VEOLIA
WATER

August 11, 2014

Mr. Ronald Merancy, Chairman
Water Pollution Control Authority
Borough of Naugatuck
229 Church Street
Naugatuck, CT 06770

Re: **July 2014 Monthly Operating Report**

Dear Mr. Merancy;

Enclosed please find Veolia Water's Monthly Operating Report for the month of July 2014. Please contact me at the address below if you have any questions about this report.

Sincerely,

VEOLIA WATER NORTH AMERICA – NORTHEAST, LLC

John Batorski
Plant Manager
Veolia Water Naugatuck

Cc: WPCA members: Rimas Balsys, Catherine Aresta, Pat Mallane, James R. Stewart PE, LS, Director of Public Works, Borough of Naugatuck, Kathleen Luvisi, Senior Environmental Engineer, Alternative Resources, Inc.

Encl.

Borough of Naugatuck
Monthly WPCF Report July 2014

This report summarizes the activities at the Borough POTW for July 2014:

1. Highlights and Significant Issues: Please refer to the report.

2. Collection System Update:

Please see attached Collections Report.

3. Plant Performance Summary:

Please see the attached reports and graphs for additional performance details.

Plant Process Data	Limit	Actual
Total Suspended Solids (mg/l)		
Influent Avg.	-	220
Effluent Avg.	30	5
Removal Efficiency	85%	98%

Plant Process Data*	Limit	Actual
Carbonaceous BOD		
Influent Avg.	-	132
Effluent Avg.	30	4
Removal Efficiency	85%	97%

Discharge Permit Exceedance: None

	Naugatuck	**Middlebury**	**Oxford**	**OTR**
July Flow Avg. (MGD)	4.2	0.478	*	N/A
Sludge Liquid Total (MGal)				3,816.3
Sludge Cake Total (Wet Tons)				4763.3
Septage Total (MGal)	52,190	57,500	161,500	806,350

Discharge Permit Exceedance: None

- *Flow not available at time of report.*

Safety Incidents and Odor Complaints

	Month	YTD
Recordable Accidents	0	0
Lost Time Accidents	0	0
Odor Complaints	0	6
Unconfirmed Odor Complaints	1	1

1. **Compliance & Regulatory Issues**
   - **a.** There were no Odor Complaints for July 2014.
   - **b.** There were two conference calls with TRC on the new emission system for the incinerator.
   - **c.** A meeting was held July 30, 2014 at the Torrington WWTP with Jim Stewart, Atty Ned Fitzpatrick, Kathy Luvisi (ARI), George Pendelton (Kleinfelder) John Batorski and Ray Drew, Supt of Torrington WWTP. The meeting was held to determine if the Torrington WWTP would be interested in selling potential phosphorous credits to the Naugatuck WWTP.
   - **d.** The new NPDES Permit was published for comment.
2. **.Health & Safety**
   - **a.** Monthly safety meetings were held.
3. **Operational Information**
   - **a.** The Piller aeration blowers require an external cooler when ambient temperatures exceed ~95F. Proposals have been requested for an external cooler. The control logic was modified to allow the blowers to operate per the design specification.

- **b.** The #4 secondary tanks repairs are complete.
- **c.** The submersible mixers in aeration anoxic zone 4A failed. Four existing abandoned industrial above water mixers will be installed.
- **d.** Roof repairs to the sludge storage dome have been scheduled.

4. **Collections**
   - **a.** On July 29, 2014 there was partial collection sewer blockage (pictures are at the end of the report) in the Water Street area of Naugatuck. The repair was complicated in that the sewer runs between a Metro North railroad line and the Naugatuck River. Godwin Pumps was called to supply 3 bypass pumps. These pumps had their suction lines run under the Metro North tracks. Any work performed near the live track requires a Metro North flagman be present. The CCTV inspection (lines had to be run under the tracks) revealed rocks, wood, and similar material suggesting vandalism. On Saturday, Aug 2, the Collections crew was able to partially break through a portion of the blockage. By Tuesday, Aug 5, the crew removed the rocks that caused the blockage. We will CCTV the sewer line upstream of the blockage to determine if there are additional unidentified issues to resolve. Repair costs to resolve the blockage are expected to be in the $40,000 to $50,000 range possibly more.
   - **b.** Work continues with the flowmeter issue on the Platts Mill pump station.
5. **Maintenance**
   - **a.** The hot oil cooler controls and piping installation is complete.
   - **b.** Northeast Water performed annual inspections and maintenance on the Spirac and related conveyors. Many liners required replacement.
   - **c.** Parts are on site to modify the mixer shafts on 4 abandoned mixers (above water) that were once used for the industrial treatment portion of the Naugatuck facility. These mixers will be installed in the anoxic zones of the aeration tanks replacing submersible mixers that failed.
   - **d.** The recirculation pump for the dewatering scrubber was replaced.

6. **Capital Projects**
   - **a.** The hot oil cooler project is 95% complete.

Borough of Naugatuck
Collections Systems Report
July 2014

VEOLIA WATER

	Calls for Service
1	07/29/14 - m/h 7-8 surcharged along river
2	
3	
4	
5	
6	

This Month	Year to Date
1	1

	Calls Caused By Collection System	Reason
1	07/01/14 - 99 Wooster st back up	belly in line and bad lateral caused backup in home
2	07/16/14 - 198 Bluebird dr back up	shallow lateral caused back up while jetting
3	07/29/14 - m/h 7-8 surcharged along river	found rocks in the invert, cause to be determined
4		

	Video Inspections	Type	Footage
1	Street Name		
2	May st 10-46 to 10-151	cctv	320
3	Wooster st 7-145 to 7-144	cctv	275
4	Evening Star 11-120 to 11-119	cctv	100
5	198 Bluebird dr no m/h #	cctv	140
6	Wilson st no m/h #s	cctv	200
7	Neagle st 2-275 to 3-50	cctv	200
8	" " 3-62 to 3-63	cctv	180
9	" " 3-60 to 3-62	cctv	180

This Month		Year to Date	
1595	Feet	1595	Feet

	High Velocity Cleaning		
	Street Name	Date	Footage
1	Wooster st 7-144 to 7-145	7/1/2014	375
2	Warren ave 13-40 to 13-39	7/8/2014	235
3	Warren ave 13-39 to 13-38	7/8/2014	215
4	Marc st no m/h #s	7/9/2014	686
5	Jason ct no m/h #s	7/9/2014	215
6	Warren ave 13-38 to 13-37	7/9/2014	275
7	Warren ave 13-37 to 13-36	7/9/2014	265
8	Sunburst 11-44 to 11-43	7/9/2014	200
9	Warm Earth 11-43 to end	7/9/2014	75
10	Evening Star 11-111 to 11-110	7/9/2014	230
11	Evening Star 11-110 to 11-109	7/9/2014	250
12	Rustling Reed 11-73 to 11-74	7/10/2014	235
13	Arbor Ave 11-73 to 11-71	7/10/2014	610
14	Evening Star 11-125 to 11-120	7/10/2014	908
15	Longwood dr 11-108 to 11-108A	7/10/2014	325
16	Longwood dr 11-108A to 11-112	7/10/2014	275
17	Longwood dr 11-108A to 11-106	7/15/2014	100
18	Longwood dr 11-106 to 11-131	7/15/2014	513
19	Swift ln 11-46 to 11-44	7/16/2014	260
20	Bluebird dr 11-143A to 11-144	7/16/2014	320
21	Bluebird dr 11-144 to no #	7/16/2014	250
22	Bluebird dr no # to no #	7/16/2014	160
23	Bluebird dr 14-72 to 14-65	7/16/2014	380
24	Moonlight cir 11-87 to 11-77	7/18/2014	360
25	Moonlight cir 11-79 to 11-77	7/18/2014	460
26	Morning Mist 11-91 to 11-75	7/18/2014	600
27	Morning Mist 11-88 to 11-75	7/18/2014	75
28	Rough Wing 14-59 to 11-142	7/21/2014	535
29	Bluebird dr No # to 11-141	7/21/2014	475
30	Bluebird dr 11-141 to 11-140	7/21/2014	150
31	Goldfinch 11-141 to 11-141A	7/21/2014	250
32	Cardinal 11-141 to 11-150	7/21/2014	230
33	Bluebird dr 11-140 to 11-139	7/22/2014	150
34	Bluebird dr 14-70 to 14-65	7/22/2014	776
35	Meadow Lark 11-153A to 11-152	7/22/2014	350
36	Meadow Lark 14-38A to 14-38	7/22/2014	290
37	Meadow Lark 11-139 to 11-152	7/22/2014	67
38	Cardinal 11-150 to 14-39	7/22/2014	413
39	Cardinal easement 14-39 to 14-38	7/22/2014	225
40	Mulberry st 11-22 to 11-21	7/24/2014	125
41	Kent st 11-95A to 11-21	7/24/2014	330
42	Fawn Meadow no m/h #	7/24/2014	300
43	Tawny Thrush 11-139 to 11-138	7/24/2014	125
44	Tawny Thrush 11-139A to 11-139	7/24/2014	200
45	Bluebird dr 11-138A to 11-138	7/24/2014	300
46	Bluebird dr 11-138 to 11-137	7/29/2014	200
47	Longview ter end to 11-40	7/29/2014	615
48	M/hs along river 7-9 to 7-8	7/29/2014	300
49	M/hs along river 7-8 to 7-6	7/30/2014	600
50	M/hs along river 7-5 to 7-6	7/31/2014	300
51			

6 month list	
Call for service	

This Month		Year to Date	
16158	Feet	16158	Feet

	Root Treatment		
	Street Name	Type	Footage
1	Albion st 7-235 to end	chemical	245
2	" " 7-235A to 7-235	chemical	180
3	" " 7-236 to 7-235	chemical	338
4	Locust st 7-135 to 7-128	chemical	264
5	" " 7-136 to 7-135	chemical	239
6	Baldwin st 10-167 to 10-170	chemical	360
7	Chestnut st 6-290A to 6-290	chemical	260
8	" " 6-290 to 6-285	chemical	260
9	Auburn st 10-164 to 10-163	chemical	400
10	Terrace ave 6-334 to 6-334A	chemical	580
11	" " 7-33 to 7-31A	chemical	425

This Month		Year to Date	
3551	Feet	3551	Feet

	Pump Station Services			
	Work performed	Location	Date	Notes
1	Pump Station Services	all 5	7/2/2014	
2	Pump Station Services	all 5	7/18/2014	
3	Pump Station Services	all 5	7/25/2014	
4				
5				
6				
7				

PUMP RUN TIMES		HOURS		
STATION		Pump 1	Pump 2	Pump 3
	End Reading	687.5	2429.5	2960.7
Inwood	Start Reading	687.2	2429.5	2836.9
	Hrs Run	0.3	0	123.8

PUMP RUN TIMES		HOURS	
STATION		Pump 1	Pump 2
	End Reading	32798.2	
MAPLE & MAY	Start Reading	32758.5	
	Hrs Run	39.7	0

PUMP RUN TIMES		HOURS	
STATION		Pump 1	Pump 2
	End Reading	3912.4	4557.5
Platts Mill	Start Reading	3841	4412.6
	Hrs Run	71.4	144.9

PUMP RUN TIMES		HOURS	
STATION		Pump 1	Pump 2
	End Reading	1012.9	678.7
Hopbrook	Start Reading	1001.3	673.1
	Hrs Run	11.6	5.6

PUMP RUN TIMES		HOURS	
STATION		Pump 1	Pump 2
	End Reading	7401.7	9259.2
HORTON HILL	Start Reading	7337.1	9208.5
	Hrs Run	64.6	50.7

Vac Truck Information

Days out of the plant working		
This Month	YTD	Remaining
14	14	136

Fuel Information	Fuel Cost	Fuel Used			
	$310.98	71.0	Gallons	YTD Gallons	
	$309.58	70.7	Gallons	141.7	Gallons
			Gallons		
			Gallons	YTD Fuel Cost	
This Months Total	$620.56	141.7	Gallons	$620.56	

	Mileage		Engine Hours
Month Start	174775.9	Month Start	5023.7
Month End	175829.7	Month End	5084
Total	1053.8	Total	60.3

Utlity Truck Information

	Fuel Cost	Fuel Used		
	$133.38	30.46	Gallons	YTD Gallons
	$129.82	29.65	Gallons	60.11
			Gallons	
			Gallons	YTD Fuel Cost
			Gallons	$263.20
This Months Total	$263.20	60.11	Gallons	

Other tasks and notes

1	7/03/2014 confined space on Walnut st m/h 6-156 to fix both drop downs
2	7/08/2014 Vac and cleaned both storm tanks at the plant
3	7/11/2014 Dig with G&L on Evening Star m/h 11-120 to fix seperated pipe
4	7/14/2014 confined space at Platts Mill drywell to fix area around the force main
5	7/15/2014 Vac out and clean Horton Hill wetwell. Also vac and clean Platts Mill drywell
6	7/17/2014 Landscaped and pruned trees at Maple/May pumpstation
7	7/17/2014 Met Paul Santoro at Platts Mill to recalibrate the flow meter
8	7/18/2014 Landscaped all 5 pumpstations
9	7/21/2014 worked with electricians on sequencing issue at Inwood pumpstation
10	7/23/2014 put new #2 pump in at Platts Mill and adjusted the float levels
11	7/24/2014 took 2 sets of broken rings and bricks out of m/h 11-21 invert
12	7/25/2014 Vac out and clean Maple/May wetwell
13	7/31/2014 Dukes root control came in the morning and treated the assigned streets
14	
15	
16	
17	
18	

VEOLIA
WATER

Sent via certified mail #7009 2820 0004 1018 1115 on August 7, 2014

Municipal Wastewater Monitoring Coordinator
Connecticut Department of Environmental Protection
Bureau of Water Management
79 Elm Street
Hartford, CT 06106-5127

August 7, 2014

Re: July 2014 Reports for Naugatuck, CT WPCF, NPDES # CT0100641

Dear Sir/Madam:

Enclosed please find the *Monthly Operating Report, Monthly Total Phosphorus, Seasonal Total Phosphorus and Nutrients Analysis Report* for the month for July 2014. The *Nutrients Analysis Report for Compliance with General Permit for Nitrogen Discharges and Discharge Monitoring Report* was submitted electronically. There were no exceptions to the reports.

Also enclosed is a summary of sludge sources received at this facility during the month of July 2014.

Please contact me if you have any questions regarding the enclosed revised report.

Sincerely,
Veolia Water North America – Northeast, LLC

John Batorski
John Batorski
Plant Manager

cc: James R. Stewart PE, LS, Director of Public Works, Borough of Naugatuck
(Enclosure)

Veolia Water NA -Naugatuck
500 Cherry Street, Naugatuck, CT 06770
Tel 203-723-1433 / 203-723-8539
www.veoliawaterna.com

Facility: Naugatuck WWTF
Sample month: Jul,2014
Facility ID: 088-001
Page 1 of MOR for permit # CT0100641

Chief Operator: John Batorski
Permit expiration date: August 7, 2006

Please return forms to: DEP-BWM
79 Elm Street
Hartford, CT 06106-5127

Date received: (stamped)

	Daily Flow			Primary Sludge			Aeration Tanks				Return sludge		Waste sludge	Dry solids to incineration	Waste accepted		CBOD (5-day)			Suspended Solids			Settleable Solids	Turbidity	Comments
	Max.	Min.	Total	Vol.	%	wt.	MLSS	SVI	DO Hi	DO Lo	% flow	% solids			septic	indust	Inf.	Prim. Eff.	Final Eff.	Inf.	Prim. Eff.	Final Eff.	Eff.	Eff.	
Day	mgd			gal.	solids	lbs.			mg/l				lbs	lbs	gal	gal	mg/l			mg/l			ml/l	NTU	
	daily			work day			work day				work day		work day	work day	work day		Daily			Daily			work day	work day	
01	5.3	2.6	4.3				4,120	59	2.60	0.00	235	1.01	2,148	98,879	30,450		130	180	<4	460	190	<5	0.0	2.7	
02	7.3	2.8	4.6				4,708	55	2.10	0.00	215	0.82	2,427	170,568	46,300								0.0	2.8	
03	7.9	3.0	4.7				4,512	60	2.30	0.00	214	0.77	2,620	177,468	55,200								0.0	6.0	
04	6.4	3.4	5.0						2.50	1.00	195		2,620	155,420	7,000										
05	5.9	2.8	4.4						5.00	0.70	237		3,930	43,733	6,000										
06	5.9	2.0	4.2						3.10	0.80	248		2,620	100,326	0										
07	5.9	2.2	4.2				2,868	73	3.50	0.00	215	0.40	0	95,900	41,050		110	130	<4	140	80	<5	0.0	2.6	
08	5.7	3.1	4.6				3,506	70	2.90	0.60	232	0.50	0	97,615	32,250		110	99	<4	130	100	<5	0.0	3.1	
09	6.1	2.9	4.3				3,298	76	1.90	0.60	227	0.47	0	146,863	57,250		170	110	3	190	88	<5	0.0	3.2	
10	5.4	3.3	4.6				3,664	66	2.10	0.90	226	0.66	0	133,968	44,050								0.0	3.6	
11	4.9	2.6	4.3				3,668	66	5.00	0.60	237	0.56	0	128,561	46,450								0.0	3.6	
12	5.5	2.9	4.2						2.10	0.50	248		1,191	179,592	9,750										
13	5.3	2.6	4.0						2.00	0.60	255		0	160,344	2,250										
14	8.2	2.3	4.5				3,424	69	2.50	0.70	243	0.48	0	80,803	72,300		200	96	<4	380	92	<5	0.0	2.5	
15	6.0	4.9	4.9				3,996	54	2.20	0.90	189	0.70	0	163,116	70,750		130	80	<4	200	120	<5	0.0	3.4	
16	5.6	3.4	4.6				3,448	68	2.20	0.90	231	0.60	0	170,568	38,500		110	57	<4	210	130	<5	0.0	4.1	
17	8.7	3.3	4.4				3,486	62	3.70	0.00	262	0.57	0	176,267	37,120								0.0	2.7	
18	4.2	3.0	4.0				3,144	67	3.90	0.00	235	0.49	0	179,592	42,600								0.0	2.5	
19	5.4	2.8	4.0						2.30	0.80	249		825	201,456	5,500										
20	4.7	2.3	3.7						2.30	0.50	280		0	180,900	0										
21	5.6	2.4	3.7				3,228	75	2.20	0.60	288	0.61	0	137,293	40,550		160	70	<4	270	95	<5	0.0	1.8	
22	4.7	2.6	3.9				3,300	71	2.40	0.00	262	0.54	919	160,344	54,770		110	88	<4	220	97	<5	0.0	2.1	
23	5.2	2.7	4.0				3,346	67	2.00	0.60	13	0.48	0	138,572	51,250		130	110	<4	230	190	<5	0.0	2.4	
24	5.1	2.8	4.1				3,706	69	2.10	0.70	499	0.87	1,480	144,168	48,950								0.0	2.2	
25	4.8	0.6	3.8				3,416	69	5.00	1.00	265	0.62	0	139,390	47,250								0.0	1.5	
26	5.1	2.6	3.9						2.00	0.90	272		1,046	152,904	16,250										
27	4.8	2.3	3.8						2.20	0.50	251		0	160,344	0										
28	4.5	2.6	3.5				3,552	79	2.30	0.90	282	0.56	0	134,232	40,000		120	60	<4	110	54	<5	0.0	2.2	
29	5.1	2.0	3.7				3,666	75	2.20	0.70	269	0.47	0	119,850	45,300		120	69	<4	220	60	<5	0.0	1.8	
30	4.8	2.5	3.7				4,244	62	2.40	0.20	299	0.44	740	134,402	42,950		120		<4	100		<5	0.0	2.9	
31	4.9	2.6	4.0				3,530	84	2.50	1.00	242	0.70	0	161,421	45,500								0.0	1.8	
TOT			129.6										22,566	4,424,859	1,077,540										
AVG	5.6	2.7	4.2				3,629	68	1.6	1.3	246	0.6	728	142,737	34,759		132	96	4	220	108	5	0.0	2.8	

Page 2 of MOR for
Permit # CT100641

I certify under penalty of law that this document and all attachments were 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.

Authorized Official: John Batorski Title: Plant Manager Signature: John Batorski Date: 8-7-14

	Chlorine Dose		Chlorine Residual		Fecal Coliform	Ammonia			Nitrate			Nitrite			TKN			D.O.	pH		Ortho P	Total Phosphorus		Temp.		Zinc	Copper	Comments
			high	low		Inf.	Prim.	Eff.	Inf.	Prim.	Eff.	Inf.	Prim.	Eff.	Inf.	Prim.	Eff.	Eff.	Inf.	Eff.	Eff.	Inf.	Eff.	Inf.	Eff.	Eff.	Eff.	
Day	lbs	mg/l	mg/l		#/100 ml	mg/l			mg/l			mg/l			mg/l			mg/l	S.U.		mg/l	mg/l		Deg F		kg/d	kg/d	
	Daily		4/work day		daily	weekly			weekly			weekly			weekly			week	work day		weekly	wee k		work day		work day	work day	
01	67.69	1.91	0.04	0.00	<10	23.1	26.7	0.21			3.2			0.02			2.19	8.4	7.3	6.8	14.1		14.1	69	87			
02	74.81	1.94	0.10	0.02	20													8.6	7.2	6.8				71	84			
03	72.19	1.83	0.04	0.00														8.0	7.0	6.7				69	82			
04	71.54	1.72	0.04	0.00																								
05	67.80	1.86	0.03	0.01																								
06	64.52	1.83	0.04	0.00																								
07	66.81	1.90	0.05	0.00		21.2	27.4	0.31	<0.01	<0.01	3.3	0.030	0.0	<0.01	33.5	38.2	2.01	9.5	7.1	6.7	11.7	3.7	12.0	68	81	0.67	0.10	
08	72.25	1.90	0.04	0.01	20	17.5	22.4	0.33			3.2			<0.01			2.05	7.9	7.1	6.8	10.5		11.1	68	80			
09	59.34	1.65	0.02	0.00	50	22.2	23.8	0.42			3.3			<0.01			2.17	7.5	7.0	6.8				68	81			
10	59.60	1.55	0.03	0.00	100													8.1	7.2	6.7				69	82			
11	55.08	1.55	0.03	0.00														8.4	6.9	6.7				69	81			
12	54.28	1.55	0.02	0.00																								
13	55.08	1.64	0.03	0.00																								
14	66.91	1.79	0.01	0.00		22.5	20.5	0.27			3.0			<0.01			1.81	7.7	7.3	6.6	11.3		11.6	69	85	1.01	0.29	
15	71.38	1.76	0.02	0.00	70	19.8	20.3	0.36			4.0			<0.01			2.00	8.3	7.2	6.7	10.9		11.5	69	85			
16	69.70	1.81	0.03	0.00	60	19.2	22.1	0.24			3.8			<0.01			1.90	7.9	7.2	6.7				68	85			
17	67.01	1.82	0.04	0.00	30													8.7	7.1	6.7				68	80			
18	62.00	1.84	0.03	0.00														8.6	7.2	6.6				69	85			
19	63.50	1.89	0.02	0.00																								
20	61.38	1.98	0.02	0.00																								
21	62.12	2.00	0.04	0.00		22.4	20.3	0.21			3.1			<0.01			1.78	7.8	7.2	6.6	9.7		10.8	71	86	0.83	0.18	
22	65.21	2.00	0.04	0.00	<10	22.3	21.9	0.20			2.2			<0.01			1.64	8.0	7.1	6.7	11.0		10.6	71	86			
23	60.56	1.83	0.04	0.00	20	22.3	20.3	0.18			3.2			<0.01			1.72	7.9	7.0	6.7				72	87			
24	55.77	1.64	0.02	0.00	40													6.4	7.3	6.6				73	87			
25	60.57	1.89	0.04	0.00														6.9	7.2	6.7				71	80			
26	81.48	2.54	0.00	0.00																								
27	82.72	2.62	0.04	0.00																								
28	87.27	2.96	0.04	0.00		23.6	19.5	0.17			3.2			<0.01			1.58	6.3	7.1	6.6	10.4		12.2	69	87			
29	87.27	2.81	0.04	0.00	40	25.3	20.3	0.17			3.1			<0.01			1.82	6.1	7.2	6.7	10.7		11.1	69	85			
30	76.74	2.51	0.04	0.00	10	22.8		0.18			2.8			<0.01			1.73	6.0	7.0	6.6				70	82			
31	85.81	2.58	0.05	0.00	10													6.1	7.1	6.7				68	85			
TOT																												
AVG			0.035	0.001	26	21.9	22.1	0.25	0.0	0.0	3.2	0.0	0.0	0.01	33.5	38.2	1.88	7.7	7.1	6.7	11.1	3.7	11.7	69	84	0.83	0.19	

Monthly Total Phosphorus Report

for compliance with NPDES permit

Use this report from April 1st through October 30th

Facility Name: Naugatuck

Permit # : CT0100641

Month of: July, 2014

Sample Date	Flow (mgd)	Effluent Total Phosphorus (mg/l) Max. Daily Limit - - for comparison purposes only	X	Total Phosphorus (lbs/d)
07/01/2014	4.3	14.10	8.34	501
07/07/2014	4.2	12.00	8.34	422
07/08/2014	4.6	11.10	8.34	423
07/14/2014	4.5	11.60	8.34	432
07/15/2014	4.9	11.50	8.34	466
07/21/2014	3.7	10.80	8.34	336
07/22/2014	3.9	10.60	8.34	345
07/28/2014	3.5	12.20	8.34	359
07/29/2014	3.7	11.10	8.34	344
			8.34	

Average Monthly Total Phosphorus Limit (mg/l)	Average Monthly Total Phosphorus (mg/l)	Average Seasonal Load Cap (lbs/d)	Average Monthly Total Phosphorus Load (lbs/d)
	11.67		403

Seasonal Total Phosphorus Report

Average from April 1st through October 30th

for compliance with NPDES permit

Submit this report by November 15th

Permit # CT0100641

Month	Average in lbs/d
April	374
May	311
June	313
July	403
August	
September	
October	

Average Seasonal Load Cap in lbs/d	Seasonal Average in lbs/d
Load Capacity N/A	350

Nutrient Analysis Report

Town/Facility: Naugatuck WWTF   Flow Rate: 4.2 MGD   Sampling Date: 07/07/14

Parameter	Raw Influent		Primary Effluent		Final Effluent				Plant Efficiency
	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day	mg/l	lbs/day	(%)
Ammonia	21.2		27.4		0.3				
Nitrites	0.03		0.01		<0.01				
Nitrates	0.0		0.0		3.3				
TKN	33.5		38.2		2.0				
Total Nitrogen	33.5	1,180	38.2	1,345	5.3	186			84
Orthophosphates	1.6	57			11.7	412			
Total Phosphorus	3.7	130			12.0	422			

Permit # CT0100641

VEOLIA WATER

Naugatuck Plant Samples by Intake Forecast Summary

Sample Date Range 7/1/2014 - 7/31/2014
Forecast Date Range 8/1/2014 - 7/31/2014
Number of Forecast Days: 0

	Forecasted New Intake	Forecasted Total
Bates, Inc.		
Liquid Sludge		
Total Gallons: 6,000	0	6,000
Total Samples for Bates, Inc.: 1		
Beacon Falls Treatment	Forecasted New Intake	Forecasted Total
Liquid Sludge		
Total Gallons: 143,000	0	143,000
Total Samples for Beacon Falls Treatment: 22		
Bennett Septic	Forecasted New Intake	Forecasted Total
Septage		
Total Gallons: 265,500	0	265,500
Total Samples for Bennett Septic: 71		
Bill Dunn Sanitation	Forecasted New Intake	Forecasted Total
Septage		
Total Gallons: 62,400	0	62,400
Total Samples for Bill Dunn Sanitation: 32		
Bill Marek Excavating & Septic Systems	Forecasted New Intake	Forecasted Total
Septage		
Total Gallons: 63,000	0	63,000
Total Samples for Bill Marek Excavating & Septic Systems: 21		
Casella Chicopee	Forecasted New Intake	Forecasted Total
Cake Sludge		
Total Tons: 535.25	0	535
Total Samples for Casella Chicopee: 22		
Casella Glen Cove	Forecasted New Intake	Forecasted Total
Cake Sludge		
Total Tons: 351.49	0	351
Total Samples for Casella Glen Cove: 14		
Casella Huntington	Forecasted New Intake	Forecasted Total
Cake Sludge		
Total Tons: 331.24	0	331
Total Samples for Casella Huntington: 12		

	Forecasted New Intake	Forecasted Total
Casella Poughkeepsie **Cake Sludge** Total Tons: 235.48 Total Samples for Casella Poughkeepsie: 11	0	235
Casella Suffolk NY **Cake Sludge** Total Tons: 670.25 Total Samples for Casella Suffolk NY: 25	0	670
Casella Yorktown Heights **Cake Sludge** Total Tons: 95.55 Total Samples for Casella Yorktown Heights: 8	0	96
Chatfield **Septage** Total Gallons: 12,800 Total Samples for Chatfield: 16	0	12,800
East Coast Septic **Septage** Total Gallons: 108,000 Total Samples for East Coast Septic: 27	0	108,000
Grieger Excavating **Septage** Total Gallons: 27,500 Total Samples for Grieger Excavating: 11	0	27,500
Heritage Village Water **Liquid Sludge** Total Gallons: 19,500 Total Samples for Heritage Village Water: 3	0	19,500
HI Stone Septic **Septage** Total Gallons: 6,500 Total Samples for HI Stone Septic: 1	0	6,500
Koseski Septic **Septage** Total Gallons: 148,500 Total Samples for Koseski Septic: 53	0	148,500

	Forecasted New Intake	Forecasted Total
Litchfield		
Liquid Sludge		
Total Gallons: 45,500	0	45,500
Total Samples for Litchfield: 7		
Lynnwood Place		
Septage		
Total Gallons: 39,000	0	39,000
Total Samples for Lynnwood Place: 6		
Mahopac Septic		
Liquid Sludge		
Total Gallons: 929,700	0	929,700
Total Samples for Mahopac Septic: 153		
Maslar's Party Rentals		
Septage		
Total Gallons: 270	0	300
Total Samples for Maslar's Party Rentals: 1		
New England Septic		
Septage		
Total Gallons: 129,000	0	129,000
Total Samples for New England Septic: 43		
New Hartford		
Liquid Sludge		
Total Gallons: 6,500	0	6,500
Total Samples for New Hartford : 1		
New Rochelle		
Cake Sludge		
Total Tons: 1,718.74	0	1,719
Total Samples for New Rochelle: 74		
North Canaan		
Liquid Sludge		
Total Gallons: 39,000	0	39,000
Total Samples for North Canaan: 6		
Oxbury Sanitation		
Septage		
Total Gallons: 69,000	0	69,000
Total Samples for Oxbury Sanitation: 23		
Pawling	Forecasted New Intake	Forecasted Total

	Forecasted New Intake	Forecasted Total
Liquid Sludge Total Gallons: 32,500	0	32,500
Total Samples for Pawling: 5		

Plymouth	Forecasted New Intake	Forecasted Total
Liquid Sludge Total Gallons: 84,500	0	84,500
Total Samples for Plymouth: 13		

Prospect Sanitation	Forecasted New Intake	Forecasted Total
Septage Total Gallons: 40,000	0	40,000
Total Samples for Prospect Sanitation: 16		

Rhinebeck	Forecasted New Intake	Forecasted Total
Cake Sludge Total Tons: 20.16	0	20
Total Samples for Rhinebeck: 2		

Shelton Septic	Forecasted New Intake	Forecasted Total
Septage Total Gallons: 12,000	0	12,000
Total Samples for Shelton Septic: 6		

Stratford	Forecasted New Intake	Forecasted Total
Liquid Sludge Total Gallons: 955,500	0	955,500
Total Samples for Stratford: 147		

Superior Sanitation	Forecasted New Intake	Forecasted Total
Septage Total Gallons: 24,000	0	24,000
Total Samples for Superior Sanitation: 16		

Synagro	Forecasted New Intake	Forecasted Total
Liquid Sludge Total Gallons: 201,500	0	201,500
Cake Sludge Total Tons: 252.68	0	253
Total Samples for Synagro: 44		

Talarico Septic	Forecasted New Intake	Forecasted Total
Septage Total Gallons: 269,000	0	269,000
Total Samples for Talarico Septic: 76		

	Forecasted New Intake	Forecasted Total
Thomaston		
Liquid Sludge		
Total Gallons: 84,500		
Total Samples for Thomaston: 13	0	84,500

	Forecasted New Intake	Forecasted Total
Torrington		
Liquid Sludge		
Total Gallons: 442,000		
Total Samples for Torrington: 68	0	442,000

	Forecasted New Intake	Forecasted Total
Veolia Bedford Hills		
Liquid Sludge		
Total Gallons: 26,000		
Total Samples for Veolia Bedford Hills: 4	0	26,000

	Forecasted New Intake	Forecasted Total
Veolia Danbury		
Cake Sludge		
Total Tons: 406.35		
Total Samples for Veolia Danbury: 19	0	406

	Forecasted New Intake	Forecasted Total
Veolia North Haven		
Liquid Sludge		
Total Gallons: 149,500		
Total Samples for Veolia North Haven: 23	0	149,500

	Forecasted New Intake	Forecasted Total
Veolia Pepsi		
Liquid Sludge		
Total Gallons: 5,060		
Total Samples for Veolia Pepsi: 1	0	5,100

	Forecasted New Intake	Forecasted Total
Veolia Poughkeepsie		
Liquid Sludge		
Total Gallons: 350,565		
Total Samples for Veolia Poughkeepsie: 54	0	350,600

	Forecasted New Intake	Forecasted Total
Veolia Redding		
Liquid Sludge		
Total Gallons: 6,500		
Total Samples for Veolia Redding: 1	0	6,500

	Forecasted New Intake	Forecasted Total
Veolia Seymour		
Cake Sludge		
Total Tons: 146.08		
Total Samples for Veolia Seymour: 14	0	146

	Forecasted New Intake	Forecasted Total
VES Americas Styrenics		

Industrial Waste Water

	Forecasted New Intake	Forecasted Total
Total Gallons: 55,000		
Total Samples for VES Americas Styrenics : 9	0	55,000

Westport		
Liquid Sludge	**Forecasted New Intake**	**Forecasted Total**
Total Gallons: 156,000		
Total Samples for Westport: 24	0	156,000

Windham		
Liquid Sludge	**Forecasted New Intake**	**Forecasted Total**
Total Gallons: 279,500		
Total Samples for Windham: 43	0	279,500

Total Gallons for all Customers 7/1/2014 - 7/31/2014: 5,294,295	0	5,294,300
Total Tons for all Customers 7/1/2014 - 7/31/2014: 4,763.27	0	4,763
Total Samples for all Customers 7/1/2014 - 7/31/2014: 1262		

DMR Copy of Record

Permit

Permit #:	CT0100641	**Permittee:**	NAUGATUCK WPCF	**Facility:**	NAUGATUCK, BOROUGH OF
Major:	Yes	**Permittee Address:**	500 CHERRY STREET NAUGATUCK, CT 06770	**Facility Location:**	500 CHERRY STREET NAUGATUCK, CT 06770
Permitted Feature:	001 External Outfall	**Discharge:**	001-1 SANITARY SEWAGE		

Report Dates & Status

Monitoring Period:	From 07/01/14 to 07/31/14	**DMR Due Date:**	08/15/14	**Status:**	NetDMR Validated

Considerations for Form Completion

MONTHLY AVERAGE CONCENTRATIONS SHALL NOT BE EXCEEDED BY > 1.5 DURING ANY WEEK.GRAB SAMPLES SHALL BE TAKEN DURINGPERIODS OF DAILY PEAK FLOW.SAMPLES COLLECTED FOR BACTERIOLOGICAL EXAM SHALL BE COLLECTED BTW 11AM & 3PM OR DURING PEAK HORLY FLOW.

Principal Executive Officer

First Name:	John	**Title:**	Plant Manager	**Telephone:**	203-723-1433
Last Name:	Batorski				

No Data Indicator (NODI)

Form NODI: –

Parameter Code	Parameter Name	Monitoring Location	Season #	Param. NODI		Quantity or Loading Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Quality or Concentration Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units	# of Ex.	Frequency of Analysis	Sample Type
00011	Temperature, water deg. fahrenheit	1 - Effluent Gross	0	–	Sample										=	87	15 - deg F		01/01 - Daily	GR - GRAB
					Permit Req.											Req Mon INST MAX	15 - deg F		01/01 - Daily	GR - GRAB
					Value NODI															
00300	Oxygen, dissolved [DO]	1 - Effluent Gross	0	–	Sample						=	6					19 - mg/L		01/01 - Daily	GR - GRAB
					Permit Req.						>=	5.0001 INST MIN					19 - mg/L		01/01 - Daily	GR - GRAB
					Value NODI															
00400	pH	1 - Effluent Gross	0	–	Sample						=	6.6			=	6.8	12 - SU		01/01 - Daily	GR - GRAB
					Permit Req.						>=	6 INST MIN			<=	9 INST MAX	12 - SU		01/01 - Daily	GR - GRAB
					Value NODI															
00410	Alkalinity, total [as CaCO3]	1 - Effluent Gross	0	–	Sample										=	60	19 - mg/L		01/30 - Monthly	GR - GRAB
					Permit Req.											Req Mon INST MAX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00530	Solids, total suspended	1 - Effluent Gross	0	–	Sample								=	5	=	5	19 - mg/L		12/30 - Twelve Per Month	CP - COMPOS
					Permit Req.								<=	30 MO AVG	<=	45 DAILY MX	19 - mg/L		12/30 - Twelve Per Month	CP - COMPOS
					Value NODI															
00530	Solids, total suspended	G - Raw Sewage Influent	0	–	Sample								=	220			19 - mg/L		12/30 - Twelve Per Month	CP - COMPOS
					Permit Req.									Req Mon MO AVG			19 - mg/L		12/30 - Twelve Per Month	CP - COMPOS
					Value NODI															
00545	Solids, settleable	1 - Effluent Gross	0	–	Sample										<	0.01	25 - mL/L		01/07 - Weekly	GR - GRAB
					Permit Req.											Req Mon INST MAX	25 - mL/L		01/07 - Weekly	GR - GRAB
					Value NODI															
00600	Nitrogen, total	1 - Effluent Gross	0	–	Sample										=	6	19 - mg/L		01/30 - Monthly	CP - COMPOS
					Permit Req.											Req Mon DAILY MX	19 - mg/L		01/30 - Monthly	CP - COMPOS
					Value NODI															
00600	Nitrogen, total	C - Nitrogen, Removal Complete	0	–	Sample	=	177			26 - lb/d									02/07 - Twice Every Week	CP - COMPOS
					Permit Req.		Req Mon MO AVG			26 - lb/d									02/07 - Twice Every Week	CP - COMPOS
					Value NODI															
					Sample								=	0.3	=	0.4	19 - mg/L		12/30 - Twelve Per Month	CP - COMPOS

Sent electronically 8-7-14
John Batorski

00610 Nitrogen, ammonia total [as N]	1 - Effluent Gross	3	–	Permit Req.						<=	4 MO AVG		Req Mon DAILY MX	19 - mg/L	12/30 - Twelve Per Month	CP - COMPOS
				Value NODI												
00615 Nitrogen, nitrite total [as N]	1 - Effluent Gross	0	–	Sample								=	0.02	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Permit Req.									Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value NODI												
00620 Nitrogen, nitrate total [as N]	1 - Effluent Gross	0	–	Sample								=	4	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Permit Req.									Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value NODI												
00625 Nitrogen, Kjeldahl, total [as N]	1 - Effluent Gross	0	–	Sample								=	2.2	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Permit Req.									Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value NODI												
00665 Phosphorus, total [as P]	1 - Effluent Gross	0	–	Sample								=	14.1	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Permit Req.									Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value NODI												
01002 Arsenic, total [as As]	S - See Comments	0	–	Sample								=	2.2	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.									Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI												
01012 Beryllium, total [as Be]	S - See Comments	0	–	Sample								<	0.44	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.									Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI												
01027 Cadmium, total [as Cd]	1 - Effluent Gross	0	–	Sample								<	0.0002	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Permit Req.									Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value NODI												
01042 Copper, total [as Cu]	1 - Effluent Gross	0	–	Sample	=	0.16	=	0.29	01 - kg/d						01/07 - Weekly	CP - COMPOS
				Permit Req.	<=	1.4 MO AVG	<=	2.58 DAILY MX	01 - kg/d						01/07 - Weekly	CP - COMPOS
				Value NODI												
01077 Silver, total [as Ag]	1 - Effluent Gross	0	–	Sample								<	0.001	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Permit Req.									Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value NODI												
01092 Zinc, total [as Zn]	1 - Effluent Gross	0	–	Sample	=	0.82	=	1.01	01 - kg/d						01/07 - Weekly	CP - COMPOS
				Permit Req.	<=	4.85 MO AVG	<=	11.11 DAILY MX	01 - kg/d						01/07 - Weekly	CP - COMPOS
				Value NODI												
50050 Flow, in conduit or thru treatment plant	1 - Effluent Gross	0	–	Sample	=	4.2			03 - MGD						99/99 - Continuous	TM - TOTALZ
				Permit Req.	<=	10.3 MO AVG			03 - MGD						99/99 - Continuous	TM - TOTALZ
				Value NODI												
50060 Chlorine, total residual	1 - Effluent Gross	0	–	Sample								=	0.04	19 - mg/L	04/01 - Four Per Day	GR - GRAB
				Permit Req.								<=	.06 DAILY MX	19 - mg/L	04/01 - Four Per Day	GR - GRAB
				Value NODI												
70507 Phosphorous, in total orthophosphate	1 - Effluent Gross	0	–	Sample								=	14.1	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Permit Req.									Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value NODI												
				Sample						=	35	=	100	13 - #/100mL	12/30 - Twelve Per Month	GR - GRAB
				Permit												

Parameter	Monitoring Location	Season #	Param. NODI		Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units	Frequency of Analysis	Sample Type
74055 Coliform, fecal general	1 - Effluent Gross	0	--	Req.			<=	200 30DA GEO	<=	400 7 DA GEO	13 - #/100mL	12/30 - Twelve Per Month	GR - GRAB
				Value NODI									
78467 Zinc, dry weight	S - See Comments	0	--	Sample					=	894	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.						Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI									
78468 Lead, dry weight	S - See Comments	0	--	Sample					=	69	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.						Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI									
78469 Nickel, dry weight	S - See Comments	0	--	Sample					=	19	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.						Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI									
78471 Mercury, dry weight	S - See Comments	0	--	Sample					=	1.03	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.						Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI									
78473 Chromium, dry weight	S - See Comments	0	--	Sample					=	34	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.						Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI									
78475 Copper, sludge, tot, dry weight [as Cu]	S - See Comments	0	--	Sample					=	572	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.						Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI									
78476 Cadmium, sludge, tot dry weight [as Cd]	S - See Comments	0	--	Sample					=	1.43	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Permit Req.						Opt Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
				Value NODI									
80126 BOD, carbonaceous, 5 day, 5 C	1 - Effluent Gross	1	--	Sample			=	4	=	4	19 - mg/L	12/30 - Twelve Per Month	CP - COMPOS
				Permit Req.			<=	30 MO AVG	<=	40 DAILY MX	19 - mg/L	12/30 - Twelve Per Month	CP - COMPOS
				Value NODI									
80126 BOD, carbonaceous, 5 day, 5 C	G - Raw Sewage Influent	0	--	Sample			=	132			19 - mg/L	12/30 - Twelve Per Month	CP - COMPOS
				Permit Req.				Req Mon MO AVG			19 - mg/L	12/30 - Twelve Per Month	CP - COMPOS
				Value NODI									
81011 Solids, suspended percent removal	K - Percent Removal	0	--	Sample	=	98					23 - %	01/30 - Monthly	CA - CALCTD
				Permit Req.	>=	85 MN % RMV					23 - %	01/30 - Monthly	CA - CALCTD
				Value NODI									
81383 Carbonaceous oxygen demand, % removal	K - Percent Removal	0	--	Sample	=	97					23 - %	01/30 - Monthly	CA - CALCTD
				Permit Req.	>=	85 MN % RMV					23 - %	01/30 - Monthly	CA - CALCTD
				Value NODI									
TGA3D Pass/Fail Static 48Hr Acute D. Pulex	T - See Comments	0	--	Sample									
				Permit Req.				Req Mon AVERAGE			9A - pass=0/fail=1	01/90 - Quarterly	CP - COMPOS
				Value NODI				9 - Conditional Monitoring - Not Required This Period					
TGA6C Pass/Fail Static 48Hr Acute Pimephales	T - See Comments	0	--	Sample									
				Permit Req.				Req Mon AVERAGE			9A - pass=0/fail=1	01/90 - Quarterly	CP - COMPOS
				Value NODI				9 - Conditional Monitoring - Not Required This Period					

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

NUTRIENT ANALYSIS REPORT

For Compliance with General Permit for Nitrogen Discharges

Facility Name: Naugatuck WWTF **Month of:** July, 2014

Permit Number: CT0100641 **Design Flow:** 10.3 MGD

Final Effluent:

(A) Sample Date	(B) TKN mg/l	+	(C) (Nitrite+Nitrate) mg/l	=	(D) Total Nitrogen mg/l	X	(E) Average Daily Flow (mgd)	X	8.34	=	(F) Total Nitrogen lbs/day
07/01/14	2.19	+	3.2	=	5.4	X	4.3	X	8.34	=	194
07/07/14	2.01	+	3.3	=	5.3	X	4.2	X	8.34	=	186
07/08/14	2.05	+	3.2	=	5.2	X	4.6	X	8.34	=	199
07/09/14	2.17	+	3.3	=	5.5	X	4.3	X	8.34	=	197
07/14/14	1.81	+	3.0	=	4.8	X	4.5	X	8.34	=	180
07/15/14	2.00	+	4.0	=	6.0	X	4.9	X	8.34	=	245
07/16/14	1.90	+	3.8	=	5.8	X	4.6	X	8.34	=	223
07/21/14	1.78	+	3.1	=	4.9	X	3.7	X	8.34	=	151
07/22/14	1.64	+	2.2	=	3.8	X	3.9	X	8.34	=	124
07/23/14	1.72	+	3.2	=	4.9	X	4.0	X	8.34	=	163
07/28/14	1.58	+	3.2	=	4.8	X	3.5	X	8.34	=	140
07/29/14	1.82	+	3.2	=	5.0	X	3.7	X	8.34	=	154
07/30/14	1.73	+	2.8	=	4.5	X	3.7	X	8.34	=	139
		+		=		X		X	8.34	=	
							Total Pounds			=	**2,295**
							(G) Average Pounds			=	**177**

Date of Last Calibration of Flow Meter: 7 /15/ 2014

Note:

(A) Sample Date: Date of Sampling ended
(B) TKN (mg/l): A single number because TKN is the sum of ammonia and organic nitrogen
(C) (Nitrate + Nitrite): A single number
(D) Total Nitrogen (mg/l): TKN + (Nitrate + Nitrite) = Total Nitrogen rounded to 0.1 mg/l
(E) Average Daily Flow (mgd): Day of sampling, round to 0.1 mgd if design flow is 1.0 mgd or more.
Round to nearest 0.01 MGD if design flow is less than 1.0 mgd
(F) Total Pounds: Sum of all monitoring days
(G) Average Pounds: Total pounds / number of days; rounded to nearest whole number. Must also be reported in DMR.

Statement of Acknowledgement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evalaute 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.

Authorized Official: John Batorski Title: Plant Manager

Authorized Official: Date:

Sent electronically 8-7-14 John Batorski

Bypass Report

* * * Communication Result Report (Jul. 31. 2014 8:52AM) * * *

1) Veolia Water-NET LLC
2)

Date/Time: Jul. 31. 2014 8:51AM

File No.	Mode	Destination	Pg(s)	Result	Page Not Sent
4436	Memory TX	18604244067	P. 3	OK	

Reason for error
E. 1) Hang up or line fail
E. 2) Busy
E. 3) No answer
E. 4) No facsimile connection
E. 5) Exceeded max. E-mail size
E. 6) Destination does not support IP-Fax

VEOLIA WATER

VEOLIA WATER NORTH AMERICA
[illegible]
Naugatuck, CT 06770

Tel: [illegible]
Fax: [illegible]
[illegible]

Fax

TO Iliana Raffa - 860-424-4067

FAX

FROM John Butorski

DATE 7-30-14

PAGES: 3
Including this page

SUBJECT Collection System Bypass

MESSAGE

Attached is the bypass report for a collection system bypass. While it was a small amount, and is stopped, it is still under investigation

VEOLIA WATER

VEOLIA WATER NORTH AMERICA
500 Cherry Street
Naugatuck, CT 06770

Tel : 203-723-1433 / 888-682-1433
Fax : 203-723-8539
www.veoliawaterna.com

Fax

TO Iliana Raffa - 860-424-4067

FAX

FROM John Batorski

DATE 7-30-14

PAGES: 3
Including this page

SUBJECT Collection System Bypass

MESSAGE

Attach is the bypass report for a collection system bypass While it was a small amount, and is stopped, it is still under investigation.

BYPASS NOTIFICATION LOG

Permittee shall notify DEEP within 2 hours of becoming aware of the bypass and shall submit a written report within 5 days.

2 hours notification required

DATE/ TIME – left message – Manhole – 7-4 – overflowing ~ 20 gpm – notified ~ 45 min. ago, by Metro North/Naugatuck Swing bank (Church/Meadow) overflowing in river. Crews have responded, 7-30-14 ~ 3:20 – called with an update.

7-29-14 / 2:30 PM CT DEEP - Iliana Raffa (860) 424-3758 (Primary DEEP Contact)
If Iliana Raffa is not available, you **must** call Municipal Facilities Section at number below:
– 2:32 – no answer, tried several times

2:32 PM 7-29-14 CT DEEP (860) 424-3704 [(860) 424-3338 (DEEP Emergency Dispatch) only for after hours] DO NOT LEAVE VOICE MAIL MESSAGES
2:35 PM – told me to call above as it is not after hours –
Dispatcher 208 Name of person contacted

___/___ CT Bureau of Aquaculture (203) 874-0696 Option 2 Monday through Friday 8:00 and 4:30 pm (Required only if bypass is south of Interstate Route 95)
__________ Name of person contacted.
After hours/weekend must refer to call list provided by Bureau of Aquaculture
DO NOT LEAVE VOICE MAIL MESSAGES

___/___ CT Dept. of Public Health (860) 509-7333 (Drinking Water Section) notify Monday through Friday 8:30 to 5:00 pm if bypass occurred in following towns: Bristol, Cheshire, Danbury, Goshen, Groton, Hamden, Manchester, Mansfield, Middletown, North Haven, Norwalk, Ridgefield, Shelton, Stamford Vernon, and Woodstock.
___/___ __________ Name of person contacted

___/___ CT Dept. of Public Health (860) 509-7296 (Recreation Section) notify from Monday through Friday 8:30 to 5:00pm if bypass occurred from April 1st through September 30th.
__________ Name of person contacted

___/___ Local Health Department or Regional Health District
__________ Name of person contacted

___/___ Health Director of Contiguous Towns (Coastal Plants Only) or Health Director of Town Downstream (Inland Plants)
__________ Name of person contacted

Final report within 5 days

___/___ Fax to CT DEEP, Iliana Ayala (860) 424-4067

___/___ Fax to CT Aquaculture (203) 783-9976 (If south of I-95)

___/___ Fax to Local Health Department or Regional Health District

Report Submitted by: John Baturski Title: Plant Manager
Signature: John Baturski Date: __________ Phone # 203-723-1433 ext. 2015
Submit Completed Report to either by fax or by mail: State of Connecticut, Department of Energy & Environmental Protection, Water Bureau - Attention: Iliana Raffa, 79 Elm Street, Hartford, CT 06106-5127 203-363-5770 – Frank – Rev. 7/27/2011

203-363-5722 –

~ 2:45 PM – called Metro-North – manhole leaking by Naugatuck train station ~1/4 mile North, crews – will be in area – concerned about trespassing and employee safety –

STATE OF CONNECTICUT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
WATER PROTECTION AND LAND REUSE BUREAU

BYPASS REPORT FORM

City or Town: Naugatuck

Type of Bypass
X Raw Sewage
___ Disinfected Raw Sewage
___ Partially Treated Sewage
___ Disinfected Partially Treated Sewage
___ Sludge Spill
___ Other: ______

Location of Bypass
___ Treatment Plant
___ Pump Station   in collection system
X Manhole, ✓ Lateral, ___ Basement
___ Main, ___ Private

Cause of Bypass
___ Weather Conditions dry
___ Mechanical Equipment Failure
___ Electric Utility Failure
___ Electrical Equipment Failure
___ Approved Shutdown
___ Limited capacity: ___ Dry weather
___ Wet weather
Blockage of Sewer Line due to:
___ Grease, ___ Roots, X Other: still under investigation. Found 2x6's and large rocks.

Exact Location of By-Pass: Manhole 7-4

Date and Time By-Pass was Discovered: 7 / 24 / 14   1 / 30 AM/(PM)

Date and Time By-Pass was Stopped: 7 / 30 / 14 ~ 8 / ___ AM/(PM) – pump fully operational

How By-Pass was Discovered: Call from local police.

Quantity/Volume of By-Pass: ~ < 50,000 gallons.

How Quantity/Volume was Determined: Estimate - bypass was not always bypassing. Flow continued through obstruction. Presently using Godwin Pumps to bypass portion of sewer with the blockage. CCTV track camera onsite today - 7-30-14 to determine what is in the sewer.

If Equipment Failure, date of last inspection, maintenance or repairs: ___ / ___ / N/A

Receiving Waters (If Applicable) Naugatuck River

Steps taken to minimize volume and duration of By-Pass: Installed bypass pump.

Action taken to eliminate By-Pass: Bypass pump installed. Continue to identify cause of blockage and remove it.

Steps Taken to prevent recurrence of By-Pass: Will CCTV entire section of sewer.

Was area of By-Pass cleaned of debris? X Yes ___ No

Method Used: Manual - staff walked area - minimal debris

Date of Last Blockage X / Back up ___ / Surcharge ___ at this location: 5 / 2 / 14 – Collection system.

Sent Certified R.R.R. mail #7009 2820 0004 1018 1108 on August 5, 2014

Connecticut Department of Energy and Environmental Protection
Bureau of Water Management
Aquatic Toxicity Monitoring
79 Elm Street
Hartford, CT 06106-5127

August 5, 2014

Re: Aquatic Toxicity Monitoring Report, 3rd Quarter 2014

To Whom It May Concern:

Enclosed please find the Naugatuck third quarter Aquatic Toxicity Monitoring Report for 2014.

Please contact me if you have any questions regarding the enclosed report.

Sincerely,
Veolia Water North America – Northeast, LLC

John Batorski
John Batorski
Plant Manager

cc: James R. Stewart PE, LS, Director of Public Works, Borough of Naugatuck
(enclosure)

Veolia Water NA -Naugatuck
500 Cherry Street, Naugatuck, CT 06770
Tel 203-723-1433 / 203-723-8539
www.veoliawaterna.com

Aquatic Toxicity Monitoring Report (ATMR)
Instruction Form -Municipal

New England Bioassay
a Division of GZA GeoEnvironmental, Inc.

77 Batson Drive
Manchester, CT
06042
860-643-9560
FAX 860-646-7169

Client Name/Project: Phoenix/Naugatuck Test Date: 7/17/14

Sample ID: BG71(0512

Your results were as follows:

X Pass

□ Fail – **Retesting is required within 30 days.** Please proceed according to the instructions in the "Recording and Reporting of Violations" Section of your permit.

□ Invalid – **Retesting is required within 30 days.** Please proceed according to the instructions in the "Recording and Reporting of Violations" Section of your permit.

□ Unable to determine using the information available. Please compare results to your permit limits. Please submit a current copy of your permit to the New England Bioassay Laboratory so that we may accurately determine the status of your test results in the future and so that we can confirm that test protocols comply with your permit requirements.

Please complete the items on this bulleted list prior to submission of these data to the CTDEEP:

- Complete Part 3 of the ATMR, including the sample day's flow.
- An authorized official from your facility must sign Part 1 of the ATMR.
- Complete the facility and sample collection section at the top of all pages of the ATMR.

Please detach this instruction form and the Chain-of-Custody and keep for your records. File the complete ATMR as follows:

- The complete ATMR (Parts 1, 2, 2S and 3) must be sent to the Bureau of Water Management at the following address:

  ATTN: Municipal Wastewater Monitoring Coordinator
  Connecticut Department of Energy and Environmental Protection
  Bureau of Water Protection and Land Reuse, Planning Standards Division
  79 Elm St.
  Hartford, CT 06106-5127

- The results of chemical analyses (copied from the ATMR Part 3) and aquatic toxicity tests (Pass or Fail, not % survival) must be entered on the Discharge Monitoring Report (DMR), and the DMR must be received at the above address.

Questions? Please contact Kim Wills, Lab Manager at (860) 858-3153 or kimberly.wills@gza.com

NEW ENGLAND BIOASSAY

ATMR COVER SHEET

CLIENT:	**Phoenix Environmental Laboratories**	***D.pulex* TEST ID #:**	14-1104a
ADDRESS:	587 East Middle Turnpike	***P.promelas* TEST ID #:**	14-1104b
	P.O. Box 370	**COC #:**	c34-2723
	Manchester, CT 06040	**PROJECT #:**	05.0044745.0(
CONTACT:	Ms. Bobbi Aloisa		
SAMPLE:	**Naugatuck WPCF**		

LABORATORY CONTROL WATER		
NEB Lot #:	A34-S008	SRCF
Hardness:	46	mg/L as $CaCO_3$
Alkalinity:	35	mg/L as $CaCO_3$

SAMPLE COLLECTION INFORMATION	FROM	TO
DATE:	7-15-2014	7/16/2014
TIME:	1:35 AM	1:30 AM

INITIAL CHEMISTRY DATA				TECHNICIAN INITIALS:	PD
Color	very light yellow	Temp. (C)	5.7, 4.6	Hardness (mg/L)	116
Cond. (umhos/cm)	777	D.O.(mg/L)	9.2	Alkalinity (mg/L)	30
Salinity (ppt)	<1	pH (su)	6.6	TRC (mg/L)	<0.02

INVERTEBRATE

Test Set Up Technician Initials: MV
Test Type: Screen
Test Species: *Daphnia pulex*
Source: New England Bioassay
NEB Lot#: Dp14(7-17)
Age: < 24 Hours
Test Solution Volume: 30 ml
\# Organisms/Test Chamber: 10
\# Organisms/Concentration: 50
\# Organisms/Control: 30

START DATE: 7/17/2014 AT 1036
END DATE: 7/19/2014 AT 1010

VERTEBRATE

Test Set Up Technician Initials: MV
Test Type: Screen
Test Species: *Pimephales promelas*
Source: New England Bioassay
NEB Lot#: Pp14(7-3) 1410
Age: 14 (1-14)Days
Test Solution Volume: 700 ml
\# Organisms/Test Chamber: 10
\# Organisms/Concentration: 50
\# Organisms/Control: 30

START DATE: 7/17/2014 AT 1028
END DATE: 7/19/2014 AT 1015

TEST SET UP CONDUCTIVITIES

D.p Control	176	umhos/cm	*P.p* Control	176	umhos/cm
100%	783	umhos/cm	100%	783	umhos/cm

Technician Initials:	*D.pulex*	0 Hour: MV	24 Hour: SP	48 Hour: MV
	P.promelas	0 Hour: MV	24 Hour: SP	48 Hour: MV

RESULTS OF *Daphnia pulex* Screening Test

Control: 100 % 100% 100 %
Replicate A: 100 %
Replicate B: 100 %
Replicate C: 100 %

RESULTS OF *Pimephales promelas* Screening Test

Control: 100 % 100% 100 %
Replicate A: 100 %
Replicate B: 100 %
Replicate C: 100 %

COMMENTS:

REVIEWED BY: [signature]

DATE: 7/21/14

STATE OF CONNECTICUT ** DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Water Management: Aquatic Toxicity Monitoring Report – Part 1

Facility Name: Borough of Naugatuck WPCF | NPDES ID: CT0100641 DSN-001-1

Receiving Water: Naugatuck River | Waterbody ID: 6900

Sample Collection Date(s): 7/15/14 – 7/16/14

Sample Collection Time: FROM: 1:35 Am (AM/PM) TO: 1:30 AM (AM/PM)

TOXICITY TEST SUMMARY (PASS/FAIL)

CONTROL SAMPLE RESULTS (% SURVIVAL)

TEST SPECIES	REPLICATE 1	REPLICATE 2	REPLICATE 3
Daphnia pulex	100%	100%	100%
Pimephales promelas	100%	100%	100%

If less than 90% survival is recorded for one or more replicate controls, the test is invalid and an additional effluent sample must be collected and the test procedure repeated. The results for all samples must be submitted to the DEP.

EFFLUENT SAMPLE RESULTS (MEAN % SURVIVAL)

TEST SPECIES	100% Effluent
Daphnia pulex	100%
Pimephales promelas	100%

For
Official Use
Only

If the mean percent survival for either or both species is less than 90%, the effluent is determined toxic and an additional effluent sample must be collected and the test procedure repeated. The results for all samples must be submitted to the DEP.

STATEMENT OF ACKNOWLEDGEMENT

I certify under penalty of law that this document and all attachments were 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 submitted false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Official: John Batorski Title: Plant Manager

Signature: [signature] Date: 8-5-14

AQUATIC TOXICITY MONITORING REPORT (ATMR) – PART 2

Facility Name: Borough of Naugatuck WPCF NPDES ID: CT0100641 DSN-001-1

Dilution Water: Soft Reconstituted Fresh Water (SRCF) Hardness: 50 ± 5 mg/L

Sample Collected On: 7/16/14 (date) Received On: 7/16/14 (date)

Test Species: *Daphnia pulex* Source: New England Bioassay Age: < 24 h

Test Duration: 48 hours Beginning: 1036 (am/pm) On: 7/17/14 (date)

Ending: 1010 (am/pm) On: 7/19/14 (date)

Effluent Dilution	Number of Organisms Surviving			Dissolved Oxygen (mg/L)			Temperature (°C)			PH (SU)		
Tech	MV	SP	MV	MV	SP	MV	MV	SP	MV	MV	SP	MV
(%) Hour	00	24	48	00	24	48	00	24	48	00	24	48
100% A	10	10	10	9.2	8.5	8.3	20	19	19	6.7	7.2	7.1
100% B	10	10	10			8.3			19			7.1
100% C	10	10	10			8.2			19			7.1
100% D	10	10	10			8.2			19			7.1
100% E	10	10	10			8.1			19			7.1
CONTROL 1	10	10	10	9.2	8.5	8.5	19	19	19	7.4	7.6	7.5
CONTROL 2	10	10	10			8.6			19			7.5
CONTROL 3	10	10	10			8.6			19			7.5
MEAN SAMPLE SURVIVAL (%)							CONTROL SURVIVAL (%)			#1	#2	#3
[(A+B+C+D+E) /5] X 10 = 100%										100%	100%	100%

REFERENCE TOXICANT RESULTS				
SPECIES	DATE	REFERENCE TOXICANT	SOURCE	LC_{50}
Daphnia pulex	7/1/14	Copper Nitrate Lot #14-0102-010	ACROS/NEB	2.227 µg/L

COMMENTS

Note: At test initiation (0 h) and 24 h, dissolved oxygen, temperature, and pH were measured in separate chemistry replicates (without daphnids); at test completion (or when complete mortality occurred within a replicate) dissolved oxygen, temperature, and pH were measured directly from replicates with the test organisms.

STATEMENT OF ACKNOWLEDGEMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the testing protocol described in EPA 600/4-90/027F and Sections 22a-430-3 and 22a-430-4 of the Regulations of Connecticut State Agencies except as noted above. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Laboratory Official: Kimberly Wills Title: Laboratory Manager

New England Bioassay

Signature: [signature] for Kim Wills Date: 7/31/14

AQUATIC TOXICITY MONITORING REPORT (ATMR) – PART 2

Facility Name: Borough of Naugatuck WPCF NPDES ID: CT0100641 DSN-001-1
Dilution Water: Soft Reconstituted Fresh Water (SRCF) Hardness: 50 ± 5 mg/L

Sample Collected On: 7/16/14 (date) Received On: 7/16/14 (date)

Test Species: *Pimephales promelas* Source: New England Bioassay Age: 14 days
Test Duration: 48 hours Beginning: 1028 (am/pm) On: 7/17/14 (date)
Ending: 1015 (am/pm) On: 7/19/14 (date)

Effluent Dilution	Number of Organisms Surviving			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (SU)		
Tech	MV	SP	MV	MV	SP	MV	MV	SP	MV	MV	SP	MV
(%) Hour	00	24	48	00	24	48	00	24	48	00	24	48
100% A	10	10	10	9.2	6.7	7.2	20	19	19	6.7	6.6	6.8
100% B	10	10	10		6.8	7.2		19	19		6.6	6.8
100% C	10	10	10		6.7	7.0		19	19		6.6	6.8
100% D	10	10	10		6.9	7.0		19	19		6.6	6.8
100% E	10	10	10		6.9	7.0		19	19		6.6	6.8
CONTROL 1	10	10	10	9.2	7.7	7.7	19	19	19	7.4	6.9	7.3
CONTROL 2	10	10	10		7.6	7.8		19	19		6.9	7.3
CONTROL 3	10	10	10		7.7	7.7		19	19		6.9	7.3

MEAN SAMPLE SURVIVAL (%)	CONTROL SURVIVAL (%)	#1	#2	#3
[(A+B+C+D+E) /5] X 10 = 100%		100%	100%	100%

REFERENCE TOXICANT RESULTS

SPECIES	DATE	REFERENCE TOXICANT	SOURCE	LC_{50}
Pimephales promelas	7/9/14	Copper Nitrate Lot #14-0102-012	ACROS/NEB	82.63 µg/L

COMMENTS

STATEMENT OF ACKNOWLEDGEMENT

I certify that the data reported on this document were prepared under my direction or supervision in accordance with the testing protocol described in EPA 600/4-90/027F and Sections 22a-430-3 and 22a-430-4 of the Regulations of Connecticut State Agencies except as noted above. The information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Laboratory Official: Kimberly Wills Title: Laboratory Manager
New England Bioassay

Signature: [signature] for Kim Wills Date: 7/31/14

SUPPLEMENTAL CHEMISTRY (PART 2S)

Facility Name: Borough of Naugatuck WPCF **NPDES ID:** CT0100641 **DSN-001-1**

Receiving Water: Naugatuck River **Waterbody ID:** 6900

Sample Collection Date(s): FROM: 7-15-14 TO: 7/16/14

Sample Collection Time(s): FROM: 1:35 Am (AM/PM) TO: 1:30 Am (AM/PM)

Effluent Sample at Arrival

Parameter		Effluent Sample
	Tech Initials	PD
	Date & Time	7/17/14 @ 0840
Temperature (°C)		5.7 / 4.6
pH (standard units)		6.6
Alkalinity (mg/L)		30
Conductivity (µS)		777
Hardness(mg/L)/Salinity(ppt)		116 / <1
Color:		Very light yellow
TRC (mg/L)		<0.02

100% Test Sample

Parameter		*Daphnia pulex*		*Pimephales promelas*	
	Hours	Initial (00)	Final (48)	Initial (00)	Final (48)
Tech Initials		PD	MV	PD	MV
Conductivity (µS)		783	788	783	785
Alkalinity (mg/L)		30	30	30	30
Hardness(mg/L) / Salinity(ppt)		116 / <1	108 / <1	116 / <1	108 / <1
TRC (mg/L)		<0.02	<0.02	<0.02	<0.02

0% Test Sample (Control)

Parameter		*Daphnia pulex*		*Pimephales promelas*	
	Hours	Initial (00)	Final (48)	Initial (00)	Final (48)
Tech Initials		MV	MV	MV	MV
Conductivity (µS)		176	178	176	188
Alkalinity (mg/L)		35	35	35	35
Hardness(mg/L) / Salinity(ppt)		46 / <1	46 / <1	46 / <1	46 / <1
TRC (mg/L)		<0.02	<0.02	<0.02	<0.02

Laboratory Official: Kim Wills Title: Lab Manager
Signature: [signature] for Kim Wills Date: 7/31/14

Aquatic Toxicity Monitoring Report - PART 3

FREQUENCY	MONLOC	UNITS	PARAMETER	MINIMUM LEVEL	RESULT
Each Test	001 T	mg/L	CHROMIUM, Total		0.001
Each Test	001 T	mg/L	COPPER, Total	0.005 mg/L	0.008
Each Test	001 T	mg/L	LEAD, Total	0.005 mg/L	<0.001
Each Test	001 T	mg/L	THALLIUM, Total	0.005 mg/L	<0.002
Each Test	001 T	mg/L	NICKEL, Total		0.015
Each Test	001 T	mg/L	SILVER, Total	0.002 mg/L	<0.001
Each Test	001 T	mg/L	ZINC, Total	0.020 mg/L	0.056
Each Test	001 T	mg/L	ANTIMONY, Total		<0.005
Each Test	001 T	mg/L	SELENIUM, Total	0.005 mg/L	0.003
Each Test	001 T	mg/L	PHENOLS		<0.015
Each Test	001 T	mg/L	MERCURY, Total	0.0002 mg/L	<0.0002

Testing Laboratory: Phoenix Environmental   Signature: [signature]   Date: 8-1-2014

FOR OFFICIAL USE ONLY:

AQUATIC TOXICITY: *Daphnia pulex* TGA3D

AQUATIC TOXICITY: *Pimephales promelas* TGA6C

76512

STATE OF CONNECTICUT — DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Water Management: Aquatic Toxicity Monitoring Report - PART 3

NPDES Permit:	CT0100641	Exp:	8/7/06	Phone[1]:	(203) 723-1433
Facility:	Naugatuck WPCF	Contact:	James McGrath	Phone[2]:	
Address:	500 Cherry Street	Town:	Naugatuck	Zip:	06770

STATEMENT OF ACKNOWLEDGEMENT

I certify under penalty of law that this document and all attachments were 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 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.

Authorized Official: John [illegible] Title: Plant Manager

Signature: [illegible] Date: 8-5-14

Sample Date: 7-15-14 Sample Day's Flow: 4.3 JAN APR (JUL) OCT (Circle one)

REPEAT MONTH:

FREQUENCY	MONLOC	UNITS	PARAMETER	MINIMUM LEVEL	RESULT
Each Test	001 T	mg/L	BOD, 5 DAY		<4.0
Each Test	001 T	mg/L	SUSPENDED SOLIDS, TOTAL		<5.0
Each Test	001 T	mg/L	AMMONIA, Total		0.18
Each Test	001 T	mg/L	NITRITE, as N		<0.01
Each Test	001 T	mg/L	NITRATE, as N		4.47
Each Test	001 T	mg/L	CYANIDE, Total		<0.01
Each Test	001 T	mg/L	CYANIDE, Amenable		<0.01
Each Test	001 T	mg/L	BERYLLIUM, Total	0.001 mg/L	<0.001
Each Test	001 T	mg/L	ARSENIC, Total	0.005 mg/L	0.007
Each Test	001 T	mg/L	CADMIUM, Total	0.0005 mg/L	<0.0002
Each Test	001 T	mg/L	CHROMIUM, Hexavalent		<0.01

PHOENIX Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Coolant: IPK [✓] ICE [ ] Cooler: Yes [ ] No [ ] No [ ]
Temp ___ °C Pg ___ of ___

Contact Options:
[ ] Fax:
[ ] Phone:
[ ] Email:

Customer: VEOLIA WATER
Address: 500 CHERRY ST EXT.
NAUGATUCK, CT 06770

Project: NAUGATUCK
Report to: TOM DELLER
Invoice to: 2014-3rd Qtr ATMR

Project P.O: 2014-3rd Qtr ATMR

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification
Sampler's Signature: T. Deller Date: 7/16/14

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe
OIL=Oil B=Bulk L=Liquid

Analysis Request: Aquatic Tox

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Aquatic Tox	4L Cube	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [X] H2SO4	PL As is [ ] 250ml [ ] 500ml [X] 1000ml	PL H2SO4 [ ] 250ml [X] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle
76512	EFFLUENT	W/W	7-15-14	24hr	X	2					1	1	1	1	1	

Relinquished by:	Accepted by:	Date:	Time:
T. Deller	[signature]	7-16-14	1:00
[signature]	[signature]	7/16/14	1640

Comments, Special Requirements or Regulations:
2014-3rd Qtr ATMR

Turnaround:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[X] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] Direct Exposure (Residential)
[ ] GW
[ ] Other

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[ ] MCP Certification
[ ] GW-1
[ ] GW-2
[ ] GW-3
[ ] S-1
[ ] S-2
[ ] S-3
[ ] MWRA eSMART
[ ] Other

Data Format
[ ] Excel
[ ] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[ ] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

State where samples were collected: CT

Coolant: IPK ☐ ICE ☐ Cooler: Yes ☐ No ☐ No ☐

Temp °C Pg of

CHAIN OF CUSTODY RECORD

PHOENIX Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Contact Options:
☐ Fax:
☐ Phone:
☒ Email:

Customer: NES
Address:

Project:
Report to: Deb C.
Invoice to:

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature ______ Date: ______

Matrix Code:
DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe
OIL=Oil B=Bulk L=Liquid

Analysis Request: Anaerobic

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Analysis	Bottle Quantity (Cube)
-2721	BG-76214 (Middletown Sewer)	WW	7/16/14	7:00	X	1
-2722	BG-76512 (Veolia Naugatuck)	WW	7/16/14	—	X	2
2723	BG76641 (Veolia Danbury)	WW	7/16/14	23:30	X	1

Relinquished by:	Accepted by:	Date:	Time:
K. Chan	[signature]	7/17/14	0700
[signature]	Kat [signature]	7/17/14	08:40

Comments, Special Requirements or Regulations:

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☐ Standard
☐ Other

RI
☐ Direct Exposure (Residential)
☐ GW
☐ Other

CT
☐ RCP Cert
☐ GW Protection
☐ SW Protection
☐ GA Mobility
☐ GB Mobility
☐ Residential DEC
☐ I/C DEC
☐ Other

MA
☐ MCP Certification
☐ GW-1
☐ GW-2
☐ GW-3
☐ S-1
☐ S-2
☐ S-3
☐ MWRA eSMART
☐ Other

State where samples were collected:

Data Format
☐ Excel
☐ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ Tier II Checklist
☐ Full Data Package*
☐ Phoenix Std Report
☐ Other

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

Notice of Future Plans of the Nitrogen Trading Program – page 1 of 3

To: **Connecticut Nitrogen Trading Program Participants**

From: **Connecticut Department of Energy and Environmental Protection and the Connecticut Nitrogen Credit Advisory Board**

The Connecticut Department of Energy and Environmental Protection (DEEP), working with the Nitrogen Credit Advisory Board (NCAB), have initiated steps regarding the future plans of the Nitrogen Trading Program.

Nitrogen Trading Approach

The Nitrogen Trading Program has been an innovative approach to cost effectively meeting the 2014 TMDL goal by:

- Encouraging denitrification at sewage treatment plants (STPs) with enhanced Clean Water Fund grants
- Spreading nitrogen removal upgrades over thirteen years with the southwestern and larger STPs moving first, thereby reducing the impact on the Clean Water Fund (CWF)
- Allowing smaller more distant STPs to purchase credits rather than upgrading to meet 65% removal requirements.

Fifty-three (53) of the 79 eligible STPs have become "Project Facilities" completing construction for nitrogen removal through 2013, with an expected total of sixty (60) "Project Facilities" completing construction by 2018. Through 2013 the total amount of grants and loans invested by the CWF for these nitrogen removal upgrade projects is over $330 million with an expected total over $450 million through 2018. It is estimated that $300 – 400 million have been saved by not requiring all STPs to upgrade.

Success towards TMDL Compliance

Steady progress has been made towards achieving the 2014 TMDL allocation of 9,141 equalized pounds of nitrogen per day (eq. lbs N/day). The performance of the STPs in 2013 was 8,851 eq. lbs N/day, which was under the 2014 TMDL limit. The exceptional job performed by the operators at the STPs assisted in the reduction of pounds of nitrogen discharged.

The DEEP is projecting that in the future, the state will continue to comply with the TMDL as an additional seven STPs with very significant nitrogen loads are forecast to complete nitrogen removal projects by 2018. This will be aided by the continued ability of the operators to optimize nitrogen removal at the STPs.

Increasing State Subsidy Strains State Budget

In 2012, thirty-three STPs were required to purchase credits in order to maintain compliance with the Nitrogen General Permit at a value of $1,506,203. In the same year, forty-seven STPs sold credits valued at $3,932,232. This left an excess of credits valued at $2,426,029 that the State had to purchase in 2013.

In 2013, thirty-eight STPs were required to purchase credits equal to $2,408,402 and forty-one STPs produced credits valued at $3,429,365. This left an excess of credits available valued at $1,020,963 that the State will have to purchase this year.

The projections for 2018, following the current program and based on an average performance year, have the State subsidizing the program in that year at over $5 million. This level of continued subsidization is not sustainable for a variety of reasons.

Proposed Program Change to Self-Sufficiency

To address the unsustainable state subsidization of the Nitrogen Trading Program and to avoid discontinuing the program, the DEEP and the NCAB recommend moving the trading program to self-sufficiency, exploring legislative changes to support the near-term goals of the trading program and providing public outreach to the municipalities that participate in the trading program. Different scenarios were evaluated with the outcome resulting in the following near-term goals for the trading program to become self-sufficient:

- Maintain compliance with the TMDL by continuing to encourage optimizing denitrification at STPs consistent with requirements in STP NPDES permits
- Continue the use of the Nitrogen General Permit by seeking general permit renewal in 2015
- Maintain options for future compliance should the TMDL be modified
- Move the trading program to self-sufficiency to eliminate continuing state subsidy by the 2015 trading year
- Include necessary administrative support in a self-sufficient program such as water quality monitoring
- Seek statutory changes to the Nitrogen Trading Program as necessary to enable program self-sufficiency

The self-sufficiency scenario consists of the buyers buying the credits they need to meet their General Permit limit with those payments being shared by the sellers proportionally. Most sellers will receive a reduction in the amount received as the state would no longer be subsidizing credits and the number of buyers is decreasing. The future trading program projection for 2015 and 2018 (self-sufficiency scenario) included in Attachment A is based on an average performance year and with the anticipated upgraded STPs that will be in operation for the given trading year. The future program consists of the buyers buying the credits they need to meet their General Permit limit with those payments being shared by the sellers proportionally.

Next Steps

The next steps to comply with the near-term goals of the trading program are to:

- Renew the nitrogen general permit before December 31, 2015 for five years;
- Continue trading in the same manner since the program was implemented in 2002 for the 2014 trading year;
- Move to a self-sufficient program where the buyers would purchase the equivalent nitrogen credits necessary to meet the TMDL for the 2015 trading year;
- Outreach to STPs about proposal program changes; and
- Continue discussion of alternative funding mechanisms.

How Your Voice Can Be Heard

On September 17 at 10:00 you are invited to participate in a forum to learn more about the near-term goals of the nitrogen trading program at the Department of Energy and Environmental Protection Phoenix Auditorium located at 79 Elm St in Hartford.

For more information about the Nitrogen Control Program for Long Island Sound please go to http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325572&deepNav_GID=1635.

Please call Iliana Raffa at (860)424-3758 if you have any questions or you can send your comments to her at Iliana.Raffa@ct.gov.

Sincerely,

Denise Ruzicka

for Betsey Wingfield
Bureau Chief
Bureau of Water Protection and Land Reuse

Attachment A

LIS Total Nitrogen Credit Exchange
FUTURE TRADING PROGRAM
2015 COMPARISON/PROJECTION AND 2018 PROJECTION

SELLING Credits

Facility Name	Current Trading Program 2015 Cost per Eq. lbs = $6.73	Self-Sufficient Program 2015 Cost per Eq. lbs = $4.57	Self-Sufficient Program 2018 Cost per Eq. lbs = $1.84
STAMFORD WPCF	$1,193,835	$809,809	$326,775
NEW HAVEN			$229,281
WATERBURY WPCF	$395,488	$268,488	$108,253
HARTFORD WPCF			$94,805
MERIDEN WPCF	$343,903	$233,278	$94,133
BRIDGEPORT WEST WPCF	$255,471	$173,292	$69,927
FAIRFIELD WPCF	$228,450	$154,963	$62,531
WEST HAVEN WPCF	$154,756	$104,975	$42,360
MATTABASSETT WPCF			$39,670
WESTPORT WPCF	$125,279	$84,980	$34,291
SOUTHINGTON WPCF	$125,279	$84,980	$34,778
NEW CANAAN WPCF	$95,802	$64,985	$26,223
STRATFORD WPCF	$93,345	$63,318	$25,550
ANSONIA WPCF	$90,889	$61,652	$24,878
GREENWICH WPCF	$88,432	$59,986	$24,206
BRANFORD WPCF	$88,432	$59,986	$24,206
SHELTON WPCF	$73,694	$49,988	$20,171
MANCHESTER WPCF	$46,673	$31,659	$12,755
DANBURY WPCF	$46,673	$31,659	$12,775
MILFORD BEAVER BROOK WPCF	$39,303	$26,660	$10,758
NEW LONDON WPCF	$39,303	$26,660	$10,758
NORWALK WPCF	$39,303	$26,660	$10,758
CHESHIRE WPCF	$29,477	$19,995	$8,069
NEWTOWN WPCF	$29,477	$19,995	$8,069
MONTVILLE WPCF	$27,021	$18,329	$7,396
GLASTONBURY WPCF	$24,565	$16,663	$6,724
SIMSBURY WPCF	$24,565	$16,663	$6,724
DERBY WPCF	$24,565	$16,663	$6,724
THOMASTON WPCF	$14,739	$9,998	$4,034
SEYMOUR WPCF	$14,739	$9,998	$4,034
ENFIELD WPCF	$12,282	$8,331	$3,362
EAST WINDSOR WPCF	$12,282	$8,331	$3,362
NORTH HAVEN WPCF	$12,282	$8,331	$3,362
WINDHAM WPCF	$4,913	$3,333	$1,345
SUFFIELD WPCF	$4,913	$3,333	$1,345
STONINGTON BOROUGH WPCF	$2,456	$1,666	$672
STONINGTON PAWCATUCK WPCF	$2,456	$1,666	$672
PUTNAM WPCF	$2,456	$1,666	$672
JEWETT CITY WPCF	$2,456	$1,666	$672
PORTLAND WPCF	$2,456	$1,666	$672
NEW MILFORD WPCF	$2,456	$1,666	$672
LEDYARD WPCF	$0	$0	$0
NEW HARTFORD WPCF	$0	$0	$0
WINDSOR LOCKS WPCF	$0	$0	$0
LITCHFIELD WPCF	$0	$0	$0
GROTON CITY WPCF	$0	$0	$0
ROCKY HILL			$0
TOTAL	$3,814,866	$2,507,937	$1,408,424

BUYING Credits

Facility Name	Current Trading Program 2015 Cost per Eq. lbs = $6.73	Self-Sufficient Program 2015 Cost per Eq. lbs = $6.73	Self-Sufficient Program 2018 Cost per Eq. lbs = $8.08
HARTFORD WPCF	$744,304	$744,304	
WALLINGFORD WPCF	$233,363	$233,363	$280,174
WINDSOR POQUONOCK WPCF	$191,603	$191,603	$230,038
MIDDLETOWN WPCF	$176,864	$176,864	
BRIDGEPORT EAST WPCF	$169,495	$169,495	$203,495
NORWICH WPCF	$147,387	$147,387	$14,746
NEW HAVEN EAST WPCF	$144,931	$144,931	
MATTABASSETT WPCF	$142,474	$142,474	
EAST HARTFORD WPCF	$110,540	$110,540	$132,714
TORRINGTON WCPF	$76,150	$76,150	$32,441
VERNON WPCF	$73,694	$73,694	$88,476
MILFORD HOUSATONIC WPCF	$58,955	$58,955	$70,781
ROCKY HILL WPCF	$58,955	$58,955	
BRISTOL WPCF	$51,585	$51,585	$61,933
KILLINGLY WPCF	$51,585	$51,585	$61,933
FARMINGTON WPCF	$49,129	$49,129	$58,984
BEACON FALLS WPCF	$49,129	$49,129	$58,984
RIDGEFIELD SOUTH ST. WPCF	$44,216	$44,216	$53,086
STAFFORD SPRINGS WPCF	$39,303	$39,303	$47,187
CANTON WPCF	$31,934	$31,934	$38,340
PLAINFIELD NORTH WPCF	$24,565	$24,565	$29,492
EAST HAMPTON WPCF	$22,108	$22,108	$26,543
GROTON TOWN WPCF	$19,652	$19,652	$23,594
PLYMOUTH WPCF	$17,195	$17,195	$20,644
NORTH CANAAN WPCF	$12,282	$12,282	$14,746
SALISBURY WPCF	$12,282	$12,282	$14,746
THOMPSON WPCF	$9,826	$9,826	$11,797
PLAINFIELD VILLAGE WPCF	$9,826	$9,826	$11,797
NAUGATUCK TREATMENT Co.	$7,369	$7,369	$8,848
STONINGTON MYSTIC WPCF	$4,913	$4,913	$5,898
WINSTED WPCF	$4,913	$4,913	$5,898
UCONN WPCF	$4,913	$4,913	$5,898
NORFOLK WPCF	$4,913	$4,913	$5,898
PLAINVILLE WPCF	$2,456	$2,456	$2,949
SPRAGUE WPCF	$2,456	$2,456	$2,949
SOUTH WINDSOR WPCF	$2,456	$2,456	$2,949
TOTAL	$2,807,721	$2,807,721	$1,627,958

If the current trading program were to continue through 2016, the State would have to purchase the excess credits at $1,007,145.

Bold= Clean Water Fund Nitrogen Project Facilities

The above future trading program projection for 2015 and 2018 (self-sufficiency scenario) are based on an average performance year and with the anticipated upgraded STPs that will be in operation in given trading year. The future program consists of the buyers buying the credits they need to meet their General Permit limit with those payments being shared by the sellers proportionally after program administrative costs are retained.

The key steps to comply with the near-term goals of the trading program are to:

1)Renew the general permit before December 2015, for another five years

2)Continue trading in the same manner since the program was implemented in 2002 for the 2013 and 2014 trading years

3)Move to a self-sufficient program for the 2015 trading year and beyond where the buyers would purchase the equivalent nitrogen credits needed to meet

VEOLIA
WATER

Sent via Certified R.R.R. Mail 7009 2820 0004 1018 1085 on July 17, 2014

July 17, 2014

Mr. John DeGirolamo
Connecticut Department of Environmental Protection
Bureau of Air Management
Compliance Analysis & Coordination Unit
79 Elm Street, 5th Floor
Hartford, CT 06106-5127

Subject: Naugatuck ITT and Test Protocol for Five Year Compliance Testing

Dear Mr. DeGirolamo:

Enclosed you will find copies of the above referenced application and test protocol. The proposed test dates are Sept 17-19.

Please contact me if you have any questions regarding the enclosed reports.

Sincerely,

Veolia Water North America-Northeast, LLC

John Batorski
Project Manager

cc: James Stewart, James R. Stewart PE, LS, Director of Public Works.
(Enclosures)

Veolia Water NA -Naugatuck
500 Cherry Street, Naugatuck, CT 06770
Tel 203-723-1433 / 203-723-8539
www.veoliawaterna.com

Connecticut Department of Energy & Environmental Protection

Source Emissions Monitoring
Bureau of Air Management

CPPU USE ONLY
App #:________
Doc #:________
Check #:________
Program: AIRENF - Air Enforcement
EMISSION GROUP ONLY
Intent to Test No:________

Intent to Test Application Form

Please complete this application form in accordance with the instructions in order to ensure the proper handling of your intent to test request and the associated fee(s). Print legibly or type.

Part I: Application Type and Registration Information

Check the appropriate box identifying the application type.

This application is for (check one):	Registration Information:
☒ A Stack Test	1. Town number: **109**
☐ A Relative Accuracy Test Audit	2. Site (Premises) number: **11**
	3. Registration or Permit number: **109-0059-TV**
	4. Stack number: **EMU052**

Town where site is located: Naugatuck, CT

Brief Description of equipment/process being tested: Fluidized Bed Sewage Sludge Incinerator

If there are any changes or corrections to your company/facility or individual name, mailing or billing address or contact information, please complete and submit the Request to Change Company/Individual Information to the address indicated on the form. For any other changes you must contact the specific program from which you hold a current DEEP license. If there is a change in ownership, please contact the Permit Assistance Office for questions concerning license transfers at 860-424-3003.

Part II: Fee Information

Expected duration of testing (number of days or partial days): **3**

As per section 22a-174-26(h) of the Regulations of Connecticut State Agencies and Section 22a-6f(d) of the Connecticut General Statutes, a fee of $470.00 per day, or part thereof, shall be paid to the commissioner for each DEEP employee conducting or observing testing activities.

The total fee due will be billed by the DEEP at the completion of the testing.

☐ Check here if exempt from the fee pursuant to section 22a-232 of the Connecticut General Statutes.

Part III: Applicant Information

If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the applicant's name shall be stated **exactly as it is registered with the Secretary of State.* This information can be accessed at **CONCORD**.

If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

1. Applicant Name*: Veolia Water North America, LLC

Mailing Address: 500 Cherry Street

City/Town: Naugatuck State: CT Zip Code: 06770

Business Phone: 203-723-1433 ext.: Fax: 203-723-8539

Contact Person: John Batorski Phone: ext.

*E-mail: john.batorski@veoliawaterna.com

*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

a) Applicant Type (check one): ☐ individual ☒ *business entity ☐ federal agency ☐ state agency ☐ municipality ☐ tribal

*If a business entity:

i) check type: ☐ corporation ☒ limited liability company ☐ limited partnership ☐ limited liability partnership ☐ statutory trust ☐ Other: ____________

ii) provide Secretary of the State business ID #:____________This information can be accessed at **CONCORD**

iii) ☐ Check here if you are **NOT** registered with the Secretary of State's office.

b) Applicant's interest in property at which the proposed activity is to be performed:

☒ site owner ☐ option holder ☐ lessee

☐ easement holder ☐ operator ☐ other (specify): ____________

☐ Check if any co-applicants. If so, attach additional sheet(s) with the required information as requested above.

2. **Billing contact, if different than the applicant.**

Name:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.: Fax:

Contact Person: Phone: ext.

E-mail:

3. **Primary contact for departmental correspondence and inquiries, if different than the applicant.**

Name:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.: Fax:

Contact Person: Phone: ext.

*E-mail:

*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

4. **Site contact, if different than the applicant.**

Name of Facility or Site:

Address:

City/Town: State: Zip Code:

Business Phone: ext.: Fax:

Contact Person: Phone: ext.

E-mail:

5. **Engineer(s) or consultant(s) employed or retained to assist in preparing the intent-to-test application and/or to conduct the test, record the results, and produce the test report.**

Name of Engineering or Consulting Firm: **CK Environmental Inc.**

Mailing Address: 1020 Turnpike St.

City/Town: Canton State: MA Zip Code: 02021

Business Phone: 781-828-5200 ext.: Fax:

Contact Person: Michael Kelley Phone: ext.

*E-mail: mkelley@ckenvironmental.com

Service Provided: **protocol preparation, stack testing services, final report**

☐ Check here if additional sheets are necessary, and label and attach them to this sheet.

Part IV: Site Information (property at which the proposed activity is to be performed).

Site Name and Location

Name of Site : **Veolia Water North America, LLC**

Street Address: **500 Cherry Street**

City/Town: **Naugatuck** State: **CT** Zip Code: **06770**

Tax Assessor's Reference: Map Block Lot

Part V: Reason for Test Program

1. Describe the process/equipment being tested (include appropriate emission unit designations)

Veolia Water North America Northeast, LLC operates the Borough of Naugatuck POTW which incinerates approximately 80 dry tons of municipal sludge per day and processes nonhazardous industrial waste water. The equipment being tested is the Zimpro Fluidized Bed Sewage Sludge Incinerator. The POTW also houses settling tanks; aeration tanks, thickening tanks, holding tanks, and sludge belt filter presses. The continuous emissions/continuous opacity monitoring system transports sample gas from the stack mounted sample probe via heated lines and sample conditioning system to the analyzers for continuous monitoring of gaseous pollutants. Effluent concentrations of carbon monoxide (CO) and oxygen (O2) are measured by the CEM system.

2. What are the regulatory requirements that apply to the testing (e.g., the applicable state and/or federal regulations)?

The regulatory requirements are based on CTDEEP Title V Permit No. 109-0059-TV for the EMU052 stack and the continuous emissions/continuous opacity monitoring system is designed to meet the requirements of 40 CFR, §60.13, §60.150 and 40 CFR, Part 503, Subpart E, §503.40., and 40 CFR, Part 60, Appendix B, PS 1.

3. Compliance with American Society for Testing and Materials requirements

a) For emission testing pertaining to resource recovery facilities, is tester compliant with American Society for Testing and Materials (ASTM) method D 7036?

☒yes ☐no

b) For sources subject to 40 Code of Federal Regulations (CFR) Part 75, any relative accuracy test audits (RATAs), Appendix E NOx testing or low mass emission testing; will the test be performed as required by an air emission testing body that certifies conformance with ASTM method D 7036?

☒yes ☐no

Part VI: Intent-to-Test Information (complete for each piece of equipment tested)

When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment to Part VI.) and be sure to include the applicant's name as indicated on this application form.

1) Last test date: **2009**

2) Identify equipment and stack to be tested: **Stack No. EMU052**

3) Maximum Rated Capacity (with units): **incinerator capacity: 84 dry tons/day; Maxiumum Feed Rate: 3.5 dry tons/hr**

4) *(For new equipment only)* Has the equipment being tested been started up? ☐yes ☐no

(for the purpose of this form, start-up means the setting in operation of the equipment being tested for any purpose)

If yes, what was the date of start-up?

5) *(For new equipment only)* Has the equipment reached its maximum production rate? ☐yes ☐no

If yes, what was the date the equipment reached its maximum production rate?

6) Fuels that are listed in permit, enforcement order, or registration (for fuel burning sources):

7) Fuels the unit is physically capable of burning (for fuel burning sources):

8) For any Relative Accuracy Test Audit (RATA) please indicate:

a) Have there been changes in any analyzer make and/or model? ☒yes ☐no

If yes, what is the change? **The CO analyzer was changed in March 2014.**

b) Have there been any changes in sampling location? ☐yes ☒no

If yes, please explain.

c) Have there been any changes in sampling system design? ☐yes ☒no

If yes, please explain.

b) Gas Stream Sampling Information

Gas Stream Components	Sampling Duration Minutes/ point	Total Test Time	# of Tests	Emission Limit (w/units)	Expected Concentration (w/units)	Description of Test Method
Particulate Matter10		**120**	3	**0.45 lbs/ton dry sludge**		**EPA Method 201A/202**
HCl		60	3	**0.36 lbs/ton dry sludge**		**EPA Method 26A**
Arsenic		120	3	95.4 ug/m3		**EPA Method 29**
Cadmium		120	3	763.5 ug/m3		**EPA Method 29**
Lead		120	3	5726.2 ug/m3 0.023 lbs/ton dry sludge		**EPA Method 29**
Mercury		120	3	1908.7 ug/m3		**EPA Method 29**
Sulfur Dioxide		60	3	3.0 lbs/dry ton sludge		**EPA Method 6C**
Oxides of Nitrogen		60	3	4.0 lbs/ton dry sludge		**EPA Method 7E**
Carbon Monoxide		60	3	1.6 lbs/ton dry sludge		**EPA Method 10**
THC		60	3	.36 lbs/ton dry sludge		**EPA Method 25A**
			3			
Beryllium		120	3	19.1 ug/m3		**EPA Method 29**
Chromium		120	3	4771.8 ug/m3		**EPA Method 29**
Copper		120	3	38174.8		**EPA Method 29**

				ug/m3		
Manganese		120	3	38174.8 ug/m3		EPA Method 29
Nickel		120	3	9543.7 ug/m3		EPA Method 29
Selenium		120	3	7635.0 ug/m3		EPA Method 29
Zinc		120	3	190873.9 ug/m3		EPA Method 29
Sulfuric Acid		60	3	0.36 lbs/ton dry sludge		EPA Method 29
Particulate Matter		120	3	1.3 lbs/ton of sludge		

Part VII: Applicant Certification

The applicant *and* the individual(s) responsible for actually preparing the application must sign this part. An application will be considered incomplete unless all required signatures are provided. [If the applicant is the preparer, please mark N/A in the spaces provided for the preparer.]

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that this application is on complete and accurate forms as prescribed by the commissioner without alteration of the text."

John Batorski (signature)	7/17/14
Signature of Applicant	Date
John Batorski	**Plant Manager**
Name of Applicant (print or type)	Title (if applicable)
Michael Kelley (signature)	**7/17/14**
Signature of Preparer (if different than above)	Date
Michael Kelley	**Project Manager**
Name of Preparer (print or type)	Title (if applicable)

☐ Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet. You must include signatures of any person preparing any report or parts thereof required in this application (i.e., professional engineers, consultants, etc.)

Part VIII: Applicant E-Submission

Please submit the completed application form, and all supporting documents by electronic mail to DEEP.SEM@ct.gov the Source Emissions Monitoring Group in the Bureau of Air Management, or in the alternative, in hard copy to:

SOURCE EMISSIONS MONITORING
BUREAU OF AIR MANAGEMENT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Environmental

TEST PROTOCOL

FIVE YEAR STACK EMISSIONS COMPLIANCE TEST PROGRAM

VEOLIA WATER NORTH AMERICA – NORTHEAST LLC

JULY 16, 2014

PREPARED FOR: Veolia Water North America – Northeast LLC
500 Cherry Street
Naugatuck, CT 06770

CONCERNING: 5 Year Compliance Emissions Program
Fluidized Bed Sewage Sludge Incinerator

PREPARED BY: CK Environmental, Inc.
1020 Turnpike Street
Unit 8
Canton, Massachusetts 02021

CK Project #4718

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

PROTOCOL REVIEW CERTIFICATION

I, the undersigned, hereby certify that I have reviewed the protocol, and to the best of my knowledge all given information and/or calculations contained in this protocol are true, accurate, and complete.

Prepared by: ______________________
Heidi Fisher, Project Coordinator

Reviewed by: ______________________
Michael Kelley, QSTI, Project Manager

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

CK Environmental

TABLE OF CONTENTS

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

TABLES

FIGURES

APPENDICES

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

Test Summary

Facility Name:	**Veolia Water North America, LLC** 500 Cherry Street Naugatuck, CT 06770
Facility Contact:	**John Batorski,** Plant Manager 203-723-1433 x 2015 john.batorski@veoliawaterna.com
Regulatory Agency and Contact:	**Connecticut Department of Energy and Environmental Protection** 79 Elm Street Hartford, CT 06106-5127 **John DeGirolamo** 860-424-3957 john.degirolamo@ct.gov
Testing Organization:	**CK Environmental** 1020 Turnpike Street, Suite 8 Canton, MA 02021
Project Manager:	**Michael Kelley,** QSTI 781- 828-5200 mkelley@ckenvironmental.com
Test Crew:	TBD
Source to be Tested:	Fluidized Bed Incinerator
Methods:	40 CFR 60 Appendix A Method 1-4, 5, 6C, 7E, 8, 10, 25A, 26, 5/29, 201A/202
Proposed Test Date:	September 17, 2014 – Equipment Setup September 18, 2014 – Test September 19, 2014 – Test

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

1.0 INTRODUCTION

CK Environmental was contracted to conduct the five year stack emissions compliance test program on the sludge incinerator operating at the Borough of Naugatuck Publicly Owned Treatment Works (POTW) in Naugatuck, CT. The purpose of this program is to demonstrate the compliance status of the incinerator with respect to the operating conditions and emission limits specified in the Title V operating permit issued by the Connecticut Department of Energy and Environmental Protection (CTDEEP).

All emissions testing will be conducted in accordance with the applicable procedures as found in 40 CFR 60, Appendix A. The EPA Quality Assurance Handbook aud the approved test protocol will be adhered to as well. A list of the pollutants to be measured, the specific test methodologies, allowable emission limits and test run durations can be found in Table 3-1. A detailed explanation of the methodology, procedures and equipment to be used can be found in Section 5 of this protocol. All tests will be performed in triplicate.

Michael Kelley, Senior Project Manager and Qualified Source Testing Individual (QSTI), will be responsible for the emissions compliance test program. A crew of qualified Environmental Engineers and Technicians will assist him. John Batorski will coordinate facility operations with emissions testing. John DeGirolamo will be the regulatory contact. Table 1-1 lists the contact information of these individuals.

1.1 Key Personnel

The CK Project Manager will coordinate test times and other operating parameters with the facility while testing proceeds. The personnel responsible for testing are provided in Table 1-1.

Table 1-1
Key Personnel

Name	Affiliation	Phone No.
Michael Kelley, Project Manager	CK Environmental, Inc.	781-828-5200
John Batorski	Veolia Water	203-723-1433
John DeGirolamo	CTDEEP	860-424-3957

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380

2.0 PROCESS DESCRIPTION

2.1 Process Description

Veolia Water North America Northeast, LLC operates the Borough of Naugatuck POTW which incinerates approximately 80 dry tons of municipal sludge per day and processes nonhazardous industrial waste water. A fluidized bed incinerator (FBI) is used to incinerate sludge. The POTW also houses settling tanks; aeration tanks, thickening tanks, holding tanks, and sludge belt filter presses.

The Zimpro fluidized bed incinerator has a sludge design feed rate of 3.5 DT/hr. Sludge is fed to the bottom of the sand bed where air is injected at high pressure under the bed, fluidizing the sand and the sludge. Processing of sludge within the sand bed consists of evaporation of water and pyrolysis of organic material. The remaining carbon and combustible gases are burned in the freeboard area above the sand bed. Oil lances are located within the sand bed in order to deliver auxiliary fuel to maintain the desired combustion temperature if necessary. All ash generated in the combustion chamber leaves the top of the incinerator.

After the flue gas passes through the waste heat recovery unit, particulate is removed by a combined venturi and impingement tray scrubber system, and wet electrostatic precipitators (WESP). The venturi section consists of a narrow, adjustable throat, which increases gas velocity, turbulence and contact with added water, in order to collect ash particles and acid gases. The impingement tray scrubber provides cool plant effluent, which removes additional particulate and acid gases. There are two identical WESPs located in parallel of which only one operates at any given time.

2.2 Continuous Emission Monitoring System

The continuous emissions/continuous opacity monitoring system is designed to meet the requirements of 40 CFR, §60.13, §60.150 and 40 CFR, Part 503, Subpart E, §503.40., and 40 CFR, Part 60, Appendix B, PS 1. The extractive CEMS transport sample gas from the stack mounted sample probe via heated lines and sample conditioning system to the analyzers for continuous monitoring of gaseous pollutants. Effluent concentrations of carbon monoxide (CO) and oxygen (O_2) are measured by the CEM system. In addition, the system monitors opacity at the outlet stack of the FBI.

The CEM sampling system is full dry extractive design. The system extracts a sample from the gas stream through a primary filter located at the sample probe, and transports it from the sampling location to the CEMS analysis enclosure in a heated sample line. The sample lines and filter are maintained at 250 °F to prevent the sample from condensing during transportation to the sample conditioning system. The heated line terminates at a thermo-electric condenser where moisture is removed from the sample gas stream. Dry sample gas exiting the condenser passes through a second particulate filter, the single head heated sample pump, and a backpressure regulator prior to distribution to the analyzers via separate flow controlling rotometers. The sample probe located on the exhaust stack is of sufficient length to reach the

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

center sampling point of the stack.

The moisture removal systems continuously remove moisture from the sample gas while maintaining minimal contact between the condensate and the sample gas. The Universal Analyzer Model 530 thermoelectric gas sample chillers contain two (2) stainless steel heat exchangers that are continuously drained of condensate by a dual head peristaltic pump. Temperature of the chiller is regulated and set to maintain a temperature of 40 °F.

A single head - heated, diaphragm pump is used to transport the gas sample through the system to the analyzers. This pump is manufactured by Air Dimensions and all parts coming into contact with the sample gas stream is Teflon, Kynar or stainless steel.

Table 2-1
CEMS Specifications

Parameter	Manufacturer	Model	Serial No.	Range
O_2, Dry	Siemens	Oxvmat 6E	7MB20211 EAOOOAA 1	0-25%
CO	Thermo Environmental	48C	480-74304-376	0-300 ppmvd

A Contec Data Acquisition Handling System (DAHS) uses an Allen Bradley programmable logic controller (PLC), an Ethernet data highway, a Dell computer, and Windows XP operating system. The system is designed to meet 40 CFR §60.13, 40 CFR 60, Subpart 0, section §60.155, 40 CFR, Part 503, Subpart E, sections §503.41 (f), (h) and CTDEEP requirements as provided in the Facilities Title V permit.

The Allen Bradley SLC 505 PLC is the foundation of the data collection, data averaging, alarm, and warning functions. These functions are performed in standard ladder logic. Additionally, the PLC is responsible for daily calibration error checking, short-term data storage, and communications over an Ethernet module to the DAHS computer.

The Contec Data Acquisition Handling System software is configured to display pollutants in units of concentration and in units of emissions. The DAHS also collect process data for Subpart "0" reporting requirements. Data is provided on the display screens as 1 minute averages, 6 min averages (opacity only), 1 hour averages, and 24 hour averages. The system performs standard reporting functions including minute, hourly, daily, and monthly reports, daily calibration and system downtime summaries, and source and analyzer downtime reports. Additionally, the Contee software provides the CEMS data in a graphics mode as trend panels, bar graphs, and strip chart displays. The graphic displays show the CEMS data as real-time or as historical trends. The system also displays and record process data as 1 minute, 1 hour, and 24 hour averages.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

3.0 TEST PROGRAM

3.1 Objectives

The purpose of this program is to demonstrate the compliance status of the sludge incinerator with respect to the operating conditions and emission limits specified in the facility's operating permit issued by the CTDEEP.

3.2 Test Matrix

The following is a matrix of the test methodologies, pollutants to be tested and allowable limits to be used for this program. Each parameter will be measured and analyzed in accordance with EPA or CTDEEP-approved procedures as presented in this test protocol.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

Table 3-1
Test Matrix

Pollutant - Compliance	Test Method	Run Duration	Test Runs	Allowable Limit
Volumetric Flow	EPA 1-2	Continuous	Continuous	N/A
Moisture	EPA 4	Continuous	Continuous	N/A
Oxygen / Carbon Dioxide	EPA 3A	Continuous	Continuous	Not Applicable
Sulfur Dioxide (SO_2)	EPA 6C	60 min.	3	3.0 lbs/ton dry sludge 55 tons/yr
Nitrogen Oxides (NOx)	EPA 7E	60 min.	3	4.0 lbs/ton dry sludge .33 lbs/mmBtu 55 tons/yr
Sulfur Acid	EPA 8	60 min.	3	.36 lbs/ton dry sludge
Carbon Monoxide (CO)	EPA 10	60 min.	3	1.6 lbs/tou dry sludge 22.0 tons/yr
Particulate Matter (PM)	EPA 5/29	120 min.	3	1.3 lbs/ton dry sludge .08 grains/scfh @ 12%CO2
Total Hydrocarbons	EPA 25A	60 min.	3	.36 lbs/ton dry sludge 4.9 tons/yr
Hydrogen Chloride (HCl)	EPA 26	60 min.	3	.36 lbs/ton dry sludge
Trace Metals: Arsenic Beryllium Cadmium Chromium Copper Lead Manganese Mercury Nickel Selenium Zinc	EPA 5/29	120 min.	3	 95.4 ug/m^3 19.1 ug/m^3, .022 lbs/day 763.5 ug/m^3 4771.8 ug/m^3 38174.8 ug/m^3 5726.2 ug/m^3, .023 lbs/ton dry sludge, .32 tons/yr 38174.8 ug/m^3 1908.7 ug/m^3, 7.1 lbs/day 9543.7 ug/m^3 7635.0 ug/m^3 190873.9 ug/m^3
PM/CPM	EPA 201A/202	120 min.	3	.45 lbs/ton dry sludge 7.4 tons/yr

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

4.0 SAMPLING LOCATIONS

The test location is at rooftop level accessed by stairs and a test platform. There are two (2), four (4) inch ports on the vertical stack. The stack has a forty-two (42) inch inner diameter. The nearest upstream disturbance is 20 feet, 8 inches or 5.9 duct diameters and the nearest downstream disturbance is 34 feet, 1 inch or 9.7 duct diameters.

4.1 Traverse Point Locations

Based upon the requirements of Method 1, the probe will be placed at a total of twenty (20) traverse points during isokinetic sampling. They will be positioned as shown in Table 4-1 below, with ten points per port.

TABLE 4-1
RM Traverse Point Locations

Traverse Point #	Percent (%) Of Stack Diameter	Distance (inches) From Inside Surface of Stack
1	2.6	1.092
2	8.2	3.444
3	14.6	6.132
4	22.6	9.492
5	34.2	14.364
6	65.8	27.636
7	77.4	32.508
8	85.4	35.868
9	91.8	38.556
10	97.4	40.908

Environmental

5.0 SAMPLING AND ANALYTICAL PROCEDURES

5.1 Test Methods – Emissions Testing

The following US EPA Reference Test Methods contained in Title 40 Code of Federal Regulations, Part 60 (40 CFR 60), "Standards of Performance for New Stationary Sources" Appendix A – Test Methods will be used during the performance of the emissions compliance testing:

US EPA Method 1	Sample and Velocity Traverses for Stationary Sources
US EPA Method 2	Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
US EPA Method 3A	Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
US EPA Method 4	Determination of Moisture Content in Stack Gases
US EPA Method 6C	Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)
US EPA Method 7E	Determination of Nitrogen Oxide Concentrations in Emissions from Stationary Sources
US EPA Method 8	Determination of Sulfuric Acid and Sulfur Dioxide Emissions from Stationary Sources
US EPA Method 10	Determination of Carbon Monoxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)
US EPA Method 25A	Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer
US EPA Method 26	Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources Non-Isokinetic Method
US EPA Method 5/29	Determination of Metals Emissions from Stationary Sources
US EPA Method 201A/202	Determination of PM and CPM Emissions from Stationary Sources

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

The following is a description of the test methodologies, equipment, and procedures to be used for this program. Each parameter will be measured and analyzed in strict accordance with EPA or CTDEEP-approved procedures. All samples will be collected at the sampling location detailed in Section 4.

5.1.1 Flow and Moisture

The volumetric flow rate of the exhaust gas will be measured using US EPA Reference Test Methods 1-4. Volumetric flow rate measurements will be made across the outlet / exhaust stack cross section during each test run utilizing a pair of perpendicular horizontal traverses at the stack sampling location. The number of traverse points to be utilized for volumetric flow rate measurements during the compliance emission testing will be determined using US EPA Reference Test Method 1.

Point velocity and temperature measurements will be made at each traverse point during each test run using an S-type pitot tube attached to an inclined water manometer, equipped with a Type-K thermocouple and a digital temperature readout in accordance with US EPA Reference Test Method 2. The stack static pressure will also be measured during each test run using the pitot tube and manometer. The pitot tube and manometer will be leak checked before and after each test run in accordance with Method 2. A cyclonic flow check will be completed prior to commencing with the test program to demonstrate the absence of cyclonic flow at the outlet / exhaust test location.

The dry molecular weight of the flue gas will be determined during each test run by measuring the stack oxygen (O_2) and carbon dioxide (CO_2) concentrations continuously in accordance with US EPA Reference Test Method 3A. These measurements will be made using the reference method CEMS described in Section 5.2. The measured flue gas moisture content will be determined in accordance with US EPA Reference Test Method 4 using the dry sample volumes and back half moisture catches of the sampling train. The moisture content will be calculated as the ratio of the moisture catch to the sum of the dry sample volume and the moisture catch, all corrected to standard temperature and pressure. Calculated moisture contents which exceed the saturation moisture at the measured temperature and pressure will be defaulted to the saturation moisture.

5.1.2 Oxygen and Carbon Dioxide

Oxygen and Carbon Dioxide will be measured in accordance with EPA Method 3A. This Method utilizes continuous emissions monitoring instrumentation. CK Environmental uses a California Analytical Instruments Model 100F Galvanic Fuel Cell analyzer (or equivalent) with a range of 0-25 percent to measure Oxygen and a California Analytical Instruments Model ZRH non-dispersive infrared analyzer (or equivalent) with a range of 0-20% to measure Carbon Dioxide. These instruments meet all of the performance specifications of the Method. Each will be calibrated before and after each test period using calibration gases prepared according to EPA protocol.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

5.1.3 Sulfur Dioxide

Sulfur dioxide will be measured in accordance with EPA Method 6C. This method utilizes continuous emissions monitoring instrumentation. CK Environmental uses a Western Research SO_2 Model 721M ultraviolet (UV), non-dispersive infrared (NDIR) gas analyzer. The instrument meets all of the performance specifications of the Method. It will be calibrated before and after each test period using calibration gases prepared according to EPA Protocol. The instrument will be calibrated in the 0-100 ppm range.

5.1.4 Oxides of Nitrogen

Oxides of Nitrogen will be measured in accordance with EPA Method 7E. This method utilizes continuous emissions monitoring equipment. CK Environmental uses a Thermo Electron Model 42C NOx chemiluminescent analyzer with 8 ranges from 0-10,000 ppm. This instrument meets all of the performance specifications of this method. It will be calibrated before and after each test period using EPA Protocol gases. It is anticipated that the instrument will be calibrated to either the 0-250 or 0-500 PPM ranges.

5.1.5 Carbon Monoxide

Carbon monoxide will be measured in accordance with EPA Method 10. This Method utilizes continuous emissions monitoring instrumentation. CK Environmental uses a California Analytical Instruments Model ZRH non-dispersive infrared analyzer (or equivalent) with ranges of 0-200 and 0-1000 ppm. The instrument meets all of the performance specifications of the Method. It will be calibrated before and after each test period using EPA Protocol gases.

5.1.6 Particulate Matter/Metals

Particulate matter and metals emissions will be determined simultaneously using the same sample train configured in accordance with EPA Methods 5 and 29.

Particulate matter will be measured using EPA Methods 1 through 5, including the determination of the proper number of sampling points and their locations in the stack (RM1), stack velocity and volumetric flow rate (RM2), stack gas molecular weight (RM3) and stack gas moisture content (RM4). The train is an EPA Method 5/29 isokinetic sampling train. Sampling will be conducted isokinetically for a period of 120 minutes per run, collecting a minimum of 60 dry standard cubic feet.

Metals emissions will be determined according to procedures outlined in the EPA Multi-Metals Procedure - 40 CFR 60, EPA Method 29. Emissions of arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni), selenium (Se) and zinc (Zn) will be quantified in strict accordance with the method. Sampling will be conducted isokinetically for a period of

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

120 minutes per run, collecting a minimum of 60 dry standard cubic feet.

The particulate matter/multi-metals sampling train consists of a basic EPA Method 5 train with additional impingers, a borosilicate glass probe liner, a borosilicate glass nozzle, a Teflon probe swagelok union, a quartz glass fiber filter, and a Teflon frit. The first impinger will be left empty to collect condensate. The second and third impingers will each contain 100 ml of 5% HNO_3/10% H_2O_2 absorbing solution. The fourth impinger will be left empty. The fifth and sixth impingers will each contain 100 ml of 4% $KMnO_4$/10% H_2SO_4. The seventh impinger will contain a pre-weighed amount of color indicating silica gel.

Prior to mobilization, all glassware for the multi-metals method will be washed in hot water and detergent, thoroughly rinsed with tap water, soaked for at least 8 hours in a 10% HNO_3 bath, rinsed clean with HPLC-grade H_2O, rinsed with HPLC-grade acetone, allowed to dry, sealed and labeled.

Prior to sampling, the isokinetic relationship will be established, the train will be carefully assembled and leak checked. After the probe and filter box reach the desired operating temperature, the probe will be placed in the stack, and isokinetic sampling will take place.

Following each run, the samples will be carefully recovered in the field laboratory. Each train will yield six sample fractions: 1) The front half, including the nozzle, probe, cyclone bypass filter holder front half will be rinsed with a Teflon brush and approximately 100 ml of acetone into a prepared container. 2) The front half, including the nozzle, probe, cyclone bypass filter holder front half will be rinsed with 100 ml of 0.1N HNO_3 into a prepared glass amber bottle. 3) The filter will be carefully removed and placed in a petri dish. 4) The back half, including the frit, filter holder back half, connecting glassware, and the first, second and third impingers and contents will be rinsed with 0.1N HNO3 into a prepared amber bottle. 5) The fourth and fifth impingers and contents will be rinsed into a glass amber bottle with 100 ml of 4% $KMnO_4$/ 10% H_2SO_4 and 100 ml distilled water. 6) The fourth and fifth impingers will be rinsed with 8N HCl into an amber bottle to remove any 4% $KMnO_4$/ 10% H_2SO_4 residue.

The impinger volumes will be recorded to determine the moisture net gain. The silica gel in the sixth impinger will be weighed to determine moisture content and discarded. All samples will be labeled, logged, and stored in a cool, dark area until delivery to the analytical laboratory. A set of reagent blanks will also be taken for analysis along with the samples.

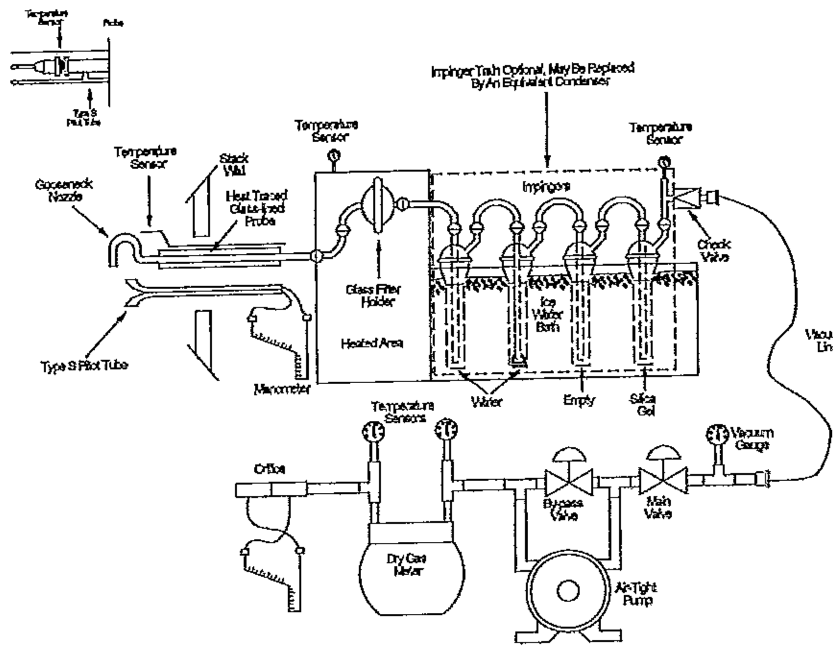
For particulate matter analysis, all filters and acetone dry down beakers will be weighed before and after sampling in strict accordance with EPA Method 5 and the EPA Quality Assurance Handbook. They will be desiccated for at least 24 hours, and then weighed at six-hour intervals until two consecutive weightings demonstrate a constant weight, $\pm$ 0.5 milligrams. Following the particulate analysis, the filters and acetone residue will be digested with nitric acid and analyzed with the other sample fractions for metals content in accordance with EPA Method 29 procedures.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

The particulate matter and metals analyses will be conducted at Maxxam Analytics, 6740 Campobello Rd., Mississauga, Ontario, Canada. The metals analyses will be performed using GFAA, ICAP and CVAA (Hg only) procedures and instrumentation.

The particulate matter and metals results will be calculated and reported in units of concentration, mg/dscm corrected to 7% O_2.

Figure 5-1
Method 5 Sampling Train



CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

5.1.7 PM10/CPM

Particulate Matter (PM10) and total Condensible PM (CPM) will be quantified in accordance with the sample train operation and back end recovery and analysis procedures of EPA Methods 201A/202. The following is a description of the sampling train and the procedures to be used to quantify PM10/CPM during the compliance testing.

PM10/CPM is collected in dry impingers after the filterable PM has been collected on the heated, tared glass fiber filter configured into the front-half of the sampling train. The potential CPM artifacts from the source's potential sulfur dioxide (SO2) emissions are reduced by using a condenser and dropout impinger to separate CPM from potential reactive gases. No water is added to the impingers prior to the start of sampling. To improve the collection efficiency of PM10/CPM, an additional Teflon® filter (the CPM filter) is placed between the second and third impingers.

The back-half of the sampling train will consist of a condenser and a condensate dropout impinger without bubbler tube following the out-of-stack filterable PM heated filter assembly. A modified Greenburg Smith impinger with no taper will follow serving as a backup dropout impinger. These first two impingers will be placed in an insulated "cold box" containing water at less than 85°F which will be recirculated through the condenser during sampling. The condenser will be capable of cooling the stack gas to less than 85°F. At the start of testing, the water dropout and backup impingers will be clean, without any water or reagent added.

A filter holder containing a nonreactive, non-disintegrating polymer filter that does not have an organic binder and does not contribute more than 0.5 mg of residual mass to the CPM measurements. The filter will follow and will be equipped with a thermocouple measuring the temperature of the sample gas. The temperature of the sample gas will be maintained at or below 85°F. A modified Greenburg Smith impinger containing 100 mL of water will follow, serving as the moisture trap to collect the moisture that passes through the filter. A fourth impinger will contain a known quantity of indicating silica gel. The temperature at the outlet of the fourth impinger will be maintained below 68°F during sampling by adding ice to an ice bath containing the third and fourth impingers. A vacuum line will connect the outlet of the fourth impinger to a control module consisting of a leak free sampling pump, a calibrated critical orifice, an inclined manometer, and a calibrated dry gas meter.

Prior to mobilizing to the facility, the first three impingers, filter holder, and their connecting glassware will be cleaned prior to testing with soap and tap water, and rinsed using tap water, deionized water, acetone, and finally, hexane. After cleaning, the glassware will be baked at 300°C for six hours. Prior to each sampling run, the train glassware will be rinsed thoroughly with deionized, distilled ultra-filtered water. Silicone grease will not be used as a sealant on this sampling train.

Before each test and after port changes, the sampling train will be leak checked to ensure a leakage rate no greater than 0.02 cubic feet per minute (cfm) at a minimum of 15 inches of mercury (in. Hg) sample vacuum. The probe will then be placed in the stack and stack gas will be withdrawn isokinetically for an

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

equal period of time at each traverse point. The velocity differential pressure, critical orifice differential pressure, dry gas meter volume, dry gas meter temperature, probe temperature, stack temperature, oven box temperature, impinger outlet temperature, and sample vacuum will be recorded at each traverse point during sampling. Before port changes and at the completion of each test, the sampling train will be leak checked to ensure a leakage rate no greater than 0.02 cfm at the highest recorded sample vacuum.

As soon as possible following the post-test leak check, the front-half of the sampling train will be removed from the back-half, and the back-half of the combined sampling train will be configured for the post-test nitrogen (N2) purge. Ice will be left in the second impinger "cold box" to prevent removal of moisture during the purge. If necessary, additional ice will be added during the purge cycle to maintain the gas temperature measured at the exit of the fourth impinger / silica gel impinger below 68°F.

If no visible water / condensate was collected before the filter (in the condensate dropout impinger or backup dropout impinger) the N2 purge cycle will be eliminated. Otherwise, the short stem impinger insert will be replaced with a modified Greenberg Smith impinger insert with the impinger tip extending at least 1 centimeter below the surface of the collected condensate. If insufficient water / condensate is collected a measure amount of degassed deionized, distilled ultra-filtered water will be added to the dropout impinger. (Note: Prior to use the deionized, distilled ultra-filtered water will be degassed using a N2 purge bubbled through the water for at least 15 minutes to remove dissolved oxygen.) The amount of water added to the dropout impinger will be recorded to correct the moisture content of the effluent gas.

With no flow of N2 through a clean purge line the line will be connected to a purged inline filter and the filter outlet to the input of the CPM sampling train. The N2 gas flow will be slowly commenced while simultaneously opening the control box pump valve. The N2 delivery rate will be adjusted to 20 L/min with an excess flow rate of approximately 1 L/min and will continue for 1 hour. After 1 hour the delivery and pumping systems will be simultaneously turned off.

The moisture gain in the first three impingers will be measured gravimetrically. The fourth / silica gel impinger will be weighed for moisture gain and the silica gel will then be returned to its original storage container to be dried for reuse.

The filter sample will be carefully removed from the filter holder with tweezers / forceps and placed in a labeled plastic petri dish (Container #3). Any particulate matter or filter fragments that adhere to the filter holder gasket will be transferred to the petri dish using the forceps. The petri dish will then be sealed for transport to the analytical laboratory.

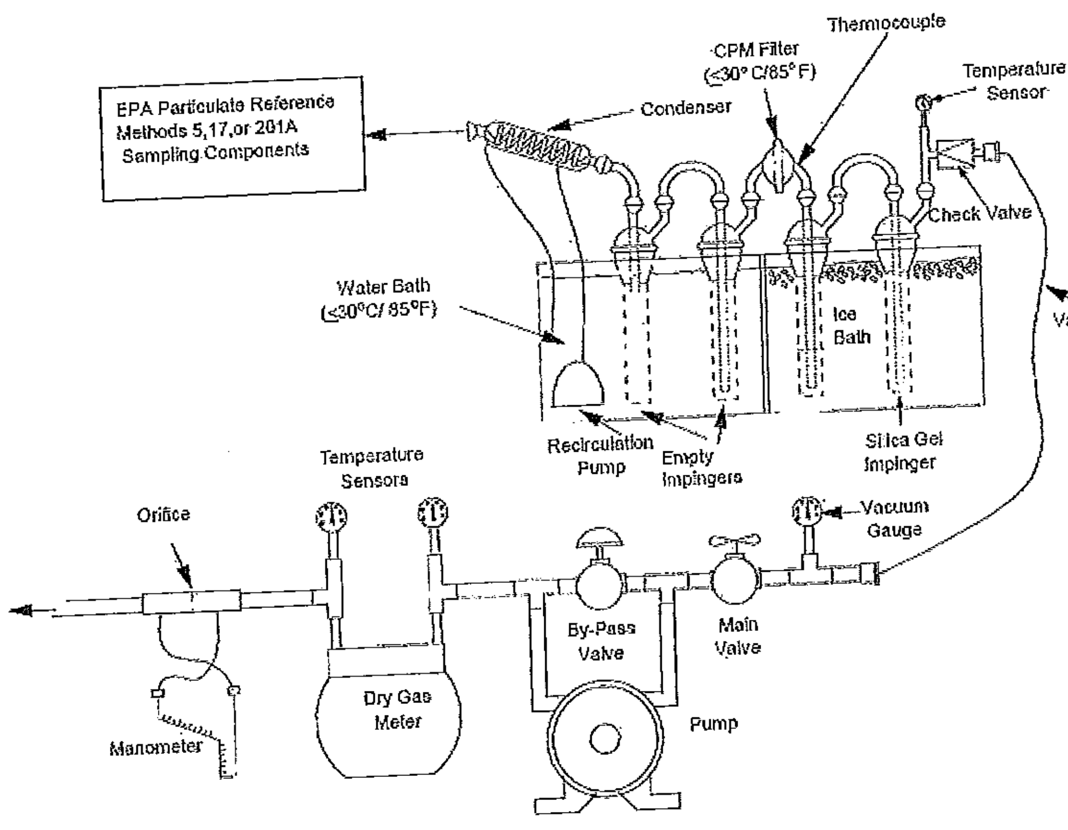
The aqueous liquid impinger contents of impingers #1 and #2 (the dropout and backup dropout impingers) will be quantitatively transferred into a clean glass or plastic sample bottle (Container #4). The probe extension, condenser, each impinger and the connecting glassware, and the front-half of the filter holder will be rinsed twice with water. The rinse water will be recovered into the same bottle as the impinger contents and the liquid level marked. This sample container (Container #4) will hold the water soluble CPM captured in the sampling train.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Following the water rinses the sampling train components will be rinsed with acetone, then twice with hexane. These solvent rinses will be collected in a glass sample bottle (Container #5) with the liquid level marked. This sample container (Container #5) will hold the organic sample fraction captured in the sampling train.

The sample fractions will be maintained at or below 85°F during overnight delivery transport to the CK sub-contract analytical laboratory, Maxxam Analytics Inc. for analysis. The resulting masses of organic and aqueous PM10/CPM collected will then be determined using the drying and weighing procedures of EPA Method 201A/202. Reagent blanks of the filters and reagents used will be submitted for identical analyses.

Figure 5-2
Method 202 Sampling Train



5.1.8 Sulfuric Acid

Sulfuric acid will be measured in general accordance with EPA Method 8. Method 8 utilizes an EPA Method 5-type sampling train, with the exception of the impinger configuration and the absorbing solution. This train will contain four impingers; the first and third will be of the standard Greenburg Smith type, the second and fourth are of the modified type. The first impinger will be loaded with 200 ml of an 80% isopropanol solution for H_2SO_4 absorption. The second and third impingers will be loaded with Type II distilled water. A spun glass filter will be placed between the first and second impingers.

Sampling will be conducted for one hour and a minimum sample volume of 30 cubic feet. Each impingers contents will be measured before and after each run to determine moisture content. Following each run, the ice bath will be drained, the impingers disconnected from the probe and the impinger train purged with ambient air for 15 minutes at the average sampling rate.

After the completion of the train purge, Teflon jumper, train front half, first impinger, and all connecting glassware will be quantitatively recovered using additional 80% isopropanol for the rinse into a Nalgene container (container 1). The second and third impingers will be quantitatively recovered with Type II distilled water into a separate Nalgene container (container 2).

The contents of Nalgene container 1 will be brought up to a standard volume and an aliquot will be titrated against a standard solution of barium perchlorate with a Thorin indicator to determine the sulfuric acid mist, including SO_3, content of the exhaust gas. From the analytical results, the concentration, ppm, of sulfuric acid mist will be calculated.

An aliquot of all stock impinger solutions will be retained and analyzed as a reagent/train blank. Maxxam Analytics will conduct the sample analyses.

5.1.9 Total Hydrocarbons/Non-Methane Hydrocarbons

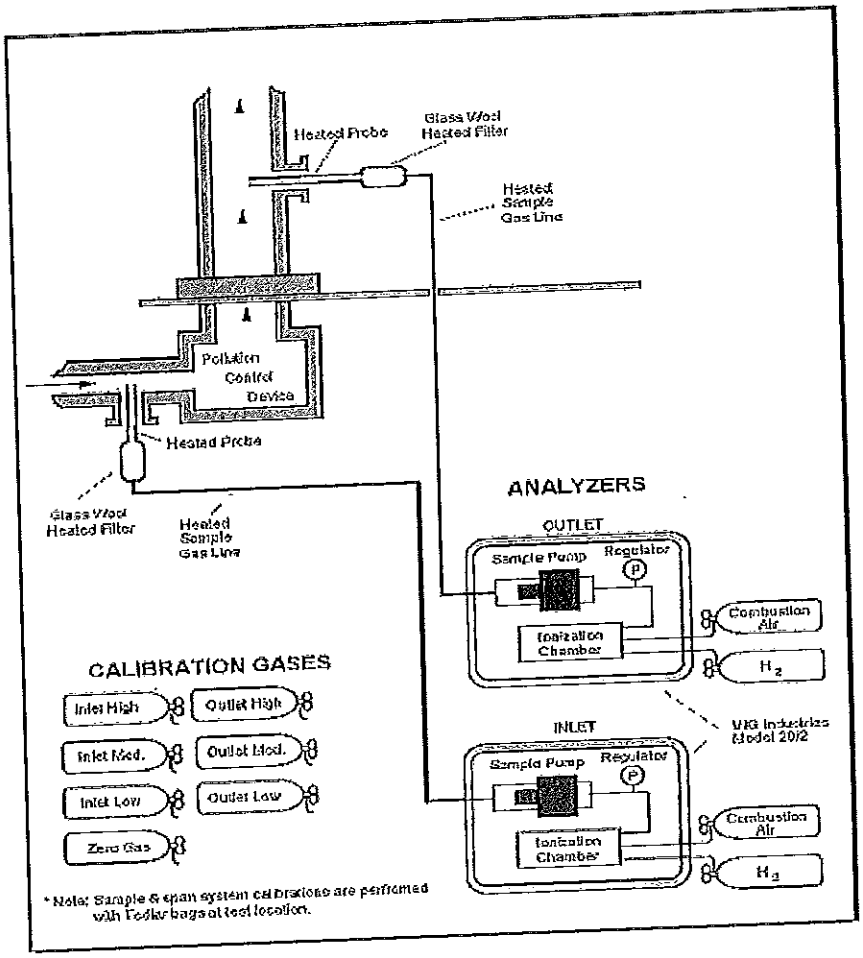
Volatile organic compound concentration measurements will be made at the inlets and outlet in accordance with Method 25A. Each analyzer will be calibrated on a 0-20 ppm as methane range. This sampling train will consist of a stainless-steel probe, a Teflon® heated sample line, and a TECO Model 55 FID THC analyzer. A schematic of this sampling train is shown in Figure 5-1. Analyzer outputs will be continuously recorded on a data logger. The analyzers are calibrated with propane-in-air compressed gas standards at three points plus zero at the beginning of the test day and at one point plus zero at the end of each test run.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

Figure 5-3

Method 25A THC Sampling System



5.1.10 Hydrogen Chloride

Hydrogen chloride (HCl) emissions will be measured in accordance with EPA Method 26 modified by utilizing a Method 5 type sampling train. The front half of the train will consist of a borosilicate-lined probe, a borosilicate filter holder, heated quartz filter with Teflon support frit and five Greenburg-Smith impingers.

The first and second impingers will be loaded with 0.1N sulfuric acid (H_2SO_4). The third and fourth impingers will each be loaded with a 0.1N sodium hydroxide solution (NaOH) that is used as a chlorine scrubbing solution. The fifth impinger will contain a known amount of silica gel.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

Prior to mobilization, all glass and Teflon train components will be thoroughly cleaned in hot soapy water, thoroughly rinsed with DI water, allowed to dry, and sealed with parafilm.

In accordance with the method, all five impingers will be measured before and after sampling and the data recorded. The first and second impinger solutions will be quantitatively recovered from the train using deionized water and transferred to a glass sample bottle with a Teflon-lined lid. These impingers and their connecting glassware will be rinsed three times with deionized water into the sample jar. The contents of impingers three and four will be measured and retained. The contents of impinger five will be weighed and discarded.

All samples will be analyzed for HCl content by ion chromatography. An aliquot of all stock impinger solutions will be retained and analyzed as a reagent/train blank. Maxxam Analytics, Mississauga, Ontario will conduct sample analysis.

Results will be calculated and reported in units of concentration, ppm corrected to 7% O_2.

5.2 Description of CEM Sampling

The facility CEMS were manufactured by Thermo Fisher Scientific (formerly STI) of Waldon, Arkansas and consists of a gas sampling and conditioning system and control and data acquisition system. The sampling system extracts, conditions and delivers a representative sample on a dry basis to the CEMs

During extraction from the stack, the sample is drawn through a 0.1 micron heated filter at a precision rate of 200cc/min via an air driven eductor (venturi). It is processed through a heat exchanger to remove moisture. The sample is then split; 100cc/min is delivered to the oxygen (O_2) analyzer, and the remaining 100cc/min is diluted with10L/min of clean, dry instrument air for a 100:1 dilution ratio. The diluted sample is then delivered to the CEMs for analysis. The CEM instrumentation models, serial numbers, detection methods and analyzer ranges are as follows:

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Table 5-1
Facility CEM Analyzers

Gas	Manufacturer	Model	Approximate Range
O_2	California Analytical	100	0-22.5 %
CO/CO_2	California Analytical	100	0-19.5 %
NOx	TECo	42	94.7 PPM
CO	TECo	48	96.3 PPM
SO2	Western Research	Series 900	96.6 PPM
THC	TECo	55c	0-100 PPM as Methane

The control and data acquisition system was upgraded in 2009 utilizing the existing Allen Bradley SLC 5/04 programmable logic controller (PLC), a new Allen Bradley Panelview and new IBM compatible personal computer (PC). The PLC handles the system control and housekeeping as well as short-term data storage. The PLC is connected to the PC for uploading continuous data for long- term storage. The PC operates on a Windows XP Operating Platform and utilizes VIM Technologies CEMLink 5 software. The CEMLink 5 software provides data archiving, system status and control screens, and environmental reports.

5.2.1 CEM Sampling System

What follows is a description of the transportable continuous emissions monitor system (CEMS) that will be used to quantify oxygen, carbon dioxide, sulfur dioxide, carbon monoxide and oxides of nitrogen from the subject units at the facility. The system meets all the specifications of Reference Methods 3A (O_2/CO_2), 6C (SO_2), 7E (NOx) and 10 (CO).

Sample Probe - A stainless steel probe of sufficient length was used to sample the location specified in Section 2.0.

Sample Line - Approximately 300' of 3/8" Teflon tubing (1/16" wall) will be used to transport the sample gas from the probe to the sample conditioning system.

Sample Conditioning System-
Filter - A spun glass fiber filter is located near the probe to remove particulate from the gas stream.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

Condenser (2) - a Universal Analyzer Sample Cooler or ice cooled condenser is located near the probe for bulk moisture removal and a thermo-electric condenser system is located downstream from the pump to remove any remaining moisture from the gas stream.

Sample Pump - A diaphragm type vacuum pump is used to draw gas from the probe through the conditioning system and to the analyzers. The pump head is stainless steel, the valve disks are Viton and the diaphragm is Teflon coated.

Calibration Valve - A t-valve, located at the base of the probe, allows the operator to select either the sample stream or inject calibration gas to the CEM system.

Sample Distribution System - A series of flow meters, valves and backpressure regulators allow the operator to maintain constant flow and pressure conditions during sampling and calibration.

Gas Analyzers - capable of the continuous determination of O_2, CO_2, SO_2, CO and NOx concentrations in a sample gas stream. They each meet or exceed the following specifications:

Calibration Error	- Less than +2% of span for the zero, mid- and hi-range calibration gases.
System Bias	- Less than $\pm$5% of span for the zero, mid- or hi-range calibration gases.
Zero Drift	- Less than +3% of span over the period of each test run.
Calibration Drift	- Less than +3% of span over the period of each test run.

Data Acquisition System

Recorder/Software – Monarch 4600 data acquisition system. This system is programmed to collect data every 15 seconds and reporting test interval averages. Data is recorded to a disk. The disk is transferred to the computer where the data will be loaded into a Microsoft Excel® spreadsheet for calculation of interval averages and emission rates. This software operates in a Windows environment. Preliminary results will be available on-site.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

5.2.2 CEMS Sampling Procedures

All sampling and analytical procedures will be conducted in accordance with EPA Reference Methods 3A, 6C, 7E, and 10 (40CFR60, Appendix A). The following is the sequence of events leading up to and including the emissions test:

Selection of Sampling Traverse Point Locations - Sampling point locations are determined prior to testing in accordance with EPA Methods 3A, 6C, 7E, and 10.

Determination of System Response Time - System response time is determined prior to testing. System response time is determined according to procedures delineated in Performance Specification 2 (40CFR60, Appendix B).

Determination of Analyzer Calibration Error - Analyzer calibration error is determined immediately prior to testing in accordance with EPA Methods 3A, 6C, 7E, and 10.

Determination of Sampling System Bias - Sampling system bias is determined immediately prior to testing in accordance with EPA Methods 3A, 6C, 7E and 10.

Determination of Zero and Calibration Drift - Before and after each test run, each analyzer's response to zero and mid- or hi-range calibration gases is determined. The pre-and post-test analyzer responses will be compared to determine drift. The results are evaluated based upon specifications defined in EPA Methods 3A, 6C, 7E and 10.

NO_2-NO Conversion Efficiency – Before testing a NO_2 to NO conversion efficiency of the analyzer will be performed. An EPA Protocol calibration gas within the 40-60 ppmv NO_2 concentration will be introduced into the analyzer in direct calibration mode. The analyzers response to the calibration gas will be recorded and used to calculate the conversion efficiency of NO_2 to NO of the unit. The conversion efficiency of the unit must be equal to or greater than 90%.

Data Reduction - An average pollutant/diluent concentration for each test run is determined from the data acquisition system. This data is then reduced to determine relative pollutant concentrations.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

CK Environmental

Figure 5-4
RM CEMS System

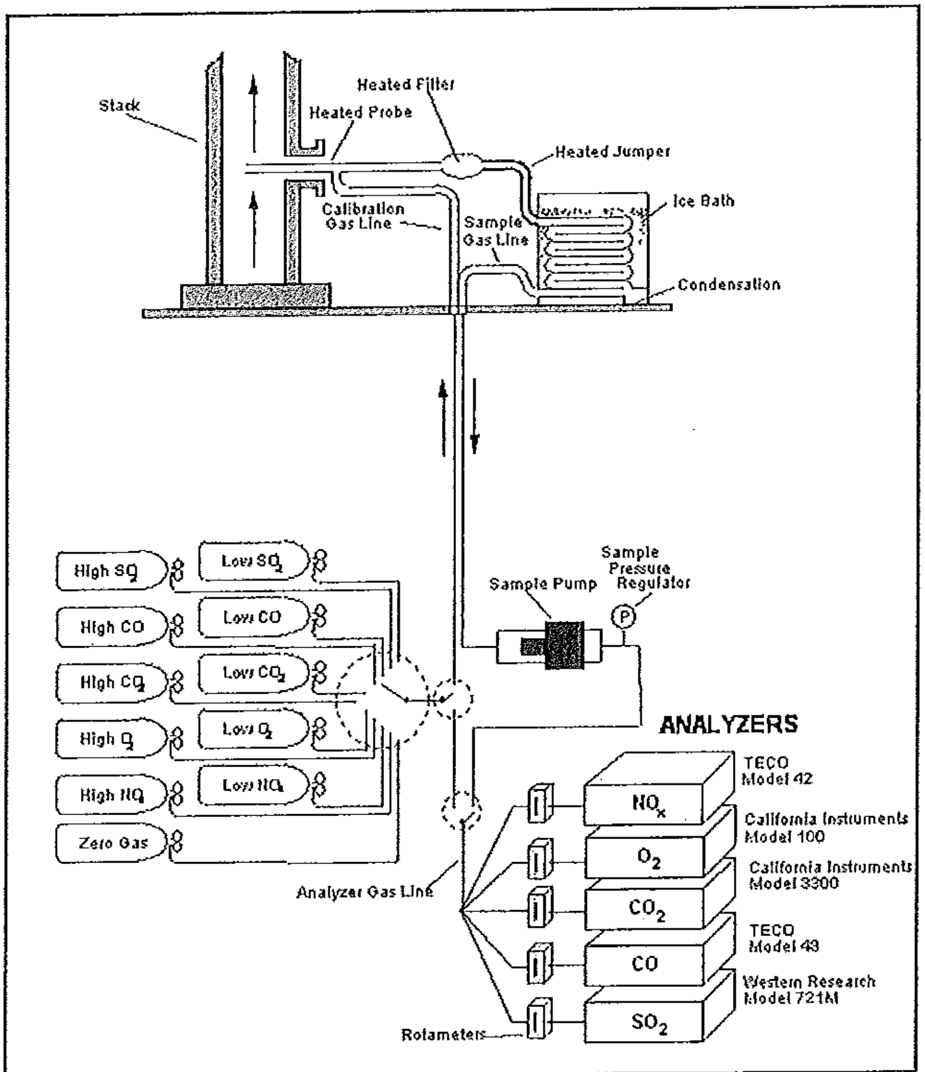


Figure	Schematic of RM CEM System

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

6.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)

6.1 General

CK's emissions testing teams are committed to providing high quality testing services. To meet this commiitment, CK follows applicable US EPA sampling procedures and implements applicable quality assurance/quality control (QA/QC) procedures with all test programs. These procedures ensure that all sampling is performed by competent, trained individuals and that all equipment used is operational and properly calibrated before and after use. Records of all CK's equipment calibrations are maintained in CK's files.

The CK quality assurance program generally follows the guidelines of the US EPA ***Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III Stationary Source Specific Methods*** (EPA/600/R-94/038c – September 1994) and CK's in house QA/QC Manual.

6.1.1 Sampling

The CK measurement devices, thermocouples, and portable gas analyzers are uniquely identified and calibrated with documented procedures and acceptance criteria. Records of all calibration data are maintained in CK's files. Copies of pertinent calibration data will be available on site during testing.

6.1.2 Analytical

All applicable compressed gas audit / calibration standards that will be used are always US EPA Traceability Protocol certified. Other gas standards and analytical laboratory support gases that will be used are always directly traceable to the National Institute of Standards and Technology (NIST). The certifications of the gas standards that will be used during testing will be available on site during testing.

6.1.3 Reporting

All reports undergo a tiered review. The first review of the report and calculations is made by a project coordinator or engineer. A second, detailed review of the report and calculations is then performed by another scientist or engineer. Signatures on a Report Review Certification contained in each report are used to document the review process.

6.2 QA Audits

A NO_2 converter check will be conducted in accordance with Section 8.2.4 of Method 7E. The NO_2 converter efficiency gas will be introduced into the analyzer in direct calibration mode and the NOx concentration displayed on the analyzer will be recorded. The efficiency will be calculated by using equation 7E-7 in Method 7E. The converter check will be acceptable if the calculated converter efficiency is greater than or equal to 90%. The certificate will be found in the appendices of the final report.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

6.3 Additional QA/QC Procedures

6.3.1 EPA Method 29 - Multi Metals

Prior to field testing, extensive preparation is necessary to properly complete the test method. All glassware including probe liners, filter holders, impingers, connecting pieces, and sample containers, are thoroughly washed with detergent and tap water. The glassware is then soaked in a 10% HNO_3 bath for a minimum of eight hours, rinsed with DI H_2O, rinsed with high purity acetone and allowed to air dry before sealing with parafilm.

The sampling train is loaded by a qualified chemist and carefully assembled by a qualified engineer. Sampling is conducted in accordance with EPA Method 29 procedures for 2 hours at a flow rate of approximately 0.75 cfm.

Blanks are collected for all reagents in the field laboratory and are analyzed along with the test samples to determine the level of contamination introduced by field handling and background contamination.

Samples are recovered following procedures outlined in the method. The filter is carefully removed and placed in a petri dish. The nozzle, probe, cyclone bypass and filter holder front half are rinsed 3 times with 0.1N HNO_3 into a prepared container (#1). The first, second and third impingers are quantitatively recovered and rinsed 3 times with 0.1N HNO_3 into container #2 along with the rinses from the filter holder back half and all connecting glassware. The fourth impinger is quantitatively recovered and rinsed 3 times with 0.1N HNO_3 into container #3. The fifth and sixth impingers are quantitatively recovered and rinsed with acidic potassium permanganate into separate container (#4). Any residue left in the fifth and sixth impingers is removed using 8n HCl which is recovered into container #5. The silica gel in the seventh impinger is measured to complete the moisture determination. All volumes used in the recovery are recorded.

Once at CK Environmental's laboratory, all samples are assigned a number and entered into the sample log. Chain of custody is maintained from the date of sampling through laboratory analysis at Maxxam Analytics, Mississauga, Ontario.

Maxxam Analytics calibrates instrumentation with standards prior to sample analysis. A calibration is verified with a lab control sample to verify the primary standard. This must be within 10% of true value. Actual emissions samples are injected in duplicate to demonstrate reproducibility (20% agreement). A continuing calibration check is performed every 10 samples (20 injections). At completion, a final calibration verification is performed (20% agreement). During analysis, a separate sample aliquot is spiked with a known amount of standard for each analyte (one for front ½ and one for back ½ samples), and analyzed along with emissions samples. The spike recovery must between 70% and 125% to be considered acceptable. Should recovery be outside that range, re-analysis by method of standard additions will occur, eliminating error due to interference. For FIA and ICP analysis, a second duplicate sample is analyzed, and average of first pair set and second pair must agree within 20%.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

CK Environmental

Table 6-1
QA/QC Procedures for Trace Metals – EPA Method 29

Task	Procedure
Glassware/Teflon Preparation	1. Wash all glassware and Teflon components in warm, soapy water. Rinse clean with tap water. Rinse thoroughly with DI water. 2. Soak all components in 10% nitric acid for 8 hours. Rinse all train components with DI water and acetone. Allow to air dry and seal with parafilm. 3. Use only high purity quartz filters and glass or Teflon components.
Sampling Train Set up	1. Load/assemble sampling train components in field lab. Re-seal components and send up to stack. 2. Finish assembling train on stack. Leak check train with Teflon tape on finger.
Sampling Train Operation	1. Operate sampling train between 0.5 and 1.0 cfm. 2. Leak check train with Teflon tape on finger. Seal train components with parafilm.
Sampling Train Recovery	1. Rinse nozzle through front half of filter holder with 0.1N HNO_3 into container 1. 2. Rinse filter holder back half through third impinger with 0.1N HNO_3 into container 2 along with condensate. 3. Rinse fourth and fifth impingers with acid potassium permanganate into container 3 along with condensate. 4. Rinse fourth and fifth impingers with 8.0N HCl to remove $KMnO_4$ residue (if present) into container 4 that contains 200 ml H_2O. 5. Re-weigh silica gel and record net gain of moisture collected, discard (per Method 5). 6. Return filter to petri dish. 7. Use Teflon squeeze bottles, spatulas for recovery. 8. Obtain reagent and filter blanks.
Sample Identification And Shipping	1. Identify all samples by stack, method, run no., fraction and contents. 2. Generate chain of custody form identifying all samples. 3. Ship samples to analytical laboratory.
Sample Analysis	1. Receive samples, verify chain of custody/contents. 2. Calibrate instrumentation with standards prior to sample analysis. Calibration is verified with a lab control sample to verify the primary standard. Must be within 10% of true value 3. Inject field emissions samples in duplicate to demonstrate reproducibility (20% agreement). 4. A continuing calibration check is performed every 10 samples (20 injections). At completion, a final calibration verification is performed (20% agreement). 5. Spike separate sample aliquot with a known amount of standard for each analyte (one for front ½ and one for back ½ samples), and analyze along with emissions samples. The spike recovery must between 70% and 125% to be considered acceptable.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

6.3.2 EPA Method 5 – Particulate Matter

Table 6-2
QA/QC Procedures for PM – EPA Method 5

Task	Procedure
Filter/beaker preparation	1. Identify filters and beakers. Wash beakers in warm, soapy water, rinse with DI water and allow to air dry. 2. Desiccate filters and beaker for 24 hours. 3. Calibrate balance to within 0.5 mg of standard daily using 1 g. and 100 g. NIST traceable weights. 4. Weigh filter and beakers to nearest 0.1 mg every six hours until two consecutive weights agree within ± 0.5 mg
Glassware/Teflon Preparation	1. Wash all glassware and Teflon components in warm, soapy water. Rinse clean with tap water. Rinse thoroughly with DI water. 2. Allow to air dry and seal with parafilm. 3. Use only high purity quartz filters and glass or Teflon components.
Sampling Train Set up	1. Load/assemble sampling train components in field lab. Re-seal components and send up to stack. 2. Finish assembling train on stack.
Sampling Train Operation	1. Operate sampling train between 0.5 and 1.0 cfm. 2. After leak check, seal train components with parafilm.
Sampling Train Recovery	1. Rinse components from nozzle through front half of filter holder with reagent-grade acetone into container 1. 2. Remove filter and place in original petri dish. 3. Obtain reagent and filter blanks.
Sample Identification And Shipping	1. Identify all samples by stack, method, run no., fraction and contents. 2. Generate chain of custody form identifying all samples. 3. Ship samples to analytical laboratory.
Particulate Analysis	1. Desiccate filters for 24 hours. 2. Evaporate acetone rinses in tared beakers. Desiccate beaker for 24 hours. 3. Calibrate balance to within 0.5 mg of standard daily using 1 g. and 100 g. NIST traceable weights. 4. Weigh filter and beakers to nearest 0.1 mg every six hours until two consecutive weights agree within ± 0.5 mg.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

6.3.3 EPA Method 26 – Hydrogen Chloride

Hydrogen chloride (HCl) emissions will be measured in accordance with EPA Method 26 (modified). The method will be modified by replacing the midget impinger sampling train with an EPA Method 5 style sampling train. The front half of the train will consist of a heated borosilicate glass lined probe, a borosilicate filter holder, heated quartz filter with Teflon support frit and five Greenburg-Smith impingers. The sampling train will be operated using a sampling rate equal to the ΔH@ or approximately 0.75 cfm. The sampling will be conducted at three traverse points of a single port.

The first and second impingers will each be loaded with 0.1N sulfuric acid (H_2SO_4). The third and fourth impingers will each be loaded with a 0.1N sodium hydroxide solution (NaOH) that is used as a chlorine scrubbing solution. The fifth impinger will contain a known amount of silica gel.

Prior to mobilization, all glass and Teflon train components will be thoroughly cleaned in hot soapy water, thoroughly rinsed with DI water, allowed to dry, and sealed with parafilm.

In accordance with the method, all five impingers will be measured before and after sampling and the data recorded. The first and second impinger solutions will be quantitatively recovered from the train using deionized water, and transferred to a glass sample bottle with a Teflon-lined lid. These impingers and their connecting glassware will be rinsed three times with deionized water into the sample jar. The contents of impingers three and four will be measured and retained. The contents of impinger five will be weighed and discarded.

All samples will be analyzed for HCl content by ion chromatography. An aliquot of all stock impinger solutions will be retained and analyzed as a reagent/train blank

Once at CK Environmental's laboratory, all samples are assigned a number and entered into the sample log. Chain of custody is maintained from the date of sampling through laboratory analysis at Maxxam Analytics, Mississauga, Ontario.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

Table 6-3
QA/QC Procedures for HCl – EPA Method 26

Task	Procedure
Glassware/Teflon Preparation	1. Wash all glassware and Teflon components in warm, soapy water. Rinse clean with tap water. Rinse thoroughly with DI water. 2. Allow to air dry and seal with parafilm. 3. Use only quartz filters and glass or Teflon sample train components.
Sampling Train Set up	1. Load/assemble sampling train components in field lab. 2. Load impingers with 0.1n H_2SO_4 and 0.1n NAOH. Re-seal components and send up to stack. 3. Finish assembling train on stack.
Sampling Train Operation	1. Operate sampling train at approximately 0.75 ft^3/min. for 60 minutes. 2. After leak check, seal train components with parafilm.
Sampling Train Recovery	1. Quantitatively recover the contents of the acid impingers into container 1. 2. Rinse impingers containing condensate and 0.1N H_2SO_4 with DI water into container 1 along with condensate. (Measure and retain NaOH). 3. Rinse connecting glassware with DI water into container 1. 4. Obtain reagent and blanks.
Sample Identification And Shipping	1. Identify all samples by stack, method, run no., fraction and contents. 2. Generate chain of custody form identifying all samples. 3. Ship samples to analytical laboratory.
HCL Sample Analysis	1. Receive samples, verify chain of custody/contents. 2. Calibrate instrumentation with four standards prior to sample analysis. 3. Inject field emissions samples in duplicate to demonstrate reproducibility (20% agreement). 4. At completion, a final four-point calibration verification is performed (5% agreement).

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

CK Environmental

7.0 REPORTING AND DATA REDUCTION REQUIREMENTS

7.1 Report Format

The table of contents for the report will contain the following:

TABLE OF CONTENTS

Chapter

APPENDICES

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

8.0 PLANT ENTRY AND SAFETY

8.1 Safety Responsibilities

Veolia Water North America is responsible for ensuring compliance with plant entry, health, and safety requirements. An appointed person at the facility has the authority to impose or waive facility restrictions. The CK Environmental Project Director has the authority to coordinate with the facility person any deviations from the facility restrictions.

8.2 Safety Program

CK Environmental has a comprehensive health and safety program that satisfies Federal OSHA requirements. The basic elements include: (1) written policies and procedures, (2) routine training of employees and supervisors, (3) medical monitoring, (4) use of personal protection equipment, (5) hazard communication, (6) pre-test meetings with facility personnel and the CK Environmental test team personnel, and (7) routine surveillance of the on-going test work.

8.3 Safety Requirements

All test personnel will adhere to the following standard safety and precautionary measures as follows:

- Confine selves to test area only.
- Wear fall protection while ascending ladders, hauling equipment, and working in areas that do not provide adequate safety railings and foot guards.
- Wear hard hats at all times on-site, except inside sample recovery trailers and mobile CEM laboratory
- Wear protective shoes or boots in test area.
- Wear protective glasses or goggles in test area.
- Have readily available first aid equipment and fire extinguishers.

On the first day on-site, the project director will post the completed On-site Emergency Response Procedures form in the field laboratory.

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

9.0 PERSONNEL RESPONSIBILITIES AND TEST SCHEDULE

9.1 Test Site Organization

Key Tasks and Task Leaders:

Management:	Michael Kelley
Test Preparation:	Michael Kelley /CK Staff
Modifications to Facility/Services:	Veolia Water NA
Sampling Site Accessibility:	CK Staff
Sample Recovery:	CK Lab Technician
Daily Sampling Schedule:	Michael Kelley / Veolia Water NA

9.2 Test Preparations

9.2.1 Construction of Special Sampling and Analytical Equipment: There are no anticipated modifications to equipment

9.2.2 Modifications to the Facility: There are no anticipated modifications to the facility during this test program

9.2.3 Services Provided by Facility: The plant will provide the following services:

Outlets: Five (5) 110V, 20 amp outlets (or equivalent)
CK will provide all other services.

9.2.4 Access to Sampling Sites: There are no anticipated problems or safety issues reaching the sampling port locations

9.3 Test Personnel Responsibilities

CK Personnel will arrive at the plant approximately one hour before the start of the first test run on the day of testing. Pretest activities on these days will include

- Meet with plant personnel to coordinate test times
- Prepare equipment and sampling trains the days testing
- Calibrate all instrumentation according to the specific method
- Verify communication links between staff member

CK Environmental, Inc.
1020 Turnpike St., Suite 8
Canton, MA 02021 USA
Toll-free: 888-CKE-0303
International: 781-828-5200
Fax: 781-828-5380
www.ckenvironmental.com

Environmental

Appendix A

Sample Field Data Sheets

CK Environmental Inc.
Environmental
Phone: (781) 828-5200
Fax: (781) 828-5380

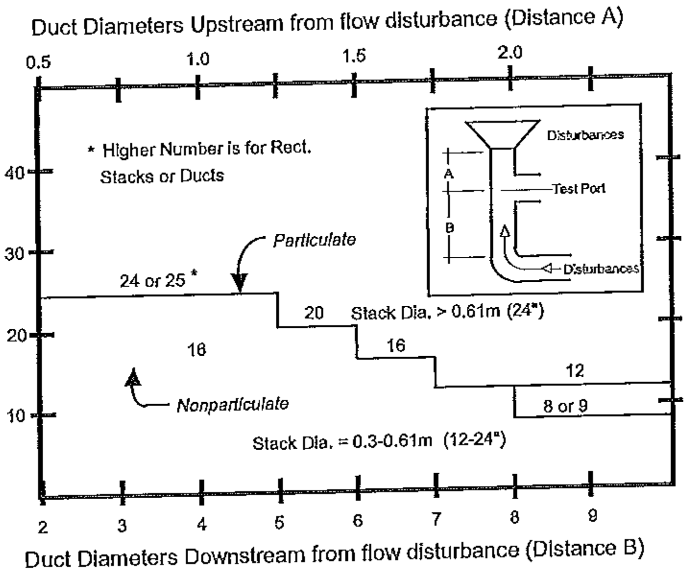
EPA Method 1

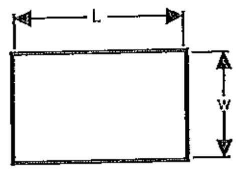
Sample Velocity Traverses
for Stationary Sources

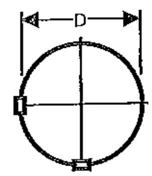
Client____________________
Plant____________________
City,State____________________
Facility____________________
Test location____________________
Test Date____________________

Diameter Upstream of Disturbance (A)__________
Diameter Downstream of Disturbance (B)__________
Diameter of Stack (D)__________
Total No. of Traverse Points Required__________
Number of Ports__________
Traverse Points per Port__________
Traverse (Horizontal or Vertical)__________

Minimum Number of Traverse Points for Particulate and Nonparticulate Traverses







$$Deq = \frac{2LW}{L+W} = \_\_\_\_$$

Cross-Sectional Layout for Rectangular Stacks

Total Traverse Points	Matrix
9	3 x 3
12	4 x 3
16	4 x 4
20	5 x 4
25	5 x 5

Location of Traverse Points in Circular Stacks

Point number on a diameter	(Percent of stack diameter from inside wall to traverse point) No. of Traverse Points on a Dia. 4	6	8	10	12
1	6.7	4.4	3.2	2.6	2.1
2	25.0	14.6	10.5	8.2	6.7
3	75.0	29.6	19.4	14.6	11.8
4	93.3	70.4	32.3	22.6	17.7
5		85.4	67.7	34.2	25.0
6		95.6	80.6	65.8	35.6
7			89.5	77.4	64.4
8			96.8	85.4	75.0
9				91.8	82.3
10				97.4	88.2
11					93.3
12					97.9

Traverse Point Locations

No.	Distance from wall (in.)	Port Depth (in.)	Total Distance (in.)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Quality Control Check: PLEASE INITIAL
Field Tech- Completeness____ Legibility____ Accuracy____
Field Leader- Specifications____ Reasonableness____

Run No. ____________

Environmental

FLOW AND MOISTURE DATA SHEET

Client:		Duct Dia:		Pitot Coefficient:		0.84
Plant:		Test Duration:		Orifice Delta H@:		
Facility:		Min. Per Pt:		Test Time:	Start	
City, State:		Amb. Temp:			Stop	
Test Date:		Bar. Press:		Train Lk Ck:	Start	"Hg
Test Loc:		Probe ID:			Final	"Hg
Testers:		Dry Gas Meter Y:		Pitot Lk Ck: (>3" WC)	Start	OK
					Final	OK

Stack Static Pressure:									
Port	Point	Time min.	Velocity Delta P	T Stack F	Gas Volume ft^3	Dry Gas Meter In	Dry Gas Meter Out	Last Imp. F	Pump Vac "Hg

Impinger Catch:

Imp. No.	1	2	3	4
Final vol/wt.				
Init. vol/wt.	100	100	0	
Catch				

O2 = ________

CO2 = ________

Field Calculations

As = ______ ft2

Tstd = 528 R   Pstd = 29.92 in. Hg

Ts = 460 + Tstk = __________ R

Ps = Pbar + (Pg/13.6) = __________ in. Hg

Vs = (85.49) x Cp x sqrt(Delta P) x sqrt[Ts/(Ps x MW)]

= __________ ft/sec

Qa = 60 x Vs x As = __________ ACFM

Qstd = Qa x (1-Bws) x (Tstd/Ts) x (Ps/Pstd)

= __________ DSCFM

Quality Control Check: Completeness   Legibility   Accuracy   Specifications   Reasonableness

CK Environmental

ANALYZER CALIBRATION SHEET

PLANT: ______________________ DATE: ____________

TEST LOCATION: ____________ OPERATOR: ____________

FUEL: ____________

LOAD:

GAS	RANGE	CYLINDER VALUE	ANALYZER RESPONSE	ABSOLUTE DIFFERENCE	ANALYZER CAL. ERROR
O_2	ZERO	0.0			
	MID				
	HIGH				
CO_2	ZERO	0.0			
	MID				
	HIGH				
CO	ZERO	0.0			
	MID				
	HIGH				
SO_2	ZERO	0.0			
	MID				
	HIGH				
NOx	ZERO	0.0			
	MID				
	HIGH				

ANALYZER CALIBRATION ERROR (%) = [(ANALYZER RESPONSE - CYLINDER VALUE) / HIGH CYLINDER VALUE] * 100

ERROR MUST NOT EXCEED 2% OR 0.5 PPM ABSOLUTE

Quality Control Check: Completeness_____ Legibility_____ Accuracy_____ Specifications_____ Reasonableness_____

Environmental

SYSTEM CALIBRATION SHEET

PLANT: ______________________ DATE: ______________

TEST LOCATION: ______________________ OPERATOR: ______________

FUEL: ______________________ SYSTEM RESPONSE TIME: ______________

LOAD:

		O_2		CO_2		CO		SO_2		NOx	
		RANGE: ____		RANGE: ____		RANGE: ____		RANGE: ____		RANGE: ____	
		ZERO	SPAN	ZERO	SPAN	ZERO	SPAN	ZERO	SPAN	ZERO	SPAN
RUN: ____ START TIME: ____ END TIME: ____	ANALYZER CAL RESPONSE										
	INITIAL SYSTEM CAL RESPONSE										
	SYSTEM BIAS										
	FINAL SYSTEM CAL RESPONSE										
	SYSTEM BIAS										
	SYSTEM DRIFT										
	NON CAL. CORR. AVERAGE										
RUN: ____ START TIME: ____ END TIME: ____	INITIAL SYSTEM CAL RESPONSE										
	SYSTEM BIAS										
	FINAL SYSTEM CAL RESPONSE										
	SYSTEM BIAS										
	SYSTEM DRIFT										
	NON CAL. CORR. AVERAGE										
RUN: ____ START TIME: ____ END TIME: ____	INITIAL SYSTEM CAL RESPONSE										
	SYSTEM BIAS										
	FINAL SYSTEM CAL RESPONSE										
	SYSTEM BIAS										
	SYSTEM DRIFT										
	NON CAL. CORR. AVERAGE										

SYSTEM BIAS = [(SYSTEM RESPONSE - ANALYZER RESPONSE) / HIGH CYLINDER VALUE] * 100

ERROR MUST NOT EXCEED 5% OR 0.5 PPM ABSOLUTE

SYSTEM DRIFT = [(INITIAL SYSTEM RESPONSE - FINAL SYSTEM RESPONSE) / HIGH CYLINDER VALUE] * 100

ERROR MUST NOT EXCEED 3% OR 0.5 PPM ABSOLUTE

Quality Control Check: Completeness_____ Legibility_____ Accuracy_____ Specifications_____ Reasonableness_____

Environmental

METHOD 25A DATA SHEET

PLANT: ____________ DATE: ____________
TEST LOCATION: ____________ OPERATOR: ____________
LOAD: ____________ RESPONSE TIME: ____________

CALIBRATION ERROR TEST					
TEST AREA	CALIBRATION GAS LEVEL (% SPAN)	CYLINDER CONCENTRATION	ACTUAL RESPONSE	PREDICTED RESPONSE	CALIBRATION ERROR
THC INLET	ZERO	0.0			
	LOW (25-35%)				
	MID (45-55%)				
	HIGH (80-90%)				
MEASUREMENT SPAN =	SLOPE =				
THC OUTLET	ZERO	0.0			
	LOW (25-35%)				
	MID (45-55%)				
	HIGH (80-90%)				
MEASUREMENT SPAN =	SLOPE =				

CALIBRATION ERROR = LESS THAN 5% OF THE RESPECTIVE CYLINDER CONCENTRATION

FORMULAS:

SLOPE = (HIGH LEVEL CAL GAS ACTUAL RESPONSE - ZERO GAS ACTUAL RESPONSE) / HIGH LEVEL CAL GAS CYLINDER CONCENTRATION

PREDICTED RESPONSE = SLOPE * CYLINDER CONCENTRATION

CALIBRATION ERROR = 100*(ACTUAL RESPONSE - PREDICTED RESPONSE) / CYLINDER CONCENTRATION

CALIBRATION DRIFT TEST									
TEST AREA	CE TEST	RUN 1		RUN 2		RUN 3		SPARE	
	ACTUAL RESPONSE	RESPONSE	DRIFT	RESPONSE	DRIFT	RESPONSE	DRIFT	RESPONSE	DRIFT
THC INLET									
THC OUTLET									

CALIBRATION DRIFT = LESS THAN 3% OF THE MEASUREMENT SPAN

CALIBRATION DRIFT = 100*(CAL ERROR TEST ACTUAL RESPONSE - CAL DRIFT TEST RESPONSE) / MEASUREMENT SPAN

RUN AVERAGES	RUN 1	RUN 2	RUN 3	SPARE
RUN TIME:				
INLET:				
OUTLET:				
DE %:				

Quality Control Check: Completeness______ Legibility______ Accuracy______ Specifications______ Reasonableness______

EPA Method 5 / 29

Field Data Sheet

Run No ____________

Page ___ of ___

CK Environmental

Client		Pollutant	PM / Multimetals	Nozzle No. & Dia.		Pitot Coefficient	0.84
Plant		Duct Dia.		Probe ID.		Orifice Delta H @	
Facility		Test Duration		Probe Heat Set		Test Time	Start
City, State		Min. Per Pt.		Filter Temp. Set			Stop
Test Date		Amb Temp		Assumed % H_2O		Train Leak Check	Start ____ CFM@____in. Hg.
Location		Bar. Press.		Nomograph K Factor			Final ____ CFM@____in. Hg.
Testers		Filter No.		Dry Gas Meter Y		Pitot Leak Check	Start ____ OK
Meter Box ID						(>3" WC)	Final ____ OK
Fuel							

Stack Static Pressure:

Port	Point	Time min.	Velocity Delta P	Delta H	Gas Vol. ft^3	Temp Stack °F	Temp Prb °F	Filter Box °F	Last Imp °F	Aux °F	Dry Gas Meter IN	Dry Gas Meter OUT	Pump Vac Hg"
Avg sqrt dP/Avg/ or Total:													

Impinger Catch:

Imp. No.	1	2	3	4	5	
Final vol/wt.						
Init. vol/wt.						TOTAL
Catch						
	Dry		H20	Si Gel		

Orsat Analysis
EPA Method 3

O_2	
CO_2	

N2 Purge @ 15 lpm Start Time ________
End Time ________

Field Calculations

As = ________ ft^2

Tstd = 528 R   Pstd = 29.92 in. Hg

Ts = 460 + Tstk = ________R

Ps = Pbar + (Pg/13.6) = ________in. Hg

Vs = (85.49) x Cp x sqrt(Delta P) x sqrt[Ts/(Ps x MW)]

= ________ft/sec

Qa = 60 x Vs x As = ________ACFM

Qstd = Qa x (1-Bws) x (Tstd/Ts) x (Ps/Pstd)

= ________DSCFM

Notes:

Quality Control Check:

Completeness____ Legibility____ Accuracy____ Specifications____ Reasonableness____

Environmental

EPA Method 26A

Field Data Sheet

Run No ____________

Page ____ of ____

Client		Pollutant	HCl	Nozzle No. & Dia.		Pitot Coefficient	0.84
Plant		Duct Dia.		Probe ID.		Orifice Delta H @	
Facility		Test Duration		Probe Heat Set		Test Time	Start
City, State		Min. Per Pt.		Filter Temp. Set			Stop
Test Date		Amb Temp		Assumed % H_2O		Train Leak Check	Start ____ CFM@ ____ in. Hg.
Location		Bar. Press.		Nomograph K Factor			Final ____ CFM@ ____ in. Hg.
Testers		Filter No.		Dry Gas Meter Y		Pitot Leak Check	Start ____ OK
Meter Box ID						(>3" WC)	Final ____ OK

Stack Static Pressure:												Dry Gas Meter		
Port	Point	Time min.	Velocity Delta P	Delta H	Gas Vol. ft^3	Temp Stack °F	Temp Prb °F	Filter Box °F	Last Imp °F	Aux °F	IN	OUT	Pump Vac Hg"
Avg sqrt dP/Avg/ or Total:													

Impinger Catch:

Imp. No.	1	2	3	4	5	
Final vol/wt.						
Init. vol/wt.						TOTAL
Catch						
	H2SO4	H2SO4	H2SO4	H20	Si Gel	

Orsat Analysis

EPA Method 3

O_2	
CO_2	

Field Calculations

As = ________ ft^2

Tstd = 528 R   Pstd = 29.92 in. Hg

Ts = 460 + Tstk = __________ R

Ps = Pbar + (Pg/13.6) = __________ in. Hg

Vs = (85.49) x Cp x sqrt(Delta P) x sqrt[Ts/(Ps x MW)]

= __________ ft/sec

Qa = 60 x Vs x As = __________ ACFM

Qstd = Qa x (1-Bws) x (Tstd/Ts) x (Ps/Pstd)

= __________ DSCFM

Notes:

Quality Control Check: Completeness_____ Legibility_____ Accuracy_____ Specifications_____ Reasonableness_____

EPA Method 202

Field Data Sheet

Run No ____________

Page ___ of ___

CK Environmental

Client		Pollutant	PM / CPM	Nozzle No. & Dia.	
Plant		Duct Dia.		Probe ID.	
Facility		Test Duration		Probe Heat Set	
City, State		Min. Per Pt.		Filter Temp. Set	
Test Date		Amb Temp		Assumed % H_2O	
Location		Bar. Press.		Nomograph K Factor	
Testers		Filter No.		Dry Gas Meter Y	
Meter Box ID					
Fuel					

Pitot Coefficient 0.84

Orifice Delta H @ ____

Test Time: Start ____ Stop ____

Train Leak Check: Start ____ CFM@ ____ in. Hg. Final ____ CFM@ ____ in. Hg.

Pitot Leak Check (>3" WC): Start ____ OK Final ____ OK

Stack Static Pressure: ____

Port	Point	Time min.	Velocity Delta P	Delta H	Gas Vol. ft^3	Temp Stack °F	Temp Prb °F	Filter Box °F	Last Imp °F	Aux °F	Dry Gas Meter IN	Dry Gas Meter OUT	Pump Vac Hg"
Avg sqrt dP/Avg/ or Total:													

Impinger Catch:

Imp. No.	1	2	3	4	5	
Final vol/wt.						
Init. vol/wt.						TOTAL
Catch						
	Dry		H20	Si Gel		

Orsat Analysis

EPA Method 3	
O_2	
CO_2	

N2 Purge @ 15 lpm Start Time ________

End Time ________

Field Calculations

As = ________ ft^2

Tstd = 528 R Pstd = 29.92 in. Hg

Ts = 460 + Tstk = ________ R

Ps = Pbar + (Pg/13.6) = ________ in. Hg

Vs = (85.49) x Cp x sqrt(Delta P) x sqrt[Ts/(Ps x MW)]

= ________ ft/sec

Qa = 60 x Vs x As = ________ ACFM

Qstd = Qa x (1-Bws) x (Tstd/Ts) x (Ps/Pstd)

= ________ DSCFM

Notes:

Quality Control Check:

Completeness____ Legibility____ Accuracy____ Specifications____ Reasonableness____

Environmental

Appendix B

Sample Emission Calculations

Environmental

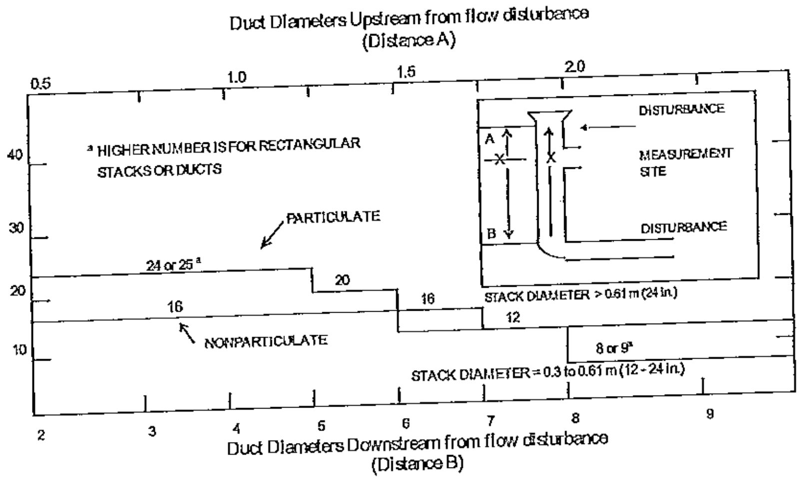
US EPA Reference Test Method 1

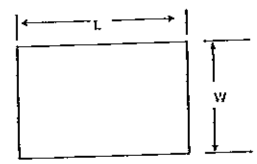
Sample and Velocity Traverses for Stationary Sources

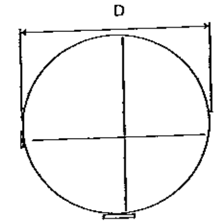
Client: SAMPLE Project No.:
Facility: Boiler
City, State: Canton, MA
Test Date(s):
Test Location: Stack
Diameter of Exhaust Stack: 102.00 inches

Diameters Upstream of Disturbance (A): 2.0
Diameters Downstream of Disturbance (B): 8.0
Total No. of Traverse Points Required: 16
Number of Ports: 2
Traverse Points Per Port: 8
Traverse (Horizontal or Vertical): Horizontal

MINIMUM NUMBER OF TRAVERSE POINTS FOR PARTICULATE AND NONPARTICULATE TRAVERSES







$D_{eq} = \frac{2LW}{L+W} =$

CROSS-SECTIONAL LAYOUT FOR RECTANGULAR STACKS

Total Traverse Points	Matrix
9	3 x 3
12	4 x 3
16	4 x 4
20	5 x 4
25	5 x 5

LOCATION OF TRAVERSE POINTS IN CIRCULAR STACKS

Point Number On A Diameter	(Percent of stack diameter from inside wall to traverse point) Number of Traverse Points on a Diameter: 4	6	8	10	12
1	6.7	4.4	3.2	2.6	2.1
2	25.0	14.6	10.5	8.2	6.7
3	75.0	29.6	19.4	14.6	11.8
4	93.3	70.4	32.3	22.6	17.7
5		85.4	67.7	34.2	25.0
6		95.6	80.6	65.8	35.6
7			89.5	77.4	64.4
8			96.8	85.4	75.0
9				91.8	82.3
10				97.4	88.2
11					93.3
12					97.9

TRAVERSE POINT LOCATIONS

No.	Distance from Wall (inches)	Port Depth (inches)	Total Distance (inches)
1	3.26	12.0	15.26
2	10.71	12.0	22.71
3	19.79	12.0	31.79
4	32.95	12.0	44.95
5	69.05	12.0	81.05
6	82.21	12.0	94.21
7	91.29	12.0	103.29
8	98.74	12.0	110.74
9			
10			
11			
12			

Duct Diameter > 24 inches minimum 1.0 inch from stack walls.
Duct Diameter <= 24 inches minimum 0.5 inch from stack walls.

CK Environmental

Table 2.1
Summary of Results
Emissions Compliance Testing
Regenerative Thermal Oxidizer
ACME Corporation
Canton, MA
01/01/12

Test Number Test Date Test Time		1 01/01/12 0905 - 1005	2 01/01/12 1045 - 1145	3 01/01/12 1210 - 1310	Average	Limit
Oxidizer Inlet Flow Rate Data						
Duct Temperature	°F	110	113	116	113	
Oxygen	% dry	20.7	20.7	20.7	20.7	
Carbon Dioxide	% dry	0.0	0.0	0.0	0.0	
Moisture	%	0.3	0.3	0.3	0.3	
Volumetric Flow Rate	acfm	39,663	40,606	40,356	40,209	
Volumetric Flow Rate	scfm	36,340	37,019	36,649	36,669	
Oxidizer Stack Flow Rate Data						
Duct Temperature	°F	219	243	239	233	
Oxygen	% dry	20.6	20.5	20.5	20.5	
Carbon Dioxide	% dry	0.5	0.5	0.5	0.5	
Moisture	%	3.2	2.4	2.2	2.6	
Volumetric Flow Rate	acfm	49,774	55,542	53,774	53,030	
Volumetric Flow Rate	scfm	38,607	41,569	40,523	40,233	
Oxidizer Inlet THC Data	C_3H_8					
Concentration	ppm_{wet}	554.9	663.1	652.0	623.3	
Concentration	ppm_{dry}	556.5	665.1	653.9	625.2	
Emission Rate	lb/mmBtu	57.900	69.192	68.031	65.041	
Emission Rate	lb/hour	138.23	168.27	163.80	156.77	
Oxidizer Outlet Methane Data	CH_4					
Concentration	ppm_{wet}	23.4	9.7	9.1	14.1	
Concentration	ppm_{dry}	24.2	10.0	9.3	14.5	
Oxidizer Outlet NMHC Data	C_3H_8					
Concentration	ppm_{wet}	12.1	7.2	10.3	9.8	
Concentration	ppm_{dry}	12.4	7.4	10.5	10.1	
Emission Rate	lb/mmBtu	0.863	0.383	0.547	0.598	
Emission Rate	lb/hour	3.19	2.05	2.86	2.70	
VOC Destruction Efficiency (lb/hour)	%	97.69	98.78	98.25	98.24	98.0

Calculations

Concentration (ppm_{dry}) = PPM_{wet} / (1-(Moisture/100))

Emission Rate (lb/mmBtu) = PPM_{dry} x Fuel Factor x 1.143e-7 x (20.9/(20.9-O_2%))

Emission Rate (lb/hour) = PPM_{wet} x SCFM x 15.58e-8 x 44

Destruction Efficiency (%) = ((Inlet Emissions - Outlet Emissions) / Inlet Emissions) x 100

CONTINUOUS EMISSIONS MONITORING DATA SHEET

EPA Method 3A

Environmental

Client:	ACME Corporation	Source:	Regenerative Thermal Oxidizer
Site Location:	Canton, MA	Test Location:	Oxidizer Stack
Test Date:	01/01/12	Condition:	Normal Production Rate
		Fuel Factor:	8710

Rack Analyzer Calibration					
O_2			CO_2		
Gas	Resp.	Error	Gas	Resp.	Error
0.0	0.0	0.0	0.0	0.0	0.0
10.01	10.0	0.0	10.03	10.2	0.9
21.00	21.0	0.0	18.09	18.1	0.1

			Test Number	1	Test Date	01/01/12	Test Time:	0905 - 1005			
Test Parameter	Test Location	Full Scale	Cal. Gas	Rack Cal. Response	Pre-Test Response	Pre-Test Bias	Post-Test Response	Post-Test Bias	Calibration Drift	Average Response	Corrected Average
O_2	Stack	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.6
		21.0	21.0	21.0	20.8	-1.0	20.8	-1.0	0.0		
CO_2	Stack	18.09	0.0	0.0	0.1	0.6	0.1	0.6	0.0	0.6	0.5
		18.09	18.09	18.1	18.0	-0.6	17.9	-1.1	-0.6		

			Test Number	2	Test Date	01/01/12	Test Time:	1045 - 1145			
Test Parameter	Test Location	Full Scale	Cal. Gas	Rack Cal. Response	Pre-Test Response	Pre-Test Bias	Post-Test Response	Post-Test Bias	Calibration Drift	Average Response	Corrected Average
O_2	Stack	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.3	20.5
		21.0	21.0	21.0	20.8	-1.0	20.8	-1.0	0.0		
CO_2	Stack	18.09	0.0	0.0	0.1	0.6	0.1	0.6	0.0	0.6	0.5
		18.09	18.09	18.1	17.9	-1.1	17.9	-1.1	0.0		

			Test Number	3	Test Date	01/01/12	Test Time:	1210 - 1310			
Test Parameter	Test Location	Full Scale	Cal. Gas	Rack Cal. Response	Pre-Test Response	Pre-Test Bias	Post-Test Response	Post-Test Bias	Calibration Drift	Average Response	Corrected Average
O_2	Stack	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.5
		21.0	21.0	21.0	20.8	-1.0	20.8	-1.0	0.0		
CO_2	Stack	18.09	0.0	0.0	0.1	0.6	0.1	0.6	0.0	0.6	0.5
		18.09	18.09	18.1	17.9	-1.1	17.8	-1.7	-0.6		

Calibration Gases			
Component(s):	N_2	O_2/CO_2	O_2/CO_2
Conc.(s):	---	10.01/10.03	21.0/18.09
Cylinder No.:	---	CC79839	CC127435

QA/QC Specifications

Rack Analyzer Calibration Error = ≤ 2.0% or alternative specification ≤ 0.5 ppm absolute difference
Pre-Test & Post-Test Bias = ≤ 5.0% or alternative specification ≤ 0.5 ppm absolute difference
Calibration Drift = ≤ 3.0% or alternative specification ≤ 0.5 ppm absolute difference

Calculations

Rack Analyzer Calibration Error = ((Analyzer Response - Calibration Gas)/Full Scale x 100)
Pre-Test Bias = ((PreTest Response - Rack Cal Response)/Full Scale x 100)
Post-Test Bias = ((PostTest Response - Rack Cal Response)/Full Scale x 100)
Calibration Drift = ((PreTest Response - PostTest Response)/Full Scale x 100)
Corrected Average = ((Avg Response - Avg Zero Response) x (CalGas Conc/(Avg CalGas Response - Avg Zero Response)))

TOTAL HYDROCARBONS DATA SHEET
EPA Method 25A

Environmental

Client	ACME Corporation
Site Location	Canton, MA
Source	Regenerative Thermal Oxidizer
Test Location	Oxidizer Inlet
Date	01/01/12
Testers	SP/MU

THC Analyzer Data

Manufacturer	VIG Industries
Model Number	20/2
Fuel Pressure (psi)	5.5
Combustion Air Pressure (psi)	6.5
Sample Pressure (psi)	2.0
Measurement Range (ppm)	1,000

Test Times

Test 1	0905 - 1005
Test 2	1045 - 1145
Test 3	1210 - 1310

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.2
High Gas	844.0	847.9
Response Line	1.004	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	298.0	299.2	299.4	0.1	< 5 % of the cylinder concentration
Mid Gas	498.0	500.0	508.0	1.6	< 5 % of the cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = |(Actual Response - Predicted Response)|/Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.2	6.2	0.6	< 3 % of the measurement range	
Test Run 1 Mid	498.0	508.0	528.6	2.1	< 3 % of the measurement range	
					Test Run 1 Avg. Conc.	554.9
Test Run 2 Zero	0.0	0.2	7.0	0.7	< 3 % of the measurement range	
Test Run 2 Mid	498.0	508.0	531.0	2.3	< 3 % of the measurement range	
					Test Run 2 Avg. Conc.	663.1
Test Run 3 Zero	0.0	0.2	6.9	0.7	< 3 % of the measurement range	
Test Run 3 Mid	498.0	508.0	526.6	1.9	< 3 % of the measurement range	
					Test Run 3 Avg. Conc.	652.0

Calibration Drift = |(Actual Response - CE Test Response)| *100 / Measurement Range

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			H_2	CC102867	---	
Combustion Air			Air	CC88675	---	
Zero Gas	<0.1	0.0	N_2	CC345098	---	0.0
Low Gas	25-35	298.0	C_3H_8 / N_2	CC133107	04/25/14	29.8
Mid Gas	45-55	498.0	C_3H_8 / N_2	CC20261	02/24/13	49.8
High Gas	80-90	844.0	C_3H_8 / N_2	CC128099	01/28/14	84.4

HYDROGEN CHLORIDE RESULTS

PLANT:
SOURCE:

TEST NO.:
DATE:

Isokinetics, %I	11.4	%

$\%I = [K4*Ts*Vm(std)] / [Ps*Vs*An*X*(1-Bwo)]$

where: $K4 = (100*P_{std})/(T_{std}*60) = (100*29.92)/(528*60)$

An = cross sectional area of nozzle tip, ft^2

X = total test time, min.

Hydrogen Chloride (Hydrochloric Acid) Catch (M_{HCl})

Analytical Laboratory Results		
Total Reported Chloride Catch, M_{Cl}	1200000	µg
M_{Cl} Conversion from micrograms (µg) to milligrams (mg)	1200.0	mg
Total Chloride to Total HCl Catch Conversion, M_{HCl} — $M_{HCl} = M_{Cl}$ * Method 26 1.028 Conversion Factor	1233.6	mg
Molecular Weight (HCl)	36.461	g/mol
HCl Concentrations, C_{HCl} — 0.000002205*Mn/Vm(std)	6.51E-05	lb/dscf
Mn/(Vm(std)*0.02832)	36830.4	mg/dscm
Parts Per Million by Volume-Dry Basis (ppmvd) (lb/dscf)*1000000/(MW/386.3)	690.1	ppmvd
ppmvd @ 7% O_2 (ppmvd@7% O_2) ppmvd*(20.9-7)/(20.9-O_2%)	953.5	ppmvd@7%O_2
HCl Emission Rate - Pounds Per Hour, E_{HCl} - lb/hr Qs* (lb/SCF)	11.56	lb/hr

PARTICULATE MATTER RESULTS

PLANT:
SOURCE:

TEST NO.:
DATE:

Isokinetics, %I — 92.6 %

%I = [K4*Ts*Vm(std)] / [Ps*Vs*An*X*(1-Bwo)]
where: K4 = $(100*P_{std})/(T_{std}*60)$ = (100*29.92)/(528*60)
An = cross sectional area of nozzle tip, ft^2
X = total test time, min.

Particulate Matter Catch, M_{PM}

Front-Half Filterable PM Catch, M_{PMF}		
Front-Half Filterable PM Catch, M_{PMFF}	0.8	mg
Front-Half Rinse Catch, M_{PMFR}	3.8	mg
Back-Half Condensible PM Catch, M_{PMC}:		
Aqueous (Non-Extractables) Condensible PM Catch, M_{PMCA}	0.0	mg
Organic (Extractables) Condensible PM Catch, M_{PMCO}	0.0	mg
Total Particulate Matter Catch, M_{PM}	4.6	mg

Particulate Matter Concentration, C_{PM}
$C_{PM} = [M_{PM} / Vm(std)]$ — 0.055 mg/dscf; 54.677 ug/dscf

$C_{PM} = [M_{PM} / (Vm(std) / 35.316]$ — 1.9310 mg/dscm
where: 35.316 ft^3 / m^3

C_{PM} @ 12% CO_2 = [(mg/dscm)*(12/% CO_2)] — 2.990 mg/dscm @ 12% CO_2
where: % CO_2 = actual emissions CO_2 concentration

C_{PM} @ 7% O_2 = [(mg/dscm)*((20.9-7)/(20.9-O_2)] — 3.253 mg/dscm @ 7% O_2
where: % O_2 = actual emissions O_2 concentration

Particulate Matter Emission Rate, E_{PM} — 1.2074 lb/hr
$E = C_{PM}/1,000 * Qds * 60/454$

FLOWS AND MOISTURES

PLANT:
SOURCE:

TEST NO.:
DATE:

Meter Volume @ Standard Conditions, Vm(std) — 81.924 dscf; 2.320 dscm

Vm(std) = K1 * Vm * Y Factor * Pm / Tm

where:
- K1 = 17.64 deg R / in. Hg
- Vm = volume of meter, meter conditions, dcf — 84.137
- Pm = meter pressure [(Delta H/13.6) + Pb], in. Hg — 30.35
- Tm = meter temperature (deg. F + 460), deg. R — 547

Percent Moisture, %H2O — 11.5 %

%H2O = {(K2 * Vc) / [Vm(std) + (K2 * Vc)]} * 100

where:
- K2 = 0.04707 cu. ft./ml
- Vc = volume of condenser catch, ml — 226.0

Moisture Fraction, Bwo — 0.115

Bwo = %H2O / 100

Dry Molecular Weight of Stack Gas, Md — 29.75 lb/lb mol

Md = [(0.44*%CO2)+(0.32*%O2)+(0.28*(%CO+%N N2))]

- %CO2 — 7.8
- %O2 — 12.6
- %CO+%N2 — 79.6

Wet Molecular Weight of Stack Gas, Ms — 28.40 lb/lb mol

Ms = Md * (1-Bwo) + (18 * Bwo)

Stack Gas Velocity, Vs — 101.509 fps

Vs = K3 * Cp * (avg sqrt delta P) * sqrt(Ts/(Ps * Ms))

where:
- K3 = 85.49 fps * sqrt[(lb/lb mol)(in. Hg)/(deg. R)(in H2O)]
- Cp = pitot coefficient, 0.84 for s-type; 0.99 for std. — 0.84
- Ts = stack temperature (deg. F + 460), deg. R — 757.5
- Ps = stack pressure [(Ps/13.6) + Pb], in. Hg — 30.11

Volumetric Flow Rate, steck conditions, Qa — 269,080 ACFM

Qa = Vs * As * 60

where: As = cross sectional area of stack @ sampling location

Volumetric Flow Rate, standard conditions, Qs — 188,810 SCFM

Qs = Qa * K1 * Ps / Ts

Volumetric Flow Rate, dry standard conditions, Qsd — 167,097 DSCFM

Qds = Qs * (1-Bwo)

FIELD DATA INPUT SHEET

PLANT: ____________________ TEST NO: ____________________

SOURCE: ____________________ DATE: ____________________

Start Time:	10:55	EDST
End Time:	13:10	EDST
Total Test Time:	120	Mins.

Cp:	0.84
Pb:	30.24
Pg (static):	-1.8
Stack Dia (in.):	90
L (in.):	
W (in.):	
As (ft^2):	44.18
Ps (in. Hg):	30.11
%CO2:	7.75
%O2:	12.65
%CO:	0.0

Impingers (Initial)

1:	100
2:	100
3:	0
4:	100
5:	100
6:	874.7

Impingers (Final)

1:	325
2:	70
3:	12
4:	102
5:	100
6:	891.7

Moisture Catch (mg)	226.0

Dry Gas Meter

Start:	462.004
End:	546.135
(ES-#2) Y Factor:	0.9949
Leak Check Volume:	0
Final Volume:	84.131

Nozzle Diam. :	0.189
Filter Number :	40110
No. of Points :	6

Pt.	Delta P	Sqrt.	Delta H	Mtr. In	Mtr. Out	Stk Tmp.
6	2.00	1.414	1.32	87	87	296
5	1.80	1.342	1.19	87	86	295
4	1.50	1.225	0.99	86	86	296
3	2.90	1.703	1.91	89	85	297
2	2.70	1.643	1.78	89	85	300
1	2.50	1.581	1.65	90	86	297
6	2.30	1.517	1.52	87	83	295
5	2.00	1.414	1.32	92	85	296
4	2.10	1.449	1.39	91	86	296
3	2.50	1.581	1.65	89	86	294
2	2.80	1.673	1.85	87	85	300
1	2.20	1.483	1.45	87	84	299
	2.275	1.50[illegible]	1.502	87		297

Environmental

Appendix C

Nomenclature

Environmental

NOMENCLATURE

%DRE	= percent destruction/removal efficiency
% ISO	= percent isokinetic sampling rate
$\%CO_2$	= percent carbon dioxide by volume (dry)
$\%H_2O$	= percent moisture
$\%N_2$	= percent nitrogen by volume (dry)
$\%O_2$	= percent oxygen by volume (dry)
μg	= micrograms
$\Delta H_@$	= pressure drop across orifice of meter for 0.75 CFM at standard conditions
ΔP_{avg}	= average velocity pressure
A_n	= sampling nozzle cross-sectional area (ft2)
Ar	= acetone residue - result of blank evaporation
A_s	= stack cross sectional area (ft2)
B_{wo}	= moisture content of stack gas; expressed as a decimal
C	= final emissions data reported by CEMs, adjusted for calibration drift
C'	= raw emissions data reported by the CEMs, uncorrected for calibration drift.
Cm	= average CEM response to initial and final span gas system calibration
Co	= average CEM response to initial and final zero gas system calibration
C_p	= Pitot tube coefficient
C_s	= concentration in stack gas in pounds per standard cubic foot
$C_{s'}$	= concentration in stack gas in grains per standard cubic foot
C_{s12}	= concentration corrected to 12 percent CO_2
D_e	= equivalent diameter of rectangular stack
D_n	= nozzle diameter in inches
D_s	= stack inside diameter in feet
Delta H (abs)	= the meter orifice differential, absolute conditions in inches of mercury
Delta H	= the meter orifice differential
dgm	= dry gas meter
Dry Gas In	= temperature of the dgm inlet in degrees Fahrenheit
Dry Gas Out	= temperature of the dgm outlet in degrees Fahrenheit
F factor	= a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted
F_c	= a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted
Fw	= a F factor on a wet basis
dscf	= dry standard cubic foot

Environmental

NOMENCLATURE (cont.)

dscfh	= dry standard cubic foot per hour
dscfm	= dry standard cubic foot per minute
E	= emission rate in pounds per million Btu
End Meter	= the dgm reading in cubic feet at the end of the sampling period
F_d	= F-factor dry standard cubic feet per million Btu at zero percent oxygen and at 68
FID	= flame ionization detection
F_o	= EPA method 3 fuel factor
fps	= feet per second
GC	= gas chromatograph
GC/MS	= gas chromatograph/mass spectrograph
gr	= grain of particulate; 1lb. = 7000 grains
gr/dscf	= grains per dry standard cubic foot
gr@12%	= grains per dry standard cubic foot corrected to 12 percent oxygen
gr@7%	= grains per dry standard cubic foot corrected to 7 percent oxygen
Hg	= mercury
int/i	= initial
IN	= inches
Int Meter	= the dgm reading in cubic feet at the beginning of the test period
K	= degrees Kelvin
PIT Coeff	= Pitot tube coefficient
lb/SCF	= pounds per standard cubic foot
lb/hr	= pounds per hour
lb/mmBtu	= pounds per million Btu
Cma	= concentration of the calibration gases
M_d	= dry molecular weight of flue gas
mg	= milligrams
mg/DSCM	= milligrams per dry standard cubic meter
ml	= milliliters
MM5	= modified EPA method 5
MMBtu/hr	= million Btu per hour
M_s	= molecular weight of flue gas, wet basis
Md	= molecular weight of flue gas, dry basis
Mn	= net gain (mg)
ng	= nanograms
NMHC	= non-methane hydrocarbons
Θ	= net run time in minutes

Environmental

NOMENCLATURE (cont.)

^{o}C	= degrees Celsius
^{o}F	= degrees Fahrenheit
^{o}R	= degrees Rankin
P bar	= barometric pressure in inches of mercury
P stk	= pressure of the stack in inches of water
Pabs	= absolute pressure
ppm_{vd}	= parts per million by volume, dry
Ps	= flue gas static pressure in absolute pressure
P_{std}	= standard absolute pressure at 29.92 inches of mercury
Qa	= volumetric air flow rate actual cubic feet per minute
Q_s	= volumetric air flow rate dry standard cubic feet per minute
rh	= relative humidity
scf	= standard cubic feet
scfm	= standard cubic feet per minute
T_m	= dry gas meter temperature in degrees Fahrenheit
T_s	= flue gas temperature in degrees Fahrenheit
t_{std}	= standard temperature in degrees Fahrenheit
T_{std}	= standard absolute temperature
THC	= total hydrocarbons
V	= volume
VI	= total volume of liquid collected in impingers and silica gel
V_m	= volume of metered gas sampled in cubic feet
$V_{m\ std}$ standard	= volume of metered gas sample at dry standard conditions in dry cubic feet
VOC	= volatile organic compounds
VS	= average flue gas velocity in feet per second
$V_{w\ std}$	= volume of water vapor in cubic feet
Wg	= water gauge
wscfm	= wet standard cubic feet per minute
Y	= dry gas meter calibration factor

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Air Management
Compliance Analysis & Coordination Unit
79 Elm Street
Hartford, Connecticut 06106-5127

Client #:
Sequence #:
Town #:
Premises #:
CADIS Tracking #:

CEM Forms Package, 08/19/96

CONTINUOUS EMISSION MONITORING SEMI-ANNUAL REPORT

GENERAL INFORMATION

Company name	Borough of Naugatuck
Facility name	Borough of Naugatuck POTW
Facility address	229 Church Street, Naugatuck, CT 06770
Contact person	Mr. John Batorski john.batorski@veoliawater.com
Contact phone number	(203) 723-1433
Reporting period dates	January 1, 2014 – June 30, 2014
Report submittal date	July 15, 2014
Were there any excess emissions this quarter?	No
Were there any CEM monitor system failures this period?	YES

EQUIPMENT INFORMATION

Applicable permit numbers	CT DEP Permit # 209-0059-TV
Applicable federal regulations	40 CFR Part 503, Subpart E
Type of fuel(s) combusted	No. 2 Fuel Oil
Brief description of equipment and pollution control devices	The Zimpro fluidized bed incinerator has a sludge design feed rate of 3.5 DT/hr. Sludge is fed to the bottom of the sand bed where air is injected at high pressure under the bed, fluidizing the sand and the sludge.

SEMI-ANNUAL REPORT CERTIFICATION

39.20
I have personally examined and am familiar with the information submitted in this document and all attachments and certify (based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information) that the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement(s) made in this document or its attachments may be punishable as a criminal offense.

Today's date: 7-22-14
Signature (Company Officer): [signature] John Batorski
Print (or type) name and title: John Batorski, Plant Manager

Michael Unterweger, CK Environmental, Preparer

CONNECTICUT DEP - Bureau of Air Management

CEM Forms Package, 08/19/96

CONTINUOUS EMISSION MONITORING PERFORMANCE REPORT

Company name	Borough of Naugatuck
Reporting period	01/01/2014 – 06/30/2014
Unit number	EMU 52
Unit operating time	4236.25 Hours

MONITOR INFORMATION

Pollutant / Constituent	CO @ 7% O2
Sampling location	Stack
Manufacturer / Model number	Thermo Environmental Model 48C
Instrument range(s)	0-300 ppm
Date of last audit	June 18, 2014
Audit type (e.g., CGA, RATA, RAA)	CGA
Audit results (pass / fail)	Pass

CMS DOWNTIME

REASONS	TIME (hours, or minutes for opacity)
Monitoring equipment malfunctions	0
Non-monitoring equipment malfunctions	6.55 hours
Calibrations	39.20 hours
Other known causes [1]	37.52 hours
Unknown causes	0
TOTAL CMS DOWNTIME	83.27 hours

QUARTERLY DATA AVAILABILITY RESULTS

Quarterly Data Availability (% of operating hours)(see below)	97.67%

Data Availability = <u>Unit Operating Time - Total CMS Downtime</u> x 100
Unit Operating Time

Where:

Unit Operating Hours = Total number of hours that the unit (or process) was operated at any level.

Total CMS Downtime = Total time during periods of operation (Unit Operating Time) in which invalid CEM data or no CEM data is collected due to any reason and results in the invalidation of a data block period.

---

[1] - includes all Quality Assurance activities other than calibration (i.e., preventative maintenance, audits which result in periods of invalid data, etc.) and "out-of-control" periods.

CONNECTICUT DEP - Bureau of Air Management

CEM Forms Package, 08/19/96

CONTINUOUS EMISSION MONITORING PERFORMANCE REPORT

Company name	Borough of Naugatuck
Reporting period	06/01/2014 – 06/30/2014
Unit number	EMU 52
Unit operating time	4236.25 hours

MONITOR INFORMATION

Pollutant / Constituent	Opacity
Sampling location	Stack
Manufacturer / Model number	Land / 4500 Mark II
Instrument range(s)	0-300 ppm
Date of last audit	June 18, 2014
Audit type (e.g., CGA, RATA, RAA)	Opacity
Audit results (pass / fail)	Pass

CMS DOWNTIME

REASONS	TIME (hours, or minutes for opacity)
Monitoring equipment malfunctions	.80 hours
Non-monitoring equipment malfunctions	6.67 hours
Calibrations	10.13 hours
Other known causes [1]	6.23 hours
Unknown causes	0
TOTAL CMS DOWNTIME	23.84 hours

QUARTERLY DATA AVAILABILITY RESULTS

Quarterly Data Availability (% of operating hours)(see below)	97.67%

$$\text{Data Availability} = \frac{\text{Unit Operating Time - Total CMS Downtime}}{\text{Unit Operating Time}} \times 100$$

Where:

Unit Operating Hours = Total number of hours that the unit (or process) was operated at any level.

Total CMS Downtime = Total time during periods of operation (Unit Operating Time) in which invalid CEM data or no CEM data is collected due to any reason and results in the invalidation of a data block period.

---

[1] *- includes all Quality Assurance activities other than calibration (i.e., preventative maintenance, audits which result in periods of invalid data, etc.) and "out-of-control" periods.*

CONNECTICUT DEP - Bureau of Air Management

CEM Forms Package, 08/19/96

SEMI-ANNUAL EXCESS EMISSION REPORT

Company Name	Borough of Naugatuck
Reporting period	01/01/2014 – 06/30/2014
Unit number	EMU 52
Unit operating time	4236.25 hours

POLLUTANT / EMISSION LIMITS

Pollutant / constituent monitored	CO @ 7% O2	
	Permit	**Federal**
Emission limit(s)	1.4 lbs/DT	
Averaging period(s): (indicate length of ave. period and whether period is a rolling or block ave.)		

CONVERSION FACTORS (if applicable)

Diluent used for correction (O_2 / CO_2)	Oxygen
CEM measurement basis (wet / dry)	Dry
Fuel factor(s) / types (F_d / F_c / F_w)	
Conversion equation(s)	CO @ 7% O2 = ((20.9-7)/(20.9-OXYGEN))*CO ppm

EXCESS EMISSIONS DATA SUMMARY

Reason for excess emissions	Duration (in minutes for opacity, in hours for other pollutants)	
	List exceedances of DEP permit or Regulations	List violations of Federal standards
Start-up / shut down	0 (gas) + 0 (oil)	
Control equipment malfunction	0 (gas) + 0 (oil)	
Process malfunction	0 (gas) + 0 (oil)	
Other known causes	0 (gas) + 0 (oil)	
Unknown causes	0 (gas) + 0 (oil)	
Total duration of excess emissions (hours or minutes)	0 (gas) + 0 (oil)	
Total duration (as % of total unit operating time)		

NOTIFICATION OF EXCEEDANCE

Source Name	Borough of Naugatuck
Date of Exceedence	No Exceedences
Pollutant / Constituent	
Unit No.	EMU 52

EXCEEDANCE DATA

Time of exceedance	Averaging period	Exceedance magnitude	Permit limit (with units)	Other applicable data

EXPLANATION OF EXCURSION(S)

Cause of excursions	Corrective action(s)	Preventative measure(s)

REPORT CERTIFICATION

DEP Contact Name	
Today's Date	7-22-14
Signature (Company Officer)	John Batorski [signature] John Batorski
Title	Plant Manager

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Air Management
Compliance Analysis & Coordination Unit
79 Elm Street
Hartford, Connecticut 06106-5127

Client #:
Sequence #:
Town #:
Premises #:
CADIS Tracking #:

Continuous Opacity Monitoring System Summary Report

Part 1: FACILITY INFORMATION

Corporation Name	Borough of Naugatuck		
Premises Name	Borough of Naugatuck POTW		
Corporation Address	229 Church Street, Naugatuck, CT 06770		
Premises Address	500 Cherry Street, Naugatuck, CT 06770		
Premises Contact Person	John Batorski		
Contact Phone/FAX/e-mail	(203) 723-1433	(203) 723-8539	
Reporting Period Dates	From: April 1, 2014		To: June 30, 2014
Were there any monitoring system failures during this reporting period? (Yes/ No - provide details in report).	YES		Attachments: COMS data (CD or diskette); COMS data (e-mailed); ☐ Copy of quarterly QA audits; ☐ Excepted activities records (if requested).
Are any excess emissions being reported during this reporting period? (Yes/No - provide details in report).	NO		

Part 2: CERTIFICATION

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement in the submitted information may be punishable as a criminal offense, under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute.

Preparer : CK Environmental

[signature]

Date: July 15, 2014

Plant Signature: [signature] 7-22-14

Print (or type) John Batorski

Name and Title: Plant Manager

PART 3: PERFORMANCE REPORT			
Facility Name:	Borough of Naugatuck POTW		
Combustion Unit(s) Descriptions	Fluidized Bed Incinerator		
UNIT AND MONITOR INFORMATION			
Unit Number or ID	EMU 52		
Unit Operating Hours	2127.68 hours		
Sampling Location	Fluidized Bed Incinerator Emissions Stack		
Manufacturer / Model No.	Land / 4500 Mark II	Serial No.	0095478
Date of Certification	January 12, 2005	Date of last QA audit	June 18, 2014
MONITOR DATA AVAILABILITY			
Monitoring equipment malfunctions	.78		
Non-monitoring equipment malfunctions	6.02		
Calibrations	4.95		
Other known causes[1]	2.59 Hours		
Unknown causes			
Total COM downtime	14.34 Hours		
Data Availability (calculated)	97.66%		

$$\% \text{ Data Availability} = \left(\frac{\text{Unit Operating Time} - \text{Monitoring Downtime}}{\text{Unit Operating Time}} \right) * 100$$

where:
Unit operating time = total hours of source operation at any level during the calendar quarter; and
Monitoring downtime = total hours of source operation at any level during the calendar quarter where either no CEM equipment data was collected or the CEM equipment data was invalid. Such periods include, but are not limited to, quality assurance activities such as calibration, preventative maintenance, and calibration drift exceedances or quality assurance audits that result in invalid data. [R.C.S.A. 22a-174-4(c)(5)]

1 - other known causes includes all quality assurance activities other than calibrations (e.g., preventative maintenance, quarterly audits) and out-of-controls periods.

PART 4: SECTION 4 COMS EMISSION SUMMARY REPORT

Facility Name:	Borough of Naugatuck POTW		

UNIT INFORMATION

Unit Number or ID	EMU 52	Unit Operating Hours (a)	2127.68
QUESTION 1 Did the period of exception from the visible emissions standards of 22a-174-18(b)(2) exceed 0.5% of the total operating hours during the calendar quarter?	❑ Yes xNo		
QUESTION 2 Were there any visible emissions in excess of 60% opacity (six-minute block average) during the calendar quarter?	❑ Yes xNo		
QUESTION 3 Were there any periods of visible emissions in excess of the visible emission standards of 22a-174-18(b)(2) not listed in the excepted activities in 22a-174-18(j)?	❑ Yes xNo		

OPACITY EXCESS EMISSIONS SUMMARY

Emission Limit / Averaging Period	(1) 20% / six-minute average	(2) 40% / one-minute average
Startup / Shutdown		
Malfunction: Control Equipment		
Malfunction: Operational / Process		
Commissioner-approved stack testing		
Intentional soot blowing		
Fuel Switching		
Sudden load change		
Other known causes		
Unknown causes		
Total duration of excess emissions		

Total unit operating minutes during the operating period. (a)	Total duration of excess emissions in minutes for both limits combined. (b) = ∑(1) + ∑(2)	Total number of overlapped minutes for both limits. (c)	Adjusted total of excess emissions in minutes for both limits combined. (d) = (b) - (c)	Total duration of excess emissions as a percentage of operating time. (e) = (100*d)/(a)
124800	0	0	0	0

VEOLIA
WATER

Sent via Certified R.R.R. Mail # 7009 2820 0004 1018 1061 on July 9, 2014

July 9, 2014

EPA New England, Region 1,
5 Post Office Square - Suite 100
Boston, MA 02109-3912

Subject: 2014 – H1 Semi-Annual EPA Summary Report for the Naugatuck, CT. POTW, Permit 109-0-59-TV

Dear Sir/Madam:

Enclosed please find the Title V Semi-Annual EPA Summary Report for the first half of calendar year 2014 – Title V permit number 109-0059-TV.

Please contact me if you have any questions regarding the enclosed report.

Sincerely,

John Batorski
Plant Manager
Veolia Water North America

cc: James R. Stewart PE, LS, Director of Public Works, Borough of Naugatuck
(Enclosure)

Veolia Water NA -Naugatuck
500 Cherry Street, Naugatuck, CT 06770
Tel 203-723-1433 / 203-723-8539
www.veoliawaterna.com

EPA SUMMARY REPORT

"OLLUTANT: O2-D
JRCE: FB Incinerator

DATE CREATED: 07/09/2014 @ 10:05
PERIOD: 01/01/14 - 06/30/14

COMPANY NAME: VEOLIA WATER NORTH AMERICA
LOCATION: Naugatuck, CT

EMISSION LIMITATION: 13.5 (%) LIMIT

MONITOR MANUF / MODEL #:Rosemount

LATEST CMS AUDIT: 11/04/2013

PROCESS UNIT(S) DESC: EMU 52

Total source operating time in reporting period: 4236.25hours

Emission Data Summary (1)		CMS Performance Summary (1)	
1. Duration of excess emissions in reporting period due to		1. CMS Downtime in reporting period due to	
a. Startup/shutdown	1.20	a. Monitor equipment malfunctions	1.00
b. Control equipment problems	0.00	b. Non-monitor equipment malfunctions	0.00
c. Process problems	0.00	c. Quality assurance calibration	8.00
d. Other known causes	0.00	d. Other known causes	61.25
e. Unknown causes	2.75	e. Unknown causes	0.00
2. Total duration of excess emissions	3.95	2. Total CMS Downtime	70.25
3. % of source operating time (2)	0.1%	3. % of source operating time (2)	1.7%

Notes:
(1) For opacity record all times in minutes. For gases record all times in hours.
(2) For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time both the summary report form and the excess emission report described in 60.7(c) shall be submitted.
On a separate page describe any changes since last quarter in CMS process or controls.
I certify that the information contained in this report is true accurate and complete.

Name: John Batorski

Signature: John Batorski

Title: Plant Manager

Date: 7-9-14

COMPANY NAME: VEOLIA WATER NORTH AMERICA
LOCATION: Naugatuck, CT
DATE CREATED: 07/09/2014 @ 10:05
PERIOD: 01/01/14 - 06/30/14
SOURCE: FB Incinerator

CMS DOWNTIME: O2-D

DATE	HOUR	DURATION	CODE	EXPLANATION
01/04/14	19	0.55	13	PROCESS DOWN
01/06/14	07	1.00	20	CORRECTIVE MAINTENANCE
01/06/14	08	1.00	20	CORRECTIVE MAINTENANCE
01/06/14	09	1.00	20	CORRECTIVE MAINTENANCE
01/06/14	10	1.00	20	CORRECTIVE MAINTENANCE
01/06/14	11	1.00	20	CORRECTIVE MAINTENANCE
01/06/14	12	1.00	20	CORRECTIVE MAINTENANCE
01/09/14	07	0.68	13	PROCESS DOWN
01/10/14	00	0.43	13	PROCESS DOWN
01/10/14	01	0.57	13	PROCESS DOWN
01/13/14	06	1.00	14	RECALIBRATION
01/17/14	06	1.00	20	CORRECTIVE MAINTENANCE
01/17/14	07	1.00	20	CORRECTIVE MAINTENANCE
01/17/14	08	1.00	20	CORRECTIVE MAINTENANCE
01/22/14	06	0.65	13	PROCESS DOWN
01/22/14	10	0.02	13	PROCESS DOWN
01/24/14	01	0.20	13	PROCESS DOWN
01/31/14	06	0.78	20	CORRECTIVE MAINTENANCE
01/31/14	07	1.00	20	CORRECTIVE MAINTENANCE
02/04/14	02	0.63	13	PROCESS DOWN
02/04/14	03	0.37	13	PROCESS DOWN
02/04/14	07	0.17	13	PROCESS DOWN
02/04/14	15	0.15	13	PROCESS DOWN
02/06/14	06	0.68	13	PROCESS DOWN
02/10/14	06	1.00	14	RECALIBRATION
02/14/14	06	1.00	14	RECALIBRATION
02/14/14	07	1.00	20	CORRECTIVE MAINTENANCE
02/14/14	08	0.42	13	PROCESS DOWN
02/14/14	09	0.32	13	PROCESS DOWN
02/14/14	10	0.47	13	PROCESS DOWN
02/14/14	13	0.57	13	PROCESS DOWN
02/14/14	14	0.72	13	PROCESS DOWN
02/20/14	21	0.70	13	PROCESS DOWN
02/26/14	23	0.25	13	PROCESS DOWN
02/28/14	06	1.00	14	RECALIBRATION
02/28/14	07	1.00	20	CORRECTIVE MAINTENANCE
02/28/14	08	1.00	20	CORRECTIVE MAINTENANCE
02/28/14	09	1.00	20	CORRECTIVE MAINTENANCE
02/28/14	10	1.00	20	CORRECTIVE MAINTENANCE
02/28/14	11	1.00	20	CORRECTIVE MAINTENANCE
02/28/14	12	1.00	20	CORRECTIVE MAINTENANCE
02/28/14	13	1.00	20	CORRECTIVE MAINTENANCE
03/03/14	04	0.30	13	PROCESS DOWN
03/04/14	11	0.05	13	PROCESS DOWN
03/06/14	00	0.72	13	PROCESS DOWN
03/14/14	07	1.00	20	CORRECTIVE MAINTENANCE
03/21/14	05	0.55	13	PROCESS DOWN
03/25/14	06	0.62	13	PROCESS DOWN
03/25/14	10	0.47	13	PROCESS DOWN
03/26/14	12	0.25	13	PROCESS DOWN
03/26/14	14	0.50	13	PROCESS DOWN
03/26/14	20	0.50	13	PROCESS DOWN
03/26/14	22	0.50	13	PROCESS DOWN
03/28/14	06	1.00	20	CORRECTIVE MAINTENANCE
03/28/14	07	1.00	20	CORRECTIVE MAINTENANCE
04/01/14	05	0.50	13	PROCESS DOWN
04/01/14	11	0.02	13	PROCESS DOWN
04/01/14	13	0.73	13	PROCESS DOWN
04/04/14	07	1.00	14	RECALIBRATION
04/08/14	07	1.00	20	CORRECTIVE MAINTENANCE

POLLUTANT: OVERALL DP
SOURCE: FB Incinerator

DATE CREATED: 07/09/2014 @ 06:59
PERIOD: 01/01/14 - 06/30/14

COMPANY NAME: VEOLIA WATER NORTH AMERICA
LOCATION: Naugatuck, CT

EMISSION LIMITATION: 8.0 ("WC) LIMIT

MONITOR MANUF / MODEL #: Rosemount

LATEST CMS AUDIT: 11/04/2013

PROCESS UNIT(S) DESC: EMU 52

Total source operating time in reporting period: 4236.25hours

Emission Data Summary (1)		CMS Performance Summary (1)	
1. Duration of excess emissions in reporting period due to		1. CMS Downtime in reporting period due to	
a. Startup/shutdown	5.65	a. Monitor equipment malfunctions	0.00
b. Control equipment problems	0.00	b. Non-monitor equipment malfunctions	0.00
c. Process problems	0.00	c. Quality assurance calibration	0.00
d. Other known causes	0.00	d. Other known causes	0.00
e. Unknown causes	6.10	e. Unknown causes	0.00
2. Total duration of excess emissions	11.75	2. Total CMS Downtime	0.00
3. % of source operating time (2)	0.3%	3. % of source operating time (2)	0.0%

Notes:
(1) For opacity record all times in minutes. For gases record all times in hours.
(2) For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time both the summary report form and the excess emission report described in 60.7(c) shall be submitted.
On a separate page describe any changes since last quarter in CMS process or controls.
I certify that the information contained in this report is true accurate and complete.

Name: John Batorski

Signature: John Batorski

Title: Plant Manager

Date: 7-9-14

COMPANY NAME: VEOLIA WATER NORTH AMERICA
'CATION: Naugatuck, CT
.TE CREATED: 07/09/2014 @ 06:59
PERIOD: 01/01/14 - 06/30/14
SOURCE: FB Incinerator

CMS DOWNTIME: OVERALL DP

DATE	HOUR	DURATION	CODE	EXPLANATION
				No Data Available

COMPANY NAME: VEOLIA WATER NORTH AMERICA
LOCATION: Naugatuck, CT
E CREATED: 07/09/2014 @ 06:59
IOD: 01/01/14 - 06/30/14
SOURCE: FB Incinerator

CMS DOWNTIME: OVERALL DP

DATE	HOUR	DURATION	CODE	EXPLANATION

No Data Available

COMPANY NAME: VEOLIA WATER NORTH AMERICA
)CATION: Naugatuck, CT
JURCE: FB Incinerator
DATE CREATED: 07/09/2014 @ 06:59
PERIOD: 01/01/14 - 06/30/14

EXCESS EMISSIDN PERIDDS: LOW OVERALL DP >15-MIN ("WC)

DATE	START TIME	END TIME	#MIN LONG	AVG VALUE	HI/LO VALUE	SET-POINT	DIFF-ERENCE	CODE	EXPLANATION	CORRECTI' ACTION
02/04/14	01:26	02:37	0072	0.0	0.0	8.0	8	08	NORMAL OPERATION	CORRECTI'
02/07/14	01:52	02:16	0025	0.6	0.1	8.0	7.4	08	NORMAL OPERATION	CORRECTI'
02/07/14	02:18	02:34	0017	3.2	0.8	8.0	4.8	08	NORMAL OPERATION	CORRECTI'
02/21/14	02:39	02:56	0018	2.2	0.1	8.0	5.8	08	NORMAL OPERATION	CORRECTI'
02/26/14	22:43	23:02	0020	0.1	0.1	8.0	7.9	04	SHUTDOWN	CORRECTI'
02/27/14	11:34	11:56	0023	0.9	0.3	8.0	7.1	08	NORMAL OPERATION	CORRECTI'
03/03/14	03:59	04:17	0019	0.1	0.1	8.0	7.9	04	SHUTDOWN	CORRECTI'
03/07/14	03:26	03:44	0019	0.1	0.0	8.0	7.9	04	SHUTDOWN	CORRECTI'
03/26/14	10:38	10:58	0021	1.4	0.8	8.0	6.6	08	NORMAL OPERATION	CORRECTI'
04/12/14	15:42	16:24	0043	0.0	0.0	8.0	8	08	NORMAL OPERATION	CORRECTI'
04/13/14	17:04	17:22	0019	1.4	0.1	8.0	6.6	08	NORMAL OPERATION	CORRECTI'
04/15/14	06:52	07:09	0018	2.5	0.5	8.0	5.5	08	NORMAL OPERATION	CORRECTI'
04/18/14	06:47	07:09	0023	0.1	0.1	8.0	7.9	04	SHUTDOWN	CORRECTI'
04/30/14	12:56	13:23	0028	0.7	0.1	8.0	7.3	08	NORMAL OPERATION	CORRECTI'
05/02/14	07:33	07:50	0018	0.8	0.2	8.0	7.2	08	NORMAL OPERATION	CORRECTI'
05/17/14	00:50	02:04	0075	0.1	0.1	8.0	7.9	04	SHUTDOWN	CORRECTI'
05/20/14	06:23	06:49	0027	0.0	0.0	8.0	8	04	SHUTDOWN	CORRECTI'
05/24/14	06:29	06:46	0018	1.2	0.1	8.0	6.8	08	NORMAL OPERATION	CORRECTI'
05/25/14	06:03	06:19	0017	0.2	0.2	8.0	7.8	04	SHUTDOWN	CORRECTI'
05/29/14	08:19	08:34	0016	0.1	0.1	8.0	7.9	04	SHUTDOWN	CORRECTI'
06/13/14	01:37	01:53	0017	0.2	0.1	8.0	7.8	04	SHUTDOWN	CORRECTI'
06/13/14	16:54	17:28	0035	0.0	0.0	8.0	8	04	SHUTDOWN	CORRECTI'
06/21/14	20:07	20:28	0022	0.1	0.1	8.0	7.9	08	NORMAL OPERATION	CORRECTI'
06/22/14	05:53	07:03	0071	1.3	0.5	8.0	6.7	04	SHUTDOWN	CORRECTI'
06/27/14	06:06	06:29	0024	0.0	0.0	8.0	8	08	NORMAL OPERATION	CORRECTI'

COMPANY NAME: VEOLIA WATER NORTH AMERICA
LOCATION: Naugatuck, CT
DATE CREATED: 07/09/2014 @ 10:05
PERIOD: 01/01/14 - 06/30/14
SOURCE: FB Incinerator

CMS DOWNTIME: O2-D

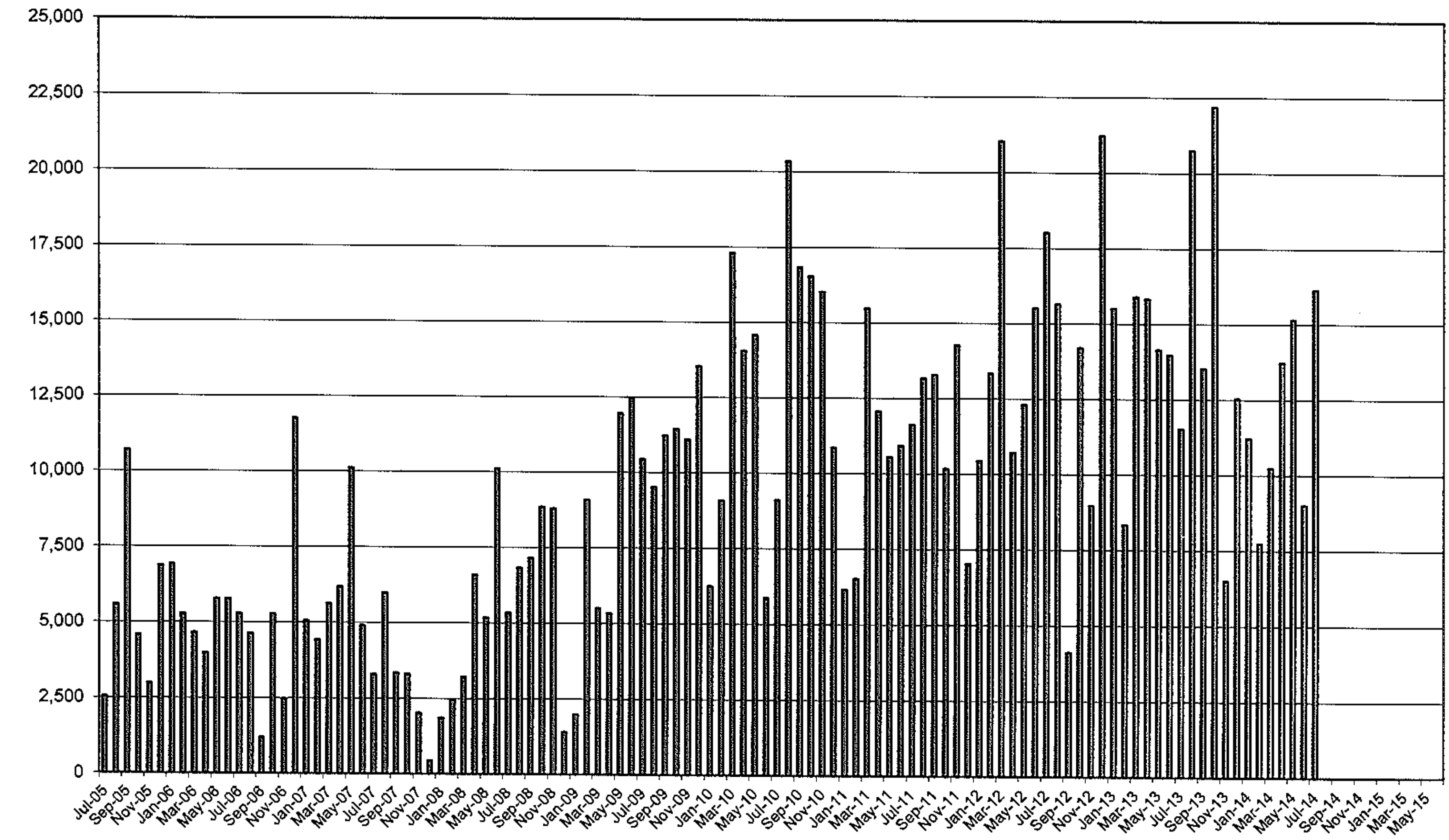
DATE	HOUR	DURATION	CODE	EXPLANATION
04/08/14	08	1.00	20	CORRECTIVE MAINTENANCE
04/08/14	09	0.32	13	PROCESS DOWN
04/08/14	11	0.85	20	CORRECTIVE MAINTENANCE
04/09/14	07	0.58	13	PROCESS DOWN
04/15/14	06	1.00	14	RECALIBRATION
04/29/14	08	0.67	13	PROCESS DOWN
04/30/14	01	0.63	13	PROCESS DOWN
05/02/14	08	1.00	20	CORRECTIVE MAINTENANCE
05/10/14	22	0.07	13	PROCESS DOWN
05/11/14	00	0.47	13	PROCESS DOWN
05/15/14	19	0.65	13	PROCESS DOWN
05/16/14	07	1.00	20	CORRECTIVE MAINTENANCE
05/16/14	08	0.65	20	CORRECTIVE MAINTENANCE
05/16/14	09	0.78	20	CORRECTIVE MAINTENANCE
05/17/14	05	1.00	14	RECALIBRATION
05/17/14	06	1.00	14	RECALIBRATION
05/17/14	07	1.00	20	CORRECTIVE MAINTENANCE
05/17/14	08	1.00	20	CORRECTIVE MAINTENANCE
05/17/14	09	1.00	12	EXCESS DRIFT ANCILLARY MONITOR
05/17/14	10	1.00	20	CORRECTIVE MAINTENANCE
05/20/14	06	0.83	13	PROCESS DOWN
05/20/14	11	0.17	13	PROCESS DOWN
05/25/14	06	0.75	13	PROCESS DOWN
05/29/14	08	0.58	13	PROCESS DOWN
05/30/14	06	1.00	20	CORRECTIVE MAINTENANCE
06/01/14	07	0.63	13	PROCESS DOWN
06/02/14	20	0.12	13	PROCESS DOWN
06/03/14	05	0.38	13	PROCESS DOWN
06/04/14	20	0.53	13	PROCESS DOWN
06/05/14	11	0.58	13	PROCESS DOWN
06/13/14	09	1.00	20	CORRECTIVE MAINTENANCE
06/13/14	10	1.00	20	CORRECTIVE MAINTENANCE
06/17/14	21	0.47	13	PROCESS DOWN
06/17/14	22	0.77	13	PROCESS DOWN
06/18/14	08	1.00	20	CORRECTIVE MAINTENANCE
06/21/14	20	0.48	13	PROCESS DOWN
06/21/14	23	0.52	13	PROCESS DOWN
06/22/14	07	0.07	13	PROCESS DOWN
06/22/14	08	0.68	13	PROCESS DOWN
06/25/14	18	0.50	13	PROCESS DOWN
06/27/14	06	0.50	13	PROCESS DOWN

COMPANY NAME: VEOLIA WATER NORTH AMERICA
'CATION: Naugatuck, CT
,URCE: FB Incinerator
DATE CREATED: 07/09/2014 @ 10:05
PERIOD: 01/01/14 - 06/30/14

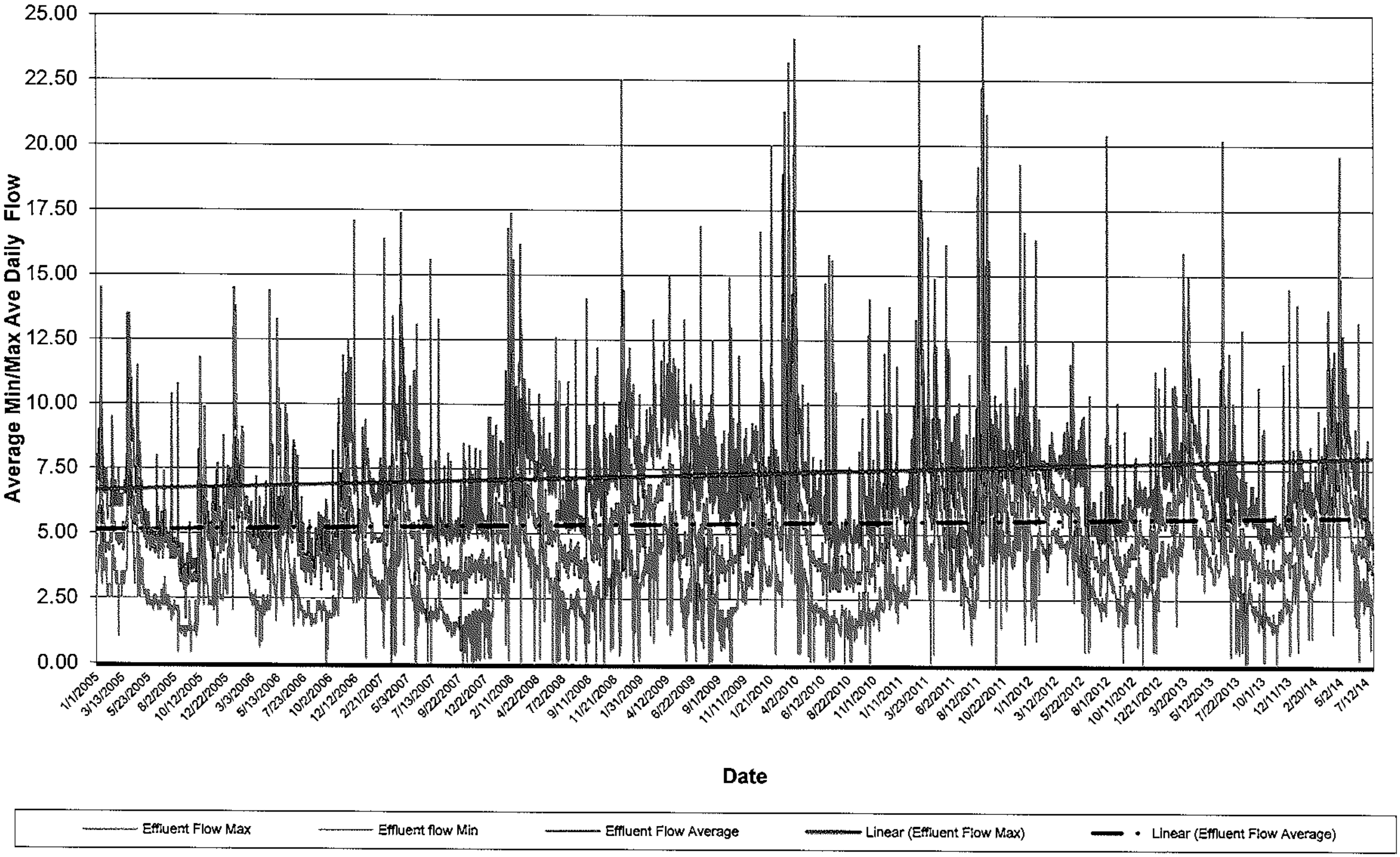
EXCESS EMISSION PERIODS: HI O2-D >60-MIN (%)

DATE	START TIME	END TIME	#MIN LONG	AVG VALUE	HI/LO VALUE	SET-POINT	DIFF-ERENCE	CODE	EXPLANATION	CORRECTI' ACTION
02/04/14	01:28	02:37	0070	20.3	20.3	13.5	6.8	08	NORMAL OPERATION	CORRECTI'
05/17/14	00:53	02:04	0072	20.5	20.5	13.5	7	04	SHUTDOWN	CORRECTI'
05/28/14	06:39	08:13	0095	14.5	15.0	13.5	1	08	NORMAL OPERATION	CORRECTI'

Borough of Naugatuck
Total Feet of Sewers Cleaned
July 2005 to Present



Naugatuck WPCF Daily Min/Max/Total Flow Data
2005 to Present



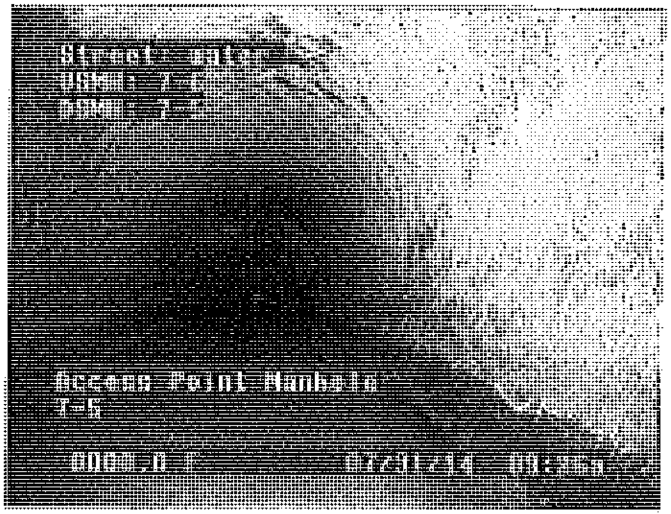
MCVAC ENVIRONMENTAL SERVICES, INC.
481 GRAND AVE
NEW HAVEN CT 06513
(203) 498-1427

Page 1

Image Report 4/Page

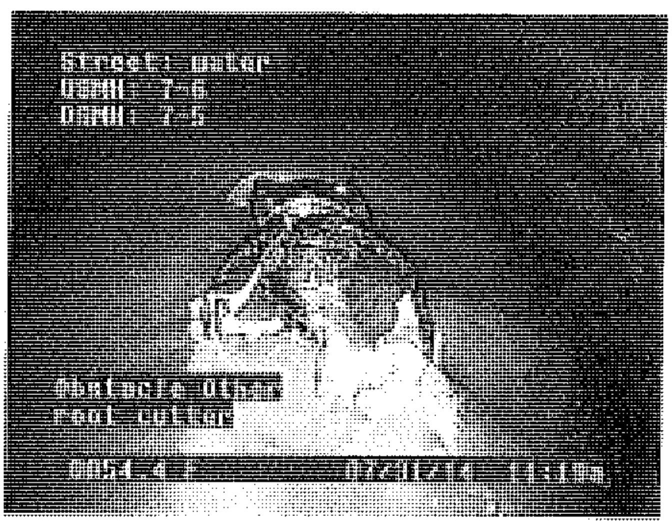
Pipe Segment Refere...	City	Street	Material		Location C...	Sewer Use
	naugatuck	water	Concrete Pipe (non-...		Railway	Sanitary
Upstream MH	Total Length	Year Laid	Shape		Location Details	
7-6			Circular			
DS Manhole	Length surveyed	Year Renewed	Height	Width	Pipe Joint...	
7-5	317.5		20	20		

CCTV traveling down sewer north of Naugatuck train station,



Distance: 0.0 ft. **Grade:** 0
Condition: Access Point Manhole
Remarks: 7-5

Distance: 0.0 ft. **Grade:** 0
Condition: Water Level
Remarks: N/A



Distance: 54.4 ft. **Grade:** 2
Condition: Obstacle Other
Remarks: root cutter

found in sewer - it broke off trying to remove blockage (~$3400.00)

Distance: 88.1 ft. **Grade:** 5
Condition: Obstacle Rocks
Remarks: large rock

found in sewer - one of many that were removed

MCVAC ENVIRONMENTAL SERVICES, INC.
481 GRAND AVE
NEW HAVEN CT 06513
(203) 498-1427

Page 2

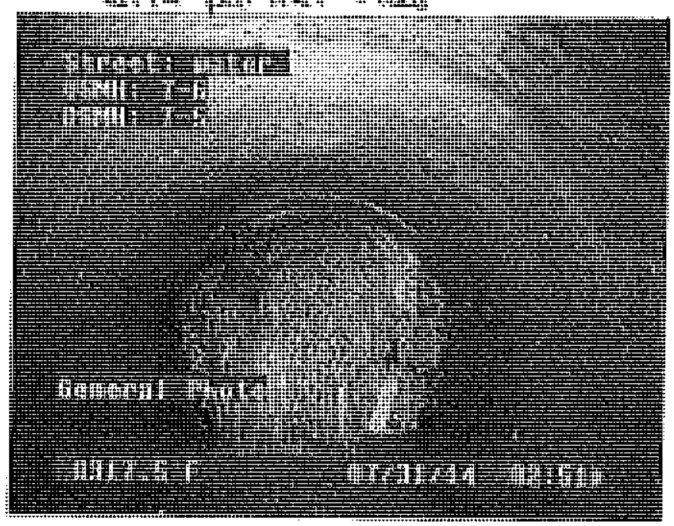
Image Report 4/Page

Pipe Segment Refere...	City	Street	Material		Location C...	Sewer Use
	naugatuck	water	Concrete Pipe (non-...		Railway	Sanitary
Upstream MH	Total Length	Year Laid	Shape		Location Details	
7-6			Circular			
DS Manhole	Length surveyed	Year Renewed	Height	Width	Pipe Joint...	
7-5	317.5		20	20		

Shows blockage with partial flow

Another picture of blockage with partial flow

Distance:	317.2 ft.	**Grade:**	0
Condition:	General Photo		
Remarks:	N/A		



Distance:	317.5 ft.	**Grade:**	0
Condition:	General Photo		
Remarks:	N/A		

Distance:	317.5 ft.	**Grade:**	0
Condition:	Survey Abandoned		
Remarks:	unknown blockage		

Difficult to determine what the blockage is – 3 different jetting nozzles were used. Root cutter broke trying to cut through – It turned out to be rocks

Collection System Blockage 7-29-14

Normal flow in sewer – it was backed up.

Piece of asphalt removed form sewer

Rock removed from the sewer

Rocks/wood removed from sewer(note shoe for scale)

some of the rocks that were manually removed from the sewer