,2,3,4,7,8-HxCDF	0.10	59.0	1.9E-03	49.2	1.4E-03	28.5	8.3E-04	
1,2,3,6,7,8-HxCDF	0.10	51.6	1.7E-03	35.3	1.0E-03	25.3	7.3E-04	
2,3,4,6,7,8-HxCDF	0.10	97.7	3.2E-03	58.1	1.7E-03	46.0	1.3E-03	
1,2,3,7,8,9-HxCDF	0.10	26.7	8.7E-04	17.2	5.0E-04	13.4	3.9E-04	
1,2,3,4,6,7,8-HpCDF	0.01	117	3.8E-04	142	4.1E-04	70.0	2.0E-04	
1,2,3,4,7,8,9-HpCDF	0.01	26.6	8.7E-05	22.8	6.6E-05	13.9	4.0E-05	
OCDF	0.001	48.8	1.6E-05	78.8	2.3E-05	28.4	8.3E-06	
TOTAL TEQs (ng/m^3)		=	0.038		0.024		0.020	**0.027**
TOTAL TEQs (ng/m^3 @ 7 % O_2)		=	**0.045**		**0.028**		**0.022**	**0.032**
TOTAL TEQs (g/s)		=	9.1E-11		6.5E-11		5.5E-11	**7.0E-11**
% of Standard [b]		=	**23%**		**14%**		**11%**	**16%**

[a] U.S. EPA (1989) Toxic Equivalency Factor

[b] PCDD/PCDF Standard = 0.20 ng/dscm @ 7% O_2

Table 3-4 RM 25A Sampling Parameters and Emission Results

Run Identification	1	2	3	Average
Run Date	08Dec09	09Dec09	10Dec09	
Start Time	12:30	13:49	14:00	
Stop Time	13:30	14:49	15:00	
Exhaust Gas Conditions				
Moisture (volume %)	47.3	43.9	46.1	45.8
Oxygen (dry volume %)	9.10	9.30	8.20	8.87
Total Hydrocarbons				
ppm, dry	0.66	0.29	0.17	0.37
ppm, dry adj. to 7% O_2	0.78	0.34	0.18	0.44

UNIT 3
EMISSION RESULTS

Table 3-1 RM 29 Sampling Parameters and Emission Results

Run No	Units	1	2	3	AVGS
Date		05-Aug-08	06-Aug-08	07-Aug-08	
Start Time		12:56	12:32	12:45	
Stop Time		15:19	14:41	15:04	
Sampling Parameters --					
Barometric Pressure	in. Hg	29.23	29.65	29.65	29.51
Volume Metered	dcf	88.539	87.452	85.943	87.311
Sample Volume	dscf	78.488	84.258	83.932	82.226
Moisture	% v/v	42.3	43.6	40.6	42.2
O_2 at Stack	% dry	11.99	10.98	11.98	11.64
Avg. Stack Temp.	°F	372	377	374	374
Stack Flowrate	dscfm	5,665	5,719	5,890	5,758
Isokinetics	%	92	98	95	95
Mercury (Hg) --					
Quantity Collected	µg	78.5	105	88.2	90.4
Stack Conc. @ 7% O_2	µg/m³	54.9	61.1	57.6	57.9
Stack Emission Rate	lb/hr	7.49E-04	9.39E-04	8.19E-04	8.30E-04
	g/sec	9.44E-05	1.18E-04	1.03E-04	1.05E-04
Total Chromium (Cr) --	LVM				
Quantity Collected	µg	37.50	30.49	21.76	29.92
Stack Conc. @ 7% O_2	µg/m³	26.22	17.81	14.21	19.41
Stack Emission Rate	lb/hr	3.58E-04	2.74E-04	2.02E-04	2.78E-04
	g/sec	4.51E-05	3.45E-05	2.55E-05	3.50E-05
Cadmium (Cd) --	SVM				
Quantity Collected	µg	0.24	0.90	0.63	0.59
Stack Conc. @ 7% O_2	µg/m³	0.17	0.53	0.41	0.37
Stack Emission Rate	lb/hr	2.27E-06	8.08E-06	5.85E-06	5.40E-06
	g/sec	2.86E-07	1.02E-06	7.37E-07	6.80E-07
Lead (Pb) --	SVM				
Quantity Collected	µg	83.5	114	70.1	89.18
Stack Conc. @ 7% O_2	µg/m³	58.4	66.6	45.8	56.9
Stack Emission Rate	lb/hr	7.97E-04	1.02E-03	6.50E-04	8.24E-04
	g/sec	1.00E-04	1.29E-04	8.19E-05	1.04E-04
Arsenic (As) --					
Quantity Collected	µg	3.15	3.75	1.94	2.95
Stack Conc. @ 7% O_2	µg/m³	2.20	2.19	1.27	1.89
Stack Emission Rate	lb/hr	3.01E-05	3.37E-05	1.80E-05	2.73E-05
	g/sec	3.79E-06	4.24E-06	2.27E-06	3.43E-06
Beryllium (Be) --					
Quantity Collected	µg	0.20	0.20	0.20	0.20
Stack Conc. @ 7% O_2	µg/m³	0.14	0.12	0.13	0.13
Stack Emission Rate	lb/hr	1.91E-06	1.80E-06	1.86E-06	1.85E-06
	g/sec	2.41E-07	2.26E-07	2.34E-07	2.34E-07
LVM Total =	µg/m³	28.6	20.1	15.6	**21.4**
SVM Total =	µg/m³	58.6	67.1	46.2	**57.3**

Table 3-2 Summary of HWC MACT Metals

Low Volatile Metals Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2		Run 3	Average
As	2.20	2.19		1.27	
Be	0.14	0.12		0.13	
Cr	26.2	17.8		14.2	
Total LVM	28.6	20.1		15.6	21.4

LVM Regulatory Standard = 92 µg/m³

Semi-Volatile Metal Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2		Run 3	Average
Pb	58.4	66.6		45.8	
Cd	0.17	0.53		0.41	
Total SVM	58.6	67.1		46.2	57.3

SVM Regulatory Standard = 230 µg/m³

Mercury Emissions -µg/m³ @ 7% O_2

	Run 1	Run 2		Run 3	Average
	54.9	61.1		57.6	57.9

Mercury Regulatory Standard = 130 µg/m³

Table 3-2 RM 5/26A Sampling Parameters and Emission Results – Total Chloride/PM

Run Identification	Run 1	Run 2	Run 3	Average
Run Date	12/01/09	12/02/09	12/03/09	
Start Time	11:16	10:05	10:48	
Stop Time	12:21	11:09	11:51	
Exhaust Gas Conditions				
Temperature (deg. F)	377	377	378	**377**
Moisture (volume %)	43.4	46.9	42.1	**44.1**
Oxygen (dry volume %)	9.5	7.8	10.4	**9.2**
Carbon Dioxide (dry volume %)	8.3	10.0	8.0	**8.8**
Volumetric Flow Rate				
acfm	14,187	14,817	15,340	**14,781**
dscfm	5,039	4,874	5,573	**5,162**
Total Chlorine				
ppmv, dry @ 7% O_2	10.7	9.8	21.5	**14.0**
% of Standard [a]	33.5%	30.5%	67.1%	**43.7%**
Total Particulate Matter				
gr/dscf @ 7% O_2	0.0017	0.0015	0.0016	**0.0016**
% of Standard [b]	13.0%	11.9%	12.3%	**12.4%**

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[a] HCl/Cl_2 Standard = 32 ppmv, dry @ 7% O_2

[b] Particulate Matter Emission Standard = 0.013 gr/dscf @ 7% O_2

Table 3-3 RM 0023A Sampling Parameters and Emission Results – Dioxins and Furans

	Run No.	1		2		3		Average
	Date	01-Dec-09		02-Dec-09		03-Dec-09		
	Start Time	13:41		12:30		13:18		
	Stop Time	16:49		15:35		16:53		
	Units							
Sample Volume	dscf	106.679		112.729		120.283		**113.231**
Sample Volume	m³	3.02		3.19		3.41		**3.21**
Moisture Content	% v/v	48.2		48.1		42.3		**46.2**
O_2 Concentration	% v/v (dry)	7.30		7.30		9.50		**8.03**
CO_2 Concentration	% v/v (dry)	9.93		9.78		8.15		**9.29**
Isokinetics	%	109		107		98		**105**
Stack Flowrate	dscfm	4,462		4,810		5,573		**4,948**
PCDD / PCDF Parameters	TEF (a)	pg	ng/m³ TEQ	pg	ng/m³ TEQ	pg	ng/m³ TEQ	
2,3,7,8-TCDD	1.00	5.31	1.8E-03	3.60	1.1E-03	4.60	1.3E-03	
1,2,3,7,8-PeCDD	0.50	25.1	4.2E-03	17.0	2.7E-03	21.4	3.1E-03	
1,2,3,4,7,8-HxCDD	0.10	27.2	9.0E-04	17.3	5.4E-04	18.1	5.3E-04	
1,2,3,6,7,8-HxCDD	0.10	59.5	2.0E-03	40.0	1.3E-03	41.4	1.2E-03	
1,2,3,7,8,9-HxCDD	0.10	37.7	1.2E-03	27.3	8.6E-04	26.7	7.8E-04	
1,2,3,4,6,7,8-HpCDD	0.01	406	1.3E-03	253	7.9E-04	272	8.0E-04	
OCDD	0.001	540	1.8E-04	330	1.0E-04	348	1.0E-04	
2,3,7,8-TCDF	0.10	33.9	1.1E-03	25.8	8.1E-04	30.9	9.1E-04	
1,2,3,7,8-PeCDF	0.05	46.2	7.6E-04	31.8	5.0E-04	39.2	5.8E-04	
2,3,4,7,8-PeCDF	0.50	98.3	1.6E-02	64.6	1.0E-02	89.0	1.3E-02	
1,2,3,4,7,8-HxCDF	0.10	72.0	2.4E-03	43.2	1.4E-03	51.5	1.5E-03	
1,2,3,6,7,8-HxCDF	0.10	61.3	2.0E-03	39.2	1.2E-03	49.8	1.5E-03	
2,3,4,6,7,8-HxCDF	0.10	88.4	2.9E-03	53.8	1.7E-03	71.1	2.1E-03	
1,2,3,7,8,9-HxCDF	0.10	20.5	6.8E-04	13.2	4.1E-04	15.8	4.6E-04	
1,2,3,4,6,7,8-HpCDF	0.01	233	7.7E-04	123	3.8E-04	131	3.8E-04	
1,2,3,4,7,8,9-HpCDF	0.01	23.5	7.8E-05	15.6	4.9E-05	15.7	4.6E-05	
OCDF	0.001	85.2	2.8E-05	45.9	1.4E-05	40.2	1.2E-05	
TOTAL TEQs (ug/m³)		=	0.039		0.024		0.028	**0.030**
TOTAL TEQs (ng/m³ @ 7 % O_2)		=	**0.039**		**0.024**		**0.035**	**0.033**
TOTAL TEQs (g/s)		=	8.1E-11		5.4E-11		7.5E-11	**7.0E-11**
% of Standard [b]		=	**20%**		**12%**		**17%**	**16%**

[a] U.S.EPA (191 U.S.EPA (1989) Toxic Equivalency Factor

[b] PCDD/PCDF Standard = 0.20 ng/dscm @ 7% O_2

Table 3-4 RM 25A Sampling Parameters and Emission Results

Run Identification	1	2	3	Average
Run Date	01Dec09	02Dec09	03Dec09	
Start Time	13:41	12:30	13:18	
Stop Time	14:41	13:30	14:18	
Exhaust Gas Conditions				
Moisture (volume %)	48.2	48.1	42.3	46.2
Oxygen (dry volume %)	7.30	7.30	9.50	8.03
Total Hydrocarbons				
ppm, dry	0.91	0.64	0.35	0.63
ppm, dry adj. 7% O2	0.93	0.65	0.42	0.67

UNIT 4
EMISSION RESULTS

Table 3-2 RM 29 Sampling Parameters and Emission Rates

Run No. Date Start Time Stop Time	Units	1 21-Aug-08 13:25 15:37	2 22-Aug-08 10:50 13:01	3 23-Aug-08 08:55 10:59	AVGS
Sampling Parameters --					
Barometric Pressure	in. Hg	29.64	29.69	29.64	29.62
Volume Metered	dcf	90.938	89.784	91.420	90.714
Sample Volume	dscf	89.023	88.433	89.264	88.907
Moisture	% v/v	39.0	39.5	40.3	39.6
O_2 at Stack	% dry	12.27	12.13	11.63	12.01
Avg. Stack Temp.	°F	390	388	394	391
Stack Flowrate	dscfm	17,260	17,255	17,189	17,241
Isokinetics	%	101	100	102	101
Mercury (Hg) –					
Quantity Collected	µg	59.6	38.7	42.3	46.9
Stack Conc. @ 7% O_2	µg/m³	37.9	24.4	25.0	29.1
Stack Emission Rate	lb/hr	1.53E-03	9.99E-04	1.08E-03	1.20E-03
	g/sec	1.93E-04	1.26E-04	1.36E-04	1.51E-04
Total Chromium (Cr) –	LVM				
Quantity Collected	µg	3.12	6.28	6.40	5.27
Stack Conc. @ 7% O_2	µg/m³	1.98	3.96	3.76	3.24
Stack Emission Rate	lb/hr	8.01E-05	1.62E-04	1.63E-04	1.35E-04
	g/sec	1.01E-05	2.04E-05	2.05E-05	1.70E-05
Cadmium (Cd) --	SVM				
Quantity Collected	µg	0.80	1.27	1.29	1.12
Stack Conc. @ 7% O_2	µg/m³	0.51	0.80	0.76	0.69
Stack Emission Rate	lb/hr	2.05E-05	3.27E-05	3.29E-05	2.87E-05
	g/sec	2.58E-06	4.12E-06	4.14E-06	3.61E-06
Lead (Pb) –	SVM				
Quantity Collected	µg	34.3	49.1	44.5	42.63
Stack Conc. @ 7% O_2	µg/m³	21.8	30.9	26.3	26.4
Stack Emission Rate	lb/hr	8.81E-04	1.27E-03	1.13E-03	1.09E-03
	g/sec	1.11E-04	1.60E-04	1.43E-04	1.38E-04
Arsenic (As) --					
Quantity Collected	µg	4.82	9.82	16.22	10.29
Stack Conc. @ 7% O_2	µg/m³	3.07	6.19	9.59	6.28
Stack Emission Rate	lb/hr	1.24E-04	2.53E-04	4.13E-04	2.63E-04
	g/sec	1.56E-05	3.19E-05	5.21E-05	3.32E-05
Beryllium (Be) –					
Quantity Collected	µg	0.20	0.20	0.20	0.20
Stack Conc. @ 7% O_2	µg/m³	0.13	0.13	0.12	0.12
Stack Emission Rate	lb/hr	5.13E-06	5.16E-06	5.09E-06	5.13E-06
	g/sec	6.47E-07	6.50E-07	6.42E-07	6.46E-07
LVM Total =	µg/m³	5.2	10.3	13.5	**9.6**
SVM Total =	µg/m³	22.3	31.7	27.1	**27.0**

Table 3-3 Summary of HWC MACT Metals

Low Volatile Metals Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2	Run 3	Average
As	3.07	6.19	9.59	
Be	0.13	0.13	0.12	
Cr	2.0	4.0	3.8	
Total LVM	5.2	10.3	13.5	9.6

LVM Regulatory Standard = 92 µg/m³

Semi-Volatile Metal Emissions - µg/m³ @ 7% O_2

Metals	Run 1	Run 2	Run 3	Average
Pb	21.8	30.9	26.3	
Cd	0.51	0.80	0.76	
Total SVM	22.3	31.7	27.1	27.0

SVM Regulatory Standard = 230 µg/m³

Mercury Emissions -µg/m³ @ 7% O_2

	Run 1	Run 2	Run 3	Average
	37.9	24.4	25.0	29.1

Mercury Regulatory Standard = 130 µg/m³

Table 3-2 RM 5/26A Sampling Parameters and Emission Results – Total Chloride/PM

Run Identification	Run 1	Run 2	Run 3	Average
Run Date	12/16/09	12/17/09	12/18/09	
Start Time	11:38	9:46	9:50	
Stop Time	12:41	10:48	10:52	
Exhaust Gas Conditions				
Temperature (deg. F)	386	387	387	**387**
Moisture (volume %)	35.7	36.2	35.7	**35.9**
Oxygen (dry volume %)	12.7	12.5	12.6	**12.6**
Carbon Dioxide (dry volume %)	5.7	5.9	5.5	**5.7**
Volumetric Flow Rate				
acfm	46,603	46,847	44,653	**46,034**
dscfm	18,845	18,646	17,704	**18,398**
Total Chlorine				
ppmv, dry @ 7% O_2	29.2	36.4	3.5	**23.0**
% of Standard [a]	91.3%	114%	10.8%	**71.9%**
Total Particulate Matter				
gr/dscf @ 7% O_2	0.0023	0.0020	0.0042	**0.0028**
% of Standard [b]	18.0%	15.1%	31.9%	**21.7%**

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[a] HCl/Cl_2 Standard = 32 ppmv, dry @ 7% O_2

[b] Particulate Matter Emission Standard = 0.013 gr/dscf @ 7% O_2

Table 3-3 RM 0023A Sampling Parameters and Emission Results – Dioxin and Furan

	Run No.	1		2		3		Average
	Date	16-Dec-09		17-Dec-09		18-Dec-09		
	Start Time	13:54		12:30		11:45		
	Stop Time	16:59		15:35		14:50		
	Units							
Sample Volume	dscf	137.455		131.667		131.717		133.613
Sample Volume	m^3	3.89		3.73		3.73		**3.78**
Moisture Content	% v/v	35.6		36.4		36.0		**36.0**
O_2 Concentration	% v/v (dry)	12.60		12.40		12.30		**12.43**
CO_2 Concentration	% v/v (dry)	5.66		4.87		5.54		**5.36**
Isokinetics	%	100		101		99		**100**
Stack Flowrate	dscfm	18,601		17,665		18,002		**18,089**
PCDD / PCDF Parameters	TEF (a)	pg	ng/m^3 TEQ	pg	ng/m^3 TEQ	pg	ng/m^3 TEQ	
2,3,7,8-TCDD	1.00	18.8	4.8E-03	24.6	6.6E-03	20.7	5.5E-03	
1,2,3,7,8-PeCDD	0.50	289	3.7E-02	340	4.6E-02	311	4.2E-02	
1,2,3,4,7,8-HxCDD	0.10	320	8.2E-03	287	7.7E-03	288	7.7E-03	
1,2,3,6,7,8-HxCDD	0.10	924	2.4E-02	854	2.3E-02	901	2.4E-02	
1,2,3,7,8,9-HxCDD	0.10	378	9.7E-03	285	7.6E-03	388	1.0E-02	
1,2,3,4,6,7,8-HpCDD	0.01	2,944	7.6E-03	2,442	6.5E-03	2,895	7.8E-03	
OCDD	0.001	1,248	3.2E-04	987	2.6E-04	1,189	3.2E-04	
2,3,7,8-TCDF	0.10	90.2	2.3E-03	87.5	2.3E-03	90.4	2.4E-03	
1,2,3,7,8-PeCDF	0.05	132	1.7E-03	119	1.6E-03	151	2.0E-03	
2,3,4,7,8-PeCDF	0.50	608	7.8E-02	510	6.8E-02	692	9.3E-02	
1,2,3,4,7,8-HxCDF	0.10	282	7.2E-03	242	6.5E-03	291	7.8E-03	
1,2,3,6,7,8-HxCDF	0.10	367	9.4E-03	292	7.8E-03	379	1.0E-02	
2,3,4,6,7,8-HxCDF	0.10	860	2.2E-02	615	1.6E-02	848	2.3E-02	
1,2,3,7,8,9-HxCDF	0.10	96.5	2.5E-03	56.3	1.5E-03	86.6	2.3E-03	
1,2,3,4,6,7,8-HpCDF	0.01	957	2.5E-03	730	2.0E-03	1,007	2.7E-03	
1,2,3,4,7,8,9-HpCDF	0.01	132	3.4E-04	78.9	2.1E-04	130	3.5E-04	
OCDF	0.001	210	5.4E-05	133	3.6E-05	201	5.4E-05	
TOTAL TEQs (ng/m³)		=	0.218		0.204		0.241	0.221
TOTAL TEQs (ng/m³ @ 7 % O_2)		=	**0.363**		**0.332**		**0.388**	**0.361**
TOTAL TEQs (g/s)		=	1.9E-09		1.7E-09		2.0E-09	**1.9E-09**
% of Standard [b]		=	**91%**		**83%**		**97%**	**90%**

[a] U.S.EPA (1989) Toxic Equivalency Factor

[b] PCDD/PCDF Standard = 0.40 ng/dscm @ 7% O_2

Table 3-4 RM 25A Sampling Parameters and Emission Results

Run Identification	1	2	3	Average
Run Date	16Dec09	17Dec09	18Dec09	
Start Time	14:07	12:51	11:45	
Stop Time	15:07	13:51	12:45	
Exhaust Gas Conditions				
Moisture (volume %)	35.6	36.4	36.0	36.0
Oxygen (dry volume %)	12.60	12.40	12.30	12.43
Total Hydrocarbons				
ppm, dry	0.81	0.86	0.38	0.68
ppm, dry adj.7% O_2	1.35	1.41	0.61	1.12

SYSTEM REMOVAL EFFICIENCY (SRE)
FOR
UNITS 2, 3 AND 4

2008 Metals and 2009 HCl Testing Removal Efficiencies

Unit 2 (LVM) Em. Std.: 92 ug/dscm (9/08)	Run	Removal Efficiency (RE) (%)	Unit 3 (LVM) Em. Std.: 92 ug/dscm (8/08)	Run	Removal Efficiency (RE) (%)	Unit 4 (LVM) Em. Std.: 92 ug/dscm (8/08)	Run	Removal Efficiency (RE) (%)
	1	99.99973		1	99.99919		1	99.99958
	2	99.99991		2	99.99935		2	99.99916
	3	99.99979		3	99.99954		3	99.99882
	Avg	99.99981		Avg	99.99936		Avg	99.99919

Unit 2 (SVM) Em. Std.: 230 ug/dscm (9/08)	Run	Removal Efficiency (RE) (%)	Unit 3 (SVM) Em. Std.: 230 ug/dscm (8/08)	Run	Removal Efficiency (RE) (%)	Unit 4 (SVM) Em. Std.: 230 ug/dscm (8/08)	Run	Removal Efficiency (RE) (%)
	1	99.99936		1	99.99875		1	99.99858
	2	99.99977		2	99.99842		2	99.99795
	3	99.99942		3	99.99897		3	99.99819
	Avg	99.99952		Avg	99.99871		Avg	99.99824

Unit 2 (Hg) Em. Std.: 130 ug/dscm (8/08)	Run	Removal Efficiency (RE) (%)	Unit 3 (Hg) Em. Std.: 130 ug/dscm (8/08)	Run	Removal Efficiency (RE) (%)	Unit 4 (Hg) Em. Std.: 130 ug/dscm (8/08)	Run	Removal Efficiency (RE) (%)
	1	65.61		1	53.25		1	94.05
	2	51.65		2	57.36		2	96.17
	3	50.06		3	54.56		3	95.91
	Avg	55.77		Avg	55.06		Avg	95.38

Unit 2 (HCl/Cl2) Em. Std.: 32 ppmv (12/09)	Run	Removal Efficiency (RE) (%)	Unit 3 (HCl/Cl2) Em. Std.: 32 ppmv (12/09)	Run	Removal Efficiency (RE) (%)	Unit 4 (HCl/Cl2) Em. Std.: 32 ppmv (12/09)	Run	Removal Efficiency (RE) (%)
	1	99.86		1	99.89		1	99.19
	2	99.83		2	99.89		2	98.92
	3	99.71		3	99.77		3	99.91
	Avg	99.80		Avg	99.85		Avg	99.34

Incinerator Process Description

Unit 2

2.0 Incinerator Process Description

2.1 Process Overview

Veolia operates 2 Fixed Hearth Dual Chambered Incinerators (Units 2 and 3) and one rotary kiln incinerator (Unit 4) at the Sauget, IL facility. The two fixed hearth units are rated at 16 million Btu/hr each. Incineration Unit No. 3 is a mirror image of Unit No. 2. Both of these units have their own waste handling systems as described in the sections that follow. The only difference being Unit No. 2 is equipped with four (4) baghouse modules, while Unit No. 3 is equipped with three (3) baghouse modules. However, each incinerator is operated identically with only three baghouse modules in service during operation. Unit 4 is rated at 50 million Btu/hr and is equipped with its own tank farm system, drum storage, bulk solids storage and feed systems.

2.2 Waste Feed Systems [40 CFR § 63.1207(f)(1)(ii)(c) and (f)(1)(iii)(D) and (E)]

2.2.1 Unit 2 Liquid Waste Feed System and Blending Operations

The fixed hearth incinerator is designed to receive containers, aqueous liquid wastes, organic liquid wastes, specialty liquid feeds, gases and direct inject liquids fed through the aqueous or organic liquid feed systems. These units can receive any combination of wastes -- liquid, semi-solid, solid or gases -- with a heat value of up to 16 million Btu/hr.

Unit 2 is supported by storage/blend tanks located in Tank Farm #1. Rates of feed are controlled at each incinerator. Segregated liquid wastes are stored until utilized in the waste blending facilities. At that time, liquids are delivered to the blending tanks where the daily liquid feed to the incinerator is formulated, tested, and released to the incinerator. Blending of stored liquid wastes to achieve optimum heating value and viscosity for incineration takes place in Tanks 2, 4, 6 & 8. Six additional tanks (10, 20, 30, 40, 50 & 60) are used to segregate different waste stream types for blending of liquid feed to the incinerator. Several criteria are important in designing a blend from available wastes that have been segregated principally by physical and chemical properties. These include compatibility, proper range of heating value, and permit restrictions regarding elemental composition (based on emission limitations). The material is transferred through aboveground pipelines from the tank farm to the incinerator. Pipelines used to transfer liquid organic waste and aqueous waste are equipped with strainers.

In compliance with the Benzene NESHAP, all tanks are vented to individual carbon adsorption canisters for removal of organics before vapor is discharged to the atmosphere. Each carbon adsorber canister is essentially equivalent to a 55 gallon container or greater, if necessary. All tanks are equipped with conservation vents, in addition to the carbon canister adsorber. All tanks are grounded, and flame arrestors are installed between the carbon adsorbers and the tanks.

2.2.1.1 Organic and Aqueous Liquid Waste Feeds

The liquid waste injectors used in the combustion chambers are air-atomizing injectors. These are used for injection of high Btu, low Btu liquids and specialty feed liquids. Dual fluid injection nozzles will be used for atomization of the waste. Each of the injectors is rated at 0-300 gph. The liquid waste feed nozzles are served by parallel redundant pumps and recirculation systems with back pressure control.

2.2.1.2 Packaged Waste Feed

Containers of wastes are sampled and analyzed after receipt in accordance with the facility's Waste Analysis Plan. These wastes can then be delivered directly to Unit 2 or repacked into small combustible containers at the facility. Fiberboard or plastic containers (fully or partially full of waste), up to 40-gallon size, may be charged directly to the primary chamber. These will be received at the dock adjoining each fixed hearth incinerator, and charged to the incinerator within 24 hours or returned to permitted storage.

Solids, usually packaged in plastic or fiberboard containers, are introduced into the incinerator through a PLC controlled airlock-ram system located at the lower front of the primary chamber of the incinerator. The airlock is composed of a refractory-lined door, a door into the airlock enclosure, and two pneumatic rams. The action of the feeder is as follows:

- With the incinerator door closed, the airlock door is opened.
- The first pneumatic ram (load ram) pushes weighed charges of waste into the airlock chamber.
- The airlock door is closed.
- A switch is activated either automatically or manually, which opens the door to the incinerator and actuates the ram (charge ram) that pushes the waste into the incinerator. The ram then retracts and the Incinerator door closes.

2.2.1.3 Specialty Liquid and Gaseous Waste Feeds

Specialty Feed Systems associated with Incinerator No. 2 are as follows

- Specialty Feeder
- Compressed Gas Cylinder Feed System
- Direct Inject Liquid Feed System

2.3 Manufacturer, Make and Model of the Incinerator [40 CFR § 63.1207(f)(1)(iii)(A)]

2.3.1 Combustion Chamber and Burners [40 CFR §63.1207(f)(1)(iii)(B) and (C)

Incinerator No. 2 features a two-stage combustion process. Ignition of waste material takes place in the primary (lower) combustion chamber (PCC). A secondary (upper) combustion chamber (SCC) serves as an "after-burner" for process gases. Ignition of the waste takes place at temperatures in excess of 1700 degrees F. The secondary combustion chamber maintains a minimum temperature of approximately 1800 degrees F.

The fixed hearth incinerator is fabricated of carbon steel. The primary chamber has an external diameter of 9 feet and is 17.5 feet long. The interior walls of the chamber are lined with approximately 10 inches of brick refractory and insulation backing, making the internal operating diameter approximately 7'2". The cross-sectional area of the chamber is thus 40.3 square feet. **Table 2-2** provides a summary of the incinerator design specifications.

Liquid and solid waste feeds enter the lower chamber on the front-face of the chamber. The primary burner and the specialty feed injector are located near the front-face of the chamber and are mounted tangentially.

The primary burner is a North American burner rated at 12.0 million Btu/hr. and is used in the lower chamber to maintain permitted temperatures. It will burn only natural gas or No. 2 fuel oil. The burner system is supplied with combustion air at a static pressure of 30" water column (WC). The pilot for the primary burner will burn natural gas.

The fuel system for the lower chamber (and secondary combustion chamber) is controlled by a Factory Mutual approved burner management system complete with interlocks and safety valves.

2.3.2 Secondary Combustion Chamber

The secondary combustion chamber (SCC) is a horizontal, cylindrical chamber that has an external diameter of 9 feet and is 17.5 feet long. The interior walls of the chamber are lined with approximately 10 inches of brick refractory and insulation backing, making the internal operating diameter approximately 7'2". The cross-sectional area of the chamber is thus 40.3 square feet.

Following ignition of the waste material under controlled or starved-air conditions in the lower chamber; off-gases travel through a refractory-lined flue gas passage into the upper chamber, which acts as an afterburner. Turbulence is achieved by the tangential introduction of air and additional fuel in the upper chamber.

The SCC is equipped with one burner mounted tangentially on the side of the chamber. The burner is a North American burner rated at 6.0 million Btu/hr and is fueled with natural gas or fuel oil.

As with the primary chamber burner; the SCC burner is supplied with atomizing air and is equipped with a burner management system. This system controls the ignition and initiates an automatic shutoff when there is a loss of flame, combustion air supply, fuel pressure, atomizing air pressure, or pilot burner.

Leaving the upper chamber, the hot gas stream travels through 28 feet of refractory-lined stack sections before reaching the start of the gas scrubbing system. The combined volume of the upper and lower chambers, the flue gas passage and the hot crossover section is approximately 1,567 cubic feet. The total retention time of combustion gases within the system is approximately 5 seconds.

2.3.3 Location of Combustion Zone Temperature Device [40 CFR § 63.1207(f)(1)(xix)]

The thermocouple that monitors temperature in the primary combustion chamber is located on top of the chamber about five feet from the transition. The thermocouple that monitors temperature in the SCC is located on top of the chamber above the transition.

2.3.4 Hazardous Waste Residence Time [40 CFR § 63.1207(f)(1)(ix)]

The Hazardous waste gas residence time for the Fixed Hearth Incinerator is calculated as follows:

- Primary Combustion Chamber Volume – 635 ft3
- Secondary Combustion Chamber Volume – 635 ft3
- Total Volume – 1270 ft3
- Maximum Flue Gas Flowrate – 17,382 acfm (290 ft^3/sec)
- Total Combustion Zone Residence Time = (1270 ft^3)/(290 ft^3/sec) = 4.4 sec

Since these incinerators are fixed hearth units, residence time is based on the elapsed time since the last solids charge was put into the combustion zone or based on the travel length of the ash ram that functions to clear the primary combustion chamber of solid waste residue. An elapsed time of one hour or a travel length of 110 inches for the ash ram have been established as the criteria for determining when solid waste is no longer in the combustion zones.

2.3.5 Combustion System Leak

Combustion system leaks are prevented through maintaining a totally sealed combustion chamber, coupled with the use of an induced draft fan that maintains a vacuum of normally - 4 to - 6 inches of water column in both combustion chambers while wastes are being fed to the unit.

2.3.6 Emergency Safety Vent

The incinerator is equipped with an emergency safety vent (ESV) located at the top of the secondary combustion chamber. This ESV is a refractory-lined emergency thermal relief vent (TRV) which is held in the closed position by a pneumatic cylinder. The control valve in the line supplying air to the cylinder and the cylinder vent valve that opens the TRV are located in the control room for each unit. Valve locks (with keys attached) are utilized to deter indiscriminate operation of these valves. Opening of the TRV allows hot combustion gas to vent from the combustion system during emergency shutdown events. The purpose of the TRV is to protect the downstream APCS from excessive temperature situations. A limit switch on the TRV shuts off all waste feeds to the system as it senses that the cap is opening.

2.4 Procedures for Rapidly Stopping Hazardous Waste Feed During Equipment Malfunction [40 CFR §63.1207(f)(1)(viii)]

Equipment malfunctions are identified by the control system, observation of process control variables, or by regular field inspections.

In the event of minor equipment malfunctions (e.g. waste feed or scrubber leaks), the control room operator will be notified. The control room operator will then close the waste feed valves and disable the waste feed pumps.

In the event of major equipment malfunctions (e.g. fire), the emergency stop button located in the control room will be pushed. If this button is pushed, all equipment will switch to its fail-safe position.

2.5 Air Pollution Control Equipment [40 CFR §63.1207(f)(1)(iii)(G)]

2.5.1 Air Pollution Control Systems Descriptions

The air pollution control system consists of a spray dryer absorber and fabric filter baghouse modules. The air pollution control system neutralizes acidic compounds and removes particulate from the exhaust gas. Two subsystems, the spray dryer absorber and the fabric filter, carry out the chemical neutralization and particulate removal functions, respectively. A third subsystem, the lime system, is used to prepare and provide lime slurry to the spray dryer absorber for use in the chemical neutralization process. The induced draft fan and stack provide the mechanical energy required to transport the flue gas through the interconnecting ductwork, to its eventual discharge point to atmosphere.

2.5.1.1 Lime System

The lime system prepares lime slurry for use in the chemical neutralization process in sufficient supply and concentration to maintain continuous flue gas treatment in the spray dryer absorber. The system has been designed for batch mixing to provide this service. Veolia utilizes hydrated lime as its neutralizing agent in the air pollution control systems. The key neutralization parameter of the hydrated lime is the "CaO Equivalent." **Figure 2-1** is the specification sheet for the hydrated lime that Veolia uses. Veolia has used this specific product for over 20 years and plans to continue with its use. Although if Veolia does change suppliers or type of lime in the future, it would have a "CaO Equivalent" specification equal to or greater than the 72.6% shown on **Figure 2-1**.

Hydrated lime is stored in a storage bin above the lime preparation area. The storage bin is sized to hold enough hydrated lime to maintain several days of system operation at the maximum combustion rate of the incinerator. Lime is discharged through the conical storage bin bottom. The flow of the material from the bin is aided by a vibrating "live bottom," or bin activator. A variable speed screw feeder is used to meter the hydrated lime in the proportions required for batch mixing lime slurry. The lime is mixed with water in a tank beneath the lime storage bin. The screw feeder speed and the rate that water is added to the lime slurry tank are variable so that the desired lime solids concentration can be achieved in the tank. The variable feed adjustments allow water and lime to be added to the lime slurry tank at a rate that will allow a batch mode of mixing. An agitator is provided in the slurry tank to mix the water and lime and to maintain the suspension of lime solids. The mixed lime slurry is pumped at a continuous rate of flow through a recirculation loop to the atomizer.

2.5.1.2 Spray Dry Absorber

Unit 2 is equipped with a Spray Dryer Absorber (SDA) located immediately downstream of the secondary combustion chamber. The SDA unit is fabricated of 3/8 inch carbon steel. The function of the SDA is to:

- Further cool the combustion gases from 1600-2000°F to 300-500°F,
- Neutralize and remove HCl and other acids from the combustion gases,
- Remove a portion of the particulate (fly ash) from these gases.

Slurry flow to the spray dryer absorber (SDA) is metered by a flow control valve to obtain the proper feed concentration to the spray dryer absorber atomizer. Automatic (or manual) adjustment to the flow is made as a function of the output from a hydrochloric acid (HCl) analyzer in the gas duct downstream of the fabric filter. The amount of slurry metered is proportional to the amount of HCl monitored.

The slurry passes through a stationary swirl-type liquid distributor into the atomizer wheel where induced centrifugal force from the rapidly spinning wheel discharges the slurry through the wheel nozzles at high velocity. The design of the atomizer wheel, its rate of spin, and the discharge velocity of the slurry, create a cloud of finely divided droplets around the periphery of the atomizer wheel. A feedback signal from the atomizer power transmitter provides verification that water flow to the atomizer increases or decreases in proportion to the spray dryer absorber outlet temperature.

Flue gas enters from the bottom of the spray dryer absorber through a vertical, centrally located disperser. The disperser directs the flue gas through the zone filled by the atomized slurry cloud where the flue gas and slurry mix and most of the absorption occurs. The gases then flow downward through the absorber chamber and exit through a bottom side duct. As the gases contact and pass through the cloud of atomized lime slurry, the water in the slurry evaporates, cooling the gases. Simultaneously, the lime in the slurry reacts with the hydrogen chloride in the gases to produce calcium salts. Some of the resulting dry material, consisting of calcium salts, fly ash and excess lime, falls to the conical bottom of the unit. The dry material from each unit is discharged to a conveyor system that transports it to a dump trailer or equivalent type system.

2.5.1.3 Fabric Filter

Gas exhausted from the spray dryer absorber is distributed by manifold ducts to four fabric filter modules. The unit is operated with only three modules on-line with the fourth module off-line in a standby mode. Within each filter module, the gas is passed through Teflon-coated fiberglass cloth bags. The gas passes from the outside to the inside of the filter bags. Particulate entrained in the gas stream is mechanically deposited on the outside of the filter bags as the gas passes through the cloth.

Each module has a clean air plenum and housing section to contain approximately 96 bags. Each bag is approximately 6" in diameter by 20' long. The baghouses are fabricated from 3/16" mild steel plate, of welded construction, gas tight and stiffened to withstand the maximum operating negative pressure. Each compartment has a tube sheet that supports the bags and provides for top bag/cage removal. Access to the clean air plenum is via a side access door in the clean air plenum.

The fabric filter cleaning mechanism utilizes jets of air to clean the filter bags. Periodically, the cleaning sequence will be initiated. The sequence is started at the end of a 4 hour timed cycle, when the differential pressure across the filter reaches a predetermined setpoint of approximately 7.0" w.c., or when the operator initiates a cycle. The controller then sequences to each row of filter bags in each module, releasing a burst of air opposite to the direction of gas flow. The quickly released burst of air dislodges dust cake on the exterior of each bag as it travels from the top to the bottom of the bags. Released from the bag, the dust cake falls by gravity into the hopper at the bottom of the module. From there it is discharged to a conveyor system that transports it to a dump trailer, or equivalent type system.

Treated by the spray dryer absorber and filtered by the fabric filters, the cleaned flue gas exits the fabric filter modules to an outlet manifold for exhaust.

2.5.1.4 Induced Draft Fan and Stack

The induced draft fan and stack are located downstream of the fabric filter. Combustion gases are drawn through the system by a 75 hp induced draft (ID) fan, rated at 15,000 acfm at 400° F saturated, and 22" water column pressure. The induced draft fan provides the mechanism for transporting the incinerator flue gas through the spray dryer absorber, fabric filter, and all interconnecting ducts. The ID fan includes an inlet volume control damper to be used to control the velocity of the gas within the ducting and treatment devices.

Treated gases are exhausted from the induced draft fan to the atmosphere through a 90-ft. high stack. The stack diameter for Unit 2 is 39 inches I.D. The stack is equipped with instrument sampling ports and a sampling platform for emissions testing. **Figure 4-1** provides details on the design and sample port locations and configurations for the stack.

2.6 Stack Emissions Monitoring [40 CFR §63.1207(f)(1)(iii)(H)]

The continuous emissions monitoring (CEM) system consists of sample probes, sample delivery and conditioning apparatus, and gas analyzers. Samples are extracted from the sampling ports on the stack. A CEM performance test and quality assurance program has been implemented in accordance with **Appendix to Subpart EEE of Part 63—Quality Assurance Procedures for Continuous Emissions Monitors Used for Hazardous Waste Combustors.**

Responses from each CEMS are fed to the Control System (CS) where the CO hourly rolling average is calculated and interlocked to the waste feed cutoff valves as part of the Automatic Waste Feed Cutoff System (AWFCO) discussed in Section 2.8, below. The following provides a brief description of the CEMS instruments including the operating range and measurement principal.

2.6.1 CEMS System Description

The Continuous Emissions Monitoring System (CEMS) currently being utilized at Incinerator 2 analyzes for opacity, carbon monoxide, hydrogen chloride, total hydrocarbons and oxygen. These monitors, except opacity, are extractive devices mounted in sampling ports on the stack. The table below summarizes the analyzer specifications.

The opacity monitor continuously measures the stack gas opacity and reports the measurements to an indicator and a recorder. An opacity that exceeds a preset limit triggers an alarm and interlock.

Carbon monoxide and hydrogen chloride are monitored with extractive non-disperse infrared analyzers. Total hydrocarbon is monitored with an extractive flame ion detector analyzer. Oxygen is monitored with a zirconium oxide cell.

Stack gas flow rate is continuously monitored using an anubar that sends a 4-20 mA signal to the PLC that converts the signal to acfm.

Table 2-1 Unit 2 Continuous Emission Monitors

Parameter	Current Mfg.	Range	Principle
Oxygen	COSA	0-25%	Electrochemical
Carbon Monoxide	Ecochem MC3	0-200 ppmv 0-3000 ppmv	Infrared
Total hydrocarbons	Thermoelectron	0-100 ppmv	FID/Infrared
Hydrogen chloride	Ecochem MC3	0-1,000 ppmv	Infrared
Opacity	Teledyne	0-100%	White light
Stack gas flow	PSE/Rosemount	0-20,000 acfm	Pressure drop

2.7 Process Monitoring and Control

The facility is equipped with a state-of-the-art monitoring and control system, which facilitates compliance with permit conditions, and otherwise, collects process control information, facilitates efficient operation and detects and prevents damage to the facility. The system consists of three major components:

- A human–machine interface (HMI) system,
- Programmable logic controller's (PLC's), and
- A high speed ethernet cable connects all control system components

The desired control functions are implemented through the HMI system. All digital control and emergency interlocks are accomplished by the PLC.

The control system is capable of monitoring the "operational envelope" of the incinerator and is capable of performing a number of activities including:

- Control room indication of processor sensors located within the incinerator system (such as pressure indication of a field installed pressure transmitter);
- Process controller for single instrument loops or an individual sub-system, such as a temperature control loop involving a sensor reading from one temperature transmitter affecting the function of one temperature control valve; and
- Alarm for an exceedance of a designated setpoint, such as a high pressure or low temperature.

The process control computer will continuously control and monitor the operation of the incinerator. When out-of-range conditions exist, it will notify the operator of those conditions. The process control computer is programmed to shut-down equipment (i.e., bring the system into a safe mode) when designated parameters are exceeded, which is a protective mechanism against potential equipment damage, operation outside of permit limits, or conditions that might lead to a release to the environment.

Continuous monitoring of the incinerator and scrubber system is an important aspect of the system design. A digital readout of all monitoring instrumentation is displayed on the main control screen. An audible and visual alarm alerts the incinerator operator to significant deviations from normal operating conditions. This system allows an immediate response to adverse conditions by the operator. Automatic waste feed cut-off and incineration shutdown mechanisms are also interlocked with the monitoring system at or prior to reaching permit limit levels. Monitoring methods and calibration frequencies are listed in **Table 2-3**.

The Incinerator has an independent process control computer that interfaces to the Quantum programmable controllers. The process computer is capable of controlling the incinerator in case of a failure in a HMI server. This computer runs a RSVIEW HMI control software that provides operator interface to all instrumentation and controls.

2.8 Automatic Waste Feed Cut-off System [40 CFR §63.1207(f)(1)(iii)(F)]

The Incinerator has an Automatic Waste Feed Cut-Off (AWFCO) System that will shut waste feeds off in the event certain operating parameters deviate from allowable set points. The PLC continuously monitors operating parameters, making adjustments to the process as needed for proper control. Alarm logic is incorporated into the PLC system to automatically initiate an AWFCO. **Table 2-3** summarizes the current AWFCO set points. AWFCO limits have been established based on several factors that are summarized below.

- Regulatory/permit limits – established to comply with existing permits. An example of this type of limit is the low temperature limit, below which waste cannot be fed until the proper limit is re-established.

In addition, the HWC MACT regulations require that the AWFCO system be interlocked with the span of each process instrument that is part of the Continuous Monitoring System (CMS). A listing of these CMS instruments and their interlocked span setpoints is maintained as part of Veolia's Operating Record.

- Process safety limits – established to assure process equipment is protected and unsafe operating conditions do not occur. An example of this is inadequate excess air in the combustion chamber that can lead to fuel rich conditions.
- Utility or Power failure – established to facilitate a controlled shutdown of the process during loss of process air, steam, water or electricity. An example of this is the loss of instrument air that is necessary for certain types of process instruments to function properly. Wastes will not be re-introduced into the incinerators until proper operation of key instruments is re-established.

In addition to the AWFCO system, operators can manually shutdown waste feeds or the entire process should this be needed.

2.8.1 AWFCO System Testing

Veolia tests the AWFCO systems bi-weekly, as weekly testing would unduly interfere with operations by ceasing and restarting waste feeds, potentially increasing emissions, incurring excessive downtime, burning additional natural gas during the downtime, and increasing operating costs. Testing of the AWFCO system is a time-consuming and manpower intensive process. The current testing program has been in place under the RCRA permit for over 20 years and has proven to be adequate in detecting problems. This rationale is included in the facility's AWFCO Plan. In some cases this testing occurs more frequently depending on how often actual AWFCOs occur at the unit. Per the required frequency, incinerator personnel check the functionality of AWFCO logic that is part of the incinerator's PLC system to make sure that should process conditions deviate from allowable limits, the computer logic will initiate waste feed shutdowns as required. This is accomplished by manually simulating process conditions that are outside allowable limits and observing and documenting when the control or block valve software logic on the waste feed line begins to initiate valve closure. Should actual AWFCOs occur during a given testing period, these are documented by operating personnel to satisfy regulatory requirements for system testing. Results of this testing are documented on a separate AWFCO Testing Log and maintained as part of the unit's Operating Record.

2.9 Air Pollution Control Equipment Maintenance Practices [40 CFR §63.1207(f)(1)(iii)(G)]

2.9.1 Program Overview

Once equipment is installed and operational, Veolia utilizes an extensive preventative maintenance (PM) program to keep equipment operational and prevent breakdowns and failures. Based upon the type of equipment and historical operations and maintenance experience, schedules for various inspection and PM activities are followed. This includes aspects such as documenting detailed maintenance histories on equipment, routine inspection and lubrication programs for high wear equipment and non-destructive testing of piping and vessels using techniques like ultrasound to assess integrity. The frequency of these activities varies depending upon the equipment, PM activity and the incinerator's shutdown schedule.

For example, frequent (i.e., weekly) instrument and certain mechanical equipment checks are made for critical process items. Lubrication, vibration analysis and other mechanical integrity checks are done at longer frequencies like monthly or quarterly. Finally, such items as inspecting refractory brick for wear, are typically performed when the entire incinerator is shut down for maintenance.

2.9.2 Test Program Preparation Activities

Prior to testing, instrumentation associated with key parameters of the test were checked, calibrated, or replaced, as appropriate, to ensure proper operation of the instrumentation during testing (i.e., waste feed flowmeters and scales, CEMS, pressure transmitters, thermocouples, stack flowmeters, etc.).

Table 2-2 Technical Information Summary on Incinerator No. 2

Manufacturer	Trade Waste Incineration	
Model No.	TWI-2000, Series 2	
Type	Fixed Hearth, Dual Chamber	
Date of Manufacture	1987	
Dimensions	Primary Chamber	Secondary Chamber
External Length	17.5'	17.5'
External Diameter	9'	9'
Internal Diameter	7'2"	7'2"
Cross-sectional area	40.3 square feet	40.3 square feet
Burners	Primary Chamber Burner	Secondary Chamber Burner
Manufacturer	North American	North American
Size	12.0 Million Btu/hr	6.0 Million Btu/hr
Fuel	Natural Gas	Natural Gas
Primer Mover	Induced Draft Fan 15,000 acfm @ 400°F saturated, 22 in. water column	

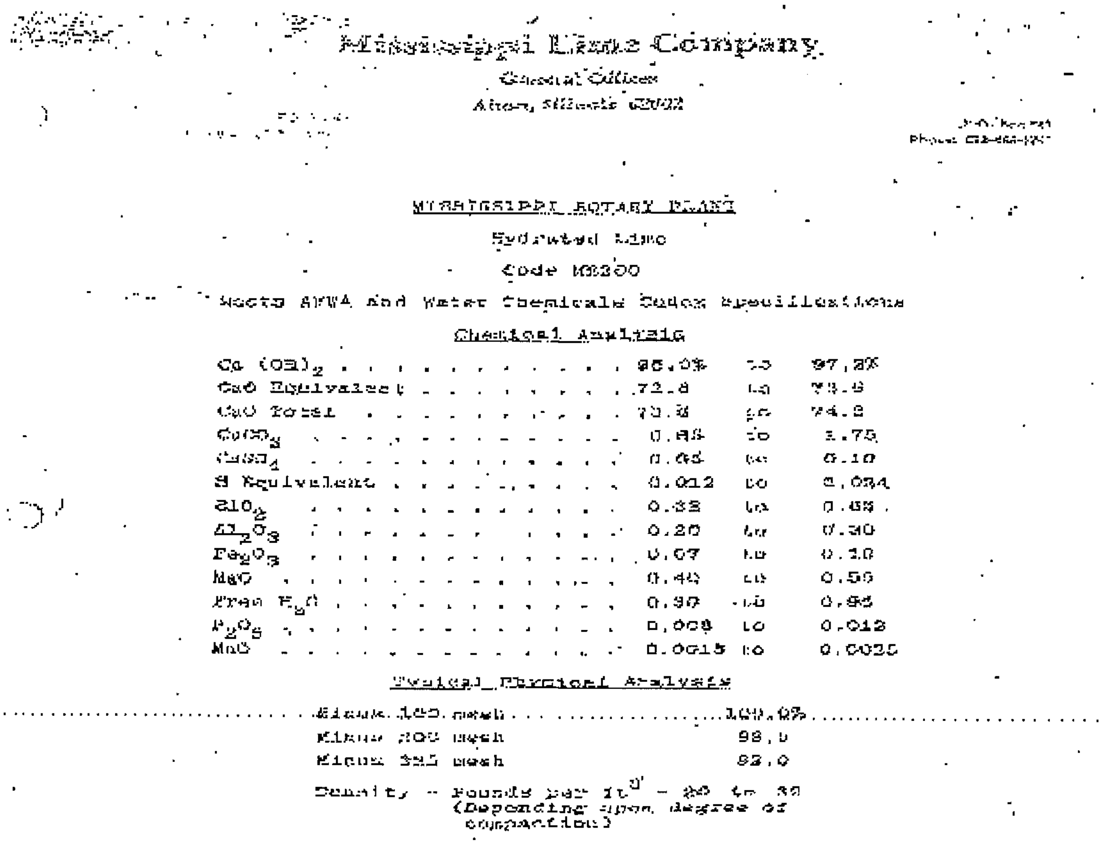
Table 2-3 Current AWFCO Parameters and Limits for Incinerator No. 2

System	Device	Units	Cutoff Limits	Calibration Frequency
Total Pumpable Waste Feed rate	Mass Flowmeters/Scales	Lb/hr	> 3107 (HRA)	Annually
Total Waste Feedrate	Mass Flowmeters/Scales	Lb/hr	> 4017	Annually/quarterly
High BTU Liquid feedrate	Mass flow meter	lb/hr	≥ 2,012^{2}	Annually
Low BTU Liquid feedrate	Mass flow meter	lb/hr	≥ 1,993^{2}	Annually
Specialty feeder	Scale	lb/hr	≥ 724^{2}	Quarterly
Total LVM Feedrate	Mass Flowmeters/Scales	lb/hr	> 47 (12 HRA)	Annually/quarterly
Pumpable LVM Feedrate	Mass Flowmeters/Scales	lb/hr	> 46 (12 HRA)	Annually/quarterly
SVM Feedrate	Mass Flowmeters/Scales	lb/hr	> 63 (12 HRA)	Annually/quarterly
Mercury Feedrate	Mass Flowmeters/Scales	lb/hr	> 0.0034 (12HRA)	Annually/quarterly
Chlorine Feedrate	Mass Flowmeters/Scales	lb/hr	> 218 (12 HRA)	Annually/quarterly
Ash Feedrate	Mass Flowmeters/Scales	lb/hr	> 673 (12 HRA)	Annually/quarterly
Primary Combustion Chamber Temperature	Type K Thermocouple	°F	≤1,590 (one-minute average)^{2} < 1734 (HRA^{1}) ≥2,400 (instantaneous)^{2}	Annually
Secondary Combustion Chamber Temperature	Type K Thermocouple	°F	≤1,794 (one-minute average)^{2} < 1849 (HRA^{1}) ≥2,400 (instantaneous)^{2}	Annually
Primary Combustion Chamber pressure	Pressure transmitter	in. w.c.	≥ -0.1 (5 second delay)	Quarterly
Secondary Combustion Chamber pressure	Pressure transmitter	in. w.c.	≥ -0.1 (5 second delay)	Quarterly
Spray Dryer Adsorber Outlet Temperature	Type K Thermocouple	°F	≥500 (one minute average)^{2} >420 (HRA)	Annually
Combustion Gas Flow Rate	Pitot Tube	acfm	≥17,198^{2} >15,147 (HRA)	Annually
Stack Gas Excess Oxygen	Zirconium Oxide fuel cell	%	<.3 (one-minute avg.)	Quarterly
Stack carbon monoxide	Infrared	ppmv	≥100 (HRA) ≥500 (one minute average)^{2}	Quarterly
Stack Hydrocarbon	FID	ppmv	≥10 (one minute average)	Quarterly
Stack gas opacity	White Light	%	≥10 (one minute average)^{2}	Quarterly
Stack hydrogen chloride^{2}	Infrared	ppmv	≥100 (HRA)^{2} ≥500 (one minute average)^{2}	Quarterly
Fabric filter pressure drop	Delta P transmitter	in. w.c.	≤ 2 or ≥ 10 (1 min. average)^{2}	Quarterly
Min. Sorbent Feedrate	Density Transducer	lb/lb Cl_2	<1.76	
Min. Carrier Fluid Flowrate	Flowmeter	gal/lb Cl_2	<1.70	Annually

[1] HRA means "hourly rolling average" as calculated by averaging the previous 60 one-minute average values.

[2] This is a RCRA permit limit only.

Figure 2-1 Hydrated Lime Specifications



Mississippi Lime Company

General Offices

Alton, Illinois 62002

[illegible]

MISSISSIPPI ROTARY PLANT

Hydrated Lime

Code MH200

Meets AWWA and Water Chemicals Codex Specifications

Chemical Analysis

$Ca(OH)_2$	95.0%	to	97.2%
CaO Equivalent	72.8	to	73.6
CaO Total	73.3	to	74.2
$CaCO_3$	0.85	to	1.75
$CaSO_4$	0.05	to	0.10
S Equivalent	0.012	to	0.024
SiO_2	0.33	to	0.65
Al_2O_3	0.20	to	0.30
Fe_2O_3	0.07	to	0.10
MgO	0.40	to	0.50
Free H_2O	0.30	to	0.95
P_2O_5	0.008	to	0.012
MnO	0.0015	to	0.0025

Typical Physical Analysis

Minus 100 mesh	100.0%
Minus 200 mesh	98.5
Minus 325 mesh	92.0

Density – Pounds per ft^3 – 20 to 30
(Depending upon degree of compaction)

Incinerator Process Description

Unit 3

2.0 Incinerator Process Description

2.1 Process Overview

Veolia operates two Fixed Hearth Dual Chambered Incinerators (Units 2 and 3) and one rotary kiln incinerator (Unit 4) at the Sauget, IL facility. The two fixed hearth units are rated at 16 million Btu/hr each. Incineration Unit No. 3 is a mirror image of Unit No. 2. Both of these units have their own waste handling systems as described in the sections that follow. The only difference being Unit No. 2 is equipped with four (4) baghouse modules, while Unit No. 3 is equipped with three (3) baghouse modules. However, each incinerator is operated identically with only three baghouse modules in service during operation. Unit 4 is rated at 50 million Btu/hr and is equipped with its own tank farm system, drum storage, bulk solids storage and feed systems.

2.2 Waste Feed Systems [40 CFR § 63.1207(f)(1)(ii)(c) and (f)(1)(iii)(D) and (E)]

2.2.1 Unit 3 Liquid Waste Feed System and Blending Operations

The fixed hearth incinerator is designed to receive containers, aqueous liquid wastes, organic liquid wastes, specialty liquid feeds and direct inject liquids fed through the aqueous or organic liquid feed systems. These units can receive any combination of wastes -- liquid, semi-solid or solid -- with a heat value of up to 16 million Btu/hr.

Unit 3 is supported by storage/blend tanks located in Tank Farm #1. Rates of feed are controlled at each incinerator. Segregated liquid wastes are stored until utilized in the waste blending facilities. At that time, liquids are delivered to the blending tanks where the daily liquid feed to the incinerator is formulated, tested, and released to the incinerator. Blending of stored liquid wastes to achieve optimum heating value and viscosity for incineration takes place in Tanks 2, 4, 6 & 8. Six additional tanks (10, 20, 30, 40, 50 & 60) are used to segregate different waste stream types for blending of liquid feed to the incinerator. Several criteria are important in designing a blend from available wastes that have been segregated principally by physical and chemical properties. These include compatibility, proper range of heating value, and permit restrictions regarding elemental composition (based on emission limitations). The material is transferred through aboveground pipelines from the tank farm to the incinerator. Pipelines used to transfer liquid organic waste and aqueous waste are equipped with strainers.

In compliance with the Benzene NESHAP, all tanks are vented to individual carbon adsorption canisters for removal of organics before vapor is discharged to the atmosphere. Each carbon adsorber canister is essentially equivalent to a 55 gallon container or greater, if necessary. All tanks are equipped with conservation vents, in addition to the carbon canister adsorber. All tanks are grounded, and flame arrestors are installed between the carbon adsorbers and the tanks.

2.2.1.1 Organic and Aqueous Liquid Waste Feeds

The liquid waste injectors used in the combustion chambers are air-atomizing injectors. These are used for injection of high Btu, low Btu liquids and specialty feed liquids. Dual fluid injection nozzles will be used for atomization of the waste. Each of the injectors is rated at 0-300 gph. The liquid waste feed nozzles are served by parallel redundant pumps and recirculation systems with back pressure control.

2.2.1.2 Packaged Waste Feed

Containers of wastes are sampled and analyzed after receipt in accordance with the facility's Waste Analysis Plan. These wastes can then be delivered directly to Unit 3 or repacked into small combustible containers at the facility. Fiberboard or plastic containers (fully or partially full of waste), up to 40-gallon size, may be charged directly to the primary chamber. These will be received at the dock adjoining each fixed hearth incinerator, and charged to the incinerator within 24 hours or returned to permitted storage.

Solids, usually packaged in plastic or fiberboard containers, are introduced into the incinerator through a PLC controlled airlock-ram system located at the lower front of the primary chamber of the incinerator. The airlock is composed of a refractory-lined door, a door into the airlock enclosure, and two pneumatic rams. The action of the feeder is as follows:

- With the incinerator door closed, the airlock door is opened.
- The first pneumatic ram (load ram) pushes weighed charges of waste into the airlock chamber.
- The airlock door is closed.
- A switch is activated either automatically or manually, which opens the door to the incinerator and actuates the ram (charge ram) that pushes the waste into the incinerator. The ram then retracts and the incinerator door closes.

2.2.1.3 Specialty Liquid Waste Feeds

Specialty Feed Systems associated with Incinerator No. 3 are as follows

- Hooded Specialty Container Feeder
- Glove Box Emission Control Systems
- Direct inject Liquid Feed System

2.3 Manufacturer, Make and Model of the Incinerator [40 CFR § 63.1207(f)(1)(iii)(A)]

2.3.1 Combustion Chamber and Burners [40 CFR §63.1207(f)(1)(iii)(B) and (C)

Incinerator No. 3 features a two-stage combustion process. Ignition of waste material takes place in the primary (lower) combustion chamber (PCC). A secondary (upper) combustion chamber (SCC) serves as an "after-burner" for process gases. Ignition of the waste takes place at temperatures in excess of 1700 degrees F. The secondary combustion chamber maintains a minimum temperature of approximately 1800 degrees F.

The fixed hearth incinerator is fabricated of carbon steel. The primary chamber has an external diameter of 9 feet and is 17.5 feet long. The interior walls of the chamber are lined with approximately 10 inches of brick refractory and insulation backing, making the internal operating diameter approximately 7'2". The cross-sectional area of the chamber is thus 40.3 square feet. Table 2-2 provides a summary of the incinerator design specifications.

Liquid and solid waste feeds enter the lower chamber on the front-face of the chamber. The primary burner and the specialty feed injector are located near the front-face of the chamber and are mounted tangentially.

The primary burner is a North American burner rated at 12.0 million Btu/hr. and is used in the lower chamber to maintain permitted temperatures. It will burn only natural gas or No. 2 fuel oil. The burner system is supplied with combustion air at a static pressure of 30" water column (WC). The pilot for the primary burner will burn natural gas.

The fuel system for the lower chamber (and secondary combustion chamber) is controlled by a Factory Mutual approved burner management system complete with interlocks and safety valves.

2.3.2 Secondary Combustion Chamber

The secondary combustion chamber (SCC) is a horizontal, cylindrical chamber that has an external diameter of 9 feet and is 17.5 feet long. The interior walls of the chamber are lined with approximately 10 inches of brick refractory and insulation backing, making the internal operating diameter approximately 7'2". The cross-sectional area of the chamber is thus 40.3 square feet.

Following ignition of the waste material under controlled or starved-air conditions in the lower chamber, off-gases travel through a refractory-lined flue gas passage into the upper chamber, which acts as an afterburner. Turbulence is achieved by the tangential introduction of air and additional fuel in the upper chamber.

The SCC is equipped with one burner mounted tangentially on the side of the chamber. The burner is a North American burner rated at 6.0 million Btu/hr and is fueled with natural gas or fuel oil.

As with the primary chamber burner, the SCC burner is supplied with atomizing air and is equipped with a burner management system. This system controls the ignition and initiates an automatic shutoff when there is a loss of flame, combustion air supply, fuel pressure, atomizing air pressure, or pilot burner.

Leaving the upper chamber, the hot gas stream travels through 28 feet of refractory-lined stack sections before reaching the start of the gas scrubbing system. The combined volume of the upper and lower chambers, the flue gas passage and the hot crossover section is approximately 1,567 cubic feet. The total retention time of combustion gases within the system is approximately 5 seconds.

2.3.3 Location of Combustion Zone Temperature Device [40 CFR §63.1207(f)(1)(xix)]

The thermocouple that monitors temperature in the primary combustion chamber is located on top of the chamber about five feet from the transition. The thermocouple that monitors temperature in the SCC is located on top of the chamber above the transition.

2.3.4 Hazardous Waste Residence Time [40 CFR §63.1207(f)(1)(ix)]

The Hazardous waste gas residence time for the Fixed Hearth Incinerator is calculated as follows:

- Primary Combustion Chamber Volume – 635 ft3
- Secondary Combustion Chamber Volume – 635 ft3
- Total Volume – 1270 ft3
- Maximum Flue Gas Flowrate – 17,382 acfm (290 ft^3/sec)
- Total Combustion Zone Residence Time = (1270 ft^3)/(290 ft^3/sec) = 4.4 sec

Since these incinerators are fixed hearth units residence time is based on the elapsed time since the last solids charge was put into the combustion zone or based on the travel length of the ash ram that functions to clear the primary combustion chamber of solid waste residue. An elapsed time of one hour or a travel length of 110 inches for the ash ram have been established as the criteria for determining when solid waste is no longer in the combustion zones.

2.3.5 Combustion System Leak

Combustion system leaks are prevented through maintaining a totally sealed combustion chamber, coupled with the use of an induced draft fan that maintains a vacuum of normally - 4 to - 6 inches of water column in both combustion chambers while wastes are being fed to the unit.

2.3.6 Emergency Safety Vent

The incinerator is equipped with an emergency safety vent (ESV) located at the top of the secondary combustion chamber. This ESV is a refractory-lined emergency thermal relief vent (TRV) which is held in the closed position by a pneumatic cylinder. The control valve in the line supplying air to the cylinder and the cylinder vent valve that opens the TRV are located in the control room for each unit. Valve locks (with keys attached) are utilized to deter indiscriminate operation of these valves. Opening of the TRV allows hot combustion gas to vent from the combustion system during emergency shutdown events. The purpose of the TRV is to protect the downstream APCS from excessive temperature situations. A limit switch on the TRV shuts off all waste feeds to the system as it senses that the cap is opening.

2.4 Procedures for Rapidly Stopping Hazardous Waste Feed During Equipment Malfunction [40 CFR §63.1207(f)(1)(viii)]

Equipment malfunctions are identified by the control system, observation of process control variables, or by regular field inspections.

In the event of minor equipment malfunctions (e.g. waste feed or scrubber leaks), the control room operator will be notified. The control room operator will then close the waste feed valves and disable the waste feed pumps.

In the event of major equipment malfunctions (e.g. fire), the emergency stop button located in the control room will be pushed. If this button is pushed, all equipment will switch to its fail-safe position.

2.5 Air Pollution Control Equipment [40 CFR §63.1207(f)(1)(iii)(G)]

2.5.1 Air Pollution Control Systems Descriptions

The air pollution control system consists of a spray dryer absorber and fabric filter baghouse. The air pollution control system neutralizes acidic compounds and removes particulate from the exhaust gas. Two subsystems, the spray dryer absorber and the fabric filter, carry out the chemical neutralization and particulate removal functions, respectively. A third subsystem, the lime system, is used to prepare and provide lime slurry to the spray dryer absorber for use in the chemical neutralization process. The induced draft fan and stack provide the mechanical energy required to transport the flue gas through the interconnecting ductwork, to its eventual discharge point to atmosphere.

2.5.1.1 Lime System

The lime system prepares lime slurry for use in the chemical neutralization process in sufficient supply and concentration to maintain continuous flue gas treatment in the spray dryer absorber. The system has been designed for batch mixing to provide this service. Veolia utilizes hydrated lime as its neutralizing agent in the air pollution control systems. The key neutralization parameter of the hydrated lime is the "CaO Equivalent". **Figure 2-1** is the specification sheet for the hydrated lime that Veolia uses. Veolia has used this specific product for over 20 years and plans to continue with its use. Although, if Veolia does change suppliers or type of lime in the future, it would have a "CaO Equivalent" specification equal to or greater than the 72.6% shown on **Figure 2-1**.

Hydrated lime is stored in a storage bin above the lime preparation area. The storage bin is sized to hold enough hydrated lime to maintain several days of system operation at the maximum combustion rate of the incinerator. Lime is discharged through the conical storage bin bottom. The flow of the material from the bin is aided by a vibrating "live bottom," or bin activator. A variable speed screw feeder is used to meter the hydrated lime in the proportions required for batch mixing lime slurry. The lime is mixed with water in a tank beneath the lime storage bin. The screw feeder speed and the rate that water is added to the lime slurry tank are variable so that the desired lime solids concentration can be achieved in the tank. The variable feed adjustments allow water and lime to be added to the lime slurry tank at a rate that will allow a batch mode of mixing. An agitator is provided in the slurry tank to mix the water and lime and to maintain the suspension of lime solids. The mixed lime slurry is pumped at a continuous rate of flow through a recirculation loop to the atomizer at a rate of up to 10 gpm.

2.5.1.2 Spray Dry Absorber

Unit 3 is equipped with a Spray Dryer Absorber (SDA) located immediately downstream of the secondary combustion chamber. The SDA unit is fabricated of 3/8 inch carbon steel. The function of the SDA is to:

- Further cool the combustion gases from 1600-2000°F to 300-500°F,
- Neutralize and remove HCl and other acids from the combustion gases,
- Remove a portion of the particulate (fly ash) from these gases.

Slurry flow to the spray dryer absorber (SDA) is metered by a flow control valve to obtain the proper feed concentration to the spray dryer absorber atomizer. Automatic (or manual) adjustment to the flow is made as a function of the output from a hydrochloric acid (HCl) analyzer in the gas duct downstream of the fabric filter. The amount of slurry metered is proportional to the amount of HCl monitored.

The slurry passes through a stationary swirl-type liquid distributor into the atomizer wheel where induced centrifugal force from the rapidly spinning wheel discharges the slurry through the wheel nozzles at high velocity. The design of the atomizer wheel, its rate of spin, and the discharge velocity of the slurry, create a cloud of finely divided droplets around the periphery of the atomizer wheel. A feedback signal from the atomizer power transmitter provides verification that water flow to the atomizer increases or decreases in proportion to the spray dryer absorber outlet temperature.

Flue gas enters from the bottom of the spray dryer absorber through a vertical, centrally located disperser. The disperser directs the flue gas through the zone filled by the atomized slurry cloud where the flue gas and slurry mix and most of the absorption occurs. The gases then flow downward through the absorber chamber and exit through a bottom side duct. As the gases contact and pass through the cloud of atomized lime slurry, the water in the slurry evaporates, cooling the gases. Simultaneously, the lime in the slurry reacts with the hydrogen chloride in the gases to produce calcium salts. Some of the resulting dry material, consisting of calcium salts, fly ash and excess lime, falls to the conical bottom of the unit. The dry material from each unit is discharged to a conveyor system that transports it to a dump trailer or equivalent type system.

2.5.1.3 Fabric Filter

Gas exhausted from the spray dryer absorber is distributed by manifold ducts to three fabric filter modules. Within each filter module, the gas is passed through Teflon-coated fiberglass cloth bags. The gas passes from the outside to the inside of the filter bags. Particulate, entrained in the gas stream, is mechanically deposited on the outside of the filter bags as the gas passes through the cloth.

Each module has a clean air plenum and housing section to contain approximately 96 bags. Each bag is approximately 6" in diameter by 20' long. The baghouses are fabricated from 3/16" mild steel plate, of welded construction, gas tight and stiffened to withstand the maximum operating negative pressure. Each compartment has a tube sheet that supports the bags and provides for top bag/cage removal. Access to the clean air plenum is via a side access door in the clean air plenum.

The fabric filter cleaning mechanism utilizes jets of air to clean the filter bags. Periodically, the cleaning sequence will be initiated. The sequence is either started at the end of a timed cycle, or when the differential pressure across the filter reaches a predetermined setpoint of approximately 7.0" w.c., or when the operator initiates a cycle. The controller then sequences to each row of filter bags in each module, releasing a burst of air opposite to the direction of gas flow. The quickly released burst of air dislodges dust cake on the exterior of each bag as it travels from the top to the bottom of the bags. Released from the bag, the dust cake falls by gravity into the hopper at the bottom of the module. From there it is discharged to a conveyor system that transports it to a dump trailer, or equivalent type system.

Treated by the spray dryer absorber and filtered by the fabric filter, the cleaned flue gas exits the Fabric filter modules to an outlet manifold for exhaust.

2.5.1.4 Induced Draft Fan and Stack

The induced draft fan and stack are located downstream of the fabric filter. Combustion gases are drawn through the system by a 75 hp induced draft (ID) fan, rated at 15,000 acfm at 400° F saturated, and 22" water column pressure. The induced draft fan provides the mechanism for transporting the incinerator flue gas through the spray dryer absorber, Fabric filter, and all interconnecting ducts. The ID fan includes an inlet volume control damper to be used to control the velocity of the gas within the ducting and treatment devices.

Treated gasses exhausted from the induced draft fan to the atmosphere through a 90-ft. high stack. The stack diameter is 39 inches I.D. The stack is equipped with instrument sampling ports and a sampling platform for emissions testing. **Figure 4-1** provides details on the design and sample port locations and configurations for the stack.

2.6 Stack Emissions Monitoring [40 CFR §63.1207(f)(1)(iii)(H)]

The continuous emissions monitoring system (CEMS) consists of sample probes, sample delivery and conditioning apparatus, and gas analyzers. Samples are extracted from the sampling ports on the stack. A

CEM performance test and quality assurance program has been implemented in accordance with the **Appendix to Subpart EEE of Part 63—Quality Assurance Procedures for Continuous Emissions Monitors Used for Hazardous Waste Combustors.**

Responses from each CEMS were fed to the Control System (CS) where the CO hourly rolling average was calculated and interlocked to the waste feed cutoff valves as part of the Automatic Waste Feed Cutoff System (AWFCO) discussed in Section 2.8, below. The following provides a brief description of the CEMS instruments including the operating range and measurement principal.

2.6.1 CEMS System Description

The Continuous Emissions Monitoring Systems (CEMS) currently utilized at Incinerator 3 analyzes for opacity, carbon monoxide, hydrogen chloride, total hydrocarbons and oxygen. These monitors, except opacity, are extractive devices mounted in sampling ports on the stack. The table below summarizes the analyzer specifications.

The opacity monitor continuously measures the stack gas opacity and reports the measurements to an indicator and a recorder. An opacity that exceeds a preset limit triggers an alarm and interlock.

Carbon monoxide and hydrogen chloride are monitored with extractive non-disperse infrared analyzers. Total hydrocarbon is monitored with an extractive flame ion detector analyzer. Oxygen is monitored with a zirconium oxide cell.

Stack gas flow rate is continuously monitored using an anubar that sends a 4-20 mA signal to the PLC that converts the signal to acfm.

Table 2-1 Continuous Emission Monitors

Parameter	Current Mfg.	Range	Principle
Oxygen	COSA	0-25%	Electrochemical
Carbon Monoxide	Ecochem MC3	0-200 ppmv 0-3000 ppmv	Infrared
Total hydrocarbons	Thermoelectron	0-100 ppmv	FID/Infrared
Hydrogen chloride	Ecochem MC3	0-1,000 ppmv	Infrared
Opacity	Teledyne	0-100%	White light
Stack gas flow	PSE/Rosemount	0-20,000 acfm	Pressure drop

2.7 Process Monitoring and Control

The facility is equipped with a state-of-the-art monitoring and control system, which facilitates compliance with permit conditions, and otherwise, collects process control information, facilitates efficient operation and detects and prevents damage to the facility. The system consists of three major components:

- A human–machine interface (HMI) system,
- Programmable logic controller's (PLC's), and

- A high speed ethernet cable connects all control system components

The desired control functions are implemented through the HMI system. All digital control and emergency interlocks are accomplished by the PLC.

The control system is capable of monitoring the "operational envelope" of the incinerator and is capable of performing a number of activities including:

- Control room indication of processor sensors located within the incinerator system (such as pressure indication of a field installed pressure transmitter);
- Process controller for single instrument loops or an individual sub-system, such as a temperature control loop involving a sensor reading from one temperature transmitter affecting the function of one temperature control valve; and
- Alarm for an exceedance of a designated setpoint, such as a high pressure or low temperature.

The process control computer will continuously control and monitor the operation of the incinerator. When out-of-range conditions exist, it will notify the operator of those conditions. The process control computer is programmed to shut-down equipment (i.e., bring the system into a safe mode) when designated parameters are exceeded, which is a protective mechanism against potential equipment damage, operation outside of permit limits, or conditions that might lead to a release to the environment.

Continuous monitoring of the incinerator and scrubber system is an important aspect of the system design. A digital readout of all monitoring instrumentation is displayed on the main control screen. An audible and visual alarm alerts the incinerator operator to significant deviations from normal operating conditions. This system allows an immediate response to adverse conditions by the operator. Automatic waste feed cut-off and incineration shutdown mechanisms are also interlocked with the monitoring system at or prior to reaching permit limit levels. Monitoring methods and calibration frequencies are listed in Table 2-3.

The Incinerator has an independent process control computer that interfaces to the Quantum Progammable controllers. The process computer is capable of controlling the incinerator in case of a failure in a HMI server. This computer runs a RSVIEW HMI control software that provides operator interface to all instrumentation and controls.

2.8 Automatic Waste Feed Cut-off System [40 CFR §63.1207(f)(1)(iii)(F)]

The incinerator has an Automatic Waste Feed Cut-Off (AWFCO) System that will shut waste feeds off in the event certain operating parameters deviate from allowable set points. The PLC continuously monitors operating parameters, making adjustments to the process as needed for proper control. Alarm logic is incorporated into the PLC system to automatically initiate an AWFCO. **Table 2-3** summarizes the current AWFCO set points. AWFCO limits have been established based on several factors that are summarized below.

- Regulatory/permit limits – established to comply with existing permits. An example of this type of limit is the low temperature limit, below which waste can not be fed until the proper limit is re-established. In addition, the HWC MACT regulations require that the AWFCO system be interlocked with the span of each process instrument that is part of the Continuous Monitoring System (CMS). A listing of these

CMS instruments and their interlocked span setpoints is maintained as part of Veolia's Operating Record.

- Process safety limits – established to assure process equipment is protected and unsafe operating conditions do not occur. An example of this is inadequate excess air in the combustion chamber that can lead to fuel rich conditions.
- Utility or Power failure – established to facilitate a controlled shutdown of the process during loss of process air, steam, water or electricity. An example of this is the loss of instrument air that is necessary for certain types process instruments to function properly. Wastes will not be re-introduced into the incinerators until proper operation of key instruments is re-established.

In addition to the AWFCO system, operators can manually shutdown waste feeds or the entire process should this be needed.

2.8.1 AWFCO System Testing

Veolia tests the AWFCO systems bi-weekly, as weekly testing would unduly interfere with operations by ceasing and restarting waste feeds, potentially increasing emissions, incurring excessive downtime, burning additional natural gas during the downtime, and increasing operating costs. Testing of the AWFCO system is a time-consuming and manpower intensive process. The current testing program has been in place under the RCRA permit for over 20 years and has proven to be adequate in detecting problems. This rationale is included in the facility's AWFCO Plan. In some cases this testing occurs more frequently depending on how often actual AWFCOs occur at the unit. Per the required frequency, incinerator personnel check the functionality of AWFCO logic that is part of the incinerator's PLC system to make sure that should process conditions deviate from allowable limits, the computer logic will initiate waste feed shutdowns as required. This is accomplished by manually simulating process conditions that are outside allowable limits and observing and documenting when the control or block valve software logic on the waste feed line begins to initiate valve closure. Should actual AWFCOs occur during a given testing period, these are documented by operating personnel to satisfy regulatory requirements for system testing. Results of this testing are documented on a separate AWFCO Testing Log and maintained as part of the unit's Operating Record.

2.9 Air Pollution Control Equipment Maintenance Practices [40 CFR §63.1207(f)(1)(iii)(G)]

2.9.1 Program Overview

Once equipment is installed and operational, Veolia utilizes an extensive preventative maintenance (PM) program to keep equipment operational and prevent breakdowns and failures. Based upon the type of equipment and historical operations and maintenance experience, schedules for various inspection and PM activities are followed. This includes aspects such as documenting detailed maintenance histories on equipment, routine inspection and lubrication programs for high wear equipment and non-destructive testing of piping and vessels using techniques like ultrasound to assess integrity. The frequency of these activities varies depending upon the equipment, PM activity and the incinerator's shutdown schedule.

For example, frequent (i.e., weekly) instrument and certain mechanical equipment checks are made for critical process items. Lubrication, vibration analysis and other mechanical integrity checks are done at longer frequencies like monthly or quarterly. Finally, such items as inspecting refractory brick for wear, are typically performed when the entire incinerator is shut down for maintenance.

2.9.2 Test Program Preparation Activities

Prior to testing, instrumentation associated with key parameters of the test were checked, calibrated, or replaced, as appropriate, to ensure proper operation of the instrumentation during testing (i.e., waste feed flowmeters and scales, CEMS, pressure transmitters, thermocouples, stack flowmeters, etc.).

Table 2-2 Technical Information Summary on Incinerator No. 3

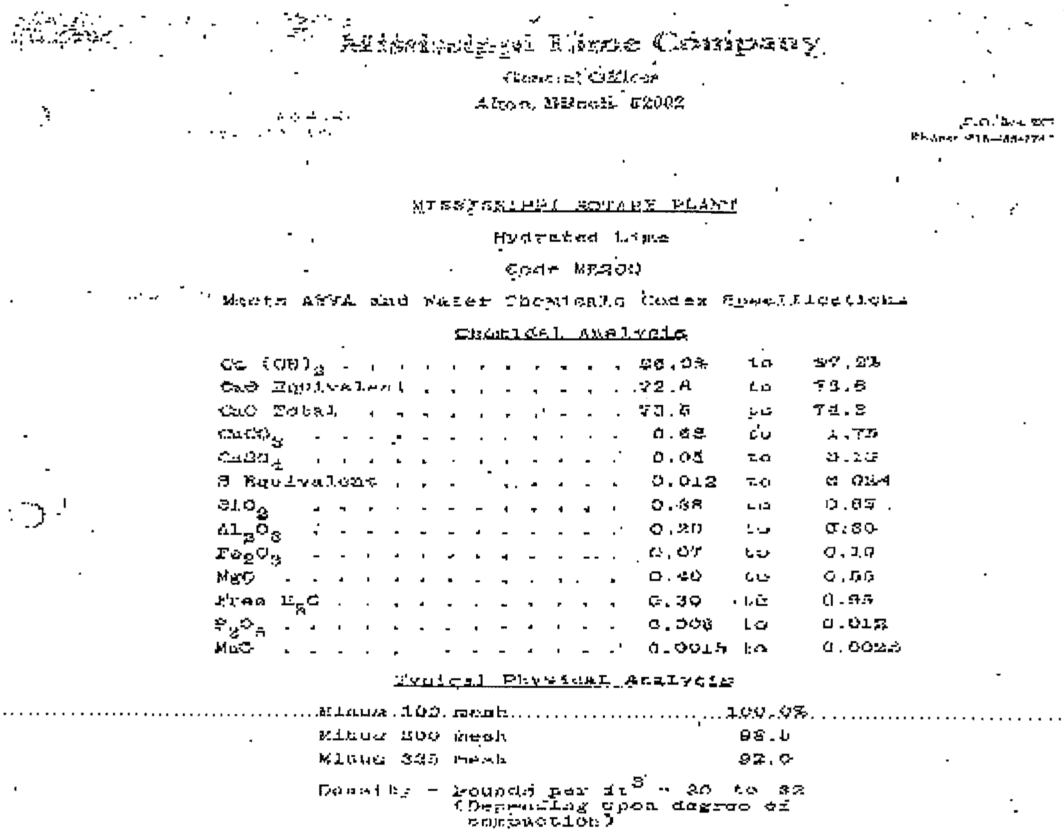
Manufacturer	Trade Waste Incineration	
Model No.	TWI-2000, Series 2	
Type	Fixed Hearth, Dual Chamber	
Date of Manufacture	1987	
Dimensions	Primary Chamber	Secondary Chamber
External Length	17.5'	17.5'
External Diameter	9'	9'
Internal Diameter	7'2"	7'2"
Cross-sectional area	40.3 square feet	40.3 square feet
Burners	Primary Chamber Burner	Secondary Chamber Burner
Manufacturer	North American	North American
Size	12.0 Million Btu/hr	6.0 Million Btu/hr
Fuel	Natural Gas	Natural Gas
Primer Mover	Induced Draft Fan 15,000 acfm @ 400°F saturated, 22 in. water column	

Table 2-3 Current AWFCO Parameters and Limits for Incinerator No. 3

System	Device	Units	Cutoff Limits	Calibration Frequency
Total Pumpable Waste Feed rate	Mass Flowmeters/Scales	Lb/hr	> 3107 (HRA)	Annually
Total Waste Feedrate	Mass Flowmeters/Scales	Lb/hr	> 4017	Annually/quarterly
High BTU Liquid feedrate	Mass flow meter	lb/hr	≥ 2,012^{2}	Annually
Low BTU Liquid feedrate	Mass flow meter	lb/hr	≥ 1,993^{2}	Annually
Specialty feeder	Scale	lb/hr	≥ 724^{2}	Quarterly
Total LVM Feedrate	Mass Flowmeters/Scales	lb/hr	> 47 (12 HRA)	Annually/quarterly
Pumpable LVM Feedrate	Mass Flowmeters/Scales	lb/hr	> 46 (12 HRA)	Annually/quarterly
SVM Feedrate	Mass Flowmeters/Scales	lb/hr	> 63 (12 HRA)	Annually/quarterly
Mercury Feedrate	Mass Flowmeters/Scales	lb/hr	> 0.0034 (12HRA)	Annually/quarterly
Chlorine Feedrate	Mass Flowmeters/Scales	lb/hr	> 218 (12 HRA)	Annually/quarterly
Ash Feedrate	Mass Flowmeters/Scales	lb/hr	> 673 (12 HRA)	Annually/quarterly
Primary Combustion Chamber Temperature	Type K Thermocouple	°F	≤1,590 (one-minute average)^{2} <1,712 (HRA^{1}) ≥2,400 (instantaneous)^{2}	Annually
Secondary Combustion Chamber Temperature	Type K Thermocouple	°F	≤1,794 (one-minute average)^{2} <1,845 (HRA^{1}) ≥2,400 (instantaneous)^{2}	Annually
Primary Combustion Chamber pressure	Pressure transmitter	in. w.c.	≥ -0.1 (5 second delay)	Quarterly
Secondary Combustion Chamber pressure	Pressure transmitter	in. w.c.	≥ -0.1 (5 second delay)	Quarterly
Spray Dryer Adsorber Outlet Temperature	Type K Thermocouple	°F	≥500 (one minute average)^{2} >420 (HRA)	Annually
Combustion Gas Flow Rate	Pitot Tube	acfm	≥17,198^{2} >15,147 (HRA)	Annually
Stack Gas Excess Oxygen	Zirconium Oxide fuel cell	%	< 3 (one-minute avg.)^{2}	Quarterly
Stack carbon monoxide	Infrared	ppmv	≥100 (HRA) ≥500 (one minute average)^{2}	Quarterly
Stack Hydrocarbon	FID	ppmv	≥10 (one minute average)	Quarterly
Stack gas opacity	White Light	%	≥10 (one minute average)^{2}	Quarterly
Stack hydrogen chloride^{2}	Infrared	ppmv	≥100 (HRA)^{2} ≥500 (one minute average)^{2}	Quarterly
Fabric filter pressure drop	Delta P transmitter	in. w.c.	≤ 2 or ≥ 10 (1 min. average)^{2}	Quarterly
Min. Sorbent Feedrate	Density Transducer	lb/lb Cl_2	<1.78	
Min. Carrier Fluid Flowrate	Flowmeter	gal/lb Cl_2	<1.70	Annually

[1] HRA means "hourly rolling average" as calculated by averaging the previous 60 one-minute average values.
[2] This is a RCRA permit limit only.

Figure 2-1 Hydrated Lime Specifications



Mississippi Lime Company

General Offices

Alton, Illinois 62002

MISSISSIPPI ROTARY PLANT

Hydrated Lime

Code MF200

Meets AWWA and Water Chemicals Codex Specifications

Chemical Analysis

$Ca(OH)_2$	96.0%	to	97.2%
CaO Equivalent	72.6	to	73.6
CaO Total	73.6	to	74.2
$CaCO_3$	0.68	to	1.75
$CaSO_4$	0.05	to	0.12
S Equivalent	0.012	to	0.024
SiO_2	0.38	to	0.85
Al_2O_3	0.20	to	0.30
Fe_2O_3	0.07	to	0.10
MgO	0.40	to	0.56
Free H_2O	0.30	to	0.85
P_2O_5	0.008	to	0.015
MnO	0.0015	to	0.0025

Typical Physical Analysis

Minus 100 mesh	100.0%
Minus 200 mesh	98.0
Minus 325 mesh	92.0

Density - pounds per ft^3 - 20 to 32 (Depending upon degree of compaction)

Incinerator Process Description

Unit 4

2.0 Incinerator Process Description

2.1 Process Overview

Veolia operates two Fixed Hearth Dual Chambered Incinerators (Units 2 and 3) and one rotary kiln incinerator (Unit 4) at the Sauget, IL facility. The two fixed hearth units are rated at 16 million Btu/hr each. Incineration Unit No. 3 is a mirror image of Unit No. 2. Both of these units have their own waste handling systems as described in the sections that follow. The only difference being Unit No. 2 is equipped with four (4) baghouse modules, while Unit No. 3 is equipped with three (3) baghouse modules. However, each incinerator is operated identically with only three baghouse modules in service during operation. Unit 4 is rated at 50 million Btu/hr and is equipped with its own tank farm system, drum storage, bulk solids storage and feed systems.

2.2 Waste Feed Systems [40 CFR § 63.1207(f)(1)(ii)(c) and (f)(1)(iii)(D) and (E)]

2.2.1 Unit 4 Liquid Waste Feed System and Blending Operations

The Unit 4 Rotary Kiln can incinerate any of the waste that Veolia is authorized and permitted to receive. All physical forms of wastes will be handled and fed by the system's waste feed devices. Liquids will be fed to either the kiln or the Secondary Combustion Chamber (SCC). Bulk solid wastes will be fed to the kiln through the ram feeder. Containerized wastes will be fed to the kiln through the ram feeder or the auxiliary ram feeder. This unit can receive any combination of wastes – liquid, semi-solid, or solid -- with a heat value of up to 50 million Btu/hr.

Unit 4 is supported by storage tanks located in Tank Farm #3. These tanks are used to store the liquid organic wastes, aqueous wastes, and pumpable sludges to be fed to the system. Unlike Tank Farm #1, all of the tanks in Tank Farm #3 can be used as feed tanks to the incinerator. Several criteria are important in designing a blend from received wastes. These include compatibility, proper range of heating value, and permit restrictions regarding elemental composition (based on emission limitations). Pumps to transfer these wastes to the system are installed in the tank farm. The material is transferred through aboveground pipelines from the tank farm to the incinerator. Pipelines used to transfer liquid organic waste and aqueous waste are equipped with strainers.

In compliance with the Benzene NESHAP, all tanks are vented to individual carbon adsorption canisters for removal of organics before vapor is discharged to the atmosphere. Each carbon adsorber canister is essentially equivalent to a 55 gallon container or greater, if necessary. All tanks are equipped with conservation vents, in addition to the carbon canister adsorber. All tanks are grounded, and flame arrestors are installed between the carbon adsorbers and the tanks.

2.2.1.1 Organic and Aqueous Liquid Waste Feeds

The liquid waste injectors used in the combustion chambers are air-atomizing injectors. These are used for injection of pumpable sludges, aqueous wastes and organic liquid wastes to the kiln and for injection of organic liquid waste to the SCC. Dual fluid injection nozzles will be used for atomization of the waste. Each of the injectors is rated at 0-300 gph. The liquid waste feed nozzles are served by parallel redundant pumps and recirculation systems with back pressure control.

2.2.1.2 Packaged and Bulk Solid Waste Feeds

Containers of wastes are sampled and analyzed after receipt in accordance with the facility's Waste Analysis Plan. These wastes can then be delivered directly to Unit 4 or repacked into small combustible containers at the facility. Repackaged containers are delivered to, and staged, in the Container Storage Unit No. 6 adjacent to the Unit 4 incinerator. When scheduled for feeding to the system, the containers of waste are transferred by forklifts to the feed conveyors serving Unit 4.

Bulk solids and non-pumpable wastes are delivered and discharged into waste feed bins in the Bulk Solids Storage Building after being received, sampled, and analyzed. A clamshell operating from an overhead crane is used to transfer these wastes from the bins to the feed hoppers discharging to the system's ram feeder. The weigh hopper is equipped with weigh cells so each charge of waste can be weighed before it is discharged into the ram feeder. Fugitive emissions are controlled by a baghouse. cyclone, and carbon adsorption system connected to this system.

The ram feeder is a 25-inch wide by 42 inch high (inside dimensions) rectangular tube operated by a hydraulically driven ram. The ram tube is equipped with a vertical, hydraulically operated charge door near the kiln end.. This door is opened before the ram begins advancing to push a charge into the kiln. After the ram has fully retracted, a limit switch triggers the door to close so as to protect the ram feeder from the kiln's radiant heat. The ram is capable of operating from 0-30 cycles/hour.

The top face of the ram feeder has a 2' x 2' opening which receives waste charges from the hopper. The ram feeder isolation gate, the charge door, and the ram operate in sequence. At the beginning of a cycle, the ram is fully retracted. On a "start" command from the operator or the programmable controller, the ram feeder isolation gate opens to receive a charge of waste from the hopper. The gate then closes, the charge door opens, and the ram begins its advance. Once the ram reaches its full extension, it begins to retract. When the ram is fully retracted, the charge door is closed and the cycle can be repeated. This system's sequenced operation combined with the negative pressure in the kiln prevent fugitive emissions from escaping the kiln ram feeder system.

The ram feeder also receives containers of wastes delivered by an auxiliary feed system. The auxiliary feed conveyor is capable of handling charge weights of 1 to 100 pounds. The system is capable of handling charge sizes up to 24 inches in diameter and 24 inches tall. The auxiliary feed conveyor is capable of making 60 charges an hour or one complete cycle every minute.

2.2.1.3 Specialty Liquid Waste Feed

The Specialty Feed System associated with Incinerator No. 4 is a Direct Inject Liquid Feed System.

2.3 Manufacturer, Make and Model of the Incinerator [40 CFR § 63.1207(f)(1)(iii)(A)]

2.3.1 Combustion Chamber and Burners [40 CFR §63.1207(f)(1)(iii)(B) and (C)

Incinerator No. 4 features a two-stage combustion process. Ignition of waste material takes place in the kiln, or primary combustion chamber (PCC). A secondary combustion chamber (SCC) serves as an "after-burner" for process gases and is also permitted to incinerate high Btu liquid waste. Ignition of the waste takes place at temperatures in excess of 1600 degrees F. The secondary combustion chamber maintains a minimum temperature of approximately 1875 degrees F.

The rotary kiln is fabricated of carbon steel. It has approximate dimensions of 8'8" O.D. X 35' long. It is supported on a one-degree slope by two steel tires or riding rings. Each riding ring rides on two pairs of steel trunnions and have an approximate outside diameter of 9 feet 5 inches. The thickness and face width of the trunnions are approximately 6 inches and 9 inches, respectively. **Table 2-2** provides a summary of the incinerator design specifications.

The kiln is lined with approximately 7 ½ inches of dense abrasion-resistant high-alumina firebrick refractory. With this refractory system, the kiln has an inside diameter of approximately 7 feet and a length of approximately 35 feet, an integral cross-section area of approximately 38 square feet and an internal volume of approximately 1,346 cubic feet.

All kiln feeds will enter through the upper kiln face plate which is located on the feed end of the kiln. The plate contains a primary burner, three liquid feed nozzles (for pumpable sludge, aqueous waste, and high Btu liquid waste), a ram feeder and a surge vent.

The primary burner is equivalent to a North American 'Fuel Directed' burner of 25 MMBtu/hr. and burns No. 2 fuel oil or natural gas. The burner system is supplied with approximately 4,000 acfm combustion air at a static pressure of 20" water column (WC). The pilot for the primary burner will burn natural gas.

The fuel system for the kiln (and secondary combustion chamber) is controlled by a Factory Mutual approved burner management system complete with interlocks and safety valves.

2.3.2 Secondary Combustion Chamber (SCC)

The SCC is a vertical, cylindrical chamber having approximate dimensions of 10'-6" O.D. x 71' high. It is fabricated of carbon steel and lined with an inner course (hot face) of approximately six inches of high alumina refractory and an outer course of approximately two inches of insulating refractory. With this installed refractory, the SCC has an inside diameter of approximately nine feet. The effective length (gas retention length) of the chamber is approximately 48' - 6". Consequently, the SCC has a cross-section area of 64 square feet and an effective volume of approximately 3,084 cubic feet. At maximum combustion gas flows, the combustion gas residence time is greater than two seconds.

Combustion gases from the kiln enter the bottom of the SCC through a refractory-lined side duct and exit from the top of the SCC through a refractory-lined duct to the tempering chamber. The floor of the chamber is sloped to facilitate the removal of ash and solids through a slag tap.

The SCC is equipped with one burner mounted on the sidewall of the chamber near the bottom. The burner is a Trane Thermal Model, or equivalent, with a design heat release of approximately 30 million Btu/hr. This burner is supplied with No. 2 fuel oil or natural gas and combustion air.

As with the kiln burner, the SCC burner is supplied with atomizing air and is equipped with a burner management system. This system controls the ignition and initiates an automatic shutoff when there is a loss of flame, combustion air supply, fuel pressure, atomizing air pressure, pilot burner or ID fan.

The SCC burner is a high-intensity, vortex type unit with a spin vane assembly, located within the windbox to impart an intense rotary motion to the combustion air. This rotary motion and the burner design provide complete mixing of air and fuel, and recirculation of the gases within the combustion chamber promotes rapid combustion and high heat intensity.

2.3.3 Location of Combustion Zone Temperature Device [40 CFR §63.1207(f)(1)(xix)]

The pyrometer that monitors temperature in the rotary kiln is located top-center in the transition section between the rotary kiln and the SCC about two feet downstream from the exit of the kiln. The thermocouple that monitors temperature in the SCC is located on the west side of the chamber near the SCC exit duct.

2.3.4 Hazardous Waste Residence Time [40 CFR §63.1207(f)(1)(ix)]

The hazardous waste gas residence time for the Unit 4 Rotary Kiln Incinerator is calculated as follows:

- Rotary Kiln Volume – 1346 ft3
- Secondary Combustion Chamber Volume – 3084 ft3
- Total Volume – 4430 ft3
- Maximum Flue Gas Flowrate – 43,000 acfm (717 ft^3/sec)
- Total Combustion Zone Residence Time = (4430 ft^3)/(717 ft^3/sec) = 6.2 sec

Based on the equation $\varnothing=[(0.19L)/(NDS)]$, where:

$\varnothing$ is the residence time in minutes,

L is the kiln length in feet,

N is the rotational speed n revolutions per minute,

S is the kiln slope in feet per feet, and

D is the internal diameter in feet,

and inserting the known values for L (35), N (2), S (0.0174), and D (6.5) result in a residence time for the rotary kiln of 30 minutes.

2.3.5 Combustion System Leak

The kiln itself is equipped with a double seal system that is comprised of overlapping, adjustable, stainless steel spring plates on both the feed and discharge ends of the kiln. The sealing edges of each plate are fitted with a sintered-metal wear shoe similar to a brake shoe with the inner seal resting on the kiln shell. The powdered metal formulation for the seal shoes include graphite granules, which make the shoes self-lubricating. The void between the seals and the outer shell of the kiln is pressurized to further prevent fugitive emissions. In addition to the kiln seal system, Unit 4 also utilizes an induced draft fan that maintains a vacuum of – 0.5 to – 1.0 inches water column while waste is being fired into the system.

2.3.6 Emergency Safety Vent

Unit 4 is equipped with two emergency vents, one located at the kiln inlet which acts as an emergency pressure relief, the second is located at the top of the SCC as a thermal relief vent.

The emergency vent at the kiln inlet would only be required for an occurrence that overwhelms the ability of the ID fan to control the pressure of the kiln. The vent and chute opening is designed such that waste from the bulk solids chute would not impede the escaping gas flow. A deflector separates the feed flow from the vent opening. The entrainment of solids through the surge vent is minimal. As an extra precaution, the exhaust opening of the vent is angled to provide a horizontal exit, thereby minimizing solids entrainment into the air. The vent is kept closed by weighted louvers. These louvers will open only if the pressure in the kiln suddenly rises beyond the compensating capacity of the ID fan. A limit switch on the louvers will automatically shutoff all waste feeds to the kiln and SCC when the vent is opened.

The incinerator is also equipped with an emergency safety vent (ESV) located at the top of the secondary combustion chamber. This ESV is a refractory-lined emergency thermal relief vent (TRV) which is held in the closed position by a pneumatic cylinder. The control valve in the line supplying air to the cylinder and the cylinder vent valve which opens the TRV are located in the control room for each unit. Valve locks (with keys attached) are utilized to deter indiscriminate operation of these valves. Opening of the TRV allows hot combustion gas to vent from the combustion system during emergency shutdown events. The purpose of the TRV is to protect the downstream APCS from excessive temperature situations. A limit switch on the TRV shuts off all waste feeds to the system as it senses that the cap is opening.

2.4 Procedures for Rapidly Stopping Hazardous Waste Feed During Equipment Malfunction [40 CFR §63.1207(f)(1)(viii)]

Equipment malfunctions are identified by the control system, observation of process control variables, or by regular field inspections.

In the event of a minor equipment malfunction (e.g. waste feed or scrubber leaks), the control room operator will be notified. The control room operator will then close the waste feed valves and disable the waste feed pumps.

In the event of major equipment malfunction (e.g. fire), the emergency stop button located in the control room will be pushed. If this button is pushed all equipment will switch to its fail-safe position.

2.5 Air Pollution Control Equipment [40 CFR §63.1207(f)(1)(iii)(G)]

2.5.1 Air Pollution Control Systems Descriptions

The air pollution control system consists of a tempering chamber, two spray dryer absorbers, and fabric filter baghouse modules. The air pollution control system neutralizes acidic compounds and removes particulate from the exhaust gas. Two subsystems, the spray dryer absorber and the fabric filter, carry out the chemical neutralization and particulate removal functions, respectively. A third subsystem, the lime system, is used to prepare and provide lime slurry to the spray dryer absorber for use in the chemical neutralization process. The induced draft fan and stack provide the mechanical energy required to transport the flue gas through the interconnecting ductwork, to its eventual discharge point to atmosphere.

2.5.1.1 Tempering Chamber

The tempering chamber is a vertical, cylindrical unit designed to cool the combustion gases using a series of internal dual-fluid (water and air) spray nozzles. The combustion gases enter the top of the chamber, flow downward through the spray pattern and exit from the bottom of the chamber. The spray pattern is designed to eliminate direct contact of water with refractory, and the chamber is designed to maintain a dry bottom under all operating conditions. That is, the injection rate of spray water is controlled so that it is completely vaporized and carried out of the chamber in the combustion gases. The tempering chamber is approximately 49' high with 11' I.D. and is fabricated of ¼ inch nominal plate thickness carbon steel (ASTM A36) and lined with refractory. The spray nozzles and extensions are fabricated of 304 SS material.

The tempering chamber is sized so that a combustion gas retention time of greater than one second will be maintained at all gas flows. Because some molten-particulate materials in the combustion gases are cooled in this process unit to below their fusion point, some solids are generated and collected in the chamber. Therefore, the chamber has a cone bottom and a slide gate to facilitate the removal of solids. These solids are discharged onto a conveyor system, which transports them to a hopper.

2.5.1.2 Lime System

The lime system prepares lime slurry for use in the chemical neutralization process in sufficient supply and concentration to maintain continuous flue gas treatment in the spray dryer absorber. The system has been designed for batch mixing to provide this service. Veolia utilizes hydrated lime as its neutralizing agent in the air pollution control systems. The key neutralization parameter of the hydrated lime is the "CaO Equivalent." **Figure 2-1** is the specification sheet for the hydrated lime that Veolia uses. Veolia has used this specific product for over 20 years and plans to continue with its use. Although if Veolia does change suppliers or type of lime in the future, it would have a "CaO Equivalent" specification equal to or greater than the 72.6% shown on **Figure 2-1**.

Hydrated lime is stored in a storage bin above the lime preparation area. The storage bin is sized to hold enough hydrated lime to maintain several days of system operation at the maximum combustion rate of the incinerator. Lime is discharged through the conical storage bin bottom. The flow of the material from the bin is aided by a vibrating "live bottom," or bin activator. A variable speed screw feeder is used to meter the hydrated lime in the proportions required for batch mixing lime slurry. The lime is mixed with water in a tank beneath the lime storage bin. The screw feeder speed and the rate that water is added to the lime slurry tank are variable so that the desired lime solids concentration can be achieved in the tank. The variable feed adjustments allow water and lime to be added to the lime slurry tank at a rate that will allow a batch mode of mixing. An agitator is provided in the slurry tank to mix the water and lime and to maintain the suspension of lime solids. The mixed lime slurry is pumped at a continuous rate of flow through a recirculation loop to the SDA nozzles.

2.5.1.3 Spray Dry Absorber

Unit 4 is equipped with two Spray Dryer Absorbers (SDA) located immediately downstream of the Tempering Chamber. Each SDA unit is fabricated of 3/8 inch carbon steel. The function of the SDAs is to:

- Further cool the combustion gases from 600-800°F to 300-500°F,
- Neutralize and remove HCl and other acids from the combustion gases,
- Remove a portion of the particulate (fly ash) from these gases.

Slurry flow to each spray dryer absorber (SDA) is metered by a flow control valve to obtain the proper feed concentration to the spray dryer absorber. Manual adjustment to the flow is made as a function of the SDA outlet temperature and as a function of the output from a hydrochloric acid (HCl) analyzer in the gas duct downstream of the fabric filter.

The combined units are sized to remove more than 820 lb/hr. of chlorine from the combustion gases. Each SDA is approximately 72' high by 10'7" in diameter. Each unit includes a head section, and a 60° conical hopper. Each SDA chamber has one access door in the upper section. Each hopper has one access door, a flanged clean-out port, and a drain connection. The SDA head section consists of a flanged inlet connection and a hot gas inlet plenum. The dual-fluid atomizing nozzles include stainless steel housings and stellited inserts. The nozzles are assembled to permit field removal from the piping. The two lime slurry piping headers have automatic isolation valves.

Combustion gases enter the top of each of these units, flow downward through a central duct and are dispersed symmetrically from this duct into the absorber chamber at a velocity and direction that assures optimal contact with the cloud of atomized lime slurry droplets introduced into the chamber by dual-fluid (lime slurry and air) nozzles. The gases then flow downward through each absorber chamber and exit through a bottom side duct. As the gases contact and pass through the cloud of atomized lime slurry, the water in the slurry evaporates, cooling the gases. Simultaneously, the lime in the slurry reacts with the hydrogen chloride in the gases to produce calcium salts. Some of the resulting dry material, consisting of calcium salts, fly ash and excess lime, falls to the conical bottom of each unit. The dry material from each unit is discharged to a conveyor system which transports it to a dump trailer or equivalent type system.

2.5.1.4 Fabric Filter

Gas exhausted from the spray dryer absorbers is distributed to two fabric filter modules connected in parallel. Each module is divided into three compartments connected in parallel, which contain multiple fabric filter bags through which the combustion gases pass to remove particulates. Within each compartment, the gas is passed through Teflon-coated fiberglass cloth bags. The gas passes from the outside to the inside of the filter bags. Particulate entrained in the gas stream is mechanically deposited on the outside of the filter bags as the gas passes through the cloth.

Each compartment has a clean air plenum and housing section to contain approximately 308 bags. Each bag is approximately 5" in diameter by 5' long. The baghouses are fabricated from 3/16" mild steel plate, of welded construction, gas tight and stiffened to withstand the maximum operating negative pressure. Each compartment has a tube sheet that supports the bags and provides for top bag/cage removal. Access to the clean air plenum is via a bolted access door. Each trailer mounted unit contains the compressed air headers, gas inlet and outlet manifolds, and the conveyor.

The fabric filter cleaning mechanism utilizes jets of air to clean the filter bags. Periodically, the cleaning sequence will be initiated. The sequence is started when the differential pressure across the filter reaches a predetermined setpoint of approximately 8.0" w.c. or when the operator initiates a cycle. The controller then sequences to each row of filter bags in each module, releasing a burst of air opposite to the direction of gas flow. The quickly released burst of air dislodges dust cake on the exterior of each bag as it travels from the top to the bottom of the bags. Released from the bag, the dust cake falls by gravity into the hopper at the bottom of the module. From there it is discharged to a conveyor system which transports it to a dump trailer, or equivalent type system.

Treated by the spray dryer absorbers and filtered by the fabric filters, the cleaned flue gas exits the fabric filter compartments to an outlet manifold for exhaust.

2.5.1.5 Carbon Injection

The carbon injection system will air inject activated carbon into the plenum immediately upstream of the baghouses and allow for a more efficient means of controlling Dioxin/Furan and mercury emissions. This system will be controlled by an existing PLC which will control the input of activated carbon to the baghouse inlet plenum. 2 to 20 pounds per hour of powdered activated carbon will be air injected into this plenum and allow for direct contact with the stack gases exiting the SDA's. The key adsorption parameter for the carbon is the Iodine Number. **Figure 2-2** is the specification sheet for the powder activated carbon that Veolia uses. Veolia has used this specific product since the start-up of the carbon injection system and plans to continue with its use. Although, if Veolia does change suppliers or type of powder activated carbon in the future, it would have an Iodine Number specification equal to or greater than the 500 mg/g shown in **Figure 2-2.**

The amount of carbon is dosed in a dust-free manner into a low pressure air stream via pneumatic eduction. The eductor uses a blower for the motive air. High and low air pressure switches ensure that the blower is operating correctly and that the carbon delivery system is clear from obstruction. The minimum high pressure setting is 4 psig and the maximum low pressure setting is 1 inch water column. The carbon/air stream will then travel through piping to the injection nozzle into the ductwork. The carbon will contact the gas stream exiting the SDA's and allow for the adsorption of any dioxin/furans and mercury that might be present in this stream. Adsorption will continue as the stack gases proceed through the baghouses. The clean stack gas will exit the final stack via the induced draft fan and the captured solids will be discharged from the baghouses via the screw conveying system into an enclosed dump trailer for disposal at a Subtitle C landfill.

2.5.1.6 Induced Draft Fan and Stack

The induced draft fan and stack are located downstream of the fabric filter. Combustion gases are drawn through the system by a 400 hp induced draft (ID) fan, rated at 53,000 acfm at 400° F saturated, and 25" water column pressure. The induced draft fan provides the mechanism for transporting the incinerator flue gas through the spray dryer absorber, fabric filter, and all interconnecting ducts. The ID fan includes an inlet volume control damper to be used to control the velocity of the gas within the ducting and treatment devices.

Treated gases are exhausted from the induced draft fan to the atmosphere through a 100-ft. high stack. The stack diameter for Unit 4 is 48 inches I.D. The stack is equipped with instrument sampling ports and a sampling platform for emissions testing. **Figure 4-1** provides details on the design and sample port locations and configurations for the stack.

2.6 Stack Emissions Monitoring [40 CFR §63.1207(f)(1)(iii)(H)]

The continuous emissions monitoring system (CEMS) consists of sample probes, sample delivery and conditioning apparatus, and gas analyzers. Samples are extracted from the transition ducting located between the ID fan and the stack. A CEM performance test and quality assurance program has been implemented in accordance with the **Appendix to Subpart EEE of Part 63—Quality Assurance Procedures for Continuous Emissions Monitors Used for Hazardous Waste Combustors.**

Responses from each CEMS are fed to the Control System (CS) where the CO hourly rolling average is calculated and interlocked to the waste feed cutoff valves as part of the Automatic Waste Feed Cutoff System (AWFCO) discussed in Section 2.8, below. The following provides a brief description of the CEMS instruments including the operating range and measurement principal.

2.6.1 CEM System Description

The Continuous Emissions Monitoring Systems (CEMS) currently being utilized at Incinerator 4 analyzes for opacity, carbon monoxide, hydrogen chloride, total hydrocarbons and oxygen. These monitors, except opacity, are extractive devices mounted in the ductwork between the ID fan and the stack. The table below summarizes the analyzer specifications.

The opacity monitor continuously measures the stack gas opacity and reports the measurements to an indicator and a recorder. An opacity that exceeds a preset limit triggers an alarm and interlock.

Carbon monoxide and hydrogen chloride are monitored with extractive non-disperse infrared analyzers. Total hydrocarbon is monitored with an extractive flame ion detector analyzer. Oxygen is monitored with a zirconium oxide cell.

Stack gas flow rate is continuously monitored using an anubar that sends a 4-20 mA signal to the PLC that converts the signal to acfm.

Table 2-1 Veolia ES Technical Solutions - Continuous Emissions Monitors

Parameter	Current Mfg.	Range	Principle
Oxygen	COSA	0-25%	Electrochemical
Carbon Monoxide	Echochem MC 3	0-200 ppmv 0-3000 ppmv	Infrared
Total hydrocarbons	Thermoelectron	0-100 ppmv	FID/Infrared
Hydrogen chloride	Echochem MC 3	0-1000 ppmv	Infrared
Opacity	Teledyne	0-100%	White light
Stack gas flow	PSE/Rosemount	0-55,000 acfm	Pressure drop

2.7 Process Monitoring and Control

The facility is equipped with a state-of-the-art monitoring and control system, which facilitates compliance with permit conditions, and otherwise, collects process control information, facilitates efficient operation and detects and prevents damage to the facility. The system consists of three major components:

- A human–machine interface (HMI) system,
- Programmable logic controller's (PLC's), and
- A high speed ethernet cable connects all control system components

The desired control functions are implemented through the HMI system. All digital control and emergency interlocks are accomplished by the PLC.

The control system is capable of monitoring the "operational envelope" of the incinerator and is capable of performing a number of activities including:

- Control room indication of processor sensors located within the incinerator system (such as pressure indication of a field installed pressure transmitter);

- Process controller for single instrument loops or an individual sub-system, such as a temperature control loop involving a sensor reading from one temperature transmitter affecting the function of one temperature control valve; and
- Alarm for an exceedance of a designated setpoint, such as a high pressure or low temperature.

The process control computer will continuously control and monitor the operation of the incinerator. When out-of-range conditions exist, it will notify the operator of those conditions. The process control computer is programmed to shut-down equipment (i.e., bring the system into a safe mode) when designated parameters are exceeded, which is a protective mechanism against potential equipment damage, operation outside of permit limits, or conditions that might lead to a release to the environment..

Continuous monitoring of the incinerator and scrubber system is an important aspect of the system design. A digital readout of all monitoring instrumentation is displayed on the main control screen. An audible and visual alarm alerts the incinerator operator to significant deviations from normal operating conditions. This system allows an immediate response to adverse conditions by the operator. Automatic waste feed cut-off and incineration shutdown mechanisms are also interlocked with the monitoring system at or prior to reaching permit limit levels. Monitoring methods and calibration frequencies are listed in **Table 2-3**.

The Incinerator has an independent process control computer that interfaces to the Allen-Bradley programmable controllers. The process computer is capable of controlling the incinerator in case of a failure in a HMI server. This computer runs a RSVIEW HMI control software that provides operator interface to all instrumentation and controls.

2.8 Automatic Waste Feed Cut-off System [40 CFR §63.1207(f)(1)(iii)(F)]

The incinerator has an Automatic Waste Feed Cut-Off (AWFCO) System that will shut waste feeds off in the event certain operating parameters deviate from allowable set points. The PLC continuously monitors operating parameters, making adjustments to the process as needed for proper control. Alarm logic is incorporated into the PLC system to automatically initiate an AWFCO. **Table 2-3** summarizes the current AWFCO set points. AWFCO limits have been established based on several factors that are summarized below.

- Regulatory/permit limits – established to comply with existing permits. An example of this type of limit is the low temperature limit, below which waste cannot be fed until the proper limit is re-established. In addition, the HWC MACT regulations require that the AWFCO system be interlocked with the span of each process instrument that is part of the Continuous Monitoring System (CMS). A listing of these CMS instruments and their interlocked span setpoints is maintained as part of Veolia's Operating Record.
- Process safety limits – established to assure process equipment is protected and unsafe operating conditions do not occur. An example of this is inadequate excess air in the combustion chamber that can lead to fuel rich conditions.
- Utility or Power failure – established to facilitate a controlled shutdown of the process during loss of process air, steam, water or electricity. An example of this is the loss of instrument air that is necessary for certain types of process instruments to function properly. Wastes will not be re-introduced into the incinerators until proper operation of key instruments is re-established.

In addition to the AWFCO system, operators can manually shutdown waste feeds or the entire process should this be needed.

2.8.1 AWFCO System Testing

Veolia tests the AWFCO systems bi-weekly, as weekly testing would unduly interfere with operations by ceasing and restarting waste feeds, potentially increasing emissions, incurring excessive downtime, burning additional natural gas during the downtime, and increasing operating costs. Testing of the AWFCO system is a time-consuming and manpower intensive process. The current testing program has been in place under the RCRA permit for over 20 years and has proven to be adequate in detecting problems. This rationale is included in the facility's AWFCO Plan. In some cases this testing occurs more frequently depending on how often actual AWFCOs occur at the unit. Per the required frequency, incinerator personnel check the functionality of AWFCO logic that is part of the incinerator's PLC system to make sure that should process conditions deviate from allowable limits, the computer logic will initiate waste feed shutdowns as required. This is accomplished by manually simulating process conditions that are outside allowable limits and observing and documenting when the control or block valve software logic on the waste feed line begins to initiate valve closure. Should actual AWFCOs occur during a given testing period, these are documented by operating personnel to satisfy regulatory requirements for system testing. Results of this testing are documented on a separate AWFCO Testing Log and maintained as part of the unit's Operating Record.

2.9 Air Pollution Control Equipment Maintenance Practices [40 CFR §63.1207(f)(1)(iii)(G)]

2.9.1 Program Overview

Once equipment is installed and operational, Veolia utilizes an extensive preventative maintenance (PM) program to keep equipment operational and prevent breakdowns and failures. Based upon the type of equipment and historical operations and maintenance experience, schedules for various inspection and PM activities are followed. This includes aspects such as documenting detailed maintenance histories on equipment, routine inspection and lubrication programs for high wear equipment and non-destructive testing of piping and vessels using techniques like ultrasound to assess integrity. The frequency of these activities varies depending upon the equipment, PM activity and the incinerator's shutdown schedule.

For example, frequent (i.e., weekly) instrument and certain mechanical equipment checks are made for critical process items. Lubrication, vibration analysis and other mechanical integrity checks are done at longer frequencies like monthly or quarterly. Finally, such items as inspecting refractory brick for wear, are typically performed when the entire incinerator is shut down for maintenance.

2.9.2 Test Program Preparation Activities

Prior to testing, instrumentation associated with key parameters of the test were checked, calibrated, replaced, as appropriate, to ensure proper operation of the instrumentation during testing (i.e., waste feed flowmeters and scales, CEMS, pressure transmitters, thermocouples and pyrometers, stack flowmeters, etc.).

Table 2-2 Technical Information Summary on Incineration No. 4

Manufacturer	Trade Waste Incineration	
Model No.	TWI-2000, Series 2	
Type	Rotary Kiln	
Date of Manufacture	1989	
Dimensions	Primary Chamber	Secondary Chamber
External Length	35'	48'6"
External Diameter	8'8"	10'6"
Internal Diameter	7'	9'
Cross-sectional area	38 square feet	64 square feet
Burners	Primary Chamber Burner	Secondary Chamber Burner
Manufacturer	North American	Trane Thermal
Size	12.0 Million Btu/hr	30 Million Btu/hr
Fuel	Natural Gas	Natural Gas
Primer Mover	Induced Draft Fan 4,000 acfm @ 400°F saturated, 20 in. water column	

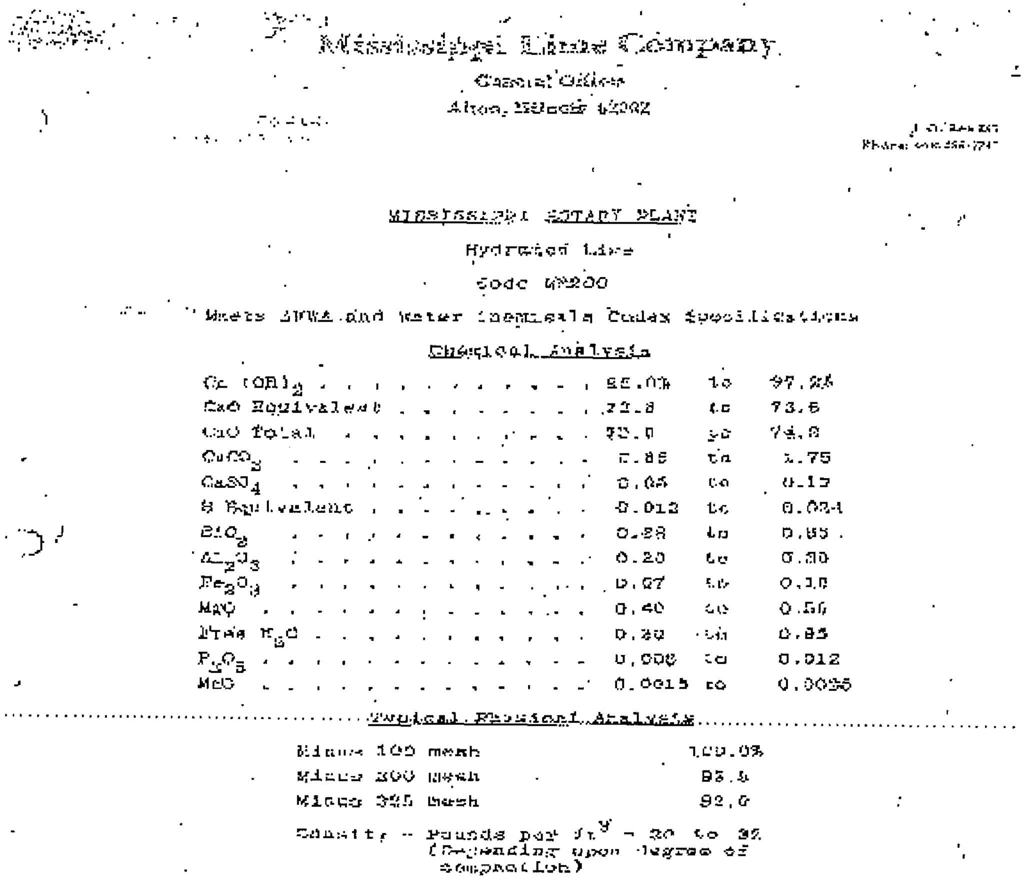
Table 2-3 Current AWFCO Parameters and Limits for Incinerator No. 4

System	Device	Units	Cutoff Limits	Calibration Frequency
Primary Combustion Chamber Temperature	Pyrometer	°F	≤1,240 (one-minute average) [2] <1,507 (HRA[1]) ≥2,400 (instantaneous) [2]	Annually
Secondary Combustion Chamber Temperature	Type K Thermocouple	°F	≤1,825 (one-minute average) [2] <1,886 (HRA[1]) ≥2,400 (instantaneous) [2]	Annually
Primary Combustion Chamber pressure	Pressure transmitter	in. w.c.	≥ atmospheric (instantaneous)	Quarterly
Secondary Combustion Chamber pressure	Pressure transmitter	in. w.c.	≥ atmospheric (instantaneous)	Quarterly
Spray Dryer Adsorber Inlet Temperature	Type K Thermocouple	°F	≥ 1,200 (one minute average) [2]	Annually
Spray Dryer Adsorber Outlet Temperature	Type K Thermocouple	°F	≥ 500 (one minute average) [2] >434 (HRA)	Annually
Total Pumpable Waste Feedrate	Mass flow meter/scales	lb/hr	PCC - >2258 (HRA) SCC - >1098 (HRA)	Annually
Total Waste Feedrate	Mass flow meter/scales	lb/hr	>14,252 (HRA)	Annually/ Quarterly
LVM Feedrate	Mass flow meter/scales	lb/hr	Pumpable - >47 Total - > 50	Annually/ Quarterly
SVM Feedrate	Mass flow meter/scales	lb/hr	> 64 (12 HRA)	Annually/ Quarterly
Mercury Feedrate	Mass flow meter/scales	lb/hr	> 0.028 (12 HRA)	Annually/ Quarterly
Chlorine Feedrate	Mass flow meter/scales	lb/hr	>252 (12 HRA)	Annually/ Quarterly
Ash Feedrate	Mass flow meter/scales	lb/hr	>5,777 (12 HRA)	Annually/ Quarterly
Carbon Feedrate	Mass flow meter	lb/hr	>0.2 (HRA)	Quarterly
Carbon Injection System Maximum Low Pressure	Pressure Switch	in. w.c.	>1	Quarterly
Carbon Injection System Minimum High Pressure	Pressure Switch	psig	<4	Quarterly
Combustion Gas Flow Rate	Anuber	acfm	≥ 38,066 (HRA)	Annually
Stack Gas Excess Oxygen	Zirconium Oxide fuel cell	%	≤ 3 (one minute average) [2]	Quarterly
Stack carbon monoxide	Infrared	ppmv	≥100 (HRA) ≥500 (one minute average) [2]	Quarterly
Stack Hydrocarbon	FID	ppmv	≥10 (one minute average) [2]	Quarterly
Stack gas opacity	White Light	%	≥10 (one minute average) [2]	Quarterly
Stack hydrogen chloride[2]	Infrared	ppmv	≥ 35 (HRA) [2] ≥500 (one minute average) [2]	Quarterly
Liquid feedrate	Mass flow meter	lb/hr	≥ 1,700 [2]	Annually
Sludge feedrate	Mass flow meter	lb/hr	≥ 1,100 [2]	Annually
Drummed and Bulk Solids Feedrate	Scale	lb/hr	≥ 15,000 [2]	Quarterly
Fabric filter pressure drop	Delta P transmitter	In. w.c.	≤ 2 or ≥ 10 (one minute average) [2]	Quarterly
Min. Sorbent Feedrate	Density Transducer	lb/lb Cl_2	<1.01	
Min. Carrier Fluid Flowrate	Flowmeter	gal/lb Cl_2	<1.81	Annually

[1] HRA means "hourly rolling average" as calculated by averaging the previous 60 one-minute average values.

[2] This is a RCRA permit limit only

Figure 2-1 Hydrated Lime Specifications



Mississippi Lime Company

General Offices

Alton, Illinois 62002

MISSISSIPPI ROTARY PLANT

Hydrated Lime

Code WP200

Meets AWWA and Water Chemicals Codex Specifications

Chemical Analysis

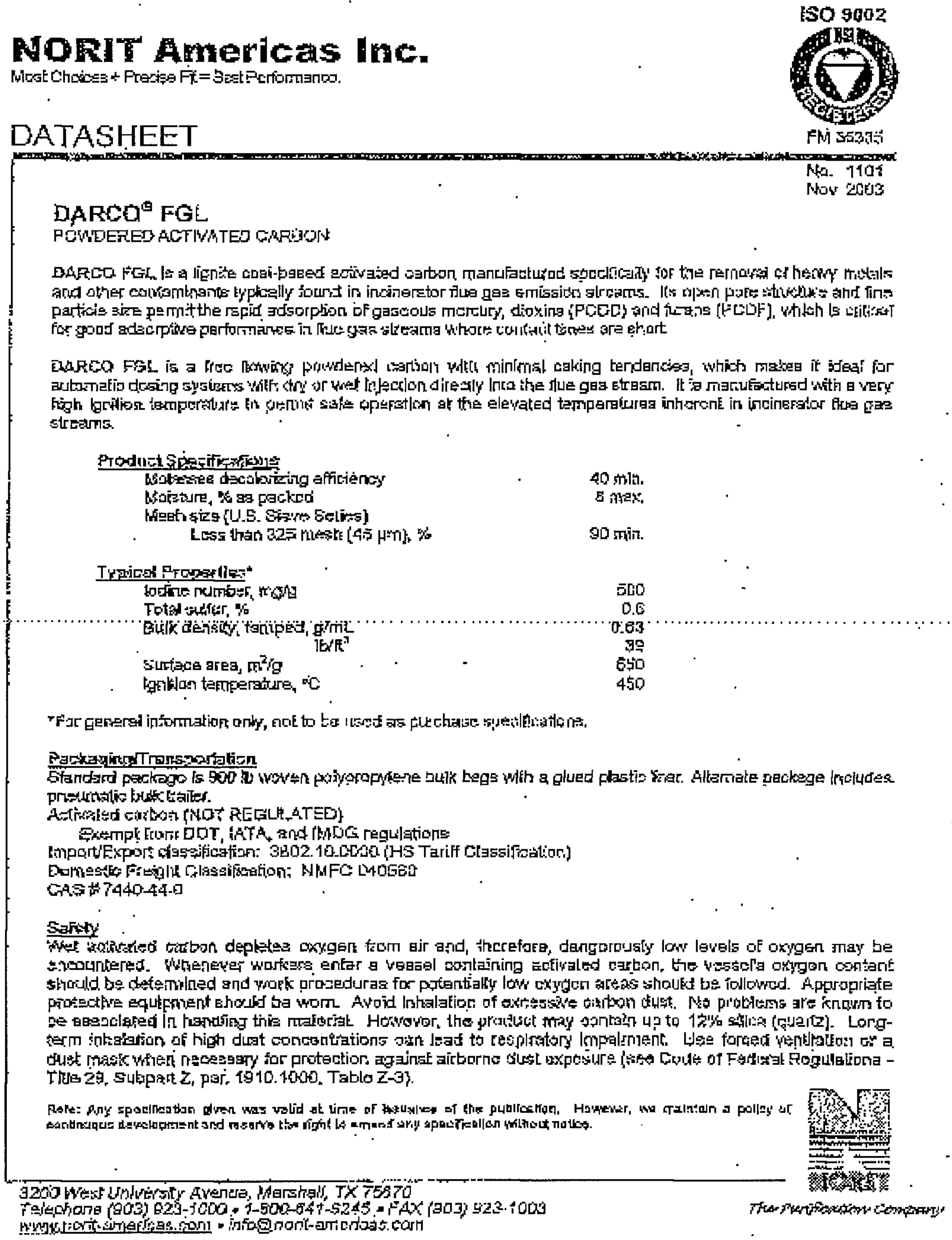
$Ca(OH)_2$	95.0%	to	97.2%
CaO Equivalent	72.8	to	73.6
CaO Total	73.0	to	74.0
$CaCO_3$	0.85	to	1.75
$CaSO_4$	0.05	to	0.15
S Equivalent	0.012	to	0.034
SiO_2	0.28	to	0.85
Al_2O_3	0.20	to	0.30
Fe_2O_3	0.07	to	0.10
MgO	0.40	to	0.56
Free H_2O	0.20	to	0.85
P_2O_5	0.008	to	0.012
MnO	0.0015	to	0.0035

Typical Physical Analysis

Minus 100 mesh	100.0%
Minus 200 mesh	93.5
Minus 325 mesh	92.0

Density -- Pounds per ft^3 - 20 to 32
(Depending upon degree of compaction)

Figure 2-2 Carbon Specification Sheet



NORIT Americas Inc.
Most Choices + Precise Fit = Best Performance.

ISO 9002
FM 35335

DATASHEET

No. 1101
Nov 2003

DARCO® FGL
POWDERED ACTIVATED CARBON

DARCO FGL is a lignite coal-based activated carbon manufactured specifically for the removal of heavy metals and other contaminants typically found in incinerator flue gas emission streams. Its open pore structure and fine particle size permit the rapid adsorption of gaseous mercury, dioxins (PCDD) and furans (PCDF), which is critical for good adsorptive performance in flue gas streams where contact times are short.

DARCO FGL is a free flowing powdered carbon with minimal caking tendencies, which makes it ideal for automatic dosing systems with dry or wet injection directly into the flue gas stream. It is manufactured with a very high ignition temperature to permit safe operation at the elevated temperatures inherent in incinerator flue gas streams.

Product Specifications	
Molasses decolorizing efficiency	40 min.
Moisture, % as packed	8 max.
Mesh size (U.S. Sieve Series)	
Less than 325 mesh (45 μm), %	90 min.
Typical Properties*	
Iodine number, mg/g	500
Total sulfur, %	0.6
Bulk density, tamped, g/mL	0.63
lb/ft³	39
Surface area, m²/g	650
Ignition temperature, °C	450

*For general information only, not to be used as purchase specifications.

Packaging/Transportation
Standard package is 900 lb woven polypropylene bulk bags with a glued plastic liner. Alternate package includes pneumatic bulk trailer.
Activated carbon (NOT REGULATED)
Exempt from DOT, IATA, and IMDG regulations
Import/Export classification: 3802.10.0000 (HS Tariff Classification)
Domestic Freight Classification: NMFC 040560
CAS # 7440-44-0

Safety
Wet activated carbon depletes oxygen from air and, therefore, dangerously low levels of oxygen may be encountered. Whenever workers enter a vessel containing activated carbon, the vessel's oxygen content should be determined and work procedures for potentially low oxygen areas should be followed. Appropriate protective equipment should be worn. Avoid inhalation of excessive carbon dust. No problems are known to be associated in handling this material. However, the product may contain up to 12% silica (quartz). Long-term inhalation of high dust concentrations can lead to respiratory impairment. Use forced ventilation or a dust mask when necessary for protection against airborne dust exposure (see Code of Federal Regulations – Title 29, Subpart Z, par. 1910.1000, Table Z-3).

Note: Any specification given was valid at time of issuance of the publication. However, we maintain a policy of continuous development and reserve the right to amend any specification without notice.

3200 West University Avenue, Marshall, TX 75670
Telephone (903) 923-1000 • 1-800-641-9245 • FAX (903) 923-1003
www.norit-americas.com • info@norit-americas.com

The Purification Company

CMS Performance Evaluation

Unit 2

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: WT
LOOP: 204
DESCRIPON: WEIGHT TRANSMITTER
SERVICE: SPECIALTY FEEDER
LOCATION:
LP-SHT:
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: TOLEDO
MODEL: 8140 EXP
SCALE: 0-4,000 #
CALIB-IN: 0-4,000 #
CALIB-OUT: 4-20 MADC
PROCESS-SP: 0#=819 cts
INST-SP: 200#=983 cts
ACTION: 1#=.819 cts
I/O NUMBER: 30052

CALIBRATION NOTES

Check scale, digital Calibration per. Toledo instructions. Then with no weight on scale adjust analog zero. (NOTE: HMI will not display numbers less than zero). Next add weight = to 10% are more of scales range, then adjust analog span, to indicate weight on scale, as read on HMI screen.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0	*Before Calibration*	0
150		151
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed

Performed by: Date: 10-19-09 Time: 2:00 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: WT
LOOP: 210
DESCRIPON: WEIGHT TRANSMITTER
SERVICE: SOLID CHARG CONV.
LOCATION: FIELD
LP-SHT:
P&ID: 3031
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: TOLEDO
MODEL: 8140
SCALE: 0-400 #
CALIB-IN: 0-400 #
CALIB-OUT: 4-20 MADC
PROCESS-SP: 0#=819 cts
INST-SP: 200#=2457 cts
ACTION: 1#=8.19 cts
I/O NUMBER: 30070

CALIBRATION NOTES

Check scale, digital Calibration per. Toledo instructions. Then with no weight on scale adjust analog zero. (NOTE: HMI will not display numbers less than zero). Next add weight = to 10% are more of scales range, then adjust analog span; to indicate weight on scale, as read on HMI screen.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0	*Before Calibration*	0
50		50.2
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 10-19-09 Time: 2:15 AM [✓ PM]

Place:
([✓ Field] or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: PDT
LOOP: 250
DESCRIPON: PRESSURE DIFF. TRANSMITTE
SERVICE: BAGHOUSE INLET/OUTLET
LOCATION: FIELD
LP-SHT:
P&ID: 2035
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: YOKOGAWA
MODEL:
SCALE: 0-15 in wc
CALIB-IN:
CALIB-OUT: 4-20 MA
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0" W.C.	Before Calibration	4.01 mA
15" W.C.		19.93 mA
0	After Calibration	4.0 mA
15		20.0 mA

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Date: 10-22-09 Time: 1:45 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: PT
LOOP: 200
DESCRIPON: PRESSURE TRANSMITTER
SERVICE: LOW CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 2032
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT:
MODEL:
SCALE: -7.5 to +2.5 in. wc.
CALIB-IN:
CALIB-OUT: 4-20 MA
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Connect transmitter to be calibrated to pressure source and calibrated reference (Manometer), input appropriate pressure and verify with current meter.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
~~0~~ -7.5" W.C.	*Before Calibration*	4.0 mA
2.5" W.C.		20.09 mA
-7.5"	*After Calibration*	4.0 mA
2.5"		20.0 mA

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Date: 10-22-09 Time: 2:00 AM [✓ PM]

Place:
(Field or [✓ Shop])

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: PT
LOOP: 219
DESCRIPON: PRESSURE TRANSMITTER
SERVICE: UPPER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 3033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT:
MODEL:
SCALE: -7.5 to +2.5 in. wc.
CALIB-IN:
CALIB-OUT: 4-20 MA
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Connect transmitter to be calibrated to pressure source and calibrated reference (Manometer), input appropriate pressure and verify with current meter.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
-7.5" W.C.	*Before Calibration*	4.07mA
2.5" W.C.		20.0mA
-7.5"	*After Calibration*	4.0mA
2.5"		20.0mA

CALIBRATION SOURCE REFERENCE

Comments: ____________________

Performed by: ____ Date: 10-22-09 Time: 2:15 AM [✓ PM]

JB
CALSHEET.WDB

Place: ____________
(Field or [✓ Shop])

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: AT
LOOP: 289
DESCRIPON: OXYGEN
SERVICE: STACK GAS ANALYZER
LOCATION: STACK
LP-SHT:
P&ID: 2035
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: COSA
MODEL:
SCALE: 0-25%
CALIB-IN: 0-25%
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Flow calibration gas at 2-3 psig and 3 scfh

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
3.0	*Before Calibration*	3.2
21.25		20.9
3.0	*After Calibration*	3.0
21.25		21.3

CALIBRATION SOURCE REFERENCE

ZERO GAS CYL #: CC 179533
SPAN GAS CYL #: SA 18369

Comments:

Performed by: David O'B Date: 10-9-09 Time: 10:00 [✓ AM] PM

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: AT
LOOP: 288B
DESCRIPON: HC
SERVICE: STACK GAS ANALYZER
LOCATION: STACK
LP-SHT: 556
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N: 630 On MCS 100

MANUFACT: Thermo Elec.co.
MODEL: 51C
SCALE: 0-100 PPM
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

1) Open sample gas bottle valves.
2) Press MENU Button
3) Press CALIBRATION
4) Press ZERO ADJUST
5) Press SPAN ADJUST after 4)finished
6) Press RUN after 5)finished
7) Close sample gas bottles.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr.

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		0
75.1		75.1
	After Calibration	

CALIBRATION SOURCE REFERENCE

GAS CYL #:

Comments:

Performed by Chuck Edwards Date: 10-9-09 Time: 8:30 [✓ AM] PM

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
QUARTERLY

TAG: AT
LOOP: 288B
DESCRIPON: OPACITY
SERVICE: STACK GAS
LOCATION: STACK
LP-SHT:
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS: 2.00 to 5.70ma
S/N:

MANUFACT: TELEDYNE INST.
MODEL: LightHawk 560DI
SCALE: 0-100%
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Clean windows

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: Calibrated Per Manufacturers guidelines.

Performed by: Chuck Edwards Date: 10-9-09 Time: 9:30 [✓ AM] PM

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: TT
LOOP: 200A
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: LOWER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 2032
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: B883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500° F		501°
2000° F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: B. T. B Date: 11-10-09 Time: 2:25 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: TT
LOOP: 200B
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: LOWER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 2032
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: B883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
500° F	*Before Calibration*	500°
2000° F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:30 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: TT
LOOP: 219A
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: UPPER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 2033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL:
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
500° F	*Before Calibration*	500°
2000° F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:30 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: TT
LOOP: 219B
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: UPPER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 2033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL:
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
500° F	*Before Calibration*	500°
2000° F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed

Performed by: B T Bell Date: 11-10-09 Time: 2:30 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: TT
LOOP: 223
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: SDA INLET
LOCATION: FIELD
LP-SHT:
P&ID: 2033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL:
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		~~INSTRUMENT READING~~
	Before Calibration	
500° F		501°
2000° F		2001°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:35 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: TT
LOOP: 270
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: SDA OUTLET
LOCATION: FIELD
LP-SHT:
P&ID: 2034
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL:
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions. Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500°F		500°
2000°F		1998°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed

Performed by: Date: 11-10-09 Time: 2:35 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: FT
LOOP: 283
DESCRIPON: STACK FLOW TRANSMITTER
SERVICE: STACK
LOCATION: FIELD
LP-SHT:
P&ID: 2035
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: Rosemount
MODEL:
SCALE: 0-20,000 ACFM
CALIB-IN: 0-.5"WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP: Set Damp/pot to mid point
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH INCLINE MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0" W.C	*Before Calibration*	3.83 mA
.5" W.C		19.86 mA
0"	*After Calibration*	4.0 mA
.5"		20.0 mA

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Date: 12-3-09 Time: 10:45 [✓ AM] PM

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: FT
LOOP: 215
DESCRIPON: FLOW TRANSMITTER
SERVICE: HIGH BTU
LOCATION: FLD
LP-SHT:
P&ID: 2031
REMARKS: Changed Range 11/12/96
INSTL-RMKS: SENSITIVITY 5.58
SPEC-RMKS: SW 1,2,3,4, OFF
S/N: 97193

MANUFACT: MICRO MOTION
MODEL: D 40S-SS
SCALE: 0-3600 lb/hr
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
10 lbs. per min. for		9.95 lbs.
1 min.		
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: BB/BA
Date: 11-19-09 Time: 2:30 AM [✓ PM]

JB
CALSHEET.WDB

Place: ([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: FT
LOOP: 216
DESCRIPON: FLOW TRANSMITTER
SERVICE: LOW BTU
LOCATION: FLD
LP-SHT:
P&ID: 2031
REMARKS: Changed Range 11/12/96
INSTL-RMKS: SENSITIVITY 5.16
SPEC-RMKS: SW 1,3,4, OFF
S/N: 32936

MANUFACT: MICRO MOTION
MODEL: D 40S-SS
SCALE: 0-3600 lb/hr
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
10 lbs. per min. for 1 min.		9.91 lbs.
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: BB Date: 11-19-09 Time: 2:00 AM [✓ PM]

Place: ([✓ *Field*] *or Shop*)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #2
ANNUAL

TAG: FT
LOOP: 288
DESCRIPON: FLOW TRANSMITTER
SERVICE: LIME SLURRY TO HEAD TANK
LOCATION: FIELD
LP-SHT:
P&ID: 2034
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: E-H
MODEL:
SCALE: 0-20 GPM
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. Set control system to appropriate control rate, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
1.5 gallons per minute	Before Calibration	1.5 gallons
for one minute.		
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 12-1-09 Time: 1:30 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB

QUARTERLY CALIBRATION
D. Matoesian
11/10/09

ACCURATE SUPERIOR SCALE

5404 Jedmed Ct. - St. Louis, MO 63129
Business: (314) 845-7778 - Fax: (314) 845-7779

Scale Inspection Report

Customer: ONYX ENVIRONMENTAL
#7 MOBILE AVENUE
SAUGET, IL 62201

escription: Class III L
Serial No: 011150
Scale No: 2
Divisions: 5LB

Location: Direct Injection
MFG / Model: WI130
Scale Type: VEHICLE
Capacity: 60000LB

Scale was found in Tolerance: ☒ yes ☐ no

Shift Test Sides / Corners / Sections	Weights Applied	Scale Reading (As found)	Error (+/-)	Tolerance Maintenance	Scale Reading After Adjustment (As Left)	Accept / Reject
Section 1	21,000 lb	21,000 lb	+0 lb	+/- 45 lb		ACCEPT
Section 2	21,000 lb	21,000 lb	+0 lb	+/- 45 lb		ACCEPT
Section 3	21,000 lb	21,000 lb	+0 lb	+/- 45 lb		ACCEPT
Section 4	21,000 lb	21,000 lb	+0 lb	+/- 45 lb		ACCEPT
Section 5	21,000 lb	21,000 lb	+0 lb	+/- 45 lb		ACCEPT
Section 6	21,000 lb	21,005 lb	+5 lb	+/- 45 lb		ACCEPT

Buildup Weight	Weights Applied	Scale Reading (As found)	Error (+/-)	Tolerance Maintenance	Scale Reading After Adjustment (As Left)	Accept / Reject
Section 4	3,000 lb	3,000 lb	+0 lb	+/- 10 lb		ACCEPT
	6,000 lb	6,000 lb	+0 lb	+/- 15 lb		ACCEPT
	9,000 lb	9,000 lb	+0 lb	+/- 20 lb		ACCEPT
	12,000 lb	12,000 lb	+0 lb	+/- 25 lb		ACCEPT
	15,000 lb	15,000 lb	+0 lb	+/- 30 lb		ACCEPT
	18,000 lb	18,000 lb	+0 lb	+/- 40 lb		ACCEPT
Section 4	21,000 lb	21,005 lb	+5 lb	+/- 45 lb		ACCEPT

Test Procedure follows QSP009-001/002 NIST #: MO: 259883/253250 39598 OBS04-0268/03-0450 274998
Rice Lake: 822/266926-02 822/272801-06 822/274081-06

Original → Records room
Copy → Mr ERIC
→ D. KLARICH
→ D. MATOESIAN

Cal Date: 11/09/2009 **Next Cal due:** 90 Days

Calibration Dates: JAN APR JUL OCT

Service Technician Registration #: 0624-M

Calibrated By Service Technician: Jim Koerkenmeier

Job Queue#: LT217651

Report ID: 68983385

Uncertainty of Measurement provided on request

FOR CUSTOMER USE ONLY

Reviewed By ____________________ Date Reviewed ____________________

BIWEEKLY UNIT #2 (CMS Task IC4039) PAGE 1 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION (OPEN)	01602	00401	✓	
2	OCL	UPPER CHAMBER TEMP. 1 min avg.	01603	00402	✓	
3	OCL	HI BTU lbs/hr Max	01604	00403	✓	
4	OCL	LOWER CHAMBER TEMP. 1 min avg.	01605	00404	✓	
5	OCL	LO BTU lbs/hr Max	01606	00405	✓	
6	OCL	FLUE GAS HCL, 1 hr. rolling avg.	01607	00406	✓	
7	OCL	FLUE GAS CO, 1 hr. rolling avg.	01608	00407	✓	
8	OCL	FLUE GAS OPACITY, high for 480 sec./hr. avg.	01609	00408	✓	
9	OCL	FLUE GAS OPACITY, high instantaneous	01610	00409	✓	
10	OCL	FLUE GAS FLOW RATE, high 1 min. avg	01611	00410	✓	
11	OCL	HEAT INPUT high mbtu/hr	01613	00411	✓	
12	OCL	CHLORINE INPUT, high lbs/hr	01614	00412	✓	
13	OCL	SOLID FEED, high lbs/hr Max.	01526	00413	✓	
14	OCL	UPPER CHAMBER TEMP. low 1 hr rolling avg.	01538	00414	✓	
15	OCL	SPECIALITY FEEDED high lbs/hr Max.	01516	00415	✓	
17	AWFC	SDA OUTLET TEMP. high1 min. avg.	01591	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP. Low 1 min. avg.	01593	00418	✓	
19	AWFC	FLUE GAS CO, high 1 min. avg.	01594	00419	✓	
20	AWFC	FLUE GAS O2, low 1 min. avg.	01596	00420	✓	
21	AWFC	FLUE GAS HC, high 1 min. avg.	01597	00421	✓	
22	AWFC	FLUE GAS HCL, high 1 min. avg.	01598	00422	✓	
23	AWFC	FLUE GAS FLOW RATE, high inst.	01599	00423	✓	
24	AWFC	FLUE GAS OPACITY, high 1 min. avg.	01601	00424	✓	
25	AWFC	LOW CHAMBER TEMP., low 1 hr. avg.	01586	00425	✓	
[illegible]	AWFC	LOWER CHAMBER PRESS. high for 5 secs.	01588	00426	✓	
27	AWFC	UPPER CHAMBER PRESS, high for 5 secs.	01589	00427	✓	
28	AWFC	FAILER OF PROCESS MONITOR	01527	00428	✓	
29	AWFC	ID FAN FAILURE or high high vibration for 5 min.	01625	00429	✓	
30	AWFC	Upper or Lower Chamber Temp. high	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX (manually shut off)	01740	00432	✓	
35	MWFC	FLUE GAS HCL, high 1 min. avg.	01592	00435	✓	
36	MWFC	HEAT INPUT high anticipated	01622	00436	✓	
37	MWFC	CHLORINE INPUT, high lbs/hr	01623	00437	✓	
38	MWFC	E-STOPS or T/C MODULE inactive	01615	00438	✓	
39	MWFC	FLUE GAS CO, high 1 hr. avg.	01595	00439	✓	
40	MWFC	ATOMIZER high high vibration for 5 sec.	01624	00440	✓	
41	SWFC	SPEC. FEED lbs/hr high	01576	00441	✓	

BIWEEKLY UNIT #2 (CMS Task IC4039) PAGE 2 OF 2
COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
42	SWFC	HIBTU lbs/hr high	01578	00442	✓	
43	SWFC	LOBTU lbs/hr high	01580	00443	✓	
45	SWFC	HIBTU loss of signal	03019	00445	✓	
46	SWFC	LOBTU loss of signal	03020	00446	✓	
47	SWFC	SPECIALITY FEED/COMPRESSED GAS FEED loss of signal	03021	00447	✓	
48	MWFC	NORTH & SOUTH IPS ALARMS FAILED	05703	00448	✓	
49	SWFC	UPPER CHAMBER SECONDARY FUEL loss of signal	03022	00449	✓	
50	MWFC	NORTH & SOUTH IPS SERVERSFAILED	05705	00450	✓	
51	SWFC	DIRECT INJECT (common alarm)	03132	00451	✓	
52	OPL	Bag Leak Detection System (Tribo)			✓	
65	OPL	Pumpable 1 Hour Rolling Total OPL	08205	04113	✓	
66	OPL	Non-Pumpable 1 Hour Rolling Total OPL	08206	04114	✓	
67	OPL	Total waste 1 Hour Rolling Total OPL	08208	04115	✓	
68	OPL	CL 12 Hour Rolling Total OPL	08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL	08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL	08216	04118	✓	
71	OPL	Mercury 12 Hour Rolling Total OPL	08218	04119	✓	
72	OPL	Ash 12 Hour Rolling Total OPL	08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL	08222	04121	✓	
74	OPL	SCC Temperature 1 Hour Rolling Average Low OPL	08224	04122	✓	
75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL	08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL	08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL	08228	04125	✓	
	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL	08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL	08236	04127	✓	
80	OPL	Stack Flow 1 Hour Rolling Average High OPL	08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL	08209	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL	08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low	08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/CHARGE			✓	
85		Hi/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
86		Lo/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
87		Specialty Feeder Atomizing Air Low Pressure alarm (Manual check)			✓	

OCL =CONDITION LIMIT
AWFC =AUTOMATIC WASTE FEED CUTOFF
MWFC =MISC WASTE FEED CUTOFF
SWFC =SPECIFIC WASTE FEED CUTOFF

Comments ______________________________

CHECKED BY: ____________ DATE: 10-14-09 TIME: 1:45 AM [✓ PM]

APPROVED: Haelan Kim PLACE: Control Room

EEKLY_2
4/4/07 HK

BIWEEKLY UNIT #2 (CMS Task IC4030) PAGE 1 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION (OPEN)	01602	00401	✓	
2	OCL	UPPER CHAMBER TEMP. 1 min avg.	01603	00402	✓	
3	OCL	HI BTU lbs/hr Max	01604	00403	✓	
4	OCL	LOWER CHAMBER TEMP. 1 min avg.	01605	00404	✓	
5	OCL	LO BTU lbs/hr Max	01606	00405	✓	
6	OCL	FLUE GAS HCL, 1 hr. rolling avg.	01607	00406	✓	
7	OCL	FLUE GAS CO, 1 hr. rolling avg.	01608	00407	✓	
8	OCL	FLUE GAS OPACITY, high for 480 sec./hr. avg.	01609	00408	✓	
9	OCL	FLUE GAS OPACITY, high instantaneous	01610	00409	✓	
10	OCL	FLUE GAS FLOW RATE, high 1 min. avg	01611	00410	✓	
11	OCL	HEAT INPUT high mbtu/hr	01613	00411	✓	
12	OCL	CHLORINE INPUT, high lbs/hr	01614	00412	✓	
13	OCL	SOLID FEED, high lbs/hr Max.	01526	00413	✓	
14	OCL	UPPER CHAMBER TEMP. low 1 hr rolling avg.	01538	00414	✓	
15	OCL	SPECIALITY FEEDED high lbs/hr Max.	01516	00415	✓	
17	AWFC	SDA OUTLET TEMP. high1 min. avg.	01591	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP. Low 1 min. avg.	01593	00418	✓	
19	AWFC	FLUE GAS CO, high 1 min. avg.	01594	00419	✓	
20	AWFC	FLUE GAS O2, low 1 min. avg.	01596	00420	✓	
21	AWFC	FLUE GAS HC, high 1 min. avg.	01597	00421	✓	
22	AWFC	FLUE GAS HCL, high 1 min. avg.	01598	00422	✓	
23	AWFC	FLUE GAS FLOW RATE, high inst.	01599	00423	✓	
24	AWFC	FLUE GAS OPACITY, high 1 min. avg.	01601	00424	✓	
5	AWFC	LOW CHAMBER TEMP., low 1 hr. avg.	01586	00425	✓	
5	AWFC	LOWER CHAMBER PRESS, high for 5 secs.	01588	00426	✓	
7	AWFC	UPPER CHAMBER PRESS, high for 5 secs.	01589	00427	✓	
28	AWFC	FAILER OF PROCESS MONITOR	01527	00428	✓	
29	AWFC	ID FAN FAILURE or high high vibration for 5 min.	01625	00429	✓	
30	AWFC	Upper or Lower Chamber Temp. high	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX (manually shut off)	01740	00432	✓	
35	MWFC	FLUE GAS HCL, high 1 min. avg.	01592	00435	✓	
36	MWFC	HEAT INPUT high anticipated	01622	00436	✓	
37	MWFC	CHLORINE INPUT, high lbs/hr	01623	00437	✓	
38	MWFC	E-STOPS or T/C MODULE inactive	01615	00438	✓	
39	MWFC	FLUE GAS CO, high 1 hr. avg.	01595	00439	✓	
40	MWFC	ATOMIZER high high vibration for 5 sec.	01624	00440	✓	
41	SWFC	SPEC. FEED lbs/hr high	01576	00441	✓	

BIWEEKLY UNIT #2
COMPLIANCE CHECK SHEET

(CMS Task IC4039)

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
42	SWFC	HIBTU lbs/hr high	01578	00442	✓	
43	SWFC	LOBTU lbs/hr high	01580	00443	✓	
45	SWFC	HIBTU loss of signal	03019	00445	✓	
46	SWFC	LOBTU loss of signal	03020	00446	✓	
47	SWFC	SPECIALITY FEED/COMPRESSED GAS FEED loss of signal	03021	00447	✓	
48	MWFC	NORTH & SOUTH IPS ALARMS FAILED	05703	00448	✓	
49	SWFC	UPPER CHAMBER SECONDARY FUEL loss of signal	03022	00449	✓	
50	MWFC	NORTH & SOUTH IPS SERVERSFAILED	05705	00450	✓	
51	SWFC	DIRECT INJECT (common alarm)	03132	00451	✓	
52	OPL	Bag Leak Detection System (Tribo)			✓	
65	OPL	Pumpable 1 Hour Rolling Total OPL	08205	04113	✓	
66	OPL	Non-Pumpable 1 Hour Rolling Total OPL	08206	04114	✓	
67	OPL	Total waste 1 Hour Rolling Total OPL	08208	04115	✓	
68	OPL	CL 12 Hour Rolling Total OPL	08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL	08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL	08216	04118	✓	
71	OPL	Mercury 12 Hour Rolling Total OPL	08218	04119	✓	
72	OPL	Ash 12 Hour Rolling Total OPL	08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL	08222	04121	✓	
74	OPL	SCC Temperature 1 Hour Rolling Average Low OPL	08224	04122	✓	
75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL	08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL	08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL	08228	04125	✓	
	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL	08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL	08236	04127	✓	
80	OPL	Stack Flow 1 Hour Rolling Average High OPL	08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL	08209	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL	08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low	08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/CHARGE			✓	
85		Hi/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
86		Lo/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
87		Specialty Feeder Atomizing Air Low Pressure alarm (Manual check)			✓	

OCL =CONDITION LIMIT
AWFC =AUTOMATIC WASTE FEED CUTOFF
MWFC =MISC WASTE FEED CUTOFF
SWFC =SPECIFIC WASTE FEED CUTOFF

Comments ______________________

CHECKED BY: HAELAC KIM

DATE: 10-10-09 TIME: 10:20 AM [✓ PM]

APPROVED: Haelac Kim

PLACE: Control Room

EEKLY_2
4/4/07 HK

BIWEEKLY UNIT #2 (CMS Task IC4039) PAGE 1 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION (OPEN)	01602	00401	✓	
2	OCL	UPPER CHAMBER TEMP. 1 min avg.	01603	00402	✓	
3	OCL	HI BTU lbs/hr Max	01604	00403	✓	
4	OCL	LOWER CHAMBER TEMP. 1 min avg.	01605	00404	✓	
5	OCL	LO BTU lbs/hr Max	01606	00405	✓	
6	OCL	FLUE GAS HCL, 1 hr. rolling avg.	01607	00406	✓	
7	OCL	FLUE GAS CO, 1 hr. rolling avg.	01608	00407	✓	
8	OCL	FLUE GAS OPACITY, high for 460 sec./hr. avg.	01609	00408	✓	
9	OCL	FLUE GAS OPACITY, high instantaneous	01610	00409	✓	
10	OCL	FLUE GAS FLOW RATE, high 1 min. avg	01611	00410	✓	
11	OCL	HEAT INPUT high mbtu/hr	01613	00411	✓	
12	OCL	CHLORINE INPUT, high lbs/hr	01614	00412	✓	
13	OCL	SOLID FEED, high lbs/hr Max.	01526	00413	✓	
14	OCL	UPPER CHAMBER TEMP. low 1 hr rolling avg.	01538	00414	✓	
15	OCL	SPECIALITY FEEDED high lbs/hr Max.	01516	00415	✓	
17	AWFC	SDA OUTLET TEMP. high1 min. avg.	01591	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP. Low 1 min. avg.	01593	00418	✓	
19	AWFC	FLUE GAS CO, high 1 min. avg.	01594	00419	✓	
20	AWFC	FLUE GAS O2, low 1 min. avg.	01596	00420	✓	
21	AWFC	FLUE GAS HC, high 1 min. avg.	01597	00421	✓	
22	AWFC	FLUE GAS HCL, high 1 min. avg.	01598	00422	✓	
23	AWFC	FLUE GAS FLOW RATE, high inst.	01599	00423	✓	
24	AWFC	FLUE GAS OPACITY, high 1 min. avg.	01601	00424	✓	
5	AWFC	LOW CHAMBER TEMP., low 1 hr. avg.	01586	00425	✓	
3	AWFC	LOWER CHAMBER PRESS, high for 5 secs.	01588	00426	✓	
27	AWFC	UPPER CHAMBER PRESS, high for 5 secs.	01589	00427	✓	
28	AWFC	FAILER OF PROCESS MONITOR	01527	00428	✓	
29	AWFC	ID FAN FAILURE or high high vibration for 5 min.	01625	00429	✓	
30	AWFC	Upper or Lower Chamber Temp. high	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX (manually shut off)	01740	00432	✓	
35	MWFC	FLUE GAS HCL, high 1 min. avg.	01592	00435	✓	
36	MWFC	HEAT INPUT high anticipated	01622	00436	✓	
37	MWFC	CHLORINE INPUT, high lbs/hr	01623	00437	✓	
38	MWFC	E-STOPS or T/C MODULE inactive	01615	00438	✓	
39	MWFC	FLUE GAS CO, high 1 hr. avg.	01595	00439	✓	
40	MWFC	ATOMIZER high high vibration for 5 sec.	01624	00440	✓	
41	SWFC	SPEC. FEED lbs/hr high	01576	00441	✓	

BIWEEKLY UNIT #2 (CMS Task ID4039) PAGE 2 OF 2
COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
42	SWFC	HIBTU lbs/hr high	01578	00442	✓	
43	SWFC	LOBTU lbs/hr high	01580	00443	✓	
45	SWFC	HIBTU loss of signal	03019	00445	✓	
46	SWFC	LOBTU loss of signal	03020	00446	✓	
47	SWFC	SPECIALITY FEED/COMPRESSED GAS FEED loss of signal	03021	00447	✓	
48	MWFC	NORTH & SOUTH IPS ALARMS FAILED	05703	00448	✓	
49	SWFC	UPPER CHAMBER SECONDARY FUEL loss of signal	03022	00449	✓	
50	MWFC	NORTH & SOUTH IPS SERVERSFAILED	05705	00450	✓	
51	SWFC	DIRECT INJECT (common alarm)	03132	00451	✓	
52	OPL	Bag Leak Detection System (Tribo)			✓	
65	OPL	Pumpable 1 Hour Rolling Total OPL	08205	04113	✓	
66	OPL	Non-Pumpable 1 Hour Rolling Total OPL	08206	04114	✓	
67	OPL	Total waste 1 Hour Rolling Total OPL	08208	04115	✓	
68	OPL	CL 12 Hour Rolling Total OPL	08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL	08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL	08216	04118	✓	
71	OPL	Mercury 12 Hour Rolling Total OPL	08218	04119	✓	
72	OPL	Ash 12 Hour Rolling Total OPL	08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL	08222	04121	✓	
74	OPL	SCC Temperature 1 Hour Rolling Average Low OPL	08224	04122	✓	
75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL	08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL	08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL	08228	04125	✓	
	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL	08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL	08236	04127	✓	
80	OPL	Stack Flow 1 Hour Rolling Average High OPL	08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL	08209	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL	08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low	08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/CHARGE			✓	
85		Hi/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
86		Lo/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
87		Specialty Feeder Atomizing Air Low Pressure alarm (Manual check)			✓	

OCL =CONDITION LIMIT
AWFC =AUTOMATIC WASTE FEED CUTOFF
MWFC =MISC WASTE FEED CUTOFF
SWFC =SPECIFIC WASTE FEED CUTOFF

Comments ______________________________

CHECKED BY : DATE : 11-11-09 TIME : 9:15 [✓ AM] PM

APPROVED : Hallee Kim PLACE : Control Room

EEKLY_2
4/4/07 HK

BIWEEKLY UNIT #2 (CMS Task IC4039) PAGE 1 OF 2
COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION (OPEN)	01602	00401	✓	
2	OCL	UPPER CHAMBER TEMP. 1 min avg.	01603	00402	✓	
3	OCL	HI BTU lbs/hr Max	01604	00403	✓	
4	OCL	LOWER CHAMBER TEMP, 1 min avg.	01605	00404	✓	
5	OCL	LO BTU lbs/hr Max	01606	00405	✓	
6	OCL	FLUE GAS HCL, 1 hr. rolling avg.	01607	00406	✓	
7	OCL	FLUE GAS CO, 1 hr. rolling avg.	01608	00407	✓	
8	OCL	FLUE GAS OPACITY, high for 480 sec./hr. avg.	01609	00408	✓	
9	OCL	FLUE GAS OPACITY, high instantaneous	01610	00409	✓	
10	OCL	FLUE GAS FLOW RATE, high 1 min. avg	01611	00410	✓	
11	OCL	HEAT INPUT high mbtu/hr	01613	00411	✓	
12	OCL	CHLORINE INPUT, high lbs/hr	01614	00412	✓	
13	OCL	SOLID FEED, high lbs/hr Max.	01526	00413	✓	
14	OCL	UPPER CHAMBER TEMP. low 1 hr rolling avg.	01538	00414	✓	
15	OCL	SPECIALITY FEEDED high lbs/hr Max.	01516	00415	✓	
17	AWFC	SDA-OUTLET TEMP. high1 min. avg.	01591	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP. Low 1 min. avg.	01593	00418	✓	
19	AWFC	FLUE GAS CO, high 1 min. avg.	01594	00419	✓	
20	AWFC	FLUE GAS O2, low 1 min. avg.	01596	00420	✓	
21	AWFC	FLUE GAS HC, high 1 min. avg.	01597	00421	✓	
22	AWFC	FLUE GAS HCL, high 1 min. avg.	01598	00422	✓	
23	AWFC	FLUE GAS FLOW RATE, high inst.	01599	00423	✓	
24	AWFC	FLUE GAS OPACITY, high 1 min. avg.	01601	00424	✓	
25	AWFC	LOW CHAMBER TEMP., low 1 hr. avg.	01586	00425	✓	
26	AWFC	LOWER CHAMBER PRESS, high for 5 secs.	01588	00426	✓	
27	AWFC	UPPER CHAMBER PRESS, high for 5 secs.	01589	00427	✓	
28	AWFC	FAILER OF PROCESS MONITOR	01527	00428	✓	
29	AWFC	ID FAN FAILURE or high high vibration for 5 min.	01625	00429	✓	
30	AWFC	Upper or Lower Chamber Temp. high	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX (manually shut off)	01740	00432	✓	
35	MWFC	FLUE GAS HCL, high 1 min. avg.	01592	00435	✓	
36	MWFC	HEAT INPUT high anticipated	01622	00436	✓	
37	MWFC	CHLORINE INPUT, high lbs/hr	01623	00437	✓	
38	MWFC	E-STOPS or T/C MODULE inactive	01615	00438	✓	
39	MWFC	FLUE GAS CO, high 1 hr. avg.	01595	00439	✓	
40	MWFC	ATOMIZER high high vibration for 5 sec.	01624	00440	✓	
41	SWFC	SPEC. FEED lbs/hr high	01576	00441	✓	

BIWEEKLY UNIT #2 (CMS Task IC4039) PAGE 2 OF 2
COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
42	SWFC	HIBTU lbs/hr high	01578	00442	✓	
43	SWFC	LOBTU lbs/hr high	01580	00443	✓	
45	SWFC	HIBTU loss of signal	03019	00445	✓	
46	SWFC	LOBTU loss of signal	03020	00446	✓	
47	SWFC	SPECIALITY FEED/COMPRESSED GAS FEED loss of signal	03021	00447	✓	
48	MWFC	NORTH & SOUTH IPS ALARMS FAILED	05703	00448	✓	
49	SWFC	UPPER CHAMBER SECONDARY FUEL loss of signal	03022	00449	✓	
50	MWFC	NORTH & SOUTH IPS SERVERSFAILED	05705	00450	✓	
51	SWFC	DIRECT INJECT (common alarm)	03132	00451	✓	
52	OPL	Bag Leak Detection System (Tribo)			✓	
65	OPL	Pumpable 1 Hour Rolling Total OPL	08205	04113	✓	
66	OPL	Non-Pumpable 1 Hour Rolling Total OPL	08206	04114	✓	
67	OPL	Total waste 1 Hour Rolling Total OPL	08208	04115	✓	
68	OPL	Cl. 12 Hour Rolling Total OPL	08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL	08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL	08216	04118	✓	
71	OPL	Mercury 12 Hour Rolling Total OPL	08218	04119	✓	
72	OPL	Ash 12 Hour Rolling Total OPL	08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL	08222	04121	✓	
74	OPL	SCC Temperature 1 Hour Rolling Average Low OPL	08224	04122	✓	
75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL	08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL	08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL	08228	04125	✓	
	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL	08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL	08236	04127	✓	
80	OPL	Stack Flow 1 Hour Rolling Average High OPL	08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL	08209	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL	08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low	08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/CHARGE			✓	
85		Hi/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
86		Lo/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
87		Specialty Feeder Atomizing Air Low Pressure alarm (Manual check)			✓	

OCL =CONDITION LIMIT
AWFC =AUTOMATIC WASTE FEED CUTOFF
MWFC =MISC WASTE FEED CUTOFF
SWFC =SPECIFIC WASTE FEED CUTOFF

Comments

CHECKED BY:
DATE 10-28-09 TIME: 8:30 [✓ AM] PM

APPROVED: HaeLae Kim
PLACE: Control Room

[illegible]EKLY_2
4/4/07 HK

BIWEEKLY UNIT #2 (CMS Task IC4039) PAGE 1 OF 2
COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS	PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION (OPEN)	01602	00401	✓	
2	OCL	UPPER CHAMBER TEMP. 1 min avg.	01603	00402	✓	
3	OCL	HI BTU lbs/hr Max	01604	00403	✓	
4	OCL	LOWER CHAMBER TEMP. 1 min avg.	01605	00404	✓	
5	OCL	LO BTU lbs/hr Max	01606	00405	✓	
6	OCL	FLUE GAS HCL, 1 hr. rolling avg.	01607	00406	✓	
7	OCL	FLUE GAS CO, 1 hr. rolling avg.	01608	00407	✓	
8	OCL	FLUE GAS OPACITY, high for 480 sec./hr. avg.	01609	00408	✓	
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19	AWFC	FLUE GAS CO, high 1 min. avg.	01594	00419	✓	
20	AWFC	FLUE GAS O2, low 1 min. avg.	01596	00420	✓	
21	AWFC	FLUE GAS HC, high 1 min. avg.	01597	00421	✓	
22	AWFC	FLUE GAS HCL, high 1 min. avg.	01598	00422	✓	
23	AWFC	FLUE GAS FLOW RATE, high inst.	01599	00423	✓	
24	AWFC	FLUE GAS OPACITY, high 1 min. avg.	01601	00424	✓	
25	AWFC	LOW CHAMBER TEMP., low 1 hr. avg.	01585	00425	✓	
26	AWFC	LOWER CHAMBER PRESS, high for 5 secs.	01588	00426	✓	
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29	AWFC	ID FAN FAILURE or high high vibration for 5 min.	01625	00429	✓	
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32	MWFC	ALL WASTE FEED OFF FROM FIX (manually shut off)	01740	00432	✓	
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37	MWFC	CHLORINE INPUT, high lbs/hr	01623	00437	✓	
38	MWFC	E-STOPS or T/C MODULE inactive	01615	00438	✓	
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BIWEEKLY UNIT #2 (CMS Task IC4039) PAGE 2 OF 2

COMPLIANCE CHECK SHEET

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80	OPL	Stack Flow 1 Hour Rolling Average High OPL	08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL	08209	04129	✓	
82	OPL	Hrt Cl/Hrs Lime Flow 1 Minute Average High OPL	08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low	08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/CHARGE			✓	
85		Hi/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
86		Lo/DI Atomizing Air Low pressure alarm (Manual Check)			✓	
87		Specialty Feeder Atomizing Air Low Pressure alarm (Manual check)			✓	

OCL =CONDITION LIMIT

AWFC =AUTOMATIC WASTE FEED CUTOFF

MWFC =MISC WASTE FEED CUTOFF

SWFC =SPECIFIC WASTE FEED CUTOFF

Comments

CHECKED BY: B T. Bell DATE: 11-25-09 TIME: 8:15 [✓ AM] PM

APPROVED: Hae Lee Kim PLACE: Control Room

BIWEEKLY_2

4/4/07 HK

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 2 Serial # COSA

Parameter	NIST Traceable Calibration Standards			
● O2 25%	Gas	Concentration		
○ CO-low range 200ppm	Low (Zero)	0	±	0.5
○ CO-high range 3000ppm	Mid	8.93	±	0.5
○ HCl 1000ppm	High	15	±	0.5

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0	0	–	–
2-Mid	8.93	9.1	–	-0.17	–
3-High	15	15.1	–	–	-0.1
4-Low	0	0	0	–	–
5-Mid	8.93	9	–	-0.07	–
6-High	15	15.3	–	–	-0.3
7-Low	0	0	0	–	–
8-Mid	8.93	9.1	–	-0.17	–
9-High	15	15.2	–	–	-0.2
		Mean Difference =	0.00	-0.14	-0.20
		Calibration Error =	0.00%	-0.56%	-0.80%

Calibration Error = Mean Difference / Span Value * 100

Brian Bunfill
Name

E/I Tech
Title

Signature

9/25/2009
Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 2

Serial # 346

Parameter	NIST Traceable Calibration Standards			
○ O2 25%	Gas	Concentration		
● CO-low range 200ppm	Low (Zero)	0	±	10
○ CO-high range 3000ppm	Mid	68.9	±	10
○ HCl 1000ppm	High	153	±	10

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0.1	-0.1	—	—
2-Mid	68.9	71.7	—	-2.8	—
3-High	153	152.7	—	—	0.3
~~4-Low~~	~~0~~	~~0.4~~	~~-0.4~~	~~—~~	~~—~~
5-Mid	68.9	71.9	—	-3	—
6-High	153	152.8	—	—	0.2
~~7-Low~~	~~0~~	~~0.6~~	~~-0.6~~	~~—~~	~~—~~
8-Mid	68.9	71.6	—	-2.7	—
9-High	153	152.6	—	—	0.4
		Mean Difference =	-0.37	-2.83	0.30
		Calibration Error =	-0.18%	-1.42%	0.15%

Calibration Error = Mean Difference / Span Value * 100

Brian Bunfill

Name

Signature

E/I Tech

Title

9/25/2009

Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 2

Serial # 346

Parameter	NIST Traceable Calibration Standards			
○ O2 25%	Gas	Concentration		
○ CO-low range 200ppm	Low (Zero)	0	±	150
● CO-high range 3000ppm	Mid	1079.1	±	150
○ HCl 1000ppm	High	2220	±	150

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0.1	-0.1	—	—
2-Mid	1079.1	1151.9	—	-72.8	—
3-High	2220	2217.4	—	—	2.6
4-Low	0	0.4	-0.4	—	—
5-Mid	1079.1	1095.3	—	-16.2	—
6-High	2220	2182.5	—	—	37.5
7-Low	0	0.6	-0.6	—	—
8-Mid	1079.1	1091.2	—	-12.1	—
9-High	2220	2178.4	—	—	41.6
		Mean Difference =	-0.37	-33.70	27.23
		Calibration Error =	-0.01%	-1.12%	0.91%

Calibration Error = Mean Difference / Span Value * 100

Brian Bunfill

Name

E/I Tech

Title

Signature

9/25/2009

Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 2

Serial # 346

Parameter	NIST Traceable Calibration Standards			
○ O2 25%	Gas	Concentration		
○ CO-low range 200ppm	Low (Zero)	0	±	50
○ CO-high range 3000ppm	Mid	318	±	50
● HCl 1000ppm	High	743	±	50

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0	0	–	–
2-Mid	318	276.5	–	41.5	–
3-High	743	741.1	–	–	1.9
4-Low	0	0	0	–	–
5-Mid	318	312.4	–	5.6	–
6-High	743	738.1	–	–	4.9
7-Low	0	0	0	–	–
8-Mid	318	323.1	–	-5.1	–
9-High	743	739	–	–	4
		Mean Difference =	0.00	14.00	3.60
		Calibration Error =	0.00%	1.40%	0.36%

Calibration Error = Mean Difference / Span Value * 100

Brian Bunfill

Name

E/I Tech

Title

Signature

9/26/2009

Date

2/4/2010

Table 1
Summary of Relative Accuracy Test Audit Results
Veolia ES Technical Solutions
Sauget, Illinois
June 22, 23 and 24, 2009

CEMS	Parameter	Units	Measured RA	Criteria	Pass/Fail
Unit 2	CO	ppm @ 7% O_2	0.004 ppm[a]	5[a,b]	Pass
	O_2, dry	%O_2	0.09%[a]	1.0[a,c]	Pass
	O_2, wet	%O_2	0.13%[a]	1.0[a,c]	Pass
Unit 3	CO	ppm @ 7% O_2	0.063 ppm[a]	5[a,b]	Pass
	O_2, dry	%O_2	0.02%[a]	1.0[a,c]	Pass
	O_2, wet	%O_2	0.31%[a]	1.0[a,c]	Pass
Unit 4	CO	ppm @ 7% O_2	1.146 ppm[a]	5[a,b]	Pass
	O_2, dry	%O_2	0.15%[a]	1.0[a,c]	Pass
	O_2, wet	%O_2	0.46%[a]	1.0[a,c]	Pass

[a] Percent of emission standard or absolute average difference (ppm or %).

[b] PS 4B.

[c] PS 3.

ONYX

Veolia
Environmental Services
Sauget Illinois

Created 1/1/2010 6:00 AM
Period Start 1/1/2010 6:00 AM
Period En 1/1/2010 6:00 AM
Page 1 of 7

Incinerator 2

Data Point	1 Min AVG Warn	1 Min AVG Shut	1 Min AVG OPL	1 Hr Roll Warn	1 Hr Roll Shut	1 Hr Roll OPL	1 Hr Roll Tot Warn	1 Hr Roll Tot Shut	1 Hr Roll Tot OPL	12 Hr Roll Tot Warn	12 Hr Roll Tot Shut	12 Hr Roll Tot OPL	1 Hr Tot Warn	1 Hr Tot Shut	1 Hr Tot OPL
Thermodynamic BTU													15.00000	15.50000	16.00000
HCLtoLime	25.00000	28.00000	39.50000												
Stack CO Corrected	450.0000	500.0000		30.00000	75.00000	100.0000									
LimeSlurryDensity	67.50000	0.000000		67.50000	67.30000	67.00000									
Stack HCL Corrected	450.0000	500.0000		25.00000	32.00000										
Stack HCL RCRA	450.0000	500.0000		20.00000	25.00000	100.0000									
Stack O2 Corrected	4.000000														
Stack O2 Raw	4.000000	3.000000													
Stack Opacity	8.000000	10.00000													
Stack Flow	15000.00			14600.00	14950.00	15147.00									
SDA Outlet Temp	430.0000	500.0000		417.0000	418.0000	420.0000									
Baghouse Diff Press Low	3.000000	2.000000													
Baghouse Diff Press High	9.000000	10.00000													

ONYX

Veolia
Environmental Services
Sauget Illinois

Created 1/1/2010 6:00 AM
Period Start 1/1/2010 6:00 AM
Period En 1/1/2010 6:00 AM

Stack THC	8.000000	10.00000	.	.	.	.	.	.	.	.	.	.	.	.	.
Low BTU Weight	.	.	.	.	.	.	.	.	.	.	.	.	1900.000	1933.000	1993.000
Special Feed Weight	.	.	.	.	.	.	.	.	.	.	.	.	600.0000	664.0000	724.0000
High BTU Weight	.	.	.	.	.	.	.	.	.	.	.	.	1900.000	1952.000	2012.000
Solids Weight	.	.	.	.	.	.	1000.000	1020.000	1053.000	.	.	.	1000.000	1020.000	1053.000
PCC Temp	1750.000	1590.000	.	1775.000	1742.000	1734.000	.	.	.	.	.	.	.	.	.
SCC Temp	1860.000	1794.000	.	1880.000	1854.000	1849.000	.	.	.	.	.	.	.	.	.
Stack CO RCRA	450.0000	500.0000	.	50.00000	90.00000	100.0000	.	.	.	.	.	.	.	.	.
Liquid Weight	.	.	.	.	.	.	2550.000	2950.000	3107.000	.	.	.	.	.	.
Weight	.	.	.	.	.	.	3750.000	3850.000	4017.000	.	.	.	.	.	.
Chlorine	.	.	.	.	.	.	200.0000	218.0000	.	2400.000	2500.000	2616.000	200.0000	217.0000	233.0000
Mercury	.	.	.	.	.	.	0.003000	0.003400	.	0.030000	0.034000	0.040500	.	.	.
Ash	.	.	.	.	.	.	625.0000	673.0000	.	7500.000	8000.000	8076.000	.	.	.
Low Volatile	.	.	.	.	.	.	40.00000	46.00000	.	500.0000	530.0000	552.0000	.	.	.
Semi Volatile	.	.	.	.	.	.	56.00000	63.00000	.	700.0000	730.0000	755.0000	.	.	.

CMS Performance Evaluation

Unit 3

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG: WT
LOOP: 304
DESCRIPON: WEIGHT TRANSMITTER
SERVICE: SPECIALTY FEEDER (HOODED)
LOCATION:
LP-SHT:
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: TOLEDO
MODEL: 8140 EXP
SCALE: 0-2,000 #
CALIB-IN: 0-2,000 #
CALIB-OUT: 4-20 MADC
PROCESS-SP: 0#=819 cts
INST-SP: 200#=1147 cts
ACTION: 1#=1.638 cts
I/O NUMBER: 30012

CALIBRATION NOTES

Check scale, digital Calibration per. Toledo instructions. Then with no weight on scale adjust analog zero. (NOTE: HMI will not display numbers less than zero). Next add weight = to 10% are more of scales range, then adjust analog span, to indicate weight on scale, as read on HMI screen.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0	*Before Calibration*	0
150		149.7
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: ~~10-11-09~~ 11-10-09 Time: 2:00 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or *Shop)*

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG: WT
LOOP: 310
DESCRIPON: WEIGHT TRANSMITTER
SERVICE: SOLID CHARG CONV.
LOCATION: FIELD
LP-SHT:
P&ID: 3031
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: TOLEDO
MODEL: 8140
SCALE: 0-400 #
CALIB-IN: 0-400 #
CALIB-OUT: 4-20 MADC
PROCESS-SP: 0#=819 cts
INST-SP: 200#=2457 cts
ACTION: 1#=8.19 cts
I/O NUMBER: 30022

CALIBRATION NOTES

Check scale, digital Calibration per, Toledo instructions. Then with no weight on scale adjust analog zero. (NOTE: HMI will not display numbers less than zero). Next add weight = to 10% are more of scales range, then adjust analog span, to indicate weight on scale, as read on HMI screen.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		0
50		50
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed

Performed by: Date: ~~10-11-09~~ 11-10-09 Time: 2:10 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG: PDT
LOOP: 350
DESCRIPON: PRESSURE DIFF. TRANSMITTE
SERVICE: BAGHOUSE INLET/OUTLET
LOCATION: FIELD
LP-SHT:
P&ID: 3035
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: YOKOGAWA
MODEL:
SCALE: 0-15 in wc
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH INCLINE MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
	After Calibration	
0		4.02 mA
15" wc		20.04 mA

CALIBRATION SOURCE REFERENCE

Comments: No needed Calibration

Performed by: Haelac Kim Date: 1/16/09 Time: 8:40 [✓ AM] PM

JB
CALSHEET.WDB

Place: ________
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG: PT
LOOP: 300
DESCRIPON: PRESSURE TRANSMITTER
SERVICE: LOW CHAMBER PRESS.
LOCATION: FIELD
LP-SHT:
P&ID: 3032
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: Rosemount
MODEL: 1151 DP
SCALE: -7.5 to +2.5 in. wc.
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Connect transmitter to be calibrated to pressure source and calibrated reference (Manometer), input appropriate pressure and verify with current meter.

Complete and affix a properly filled-out calibration sticker.

See Manufactures literature for detailed instructions. Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
-7.5" wc	*Before Calibration*	3.99 mA
2.5 wc		20.03 mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No needed Cal.

Performed by: Haelae Kim Date: 11-12-09 Time: 11:30 [✓ AM] PM

JB
CALSHEET.WDB

Place:
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG: PT
LOOP: 319
DESCRIPON: PRESSURE TRANSMITTER
SERVICE: UPPER CHAMBER PRESSURE
LOCATION: FIELD
LP-SHT:
P&ID: 3033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT:
MODEL:
SCALE: -7.5 to +2.5 in. wc.
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Connect transmitter to be calibrated to pressure source and calibrated reference (Manometer), input appropriate pressure and verify with current meter.

Complete and affix a properly filled-out calibration sticker.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
-7.5"wc	*Before Calibration*	4.14 mA
2.5"wc		~~2~~ 19.98 mA
-7.5"wc	*After Calibration*	4.03 mA
2.5"wc		19.98 mA

CALIBRATION SOURCE REFERENCE

Comments: __________

Performed by: HaeLae Kim Date: 11-12-09 Time: 11:50 [✓ AM] PM

JB
CALSHEET.WDB

Place: __________
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG:
LOOP:
DESCRIPON: Tribo
SERVICE: Baghouse Leak Detection
LOCATION: FLD
LP-SHT:
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: Auburn
MODEL: TRIBO.dgd
SCALE: 0-1000pa
CALIB-IN: 0-1000pa
CALIB-OUT: 4-20ma
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Disconnect the input cable at the BNC connector on the input card, and check for zero. Use Auburn, Triboflow, filed test unit, model 2902, to input a Pico-Amp signal of 500pa and record these values.

0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0 pA		.64 pA
500 pA		501.1 pA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 11:30 [✓ AM] PM

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG:	AT		
LOOP:	389		
DESCRIPON:	OXYGEN	MANUFACT:	COSA
SERVICE:	STACK GAS ANALYZER	MODEL:	
LOCATION:	FIELD	SCALE:	0-25%
LP-SHT:		CALIB-IN:	0-25%
P&ID:	3035	CALIB-OUT:	4-20 MADC
REMARKS:		PROCESS-SP:	
INSTL-RMKS:		INST-SP:	
SPEC-RMKS:		ACTION:	
S/N:		I/O NUMBER:	

CALIBRATION NOTES

Flow calibration gas at 2-3 psig and 3 scfh

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
2.9	*Before Calibration*	3.0
21.25		21.0
	After Calibration	

CALIBRATION SOURCE REFERENCE

ZERO GAS CYL #: CC11846

SPAN GAS CYL #: 3AUM139

Comments: No Cal needed

Performed by: Date: 11-11-09 Time: 9:55 [✓ AM] PM

Place: *([✓ Field] or Shop)*

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG: AT
LOOP: 388B
DESCRIPON: HC
SERVICE: STACK GAS ANALYZER
LOCATION: STACK
LP-SHT: 556
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: Thermo Elect. Co.
MODEL: 51C
SCALE: 0-100 PPM
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

1) Open sample gas bottle valves.
2) Press MENU Button
3) Press CALIBRATION
4) Press ZERO ADJUST
5) Press SPAN ADJUST after 4)finished
6) Press RUN after 5)finished
7) Close sample gas bottles.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		0
76.2		76.3
	After Calibration	

CALIBRATION SOURCE REFERENCE

GAS CYL #:

Comments: No Cal needed

Performed by: Bill Olson Date: ~~10-14-09~~ 11-10-09 Time: 10:00 [✓ AM] PM

Place:
(Field or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
QUARTERLY

TAG: AT
LOOP: 388B
DESCRIPON: OPACITY
SERVICE: STACK GAS
LOCATION: STACK
LP-SHT:
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS: 2.00 to 5.72ma
S/N:

MANUFACT: TELEDYNE INST.
MODEL: LightHawk
SCALE: 0-100%
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Clean windows.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: Calibrated per manufactures's guidelines.

Performed by: B T B Date: 10-10-09 Time: 11:00 [✓ AM] PM

JB
CALSHEET.WDB

Place: ([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: TT
LOOP: 300A
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: LOWER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 2032
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: 883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions. Fill out and affix a new calibration sticker. 0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500° F		500°
2000° F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:40 ~~AM~~ [✓ PM] BB

JB
CALSHEET.WDB

Place: *([✓ Field] or Shop)*

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: TT
LOOP: 300B
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: LOWER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 3032
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: 883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions. Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500° F		500°
2000 ° F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Date: 11-10-09 Time: 2:40 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: TT
LOOP: 319A
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: UPPER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 3033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: 883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
500°F	*Before Calibration*	501°
2000°F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:45 AM [✓ PM]

JB
CALSHEET.WDB

Place: ([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: TT
LOOP: 319B
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: UPPER CHAMBER
LOCATION: FIELD
LP-SHT:
P&ID: 3033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: 883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500° F		500°
2000° F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:45 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: TT
LOOP: 323
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: SDA INLET
LOCATION: FIELD
LP-SHT:
P&ID: 3033
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: 883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
500°F	*Before Calibration*	501°
2000°F		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:45 AM [✓ PM]

Place: [✓ *Field*] *or Shop*

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: TT
LOOP: 370
DESCRIPON: PLC THERMOCOUPLE INPUT
SERVICE: SDA OUTLET TEMP.
LOCATION: FIELD
LP-SHT:
P&ID: 3034
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MODICON
MODEL: 883-200
SCALE: 0-2500 deg. F.
CALIB-IN: TYPE K
CALIB-OUT:
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a type K temperature signal of 500 deg F. and 2,000 deg.F. at input of PLC, then verify this single on the control panel CRT.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500°F		501°
2000°F		2002°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-10-09 Time: 2:45 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: FT
LOOP: 383
DESCRIPON: STACK FLOW TRANSMITTER
SERVICE: STACK
LOCATION: FIELD
LP-SHT:
P&ID: 3035
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: Rosemount
MODEL:
SCALE: 0-20,000 ACFM
CALIB-IN: 0-.5"WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP: Set Damp/pot to mid point
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH INCLINE MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
	After Calibration	
0		4.02mA
0.5" wc		19.98mA

CALIBRATION SOURCE REFERENCE

Comments: No needed Calibration

Performed by: Haelae Kim Date: 11/26/09 Time: 11:00 [✓ AM] PM

JB
CALSHEET.WDB

Place: ____________
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: FT
LOOP: 315
DESCRIPON: FLOW TRANSMITTER
SERVICE: HIGH BTU Liquid Feed
LOCATION: FLD
LP-SHT:
P&ID: 3031
REMARKS:
INSTL-RMKS: Flow Cal. *11464128834.26
SPEC-RMKS:
S/N: 238615

MANUFACT: MICRO MOTION
MODEL: DS-040S119SU
SCALE: 0-3600 lb/hr
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: 30001

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
10 lbs. per min. for 1 min	*Before Calibration*	10.33 lbs.
" "	*After Calibration*	10.05 lbs

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Date: 11-20-09 Time: 2:30 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: FT
LOOP: 316
DESCRIPON: FLOW TRANSMITTER
SERVICE: LOW BTU
LOCATION: FLD
LP-SHT:
P&ID: 3031
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MICRO MOTION
MODEL: DS-040
SCALE: 0-3600 lb/hr
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: 30002

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
10 lbs. per min. for 1 min.		9.98 lbs.
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: BB/BA Date: 11-19-07 Time: 4:15 AM [✓ PM]

JB
CALSHEET.WDB

Place: [✓ (Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #3
ANNUAL

TAG: FT
LOOP: 388
DESCRIPON: FLOW TRANSMITTER
SERVICE: LIME SLURRY TO HEAD TANK
LOCATION: FIELD
LP-SHT:
P&ID: 3034
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: E-H
MODEL:
SCALE: 0-20 GPM
CALIB-IN:
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

ESTABLISH UNIFORM FLOW INTO CONTAINER, READ TOTALIZER, FLOW FLUID INTO GRADUATED CONTAINER AND VERIFY WITH TOTALIZER.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
2.5 gallons per minute	Before Calibration	2.5 gallons
for 1 minute		
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed

Performed by: Date: 11-25-09 Time: 4:00 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

QUARTERLY CALIBRATION

D. Mato 11/16/09

ACCURATE SUPERIOR SCALE

5404 Jedmed Ct. - St. Louis, MO 63128
Business: (314) 845-7778 - Fax: (314) 845-7779

Scale Inspection Report

Customer: ONYX ENVIRONMENTAL
#7 MOBILE AVENUE
SAUGET, IL 62201

Description: Class III L
Serial No: 013121
Scale No: 3
Divisions: 5LB

Location: Direct Injection
MFG / Model: WI130

Scale Type: VEHICLE
Capacity: 60000LB

Scale was found in Tolerance: ☐ yes ☒ no ✗

Shift Test Sides / Corners / Sections	Weights Applied	Scale Reading (As found)	Error (+/-)	Tolerance Accept	Scale Reading After Adjustment (As Left)	Accept / Reject
Section 1	21,000 lb	20,945 lb	-55 lb	+/- 20 lb	21,005 lb	ACCEPT
Section 2	21,000 lb	20,980 lb	-20 lb	+/- 20 lb	21,000 lb	ACCEPT
Section 3	21,000 lb	21,000 lb	+0 lb	+/- 20 lb	21,000 lb	ACCEPT
Section 4	21,000 lb	21,000 lb	+0 lb	+/- 20 lb	21,000 lb	ACCEPT
Section 5	21,000 lb	21,000 lb	+0 lb	+/- 20 lb	21,000 lb	ACCEPT
Section 6	21,000 lb	21,005 lb	+5 lb	+/- 20 lb	21,005 lb	ACCEPT

Buildup Weight	Weights Applied	Scale Reading (As found)	Error (+/-)	Tolerance Accept	Scale Reading After Adjustment (As Left)	Accept / Reject
Section 6	3,000 lb	3,005 lb	+5 lb	+/- 5 lb		ACCEPT
	6,000 lb	6,005 lb	+5 lb	+/- 5 lb		ACCEPT
	9,000 lb	9,005 lb	+5 lb	+/- 10 lb		ACCEPT
	12,000 lb	12,005 lb	+5 lb	+/- 10 lb		ACCEPT
	15,000 lb	15,005 lb	+5 lb	+/- 15 lb		ACCEPT
	18,000 lb	18,005 lb	+5 lb	+/- 20 lb		ACCEPT
Section 6	21,000 lb	21,005 lb	+5 lb	+/- 20 lb		ACCEPT

Test Procedure follows QSP009-001/002 NIST #: MO: 259883/253250 39598 OBS04-0288/03-0450 274306
Rice Lake: 822/266926-02 822/272801-06 822/274081-06

✗ Comments/Environmental Conditions:Found broken foot insection 1, on closer Inspection found the scale had 5 bad feet in scale. Installed 5 new cell and feet. ✗

original → Records Room
Copy → M. [illegible]
→ D. Klarich
→ D. Matoesian

Cal Date: 11/12/2009 **Next Cal due:** 90 days

Calibration Dates: JAN APR JUL OCT

Service Technician Registration #: 0152-IL

Calibrated By Service Technician: Alan Primo

Job Queue#: LT217651 **Report ID:** 68061887

Uncertainty of Measurement provided on request

FOR CUSTOMER USE ONLY

Reviewed By ______________________ Date Reviewed ______________

BIWEEKLY UNIT #3 (CMS Task IC4039) PAGE 1 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION	Cap Open	00791	00401	✓	
2	OCL	UPPER CHAMBER TEMP.	<1794 for 1MIN AVG	00867	00402	✓	
3	OCL	HI BTU #/HR MAX	=>828 #/HR	00964	00403	✓	
4	OCL	LOWER CHAMBER TEMP.	<1590 for 1MIN AVG	00869	00404	✓	
5	OCL	LO BTU #/HR MAX	=.1822 #/HR	00966	00405	✓	
6	OCL	FLUE GAS HCL	>100 PPM 1HR Rolling avg.	00871	00406	✓	
7	OCL	FLUE GAS CO	>100 PPM 1HR Rolling avg.	00872	00407	✓	
8	OCL	FLUE GAS OPACITY	=>30% for 480 Sec./Hr.	00873	00408	✓	
9	OCL	FLUE GAS OPACITY	=>60% instantaneous	00874	00409	✓	
10	OCL	FLUE GAS FLOW RATE	>17, 198 ACFM for >1 MIN.	00875	00410	✓	
11	OCL	HEAT INPUT	=>16 MBTU/HR	00865	00411	✓	
12	OCL	CHLORINE INPUT	>217 lbs/HR	00866	00412	✓	
13	OCL	SOLID FEED #/HR MAX	=>1041 #/HR	00960	00413	✓	
14	OCL	UPPER CHAMBER TEMP.	<1845 DEGF HR ROLLING AVG	00883	00414	✓	
15	OCL	SPECIALITY FEEDED #/HR MAX	=>508 #/HR	00962	00415	✓	
17	AWFC	SDA OUTLET TEMP.	>500 deg. F 1MIN avg.	00887	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP.	=<2"WC OR =>10"WC 1MIN avg.	00889	00418	✓	
19	AWFC	FLUE GAS CO	=>500 PPM 1MIN avg.	00890	00419	✓	
20	AWFC	FLUE GAS O2	=<3% 1MIN avg.	00892	00420	✓	
21	AWFC	FLUE GAS HC	=>10 PPM 1MIN avg.	00893	00421	✓	
22	AWFC	FLUE GAS HCL	=>500 PPM 1MIN avg.	00894	00422	✓	
23	AWFC	FLUE GAS FLOW RATE	=>, 720 ACFM inst.	00895	00423	✓	
24	AWFC	FLUE GAS OPACITY	=>10% 1MIN avg.	00897	00424	✓	
	AWFC	LOW CHAMBER TEMP.	<1617 deg. F 1HR rolling avg.	00882	00425	✓	
26	AWFC	LOWER CHAMBER PRESS	=>-.1" wc for 5 secs	00884	00426	✓	
27	AWFC	UPPER CHAMBER PRESS	=>-.1" wc for 5 secs	00885	00427	✓	
28	AWFC	FAILER OF PROCESS MONITOR	LOSS OF SIGNAL	00864	00428	✓	
29	AWFC	ID FAN FAILURE	LOSS OF ID FAN M CONTACT OR VIB >5 MIN	00863	00429	✓	
30	AWFC	UC/LC TEMPS.	TEMPERATURE > 2400 DEG. F	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX	WF SHUTDOWN MANUALLY FROM FIX	00680	00432	✓	
35	MWFC	FLUE GAS HCL	=>50 PPM 1HR rolling avg.	00878	00435	✓	
36	MWFC	HEAT INPUT	=>15.5 MBTU/HR anticipated	00880	00436	✓	
37	MWFC	CHLORINE INPUT	=>233 lbs/HR	00881	00437	✓	
38	MWFC	E-STOPS or T/C MODULE	E-STOP & T/C MODULE inactive	00899	00438	✓	
39	MWFC	FLUE GAS CO	=>50 PPM 1HR rolling avg.	00891	00439	✓	
40	MWFC	ATOMIZER	HI-HI Vibration sw. >5 minutes	00852	00440	✓	
41	SWFC	SPEC. FEED	=>724#/HR EXCEEDED	00963	00441	✓	

BIWEEKLY UNIT #3 (CMS Task IC4030) PAGE 2 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
42	SWFC	HIBTU	=>2012#/HR EXCEEDED	00965	00442	✓	
43	SWFC	LOBTU	=>1993#/HR EXCEEDED	00967	00443	✓	
45	SWFC	HIBTU (see note 1)	LOSS OF SIGNAL	03019	00445	✓	
46	SWFC	LOBTU (see note 1)	LOSS OF SIGNAL	03020	00446	✓	
47	SWFC	SPECIALITY FEED	LOSS OF SIGNAL	03021	00447	✓	
48	MWFC	NORTH & SOUTH IPS ALARMS FAILED	COMMUNICATION'S TIMED OUT FOR BOTH	05703	00448	✓	
50	MWFC	NORTH & SOUTH IPS SERVERS FAILED	COMMUNICATION'S TIMED OUT FOR BOTH	05705	00450	✓	
51	SWFC	DIRECT INJECT	COMMON ALARM	03132	00451	✓	
52	OPL	Bag Leak Detection System (Tribo)				✓	
65	OPL	Pumpable 1 Hour Rolling Total OPL		08205	04113	✓	
66	OPL	Non-Pumpable 1 Hour Rolling Total OPL .		08206	04114	✓	
67	OPL	Total waste 1 Hour Rolling Total OPL		08208	04115	✓	
68	OPL	CL 12 Hour Rolling Total OPL		08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL		08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL		08216	04118	✓	
71	OPL	Mercury 12 Hour Rolling Total OPL		08218	04119	✓	
72	OPL	Ash 12 Hour Rolling Total OPL		08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL		08222	04121	✓	
74	OPL	SCC Temperature 1 Hour Rolling Average Low OPL		08224	04122	✓	
75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL		08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL		08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL		08228	04125	✓	
78	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL		08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL		08236	04127	✓	
	OPL	Stack Flow 1 Hour Rolling Average High OPL		08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL		08244	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL		08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low		08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/LB				✓	
85		(DO NORTH TANK FARM, BIWEEKLY CHECKS)				✓	
86		Hi/DI Atomizing Air Low Pressure alarm (manual check)				✓	
87		Lo/DI Atomizing Air Low Pressure alarm (manual check)				✓	
88		Specialty Feeder Atomizing Air Low Pressure alarm (manual check)				✓	

OCL =CONDITION LIMIT

AWFC =AUTOMATIC WASTE FEED CUTOFF

MWFC =MISC WASTE FEED CUTOFF

SWFC =SPECIFIC WASTE FEED CUTOFF

Comments ____________________

CHECKED BY: Bill Al DATE: 10-14-09 TIME: 1:55 AM [✓ PM]

APPROVED: Haelae Kim PLACE: Control Room

BIWEEKLY_3
4/4/07 HK.

BIWEEKLY UNIT #3 (CMS Task IC4039) PAGE 1 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION	Cap Open	00791	00401	✓	
2	OCL	UPPER CHAMBER TEMP.	<1794 for 1MIN AVG	00867	00402	✓	
3	OCL	HI BTU #/HR MAX	=>828 #/HR	00964	00403	✓	
4	OCL	LOWER CHAMBER TEMP.	<1590 for 1MIN AVG	00869	00404	✓	
5	OCL	LO BTU #/HR MAX	=.1822 #/HR	00966	00405	✓	
6	OCL	FLUE GAS HCL	>100 PPM 1HR Rolling avg.	00871	00406	✓	
7	OCL	FLUE GAS CO	>100 PPM 1HR Rolling avg.	00872	00407	✓	
8	OCL	FLUE GAS OPACITY	=>30% for 480 Sec./Hr.	00873	00408	✓	
9	OCL	FLUE GAS OPACITY	=>60% instantaneous	00874	00409	✓	
10	OCL	FLUE GAS FLOW RATE	>17, 198 ACFM for >1 MIN.	00875	00410	✓	
11	OCL	HEAT INPUT	=>16 MBTU/HR	00865	00411	✓	
12	OCL	CHLORINE INPUT	>217 lbs/HR	00866	00412	✓	
13	OCL	SOLID FEED #/HR MAX	=>1041 #/HR	00960	00413	✓	
14	OCL	UPPER CHAMBER TEMP.	<1845 DEGF HR ROLLING AVG	00883	00414	✓	
15	OCL	SPECIALITY FEEDED #/HR MAX	=>508 #/HR	00962	00415	✓	
17	AWFC	SDA OUTLET TEMP.	>500 deg. F 1MIN avg.	00887	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP.	=<2"WC OR =>10"WC 1MIN avg.	00889	00418	✓	
19	AWFC	FLUE GAS CO	=>500 PPM 1MIN avg.	00890	00419	✓	
20	AWFC	FLUE GAS O2	=<3% 1MIN avg.	00892	00420	✓	
21	AWFC	FLUE GAS HC	=>10 PPM 1MIN avg.	00893	00421	✓	
22	AWFC	FLUE GAS HCL	=>500 PPM 1MIN avg.	00894	00422	✓	
23	AWFC	FLUE GAS FLOW RATE	=>, 720 ACFM inst.	00895	00423	✓	
1	AWFC	FLUE GAS OPACITY	=>10% 1MIN avg.	00897	00424	✓	
	AWFC	LOW CHAMBER TEMP.	<1617 deg. F 1HR rolling avg.	00882	00425	✓	
	AWFC	LOWER CHAMBER PRESS	=>-.1" wc for 5 secs	00884	00426	✓	
27	AWFC	UPPER CHAMBER PRESS	=>-.1" wc for 5 secs	00885	00427	✓	
28	AWFC	FAILER OF PROCESS MONITOR	LOSS OF SIGNAL	00864	00428	✓	
29	AWFC	ID FAN FAILURE	LOSS OF ID FAN M CONTACT OR VIB>5 MIN	00863	00429	✓	
30	AWFC	UC/LC TEMPS.	TEMPERATURE > 2400 DEG. F	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX	WF SHUTDOWN MANUALLY FROM FIX	00680	00432	✓	
35	MWFC	FLUE GAS HCL	=>50 PPM 1HR rolling avg.	00878	00435	✓	
36	MWFC	HEAT INPUT	=>15.5 MBTU/HR anticipated	00880	00436	✓	
37	MWFC	CHLORINE INPUT	=>233 lbs/HR	00881	00437	✓	
38	MWFC	E-STOPS or T/C MODULE	E-STOP & T/C MODULE inactive	00899	00438	✓	
39	MWFC	FLUE GAS CO	=>50 PPM 1HR rolling avg.	00891	00439	✓	
40	MWFC	ATOMIZER	HI-HI Vibration sw. >5 minutes	00862	00440	✓	
41	SWFC	SPEC. FEED	=>724#/HR EXCEEDED	00963	00441	✓	

BIWEEKLY UNIT #3 (CMS Task IC4039) PAGE 2 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
42	SWFC	HIBTU	=>2012#/HR EXCEEDED	00965	00442	✓	
43	SWFC	LOBTU	=>1993#/HR EXCEEDED	00967	00443	✓	
45	SWFC	HIBTU (see note 1)	LOSS OF SIGNAL	03019	00445	✓	
46	SWFC	LOBTU (see note 1)	LOSS OF SIGNAL	03020	00446	✓	
47	SWFC	SPECIALITY FEED	LOSS OF SIGNAL	03021	00447	✓	
48	MWFC	NORTH & SOUTH IPS ALARMS FAILED	COMMUNICATION'S TIMED OUT FOR BOTH	05703	00448	✓	
50	MWFC	NORTH & SOUTH IPS SERVERS FAILED	COMMUNICATION'S TIMED OUT FOR BOTH	05705	00450	✓	
51	SWFC	DIRECT INJECT	COMMON ALARM	03132	00451	✓	
52	OPL	Bag Leak Detection System (Tribo)				✓	
65	OPL	Pumpable 1 Hour Rolling Total OPL		08205	04113	✓	
66	OPL	Non-Pumpable 1 Hour Rolling Total OPL		08206	04114	✓	
67	OPL	Total waste 1 Hour Rolling Total OPL		08208	04115	✓	
68	OPL	CL 12 Hour Rolling Total OPL		08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL		08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL		08216	04118	✓	
71	OPL	Mercury 12 Hour Rolling Total OPL		08218	04119	✓	
72	OPL	Ash 12 Hour Rolling Total OPL		08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL		08222	04121	✓	
74	OPL	SCC Temperature 1 Hour Rolling Average Low OPL		08224	04122	✓	
75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL		08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL		08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL		08228	04125	✓	
78	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL		08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL		08236	04127	✓	
	OPL	Stack Flow 1 Hour Rolling Average High OPL		08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL		08244	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL		08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low		08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/LB				✓	
85		(DO NORTH TANK FARM, BIWEEKLY CHECKS)				✓	
86		Hi/DI Atomizing Air Low Pressure alarm (manual check)				✓	
87		Lo/DI Atomizing Air Low Pressure alarm (manual check)				✓	
88		Specialty Feeder Atomizing Air Low Pressure alarm (manual check)				✓	

OCL =CONDITION LIMIT
AWFC =AUTOMATIC WASTE FEED CUTOFF
MWFC =MISC WASTE FEED CUTOFF
SWFC =SPECIFIC WASTE FEED CUTOFF

Comments ______________________________

CHECKED BY : Bill Adam

DATE : 10-28-09 TIME : 8:47 [✓ AM] PM

APPROVED : Haelun Kim

PLACE : Control Room

BIWEEKLY_3
4/4/07 HK

BIWEEKLY UNIT #3
COMPLIANCE CHECK SHEET

(CMS Task IC4039) PAGE 1 OF 2

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION	Cap Open	00791	00401	✓	
2	OCL	UPPER CHAMBER TEMP.	<1794 for 1MIN AVG	00867	00402	✓	
3	OCL	HI BTU #/HR MAX	=>828 #/HR	00964	00403	✓	
4	OCL	LOWER CHAMBER TEMP.	<1590 for 1MIN AVG	00869	00404	✓	
5	OCL	LO BTU #/HR MAX	=.1822 #/HR	00966	00405	✓	
6	OCL	FLUE GAS HCL	>100 PPM 1HR Rolling avg.	00871	00406	✓	
7	OCL	FLUE GAS CO	>100 PPM 1HR Rolling avg.	00872	00407	✓	
8	OCL	FLUE GAS OPACITY	=>30% for 480 Sec./Hr.	00873	00408	✓	
9	OCL	FLUE GAS OPACITY	=>60% instantaneous	00874	00409	✓	
10	OCL	FLUE GAS FLOW RATE	>17, 198 ACFM for >1 MIN.	00875	00410	✓	
11	OCL	HEAT INPUT	=>16 MBTU/HR	00865	00411	✓	
12	OCL	CHLORINE INPUT	>217 lbs/HR	00866	00412	✓	
13	OCL	SOLID FEED #/HR MAX	=>1041 #/HR	00960	00413	✓	
14	OCL	UPPER CHAMBER TEMP.	<1845 DEGF HR ROLLING AVG	00883	00414	✓	
15	OCL	SPECIALITY FEEDED #/HR MAX	=>608 #/HR	00962	00415	✓	
17	AWFC	SDA OUTLET TEMP.	>500 deg. F 1MIN avg.	00887	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP.	=<2"WC OR =>10"WC 1MIN avg.	00889	00418	✓	
19	AWFC	FLUE GAS CO	=>500 PPM 1MIN avg.	00890	00419	✓	
20	AWFC	FLUE GAS O2	=<3% 1MIN avg.	00892	00420	✓	
21	AWFC	FLUE GAS HC	=>10 PPM 1MIN avg.	00893	00421	✓	
22	AWFC	FLUE GAS HCL	=>500 PPM 1MIN avg.	00894	00422	✓	
23	AWFC	FLUE GAS FLOW RATE	=>, 720 ACFM inst.	00895	00423	✓	
[illegible]	AWFC	FLUE GAS OPACITY	=>10% 1MIN avg.	00897	00424	✓	
	AWFC	LOW CHAMBER TEMP.	<1617 deg. F 1HR rolling avg.	00882	00425	✓	
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29	AWFC	ID FAN FAILURE	LOSS OF ID FAN M CONTACT OR VB >5 MIN	00863	00429	✓	
30	AWFC	UC/LC TEMPS.	TEMPERATURE > 2400 DEG. F	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX	WF SHUTDOWN MANUALLY FROM FIX	00680	00432	✓	
35	MWFC	FLUE GAS HCL	=>50 PPM 1HR rolling avg.	00876	00435	✓	
36	MWFC	HEAT INPUT	=>15.5 MBTU/HR anticipated	00880	00436	✓	
37	MWFC	CHLORINE INPUT	=>233 lbs/HR	00881	00437	✓	
38	MWFC	E-STOPS or T/C MODULE	E-STOP & T/C MODULE inactive	00899	00438	✓	
39	MWFC	FLUE GAS CO	=>50 PPM 1HR rolling avg.	00891	00439	✓	
40	MWFC	ATOMIZER	HI-HI Vibration sw. >5 minutes	00862	00440	✓	
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BIWEEKLY UNIT #3 (CMS Task IC4039) PAGE 2 OF 2

COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
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68	OPL	CL 12 Hour Rolling Total OPL		08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL		08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL		08216	04118	✓	
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72	OPL	Ash 12 Hour Rolling Total OPL		08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL		08222	04121	✓	
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75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL		08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL		08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL		08228	04125	✓	
	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL		08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL		08236	04127	✓	
	OPL	Stack Flow 1 Hour Rolling Average High OPL		08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL		08244	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL		08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low		08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/LB				✓	
85		(DO NORTH TANK FARM; BIWEEKLY CHECKS)				✓	
86		Hi/DI Atomizing Air Low Pressure alarm (manual check)				✓	
87		Lo/DI Atomizing Air Low Pressure alarm (manual check)				✓	
88		Specialty Feeder Atomizing Air Low Pressure alarm (manual cheek)				✓	

OCL =CONDITION LIMIT

AWFC =AUTOMATIC WASTE FEED CUTOFF

MWFC =MISC WASTE FEED CUTOFF

SWFC =SPECIFIC WASTE FEED CUTOFF

Comments ______________________________

CHECKED BY: Bill Adams

DATE: 11-25-09

TIME: 8:23 [✓ AM] PM

APPROVED: HaeLuc Kim

PLACE: Control Room

EEKLY_3
4/4/07 HK

BIWEEKLY UNIT #3
COMPLIANCE CHECK SHEET

(CMS Task 1C4039) PAGE 1 OF 2

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
1	OCL	TRV POSITION	Cap Open	00791	00401	✓	
2	OCL	UPPER CHAMBER TEMP.	<1794 for 1MIN AVG	00867	00402	✓	
3	OCL	HI BTU #/HR MAX	=>828 #/HR	00964	00403	✓	
4	OCL	LOWER CHAMBER TEMP.	<1590 for 1MIN AVG	00869	00404	✓	
5	OCL	LO BTU #/HR MAX	=.1822 #/HR	00966	00405	✓	
6	OCL	FLUE GAS HCL	>100 PPM 1HR Rolling avg.	00871	00406	✓	
7	OCL	FLUE GAS CO	>100 PPM 1HR Rolling avg.	00872	00407	✓	
8	OCL	FLUE GAS OPACITY	=>30% for 480 Sec./Hr.	00873	00408	✓	
9	OCL	FLUE GAS OPACITY	=>60% instantaneous	00874	00409	✓	
10	OCL	FLUE GAS FLOW RATE	>17, 198 ACFM for >1 MIN.	00875	00410	✓	
11	OCL	HEAT INPUT	=>16 MBTU/HR	00865	00411	✓	
12	OCL	CHLORINE INPUT	>217 lbs/HR	00686	00412	✓	
13	OCL	SOLID FEED #/HR MAX	=>1041 #/HR	00960	00413	✓	
14	OCL	UPPER CHAMBER TEMP.	<1845 DEGF HR ROLLING AVG	00883	00414	✓	
15	OCL	SPECIALITY FEEDED #/HR MAX	=>508 #/HR	00962	00415	✓	
17	AWFC	SDA OUTLET TEMP.	>500 deg. F 1MIN avg.	00887	00417	✓	
18	AWFC	BAG HOUSE DIFF.PR. DROP.	=<2"WC OR =>10"WC 1MIN avg.	00889	00418	✓	
19	AWFC	FLUE GAS CO	=>500 PPM 1MIN avg.	00890	00419	✓	
20	AWFC	FLUE GAS O2	=<3% 1MIN avg.	00892	00420	✓	
21	AWFC	FLUE GAS HC	=>10 PPM 1MIN avg.	00893	00421	✓	
22	AWFC	FLUE GAS HCL	=>500 PPM 1MIN avg.	00894	00422	✓	
23	AWFC	FLUE GAS FLOW RATE	=>, 720 ACFM inst.	00895	00423	✓	
24	AWFC	FLUE GAS OPACITY	=>10% 1MIN avg.	00897	00424	✓	
[illegible]	AWFC	LOW CHAMBER TEMP.	<1617 deg. F 1HR rolling avg.	00882	00425	✓	
[illegible]	AWFC	LOWER CHAMBER PRESS	=>-.1" wc for 5 secs	00884	00426	✓	
27	AWFC	UPPER CHAMBER PRESS	=>-.1" wc for 5 secs	00885	00427	✓	
28	AWFC	FAILER OF PROCESS MONITOR	LOSS OF SIGNAL	00864	00428	✓	
29	AWFC	ID FAN FAILURE	LOSS OF ID FAN M CONTACT OR VIB >5 MIN	00863	00429	✓	
30	AWFC	UC/LC TEMPS.	TEMPERATURE > 2400 DEG. F	01600	00430	✓	
32	MWFC	ALL WASTE FEED OFF FROM FIX	WF SHUTDOWN MANUALLY FROM FIX	00680	00432	✓	
35	MWFC	FLUE GAS HCL	=>50 PPM 1HR rolling avg.	00878	00435	✓	
36	MWFC	HEAT INPUT	=>15.5 MBTU/HR anticipated	00880	00436	✓	
37	MWFC	CHLORINE INPUT	=>233 lbs/HR	00881	00437	✓	
38	MWFC	E-STOPS or T/C MODULE	E-STOP & T/C MODULE inactive	00899	00438	✓	
39	MWFC	FLUE GAS CO	=>50 PPM 1HR rolling avg.	00891	00439	✓	
40	MWFC	ATOMIZER	HI-HI Vibration sw. >5 minutes	00862	00440	✓	
41	SWFC	SPEC. FEED	=>724#/HR EXCEEDED	00963	00441	✓	

BIWEEKLY UNIT #3 (CMS Task IC4039) PAGE 2 OF 2
COMPLIANCE CHECK SHEET

		OPERATING PARAMETERS		PLC COIL	BW COIL	PASS	FAIL
42	SWFC	HIBTU	=>2012#/HR EXCEEDED	00965	00442	✓	
43	SWFC	LOBTU	=>1993#/HR EXCEEDED	00967	00443	✓	
45	SWFC	HIBTU (see note 1)	LOSS OF SIGNAL	03019	00445	✓	
46	SWFC	LOBTU (see note 1)	LOSS OF SIGNAL	03020	00446	✓	
47	SWFC	SPECIALITY FEED	LOSS OF SIGNAL	03021	00447	✓	
48	MWFC	NORTH & SOUTH IPS ALARMS FAILED	COMMUNICATION'S TIMED OUT FOR BOTH	05703	00448	✓	
50	MWFC	NORTH & SOUTH IPS SERVERS FAILED	COMMUNICATION'S TIMED OUT FOR BOTH	05705	00450	✓	
51	SWFC	DIRECT INJECT	COMMON ALARM	03132	00451		✓
52	OPL	Bag Leak Detection System (Tribo)				✓	
65	OPL	Pumpable 1 Hour Rolling Total OPL		08205	04113	✓	
66	OPL	Non-Pumpable 1 Hour Rolling Total OPL		08206	04114	✓	
67	OPL	Total waste 1 Hour Rolling Total OPL		08208	04115	✓	
68	OPL	CL 12 Hour Rolling Total OPL		08211	04116	✓	
69	OPL	Low Volatile 12 Hour Rolling Total OPL		08214	04117	✓	
70	OPL	Semi Volatile 12 Hour Rolling Total OPL		08216	04118	✓	
71	OPL	Mercury 12 Hour Rolling Total OPL		08218	04119	✓	
72	OPL	Ash 12 Hour Rolling Total OPL		08220	04120	✓	
73	OPL	PCC Temperature 1 Hour Rolling Average Low OPL		08222	04121	✓	
74	OPL	SCC Temperature 1 Hour Rolling Average Low OPL		08224	04122	✓	
75	OPL	SDA Outlet Temperature 1 Hour Rolling Average High OPL		08226	04123	✓	
76	OPL	Baghouse Differential Pressure 1 Minute Average Low OPL		08227	04124	✓	
77	OPL	Baghouse Differential Pressure 1 Minute Average High OPL		08228	04125	✓	
78	OPL	Stack HCL Corrected 1 Hour Rolling Average High OPL		08232	04126	✓	
	OPL	Stack CO Corrected 1 Hour Rolling Average High OPL		08238	04127	✓	
	OPL	Stack Flow 1 Hour Rolling Average High OPL		08244	04128	✓	
81	OPL	BTU 1 Hour Total OPL		08244	04129	✓	
82	OPL	Hrt Cl/Hra Lime Flow 1 Minute Average High OPL		08251	04130	✓	
83	AWFC	Lime Slurry Density 1 Hour Rolling Average Low		08156	04132	✓	
84		WILL NOT ACCEPT SOLID CHARGES >750 KBTU/LB				✓	
85		(DO NORTH TANK FARM, BIWEEKLY CHECKS)				✓	
86		Hi/DI Atomizing Air Low Pressure alarm (manual check)				✓	
87		Lo/DI Atomizing Air Low Pressure alarm (manual check)				✓	
88		Specialty Feeder Atomizing Air Low Pressure alarm (manual check)				✓	

OCL =CONDITION LIMIT
AWFC =AUTOMATIC WASTE FEED CUTOFF
MWFC =MISC WASTE FEED CUTOFF
SWFC =SPECIFIC WASTE FEED CUTOFF

Comments Scale Replace Load cells on (D.I.)
Down for Repair

CHECKED BY: Bill Adams

DATE: 11-11-09

TIME: 8:35 [✓ AM] PM

APPROVED: Haelan Kim

PLACE: Control Room

EEKLY_3
4/4/07 HK

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 3

Serial # COSA

Parameter	NIST Traceable Calibration Standards			
	Gas	Concentration		
● O2 25%	Low (Zero)	0	±	0.5
○ CO-low range 200ppm	Mid	8.93	±	0.5
○ CO-high range 3000ppm	High	15	±	0.5
○ HCl 1000ppm				

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0.2	-0.2	—	—
2-Mid	8.93	8.88	—	0.05	—
3-High	15	15.1	—	—	-0.1
4-Low	0	0.2	-0.2	—	—
5-Mid	8.93	8.83	—	0.1	—
6-High	15	15.1	—	—	-0.1
7-Low	0	0.2	-0.2	—	—
8-Mid	8.93	8.83	—	0.1	—
9-High	15	15	—	—	0
		Mean Difference =	-0.20	0.08	-0.07
		Calibration Error =	-0.80%	0.33%	-0.27%

Calibration Error = Mean Difference / Span Value * 100

Bill Adams

Name

E/I Tech

Title

Bill adams

Signature

9/23/2009

Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 3

Serial # 154

Parameter	NIST Traceable Calibration Standards			
○ O2 25%	Gas	Concentration		
● CO-low range 200ppm	Low (Zero)	0	±	10
○ CO-high range 3000ppm	Mid	68.9	±	10
○ HCl 1000ppm	High	152	±	10

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0.8	-0.8	—	—
2-Mid	68.9	73.3	—	-4.4	—
3-High	152	152.9	—	—	-0.9
4-Low	0	1	-1	—	—
5-Mid	68.9	72.1	—	-3.2	—
6-High	152	148.3	—	—	3.7
7-Low	0	-0.3	0.3	—	—
8-Mid	68.9	71.6	—	-2.7	—
9-High	152	148.1	—	—	3.9
		Mean Difference =	-0.50	-3.43	2.23
		Calibration Error =	-0.25%	-1.72%	1.12%

Calibration Error = Mean Difference / Span Value * 100

Bill Adams

Name

E/I Tech

Title

Bill Adams

Signature

9/23/2009

Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 3

Serial # 154

Parameter

○ O2 25%

○ CO-low range 200ppm

● CO-high range 3000ppm

○ HCl 1000ppm

NIST Traceable Calibration Standards

Gas	Concentration		
Low (Zero)	0	±	150
Mid	1079.1	±	150
High	2285	±	150

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0.8	-0.8	—	—
2-Mid	1079.1	1127.1	—	-48	—
3-High	2285	2287.5	—	—	-2.5
4-Low	0	0.9	-0.9	—	—
5-Mid	1079.1	1081.6	—	-2.5	—
6-High	2285	2265.1	—	—	19.9
7-Low	0	-0.3	0.3	—	—
8-Mid	1079.1	1076.1	—	3	—
9-High	2285	2252.4	—	—	32.6
		Mean Difference =	-0.47	-15.83	16.67
		Calibration Error =	-0.02%	-0.53%	0.56%

Calibration Error = Mean Difference / Span Value * 100

Bill Adams

Name

E/I TECH

Title

Bill Adams

Signature

9/23/2009

Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 3

Serial # 154

Parameter	NIST Traceable Calibration Standards			
○ O2 25%	Gas	Concentration		
○ CO-low range 200ppm	Low (Zero)	0	±	50
○ CO-high range 3000ppm	Mid	318	±	50
● HCl 1000ppm	High	730	±	50

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0.8	-0.8	—	—
2-Mid	318	326.8	—	-8.8	—
3-High	730	742.9	—	—	-12.9
4-Low	0	0.9	-0.9	—	—
5-Mid	318	345.2	—	-27.2	—
6-High	730	737.9	—	—	-7.9
7-Low	0	-0.3	0.3	—	—
8-Mid	318	353.1	—	-35.1	—
9-High	730	737.1	—	—	-7.1
		Mean Difference =	-0.47	-23.70	-9.30
		Calibration Error =	-0.05%	-2.37%	-0.93%

Calibration Error = Mean Difference / Span Value * 100

Bill Adams
Name

E/I Tech
Title

Bill Adams
Signature

9/23/2009
Date

2/4/2010

Table 1
Summary of Relative Accuracy Test Audit Results
Veolia ES Technical Solutions
Sauget, Illinois
June 22, 23 and 24, 2009

CEMS	Parameter	Units	Measured RA	Criteria	Pass/Fail
Unit 2	CO	ppm @ 7% O_2	0.004 ppm[a]	5[a,b]	Pass
	O_2, dry	%O_2	0.09%[a]	1.0[a,c]	Pass
	O_2, wet	%O_2	0.13%[a]	1.0[a,c]	Pass
Unit 3	CO	ppm @ 7% O_2	0.063 ppm[a]	5[a,b]	Pass
	O_2, dry	%O_2	0.02%[a]	1.0[a,c]	Pass
	O_2, wet	%O_2	0.31%[a]	1.0[a,c]	Pass
Unit 4	CO	ppm @ 7% O_2	1.146 ppm[a]	5[a,b]	Pass
	O_2, dry	%O_2	0.15%[a]	1.0[a,c]	Pass
	O_2, wet	%O_2	0.46%[a]	1.0[a,c]	Pass

[a] Percent of emission standard or absolute average difference (ppm or %).

[b] PS 4B.

[c] PS 3.

ONYX

Veolia
Environmental Services
Sauget Illinois

Created 1/1/2010 6:00 AM
Period Start 1/1/2010 6:00 AM
Period En 1/1/2010 6:00 AM

Incinerator 3

Data Point	1 Min AVG Warn	1 Min AVG Shut	1 Min AVG OPL	1 Hr Roll Warn	1 Hr Roll Shut	1 Hr Roll OPL	1 Hr Roll Tot Warn	1 Hr Roll Tot Shut	1 Hr Roll Tot OPL	12 Hr Roll Tot Warn	12 Hr Roll Tot Shut	12 Hr Roll Tot OPL	1 Hr Tot Warn	1 Hr Tot Shut	1 Hr Tot OPL
Thermodynamic BTU													15.00000	15.50000	16.00000
HCLtoLime	25.00000	28.00000	33.50000												
Stack CO Corrected	450.0000	500.0000		30.00000	75.00000	100.0000									
LimeSlurryDensity	67.50000	0.000000		67.50000	67.30000	67.00000									
Stack HCL Corrected	450.0000	500.0000		25.00000	32.00000										
Stack HCL RCRA	450.0000	500.0000		20.00000	25.00000	100.0000									
Stack O2 Corrected	4.000000														
Stack O2 Raw	4.000000	3.000000													
Stack Opacity	8.000000	10.00000													
Stack Flow	15000.00			14600.00	14550.00	15147.00									
SDA Outlet Temp	430.0000	500.0000		417.0000	418.0000	420.0000									
Baghouse Diff Press Low	3.000000	2.000000													
Baghouse Diff Press High	9.000000	10.00000													

Stack THC	8.000000	10.00000	.	.	.	.	.	.	.	.	.	.	.	.	.
Low BTU Weight	.	.	.	.	.	.	.	.	.	.	.	.	1900.000	1933.000	1983.000
Special Feed Weight	.	.	.	.	.	.	.	.	.	.	.	.	600.0000	664.0000	724.0000
High BTU Weight	.	.	.	.	.	.	.	.	.	.	.	.	1900.000	1952.000	2012.000
Solids Weight	.	.	.	.	.	.	1000.000	1020.000	1053.000	.	.	.	1000.000	1020.000	1053.000
PCC Temp	1750.000	1590.000	.	1775.000	1742.000	1734.000	.	.	.	.	.	.	.	.	.
SCC Temp	1860.000	1724.000	.	1880.000	1854.000	1849.000	.	.	.	.	.	.	.	.	.
Stack CO RCRA	450.0000	600.0000	.	50.00000	90.00000	100.0000	.	.	.	.	.	.	.	.	.
Liquid Weight	.	.	.	.	.	.	2650.000	2950.000	3107.000	.	.	.	.	.	.
Weight	.	.	.	.	.	.	3750.000	3850.000	4017.000	.	.	.	.	.	.
Chlorine	.	.	.	.	.	.	200.0000	218.0000	.	2400.000	2500.000	2616.000	200.0000	217.0000	233.0000
Mercury	.	.	.	.	.	.	0.003000	0.003400	.	0.030000	0.034000	0.040800	.	.	.
Ash	.	.	.	.	.	.	625.0000	673.0000	.	7500.000	8000.000	8076.000	.	.	.
Low Volatile	.	.	.	.	.	.	40.00000	46.00000	.	500.0000	530.0000	552.0000	.	.	.
Semi Volatile	.	.	.	.	.	.	56.00000	63.00000	.	700.0000	730.0000	756.0000	.	.	.

CMS Performance Evaluation

Unit 4

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PT
LOOP: 300
DESCRIPON: PRESS TRANSM
SERVICE: KILN HOOD
LOCATION: FTRNSP
LP-SHT: 300
P&ID: F015
REMARKS: Reranged 1/19/96
INSTL-RMKS: 1/2"x 29" SS PIPE inside Kiln
SPEC-RMKS:
S/N:

MANUFACT: ROSEMONT
MODEL: 1151DR2F
SCALE:
CALIB-IN: -9.0" TO 1.0" WC
CALIB-OUT: 4-20 ma
PROCESS-SP: Atmosphere = 18.40 ma
INST-SP: Set Dampening pot full CW
ACTION:
I/O NUMBER: N1:25

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
-9" WC		4.04 mA
1" WC		20.05mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No needed Calibration

Performed by: Haeloc Kim Date: 11-12-09 Time: 1:00 AM [✓ PM]

JB
CALSHEET.WDB

Place: ____________
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PT
LOOP: 324
DESCRIPON: PRESS TRANSM
SERVICE: SCC OUTLET
LOCATION: FLD
LP-SHT: 324
P&ID: F015
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: ROSEMONT
MODEL: 1151GP3E
SCALE:
CALIB-IN: -15" TO +5" WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
-15" WC		4.03 mA
5" WC		20.03 mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: HaeCae Kim Date: 11-12-09 Time: 12:10 [✓ AM] PM

JB
CALSHEET.WDB

Place:
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PDT
LOOP: 439
DESCRIPON: DP TRANS
SERVICE: BAGHOUSE PRESSUER
LOCATION: WAPC
LP-SHT: 437
P&ID: F017
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS: NORTH/EAST BAGHOUSE
SPEC-RMKS:
S/N:

MANUFACT: FOXBORO
MODEL: 823 DPI
SCALE:
CALIB-IN: 0-15" WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		4.02 mA
15"wc		19.97 mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Haelac Kim Date: 11-12-09 Time: 9:20 [✓ AM] PM

JB
CALSHEET.WDB

Place:
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PDT
LOOP: 440
DESCRIPON: DP TRANS
SERVICE: BAGHOUSE PRESSUER
LOCATION: WAPC
LP-SHT: 437
P&ID: F017
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS: NORTH/CENTRAL BAGHOUSE
SPEC-RMKS:
S/N:

MANUFACT: FOXBORO
MODEL: 823 DPI
SCALE:
CALIB-IN: 0-15" WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		3.99 mA
15"wc		20.03 mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No needed Calibration

Performed by: HaeLac Kim Date: 11-12-09 Time: 11:10 [✓ AM] PM

JB
CALSHEET.WDB

Place:
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PDT
LOOP: 441
DESCRIPON: DP TRANS
SERVICE: BAGHOUSE PRESSUER
LOCATION: WAPC
LP-SHT: 437
P&ID: F017
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS: NORTH/WEST BAGHOUSE
SPEC-RMKS:
S/N:

MANUFACT: FOXBORO
MODEL: 823 DPI
SCALE:
CALIB-IN: 0-15" WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		4.04 mA
15"wc		19.92 mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: ______________________________

Performed by: ______________ Date: 11-12-09 Time: 9:00 [✓ AM] PM

JB
CALSHEET.WDB

Place: ______________
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PDT
LOOP: 442
DESCRIPON: DP TRANS
SERVICE: BAGHOUSE PRESSUER
LOCATION: WAPC
LP-SHT: 437
P&ID: F017
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS: SOUTH/EAST BAGHOUSE
SPEC-RMKS:
S/N:

MANUFACT: FOXBORO
MODEL: 823 DPI
SCALE:
CALIB-IN: 0-15" WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		4.01 mA
15" WC		19.92 ~~19.87~~ HK mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No need Cal

Performed by: Haelac Kim Date: 11 ~~0~~-12-09 Time: 9:40 [✓ AM] PM

JB
CALSHEET.WDB

Place: ____________
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PDT
LOOP: 443
DESCRIPON: DP TRANS
SERVICE: BAGHOUSE PRESSUER
LOCATION: WAPC
LP-SHT: 437
P&ID: F017
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS: SOUTH/CENTRAL BAGHOUSE
SPEC-RMKS:
S/N:

MANUFACT: FOXBORO
MODEL: 823 DPI
SCALE:
CALIB-IN: 0-15" WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		4.01 mA
15"WC		19.97 mA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No needed Cal.

Performed by: HaeLac Kim Date: 11-12-09 Time: 8:50 [✓ AM] PM

JB
CALSHEET.WDB

Place: ______
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: PDT
LOOP: 444
DESCRIPON: DP TRANS
SERVICE: BAGHOUSE PRESSUER
LOCATION: WAPC
LP-SHT: 437
P&ID: F017
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS: SOUTH/WEST BAGHOUSE
SPEC-RMKS:
S/N:

MANUFACT: FOXBORO
MODEL: 823 DPI
SCALE:
CALIB-IN: 0-15" WC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

USE PNEUMATIC CALIBRATION BENCH WITH MANOMETER AND LOOP CALIBRATOR. INPUT PNEUMATIC SIGNAL AND READ OUTPUT WITH LOOP CALIBRATOR.

See Manufactures literature for detailed instructions. Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		3.85 HK ~~[illegible]~~ mA
15" WC		19.87 mA
	After Calibration	
0		4 mA
15" WC		20.01 mA

CALIBRATION SOURCE REFERENCE

Comments: ______________________

Performed by: HaeLee Kim Date: 11-12-09 Time: 8:30 [✓ AM] PM

JB
CALSHEET.WDB

Place: ______________________
(*Field or Shop*)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: WIT
LOOP: 001
DESCRIPON: WT TRANS
SERVICE: SHREDDED SOLIDS
LOCATION: FTRNSP
LP-SHT: 1
P&ID: F012
REMARKS: W/SOLIDS FEED SYSTEM
INSTL-RMKS:
SPEC-RMKS:
S/N: E12665900A

MANUFACT: TOLEDO
MODEL: 8140
SCALE: 0-3000#
CALIB-IN: 0-3000#
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N1:5

CALIBRATION NOTES

Check scale, digital Calibration per. Toledo instructions. Then with no weight on scale adjust analog zero. (NOTE: HMI will not display numbers less than zero). Next add weight = to 10% are more of scales range, then adjust analog span, to indicate weight on scale, as read on HMI screen.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		0
490		492
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-6-07 Time: 4:00 AM [✓ PM]

Place:
([✓ Field] or Shop)

JB
CALSHEET.WDB
R

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: WIT
LOOP: 014A
DESCRIPON: WT TRANS
SERVICE: DRUM FEED
LOCATION: FTRNSP
LP-SHT:
P&ID:
REMARKS: W/DRUM FEED NEMATRON
INSTL-RMKS:
SPEC-RMKS:
S/N: 42601574NS

MANUFACT: TOLEDO
MODEL: 8140
SCALE: 0-1,000 lb.
CALIB-IN: 0-1,000 lb.
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N1:35

CALIBRATION NOTES

Check scale, digital Calibration per. Toledo instructions. Then with no weight on scale adjust analog zero. (NOTE: HMI will not display numbers less than zero). Next add weight ≈ to 10% are more of scales range, then adjust analog span, to indicate weight on scale, as read on HMI screen.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		0
50		50
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-6-09 Time: 3:30 AM [✓ PM]

Place: ([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG: WIT
LOOP: 014B
DESCRIPON: WT TRANS
SERVICE: AUX. DRUM FEED
LOCATION: FTRNSP
LP-SHT:
P&ID:
REMARKS: NEW AUX DRUM FEED
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: TOLEDO
MODEL: 8140
SCALE: 0-200#
CALIB-IN: 0-200#
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Check scale, digital Calibration per. Toledo instructions. Then with no weight on scale adjust analog zero. (NOTE: HMI will not display numbers less than zero). Next add weight = to 10% are more of scales range, then adjust analog span, to indicate weight on scale, as read on HMI screen.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0	*Before Calibration*	0
50		50
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: Date: 11-6-09 Time: 3:35 AM [✓ PM]

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
QUARTERLY

TAG:
LOOP: 550A
DESCRIPON: Tribo
SERVICE: Baghouse Leak Detection
LOCATION: FLD
LP-SHT:
P&ID:
REMARKS:
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: Auburn
MODEL: TRIBO.dgd
SCALE: 0-1000pa
CALIB-IN: 0-1000pa
CALIB-OUT: 4-20ma
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Disconnect the input cable at the BNC connector on the input card, and check for zero. Use Auburn, Triboflow, filed test unit, model 2902, to input a Pico-Amp signal of 500pa and record these values.

0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		0
500 pa		499.88 pa
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No Cal. NEEDED

Performed by: Bill Date: 11-6-09 Time: 9:53 [✓ AM] PM

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

XU4 (IC4034) PAGE 1 OF 1

QUARTERLY CARBON INJECTION PREVENTIVE MAINTENANCE CHECK SHEET

		PASS	FAIL
1	Disconnect AC Power to the Digi Drive.	✓	
2	Inspect AC & Motor drive screw terminal connections for signs of wear or corrosion and check that they are tight.	✓	
3	Replace the two Digi Drive fuses	✓	
4	Verify any external safety switches or lockouts are still operation	✓	
5	Remove Screw feeder cover & blow out carbon & dust.	✓	
6	Inspect Gears & Belts for wear or damage.	✓	
7	Check Operation of Motor & Gears for abnormal noise or movement.	✓	
8	Replace any needed parts, and list any parts used in comment	✓	

COMMENTS :

Name: HK/BA Date : 12-6-07 Time: 3:30 AM [✓ PM]

QUARTER 4
11/1/06 KF

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: FT
LOOP: 129
DESCRIPON: FLOW TRANS
SERVICE: PCC LOW GRADE WDF X-10
LOCATION: P-BMS
LP-SHT: 129
P&ID: F013
REMARKS: W/BMS
INSTL-RMKS:
SPEC-RMKS:
S/N: 101499

MANUFACT: MICRO MOTION
MODEL: DS100S 128
SCALE:
CALIB-IN: 0-7,000 #/HR
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~ 10%

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
15 lbs. per min. for 1 min.		14.6 lbs
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: BB/DO
Date: 12-8-09 Time: 2:00 AM [✓ PM]

JB
CALSHEET.WDB
I

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG:	FT		
LOOP:	145		
DESCRIPON:	FLOW TRANS	MANUFACT:	MICRO MOTION
SERVICE:	PCC SLUDGE X-12	MODEL:	DL100S-SS
LOCATION:	P-BMS	SCALE:	
LP-SHT:	145	CALIB-IN:	0-8,000 #/HR
P&ID:	F013	CALIB-OUT:	4-20 MADC
REMARKS:	W/BMS	PROCESS-SP:	
INSTL-RMKS:		INST-SP:	
SPEC-RMKS:		ACTION:	
S/N:	103056	I/O NUMBER:	N1:28

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
10 lbs. per min. for 1 min.	*Before Calibration*	9.91 lbs.
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed

Performed by: BB/CE/DO Date: 12-4-09 Time: 4:00 AM [✓ PM]

JB
CALSHEET.WDB

Place: ([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG:	FT		
LOOP:	212		
DESCRIPON:	FLOW TRANS	MANUFACT:	MICRO MOTION
SERVICE:	WDF TO X-22	MODEL:	D1D00S-SS
LOCATION:	S-BMS	SCALE:	
LP-SHT:	212	CALIB-IN:	0-7,000 #/HR
P&ID:	F014	CALIB-OUT:	4-20 MADC
REMARKS:	W/BMS	PROCESS-SP:	
INSTL-RMKS:		INST-SP:	
SPEC-RMKS:		ACTION:	
S/N:	101775	I/O NUMBER:	

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~ 10%

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
15 lbs. per min.		14.8 lbs.
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: BB/DO Date: 12-9-09 Time: 4:00 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB
7

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: FT
LOOP: 138
DESCRIPON: FLOW TRANS
SERVICE: PCC AQ LIQ X-11
LOCATION: P-BMS
LP-SHT: 138
P&ID: F013
REMARKS: W/BMS
INSTL-RMKS:
SPEC-RMKS:
S/N: 1155343

MANUFACT: MICRO MOTION
MODEL: D100S-HY
SCALE:
CALIB-IN: 0-6,000 #/HR
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER:

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. set control system to appropriate rate control, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~ 10%

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
15 lbs. per min for 1 min.		14.8 lbs.
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No calibration needed.

Performed by: BB/DO Date: 12-8-09 Time: 11:00 [✓ AM] PM

Place:
([✓ Field] or Shop)

JB
CALSHEET.WDB

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: TT
LOOP: 317A
DESCRIPON: TC ASSEMBLE
SERVICE: SCC OUTLET
LOCATION: FLD
LP-SHT: 317
P&ID: F015
REMARKS:
INSTL-RMKS: TC WELL INCONEL 601 24"
SPEC-RMKS:
S/N:

MANUFACT: CHESSEL
MODEL: 3510
SCALE: Type R TC
CALIB-IN: 0-3000 F
CALIB-OUT: 4-20 MADC
PROCESS-SP: 24" INCONEL 601 WELL
INST-SP:
ACTION:
I/O NUMBER: N1:51

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a temperature signal of 500 deg F. and 2,000 deg.F. at input of transmitter, then verify this single in control room.

See Manufactures literature for detailed instructions. Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500		WKA ~~508~~ 500°
2000		2000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: NO CALIBRATION NEED

Performed by: Bill Adams Date: 11-17-09 Time: 12 28 AM [✓ PM]

JB
CALSHEET.WDB
R

Place:
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: TT
LOOP: 317B
DESCRIPON: TC ASSEMBLE
SERVICE: SCC OUTLET
LOCATION: FLD
LP-SHT: 317
P&ID: F015
REMARKS:
INSTL-RMKS: TC WELL INCONEL 601 24"
SPEC-RMKS:
S/N:

MANUFACT: CHESSEL
MODEL: 3510
SCALE: Type R TC
CALIB-IN: 0-3000 F
CALIB-OUT: 4-20 MADC
PROCESS-SP: 24" INCONEL 601 WELL
INST-SP:
ACTION:
I/O NUMBER: N1:52

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a temperature signal of 500 deg F. and 2,000 deg.F. at input of transmitter, then verify this single in control room.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
500		500
2000		2000
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Bill Adam Date: 11-17-09 Time: 1:19 AM [✓ PM]

Place: ([✓ Field] or Shop)

JB
CALSHEET.WDB
R

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: TT
LOOP: 305A
DESCRIPON: PYROMETER
SERVICE: KILN OUTLET
LOCATION: FLD
LP-SHT: 305
P&ID: F015
REMARKS: 44-99-F-1-0-1
INSTL-RMKS: 55" Target Tube
SPEC-RMKS:
S/N:

MANUFACT: IRCON
MODEL: MODLINE4 44-99-F-1-0-1
SCALE: Type R TC
CALIB-IN: 0-3,000 deg F
CALIB-OUT: 4-20 MADC
PROCESS-SP: EMIS. 85%
INST-SP:
ACTION:
I/O NUMBER: N1:51

CALIBRATION NOTES

Install factory calibrated Pyrometer.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE	INSTRUMENT READING
Before Calibration	
After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: Calibrated by Fluke

Performed by: ________ Date: ______ Time: ______ AM PM

Place: ________
(Field or Shop)

JB
CALSHEET.WDB
S

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: TT
LOOP: 305B
DESCRIPON: PYROMETER
SERVICE: KILN OUTLET
LOCATION: FLD
LP-SHT: 305
P&ID: F015
REMARKS: 44-99-F-1-0-1
INSTL-RMKS: 55" Target Tube
SPEC-RMKS:
S/N:

MANUFACT: IRCON
MODEL: MODLINE4 44-99-F-1-0-1
SCALE: Type R TC
CALIB-IN: 0-3,000 deg F
CALIB-OUT: 4-20 MADC
PROCESS-SP: EMIS. 85%
INST-SP:
ACTION:
I/O NUMBER: N1:52

CALIBRATION NOTES

Install factory calibrated Pyrometer.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
0.1 lb/hr

CALIBRATION REPORT

INPUT VALUE	INSTRUMENT READING
Before Calibration	
After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: Calibrated by Fluke

Performed by: ________ Date: ______ Time: ______ AM PM

Place: ________
(Field or Shop)

JB
CALSHEET.WDB
S

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: TT
LOOP: 404A
DESCRIPON: TC TRANS
SERVICE: TC GAS OUTLET
LOCATION: WAPC
LP-SHT: 404
P&ID: F016
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MOORE
MODEL: TIY/K2-0-1-4-20MA
SCALE: 0-1500 deg F
CALIB-IN: Type K TC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N1:114

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a temperature signal of 200 deg F. and 1,000 deg.F. at input of transmitter, then verify this single in control room.

See Manufactures literature for detailed instructions. Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
200°		200°
1000°		1000°
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: NO CALIBRATION NEEDED

Performed by: Bill Adams
Date: 11-17-09 Time: 11:35 [✓ AM] PM

Place:
([✓ Field] or Shop)

JB
CALSHEET.WDB
I

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: TT
LOOP: 404B
DESCRIPON: TC TRANS
SERVICE: TC GAS OUTLET
LOCATION: WAPC
LP-SHT:
P&ID: F016
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: MOORE
MODEL: TIY/K2-0-1-4-20MA
SCALE: 0-1500 deg F
CALIB-IN: Type K TC
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N1:115

CALIBRATION NOTES

Use cold junction compensated thermocouple calibrator to input a temperature signal of 200 deg F. and 1,000 deg.F. at input of transmitter, then verify this single in control room.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
200°		200°
1000°		~~1000~~ 1003° wkA
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No CALIBRATION NEEDED

Performed by: Bill Adams
Date: 11-17-09 Time: 11:39 [✓ AM] PM

Place: ____________
(Field or Shop)

JB
CALSHEET.WDB
I

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: FT
LOOP: 559A
DESCRIPON: dp Transmitter
SERVICE: STACK FLOW
LOCATION: FLD
LP-SHT: 559
P&ID: F018
REMARKS: FSE averaging pitot tube
INSTL-RMKS: East side of Stack
SPEC-RMKS:
S/N: 1222931

MANUFACT: Automation Service
MODEL: 11S1DR2F22B3
SCALE: 0-1.73 in wc
CALIB-IN: 0-55,000 ACFM
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N001:0093

CALIBRATION NOTES

~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0		4.13 mA
1.73" W.C.		19.68 mA
	After Calibration	
0		4.0
1.73		20.0

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Date: 12-7-09 Time: 10:30 [✓ AM] PM

JB
CALSHEET.WDB

Place:
(Field or [✓ Shop])

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: FT
LOOP: 559B
DESCRIPON: dp Transmitter
SERVICE: STACK FLOW
LOCATION: FLD
LP-SHT: 559
P&ID: F018
REMARKS: PSE averaging pitot tube
INSTL-RMKS: North side of Stack
SPEC-RMKS:
S/N: 1222931

MANUFACT: Automation Service
MODEL: 11S1DR2F22B3
SCALE: 0-1.73 in wc
CALIB-IN: 0-55,000 ACFM
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N001:0093

CALIBRATION NOTES

~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0	*Before Calibration*	4.13 mA
1.73" WC		19.86 mA
0	*After Calibration*	4.0 mA
1.73		20.0 mA

CALIBRATION SOURCE REFERENCE

Comments:

Performed by: Date: 12-2-09 Time: 11:00 [✓ AM] PM

JB
CALSHEET.WDB

Place:
([✓ Field] or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: FT
LOOP: 425
DESCRIPON: MAG METER
SERVICE: X-18 DIL SLURRY
LOCATION: WAPC
LP-SHT: 425
P&ID: F016
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS:
SPEC-RMKS:
S/N:

MANUFACT: Fischer & Porter
MODEL: 1475EN09PL29KD11CACL
SCALE: 0-20 GPM
CALIB-IN: 0-20 GPM
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N1:112

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. Set control system to appropriate control rate, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
0 Gal	*Before Calibration*	0 Gal
2 Gal		2 Gal
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No Calibration Needed

Performed by: Date: 12-11-09 Time: 2:00 ~~AM~~ [✓ PM]

JB
CALSHEET.WDB

Place: Field
(Field or Shop)

TWI INSTRUMENT CALIBRATION RECORD
UNIT #4
ANNUAL

TAG: FT
LOOP: 426
DESCRIPON: MAG METER
SERVICE: X-19 DIL SLURRY
LOCATION: WAPC
LP-SHT: 426
P&ID: F016
REMARKS: W/GAS CLEANING TRAIN
INSTL-RMKS: Size 1: or 25mm
SPEC-RMKS:
S/N:

MANUFACT: Fischer & Porter
MODEL: 10D1475C
SCALE: 0-20 GPM
CALIB-IN: 0-20 GPM
CALIB-OUT: 4-20 MADC
PROCESS-SP:
INST-SP:
ACTION:
I/O NUMBER: N1:113

CALIBRATION NOTES

Flush process piping, connect water hose to upstream side of flow meter. Set control system to appropriate control rate, and read totalizer, flow water into a container and compare the toltalizer reading to the measured amount in container.

See Manufactures literature for detailed instructions.
Fill out and affix a new calibration sticker.
~~0.1 lb/hr~~

CALIBRATION REPORT

INPUT VALUE		INSTRUMENT READING
	Before Calibration	
0 Gal		0 Gal
2 Gal		2 Gal
	After Calibration	

CALIBRATION SOURCE REFERENCE

Comments: No Calibration Needed

Performed by: Date: 12-11-09 Time: 2:00 AM [✓ PM]

JB
CALSHEET.WDB

Place: Field
(Field or Shop)

BIWEEKLY UNIT #4 (CMS Task IC4032) PAGE 1 OF 3

WASTE FEED CUT-OFF

		PASS	FAIL
1	TSHH-305 KILN HIGH HIGH	✓	
2	TSHH-317 SCC HIGH HIGH	✓	
3	PAHH-300 KILN HIGH PRESSURE	✓	
4	PAHH-324 SCC HIGH PRESSURE	✓	
6	TAHH-404 TEMPERING CHAMBER HIGH TEMP	✓	
7	VIOLATION OPACITY HIGH INSTANTATEOUS	✓	
8	PROCESS MONITOR FAILED	✓	
9	WASTE FEED MONITOR FAILED	✓	
12	VIOLATION STACK FLOW HIGH 1 MIN	✓	
13	VIOLATION ZAC-316 (TRV) OPEN	✓	
14	VIOLATION ZAC-026 SURGE VENT OPEN	✓	
15	UA-557 ANALYZER FAIL HCL	✓	
6	UA-558 ANALYZER FAIL CO	✓	
17	UA-560 ANALYZER FAIL O2	✓	
16	UA-562 ANALYZER FAIL HC	✓	
19	PDAL-553 LOW DELTA P. (ID FAN FAILURE)	✓	
20	WFD-OFF CARBON INJECTION SYSTEM FAILED	✓	
21	PSL-100/PSL-200 SCC COMB. AIR FAN FAILED	✓	
23	PSL-209 X-14 PRIMARY FUEL LOW PRESS. (ONLY APPLICABLE FOR #2 FUEL OIL)	✓	
25	STACK FLOW HIGH INSTANTANEOUS	✓	
35	VIOLATION SCC TEMP. LOW 1 MIN AVERAGE	✓	
36	VIOLATION KILN TEMP. LOW 1 MIN AVERAGE	✓	
37	WFD-OFF HCL HIGH 1 MIN AVERAGE	✓	
38	WFD-OFF OPACITY HIGH 1 MIN AVERAGE	✓	
39	WFD-OFF CO HIGH 1 MIN AVERAGE	✓	
0	WFD-OFF HC (THC) HIGH 1 MIN AVERAGE	✓	
41	WFD-OFF BAGHOUSE DELTA P HIGH 1 MIN AVERAGE	✓	

ASTE FEED CUT-OFF

		PASS	FAIL
42	WFD-OFF SDA OUTLET HIGH TEMP. 1 MIN AVERAGE	✓	
43	WFD-OFF OXYGEN (O2) LOW 1 MIN AVERAGE	✓	
44	VIOLATION HCL HIGH 1 HOUR AVERAGE	✓	
45	VIOLATION CO HIGH 1 HOUR AVERAGE	✓	
46	VIOLATION SCC TEMP. LOW 1 HOUR AVERAGE	✓	
47	WFD-OFF KILN TEMP. LOW 1 ~~MIN~~ HOUR AVERAGE	✓	
48	VIOLATION OPACITY HIGH 180 SEC/HOUR	✓	
49	WFD-OFF BAGHOUSE DELTA P LOW 1 MIN AVERAGE	✓	
52	Bag Leak Detection System (Tribo)	✓	
65	Pumpable 1 Hour Rolling Total OPL	✓	
66	Non-Pumpable 1 Hour Rolling Total OPL	✓	
67	Total Waste 1 Hour Rolling Total OPL	✓	
8	BTU 1 Hour Total OPL	✓	
69	CL 12 Hour Rolling Total OPL	✓	
70	Low Violatile 12 Hour Rolling Total OPL	✓	
71	Semi Violatile 12 Hour Rolling Total OPL	✓	
72	Mercury 12 Hour Rolling Total OPL	✓	
73	Ash 12 Hour Rolling Total OPL	✓	
74	PCC Temperature 1 Hour Rolling Average Low OPL	✓	
75	SCC Temperature 1 Hour Rolling Average Low OPL	✓	
76	SDA Outlet Temperature 1 Hour Rolling Average High OPL	✓	
77	Baghouse Differential Pressure 1 Minute Average Low OPL	✓	
78	Baghouse Differential Pressure 1 Minute Average High OPL	✓	
79	Stack HCL Corrected 1 Hour Rolling Average High OPL	✓	
80	Stack CO Corrected 1 Hour Rolling Average High OPL	✓	
1	Stack Flow 1 Hour Rolling Average High OPL	✓	
82	Hrt Cl/Hra Lime Flow 1 Minute Average OPL	✓	

50 WASTE FEED CUT-OFF TEST BY OPERATOR

UNIT #4 OPERATOR TO CLOSE MANUAL HAND VALVE AT LIQUID INJECTOR BEFORE FLEX LIME & AIR LINE TO SCREENED FEEDER XV-013 SLIDE GATE.

UNIT #4 OPERATOR TO VERIFY CUT-OFF BY PRESSING EACH START BUTTON.
(THEN INITIAL & SIGN SHEET)

SHREDDED ✓ SCREENED ✓ MAIN CONVEYOR ✓ AUX CONVEYOR ✓

X-10 ✓ X-11 ✓ X-12 ✓ X-22 ✓

VERIFY ATOMIZING AIR ALARM BY MANUALLY SHUTTING AIR TO PRESSURE SWITCH.
(NOZZEL MUST BE OPEN FOR ALARM TO FUNCTION)

X-10 ✓ X-11 ✓ X-12 ✓ X-22 ✓

ALSO CHECK OPERATION OF RAM COOLING WATER LOW FLOW ALARM (MSG# >276) ✓

CHECKED BY : Chuck Edwards

83 Lime Slurry Density Low 1 Hour Rolling Average Shoutdown

LOG CHECKS IN OPERATIONS BOOK.

85 ROD OUT KILN PRESSURE LINE (PT-300)

COMMENTS :

CHECKED BY : Chuck Edwards Date : 10-5-09 Time : 3:45 AM [✓ PM]

APPROVED BY : Haelae Kim Place : Control Room

WEEKLY UNIT #4 (CMS Task IC4032) PAGE 1 OF 3

STE FEED CUT-OFF

		PASS	FAIL
1	TSHH-305 KILN HIGH HIGH	✓	
2	TSHH-317 SCC HIGH HIGH	✓	
3	PAHH-300 KILN HIGH PRESSURE	✓	
4	PAHH-324 SCC HIGH PRESSURE	✓	
6	TAHH-404 TEMPERING CHAMBER HIGH TEMP	✓	
7	VIOLATION OPACITY HIGH INSTANTATEOUS	✓	
8	PROCESS MONITOR FAILED	✓	
9	WASTE FEED MONITOR FAILED	✓	
12	VIOLATION STACK FLOW HIGH 1 MIN	✓	
13	VIOLATION ZAC-316 (TRV) OPEN	✓	
14	VIOLATION ZAC 026 SURGE VENT OPEN	✓	
~~15~~	~~UA-557 ANALYZER FAIL HCL~~	✓	
16	UA-558 ANALYZER FAIL CO	✓	
17	UA-560 ANALYZER FAIL O2	✓	
18	UA-562 ANALYZER FAIL HC	✓	
19	PDAL-563 LOW DELTA P. (ID FAN FAILURE)	✓	
20	WFD-OFF CARBON INJECTION SYSTEM FAILED	✓	
21	PSL-100/PSL-200 SCC COMB. AIR FAN FAILED	✓	
23	PSL-209 X-14 PRIMARY FUEL LOW PRESS. (ONLY APPLICABLE FOR #2 FUEL OIL)	✓	
25	STACK FLOW HIGH INSTANTANEOUS	✓	
35	VIOLATION SCC TEMP. LOW 1 MIN AVERAGE	✓	
36	VIOLATION KILN TEMP. LOW 1 MIN AVERAGE	✓	
37	WFD-OFF HCL HIGH 1 MIN AVERAGE	✓	
38	WFD-OFF OPACITY HIGH 1 MIN AVERAGE	✓	
39	WFD-OFF CO HIGH 1 MIN AVERAGE	✓	
40	WFD-OFF HC (THC) HIGH 1 MIN AVERAGE	✓	
41	WFD-OFF BAGHOUSE DELTA P HIGH 1 MIN AVERAGE	✓	

		PASS	FAIL
42	WFD-OFF SDA OUTLET HIGH TEMP. 1 MIN AVERAGE	✓	
43	WFD-OFF OXYGEN (O2) LOW 1 MIN AVERAGE	✓	
44	VIOLATION HCL HIGH 1 HOUR AVERAGE	✓	
45	VIOLATION CO HIGH 1 HOUR AVERAGE	✓	
46	VIOLATION SCC TEMP. LOW 1 HOUR AVERAGE	✓	
47	WFD-OFF KILN TEMP. LOW 1 Hour ~~MIN~~ AVERAGE	✓	
48	VIOLATION OPACITY HIGH 480 SEC/HOUR	✓	
40	WFD-OFF BAGHOUSE DELTA P LOW 1 MIN AVERAGE	✓	
52	Bag Leak Detection System (Tribo)	✓	
65	Pumpable 1 Hour Rolling Total OPL	✓	
66	Non-Pumpable 1 Hour Rolling Total OPL	✓	
67	Total Waste 1 Hour Rolling Total OPL	✓	
68	BTU 1 Hour Total OPL	✓	
69	CL 12 Hour Rolling Total OPL	✓	
70	Low Violatile 12 Hour Rolling Total OPL	✓	
71	Semi Violatile 12 Hour Rolling Total OPL	✓	
72	Mercury 12 Hour Rolling Total OPL	✓	
73	Ash 12 Hour Rolling Total OPL	✓	
74	PCC Temperature 1 Hour Rolling Average Low OPL	✓	
75	SCC Temperature 1 Hour Rolling Average Low OPL	✓	
76	SDA Outlet Temperature 1 Hour Rolling Average High OPL	✓	
77	Baghouse Differential Pressure 1 Minute Average Low OPL	✓	
78	Baghouse Differential Pressure 1 Minute Average High OPL	✓	
79	Stack HCL Corrected 1 Hour Rolling Average High OPL	✓	
80	Stack CO Corrected 1 Hour Rolling Average High OPL	✓	
81	Stack Flow 1 Hour Rolling Average High OPL	✓	
82	Hrt Cl/Hra Lime Flow 1 Minute Average OPL	✓	

50 WASTE FEED CUT-OFF TEST BY OPERATOR

UNIT #4 OPERATOR TO CLOSE MANUAL HAND VALVE AT LIQUID INJECTOR BEFORE FLEX LIME & AIR LINE TO SCREENED FEEDER XV-013 SLIDE GATE.

UNIT #4 OPERATOR TO VERIFY CUT-OFF BY PRESSING EACH START BUTTON.
(THEN INITIAL & SIGN SHEET)

SHREDDED ✓ SCREENED ✓ MAIN CONVEYOR ✓ AUX CONVEYOR ✓

X-10 ✓ X-11 ✓ X-12 ✓ X-22 ✓

VERIFY ATOMIZING AIR ALARM BY MANUALLY SHUTTING AIR TO PRESSURE SWITCH.
(NOZZEL MUST BE OPEN FOR ALARM TO FUNCTION)

X-10 ✓ X-11 ✓ X-12 ✓ X-22 ✓

ALSO CHECK OPERATION OF RAM COOLING WATER LOW FLOW ALARM (MSG# >278) ✓

CHECKED BY : Chuck Edwards

83 Lime Slurry Density Low 1 Hour Rolling Average Shoutdown

84 LOG CHECKS IN OPERATIONS BOOK.

85 ROD OUT KILN PRESSURE LINE (PT-300)

COMMENTS :

CHECKED BY : Chuck Edwards Date : 10-19-09 Time : 10:50 [✓ AM] ~~PM~~

APPROVED BY : HaeLae Kim Place : Control Room

UNIT #4 (CMS Task IC4032) PAGE 1 OF 3

FEED CUT-OFF

		PASS	FAIL
1	TSHH-305 KILN HIGH HIGH	✓	
2	TSHH-317 SCC HIGH HIGH	✓	
3	PAHH-300 KILN HIGH PRESSURE	✓	
4	PAHH-324 SCC HIGH PRESSURE	✓	
6	TAHH-404 TEMPERING CHAMBER HIGH TEMP	✓	
7	VIOLATION OPACITY HIGH INSTANTATEOUS	✓	
8	PROCESS MONITOR FAILED	✓	
9	WASTE FEED MONITOR FAILED	✓	
12	VIOLATION STACK FLOW HIGH 1 MIN	✓	
13	VIOLATION ZAC-316 (TRV) OPEN	✓	
14	VIOLATION ZAC-026 SURGE VENT OPEN	✓	
15	UA-557 ANALYZER FAIL HCL	✓	
[illegible]	UA-558 ANALYZER FAIL CO	✓	
17	UA-560 ANALYZER FAIL O2	✓	
18	UA-562 ANALYZER FAIL HC	✓	
19	PDAL-563 LOW DELTA P. (ID FAN FAILURE)	✓	
20	WFD-OFF CARBON INJECTION SYSTEM FAILED	✓	
21	PSL-100/PSL-200 SCC COMB. AIR FAN FAILED	✓	
23	PSL-209 X-14 PRIMARY FUEL LOW PRESS. (ONLY APPLICABLE FOR #2 FUEL OIL)	✓	
25	STACK FLOW HIGH INSTANTANEOUS	✓	
35	VIOLATION SCC TEMP. LOW 1 MIN AVERAGE	✓	
36	VIOLATION KILN TEMP. LOW 1 MIN AVERAGE	✓	
37	WFD-OFF HCL HIGH 1 MIN AVERAGE	✓	
38	WFD-OFF OPACITY HIGH 1 MIN AVERAGE	✓	
39	WFD-OFF CO HIGH 1 MIN AVERAGE	✓	
[illegible]	WFD-OFF HC (THC) HIGH 1 MIN AVERAGE	✓	
41	WFD-OFF BAGHOUSE DELTA P HIGH 1 MIN AVERAGE	✓	

		PASS	FAIL
42	WFD-OFF SDA OUTLET HIGH TEMP. 1 MIN AVERAGE	✓	
43	WFD-OFF OXYGEN (O2) LOW 1 MIN AVERAGE	✓	
44	VIOLATION HCL HIGH 1 HOUR AVERAGE	✓	
45	VIOLATION CO HIGH 1 HOUR AVERAGE	✓	
46	VIOLATION SCC TEMP. LOW 1 HOUR AVERAGE	✓	
47	WFD-OFF KILN TEMP: LOW 1 ~~MIN~~ Hour AVERAGE	✓	
48	VIOLATION OPACITY HIGH 480 SEC/HOUR	✓	
49	WFD-OFF BAGHOUSE DELTA P LOW 1 MIN AVERAGE	✓	
52	Bag Leak Detection System (Tribo)	✓	
65	Pumpable 1 Hour Rolling Total OPL	✓	
66	Non-Pumpable 1 Hour Rolling Total OPL	✓	
67	Total Waste 1 Hour Rolling Total OPL	✓	
	BTU 1 Hour Total OPL	✓	
69	CL 12 Hour Rolling Total OPL	✓	
70	Low Violatile 12 Hour Rolling Total OPL	✓	
71	Semi Violatile 12 Hour Rolling Total OPL	✓	
72	Mercury 12 Hour Rolling Total OPL	✓	
73	Ash 12 Hour Rolling Total OPL	✓	
74	PCC Temperature 1 Hour Rolling Average Low OPL	✓	
75	SCC Temperature 1 Hour Rolling Average Low OPL	✓	
76	SDA Outlet Temperature 1 Hour Rolling Average High OPL	✓	
77	Baghouse Differential Pressure 1 Minute Average Low OPL	✓	
78	Baghouse Differential Pressure 1 Minute Average High OPL	✓	
79	Stack HCL Corrected 1 Hour Rolling Average High OPL	✓	
80	Stack CO Corrected 1 Hour Rolling Average High OPL	✓	
	Stack Flow 1 Hour Rolling Average High OPL	✓	
82	Hrt Cl/Hra Lime Flow 1 Minute Average OPL	✓	

50 WASTE FEED CUT-OFF TEST BY OPERATOR

UNIT #4 OPERATOR TO CLOSE MANUAL HAND VALVE AT LIQUID INJECTOR BEFORE FLEX LINE & AIR LINE TO SCREENED FEEDER XV-013 SLIDE GATE.

UNIT #4 OPERATOR TO VERIFY CUT-OFF BY PRESSING EACH START BUTTON.
(THEN INITIAL & SIGN SHEET)

SHREDDED ______ SCREENED N/A MAIN CONVEYOR ______ AUX CONVEYOR ______

X-10 ______ X-11 ______ X-12 ______ X-22 ______

VERIFY ATOMIZING AIR ALARM BY MANUALLY SHUTTING AIR TO PRESSURE SWITCH.
(NOZZEL MUST BE OPEN FOR ALARM TO FUNCTION)

X-10 ______ X-11 BA X-12 BA X-22 ______

ALSO CHECK OPERATION OF RAM COOLING WATER LOW FLOW ALARM (MSG# >278) ______

CHECKED BY : ______

83 Lime Slurry Density Low 1 Hour Rolling Average Shoutdown

LOG CHECKS IN OPERATIONS BOOK.

85 ROD OUT KILN PRESSURE LINE (PT-300)

COMMENTS : ______

CHECKED BY : ______ Date : 11-07-09 Time : 2:40 [✓ AM] PM

APPROVED BY : ______ Place : Control Room

BIWEEKLY_4
9/10/07 HK

BIWEEKLY UNIT #4 (CMS Task IC4032) PAGE 1 OF 3

ASTE FEED CUT-OFF

		PASS	FAIL
1	TSHH-305 KILN HIGH HIGH	✓	
2	TSHH-317 SCC HIGH HIGH	✓	
3	PAHH-300 KILN HIGH PRESSURE	✓	
4	PAHH-324 SCC HIGH PRESSURE	✓	
6	TAHH-404 TEMPERING CHAMBER HIGH TEMP	✓	
7	VIOLATION OPACITY HIGH INSTANTATEOUS	✓	
8	PROCESS MONITOR FAILED	✓	
9	WASTE FEED MONITOR FAILED	✓	
12	VIOLATION STACK FLOW HIGH 1 MIN	✓	
13	VIOLATION ZAC-316 (TRV) OPEN	✓	
14	VIOLATION ZAC-026 SURGE VENT OPEN	✓	
15	UA-557 ANALYZER FAIL HCL	✓	
16	UA-558 ANALYZER FAIL CO.	✓	
17	UA-560 ANALYZER FAIL O2	✓	
18	UA-562 ANALYZER FAIL HC	✓	
19	PDAL-563 LOW DELTA P. (ID FAN FAILURE)	✓	
20	WFD-OFF CARBON INJECTION SYSTEM FAILED	✓	
21	PSL-100/PSL-200 SCC COMB. AIR FAN FAILED	✓	
23	PSL-209 X-14 PRIMARY FUEL LOW PRESS. (ONLY APPLICABLE FOR #2 FUEL OIL)	✓	
25	STACK FLOW HIGH INSTANTANEOUS	✓	
35	VIOLATION SCC TEMP. LOW 1 MIN AVERAGE	✓	
36	VIOLATION KILN TEMP. LOW 1 MIN AVERAGE	✓	
37	WFD-OFF HCL HIGH 1 MIN AVERAGE	✓	
38	WFD-OFF OPACITY HIGH 1 MIN AVERAGE	✓	
39	WFD-OFF CO HIGH 1 MIN AVERAGE	✓	
40	WFD-OFF-HC (THC) HIGH 1 MIN AVERAGE	✓	
41	WFD-OFF BAGHOUSE DELTA P HIGH 1 MIN AVERAGE	✓	

BIWEEKLY UNIT #4 (CMS Task IC4032)

STE FEED CUT-OFF

		PASS	FAIL
42	WFD-OFF SDA OUTLET HIGH TEMP. 1 MIN AVERAGE	✓	
43	WFD-OFF OXYGEN (O2) LOW 1 MIN AVERAGE	✓	
44	VIOLATION HCL HIGH 1 HOUR AVERAGE	✓	
45	VIOLATION CO HIGH 1 HOUR AVERAGE	✓	
46	VIOLATION SCC TEMP. LOW 1 HOUR AVERAGE	✓	
47	WFD-OFF KILN TEMP. LOW 1 ~~MIN~~ HOUR AVERAGE	✓	
48	VIOLATION OPACITY HIGH 480 SEC/HOUR	✓	
49	WFD-OFF BAGHOUSE DELTA P LOW 1 MIN AVERAGE	✓	
52	Bag Leak Detection System (Tribo)	✓	
65	Pumpable 1 Hour Rolling Total OPL	✓	
66	Non-Pumpable 1 Hour Rolling Total OPL	✓	
67	Total Waste 1 Hour Rolling Total OPL	✓	
68	BTU 1 Hour Total OPL	✓	
69	Cl 12 Hour Rolling Total OPL	✓	
70	Low Violatile 12 Hour Rolling Total OPL	✓	
71	Semi Violatile 12 Hour Rolling Total OPL	✓	
72	Mercury 12 Hour Rolling Total OPL	✓	
73	Ash 12 Hour Rolling Total OPL	✓	
74	PCC Temperature 1 Hour Rolling Average Low OPL	✓	
75	SCC Temperature 1 Hour Rolling Average Low OPL	✓	
76	SDA Outlet Temperature 1 Hour Rolling Average High OPL	✓	
77	Baghouse Differential Pressure 1 Minute Average Low OPL	✓	
78	Baghouse Differential Pressure 1 Minute Average High OPL	✓	
79	Stack HCL Corrected 1 Hour Rolling Average High OPL	✓	
80	Stack CO Corrected 1 Hour Rolling Average High OPL	✓	
81	Stack Flow 1 Hour Rolling Average High OPL	✓	
82	Hrt Cl/Hra Lime Flow 1 Minute Average OPL	✓	

50 WASTE FEED CUT-OFF TEST BY OPERATOR

UNIT #4 OPERATOR TO CLOSE MANUAL HAND VALVE AT LIQUID INJECTOR BEFORE FLEX LIME & AIR LINE TO SCREENED FEEDER XV-013 SLIDE GATE.

UNIT #4 OPERATOR TO VERIFY CUT-OFF BY PRESSING EACH START BUTTON.
(THEN INITIAL & SIGN SHEET)

SHREDDED ______ SCREENED ______ MAIN CONVEYOR ______ AUX CONVEYOR ______

X-10 TF X-11 TF X-12 TF X-22 TF

VERIFY ATOMIZING AIR ALARM BY MANUALLY SHUTTING AIR TO PRESSURE SWITCH.
(NOZZEL MUST BE OPEN FOR ALARM TO FUNCTION)

X-10 TF X-11 TF X-12 TF X-22 TF

ALSO CHECK OPERATION OF RAM COOLING WATER LOW FLOW ALARM (MSG# >278) TF

CHECKED BY : Matt Rigney

83 Lime Slurry Density Low 1 Hour Rolling Average Shoutdown

4 LOG CHECKS IN OPERATIONS BOOK.

85 ROD OUT KILN PRESSURE LINE (PT-300)

COMMENTS : ______

CHECKED BY : B. T. B Date : 11-17-09 Time : 2:50 AM [✓ PM]

APPROVED BY : ______ Place : Control Room

Mae Lae Kim

BIWEEKLY_4
9/10/07 HK

BIWEEKLY UNIT #4 (CMS Task IC4032) PAGE 1 OF 3

WASTE FEED CUT-OFF

		PASS	FAIL
1	TSHH-305 KILN HIGH HIGH	✓	
2	TSHH-317 SCC HIGH HIGH	✓	
3	PAHH-300 KILN HIGH PRESSURE	✓	
4	PAHH-324 SCC HIGH PRESSURE	✓	
6	TAHH-404 TEMPERING CHAMBER HIGH TEMP	✓	
7	VIOLATION OPACITY HIGH INSTANTATEOUS	✓	
8	PROCESS MONITOR FAILED	✓	
9	WASTE FEED MONITOR FAILED	✓	
12	VIOLATION STACK FLOW HIGH 1 MIN	✓	
13	VIOLATION ZAC-316 (TRV) OPEN	✓	
14	VIOLATION ZAC-026 SURGE VENT OPEN	✓	
~~15~~	~~UA-557 ANALYZER FAIL HCL~~	~~✓~~	
16	UA-558 ANALYZER FAIL CO	✓	
17	UA-560 ANALYZER FAIL O2	✓	
18	UA-562 ANALYZER FAIL HC	✓	
19	PDAL-563 LOW DELTA P. (ID FAN FAILURE)	✓	
20	WFD-OFF CARBON INJECTION SYSTEM FAILED	✓	
21	PSL-100/PSL-200 SCC COMB. AIR FAN FAILED	✓	
23	PSL-209 X-14 PRIMARY FUEL LOW PRESS. (ONLY APPLICABLE FOR #2 FUEL OIL)	✓	
25	STACK FLOW HIGH INSTANTANEOUS	✓	
35	VIOLATION SCC TEMP. LOW 1 MIN AVERAGE	✓	
36	VIOLATION KILN TEMP. LOW 1 MIN AVERAGE	✓	
37	WFD-OFF HCL HIGH 1 MIN AVERAGE	✓	
38	WFD-OFF OPACITY HIGH 1 MIN AVERAGE	✓	
39	WFD-OFF CO HIGH 1 MIN AVERAGE	✓	
40	WFD-OFF-HC (THC) HIGH 1 MIN AVERAGE	✓	
41	WFD-OFF BAGHOUSE DELTA P HIGH 1 MIN AVERAGE	✓	

		PASS	FAIL
42	WFD-OFF SDA OUTLET HIGH TEMP. 1 MIN AVERAGE	✓	
43	WFD-OFF OXYGEN (O2) LOW 1 MIN AVERAGE	✓	
44	VIOLATION HCL HIGH 1 HOUR AVERAGE	✓	
45	VIOLATION CO HIGH 1 HOUR AVERAGE	✓	
46	VIOLATION SCC TEMP. LOW 1 HOUR AVERAGE	✓	
47	WFD-OFF KILN TEMP. LOW 1 ~~MIN~~ Hour AVERAGE	✓	
48	VIOLATION OPACITY HIGH 480 SEC/HOUR	✓	
49	WFD-OFF BAGHOUSE DELTA P LOW 1 MIN AVERAGE	✓	
52	Bag Leak Detection System (Tribo)	✓	
65	Pumpable 1 Hour Rolling Total OPL	✓	
66	Non-Pumpable 1 Hour Rolling Total OPL	✓	
67	Total Waste 1 Hour Rolling Total OPL	✓	
68	BTU 1 Hour Total OPL	✓	
69	CL 12 Hour Rolling Total OPL	✓	
70	Low Violatile 12 Hour Rolling Total OPL	✓	
71	Semi Violatile 12 Hour Rolling Total OPL	✓	
72	Mercury 12 Hour Rolling Total OPL	✓	
73	Ash 12 Hour Rolling Total OPL	✓	
74	PCC Temperature 1 Hour Rolling Average Low OPL	✓	
75	SCC Temperature 1 Hour Rolling Average Low OPL	✓	
76	SDA Outlet Temperature 1 Hour Rolling Average High OPL	✓	
77	Baghouse Differential Pressure 1 Minute Average Low OPL	✓	
78	Baghouse Differential Pressure 1 Minute Average High OPL	✓	
79	Stack HCL Corrected 1 Hour Rolling Average High OPL	✓	
80	Stack CO Corrected 1 Hour Rolling Average High OPL	✓	
81	Stack Flow 1 Hour Rolling Average High OPL	✓	
82	Hrt Cl/Hra Lime Flow 1 Minute Average OPL	✓	

STE FEED CUT-OFF

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50 WASTE FEED CUT-OFF TEST BY OPERATOR

UNIT #4 OPERATOR TO CLOSE MANUAL HAND VALVE AT LIQUID INJECTOR BEFORE FLEX LIME & AIR LINE TO SCREENED FEEDER XV-013 SLIDE GATE.

UNIT #4 OPERATOR TO VERIFY CUT-OFF BY PRESSING EACH START BUTTON.
(THEN INITIAL & SIGN SHEET)

SHREDDED ✓ SCREENED ✓ MAIN CONVEYOR ✓ AUX CONVEYOR ✓

X-10 ✓ X-11 ✓ X-12 ✓ X-22 ✓

VERIFY ATOMIZING AIR ALARM BY MANUALLY SHUTTING AIR TO PRESSURE SWITCH.
(NOZZEL MUST BE OPEN FOR ALARM TO FUNCTION)

X-10 ✓ X-11 ✓ X-12 ✓ X-22 ✓

ALSO CHECK OPERATION OF RAM COOLING WATER LOW FLOW ALARM (MSG# >278) ✓

CHECKED BY : Chuck Edwards

83 Lime Slurry Density Low 1 Hour Rolling Average Shoutdown

4 LOG CHECKS IN OPERATIONS BOOK.

85 ROD OUT KILN PRESSURE LINE (PT-300)

COMMENTS :

CHECKED BY : Date : 12-1-09 Time : 1:45 [✓ AM] ~~PM~~

APPROVED BY : HaeLae Kim Place : Control Room

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 4

Serial # COSA

Parameter	NIST Traceable Calibration Standards			
● O2 25%	Gas	Concentration		
○ CO-low range 200ppm	Low (Zero)	0	±	0.5
○ CO-high range 3000ppm	Mid	8.93	±	0.5
○ HCl 1000ppm	High	15	±	0.5

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	0.1	-0.1	—	—
2-Mid	8.93	8.98	—	-0.05	—
3-High	15	15.3	—	—	-0.3
4-Low	0	0.1	-0.1	—	—
5-Mid	8.93	9	—	-0.07	—
6-High	15	15.2	—	—	-0.2
7-Low	0	0.1	-0.1	—	—
8-Mid	8.93	8.9	—	0.03	—
9-High	15	15.2	—	—	-0.2
		Mean Difference =	-0.10	-0.03	-0.23
		Calibration Error =	-0.40%	-0.12%	-0.93%

Calibration Error = Mean Difference / Span Value * 100

CE

Name

Signature

E/I Tech

Title

9/22/2009

Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 4 Serial # 132

Parameter	NIST Traceable Calibration Standards			
	Gas	Concentration		
○ O2 25%				
● CO-low range 200ppm	Low (Zero)	0	±	10
○ CO-high range 3000ppm	Mid	66.9	±	10
○ HCl 1000ppm	High	154	±	10

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	-0.2	0.2	—	—
2-Mid	68.9	66.7	—	2.2	—
3-High	154	152.6	—	—	1.4
4-Low	0	-0.4	0.4	—	—
5-Mid	68.9	66.8	—	2.1	—
6-High	154	154.5	—	—	-0.5
7-Low	0	-0.1	0.1	—	—
8-Mid	68.9	67	—	1.9	—
9-High	154	153.4	—	—	0.6
		Mean Difference =	0.23	2.07	0.50
		Calibration Error =	0.12%	1.03%	0.25%

Calibration Error = Mean Difference / Span Value * 100

CE
Name

Signature

E/I Tech
Title

9/22/2009
Date

2/4/2010

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 4 Serial # 132

Parameter	NIST Traceable Calibration Standards			
○ O2 25%	Gas	Concentration		
○ CO-low range 200ppm	Low (Zero)	0	±	150
● CO-high range 3000ppm	Mid	1079.1	±	150
○ HCl 1000ppm	High	2289	±	150

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	-0.2	0.2	—	—
2-Mid	1079.1	1086.5	—	-7.4	—
3-High	2289	2287	—	—	2
~~4-Low~~	~~0~~	~~-0.4~~	~~0.4~~	~~—~~	~~—~~
5-Mid	1079.1	1077.6	—	1.5	—
6-High	2289	2317.4	—	—	-28.4
7-Low	0	-0.1	0.1	—	—
8-Mid	1079.1	1077.7	—	1.4	—
9-High	2289	2301.9	—	—	-12.9
		Mean Difference =	0.23	-1.50	-13.10
		Calibration Error =	0.01%	-0.05%	-0.44%

Calibration Error = Mean Difference / Span Value * 100

CE

Name

Signature

2/4/2010

E/I Tech

Title

9/22/2009

Date

ABSOLUTE CALIBRATION AUDIT (ACA) DATA SHEET

Unit # 4

Serial # 132

Parameter

○ O2 25%

○ CO-low range 200ppm

○ CO-high range 3000ppm

● HCl 1000ppm

NIST Traceable Calibration Standards			
Gas	Concentration		
Low (Zero)	0	±	50
Mid	318	±	50
High	707	±	50

Run Number	Concentration		Difference		
	Reference	Analyzer	Low	Mid	High
1-Low	0	-0.3	0.3	—	—
2-Mid	318	284.9	—	33.1	—
3-High	707	713.1	—	—	-6.1
~~4-Low~~	~~0~~	~~0~~	~~0~~		
5-Mid	318	306.2	—	11.8	—
6-High	707	707.1	—	—	-0.1
7-Low	0	0.6	-0.6	—	—
8-Mid	318	314.2	—	3.8	—
9-High	707	708.6	—	—	-1.6
		Mean Difference =	-0.10	16.23	-2.60
		Calibration Error =	-0.01%	1.62%	-0.26%

Calibration Error = Mean Difference / Span Value * 100

CE

Name

E/I Tech

Title

9/22/2009

Date

Signature

2/4/2010

Table 1
Summary of Relative Accuracy Test Audit Results
Veolia ES Technical Solutions
Sauget, Illinois
June 22, 23 and 24, 2009

CEMS	Parameter	Units	Measured RA	Criteria	Pass/Fail
Unit 2	CO	ppm @ 7% O_2	0.004 ppm [a]	5 [a,b]	Pass
	O_2, dry	%O_2	0.09% [a]	1.0 [a,c]	Pass
	O_2, wet	%O_2	0.13% [a]	1.0 [a,c]	Pass
Unit 3	CO	ppm @ 7% O_2	0.063 ppm [a]	5 [a,b]	Pass
	O_2, dry	%O_2	0.02% [a]	1.0 [a,c]	Pass
	O_2, wet	%O_2	0.31% [a]	1.0 [a,c]	Pass
Unit 4	CO	ppm @ 7% O_2	1.146 ppm [a]	5 [a,b]	Pass
	O_2, dry	%O_2	0.15% [a]	1.0 [a,c]	Pass
	O_2, wet	%O_2	0.46% [a]	1.0 [a,c]	Pass

[a] Percent of emission standard or absolute average difference (ppm or %).

[b] PS 4B.

[c] PS 3.

ONYX

Veolia
Environmental Services
Sauget Illinois

Created 1/1/2010 6:00 AM
Period Start 1/1/2010 6:00 AM
Period En 1/1/2010 6:00 AM

Incinerator 4

Data Point	1 Min AVG Warn	1 Min AVG Shut	1 Min AVG OPL	1 Hr Roll Warn	1 Hr Roll Shut	1 Hr Roll OPL	1 Hr Roll Tot Warn	1 Hr Roll Tot Shut	1 Hr Roll Tot OPL	12 Hr Roll Tot Warn	12 Hr Roll Tot Shut	12 Hr Roll Tot OPL	1 Hr Tot Warn	1 Hr Tot Shut	1 Hr Tot OPL
Carbon Injection Flow	.	.	.	.	.	.	6.600000	6.300000	6.200000	.	.	.	.	.	.
Lime Slurry Density	65.00000	.	.	85.50000	65.40000	65.20000	.	.	.	.	.	.	.	.	.
Stack Opacity	8.000000	10.00000	.	.	.	.	.	.	.	.	.	.	.	.	.
Stack CO RCRA	450.0000	500.0000	.	30.00000	40.00000	100.0000	.	.	.	.	.	.	.	.	.
SDA Outlet Temp	440.0000	500.0000	.	429.0000	431.0000	434.0000	.	.	.	.	.	.	.	.	.
Baghouse Diff Press Low	3.000000	2.000000	.	.	.	.	.	.	.	.	.	.	.	.	.
Baghouse Diff Press High	9.000000	10.00000	.	.	.	.	.	.	.	.	.	.	.	.	.
Stack THC	8.000000	10.00000	.	.	.	.	.	.	.	.	.	.	.	.	.
X11 Weight	.	.	.	.	.	.	.	.	.	.	.	.	1550.000	1650.000	1700.000
X22 Weight	.	.	.	.	.	.	900.0000	950.0000	1006.000	.	.	.	850.0000	950.0000	1000.000
X12 Weight	.	.	.	.	.	.	.	.	.	.	.	.	1000.000	1050.000	1100.000
X10 Weight	.	.	.	.	.	.	.	.	.	.	.	.	1600.000	1650.000	1700.000
Stack HCL RCRA	400.0000	500.0000	.	15.00000	32.00000	35.00000	.	.	.	.	.	.	.	.	.

Stack O2 RCRA	4.000000	3.000000													
HCLtoLime	30.00000	33.50000	37.20000												
Shredded Weight													13000.00	14500.00	15000.00
Tempering Chamber Temp	800.0000	1200.000													
PCC Temp	1300.000	1240.000		1570.000	1515.000	1507.000									
SCC Temp	1850.000	1825.000		1905.000	1890.000	1886.000									
Stack CO Corrected	450.0000	500.0000		30.00000	75.00000	100.0000									
Stack HCL Corrected	100.0000	150.0000		25.00000	32.00000										
Stack O2 Corrected	4.000000														
Stack Flow	38000.00			37000.00	37600.00	38063.00									
Low BTU Liquid Weight													1600.000	1650.000	1700.000
High BTU Liquid Weight													1000.000	1050.000	1100.000
Liquid Weight							2800.000	3050.000	3256.000						
Containerized Weight							1500.000						2500.000	2750.000	3000.000
Solids Weight							10000.00						13000.00	14000.00	15000.00
Weight							12500.00	13000.00	13796.00						

BTU						48000000	49000000	50000000
Chlorine	235.0000	262.0000	2800.000	2900.000	3024.000	400.0000	450.0000	500.0000
Mercury	0.021000	0.026000	0.250000	0.275000	0.312000			
Ash	8000.000	8777.000	90000.00	100000.0	105324.0			
Low Volatile	43.00000	47.00000	500.0000	540.0000	564.0000			
Semi Volatile	60.00000	64.00000	700.0000	740.0000	768.0000			

Certification Statement

I certify under penalty of the law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Doug Harris Date: 9/17/12

Doug Harris
General Manager
Veolia ES Technical Solutions, L.L.C.
Sauget, IL

Notification of Compliance (NOC)

for Veolia ES Technical Solutions Units 2, 3, & 4

40 CFR 63 Subpart EEE

Hazardous Waste Combustor MACT Standard

Compliance Date: June 18-25, 2012

Owner/Operator/Title: Veolia ES Technical Solutions, L.L.C.

Street Address: 7 Mobile Avenue

City: Sauget **State:** IL **Zip Code:** 62201

Plant Name: Veolia ES Technical Services, L.L.C.

Plant Contact / Title: Doug Harris / General Manager

Plant Address (if different than owner/operator's)

Street Address:

City: **State:** **Zip Code:**

Major or Area Source This source is located at a facility that is a major source of Hazardous Air Pollutants.

Introduction

Veolia ES Technical Solutions, L.L.C. in Sauget, Illinois (Veolia-Sauget) operates three (3) incinerators: two (2) fixed hearth units (Units 2 and 3) and one (1) rotary kiln unit (Unit 4). All three units operate under Title V Permit Number V-IL-1716300103-08-01 issued by U.S. EPA, Region 5. Each incinerator is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Hazardous Waste Combustors (Title 40 of the Code of Federal Regulations, Part 63 [40 CFR Part 63], Subpart EEE), i.e., the HWC MACT. Per the requirements of the HWC MACT at 40 CFR 63.1207(d)(2), a Confirmatory Performance Test for polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (dioxins/furans) must be conducted within the 31-month period following the commencement of the previous Comprehensive Performance Test.

The previous Comprehensive Performance Test for the Unit 2 Incinerator began on December 8, 2009, which required the Confirmatory Performance Test (CfPT) to begin by July 8, 2012. Veolia-Sauget commenced the Unit 2 CfPT on June 18, 2012.

The previous Comprehensive Performance Test for the Unit 3 Incinerator began on December 1, 2009, which required the Confirmatory Performance Test (CfPT) to begin by July 1, 2012. Veolia-Sauget commenced the Unit 3 CfPT on June 20, 2012.

The previous Comprehensive Performance Test for the Unit 4 Rotary Kiln Incinerator began on December 16, 2009, which required the Confirmatory Performance Test (CfPT) to begin by July 16, 2012. Veolia-Sauget commenced the CfPT on June 25, 2012.

The 40 CFR 63 Subpart EEE emission standards that are applicable to these units are specified in Table 1.

Table 1. 40 CFR 63 Subpart EEE Emissions Standards

Parameter	Limit
Dioxins and Furans	0.20 ng TEQ/dscm, corrected to 7% oxygen for incinerators with dry air pollution control system and inlet temperature to initial particulate matter control device >400°F; or; 0.40 ng TEQ/dscm, corrected to 7% oxygen for incinerators with dry air pollution control system and inlet temperature to initial particulate matter control device <400°F.

The applicable dioxins/furans standard of the HWC MACT for Units 2 and 3 is 0.20 ng TEQ/dscm, corrected to 7% oxygen, and the applicable dioxins/furans standard of the HWC MACT for Unit 4 is 0.40 ng TEQ/dscm, corrected to 7% oxygen. These standards were met during the Confirmatory Performance Tests of Units 2, 3, and 4.

Results of Confirmatory Performance Tests

The results of the Confirmatory Performance Test are provided in Attachment 1, Final Reports, Dioxins/Furans Confirmatory Performance Test Report for the Unit 2 Fixed Hearth Incinerator, Unit 3 Fixed Hearth Incinerator, and Unit 4 Rotary Kiln dated June 2012. The Confirmatory Performance Test reports include:

- The methods that were used to determine compliance;
- The results of the performance tests, continuous monitoring system (CMS) performance evaluations, and other monitoring procedures that were conducted; and
- The emissions of dioxins/furans, reported in units and averaging times, and in accordance with the test methods specified in Subpart EEE.

Table 2 summarizes the results of the emissions sampling during the June 2012 Confirmatory Performance Tests of Units 2, 3, and 4.

Table 2. Summary of HWC MACT Confirmatory Performance Test Results June 2012

	HWC MACT Standard	Test Method	Units	Limit	Average Test Result
Unit 2	Dioxins/Furans	EPA SW-846 Method 0023A	ng TEQ/dscm, corrected to 7% O_2	0.20	0.00178
Unit 3				0.20	0.00068
Unit 4				0.40	0.195

Operating Conditions

In section 63.1207(b)(2), the HWC MACT states that "you must conduct confirmatory performance tests to: (i) Demonstrate compliance with the dioxin/furan emission standard when the source operates under normal operating conditions". "Normal operating conditions" are defined as: 1) the average carbon monoxide emission level over the previous 12 months to the maximum allowed; 2) the operating limits established to maintain compliance with the dioxin/furan standard within the range of the average value over the previous 12 months and the maximum, or minimum, allowed; and 3) chlorine feedrates at normal or greater. As such, no new or additional operating limits (OPLs) were established during this confirmatory performance test.

The approach for accomplishing the CfPT objectives was to operate the Units 2, 3, and 4 incinerators at a single test condition representative of typical operations. To accomplish this, a mix of waste streams that were representative of typical operations were fed to the incinerator, and the following parameters were operated between the previous 12-month average and the maximum, or minimum, allowed, i.e., the OPLs: primary combustion chamber temperature, secondary combustion chamber temperature, baghouse inlet temperature, total hazardous waste feedrate, total pumpable hazardous waste feedrate, stack gas flowrate, carbon injection rate (Unit 4, only) and the total chlorine feedrate. A variance was requested and approved for the concentration of carbon monoxide (CO) in the stack gas to allow the operation of the incinerator to maintain the CO concentration below the HWC MACT emission limit of 100 ppm corrected to 7% oxygen. Tables 3, 4, and 5 present the results of the key parameters monitored during the CfPTs for Units 2, 3, and 4, respectively.

Table 3. Summary of Unit 2 Operations

Operating Parameter	Units	Run 1	Run 2	Run 3	Average During CfPT	Target Operating Range	Target Achieved?
Baghouse Inlet Temperature (HRA)	°F	405.1	405.2	405.0	405.1	400 – 420	Yes
Primary Combustion Chamber Temperature (HRA)	°F	1,750.5	1,748.8	1,746.6	1,748.6	1,845 – 1,686	Yes
Secondary Combustion Chamber Temperature (HRA)	°F	1,895.1	1,895.3	1,895.0	1,895.1	1,917 – 1,877	Yes
Stack Carbon Monoxide (HRA)	ppmv (7% O_2 corrected)	0.6	1.5	1.4	1.2	0 – 100	Yes
Stack Gas Flowrate (HRA)	acfm	14,063.1	14,173.5	14,074.3	14,103.6	13,317 – 15,147	Yes
Stack Oxygen Concentration	%	11.3	10.9	11.2	11.1	N/A	N/A
Chlorine Feed (HRA)	lb/hr	61.2	61.7	61.2	61.4	36.0 - 218	Yes
Pumpable Waste Feed (HRA)	lb/hr	1,950.9	1,967.2	1,972.7	1,963.6	1,571 – 3,107	Yes
Total Waste Feed (HRA)	lb/hr	2,173.6	2,189.5	2,188.1	2,183.7	1,761 – 4,017	Yes

HRA – Hourly Rolling Average

Table 4. Summary of Unit 3 Operations

Operating Parameter	Units	Run 1	Run 2	Run 3	Average During CfPT	Target Operating Range	Target Achieved?
Baghouse Inlet Temperature (HRA)	°F	406.3	405.3	404.5	405.4	399 – 420	Yes
Primary Combustion Chamber Temperature (HRA)	°F	1,784.6	1,785.8	1,793.2	1,787.9	1,865 – 1,686	Yes
Secondary Combustion Chamber Temperature (HRA)	°F	1,905.1	1,905.0	1,905.1	1,905.1	1,913 – 1,877	Yes
Stack Carbon Monoxide (HRA)	ppmv (7% O_2 corrected)	0.0	0.0	0.0	0.0	0 – 100	Yes
Stack Gas Flowrate (HRA)	acfm	14,303.1	14,347.8	14,051.4	14,234.1	13,499 – 15,147	Yes
Stack Oxygen Concentration	%	12.8	12.9	13.1	12.9	N/A	N/A
Chlorine Feed (HRA)	lb/hr	55.1	56.0	61.0	57.4	37.5 – 218	Yes
Pumpable Waste Feed (HRA)	lb/hr	1,962.8	1,957.0	1,913.6	1,944.5	1,562 – 3,107	Yes
Total Waste Feed (HRA)	lb/hr	2,202.9	2,180.1	2,122.3	2,168.4	1,768 – 4,017	Yes

HRA – Hourly Rolling Average

Table 5. Summary of Unit 4 Operations

Operating Parameter	Units	Run 1	Run 2	Run 3	Average During CfPT	Target Operating Range	Target Achieved?
Baghouse Inlet Temperature (HRA)	°F	389.8	389.8	389.8	389.8	384 – 400	Yes
Primary Combustion Chamber Temperature (HRA)	°F	1,668.9	1,669.2	1,717.3	1,685.1	1,865 – 1,499	Yes
Secondary Combustion Chamber Temperature (HRA)	°F	1,898.4	1,901.0	1,902.2	1,900.5	1,917 – 1,886	Yes
Stack Carbon Monoxide (HRA)	ppmv (7% O_2 corrected)	0.1	0.1	0.1	0.1	0 – 100	Yes
Stack Gas Flowrate (HRA)	acfm	35,290.7	35,093.8	35,602.9	35,329.1	33,439 – 37,432	Yes
Carbon Feed (HRA)	lb/hr	6.7	6.7	6.7	6.7	7.26 – 6.2	Yes
Stack Oxygen Concentration	%	13.2	12.9	13.0	13.0	N/A	N/A
Chlorine Feed (HRA)	lb/hr	118.6	120.1	118.2	119.0	88.2 – 229	Yes
Pumpable Waste Feed (HRA)	lb/hr	1,663.5	1,741.0	1,738.7	1,714.4	1,336 – 3,291	Yes
Total Waste Feed (HRA)	lb/hr	5,359.1	5,800.1	5,953.0	5,704.1	4,335 – 12,897	Yes
Secondary Combustion Chamber Liquid Feed (HRA)	lb/hr	540.0	542.9	510.3	531.1	400 – 1,176	Yes

HRA – hourly rolling average

Hazardous Waste Residence Time

Because of the fixed-hearth nature of the Units 2 and 3 Incinerators, solid waste residence time is based on the elapsed time between solids charges or the travel length of the ash ram feeder, which functions to clear the primary combustion chamber of solid waste residue. An elapsed time of one hour or an ash ram travel length of 110 inches have been established as the criteria for determining when solid waste is no longer in the combustion zones.

Since atomized liquid waste vaporizes almost instantaneously upon entering the combustion chambers, the residence time of these wastes is much less than for solids. During the Units 2 and 3 CfPTs, the incinerators were operated at normal conditions. Liquid and gaseous wastes entering the Unit 2 incinerator demonstrated a residence time of approximately 5.4 seconds. Liquid and gaseous wastes entering the Unit 3 incinerator demonstrated a residence time of approximately 5.4 seconds.

The hazardous waste gas residence time for Unit 2 is calculated as follows using the three-run average for the stack gas flowrate during the Unit 2 CfPT:

- Primary Combustion Chamber Volume – 635 ft^3;
- Secondary Combustion Chamber Volume – 635 ft^3;
- Total Volume – 1,270 ft^3;
- Average Flue Gas Flowrate – 14,104 acfm (235 ft^3/sec); and
- Total Combustion Zone Residence Time = (1,270 ft^3) / 235 ft^3/sec) = 5.4 sec.

The hazardous waste gas residence time for Unit 3 is calculated as follows using the three-run average for the stack gas flowrate during the Unit 3 CfPT:

- Primary Combustion Chamber Volume – 635 ft^3;
- Secondary Combustion Chamber Volume – 635 ft^3;
- Total Volume – 1,270 ft^3;
- Average Flue Gas Flowrate – 14,234 acfm (237 ft^3/sec); and
- Total Combustion Zone Residence Time = (1,270 ft^3) / 237 ft^3/sec) = 5.4 sec.

Solids residence time in the Unit 4 kiln is dependent upon the kiln rotation rate, solids bed depth, and a number of other parameters set by design. The maximum solids hazardous waste residence time for Unit 4 incinerator, i.e., in the rotary kiln, is 30 minutes based on calculations using an equation from Chemical Engineering Handbook, Perry's 5th Edition.

Since atomized liquid waste vaporizes almost instantaneously upon entering the combustion chambers, liquid and gaseous waste entering the incinerator has a residence time of approximately 7.5 seconds.

The hazardous waste gas residence time for Unit 4 is calculated as follows using the three-run average for the stack gas flowrate during the Unit 4 CfPT:

- Primary Combustion Chamber Volume – 1,346 ft^3;
- Secondary Combustion Chamber Volume – 3,084 ft^3;
- Total Volume – 4,430 ft^3;
- Average Flue Gas Flowrate – 35,329 acfm (589 ft^3/sec); and
- Total Combustion Zone Residence Time = (4,430 ft^3) / 589 ft^3/sec) = 7.5 sec.