



November 9, 2015

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

Re: October 2015 Monthly Operating Report

Dear Mr. Merancy:

Enclosed please find Veolia Water's Monthly Operating Report for the month of October 2015.

Please contact me at the address below if you have any questions about this report.

Sincerely,
Veolia Water North America – Northeast, LLC

A handwritten signature in black ink that reads "John Batorski". The signature is written in a cursive style.

John Batorski
Plant Manager
Veolia Water Naugatuck

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

(enclosure)

**Borough of Naugatuck
Monthly WPCF Report Oct 2015**

This report summarizes the activities at the Borough POTW for Oct 2015:

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.	-	269
Effluent Avg.	30	5
Removal Efficiency	85%	98%
Plant Process Data*	Limit	Actual
Carbonaceous BOD (mg/l)		
Influent Avg.	-	198
Eff Avg(Nov 1 – May 31)	25	
Eff Avg(June – Oct 31)	15	4
Removal Efficiency	85%	98%

Discharge Permit Exceedance: None

	Naugatuck	Middlebury	Oxford	OTR
Oct Flow Avg. (MGD)	3.2	0.358	0.042	N/A
Sludge Liquid Total (MGal)				5566.8
Sludge Cake Total (Wet Tons)				4128.0
Septage Total (MGal)	64,255	38,000	267,700	747,700
Discharge Permit Exceedance: None				

Safety Incidents and Odor Complaints

	Month	YTD
Recordable Accidents	0	0
Lost Time Accidents	0	0
Odor Complaints	0	7
Unconfirmed Odor Complaints	1	1

1. Compliance & Regulatory Issues

- a. Jim Stewart requested a quote for Bio P and chemical P removal. The proposal was sent to him in late Oct.

2. Odor Complaints

- a. There were no odor complaints in October.

3. Personnel

- a. CBA contractual increases effective 11/1/15 have been processed.

4. Health & Safety

- a. The safety meeting was held on October 12 and 13. Fall protection was the topic.

5. Operational Information

- a. The Piller blowers were experiencing fault codes (differential pressure sensors). A tech was onsite Oct 26 to resolve the issue.
- b. The emergency thermal fluid dump valves were tested on Oct 19, 2015 under a variety of scenarios (normal operations, failed network/SCADA switches, and emergency power. The system is fully operational under all scenarios.

Borough of Naugatuck
Monthly WPCF Report October 2015

- c. A shutdown of the cake receiving equipment was scheduled for Oct 24 through Nov 1. The job was completed Oct 29 by 2 PM ahead of schedule and cake deliveries resumed. Liquid sludge processing continued during the cake conveying system repairs.
- d. An emulsion polymer trial for the centrifuges has started.
- e. The rake mechanism in the #2 sludge storage tank was repaired, the 36 inch foul airline in storage tank #1 was repaired and grit/rags were removed from both tanks.

6. Collections

- a. The emergency generator for the Maple and May pump station failed and was economically repaired. The generator is back in service.

7. Maintenance

- a. The TDU thermal fluid pump which operates at 485 F was replaced with a spare.
- b. The following conveyors were changed: CCC1, CCC2, HFC1, HFC2, the 53 Ft conveyor, and 2 cake silo live bottom conveyors.
- c. The main potable water backflow preventer was replaced on Sunday, Oct 25, 2015.
- d. The internal recycle pump failed for aeration tank #3 and was replaced.
- e. IC-1 horizontal conveyor (transfers sludge cake to the silo) failed and was repaired.
- f. The 400 HP VFD for the ID fan failed. Parts have been ordered for that drive.

8. Capital Projects

- a. No report.

32	Gen Dalton Dr 13-102 to 13-140	20-Oct	275
33	Gen Dalton Dr 13-103 to 13-102	20-Oct	150
34	Woodland St 10-132 to 10-131	20-Oct	160
35	Woodland St 10-131 to 10-130	20-Oct	300
36	Woodland St 10-133 to 10-130	20-Oct	245
37	Cherry St 12-19 to 9-73	20-Oct	365
38	Manners Ave 9-39 to 9-82A	21-Oct	695
39	Lewis St 9-38 to 9-39	21-Oct	185
40	Lewis St 9-40 to 9-39	21-Oct	300
41	Nixon Ave 9-38 to 9-77	21-Oct	535
42	Pleasant Ave 12-13 to 12-14	21-Oct	440
43	Elm St 10-209 to 10-211	21-Oct	380
44	Elm St syphon 9-31A to 9-31B	21-Oct	65
45	Davin Dr 13-46 to 13-45	23-Oct	125
46	Davin Dr 13-45 downstream	23-Oct	200
47	Davin Dr 13-43A to 13-44	23-Oct	200
48	Locust St 7-126 to 7-128	26-Oct	400
49	Locust St easement 7-131 to 7-128	26-Oct	330
50	Locust St 7-128 to 7-129	26-Oct	285
51	Sheffield Ln 7-137 to 7-128	26-Oct	320
52	Sheffield Ln 7-137 to 7-144	26-Oct	330
53	Fairview Ln 7-138 to 7-137	26-Oct	485
54	Prospect St Syphon 7-99 to 7-140	26-Oct	400
55	Endogen St 7-256 to 7-254	27-Oct	400
56	Endogen St 7-254 to 7-253	27-Oct	125
57	Eagle St 7-255 to end	27-Oct	125
58	Stanley St 7-266 to 7-271	27-Oct	230
59	Stanley St 7-272 to 7-271	27-Oct	270
60	Golden Hill St 3-49 to 7-265	27-Oct	400
61	Golden Hill St 7-265 to 7-274	27-Oct	375
62	Woodbine St 7-266 to 7-265	27-Oct	190
63	John St 7-221 to 7-222A	27-Oct	550
64	Morning Mist Rd 11-105 to 11-91	28-Oct	200
65	Morning Mist Rd 11-91 to 11-75	28-Oct	745
66	Morning Mist Rd 11-76 to 11-77	28-Oct	300
67	Morning Mist Rd 11-88 to 11-75	28-Oct	120
68	Tawny Thrush Rd 14-7 to 14-49	29-Oct	600
69	Mulberry Rd 11-16 to 11-17	29-Oct	365
70	Auburn St 10-163 to 10-164	29-Oct	400
71	Bingham St 7-232 to 7-234	29-Oct	315
72	Pheonix Ave no m/h # to no m/h #	29-Oct	400
73	Albion St	29-Oct	245
74	Albion St	29-Oct	350
75	Casper Ct 6-126A to 6-127	30-Oct	510
76	Craig Cir 6-126A to end	30-Oct	320
77	Harlow Ct 5-111 to 5-113	30-Oct	335
78	Harlow Ct 5-96 to 5-111	30-Oct	310
79	Field St 5-95 to 5-96	30-Oct	200
80			
81			
82			

This Month	Year to Date
25915 Feet	63690 Feet

Root Treatment			
	Street Name	Type	Footage
1			
2			
3			

This Month	Year to Date
0 Feet	6302 Feet

Pump Station Services				
	Work performed	Location	Date	Notes
1	Weekly Pump Station checks	All 5	10/2/2015	Floats cleaned, gen exercised, high wetwell test
2	Weekly Pump Station checks	All 5	12-Oct	Floats cleaned
3	Weekly Pump Station checks	All 5	10/19/2015	Floats cleaned
4	Weekly Pump Station checks	All 5	10/23/2015	Floats cleaned, gen exercised, high wetwell test
5	Weekly Pump Station checks	All 5	10/30/2015	Floats cleaned
6				
7				

PLANT IN CHARGE		STATION		
		Phase 1	Phase 2	Phase 3
MADISON	End Reading	001.00	001.00	001.00
	Start Reading	001.00	001.00	001.00
	Use Date	001.00	001.00	001.00

PLANT IN CHARGE		STATION		
		Phase 1	Phase 2	Phase 3
MADISON	End Reading	001.00	001.00	001.00
	Start Reading	001.00	001.00	001.00
	Use Date	001.00	001.00	001.00

PLANT IN CHARGE		STATION		
		Phase 1	Phase 2	Phase 3
MADISON	End Reading	001.00	001.00	001.00
	Start Reading	001.00	001.00	001.00
	Use Date	001.00	001.00	001.00

PLANT IN CHARGE		STATION		
		Phase 1	Phase 2	Phase 3
MADISON	End Reading	001.00	001.00	001.00
	Start Reading	001.00	001.00	001.00
	Use Date	001.00	001.00	001.00

PLANT IN CHARGE		STATION		
		Phase 1	Phase 2	Phase 3
MADISON	End Reading	001.00	001.00	001.00
	Start Reading	001.00	001.00	001.00
	Use Date	001.00	001.00	001.00

Use Track Information

From end of the plant working		
From Month	VTR	Reserve
12	12	12

From Month	From Plant	From Month	From Plant
001.00	001.00	001.00	001.00
001.00	001.00	001.00	001.00
001.00	001.00	001.00	001.00
001.00	001.00	001.00	001.00

Month Start	Month End	Month Start	Month End
001.00	001.00	001.00	001.00
001.00	001.00	001.00	001.00
Total	001.00	Total	001.00

From Month	From Plant	From Month	From Plant
001.00	001.00	001.00	001.00
001.00	001.00	001.00	001.00
001.00	001.00	001.00	001.00
001.00	001.00	001.00	001.00

Other notes and notes

- 1. 001.00 - Checked in accounts and shown back 001.00 from books.
- 2. 001.00 - Checked in accounts and shown back 001.00 from books.
- 3. 001.00 - Checked in accounts and shown back 001.00 from books.
- 4. 001.00 - Checked in accounts and shown back 001.00 from books.
- 5. 001.00 - Checked in accounts and shown back 001.00 from books.
- 6. 001.00 - Checked in accounts and shown back 001.00 from books.
- 7. 001.00 - Checked in accounts and shown back 001.00 from books.
- 8. 001.00 - Checked in accounts and shown back 001.00 from books.
- 9. 001.00 - Checked in accounts and shown back 001.00 from books.
- 10. 001.00 - Checked in accounts and shown back 001.00 from books.
- 11. 001.00 - Checked in accounts and shown back 001.00 from books.
- 12. 001.00 - Checked in accounts and shown back 001.00 from books.
- 13. 001.00 - Checked in accounts and shown back 001.00 from books.
- 14. 001.00 - Checked in accounts and shown back 001.00 from books.
- 15. 001.00 - Checked in accounts and shown back 001.00 from books.
- 16. 001.00 - Checked in accounts and shown back 001.00 from books.
- 17. 001.00 - Checked in accounts and shown back 001.00 from books.
- 18. 001.00 - Checked in accounts and shown back 001.00 from books.
- 19. 001.00 - Checked in accounts and shown back 001.00 from books.
- 20. 001.00 - Checked in accounts and shown back 001.00 from books.

MINI-INTEGRATED WATER PURIFICATION
 001.00 - Checked in accounts and shown back 001.00 from books.



Sent via certified mail #7014 1200 0002 2236 9876 on November 10, 2015

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

November 10, 2015

Re: October 2015 Reports for Naugatuck, CT WPCF, NPDES # CT0100641

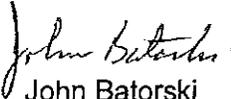
Dear Sir/Madam:

Enclosed please find the *Monthly Operating Report* for October 2015. The *Nutrients Analysis Report for Compliance with General Permit for Nitrogen Discharges* and the *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 October 2015.

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

Sincerely,
Veolia Water North America – Northeast, LLC


John Batorski
Plant Manager

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

Page 3 of 4 of MOR for Naugatuck WPCF

Units	Freq.	Total N		Total N	Low D.O.		pH		Total P		Total P	Ortho P		Temp.		Arsenic		Copper	Nickel		Selenium	
		Inf.	Final Eff.		Eff.	Final Eff.	Inf.	Final Eff.	Inf.	Final Eff.		Prim Eff.	Final Eff.	Inf.	Final Eff.	Inf.	Final Eff.		Inf.	Final Eff.	Inf.	Final Eff.
		mg/l	lb/d	lb/d	mg/l	mg/l	S.U.	mg/l	mg/l	lb/d	lb/d	mg/l	mg/l	F	mg/l	mg/l	mg/l	mg/l	kg/day	kg/day	kg/day	kg/day
		Monthly	Mthly	Apr - Oct	Nov-March	Nov-March	Work Day	Nov-March	Apr - Oct	Apr - Oct	Nov-March	Nov-March	Work day	Weekly	Mthly	Weekly	Mthly	Weekly	Weekly	Weekly	Weekly	Weekly
			4/wk day	Oct	(Monthly)	(Monthly)		(Monthly)	2/week	2/week	(Monthly)	(Monthly)										
					(April-October)	(April-October)		(April-October)	2/week	2/week	(April - October)	(April - October)										
1			7.2	7.2	6.8							70	84									
2			7.4	7.4	6.8							71	82									
3																						
4																						
5	53.2	38.5	4.5	105	7.3	7.5	6.8	6.50	12.40	289	2.52	12.10	69	81	0.0060	0.009	0.023	0.13	0.25	0.05	0.04	
6	40.7		4.5	113	7.1	7.4	6.7		11.80	293		11.90	69	83								
7	39.9		4.8	184	7.3	7.2	6.7					69	80									
8			7.4	7.1	6.8							70	82									
9			7.1	7.5	6.9							72	82									
10																						
11																						
12	43.7		3.9	104	6.9	7.2	6.9		11.10	295		11.00	67	83	<0.0040	0.007		0.13	0.20	0.06	0.07	
13	45.9		4.0	100	7.0	7.2	6.9		11.90	296		11.10	69	82								
14	49.6		4.3	100	7.3	7.3	7.0						68	81								
15			7.3	7.3	6.9								68	80								
16			7.2	7.5	6.9								69	81								
17																						
18																						
19	46.3		4.6	104	7.5	7.7	7.1		11.50	262		10.60	67	80	<0.0040	0.008		0.06	0.20	0.05	0.05	
20	39.1		4.7	129	7.3	7.6	7.1		10.80	299		10.50	67	79								
21	46.8		4.9	123	7.6	7.6	7.0						78	79								
22			7.0	7.4	6.8								67	82								
23			7.3	7.5	7.0								68	80								
24																						
25																						
26	38.2		3.9	101	7.7	7.5	6.9		11.40	295		10.70	67	76	<0.0040	0.005		0.10	0.25	0.06	0.03	
27	53.6		4.0	110	7.7	7.4	6.9		11.70	322		11.50	66	74								
28	77.9		4.2	137	7.8	7.5	6.9						66	74								
29			7.3	7.4	6.8								66	74								
30			7.9	7.4	6.9								68	71								
31																						
Total																						
Ave.	47.9	38.5	4.4	117	7.3	7.4	6.9	6.50	11.58	294	2.52	11.18	68.7	79.6	0.0045	0.0073	0.023	0.11	0.23	0.06	0.05	

Page 4 of 4 of MOR for Naugatuck WPCF

Sudge Disposal Location:

Please return forms to:

DEEP - Water Bureau

ATTN: Municipal Wastewater Monitoring Coordinator

Units	Freq.	Zinc		Alkalinity	
		Inf.	Eff.	Pri. Eff.	Eff.
		kg/day		mg/l	
	Weekly			Monthly	
1				150	40
2				110	30
3					
4					
5		5.81	1.342	120	40
6				120	30
7				110	40
8				150	60
9				140	50
10					
11					
12		2.96	0.649	160	40
13				130	50
14				140	50
15				150	50
16				180	50
17					
18					
19		2.51	0.697	100	50
20				130	50
21				140	50
22				150	50
23				140	50
24					
25					
26		1.27	0.631	160	50
27				160	70
28				140	70
29				120	60
30				90	50
31					
Total					
Ave.		3.14	0.830	136	49

Municipal Facilities
79 Elm Street

Statement of Acknowledgment

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: 11-10-15

October 2015 Sludge Data

Source	Gallons	Wet Tons
Americas Styrenics	4,700	
Beacon Falls	182,000	
Bedford Hills	26,000	
Bristol		460.31
Casella - Chicopee Cake		535.34
Casella - Glen Cove		256.55
Casella - Huntington		333.97
Casella - Poughkeepsie		289.31
Casella - Suffolk		1292.99
Casella - Walden		35.73
Casella - Yorktown		51.43
Danbury Cake		279.72
Heritage Village Water	32,500	
Litchfield	52,000	
Lynwood Place	32,500	
Mahopac Sludge & Septic	623,000	
New Hartford	26,000	
New Rochelle		353.37
North Canaan	45,500	
North Haven	110,500	
Pawling	130,000	
Pepsi	13,000	
Plymouth	58,500	
Poughkeepsie	474,500	
Redding	6,500	
Rhinebeck WPCF		14.32
Salisbury	39,000	
Seymour Cake		127.21
Southbury	110,500	
Southington	877,500	
Stratford	832,000	
Synagro - Ansonia	13,000	
Synagro - Branford	13,000	
Synagro - Bridgeport East	227,500	
Synagro - Bridgeport West	481,000	
Synagro - East Windsor	13,000	
Synagro - Groton	6,500	
Synagro - Mystic	6,500	
Synagro - New Canaan	13,000	
Synagro - Newtown	6,500	
Synagro - Norwalk	156,000	48.41
Synagro - Orange County		28.66
Synagro - Ridgefield	19,500	
Synagro - Stamford		20.71
Thomaston Treatment	65,000	
Torrington	409,500	
Vogler Bros.	19,500	
Westport	116,107	
Windham	325,000	
Totals	5,566,807	4128.03

DMR Copy of Record

Permit: CT10100641
Permit #: Yes
Major: NAUGATUCK WPCF
 500 CHERRY STREET
 NAUGATUCK, CT 06770
Facility Location: NAUGATUCK, BOROUGH OF
 500 CHERRY STREET
 NAUGATUCK, CT 06770
Permitted Features: 001 External Outfall
Report Dates & Status: 11/15/15
Monitoring Period: From 10/01/15 to 10/31/15
Considerations for Form Completion: No Data Indicator (NODI)
DMR Due Date: 11/15/15
Status: NoDMR Validated

Principal Executive Officer: John Batorfeld
First Name: John
Last Name: Batorfeld
Title: Plant Manager
Telephone: 203-723-1433

Code	Parameter	Units	Monitoring Location	Season #	Percent NODI	Quantity of Loading		Quality or Concentration		Units	# of Sls	Frequency of Analysis	Sample Type
						Value 1	Qualifier	Value 2	Qualifier				
0056	Flow rate		1 - Effluent Gross	0	-	3.2	Req Mon MO AVG	=	8.7	Req Mon DAILY MX		0689 - Continuous	TM - TOTALZ
0060	Oxygen, dissolved [DO]		1 - Effluent Gross	0	-	>=	S INST MIN		6.0	S INST MIN		0690 - Continuous	TM - TOTALZ
0030	BOD, 5-day, 20 deg. C		T - See Comments	0	-							0101 - Daily	08 - GRAB
0040	pH		1 - Effluent Gross	0	-	=	6.7		6.7	0 INST MIN		0101 - Daily	08 - GRAB
0050	Solids, total suspended		1 - Effluent Gross	0	-							0307 - Three Per Week	CP - COMPOS
0050	Solids, total suspended		1 - Effluent Gross	0	-							0307 - Three Per Week	CP - COMPOS
0050	Solids, total suspended		1 - Effluent Gross	0	-							0307 - Three Per Week	CP - COMPOS
0010	Nitrogen, ammonia total [as N]		T - See Comments	0	-							0190 - Quarterly	CP - COMPOS
0010	Nitrogen, ammonia total [as N]		T - See Comments	0	-							0190 - Quarterly	CP - COMPOS
0015	Nitrogen, nitrite total [as N]		T - See Comments	0	-							0190 - Quarterly	CP - COMPOS
0020	Nitrogen, nitrate total [as N]		T - See Comments	0	-							0190 - Quarterly	CP - COMPOS

Sent electronic copy 4-10-15 J. Batorfeld



Sent Certified R.R.R. mail #7014 1200 0002 2236 9869 on October 30, 2015

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

October 30, 2015

Re: Aquatic Toxicity Monitoring Report, 4th Quarter 2015

To Whom It May Concern:

Enclosed please find the Naugatuck fourth quarter Aquatic Toxicity Monitoring Report for 2015.

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

Sincerely,
Veolia Water North America – Northeast, LLC


John Batorski
Plant Manager

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

Aquatic Toxicity Monitoring Report (ATMR) Instruction Form -Municipal

Client Name/Project: Phoenix-Vedlia Naugatuck Test Date: 10/7/15

Sample ID: BK03/25



New England Bioassay
a Division of GZA GeoEnvironmental, Inc.

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

Your results were as follows:

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
ADDRESS: 587 East Middle Turnpike
 P.O. Box 370
 Manchester, CT 06040

D.pulex TEST ID #: 15-1529a
P.promelas TEST ID #: 15-1529b
 COC #: C35-3613
 PROJECT #: 05.0044745.00

SAMPLE: Naugatuck WPCF

RECEIVED ON: 10/7/15

LABORATORY CONTROL WATER		
NEB Lot #:	A35-S011	SRCF
Hardness:	46	mg/L as CaCO ₃
Alkalinity:	30	mg/L as CaCO ₃

SAMPLE COLLECTION INFORMATION	
DATE(S):	10/5 TO 10/6/15
TIME(S):	1:40am TO 2:35am

INITIAL CHEMISTRY DATA			TECHNICIAN INITIALS:		
Color	Light yellow	Temp. (°C)	5.4	Hardness (mg/L)	102
Cond. (µmhos/cm)	908	D.O.(mg/L)	9.5	Alkalinity (mg/L)	30
Salinity (ppt)	<1	pH (su)	6.8	TRC (mg/L)	0.026

INVERTEBRATE

Test Set Up Technician Initials: KO
 Test Type: Screen
 Test Species: *Daphnia pulex*
 Source: New England Bioassay
 NEB Lot#: Dp15 (10-7)
 Age: < 24 Hours
 Test Solution Volume: 30 ml
 # Organisms/Test Chamber: 10
 # Organisms/Concentration: 50
 # Organisms/Control: 30
 START DATE: 10/7/15 AT 1117
 END DATE: 10/9/15 AT 1136

VERTEBRATE

Test Set Up Technician Initials: KO
 Test Type: Screen
 Test Species: *Pimephales promelas*
 Source: New England Bioassay
 NEB Lot#: Pp15 (9-23) 1510
 Age: 14 (1-14)Days
 Test Solution Volume: 700 ml
 # Organisms/Test Chamber: 10
 # Organisms/Concentration: 50
 # Organisms/Control: 30
 START DATE: 10/7/15 AT 1148
 END DATE: 10/9/15 AT 1120

TEST SET UP CONDUCTIVITIES					
<i>D.p</i> Control	175	µmhos/cm	<i>P.p</i> Control	175	µmhos/cm
100%	911	µmhos/cm	100%	911	µmhos/cm

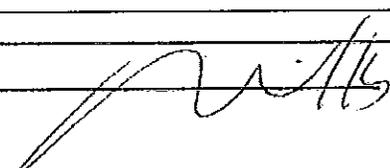
RESULTS OF *Daphnia pulex* Screening Test

Control: 96.7 % 100% 100 %
 Replicate A: 100 %
 Replicate B: 100 %
 Replicate C: 90 %

RESULTS OF *Pimephales promelas* Screening Test

Control: 93.3 % 100% 100 %
 Replicate A: 100 %
 Replicate B: 90 %
 Replicate C: 90 %

COMMENTS: _____

REVIEWED BY: 

DATE: 10/24/15

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):	10/5/15 to 10/6/15		
Sample Collection Time (s):	1:40am to 2:35am		

TOXICITY TEST SUMMARY (PASS/FAIL)

CONTROL SAMPLE RESULTS (% SURVIVAL)

TEST SPECIES	REPLICATE 1	REPLICATE 2	REPLICATE 3
<i>Daphnia pulex</i>	100	100	90
<i>Pimephales promelas</i>	100	90	90

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 DEEP.

EFFLUENT SAMPLE RESULTS (MEAN % SURVIVAL)

TEST SPECIES	100% Effluent
<i>Daphnia pulex</i>	100
<i>Pimephales promelas</i>	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: John Batorski Date: 10/30/15

AQUATIC TOXICITY MONITORING REPORT (ATMR) - PART 2

Facility Name:	<u>Borough of Naugatuck WPCF</u>	NPDES ID:	<u>CT0100641 DSN-001-1</u>
Dilution Water:	<u>Soft Reconstituted Freshwater (SRCF)</u>	Hardness:	<u>50 ± 5</u>
Sample Collected On:	<u>10/6/15</u> (date)	Sample Received On:	<u>10/7/15</u> (date)
Test Species:	<u>Daphnia pulex</u>	Source:	<u>New England Bioassay</u>
Test Duration:	<u>48 hours</u>	Age:	<u><24 hours</u>
		Beginning:	<u>1117</u>
		Ending:	<u>1136</u>
		On:	<u>10/7/15</u> (date)
		On:	<u>10/9/15</u> (date)

Effluent Dilution (%)	Number of Organisms Surviving			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (SU)		
	Tech Initials	KO	CW	PD	KO	CW	PD	KO	CW	PD	KO	CW
Hour	00	24	48	00	24	48	00	24	48	00	24	48
100% A	10	10	10	9.5	8.8	8.1	20	20	19	6.9	7.4	7.2
100% B	10	10	10			8.5			19			7.2
100% C	10	10	10			8.5			19			7.2
100% D	10	10	10			8.6			19			7.2
100% E	10	10	10			8.4			19			7.2
Control 1	10	10	10	8.7	8.9	8.8	20	20	19	7.4	7.6	7.4
Control 2	10	10	10			8.8			19			7.5
Control 3	10	10	9			8.7			19			7.5
MEAN SAMPLE SURVIVAL (%)							CONTROL SURVIVAL (%)			# 1	# 2	# 3
[(A+B+C+D+E) / 5 X 10 =							100			100 100 90		

REFERENCE TOXICANT RESULTS				
SPECIES	DATE	REFERENCE TOXICANT	SOURCE	LC50
<i>Daphnia pulex</i>	10/1/15	Copper Nitrate Lot # 015-0128-012	NEB	2.36µg/L

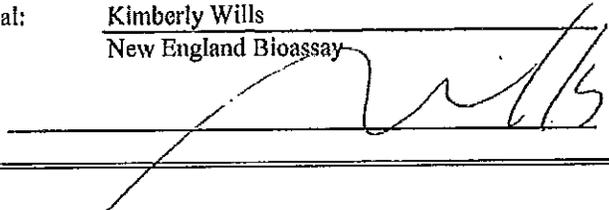
COMMENTS

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:  Date: 10/20/15

AQUATIC TOXICITY MONITORING REPORT (ATMR) - PART 2

Facility Name: <u>Borough of Naugatuck WPCF</u>	NPDES ID: <u>CT0100641 DSN-001-1</u>
Dilution Water: <u>Soft Reconstituted Freshwater (SRCF)</u>	Hardness: <u>50 ± 5</u>
Sample Collected On: <u>10/6/15</u> (date)	Sample Received On: <u>10/7/15</u> (date)
Test Species: <u><i>Pimephales promelas</i></u>	Source: <u>New England Bioassay</u> Age: <u>14</u> (days)
Test Duration: <u>48 hours</u>	Beginning: <u>1148</u> On: <u>10/7/15</u> (date)
	Ending: <u>1120</u> On: <u>10/9/15</u> (date)

Effluent Dilution (%)	Number of Organisms Surviving			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (SU)		
	Tech Initials	KO	CW	PD	KO	CW	PD	KO	CW	PD	KO	CW
Hour	00	24	48	00	24	48	00	24	48	00	24	48
100% A	10	10	10	9.5	8.1	7.5	20	19	19	6.9	7.3	7.1
100% B	10	10	10		8.3	7.8		19	19		7.3	7.1
100% C	10	10	10		8.2	7.5		19	19		7.3	7.0
100% D	10	10	10		8.4	7.5		19	19		7.3	7.1
100% E	10	10	10		8.3	7.3		19	19		7.3	7.1
Control 1	10	10	10	8.7	8.1	7.8	20	19	19	7.4	7.5	7.2
Control 2	10	9	9		7.8	7.2		19	19		7.5	7.2
Control 3	10	9	9		7.7	7.2		19	19		7.5	7.2
MEAN SAMPLE SURVIVAL (%)							CONTROL SURVIVAL (%)			#1	#2	#3
[(A+B+C+D+E) / 5 X 10 =							100			100	90	90

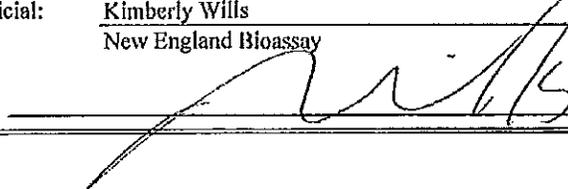
REFERENCE TOXICANT RESULTS				
SPECIES	DATE	REFERENCE TOXICANT	SOURCE	LC50
<i>Pimephales promelas</i>	10/1/15	Copper Nitrate Lot #015-0128-012	NEB	108.7 µg/L

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:  Date: 10/20/15

SUPPLEMENTAL CHEMISTRY (PART 2S)

Facility Name:	Borough of Naugatuck WPCF	NPDES ID: CT0100641 DSN-001-1
Receiving Water:	Naugatuck River	Waterbody ID: <u>6900</u>
Sample Collection Date(s):	10-5-15 TO 10/6/15	
Sample Collection Time(s):	1:40am TO 2:35am	

Effluent Sample At Arrival

Parameter	Effluent Sample
	Tech Initials: MV
	Date & Time: 07/15 @ 0830
Temperature (° C)	5.4
pH (standard units)	6.8
Alkalinity (mg/L)	30
Conductivity (µS)	908
Hardness(mg/L)/Salinity (ppt)	102 / <1
Color	Light yellow
TRC (mg/L)	0.026

100% Test Sample

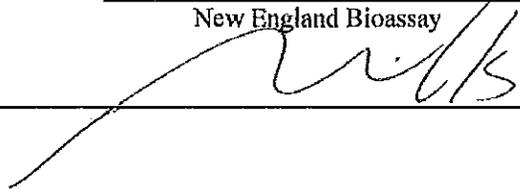
Parameter	Hours	<i>Daphnia pulex</i>		<i>Pimephales promelas</i>	
		Initial (00)	Final (48)	Initial (00)	Final (48)
Tech Initials		MV	MG	MV	MG
Conductivity (µS)		911	914	911	906
Alkalinity (mg/L)		30	30	30	35
Hardness (mg/L)/Salinity (ppt)		102 / <1	116 / <1	102 / <1	116 / <1
TRC (mg/L)		0.026	0.026	0.026	0.036

0% Test Sample (Control)

Parameter	Hours	<i>Daphnia pulex</i>		<i>Pimephales promelas</i>	
		Initial (00)	Final (48)	Initial (00)	Final (48)
Tech Initials		MV	MG	MV	MG
Conductivity (µS)		175	175	175	184
Alkalinity (mg/L)		30	35	30	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 Name/Official: Kimberly Wills
New England Bioassay

Title: Laboratory Manager

Signature: 

Date: 10/20/15

STATE OF CONNECTICUT ** DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Water Management: Aquatic Toxicity Monitoring Report - PART 3

03125

NPDES Permit: CT0100641 Exp: 8/7/08 Contact: James McGrath Town: Naugatuck Zip: 06770
Facility: Naugatuck WPCF Contact: John Baturski Phone: (203) 723-1433
Address: 500 Cherry Street Phone: 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 Baturski Title: Plant Manager
Signature: John Baturski Date: 10-30-15

Sample Date: 10-5-15 Sample Day's Flow: 2.79 REPEAT MONTH: OCT (Circle one)

FREQUENCY	MON/LOC	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		0.19
Each Test	001 T	mg/L	NITRITE, as N		<0.01
Each Test	001 T	mg/L	NITRATE, as N		2.90
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	0.008
Each Test	001 T	mg/L	CADMIUM, Total	0.0005 mg/L	0.0001
Each Test	001 T	mg/L	CHROMIUM, Hexavalent		<0.01

Aquatic Toxicity Monitoring Report - PART 3

FREQUENCY	MON/LOC	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	0.022
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	<0.001
Each Test	001 T	mg/L	NICKEL, Total		0.021
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	0.129
Each Test	001 T	mg/L	ANTIMONY, Total		<0.005
Each Test	001 T	mg/L	SELENIUM, Total	0.005 mg/L	0.004
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:

Derek H. Ryan

Date:

10-29-2015

FOR OFFICIAL USE ONLY:

AQUATIC TOXICITY: *Daphnia pulex*

TGA3D

AQUATIC TOXICITY: *Pimephais promelas*

TGA6C

Naugatuck WPCF



TEST REPORT

STACK EMISSIONS COMPLIANCE TEST PROGRAM

VEOLIA WATER NORTH AMERICA – NORTHEAST LLC

October 27, 2015

PREPARED FOR:

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

CONCERNING:

Compliance Emissions Test
Fluidized Bed Sewage Sludge Incinerator

PREPARED BY:

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

CK Project #4861



TEST REPORT REVIEW CERTIFICATION

We, the undersigned, hereby certify that we have personally reviewed and are knowledgeable of the information presented in the Test Report. We believe that all submitted information and calculations contained here in are true, accurate, and complete. CK has accreditation by the Stack Testing Accreditation Council (STAC) and operates in conformance with the ASTM D7036-04 requirements.

Prepared by: Ale Kuncaitis
Ale Kuncaitis, Project Engineer

Reviewed by: Michael Unterweger
Michael Unterweger, Project Manager, QSTI



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- 1.0 INTRODUCTION
 - 1.1 Key Personnel
- 2.0 PROCESS DESCRIPTION
 - 2.1 Process Description
 - 2.2 Continuous Emissions Monitoring System
- 3.0 TEST PROGRAM
 - 3.1 Objectives
 - 3.2 Test Matrix
- 4.0 SAMPLING LOCATIONS
 - 4.1 Flue Gas Sampling Location
- 5.0 SAMPLING AND ANALYTICAL PROCEDURES
 - 5.1 Oxygen/Carbon Dioxide – EPA Method 3A
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 - 6.1 General
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APPENDIX B – FIELD DATA SHEETS
APPENDIX C – REFERENCE METHOD CEMS DATA
APPENDIX D – ANALYTICAL RESULTS
APPENDIX E – FACILITY DATA
APPENDIX F – CALIBRATION DOCUMENTATION



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@veolia.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 Unterweger, QSTI**
781- 828-5200
munterweger@ckenvironmental.com

Source tested: Fluidized Bed Incinerator

Methods: US EPA Methods 3A, 25A & 29

Test Date(s): September 22 & 23, 2015



1.0 INTRODUCTION

CK Environmental, Inc. (CK) was contracted by Veolia Water North America – Northeast, LLC (Veolia) to conduct a compliance test program for multi-metals and total hydrocarbons (THC) on the Fluidized Bed Sludge Incinerator operating at the facility located in Naugatuck, Connecticut. 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 operating permit issued by the Connecticut Department of Energy and Environmental Protection (CTDEEP).

All testing and analysis was conducted in accordance with the applicable procedures as found in 40 CFR 60, Appendix A. The EPA Quality Assurance Handbook and the approved test protocol were adhered to as well. A detailed explanation of the methodology, procedures and equipment used can be found in Section 5.0 of this protocol.

Michael Unterweger of CK Environmental was the project manager of the test program. Joseph Duggan and a crew of qualified Environmental Engineers and Technicians assisted him. Veolia Water North America personnel coordinated facility operations with the emissions testing. The Connecticut Department of Environmental Protection (CTDEEP) was the regulatory contact.

1.1 KEY PERSONNEL

The personnel responsible for testing and their associated telephone numbers are provided in Table 1-1 below.

**Table 1-1
Key Personnel**

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



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.



3.0 TEST PROGRAM

3.1 OBJECTIVES

The objective of the testing program was to determine the compliance status of emissions of multi-metals and THC from the FBI. Testing was conducted at outlet of the FBI. The FBI was operated at or above 90% maximum rated capacity (3.5 dry tons sludge/hr). Emissions results were reported in units of standard in accordance with Table 3-1. The following are the main objectives for this test program:

- Determine concentrations of O₂/CO₂, THC, and multi-metals (Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Selenium, and Zinc)
- Obtain normal plant operation for data reduction

3.2 TEST MATRIX

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

**Table 3-1
Test Matrix**

Pollutant	Location	Test Method	Allowable Limit	No. of Runs	Run Duration	
Oxygen/Carbon Dioxide	Outlet of FBI	EPA 3A	N/A	3	120 min	
THC		EPA 25A	0.32 lbs/ton dry sludge	3	60 min	
Arsenic		EPA 29		95.4 µg/m ³	3	120 min
Beryllium				19.1 µg/m ³ , 0.022 lb/24-hr period (10grams/24-hr period)		
Cadmium				763.5 µg/m ³		
Chromium				4771.8 µg/m ³		
Copper				38174.8 µg/m ³		
Lead				5726.2 µg/m ³		
Manganese				38174.8 µg/m ³		
Mercury				1908.7 µg/m ³ , 7.055 lb/24-hr period (3200grams/24-hr period)		
Nickel				9543.7 µg/m ³		
Selenium				7635.0 µg/m ³		
Zinc		190873.9 µg/m ³				



3.3 PROBLEMS AND CHANGES

There were no problems or changes that occurred during this test program.

3.4 PRESENTATION OF RESULTS

The results of the Emissions Compliance Testing Program indicate that the emissions from FBI are within the allowable limits set forth for this facility by the CTDEEP. Tables 3-2 through 3-5 provide individual test run results and data.

Table 3-2
Summary of THC Results
WESP on

Test Run No.		Incinerator Out Metals-1	Incinerator Out Metals-2	Incinerator Out Metals-3		Facility Permit
Date		09/22/15	09/22/15	09/22/15		Limit
Time	Start	8:50	10:12	11:40	Average	
	Stop	9:50	11:12	12:40		
Stack Conditions						
Flow Rate	(dscfm)	14,251	13,891	13,851	13,998	
Temperature	(°F)	201.4	200.0	200.1	200.5	
Moisture	(%)	10.1	11.4	12.1	11.2	
Oxygen	(%)	7.75	7.56	7.41	7.6	
Carbon Dioxide	(%)	11.24	10.77	11.15	11.1	
Gaseous Emissions						
Volatile Organic Compounds	(ppm)	0.85	1.04	0.90	0.93	0.32
	(lb/hr)	0.08	0.10	0.09	0.09	
	(lb/DI)	0.03	0.04	0.03	0.03	
	(tons/yr)	0.36	0.43	0.37	0.39	



Table 3-3
Summary of Metals Results
WESP on

Test Run No.		Incinerator Out Metals-1	Incinerator Out Metals-2	Incinerator Out Metals-3		Facility Permit
Date		09/22/15	09/22/15	09/22/15		
Time	Start	8:50	11:40	14:15	Average	Limit
	Stop	10:53	13:45	16:20		
Sample Conditions						
Volume	(dscf)	87.44	86.01	88.67		
	(dscm)	2.476	2.436	2.511		
Isokinetics	(%)	94.5	95.3	98.6		
Sludge Feedrate	(dry Ton/hr)	2.68	2.68	2.68	2.68	
Stack Conditions						
Flow Rate	(dscfm)	14,251	13,891	13,351	13,998	
Temperature	(°F)	201.4	200.0	200.1	200.5	
Moisture	(%)	10.1	11.4	12.1	11.2	
Oxygen	(%)	7.75	7.56	7.41	7.57	
Carbon Dioxide	(%)	11.24	10.77	11.15	11.1	
Trace Metals						
Arsenic (As) Catch	(mg)	0.001	0.002	0.001	0.001	
As Concentration	(ug/dscm)	0.323	0.591	0.319	0.411	95.4
As Emission Rate	(lb/hr)	0.00002	0.00003	0.00002	0.00002	
Beryllium (Be) Catch	(mg)	0.000	0.000	0.000	0.000	
Be Concentration	(ug/dscm)	0.0808	0.0821	0.0796	0.0808	19.1
Be Emission Rate	(lb/hr)	4.31E-06	4.27E-06	4.13E-06	4.24E-06	
Be Emission Rate	(lbs/day)	0.00010	0.00010	0.00010	0.00010	0.022
Cadmium (Cd) Catch	(mg)	0.000	0.002	0.000	0.001	
Cd Concentration	(ug/dscm)	0.08	0.74	0.08	0.30	763.5
Cd Emission Rate	(lb/hr)	0.00000	0.00004	0.00000	0.00002	
Chromium (Cr) Catch	(mg)	0.008	0.011	0.006	0.0083	
Cr Concentration	(ug/dscm)	1.86	3.37	1.15	2.13	4771.8
Cr Emission Rate	(lb/hr)	0.00010	0.00018	0.00006	0.00011	
Copper (Cu) Catch	(mg)	0.020	0.018	0.010	0.0161	
Cu Concentration	(ug/dscm)	0.42	3.97	0.10	1.50	38,174.8
Cu Emission Rate	(lb/hr)	0.00035	0.00031	0.00014	0.00027	
Lead (Pb) Catch	(mg)	0.004	0.031	0.004	0.013	
Pb Concentration	(ug/dscm)	1.54	12.29	1.53	5.12	5,726.2
Pb Emission Rate	(lb/hr)	0.00008	0.00064	0.00008	0.0003	
Manganese (Mn) Catch	(mg)	0.010	0.086	0.015	0.037	
Mn Concentration	(ug/dscm)	2.53	33.65	4.72	13.63	38,174.8
Mn Emission Rate	(lb/hr)	0.00013	0.00175	0.00024	0.00071	
Mercury (Hg) Catch	(mg)	0.026	0.193	0.221	0.147	
Hg Concentration	(ug/dscm)	10.59	79.15	87.76	59.16	1,908.7
Hg Emission Rate	(lb/hr)	0.00056	0.0041	0.00455	0.0031	
Hg Emission Rate	(lbs/day)	0.0136	0.0988	0.1092	0.0738	7.055
Nickel (Ni) Catch	(mg)	0.014	0.016	0.014	0.015	
Ni Concentration	(ug/dscm)	4.74	5.76	4.51	5.00	9,543.7
Ni Emission Rate	(lb/hr)	0.00025	0.00030	0.00023	0.00026	
Selenium (Se) Catch	(mg)	0.026	0.024	0.022	0.024	
Se Concentration	(ug/dscm)	9.89	9.48	8.44	9.27	7,635.0
Se Emission Rate	(lb/hr)	0.00053	0.00049	0.00044	0.00049	
Zinc (Zn) Catch	(mg)	0.132	0.291	0.086	0.170	
Zn Concentration	(ug/dscm)	51.29	117.41	32.26	66.99	190,873.9
Zn Emission Rate	(lb/hr)	0.0027	0.0061	0.0017	0.0035	



Table 3-4
Summary of THC Results
WESP off

Test Run No.		Incinerator Out Metals-4	Incinerator Out Metals-5	Incinerator Out Metals-6		Facility Permit
Date		09/23/15	09/23/15	09/23/15		
Time	Start	8:00	9:18	10:30	Average	Limit
	Stop	9:00	10:18	11:30		
Stack Conditions						
Flow Rate	(dscfm)	13,791	14,274	14,122	14,062	
Temperature	(°F)	221.2	231.1	239.0	230.4	
Moisture	(%)	14.1	14.7	16.0	14.9	
Oxygen	(%)	7.14	7.09	7.26	7.2	
Carbon Dioxide	(%)	11.95	11.83	11.60	11.8	
Gaseous Emissions						
Volatile Organic Compounds	(ppm)	1.94	2.57	1.70	2.07	0.32
	(lb/hr)	0.18	0.25	0.16	0.20	
	(lb/DI)	0.07	0.09	0.06	0.07	
	(tons/yr)	0.80	1.10	0.72	0.88	



Table 3-5
Summary of Metal Results
WESP off

Test Run No.		Incinerator Out Metals-4	Incinerator Out Metals-5	Incinerator Out Metals-6		Facility Permit
Date		09/23/15	09/23/15	09/23/15		
Time	Start	8:00	10:30	13:00	Average	Limit
	Stop	10:02	12:35	15:06		
Sample Conditions						
Volume	(dscf)	89.52	92.89	92.06		
	(dscm)	2.535	2.631	2.607		
Isokinetics	(%)	99.3	99.5	99.7		
Sludge Feedrate	(dry Ton/hr)	2.68	2.68	2.68	2.68	
Stack Conditions						
Flow Rate	(dscfm)	13,791	14,274	14,122	14,062	
Temperature	(°F)	221.2	231.1	239.0	230.4	
Moisture	(%)	14.1	14.7	16.0	14.9	
Oxygen	(%)	7.14	7.09	7.26	7.2	
Carbon Dioxide	(%)	11.95	11.83	11.60	11.8	
Trace Metals						
Arsenic (As) Catch	(mg)	0.001	0.003	0.002	0.002	
As Concentration	(ug/dscm)	0.383	0.981	0.625	0.663	95.4
As Emission Rate	(lb/hr)	0.00002	0.00005	0.00003	0.00004	
Beryllium (Be) Catch	(mg)	0.000	0.000	0.000	0.000	
Be Concentration	(ug/dscm)	0.079	0.076	0.077	0.077	19.1
Be Emission Rate	(lb/hr)	4.07E-06	4.06E-06	4.06E-06	4.06E-06	
Be Emission Rate	(lbs/day)	0.00010	0.00010	0.00010	0.00010	0.022
Cadmium (Cd) Catch	(mg)	0.000	0.000	0.000	0.000	
Cd Concentration	(ug/dscm)	0.0789	0.0836	0.0767	0.0797	763.5
Cd Emission Rate	(lb/hr)	0.00000	0.00000	0.00000	0.00000	
Chromium (Cr) Catch	(mg)	0.007	0.009	0.006	0.0073	
Cr Concentration	(ug/dscm)	1.58	2.15	1.20	1.64	4771.8
Cr Emission Rate	(lb/hr)	0.00003	0.00011	0.00006	0.00009	
Copper (Cu) Catch	(mg)	0.011	0.019	0.023	0.0175	
Cu Concentration	(ug/dscm)	0.41	3.68	0.09	1.39	38,174.8
Cu Emission Rate	(lb/hr)	0.00015	0.00032	0.00039	0.00029	
Lead (Pb) Catch	(mg)	0.004	0.008	0.006	0.006	
Pb Concentration	(ug/dscm)	1.14	2.73	2.17	2.01	5,726.2
Pb Emission Rate	(lb/hr)	0.00006	0.00015	0.00011	0.0001	
Manganese (Mn) Catch	(mg)	0.035	0.041	0.022	0.033	
Mn Concentration	(ug/dscm)	12.45	14.31	7.04	11.27	38,174.8
Mn Emission Rate	(lb/hr)	0.00064	0.00076	0.00037	0.00059	
Mercury (Hg) Catch	(mg)	0.212	0.172	0.221	0.202	
Hg Concentration	(ug/dscm)	83.7381	65.2296	84.7457	77.9044	1,908.7
Hg Emission Rate	(lb/hr)	0.00432	0.0035	0.00448	0.0041	
Hg Emission Rate	(lbs/day)	0.10374	0.08365	0.10751	0.0983	7.055
Nickel (Ni) Catch	(mg)	0.021	0.009	0.007	0.012	
Ni Concentration	(ug/dscm)	7.39	2.71	1.93	4.01	9,543.7
Ni Emission Rate	(lb/hr)	0.00038	0.00014	0.00010	0.00021	
Selenium (Se) Catch	(mg)	0.035	0.036	0.040	0.037	
Se Concentration	(ug/dscm)	13.41	13.26	15.07	13.92	7,635.0
Se Emission Rate	(lb/hr)	0.00069	0.00071	0.00080	0.00073	
Zinc (Zn) Catch	(mg)	0.299	0.365	0.090	0.251	
Zn Concentration	(ug/dscm)	115.98	136.83	32.60	95.14	190,873.9
Zn Emission Rate	(lb/hr)	0.00599	0.00731	0.00172	0.00501	



Sent via Certified R.R.R. Mail 7014 1200 0002 2236 9845 on October 21, 2015

October 21, 2015

Connecticut Department of Energy and Environmental Protection
Mr. John Degirolamo
Bureau of Air Management
Engineering and Enforcement Division
79 Elm Street
Hartford, CT 06106-5127

Subject: Continuous Opacity Monitoring System Summary Report, July 1, 2014 to September 30, 2015.

Dear Mr. John Degirolamo:

Enclosed you will find a copy of the above referenced reports. There were no exceptions to the attached reports. The original opacity meter had communication issues with a circuit board. Since the board was not economical to repair, a new opacity meter was purchased. This meter was installed and calibrated on September 10, 2015 by CK Environmental.

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

Sincerely,

Veolia Water North America-Northeast, LLC

A handwritten signature in cursive script, appearing to read "John Batorski".

John Batorski
Project Manager

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



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

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: July 1, 2015	To: September 30, 2015	
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); <input type="checkbox"/> Copy of quarterly QA audits; <input type="checkbox"/> Excepted activities records (if requested).	
Are any excess emissions being reported during this reporting period? (Yes/No - provide details in report).	NO		

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

Neil Lee

Date: October 14, 2015

Plant Signature: *John Batorski, Oct. 21, 2015*

Print (or type) *John Batorski*

Name and Title: *Plant Manager*

PART 1 - PERFORMANCE REPORT			
Facility Name:	Borough of Naugatuck POTW		
Combustion Unit(s) Descriptions	Fluidized Bed Incinerator		
UNIT OPERATING INFORMATION			
Unit Number or ID	EMU 52		
Unit Operating Hours	2091.65 hours		
Sampling Location	Fluidized Bed Incinerator Emissions Stack		
Manufacturer / Model No.	Land / 4500 Mark III	Serial No.	214324.52 <small>- New meter</small>
Date of Certification	September 11, 2015	Date of last QA audit	September 11, 2015
MONITORING EQUIPMENT MALFUNCTIONS			
Monitoring equipment malfunctions	41.70 hours		
Non-monitoring equipment malfunctions	3.92 hours		
Calibrations	21.17 hours		
Other known causes ¹			
Unknown causes	5.93		
Total COM downtime	72.72 Hours		
Data Availability (calculated)	96.52%		

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

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 4.006 EMISSIONS SUMMARY REPORT

Facility Name: **Borough of Naugatuck POTW**

Unit Number or ID: **EMU 52** Unit Operating Hours (a): **2091.65**

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
 No

QUESTION 2
Were there any visible emissions in excess of 60% opacity (six-minute block average) during the calendar quarter?
 Yes
 No

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
 No

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) = Σ(1) + Σ(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

Part 5: Monitoring and Non-Monitoring Equipment Malfunctions

EMU # or Unit ID	Permit Cond. ID	Monitoring System Failure Period			Description and Cause of Monitoring System Failure	Corrective Actions Taken to Remedy Monitoring System Failure	Measures Taken to Prevent Future Monitoring System Failures
		Start Date	End Date	Time			
52	III.E.21	7/02	7/02	8:25	Excess Drift Primary Monitor	Manually Recalibrate	Continued Training
52	III.E.21	7/06	7/06	7:09	Excess Drift Primary Monitor	Manually Recalibrate	Continued Training
52	III.E.21	7/07	7/07	14:11	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	14:32	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	14:55	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	14:58	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	15:00	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	15:03	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	15:56	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	16:11	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/07	7/07	16:13	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/08	7/08	00:00	Primary Monitor Malfunction	Corrective Maintenance	Continued recalibration until technician arrived.
52	III.E.21	7/08	7/08	7:47	Primary Monitor Malfunction	Corrective Maintenance	Optical Pathway issues resolved with technician
52	III.E.21	7/08	7/08	8:24	Primary Monitor Malfunction	Corrective Maintenance	Optical Pathway issues resolved with technician
52	III.E.21	7/08	7/08	8:31	Primary Monitor Malfunction	Corrective Maintenance	Optical Pathway issues resolved with technician
52	III.E.21	7/08	7/08	8:59	Primary Monitor Malfunction	Corrective Maintenance	Optical Pathway issues resolved with technician
52	III.E.21	7/08	7/08	9:10	Primary Monitor Malfunction	Corrective Maintenance	Optical Pathway issues resolved with technician
52	III.E.21	7/08	7/08	9:13	Primary Monitor Malfunction	Corrective Maintenance	Optical Pathway issues resolved with technician
52	III.E.21	7/08	7/08	9:17	Excess Drift Primary Monitor	Manually Recalibrate	Continued Training
52	III.E.21	7/21	7/21	6:55	Excess Drift Primary Monitor	Manually Recalibrate	Continued Training
52	III.E.21	7/29	7/29	15:33	Primary Monitor Malfunction	Corrective Maintenance	Tried to replace circuit boards on meter. Meter obsolete, ordered new opacity monitoring system.

Part 5: Monitoring and Non-Monitoring Equipment Malfunctions (continued)

TMC #	Unit ID	Com. ID	Monitoring System Failure Period				Description and Cause of Monitoring System Failure	Corrective Actions Taken to Remedy Monitoring System Failure	Measures Taken to Prevent Future Monitoring System Failures
			Start		End				
			Date	Time	Date	Time			
52	III.E.21		7/29	15:37	7/29	15:37	Manually Recalibrate	Continued Training	
52	III.E.21		7/29	15:53	7/29	15:53	Corrective Maintenance	Tried to replace circuit boards on meter. Meter obsolete, ordered new opacity monitoring system. Continued Training	
52	III.E.21		7/29	15:58	7/29	16:11	Manually Recalibrate	Continued Training	
52	III.E.21		7/29	16:15	7/29	23:59	Manually Recalibrate	Continued Training	
52	III.E.21		7/30	0:00	7/30	6:01	Manually Recalibrate	Continued Training	
52	III.E.21		7/30	6:06	7/30	6:13	Manually Recalibrate	Continued Training	
52	III.E.21		7/30	6:14	7/30	6:16	Manually Recalibrate	Continued Training	
52	III.E.21		8/04	6:55	8/04	7:04	Manually Recalibrate	Continued Training	
52	III.E.21		8/08	6:55	8/08	7:01	Manually Recalibrate	Continued Training	
52	III.E.21		8/08	22:55	8/08	23:59	Routine Maintenance Performed	Continued Training	
52	III.E.21		8/09	00:00	8/09	00:26	Routine Maintenance Performed	PLC has seven day backup capability so no data is lost PLC has seven day backup capability so no data is lost	
52	III.E.21		8/15	6:55	8/15	7:00	Manually Recalibrate	Continued Training	
52	III.E.21		8/15	7:04	8/15	7:08	Manually Recalibrate	Continued Training	
52	III.E.21		8/19	6:55	8/19	7:06	Manually Recalibrate	Continued Training	
52	III.E.21		8/27	12:02	8/27	12:25	Routine Maintenance Performed	Continued Training	
52	III.E.21		8/27	12:49	8/27	12:53	Routine Maintenance Performed	PLC has seven day backup capability so no data is lost PLC has seven day backup capability so no data is lost	
52	III.E.21		8/30	6:55	8/30	6:55	Manually Recalibrate	Continued Training	
52	III.E.21		9/03	6:55	9/03	7:07	Manually Recalibrate	Continued Training	
52	III.E.21		9/09	6:54	9/09	7:35	Manually Recalibrate	Continued Training	
52	III.E.21		9/10	6:54	9/10	7:20	Manually Recalibrate	Continued Training	
52	III.E.21		9/10	9:45	9/10	11:13	Routine Maintenance Performed	Continued Training	
52	III.E.21		9/10	14:11	9/10	14:28	Corrective Maintenance	New meter installed. Scaling issue between CEMS and opacity monitor	
52	III.E.21		9/10	17:01	9/10	17:04	Routine Maintenance Performed	PLC has seven day backup capability so no data is lost	
52	III.E.21		9/10	18:11	9/10	18:11	Corrective Maintenance	Scaling issue between CEMS and opacity monitor.	

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Part 5: Monitoring and Non-Monitoring Equipment Malfunctions (continued)

EMC # or Unit ID	Permit ID	Monitoring System Failure Period				Description and Cause of Monitoring System Failure	Corrective Actions Taken to Remedy Monitoring System Failure	Measures Taken to Prevent Future Monitoring System Failures
		Start		End				
		Date	Time	Date	Time			
52	III.E.21	9/10	19:01	9/10	19:18	Data Handling System Malfunction	Routine Maintenance Performed	PLC has seven day backup capability so no data is lost
52	III.E.21	9/10	20:41	9/10	20:41	Data Handling System Malfunction	Routine Maintenance Performed	PLC has seven day backup capability so no data is lost
52	III.E.21	9/10	21:10	9/10	21:11	Data Handling System Malfunction	Routine Maintenance Performed	PLC has seven day backup capability so no data is lost
52	III.E.21	9/10	21:44	9/10	21:44	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor
52	III.E.21	9/10	21:46	9/10	21:47	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor
52	III.E.21	9/10	21:48	9/10	21:48	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor
52	III.E.21	9/10	21:49	9/10	21:52	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor
52	III.E.21	9/10	22:12	9/10	22:13	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor
52	III.E.21	9/10	22:18	9/10	22:20	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor.
52	III.E.21	9/10	22:23	9/10	22:23	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor.
52	III.E.21	9/11	8:36	9/11	8:37	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21	9/11	8:39	9/11	8:41	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21	9/11	8:42	9/11	8:42	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21	9/11	8:43	9/11	8:54	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21	9/11	8:57	9/11	8:58	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21	9/11	8:59	9/11	9:02	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.

Part 5: Monitoring and Non-Monitoring Equipment Malfunctions (Continued)

EMC #	Unit ID	P. Ref #	Cond. ID	Monitoring System Failure Period				Description and Cause of Monitoring System Failure	Corrective Actions Taken to Remedy Monitoring System Failure	Measures Taken to Prevent Future Monitoring System Failures
				Start Date	End Time	Start Date	End Time			
				Date	Time	Date	Time			
52	III.E.21			9/11	9:03	9/11	9:39	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	9:45	9/11	9:54	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	10:00	9/11	10:01	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	10:38	9/11	10:40	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	10:57	9/11	10:59	Excess Drift Primary Monitor	Manually Recalibrate	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	11:07	9/11	11:07	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	11:26	9/11	11:33	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	11:47	9/11	11:52	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	12:18	9/11	12:26	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	12:38	9/11	12:40	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	12:51	9/11	12:53	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	13:04	9/11	13:06	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.
52	III.E.21			9/11	13:16	9/11	13:18	Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.

Part 5: Monitoring and Non-Monitoring Equipment Malfunctions (continued)

EMU # or Unit ID	Permit Cond. ID	Monitoring System Failure Period						Description and Cause of Monitoring System Failure	Corrective Actions Taken to Remedy Monitoring System Failure	Measures Taken to Prevent Future Monitoring System Failures
		Start		End		Time				
		Date	Time	Date	Time					
52	III.E.21	9/11	13:59	9/11	14:11		Primary Monitor Malfunction	Corrective Maintenance	Scaling issue between CEMS and opacity monitor. Outside contractor on site.	
52	III.E.21	9/11	14:13	9/11	14:13		Primary Monitor Malfunction	Corrective Maintenance	Scaling issue resolved.	
52	III.E.21	9/20	6:56	9/20	7:01		Excess Drift Primary Monitor	Manually Recalibrate	Continued Training	
52	III.E.21	9/30	7:08	9/30	7:09		Primary Monitor Malfunction	Corrective Maintenance	N/A	
52	III.E.21	9/30	7:21	9/30	7:23		Primary Monitor Malfunction	Corrective Maintenance	N/A	
52	III.E.21	9/30	7:33	9/30	7:34		Primary Monitor Malfunction	Corrective Maintenance	N/A	
52	III.E.21	9/30	7:40	9/30	7:40		Primary Monitor Malfunction	Corrective Maintenance	N/A	
52	III.E.21	9/30	7:45	9/30	7:55		Primary Monitor Malfunction	Corrective Maintenance	Continued Training	

Opacity Monitoring Reports

COMPANY: VEOLIA WATER NORTH AMERICA
 LOCATION: Naugatuck, CT
 SOURCE: FB Incinerator
 CEMS ID: 1234567
 DATE CREATED: 10/13/2015 @ 07:32
 PERIOD: 07/01/2015 - 09/30/2015

INCIDENT: INVALID OPACITY (%)

DATE	START TIME	END TIME	DURATION	CODE	EXPLANATION	CORRECTIVE ACTION
07/01/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/02/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/02/2015	06:55	08:25	91	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/02/2015	08:26	08:28	3	14	RECALIBRATION	N/A
07/03/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/03/2015	12:59	13:13	15	13	PROCESS DOWN	N/A
07/03/2015	14:29	15:58	90	13	PROCESS DOWN	N/A
07/03/2015	16:29	16:43	15	13	PROCESS DOWN	N/A
07/03/2015	17:14	18:13	60	13	PROCESS DOWN	N/A
07/04/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/05/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/06/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/06/2015	06:55	07:09	15	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/06/2015	07:10	07:12	3	14	RECALIBRATION	N/A
07/06/2015	07:13	07:19	7	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/06/2015	07:20	07:23	4	14	RECALIBRATION	N/A
07/06/2015	14:44	15:13	30	13	PROCESS DOWN	N/A
07/07/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/07/2015	08:44	08:48	5	19	PROCESS DOWN	N/A
07/07/2015	08:49	09:05	17	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	09:06	09:15	10	13	PROCESS DOWN	N/A
07/07/2015	09:16	10:48	93	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	10:49	11:58	70	13	PROCESS DOWN	N/A
07/07/2015	11:59	14:11	133	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	14:12	14:15	4	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	14:16	14:22	7	14	RECALIBRATION	N/A
07/07/2015	14:23	14:26	4	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	14:27	14:34	8	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	14:35	14:47	13	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	14:48	14:55	8	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	14:56	14:57	2	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	14:58	14:58	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	14:59	14:59	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	15:00	15:00	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	15:01	15:02	2	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	15:03	15:53	51	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	15:54	15:55	2	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	15:56	16:05	10	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	16:06	16:10	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	16:11	16:11	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/07/2015	16:12	16:12	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/07/2015	16:13	23:59	467	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/08/2015	00:00	07:46	467	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/08/2015	07:47	07:47	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/08/2015	07:48	08:24	37	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/08/2015	08:25	08:30	6	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/08/2015	08:31	08:44	14	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/08/2015	08:45	08:58	14	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/08/2015	08:59	09:05	7	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/08/2015	09:06	09:09	4	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/08/2015	09:10	09:13	4	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON

DATE	START TIME	END TIME	DURATION	CODE	EXPLANATION	CORRECTIVE ACTION
07/08/2015	09:14	09:15	2	14	RECALIBRATION	N/A
07/08/2015	09:16	09:17	2	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/08/2015	09:18	09:24	7	14	RECALIBRATION	N/A
07/08/2015	09:46	09:47	2	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
07/09/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/10/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/11/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/12/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/13/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/13/2015	07:53	13:08	316	13	PROCESS DOWN	N/A
07/14/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/15/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/16/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/17/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/18/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/19/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/20/2015	06:35	16:41	607	13	PROCESS DOWN	N/A
07/20/2015	22:04	22:15	12	13	PROCESS DOWN	N/A
07/21/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/21/2015	06:55	07:06	12	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/21/2015	07:07	07:09	3	14	RECALIBRATION	N/A
07/22/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/23/2015	06:51	06:54	4	14	RECALIBRATION	N/A
07/24/2015	06:51	06:54	4	14	RECALIBRATION	N/A
07/25/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/26/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/27/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/28/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/28/2015	18:18	20:09	112	13	PROCESS DOWN	N/A
07/29/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/29/2015	15:29	15:33	5	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/29/2015	15:34	15:36	3	14	RECALIBRATION	N/A
07/29/2015	15:37	15:37	1	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/29/2015	15:38	15:41	4	14	RECALIBRATION	N/A
07/29/2015	15:53	15:53	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
07/29/2015	15:54	15:57	4	14	RECALIBRATION	N/A
07/29/2015	15:58	16:11	14	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/29/2015	16:12	16:14	3	14	RECALIBRATION	N/A
07/29/2015	16:15	23:59	465	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/30/2015	00:00	06:01	362	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/30/2015	06:02	06:05	4	14	RECALIBRATION	N/A
07/30/2015	06:06	06:13	8	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
07/30/2015	06:14	06:16	3	14	RECALIBRATION	N/A
07/30/2015	06:52	06:54	3	14	RECALIBRATION	N/A
07/30/2015	10:19	10:22	4	14	RECALIBRATION	N/A
07/30/2015	13:03	13:09	7	13	PROCESS DOWN	N/A
07/30/2015	13:14	13:22	9	13	PROCESS DOWN	N/A
07/31/2015	06:51	06:54	4	14	RECALIBRATION	N/A
07/31/2015	10:32	13:10	159	13	PROCESS DOWN	N/A
08/01/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/02/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/03/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/03/2015	08:06	15:01	416	13	PROCESS DOWN	N/A
08/04/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/04/2015	06:55	07:04	10	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
08/04/2015	07:05	07:07	3	14	RECALIBRATION	N/A
08/04/2015	07:26	07:45	20	13	PROCESS DOWN	N/A
08/05/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/06/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/06/2015	07:54	08:11	18	13	PROCESS DOWN	N/A

DATE	START TIME	END TIME	DURATION	CODE	EXPLANATION	CORRECTIVE ACTION
08/07/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/08/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/08/2015	06:55	07:01	7	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
08/08/2015	07:02	07:05	4	14	RECALIBRATION	N/A
08/08/2015	22:55	23:59	65	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
08/09/2015	00:00	00:26	27	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
08/09/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/10/2015	05:56	12:31	396	13	PROCESS DOWN	N/A
08/11/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/11/2015	09:28	10:33	66	13	PROCESS DOWN	N/A
08/12/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/13/2015	06:52	07:01	10	13	PROCESS DOWN	N/A
08/14/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/15/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/15/2015	06:55	07:00	6	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
08/15/2015	07:01	07:03	3	14	RECALIBRATION	N/A
08/15/2015	07:04	07:08	5	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
08/15/2015	07:09	07:11	3	14	RECALIBRATION	N/A
08/16/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/17/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/17/2015	07:17	14:31	435	13	PROCESS DOWN	N/A
08/17/2015	18:17	18:32	16	13	PROCESS DOWN	N/A
08/17/2015	21:09	23:59	171	13	PROCESS DOWN	N/A
08/18/2015	00:00	02:53	174	13	PROCESS DOWN	N/A
08/18/2015	08:52	06:54	3	14	RECALIBRATION	N/A
08/18/2015	09:19	09:38	20	13	PROCESS DOWN	N/A
08/19/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/19/2015	06:55	07:06	12	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
08/19/2015	07:07	07:09	3	14	RECALIBRATION	N/A
08/20/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/20/2015	21:39	23:59	141	13	PROCESS DOWN	N/A
08/21/2015	00:00	02:23	144	13	PROCESS DOWN	N/A
08/21/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/21/2015	09:54	10:38	45	13	PROCESS DOWN	N/A
08/22/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/23/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/23/2015	15:55	16:02	8	13	PROCESS DOWN	N/A
08/24/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/24/2015	07:40	14:49	430	13	PROCESS DOWN	N/A
08/25/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/26/2015	06:45	10:04	200	13	PROCESS DOWN	N/A
08/27/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/27/2015	12:02	12:25	24	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
08/27/2015	12:49	12:53	5	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
08/27/2015	13:34	14:32	59	13	PROCESS DOWN	N/A
08/28/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/29/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/29/2015	16:24	16:30	7	14	RECALIBRATION	N/A
08/30/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/30/2015	06:55	06:55	1	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
08/30/2015	06:56	06:59	4	14	RECALIBRATION	N/A
08/31/2015	06:52	06:54	3	14	RECALIBRATION	N/A
08/31/2015	07:45	13:41	357	13	PROCESS DOWN	N/A
09/01/2015	06:52	06:54	3	14	RECALIBRATION	N/A
09/01/2015	09:20	12:25	186	13	PROCESS DOWN	N/A
09/02/2015	06:52	06:54	3	14	RECALIBRATION	N/A
09/03/2015	06:52	06:54	3	14	RECALIBRATION	N/A
09/03/2015	06:55	07:07	13	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/03/2015	07:08	07:10	3	14	RECALIBRATION	N/A
09/03/2015	07:36	08:46	71	13	PROCESS DOWN	N/A

DATE	START TIME	END TIME	DURATION	CODE	EXPLANATION	CORRECTIVE ACTION
09/04/2015	06:52	06:54	3	14	RECALIBRATION	N/A
09/05/2015	06:52	06:54	3	14	RECALIBRATION	N/A
09/06/2015	05:04	05:05	2	13	PROCESS DOWN	N/A
09/06/2015	06:52	06:54	3	14	RECALIBRATION	N/A
09/07/2015	06:52	06:54	3	14	RECALIBRATION	N/A
09/08/2015	06:51	06:53	3	14	RECALIBRATION	N/A
09/08/2015	08:41	13:45	305	13	PROCESS DOWN	N/A
09/09/2015	06:51	06:53	3	14	RECALIBRATION	N/A
09/09/2015	06:54	07:35	42	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/09/2015	07:36	07:38	3	14	RECALIBRATION	N/A
09/10/2015	06:51	06:53	3	14	RECALIBRATION	N/A
09/10/2015	06:54	07:20	27	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/10/2015	07:21	07:23	3	14	RECALIBRATION	N/A
09/10/2015	09:42	09:44	3	13	PROCESS DOWN	N/A
09/10/2015	09:45	11:13	89	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
09/10/2015	11:14	14:04	171	13	PROCESS DOWN	N/A
09/10/2015	14:05	14:08	4	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	14:09	14:10	2	13	PROCESS DOWN	N/A
09/10/2015	14:11	14:28	18	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/10/2015	14:29	15:30	62	14	RECALIBRATION	N/A
09/10/2015	15:31	15:35	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	15:36	15:45	10	14	RECALIBRATION	N/A
09/10/2015	15:46	15:46	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	15:47	15:52	6	14	RECALIBRATION	N/A
09/10/2015	15:53	15:56	4	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	15:57	16:10	14	14	RECALIBRATION	N/A
09/10/2015	16:11	16:12	2	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	16:13	16:26	14	14	RECALIBRATION	N/A
09/10/2015	16:27	16:27	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	16:28	16:52	25	14	RECALIBRATION	N/A
09/10/2015	16:53	16:53	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	16:54	17:00	7	14	RECALIBRATION	N/A
09/10/2015	17:01	17:04	4	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
09/10/2015	17:05	17:17	13	14	RECALIBRATION	N/A
09/10/2015	17:18	17:19	2	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	17:20	17:23	4	14	RECALIBRATION	N/A
09/10/2015	17:24	17:28	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	17:29	17:40	12	14	RECALIBRATION	N/A
09/10/2015	17:41	17:41	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	17:42	18:10	29	14	RECALIBRATION	N/A
09/10/2015	18:11	18:11	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/10/2015	19:01	19:18	18	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
09/10/2015	19:19	20:40	82	14	RECALIBRATION	N/A
09/10/2015	20:41	20:41	1	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
09/10/2015	20:42	21:09	28	14	RECALIBRATION	N/A
09/10/2015	21:10	21:21	2	18	DATA HANDLING SYSTEM MALFUNCTION	ROUTINE MAINTENANCE PERFORMED ON DA
09/10/2015	21:12	21:43	32	14	RECALIBRATION	N/A
09/10/2015	21:44	21:44	1	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/10/2015	21:45	21:45	1	14	RECALIBRATION	N/A
09/10/2015	21:46	21:47	2	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/10/2015	21:48	21:48	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/10/2015	21:49	21:52	4	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/10/2015	21:53	22:06	14	14	RECALIBRATION	N/A
09/10/2015	22:07	22:07	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/10/2015	22:08	22:11	4	14	RECALIBRATION	N/A
09/10/2015	22:12	22:13	2	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/10/2015	22:14	22:17	4	14	RECALIBRATION	N/A
09/10/2015	22:18	22:20	3	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/10/2015	22:21	22:22	2	14	RECALIBRATION	N/A
09/10/2015	22:23	22:23	1	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO

* New meter installation

DATE	START TIME	END TIME	DURATION	CODE	EXPLANATION	CORRECTIVE ACTION
09/10/2015	22:24	23:59	96	14	RECALIBRATION	N/A
09/11/2015	00:00	08:35	516	14	RECALIBRATION	N/A
09/11/2015	08:36	08:37	2	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	08:38	08:38	1	14	RECALIBRATION	N/A
09/11/2015	08:39	08:41	3	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/11/2015	08:42	08:42	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	08:43	08:54	12	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/11/2015	08:55	08:56	2	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/11/2015	08:57	08:58	2	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/11/2015	08:59	09:02	4	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	09:03	09:39	37	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/11/2015	09:40	09:44	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/11/2015	09:45	09:54	10	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/11/2015	09:55	09:59	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/11/2015	10:00	10:01	2	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/11/2015	10:02	10:06	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/11/2015	10:38	10:40	3	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	10:52	10:56	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/11/2015	10:57	10:59	3	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/11/2015	11:00	11:04	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/11/2015	11:07	11:07	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	11:26	11:33	8	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	11:47	11:52	6	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	12:18	12:26	9	18	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	12:38	12:40	3	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	12:51	12:53	3	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	13:04	13:06	3	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	13:16	13:18	3	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	13:59	14:11	13	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	14:13	14:13	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/11/2015	14:15	14:19	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/12/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/12/2015	10:52	10:56	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/12/2015	11:28	11:28	1	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/13/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/14/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/14/2015	10:46	11:05	20	13	PROCESS DOWN	N/A
09/15/2015	05:56	06:01	6	13	PROCESS DOWN	N/A
09/15/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/16/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/17/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/18/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/19/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/20/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/20/2015	06:56	07:01	6	11	EXCESS DRIFT PRIMARY MONITOR	MANUALLY RECALIBRATE PRIMARY MONITO
09/20/2015	07:02	07:11	10	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/21/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/21/2015	08:31	23:59	929	13	PROCESS DOWN	N/A
09/22/2015	00:00	01:08	69	13	PROCESS DOWN	N/A
09/22/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/23/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/24/2015	06:40	06:50	11	13	PROCESS DOWN	N/A
09/24/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/24/2015	06:56	07:51	56	13	PROCESS DOWN	N/A
09/25/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/26/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/27/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/28/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/28/2015	07:24	15:50	507	13	PROCESS DOWN	N/A
09/29/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE

DATE	START TIME	END TIME	DURATION	CODE	EXPLANATION	CORRECTIVE ACTION
09/30/2015	06:51	06:55	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/30/2015	07:08	07:09	2	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/30/2015	07:10	07:14	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/30/2015	07:21	07:23	3	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/30/2015	07:33	07:34	2	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/30/2015	07:35	07:39	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE
09/30/2015	07:40	07:40	1	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/30/2015	07:45	07:55	11	16	PRIMARY MONITOR MALFUNCTION	CORRECTIVE MAINTENANCE PERFORMED ON
09/30/2015	07:56	08:00	5	20	CORRECTIVE MAINTENANCE	ROUTINE MAINTENANCE PERFORMED ON CE

INCIDENT SUMMARY: INVALID OPACITY (%)

CODE	HOURS	PERCENT	EXPLANATION
11	19.80	10.47	EXCESS DRIFT PRIMARY MONITOR ✓
13	116.35	61.54	PROCESS DOWN ✓
14	21.17	11.20	RECALIBRATION ✓
16	21.90	11.58	PRIMARY MONITOR MALFUNCTION ✓
18	3.92	2.07	DATA HANDLING SYSTEM MALFUNCTION ✓
20	5.93	3.14	CORRECTIVE MAINTENANCE ✓

72.72

TOTAL HOURS: 189.07

$$\begin{array}{r}
 92 \text{ days in Q-3-2015} = 2208.00 \\
 - 116.35 \\
 \hline
 2091.65
 \end{array}$$

$$\begin{array}{r}
 2091.65 - 72.72 \\
 \hline
 2018.93 \times 100 = 96.52
 \end{array}$$

Continuous Opacity Monitoring Reports

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COMPANY: VEOLIA WATER NORTH AMERICA
 LOCATION: Naugatuck, CT
 SOURCE: FB Incinerator
 CEMS ID: 1234567
 DATE CREATED: 10/13/2015 @ 07:33
 PERIOD: 07/01/2015 - 09/30/2015

INCIDENT: HI 1-HR OPACITY (%)

DATE	START TIME	END TIME	DURATION	AVERAGE VALUE	HI/LOW VALUE	SETPOINT	DIFFERENCE	CODE	EXPLANATION	CORRECTIVE ACTION
07/01/2015	NO	INCIDENT	OCCURRED							
07/02/2015	NO	INCIDENT	OCCURRED							
07/03/2015	NO	INCIDENT	OCCURRED							
07/04/2015	NO	INCIDENT	OCCURRED							
07/05/2015	NO	INCIDENT	OCCURRED							
07/06/2015	NO	INCIDENT	OCCURRED							
07/07/2015	NO	INCIDENT	OCCURRED							
07/08/2015	NO	INCIDENT	OCCURRED							
07/09/2015	NO	INCIDENT	OCCURRED							
07/10/2015	NO	INCIDENT	OCCURRED							
07/11/2015	NO	INCIDENT	OCCURRED							
07/12/2015	NO	INCIDENT	OCCURRED							
07/13/2015	NO	INCIDENT	OCCURRED							
07/14/2015	NO	INCIDENT	OCCURRED							
07/15/2015	NO	INCIDENT	OCCURRED							
07/16/2015	NO	INCIDENT	OCCURRED							
07/17/2015	NO	INCIDENT	OCCURRED							
07/18/2015	NO	INCIDENT	OCCURRED							
07/19/2015	NO	INCIDENT	OCCURRED							
07/20/2015	NO	INCIDENT	OCCURRED							
07/21/2015	NO	INCIDENT	OCCURRED							
07/22/2015	NO	INCIDENT	OCCURRED							
07/23/2015	NO	INCIDENT	OCCURRED							
07/24/2015	NO	INCIDENT	OCCURRED							
07/25/2015	NO	INCIDENT	OCCURRED							
07/26/2015	NO	INCIDENT	OCCURRED							
07/27/2015	NO	INCIDENT	OCCURRED							
07/28/2015	NO	INCIDENT	OCCURRED							
07/29/2015	NO	INCIDENT	OCCURRED							
07/30/2015	NO	INCIDENT	OCCURRED							
07/31/2015	NO	INCIDENT	OCCURRED							
08/01/2015	NO	INCIDENT	OCCURRED							
08/02/2015	NO	INCIDENT	OCCURRED							
08/03/2015	NO	INCIDENT	OCCURRED							
08/04/2015	NO	INCIDENT	OCCURRED							
08/05/2015	NO	INCIDENT	OCCURRED							
08/06/2015	NO	INCIDENT	OCCURRED							
08/07/2015	NO	INCIDENT	OCCURRED							
08/08/2015	NO	INCIDENT	OCCURRED							
08/09/2015	NO	INCIDENT	OCCURRED							
08/10/2015	NO	INCIDENT	OCCURRED							
08/11/2015	NO	INCIDENT	OCCURRED							
08/12/2015	NO	INCIDENT	OCCURRED							
08/13/2015	ND	INCIDENT	OCCURRED							
08/14/2015	NO	INCIDENT	OCCURRED							
08/15/2015	NO	INCIDENT	OCCURRED							
08/16/2015	NO	INCIDENT	OCCURRED							
08/17/2015	NO	INCIDENT	OCCURRED							
08/18/2015	NO	INCIDENT	OCCURRED							
08/19/2015	NO	INCIDENT	OCCURRED							

DATE	START TIME	END TIME	DURATION	AVERAGE VALUE	HI/LOW VALUE	SETPOINT	DIFFERENCE	CODE	EXPLANATION	CORRECTIVE ACTION
08/20/2015	NO	INCIDENT	OCCURRED							
08/21/2015	NO	INCIDENT	OCCURRED							
08/22/2015	NO	INCIDENT	OCCURRED							
08/23/2015	NO	INCIDENT	OCCURRED							
08/24/2015	NO	INCIDENT	OCCURRED							
08/25/2015	NO	INCIDENT	OCCURRED							
08/26/2015	NO	INCIDENT	OCCURRED							
08/27/2015	NO	INCIDENT	OCCURRED							
08/28/2015	NO	INCIDENT	OCCURRED							
08/29/2015	NO	INCIDENT	OCCURRED							
08/30/2015	NO	INCIDENT	OCCURRED							
08/31/2015	NO	INCIDENT	OCCURRED							
09/01/2015	NO	INCIDENT	OCCURRED							
09/02/2015	NO	INCIDENT	OCCURRED							
09/03/2015	NO	INCIDENT	OCCURRED							
09/04/2015	NO	INCIDENT	OCCURRED							
09/05/2015	NO	INCIDENT	OCCURRED							
09/06/2015	NO	INCIDENT	OCCURRED							
09/07/2015	NO	INCIDENT	OCCURRED							
09/08/2015	NO	INCIDENT	OCCURRED							
09/09/2015	NO	INCIDENT	OCCURRED							
09/10/2015	NO	INCIDENT	OCCURRED							
09/11/2015	NO	INCIDENT	OCCURRED							
09/12/2015	NO	INCIDENT	OCCURRED							
09/13/2015	NO	INCIDENT	OCCURRED							
09/14/2015	NO	INCIDENT	OCCURRED							
09/15/2015	NO	INCIDENT	OCCURRED							
09/16/2015	NO	INCIDENT	OCCURRED							
09/17/2015	NO	INCIDENT	OCCURRED							
09/18/2015	NO	INCIDENT	OCCURRED							
09/19/2015	NO	INCIDENT	OCCURRED							
09/20/2015	NO	INCIDENT	OCCURRED							
09/21/2015	NO	INCIDENT	OCCURRED							
09/22/2015	NO	INCIDENT	OCCURRED							
09/23/2015	NO	INCIDENT	OCCURRED							
09/24/2015	NO	INCIDENT	OCCURRED							
09/25/2015	NO	INCIDENT	OCCURRED							
09/26/2015	NO	INCIDENT	OCCURRED							
09/27/2015	NO	INCIDENT	OCCURRED							
09/28/2015	NO	INCIDENT	OCCURRED							
09/29/2015	NO	INCIDENT	OCCURRED							
09/30/2015	NO	INCIDENT	OCCURRED							

CO @7% AVAILABILITY AND VALIDITY

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COMPANY: VEOLIA WATER NORTH AMERICA
 LOCATION: Naugatuck, CT
 SOURCE: FB Incinerator
 CEMS ID: 1234567
 DATE CREATED: 10/13/2015 @ 07:31
 PERIOD: 07/01/2015 - 09/30/2015

DATE	SOURCE ON (HRS)	CO @7% (ppmvd)	DAS DOWN (HRS)
07/01/2015	24.00	10.4	0.00
07/02/2015	24.00	9.5	0.00
07/03/2015	21.00	24.8	0.00
07/04/2015	24.00	21.8	0.00
07/05/2015	24.00	4.9	0.00
07/06/2015	23.50	2.8	0.00
07/07/2015	20.75	16.3	0.00
07/08/2015	24.00	22.4	0.00
07/09/2015	24.00	16.9	0.00
07/10/2015	24.00	4.0	0.00
07/11/2015	24.00	0.8	0.00
07/12/2015	24.00	0.6	0.00
07/13/2015	18.73	2.6	0.00
07/14/2015	24.00	1.5	0.00
07/15/2015	24.00	0.3	0.00
07/16/2015	24.00	5.4	0.00
07/17/2015	24.00	4.0	0.00
07/18/2015	24.00	4.8	0.00
07/19/2015	24.00	4.0	0.00
07/20/2015	13.68	29.1	0.00
07/21/2015	24.00	1.7	0.00
07/22/2015	24.00	0.3	0.00
07/23/2015	24.00	0.1	0.00
07/24/2015	24.00	0.2	0.00
07/25/2015	24.00	0.3	0.00
07/26/2015	24.00	0.0	0.00
07/27/2015	24.00	0.1	0.00
07/28/2015	22.13	0.0	0.00
07/29/2015	24.00	6.0	0.00
07/30/2015	23.73	10.3	0.00
07/31/2015	21.35	11.7	0.00
08/01/2015	24.00	7.3	0.00
08/02/2015	24.00	6.9	0.00
08/03/2015	17.07	8.8	0.00
08/04/2015	23.67	8.2	0.00
08/05/2015	24.00	9.5	0.00
08/06/2015	23.70	9.2	0.00
08/07/2015	24.00	4.3	0.00
08/08/2015	22.00	2.5	1.08
08/09/2015	23.55	0.6	0.40

DATE	SOURCE ON (HRS)	CO @7% (ppmvd)	DAS DOWN (HRS)
08/10/2015	17.40	7.4	0.00
08/11/2015	22.90	3.4	0.00
08/12/2015	24.00	10.8	0.00
08/13/2015	23.83	10.0	0.00
08/14/2015	24.00	10.0	0.00
08/15/2015	24.00	4.6	0.00
08/16/2015	24.00	5.8	0.00
08/17/2015	13.63	5.5	0.00
08/18/2015	20.77	14.4	0.00
08/19/2015	24.00	16.6	0.00
08/20/2015	21.65	7.6	0.00
08/21/2015	20.85	6.9	0.00
08/22/2015	24.00	5.3	0.00
08/23/2015	23.87	4.7	0.00
08/24/2015	16.83	0.0	0.00
08/25/2015	24.00	5.4	0.00
08/26/2015	20.67	9.4	0.00
08/27/2015	23.02	2.9	0.45
08/28/2015	24.00	11.5	0.00
08/29/2015	24.00	9.6	0.00
08/30/2015	24.00	6.6	0.00
08/31/2015	18.05	4.7	0.00
09/01/2015	20.90	4.3	0.00
09/02/2015	24.00	6.9	0.00
09/03/2015	22.82	2.5	0.00
09/04/2015	24.00	12.0	0.00
09/05/2015	24.00	6.2	0.00
09/06/2015	23.97	0.7	0.00
09/07/2015	24.00	0.8	0.00
09/08/2015	18.92	5.9	0.00
09/09/2015	24.00	6.7	0.00
09/10/2015	16.87	11.6	1.88
09/11/2015	24.00	14.5	0.00
09/12/2015	24.00	13.4	0.00
09/13/2015	24.00	4.8	0.00
09/14/2015	23.67	4.2	0.00
09/15/2015	23.90	12.3	0.00
09/16/2015	24.00	16.3	0.00
09/17/2015	24.00	14.2	0.00
09/18/2015	24.00	9.8	0.00
09/19/2015	24.00	4.7	0.00
09/20/2015	24.00	2.7	0.00
09/21/2015	8.52	0.2	0.00
09/22/2015	22.85	14.2	0.00
09/23/2015	24.00	18.3	0.00
09/24/2015	22.80	6.7	0.00
09/25/2015	24.00	11.8	0.00
09/26/2015	24.00	6.8	0.00
09/27/2015	24.00	1.5	0.00

DATE	SOURCE ON (HRS)	CO @7% (ppmvd)	DAS DOWN (HRS)
09/28/2015	15.55	3.5	0.00
09/29/2015	24.00	14.3	0.00
09/30/2015	24.00	9.7	0.00

	SOURCE ON (HRS)	CO @7% (ppmvd)	DAS DOWN (HRS)
AVERAGE		7.4	
TOTAL	2083.08		3.82
AVAILABILITY		98.39	

OPACITY AVAILABILITY AND VALIDITY

COMPANY: VEOLIA WATER NORTH AMERICA
 LOCATION: Naugatuck, CT
 SOURCE: FB Incinerator
 CEMS ID: 1294567
 DATE CREATED: 10/13/2015 @ 07:29
 PERIOD: 07/01/2015 - 09/30/2015

DATE	SOURCE ON (HRS)	OPACITY (%)	DAS DOWN (HRS)
07/01/2015	24.00	0.65	0.00
07/02/2015	24.00	5.58	0.00
07/03/2015	21.00	8.34	0.00
07/04/2015	24.00	7.72	0.00
07/05/2015	24.00	7.37	0.00
07/06/2015	23.50	7.23	0.00
07/07/2015	20.75	7.24	0.00
07/08/2015	24.00	0.00	0.00
07/09/2015	24.00	0.00	0.00
07/10/2015	24.00	0.00	0.00
07/11/2015	24.00	0.00	0.00
07/12/2015	24.00	0.00	0.00
07/13/2015	18.73	0.03	0.00
07/14/2015	24.00	0.00	0.00
07/15/2015	24.00	0.00	0.00
07/16/2015	24.00	0.00	0.00
07/17/2015	24.00	0.00	0.00
07/18/2015	24.00	0.00	0.00
07/19/2015	24.00	0.00	0.00
07/20/2015	13.68	0.00	0.00
07/21/2015	24.00	0.00	0.00
07/22/2015	24.00	0.00	0.00
07/23/2015	24.00	0.00	0.00
07/24/2015	24.00	0.00	0.00
07/25/2015	24.00	0.00	0.00
07/26/2015	24.00	0.00	0.00
07/27/2015	24.00	0.00	0.00
07/28/2015	22.13	0.01	0.00
07/29/2015	24.00	0.00	0.00
07/30/2015	23.73	0.00	0.00
07/31/2015	21.35	0.00	0.00
08/01/2015	24.00	0.00	0.00
08/02/2015	24.00	0.00	0.00
08/03/2015	17.07	0.00	0.00
08/04/2015	23.67	0.00	0.00
08/05/2015	24.00	0.00	0.00
08/06/2015	23.70	0.00	0.00
08/07/2015	24.00	0.00	0.00
08/08/2015	22.00	0.00	1.08
08/09/2015	23.55	0.00	0.40

DATE	SOURCE ON (HRS)	OPACITY (%)	DAS DOWN (HRS)
08/10/2015	17.40	0.00	0.00
08/11/2015	22.90	0.00	0.00
08/12/2015	24.00	0.00	0.00
08/13/2015	23.83	0.00	0.00
08/14/2015	24.00	0.00	0.00
08/15/2015	24.00	0.00	0.00
08/16/2015	24.00	0.00	0.00
08/17/2015	13.63	0.00	0.00
08/18/2015	20.77	0.00	0.00
08/19/2015	24.00	0.00	0.00
08/20/2015	21.65	0.00	0.00
08/21/2015	20.85	0.00	0.00
08/22/2015	24.00	0.00	0.00
08/23/2015	23.87	0.00	0.00
08/24/2015	16.83	0.00	0.00
08/25/2015	24.00	0.00	0.00
08/26/2015	20.67	0.00	0.00
08/27/2015	23.02	0.00	0.45
08/28/2015	24.00	0.00	0.00
08/29/2015	24.00	0.00	0.00
08/30/2015	24.00	0.00	0.00
08/31/2015	18.05	0.00	0.00
09/01/2015	20.90	0.00	0.00
09/02/2015	24.00	0.00	0.00
09/03/2015	22.82	0.00	0.00
09/04/2015	24.00	0.00	0.00
09/05/2015	24.00	0.00	0.00
09/06/2015	23.97	0.00	0.00
09/07/2015	24.00	0.00	0.00
09/08/2015	18.92	0.00	0.00
09/09/2015	24.00	0.00	0.00
09/10/2015	16.87	0.00	1.88
09/11/2015	24.00	1.23	0.00
09/12/2015	24.00	1.42	0.00
09/13/2015	24.00	0.88	0.00
09/14/2015	23.67	2.26	0.00
09/15/2015	23.90	1.55	0.00
09/16/2015	24.00	0.96	0.00
09/17/2015	24.00	0.55	0.00
09/18/2015	24.00	0.99	0.00
09/19/2015	24.00	0.84	0.00
09/20/2015	24.00	0.48	0.00
09/21/2015	8.52	1.38	0.00
09/22/2015	22.85	0.08	0.00
09/23/2015	24.00	0.40	0.00
09/24/2015	22.80	0.43	0.00
09/25/2015	24.00	0.59	0.00
09/26/2015	24.00	0.62	0.00
09/27/2015	24.00	1.63	0.00

DATE	SOURCE ON (HRS)	OPACITY (%)	DAS DOWN (HRS)
09/28/2015	15.55	1.38	0.00
09/29/2015	24.00	0.21	0.00
09/30/2015	24.00	0.04	0.00

	SOURCE ON (HRS)	OPACITY (%)	DAS DOWN (HRS)
TOTAL	2083.08		3.82
AVAILABILITY		96.10	



Sent Certified R.R.R. mail # 7014 1200 0002 2236 9838 on October 12, 2015

October 12, 2015

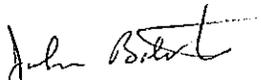
Connecticut Department of Energy and Environmental Protection
Mr. John Degirolamo
Bureau of Air Management
Engineering and Enforcement Division
79 Elm Street
Hartford, CT 06106-5127

Re: Third Quarter CGA and Opacity Audit

Dear Mr. Degirolamo

Enclosed please find a copy of the third quarter CGA and Opacity Audits. The tests indicate the system met all of the requirements.

Sincerely,
Veolia Water North America – Northeast, LLC


John Batorski
Project Manager

Enclosure: RATA Test Reports

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



Test Report – CEMS Cylinder Gas & Opacity Audit Third Quarter 2015

**CEMS/COMS Monitoring the Fluidized Bed Incinerator
Borough of Naugatuck
Naugatuck, CT**

PREPARED FOR: Veolia Water
500 Cherry Street
Naugatuck, Connecticut 06770

CONCERNING: Cylinder Gas Audit (CGA) and Opacity Audit
Fluidized Bed Incinerator
500 Cherry Street
Naugatuck, Connecticut 06770

PREPARED BY: CK Environmental, Inc.
1020 Turnpike Street, Suite # 8
Canton, MA 02021

CK Project No. 4861

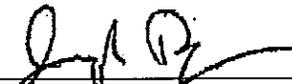
October 9, 2015

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



REPORT REVIEW CERTIFICATION

I, the undersigned, hereby certify that I have personally reviewed this report and to the best of my knowledge all information and calculations contained herein are true, accurate, and complete.

Prepared by: 
Joseph Duggan / Project Manager

Reviewed by: 
Michael Unterweger / Project Manager



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TEST SUMMARY

Facility Name: **Veolia Water North America – Northeast, LLC**
500 Cherry Street
Naugatuck, Connecticut

Facility Contact: **Veolia Water NA – Northeast, LLC**
John Batorski / Plant Manager
Tel. No. 203-723-1433
Email: john.batorski@veoliawaterna.com

Regulatory Agency:
Contact: **State of Connecticut**
Department of Energy and Environmental Protection
John Degirolamo / Air Pollution Control Engineer
Tel. No. 203-424-3562

Testing Organization: **CK Environmental, Inc.**
1020 Turnpike Street, Suite 8
Canton, Massachusetts 02021

Project Manager: Mr. Michael Unterweger / Project Manager
Tel. No. 781-828-5200
Email: munterweger@cke.us

Test Personnel: Mr. Michael Unterweger / Project Engineer

Unit Tested: Sludge Incinerator Exhaust Stack

Test Date: September 10-11, 2015
October 6, 2015



1.0 INTRODUCTION

1.1 Summary of Test Program

CK Environmental, Inc. (CK) was contracted by Veolia Water North America to conduct a cylinder gas audit (CGA) and an opacity audit on the Continuous Emissions Monitoring System (CEMS) which monitors the emissions at the Fluidized Bed Incinerator located in Naugatuck, Connecticut. The CEMS/COMS monitor the emissions of oxygen, carbon monoxide and opacity from the incinerator operated at this facility. Auditing of the CEMS/COMS was conducted on September 10-11 and October 6, 2015.

The purpose of this test program was to demonstrate that the accuracy of the CEMS/COMS operated at this facility and to ensure that it met the acceptance criteria for relative accuracy (RA) as required by the Code of Federal Regulations, Title 40 - Part 60, Appendix F, Section 5.0. A new opacity monitor was also installed recently to replace the existing one. The opacity field audit performance tests were performed to satisfy the requirements of "Performance Specification 1, Section 8.0.

A brief description of the facility is contained in Section 2.0. Section 3.0 of this test report summarizes the results of this testing program. Section 4.0 describes the test methods and procedures used. The CK quality assurance procedures are detailed in Section 5.0. Test field data sheets have been included in Appendix A. Facility CEMS and process data printouts are presented in Appendix B. All relevant calibration documentation has been provided in Appendix C.

1.2 Key Personnel

The test program was coordinated by John Batorski. Mr. Michael Unterweger of CK is the project manager for this effort and was responsible for all on-site audit activities. Contact information for key personnel can be found in Table 1-1 below.

Table 1-1
Key Personnel

Contact	Company	Telephone No.
John Batorski	Veolia Water	203-723-1433
Michael Unterweger	CK Environmental, Inc.	781-828-5200



2.0 PLANT AND SAMPLING SYSTEM DESCRIPTION

2.1 Process Description and Operation

Veolia Water North America Northeast, LLC operates the Borough of Naugatuck POTW which incinerates approximately 51 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 (O₂) 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 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 M&C Tech Group Model ECS thermoelectric gas sample chiller contains two (2) glass 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 are Teflon, Kynar or stainless steel.

The COM system monitors the opacity emissions present in the exit gas of the FBI stack. The COMS was recently upgraded to a Land Combustion, Model 4500 Mark III, opacity monitor. This monitor is a microprocessor based system and operates in a dual pass mode in the visible light spectrum. Data collection and daily calibration error checks are performed by the data acquisition handling system (DAHS).

Table 2-1
CEMS Specifications

Parameter	Manufacturer	Model	Serial No.	Range
O2, Dry	Siemens	Oxymat 6E	7MB20211 EA000AA 1	0-25%
CO	Thermo Environmental	48i	1405660903	0-300 ppmvd
Opacity	Land	4500 Mark III	0095478	0-100%

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 CTDEP 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 Contec 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.



3.0 SUMMARY OF RESULTS

3.1 Objectives

The purpose of this test program was to demonstrate that the accuracy of the CEMS/COMS operated at this facility and to ensure that it met the acceptance criteria for relative accuracy (RA) as required by the Code of Federal Regulations, Title 40 - Part 60, Appendix F, Section 5.0. Since a new opacity monitor was installed recently to replace the existing one the opacity field audit performance tests were performed to satisfy the requirements of "Performance Specification 1, Section 8.0. The testing satisfied the requirements set forth in the facility's Title V permit (Permit No 109-0059-TV).

3.2 Field Test Changes

All testing was conducted in accordance with the current regulations listed in Section 3.1 of this report. The COMS averaging period calculation and recording check performance test was re-tested on October 6, 2015 due to an error with the data acquisition and handling system on September 11, 2015.

3.3 Presentation of Results

A CGA was conducted on the outlet CEMS installed on the incinerator operated at this facility to document the CEMS RA for the third quarter 2015. The CEMS oxygen and carbon monoxide CGA was conducted on September 10, 2015. The COMS audits were conducted September 11, 2015. The COMS averaging period calculation and recording check was re-tested on October 6, 2015 due to an error with the DAHS.

Table 3-1 summarizes the test results for each of the parameters of the CEMS. All monitors were able to demonstrate compliance with the acceptance criteria of 40 CFR Part 60, Appendix B of less than or equal to 15 percent of each audit gas standard concentration during the CGA. Table 3-2 summarizes the COMS test results with criteria found in Performance Specification 1 with the opacity monitor reading with less than 3% difference from the corrected filter value.



4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 Cylinder Gas Audit Procedure

The CGAs were conducted in accordance with the test procedures and acceptance criteria of 40 CFR 60, Appendix F. All pollutant and diluent gas monitors were each challenged three times with two different calibration standards, a low audit point and a mid-audit point. The responses of the monitors to the gas standards were recorded by the facility data acquisition and handling system (DAHS). The RA of each monitor was determined for each standard as the difference between the average response to the standard and the standard concentration as an absolute difference, and as a percentage of the standard concentration. The protocol calibration gases were directed into the same location that the gases are sent into for the daily calibrations.

4.2 Opacity Audit Procedure

A series of field audit performance tests were conducted on the newly installed opacity monitor. First, an optical alignment assessment and system response time check were performed and the results located in Appendix A of this report. Second, the opacity calibration error check was performed by alternately passing three filters of differing optical density ($\approx 10\%$, 20% and 35%) into the opacity monitor. The results of the audit were calculated using the average response of the monitor over the passes of the filters. The outcome of the opacity calibration error check is based on the results of five passes of the filters. Finally, the averaging period calculation and recording check was conducted by consecutively inserting each of the filters into the monitor and recording each for a period of 13 minutes.

5.0 CK's QUALITY ASSURANCE PROCEDURES

CK's emission test teams are committed to providing high quality source emissions measurement services. To meet this commitment, CK follows appropriate US EPA sampling procedures and implements appropriate 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 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) as well as CK's in house Quality Manual.

5.1 Sampling

Compressed gases used as audit standards are always US EPA Traceability Protocol certified calibration gas standards, certified in accordance with Procedure No. G1 with an analytical accuracy of ± 1 percent. The Certificates of Analysis for the gas standards used during the performance of the CGA were available on site and are presented in Appendix C.



All opacity filters are calibrated and certified by Environmental Monitor Service, Inc. Each filter is assigned a serial number and calibrated on an annual basis. All calibration certificates can be found in Appendix C.

5.2 Reporting

All reports undergo a tiered review. The first review of the report and calculations are made by the report's author. A second review is then performed by another Project Engineer/Scientist. The review process is verified by the signed Report Review Certification which has been included as part of this test report.



TABLES



Table 3.1 Summary of Results
Cylinder Gas Audit
FB Incinerator
Veolia Water NA - Naugatuck, CT
Naugatuck, Connecticut
3rd Qtr - 2015

CEMS	Test Date	Monitor	Span / Units	Cylinder Gas Audit			CGA Criteria	
				Standard Conc.	Average Response	Error (% of std.conc.)		Error (abs. diff.)
Oxygen	09/10/15	Siemens	0-25%	5.01	4.70	6.19	0.31	15.0% or 0.5% O ₂
				10.00	9.60	4.00	0.40	15.0% or 0.5% O ₂
Carbon Monoxide	09/10/15	TECO	0-300 ppm	75.00	72.97	2.71	2.03	15.0% or 5 ppm
				167.80	162.67	3.06	5.13	15.0% or 5 ppm

Table 3.2 Summary of Results

OPACITY AUDIT CALCULATION SHEET



CLIENT: Veolia Water NA - Naugatuck, CT
 SOURCE: FB Incinerator

DATE: 9/11/15
 AUDITOR: Robert Ciriello

Actual Filter Values

Corrected Filter Values (2)

Actual Filter Values

PATH LENGTH CORRECTION FACTOR (PLCF) = N/A
 LOW CALIBRATION FILTER VALUE = 9.72
 MID CALIBRATION FILTER VALUE = 20.06
 HIGH CALIBRATION FILTER VALUE = 32.70

Run #	Zero	Low	Mid	High
Pre Zero	0.3			
1		9.11	20.50	33.46
2		9.61	20.38	32.71
3		7.96	19.59	32.08
4		8.20	19.06	32.43
5		8.45	18.84	32.42
13 Min Avg	0.00	9.61	20.28	32.96
Post Zero	0.00			

N	Low	Value	Delta L	Del L ²	N	Mid	Value	Delta L	Del L ²	N	High	Value	Delta L	Del L ²
1	9.1	9.7	0.4	0.1	1	20.5	20.1	0.4	0.2	1	33.5	32.7	0.8	0.6
2	9.6	9.7	-0.1	0.0	2	20.4	20.1	0.3	0.1	2	32.7	32.7	0.0	0.0
3	8.0	9.7	-1.8	3.1	3	19.6	20.1	-0.5	0.2	3	32.1	32.7	-0.6	0.4
4	8.2	9.7	-1.5	2.3	4	19.1	20.1	-1.0	1.0	4	32.4	32.7	-0.3	0.1
5	8.5	9.7	-1.3	1.6	5	18.8	20.1	-1.2	1.5	5	32.4	32.7	-0.3	0.1
Sum =			-4.3	7.2	Sum =			-1.9	3.0	Sum =			-0.4	1.1
A = Sum (Delta L) ² =			18.4		A = Sum (Delta L) ² =			3.7		A = Sum (Delta L) ² =			0.2	
B = Sum (Delta L ²) =			7.2		B = Sum (Delta L ²) =			3.0		B = Sum (Delta L ²) =			1.1	
N =			5.0		N =			5.0		N =			5.0	
(N * B) - A =			17.5		(N * B) - A =			11.3		(N * B) - A =			5.4	

Mean Error (ME) = (Sum Delta L / N)

ME = **-0.9**

Confidence Interval (CI) = SQRT((N*B)-A)*0.2776

CI = **1.2**

Calibration Error = ABS (ME) + CI

Calibration Error (1) = **2.0**

6 Minute Average Mean Error = **0.1**

Mean Error (ME) = (Sum Delta L / N)

ME = **-0.4**

Confidence Interval (CI) = SQRT((N*B)-A)*0.2776

CI = **0.9**

Calibration Error = ABS (ME) + CI

Calibration Error (1) = **1.3**

6 Minute Average Mean Error = **0.2**

Mean Error (ME) = (Sum Delta L / N)

ME = **-0.1**

Confidence Interval (CI) = SQRT((N*B)-A)*0.2776

CI = **0.6**

Calibration Error = ABS (ME) + CI

Calibration Error (1) = **0.7**

6 Minute Average Mean Error = **0.3**

(1) - Calculated per 40 CFR 60 Appendix F Procedure 3 (CE ≤ 3.0)

(2) - Corrected Filter Value = 1-(1-Actual Filter Value)^{PLCF}

where the actual filter value = (Labeled % opacity / 100)



October 23, 2015

James Stewart, P.E.
Director, Department of Public Works
Borough of Naugatuck
229 Church Street
Naugatuck, Connecticut 06770

Subject: Veolia – Naugatuck Service Contract for Wastewater Treatment System Capital Improvements and Asset Management
Request for Preliminary Plan for the SSI Upgrades

Dear Mr. Stewart:

This responds to your letter dated September 1, 2015 requesting that Veolia provide a preliminary plan for implementing the Capital Modification(s) necessary to address the design, construction, operation and maintenance of a combined biological / chemical phosphorus removal system for the Wastewater Treatment System.

Per Section 11.5 B, Preliminary Lessee Plan and Lessor Review, our proposal includes recommendations as to the technology (including reasonable alternatives), design, construction, equipment, materials, and operating and performance impacts as well as a preliminary schedule, capital and operation cost estimates.

Our estimates of both schedule and price with respect to any capital modifications are subject to a final engineering proposal. We are providing our proposal on a cost plus basis (plus 16%) for all services, including but not limited to all evaluations, studies, design, construction, operation and maintenance costs.

PHASE I

1. Bench testing of Ferric Chloride and Poly-aluminum (currently ongoing through our chemical vendors).
2. Provide Borough assistance in requesting a pilot program for chemical P removal to CTDEEP, outlining long-term objectives upon completion of the pilot study in exchange for a NPDES permit compliance deadline extension.
3. Implementation of a 60 day chemical phosphorus removal trial with temporary pumps, pipes, valves, fittings and chemical storage.
4. Concurrent with Scope Item 3, a review of necessary modifications to the existing aeration basins required in order to facilitate bio-chemical phosphorus removal.
5. Implementation of a 60 day chemical phosphorus removal trial with temporary pumps, pipes, valves, fittings and chemical storage.

PHASE II

1. Evaluation and recommendations of the existing chemical pilot test results and estimate of Bio-P removal cost savings impacts.
2. Follow-up assistance to the Borough in presenting results of the chemical phosphorus removal study and recommendations regarding modifications to the aeration tank system configuration necessary to facilitate Bio-P removal, if so desired by the Borough.
3. Continued chemical P removal, subject to negotiated terms agreed upon between the Borough and CT DEEP along with agreed upon terms between the Borough and Veolia.
4. Implementation of retrofit modifications to the aeration tank system for Bio-P removal, if elected by the Borough.

As we have recently discussed, implementation of the chosen plan will require the Borough's request for and successful issuance of an extension by CTDEEP for completion of the design, construction and testing of the new APC upgrades. Such extension should be based on reasonable expectations with respect to the time required to seek financing, the design and construction schedule (including any pilot testing), and timing parameters dictated by final regulatory approvals of the design and construction schedule and final performance testing.

Please note that our focus has been on meeting existing source standards; however, if the Borough desires to meet the new source limits in exchange with DEEP / EPA for an extension, our proposal would need to be revised accordingly.

Veolia looks forward to discussing the elements of this preliminary plan. Our team is prepared to meet with you at your earliest convenience..

In the interim, please don't hesitate to contact me.

Sincerely,

Veolia Water North America – Northeast, LLC

Daniel J. Gorka

Digitally signed by Daniel J. Gorka
DN: cn=Daniel J. Gorka, o=Veolia Water North America -
Northeast, LLC, email=daniel.gorka@veoliawater.com,
c=US
Date: 2015.10.26 14:59:23 -0400

Daniel J. Gorka

Vice President Operations

CC:\ Vincent Martin
John Batorski

Attachments – Preliminary Plan – Sections 1 - 2

PRELIMINARY PLAN – Incinerator MACT Upgrades – Borough of Naugatuck WPCF

SECTION I TECHNICAL REVIEW

Background:

Veolia Water provides operation, maintenance and management services to the Borough of Naugatuck for the Naugatuck wastewater and biosolids treatment facilities under two contracts, the Incinerator Facilities Lease Agreement (Lease Agreement) and the Service Contract for the Wastewater Facilities Asset Management (Service Agreement), respectively. The treatment facility consists of a 10.3 mgd design rated wastewater treatment plant and an 84 dry-ton per day fluidized bed incinerator (FBI) which burns the Borough's sludge as well as merchant sludge. On August 20, 2014, the Connecticut Department of Energy and Environmental Protection issued Municipal NPDES Permit No. CT 0100641 to the Borough for the Wastewater Treatment System.

The permit contains (among others) the following new conditions for the period of April 1st through October 31st :

- Maximum Daily effluent Phosphorus concentration of 1.24 mg/L
- Maximum Monthly Average effluent Phosphorus concentration of 0.55 mg/L
- Maximum Seasonal Average Daily Phosphorus discharge of 16.43 lbs/day during any two consecutive years or any two out of three years.

Of these three permit conditions, the latter condition proves to be the most stringent. Conservatively, based on the average daily flow rate of 5.5 MGD (from 1/1/10 – 9/30/15), the maximum corresponding average daily concentration of Phosphorus required to meet the seasonal maximum average daily limit of 16.43 lbs/day is 0.36 mg/L. When using the seasonal average flow for the same time period, having an average of 5.1 MGD, the maximum corresponding discharge concentration would be 0.39 mg/L.

Conventionally, this would require a tertiary treatment system because chemical or combined chemical / biological phosphorus (P) removal processes cannot reliably achieve effluent concentrations below 0.5 mg/L. The tertiary technology required to get below 0.5 mg/L is most commonly a ballasted flocculation system that is able to provide removal levels to below 0.10 mg/L. While the systems are high rate systems, and therefore relatively compact, the capital expenditure required to install this type of system will be substantial. Further to this, it would not reduce the chemical costs for a stand-alone chemical or combined biological / chemical P removal and could be slightly higher due since the tertiary process will require additional chemical in order to reduce the effluent concentration below 0.5 mg/L.

Understanding of Borough Objectives:

Based on the period of data review, the average daily pounds of effluent discharged was 325 lbs per day. The new permit limits will require a 95% level of removal.

It is Veolia's understanding that the Borough wishes to attempt to achieve P removal as close to, if not below, the maximum allowable discharge limits under the new NPDES permit with minimal upgrades. Additionally, Veolia understands that the Borough wishes to negotiate with CT DEEP a permit compliance deadline extension beyond 2022 and that in doing so, the Borough would perform chemical P removal between now and the current permit compliance deadline of 7/25/2019. This approach would improve water

quality within the Naugatuck River 3 – 3.5 years sooner than CT DEEP required under the existing permit, albeit, the discharge of P may be slightly higher than the allowable permit limits. However, the Borough would have until the end of the proposed new deadline to complete additional upgrades, if compliance could not be achieved.

Veolia also understands that the Borough may wish to enter into a nutrient trading agreement with the Town of Torrington or possibly other POTW's discharging to the Naugatuck River if chemical and/or combined chemical / biological P removal at Naugatuck's WWTP cannot achieve full compliance.

Veolia believes that there are several possible avenues that will yield compliant or near-compliant results in lieu of any major upgrades. As such, Veolia proposes to take a phased approach, that will consider various options in parallel so that the Borough can demonstrate good faith efforts to CT DEEP in achieving compliance.

Based on the above understanding, Veolia proposes the following tasks:

PHASE I

1. Bench testing of Ferric Chloride and Poly-aluminum (currently ongoing through our chemical vendors).
2. Provide Borough assistance in requesting a pilot program for chemical P removal to CTDEEP, outlining long-term objectives upon completion of the pilot study in exchange for a NPDES permit compliance deadline extension.
3. Implementation of a 60 day chemical P removal trial with temporary pumps, pipes, valves, fittings and chemical storage.
4. Concurrent with Scope Items 3, a review of necessary modifications to the existing aeration basins required in order to facilitate bio-P removal.

PHASE II

1. Follow-up assistance to the Borough in presenting results of the chemical P removal study and recommendations regarding modifications to the aeration tank system configuration necessary to facilitate Bio-P removal, if feasible and so desired by the Borough.
2. Continued chemical P removal, subject to negotiated terms agreed upon between the Borough and CT DEEP along with agreed upon terms between the Borough and Veolia.
3. Implementation of retrofit modifications to the aeration tank system for Bio-P removal, if elected by the Borough and Bio-P removal.

PHASE I - Task 1 – Bench Scale Testing

Veolia and Wright-Pierce will provide recommendations as to the most cost effective chemical to use for P removal. The recommendations will be based, in part on the results of chemical vendor provided bench scale tests which will allow Veolia and Wright-Pierce to quantify required dosages and make estimates on additional chemistry changes within the WPCA (if any) that may have to be addressed as a result of using a particular chemical for P removal.

Veolia has already initiated this task in terms of arranging for chemical vendors to perform bench scale testing. The two chemistries under consideration are iron and aluminum based chemicals. In the case of iron, Ferric Chloride has been evaluated under bench scale testing, and within the next few weeks, we will have bench scale testing information on several forms of Poly-aluminum Chloride (PAC). At this time, Veolia and Wright-Pierce feel that PAC is the promising chemical of choice, as it will not impact the pH of the WWTP. It is expected that the use of ferric chloride, however, would suppress the pH to the point of causing inhibition of the secondary treatment system's nitrogen removal biology. This would require additional chemical dosing using caustic, lime or soda ash in order to maintain the appropriate pH level of the secondary treatment process. It is anticipated that the combined cost of ferric chloride and pH adjustment chemicals will exceed the cost of using PAC, alone.

PHASE I - Task II – Assistance with CT DEEP negotiations for a NPDES Compliance Deadline Extension

Subsequent to the Bench Scale Testing and recommendations, Veolia will assist the Borough in preparing for and attending a meeting with CT DEEP to go over our overall approach to piloting as well as long term objectives. Subsequent to the meeting, a brief technical memorandum will be submitted to the Borough for review and approval for submission to CT DEEP.

Along with a bench testing plan, the Technical Memorandum will outline long term objectives which may include, but not be limited to, long-term chemical P removal, biological P removal, nutrient trading and any possible impacts from I&I reduction.

PHASE I - Task III – 60 Day Pilot Study

Veolia proposes to perform a 60 - 90 day 'full scale pilot study' to validate bench scale testing dosage projections, ensure that application points afford the required mixing and quiescent conditions for optimal dosing and precipitation of P and to utilize the results as part of the Phase I Task III.

Based on the results of the bench scale testing optimal addition points, such as the primary effluent addition, secondary effluent, or a combination thereof, would be tested. The study will afford the necessary time to establish the optimal addition points and afford enough time to establish repeatability in the monitoring of dosage and effluent performance.

At this time, it is anticipated that vendor supplied pumps will be supplied with a rental fee for the pilot. Similarly, for chemical storage, the vendor would spot a chemical tanker trailer.

For the chemical supply only, we are estimating a cost of \$90,000 to \$150,000 with the lower end of the range representing what we anticipate for costs when using PAC. The upper range represents the combined chemicals required for P removal and resulting chemicals pH adjustment should ferric chloride be selected. This estimated cost includes Veolia's markup.

PHASE I - Task IV – Combined Chemical P / Bio-P Removal Evaluation

Concurrent to discussions with CT DEEP and the chemical P removal study, Veolia will work with Wright-Pierce to update our existing BioWin model for analysis of BioP removal. This effort will begin with a cursory review of existing and projected flow and loadings to the WPCF based on current assumptions made in the most recent facilities plan or other update.

This effort would then be followed by the following modeling scenarios:

- Chemical / Biological P removal analysis on the existing wastewater treatment system coordination including a preliminary determination of the ideal chemical addition point(s) including primary effluent, aeration effluent and side-stream addition.
- Chemical / Biological P removal analysis with low cost modifications to maximum Bio-P removal and if need be, chemical P removal. Such modifications may include retrofitting 'curtain walls' currently used to create anoxic zones, bleed off of dewatering side-stream centrate / filtrate for Volatile Fatty Acids (VFA) required for Bio-P anaerobic stage release of P in order to facilitate subsequent enhanced P uptake in downstream processes.

The evaluations will incorporate the results of the Full Scale Chemical P removal Pilot study.

Recommended improvements from the above evaluations will be presented to the Borough for review. The recommendations will include a preliminary layout of the proposed improvements, estimates of the capital and operation and maintenance (O&M) costs and a recommended implementation plan and schedule.

PHASE II - Task I – Review and Presentation of P Study Recommendations

Veolia will review the recommendations of the P study with the Borough and develop a strategy and proposed schedule for continued P removal and low cost capital implementations for ultimate proposal and presentation to CT DEEP. Presentation of the results of the study and the projected reduction in P would form the basis of a case made to CT DEEP to extend the upgrade several years past the current deadline in exchange for performing either Chemical or combined Chemical / Bio P removal. The study would include an implementation schedule, estimated capital costs and estimated operating / maintenance costs.

It is envisioned that such a deadline extension would afford the opportunity for other communities discharging to the Naugatuck River the time to determine whether they can achieve enhanced P removal to the extent that they would generate sufficient 'credits' for a nutrient trading program with the Borough. The most likely candidate for such a program would be the Town of Torrington. The Town just completed the facility plan and design for tertiary P removal. Once constructed and on line, the feasibility of such a trading program could be determined.

PHASE II - Task II – Continued Chemical P Removal

Presuming that a compliance deadline extension is successfully negotiated between the Borough and the CT DEEP, Veolia proposes to continue to perform chemical P removal at the Borough – CT DEEP agreed upon start date. Subject to Borough – CT DEEP arrangements, this may be before or start in conjunction with Bio-P removal depending on the outcome of the negotiations. Veolia would propose to perform the chemical removal services on a cost plus basis. Prior to continued chemical removal, should the Borough desire, Veolia will provide a proposal for a permanent chemical pumping and storage system. Otherwise, Veolia would continue to lease the pumps and storage tankers.

Phase II – Task III – Implementation of Bio-P Process Modifications

Veolia proposes to finalize design and construct the recommended Bio-P capital modifications. Our proposal will address the following:

1. Finalized design with construction documents and refined estimates for both low capital modifications and O&M costs.
2. Manage the bidding and construction of the low cost capital modifications.
3. Start up and operate the Bio-P removal.
4. Incorporate monthly results for P removal in the Monthly Operating Report, including the costs and efficiency of the combined chemical / Bio-P process along with effluent results.
5. As part of this effort, Veolia proposes to perform the work on a cost plus basis.

Estimated Chemical P Removal Pilot Study Costs

Below is the estimated costs for equipment and chemicals for the Full Scale Pilot study and Engineering Services for the feasibility evaluation of Bio-P and review of the Full Scale Chemical P Pilot Study..

ESTIMATED COSTS FOR PILOT STUDY & BIO-P EVALUATION	
ITEM	ESTIMATED COST
<u>O&M Costs</u>	
Equipment Rental	\$ 8,100
Ferric Chloride (42%), estimated at 710gal/day at \$1.09/gal	\$ 46,500
Sodium Hydroxide (50%)	\$ 45,000
Electrical	\$ 3,000
Sampling (allowance)	\$ 7,500
Veolia Overhead (6%) and Markup (10%)	\$ 17,616
<u>Engineering Costs</u>	
Phase I - Full Scale Pilot Study Evaluation / Phase II Bio-P Evaluation	\$ 53,000
TOTAL COSTS	\$ 180,716
Note: Pricing based on Ferric Chloride Usage. It is estimated that the costs could be \$20K - \$35K less if performed with Alum or PAC	
Phase 1, Part 1 engineering services described above on a time-charged basis not to exceed \$18,000 (inclusive of reimbursable costs)	

SECTION II IMPLEMENTATION PLAN / NEXT STEPS

Preliminary Plan Review & Discussion

Upon review of the preliminary plan by the Borough, Veolia recommends meeting to discuss the elements of the preliminary plan and the additional options that were provided for consideration. Veolia anticipates that, if its recommendations are adopted, the steps identified below should follow:

1. Summarize Jar Testing Results and develop protocol for the full scale chemical P removal study and present to CT DEEP. (15 Days)
2. CT DEEP approval of the full scale chemical P evaluation (15 days)
3. Procurement of chemical and rental equipment (15 days)
4. Setup of chemical rental equipment (15 days)
5. Full Scale Chemical P Trial (60 days)
6. Summarize results from the Chemical P Removal Trial (15 days)
7. Completion of combined Chemical / Bio-P removal evaluation (15 days) ¹
8. Implementation of continued Chemical P removal 4/1/15 ²
9. Implementation of low capital Bio-P modifications (if elected) TBD

¹ Completion of Item 7 is 30 days after the completion of the Chemical P Trial

² Continued Chemical P removal is desired to be at the start of the P removal permit season independent of Items 6 – 9 if negotiated with the CT DEEP.

Presuming a kick-off date of 11/15/15, all tasks with exception to Item 9, could be completed by mid-April.

Date/Time: Oct. 5. 2015 12:35PM

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7370 Memory TX	18604244067	P. 2	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 NORTH AMERICA
800 Chazy Street
Neyak, UT 84770

Tel: 202-729-1211 / 202-432-9193
Fax: 202-723-4333
www.veoliamerica.com

Fax

TO Iliana Ruffa

FAX 866-429-4662

FROM Jan Batarek

DATE 10-5-15

2 PAGES
2 x 44mm 24 pins

SUBJECT #1 Anoxic Tank

MESSAGE

Scheduled maintenance of mixer in #1
anoxic tank should be complete by Thursday, Oct 8



VEOLIA WATER NORTH AMERICA
600 Cherry Street
Naugatuck, CT 06770

Tel : 203-723-1433 / 888-682-1433
Fax : 203-723-8599
www.veollawatema.com

 Fax

TO Iliana Roffa

FAX 860-424-4067

FROM John Batorski

DATE 10-5-15

2 PAGES:
Including this page

SUBJECT #1 Anoxic Tank-

MESSAGE

Scheduled maintenance of mixers in #1
anoxic tank- Should be complete by Thursday, Oct 8



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER BUREAU



LOSS OF EQUIPMENT/TANKAGE FORM

City or Town: Naugatuck WPCF

Date: 10 / 5 / 15

Loss of equipment/tankage: #1 anoxic tank - scheduled maintenance.

How long will it be before permanent repairs are complete? 2 to 3 days

How many and what kind of back up units or storage do you have? this is scheduled maintenance to change mixers. Five of six tanks will remain service. (starts 10-6-15)

Discovered date: 1 / 1 N/A - scheduled

Will this affect quality of Effluent: Yes No Don't Know

Contact DEP within two hours by phone during normal business hours and file this report within five days.

DATE/ TIME

REPORT LOG

X CT DEP - Iliana Ayala (860) 424-3758 If Iliana Ayala is not available, you **must** call Municipal Facilities Section during normal business hours at:

Voice mail

CT DEP (860) 424-3704 DO NOT LEAVE VOICE MAIL MESSAGES

Name of person contacted

X Fax Report to CT DEP, Iliana Ayala (860) 424-4067

Report Submitted by: John Batorski Title: Plant Manager

Signature: John Batorski Phone #: 203-723-1433 ext 2015

Submit Completed Report to: State of Connecticut
Department of Environmental Protection
Water Bureau - Attention: Iliana Ayala
79 Elm Street
Hartford, CT 06106-5127

To: Connecticut Water Pollution Control Authorities and Water Pollution Control Facilities

Streamlining Sewer Bypass Reporting in Connecticut

The Connecticut Department of Energy and Environmental Protection (DEEP) is in the process of modernizing the sewer bypass notification process for the state.

This is our current sewer bypass notification process:



- 1) Within two hours, municipalities must telephone and speak directly to DEEP staff.
- 2) Additionally, the municipality may also have to telephone the local health department; other state agencies, like the Department of Public Health (DPH) and the Department of Agriculture (DoAg), as well as the Environmental Protection Agency (EPA) Region 1 office.

3) Within five (5) days, the municipality must follow up with a *faxed* report to the DEEP.

- 4) Finally, all this data must be manually entered by DEEP staff into our outdated Access database.



Beginning in 2016, municipalities will finally be able to report sewer bypasses online to all agencies, in one place at one time!

Background

- On July 1, 2012, Public Act No. 12-11, "An Act Concerning the Public's Right to Know of A Sewage Spill", was finalized into law. The main purpose of this legislation is to allow the public to access information about any sewage "bypass" spills by viewing the Department of Energy and Environmental Protection website. The following is a link to Connecticut General Statute Section 22a-424a, Map of Anticipated Sewage Spills:
https://www.cga.ct.gov/current/pub/chap_446k.htm#sec_22a-424a
We successfully completed Part 1 by posting a map of all Combined Sewer Overflow (CSO) locations in 2013. Unfortunately, we are behind schedule with Part 2, which requires us to post all "unanticipated sewage spills", other known as sewer bypasses.
- On September 24, 2015, EPA Administrator Gina McCarthy signed the final National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule ("e-Rule") for

publication in the Federal Register. The NPDES e-Rule begins the transition from paper to electronic reporting to the EPA. For further information about the e-Rule, please visit [Final National Pollutant Discharge Elimination System \(NPDES\) Electronic Reporting Rule | Compliance | US EPA](#)

Building the Web Portal

We are working hard with our consultant to finish building the website portal that will receive sewer bypass notifications.



We will need help from each of our municipalities to reach the finish line. Each municipality must name at least one person who will be officially authorized as a bypass reporter to the DEEP web portal. An Authorized Bypass Reporter Agreement, which is attached, must also be completed for each person.

For our smaller towns, there will likely be only one or two people that will need to be authorized. For many other municipalities, there may be one person who will report bypasses from the treatment plant, and another person who will report any bypasses from the collection system. Our larger cities will likely have multiple people become authorized to report bypasses to the website.

We understand that each municipality will need to carefully consider who these people will be, since whatever information is reported will be immediately available on the DEEP website. But since we are already behind schedule, it is important that we receive this information as soon as possible. **Therefore, we are asking you to provide us with a list of your authorized bypass reporters, with completed Authorized Bypass Reporter Agreements, no later than December 4, 2015.**

Coming in 2016

- Meeting at the DEEP in order to roll out the new web portal;
- Training for each Authorized Bypass Reporter; and
- NPDES permit modification for all Connecticut wastewater treatment plants, in order to officially change our bypass notification procedure.

Thank you in advance for your assistance and cooperation with this transition.

If you have any questions, please contact Iliana Raffa at (860) 424-3758 or iliana.raffa@ct.gov.



Authorized Bypass Reporter Agreement Instructions FOR MUNICIPALITIES

Purpose

The CT DEEP Authorized Bypass Reporter Agreement applies to all electronic sewer bypass reporting requirements, which shall replace paper forms to fulfill filing requirements for applicable Connecticut and federal law and regulations.

Basic Information on Who Should Fill Out the Authorized Bypass Reporter Agreement

- The **"Signatory Authority"** is an *individual* who is authorized to sign bypass report forms on behalf of a permittee per Regulations of Connecticut State Agencies (RCSA) §§ 22a-430-3(b)(2)(A). This person must sign the Authorized Bypass Reporter Agreement in Section A.
 - The Signatory Authority for a municipality is the principal executive officer (Town Manager) or a ranking elected official (Mayor or First Selectperson); or the Chairperson or Chief Executive Officer of the Water Pollution Control Authority.
- The **"Bypass Reporter"** is the person who is authorized (per RCSA §§ 22a-430-3(b)(2)(B)) to report sewer **"bypasses"** (as defined in RCSA §§ 22a-430-3, which includes combined sewer overflow events) to the CT DEEP website. They must sign Section B.
- If the Signatory Authority person (named in Section A) will be also signing and reporting bypasses, then this individual must also sign Section B as an Authorized Bypass Reporter.
- The Signatory Authority may duly authorize other individual(s) to sign and report bypasses. Such individual(s) must each sign a separate Section B as an Authorized Bypass Reporter. (see RCSA §§22a-430-3(b)(2)(B))
- Authorized Bypass Reporters are not required to be employees of the permittee. A contractor or consultant can be named as a *duly authorized representative* of the permittee, and so can be an Authorized Bypass Reporter.
- Keep in mind the permittee is responsible for the accuracy and integrity of all information submitted.

Where to Submit

PRINT AND MAIL THE ORIGINAL completed CT DEEP Authorized Bypass Reporter Agreement below to the address below. Save a copy for your records.

Connecticut Department of Energy & Environmental Protection
Bureau of Water Protection & Land Reuse
Planning & Standards Division – Municipal Facilities Section
ATTN: Bypass Coordinator
79 Elm Street, Hartford, CT 06106-5127

B. Authorized Bypass Reporter Signature (complete for each person who will report sewer bypasses)

Permittee Name:	[City/Town of _____ OR Name of Water Pollution Control Authority; should match Section A]
NPDES Number (applicable if reporting bypasses at treatment plant):	[CT _____]
Authorized Bypass Reporter Name:	[_____]
Email Address:	[_____]
Phone Number:	[_____]
User Name:	[The name that will be used to create your account on the DEEP website]

The Authorized Bypass Reporter is either the Signatory Authority named in Section A of this Agreement, or an individual duly authorized to submit Electronic Filings by the Signatory Authority pursuant to the appropriate standards and regulations (e.g., RCSA §§ 22a-430-3(b)(2)(B)).

SIGN ONLY ONE OF THE FOLLOWING STATEMENTS:

I, [Bypass Reporter], have the authority to enter into this Agreement for [City/Town] under the applicable standards. [Sign here if you are an elected official who signed Section A, and you will be also be reporting bypasses.]

OR

I, [Bypass Reporter], am authorized by the Signatory Authority named in Section A of this document, who does have the authority under the applicable standards, to enter into this Agreement for [City/Town]. [Sign here if you are duly authorized by an elected official to report sewer bypasses.]

By submitting this Agreement to the Connecticut DEEP I, [Bypass Reporter], have read, understand, and accept the terms and conditions of this Authorized Bypass Reporter Agreement. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Agreement and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the Agreement, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Authorized Bypass Reporter Signature

Authorized Bypass Reporter Printed Name

Title

Date

Sept. 21, 2015 Chemtra

2-Nitrodiphenylamine

From Wikipedia, the free encyclopedia

2-Nitrodiphenylamine, also called **NDPA**, **2-NDPA**, **2NO2DPA**, **Sudan Yellow 1339**, **C.I. 10335**, **CI 10335**, **phenyl 2-nitrophenylamine**, **2-nitro-N-phenylaniline**, or **N-phenyl-*o*-nitroaniline**, is an organic chemical, a nitrated aromatic amine, a derivate of diphenylamine. Its chemical formula is $C_{12}H_{10}N_2O_2$, or

$C_6H_5NHC_6H_4NO_2$. It is a red crystalline solid, usually in form of flakes or powder, with melting point of 74-76 °C and boiling point of 346 °C. It is polar but hydrophobic.

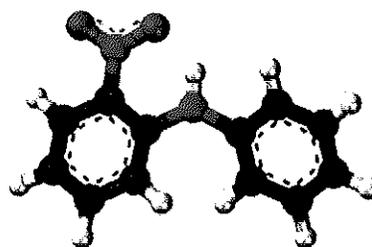
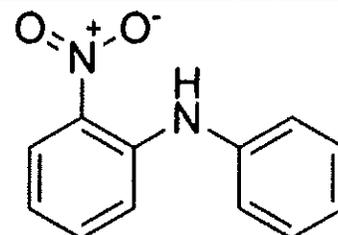
2-Nitrodiphenylamine is used as a stabilizer for synthetic rubbers, explosives, propellants (e.g. in Otto fuel II, smokeless powders, in some US Army double-base propellants in solid rockets, and in other applications involving nitric acid esters), plastics, and lubricants. It is also an intermediate for organic synthesis, and a civilian solvent dye.

In some explosives, it is used to control the explosion. One of its major uses is to control the explosion rate of propylene glycol dinitrate.

As a stabilizer, its major role is to eliminate the acidic nitrates and nitrogen oxides produced by gradual decomposition of nitric acid esters, which would otherwise autocatalyze further decomposition. Its amount is usually 1-2% of the mixture; higher amounts than 2% degrade the propellant's ballistic properties. The amount of the stabilizer depletes with time; remaining content of less than 0.5% (with initial 2% content) requires increased surveillance of the munition, with less than 0.2% warranting immediate disposal, as the depletion of the stabilizer may lead to autoignition of the propellant.^[1]

Other stabilizers of a similar nature are 4-nitrodiphenylamine, N-nitrosodiphenylamine. While N-methyl-p-nitroaniline(MNA also used in IMX-101), and diphenylamine(DPA) are more commonly employed.^[2]

2-Nitrodiphenylamine



Identifiers

CAS Registry Number	119-75-5 *
ChemSpider	8100 ✓
InChI	
Jmol-3D images	Image (http://chemapps.stolaf.edu/jmol/jmol.php?model=O%3D%5BN%2B%5D%28%5BO-%5D%29C1%3DC%28NC2%3DCC%3DCC%3DC2%29C%3DCC%3DC1) Image (http://chemapps.stolaf.edu/jmol/jmol.php?model=%5BO-%5D%5BN%2B%5D%28%3DO%29c2cccc2Nc1cccc1)
SMILES	
Properties	
Chemical formula	$C_{12}H_{10}N_2O_2$
Molar mass	214.22 g·mol ⁻¹
Melting point	74 to 75 °C (165 to 167 °F; 347 to 348 K)

Sept 9, 2015 Chantua.

Bis(2-ethylhexyl) phthalate

From Wikipedia, the free encyclopedia

Bis(2-ethylhexyl) phthalate (**di-2-ethylhexyl phthalate**, **diethylhexyl phthalate**, **DEHP**; **dioctyl phthalate**, **DOP**), is an organic compound with the formula $C_8H_4(C_8H_{17}COO)_2$. DEHP is the most common member of the class of phthalates which are used as plasticizers. It is the diester of phthalic acid and the branched-chain 2-ethylhexanol. This colorless viscous liquid is soluble in oil, but not in water. Accounting for an almost 54% market share in 2010, DEHP is a High Production Volume Chemical.^[3]

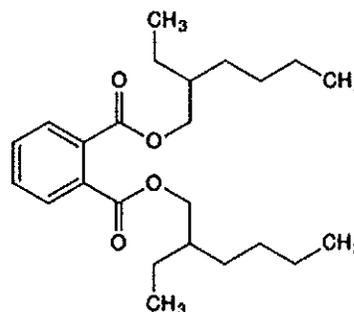
Contents

- 1 Production and use
- 2 Environmental exposure
 - 2.1 Use in medical devices
 - 2.2 Metabolism
- 3 Effects on living organisms
 - 3.1 Toxicity
 - 3.2 Development
 - 3.3 Obesity
 - 3.4 Cardiotoxicity
- 4 Alternative plasticizers
- 5 Government and industry response
 - 5.1 Taiwan
 - 5.2 European Union
- 6 References
- 7 Further reading
- 8 External links

Production and use

Due to its suitable properties and the low cost, DEHP is widely used as a plasticizer in manufacturing of articles made of PVC.^[4] Plastics may contain 1% to 40% of DEHP. It is also used as a hydraulic fluid and as a dielectric fluid in capacitors. DEHP also finds use as a solvent in glowsticks.

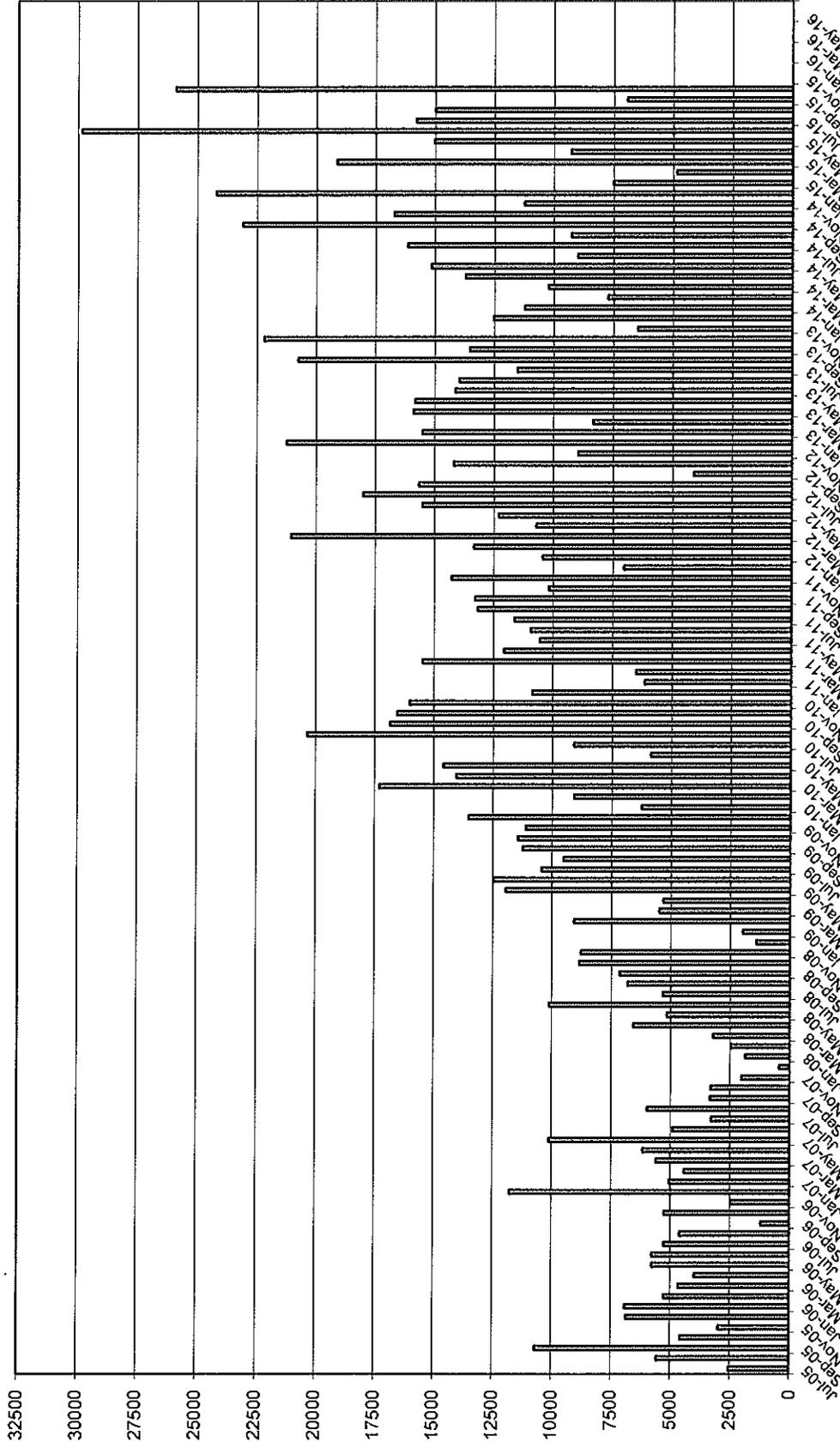
Bis(2-ethylhexyl) phthalate



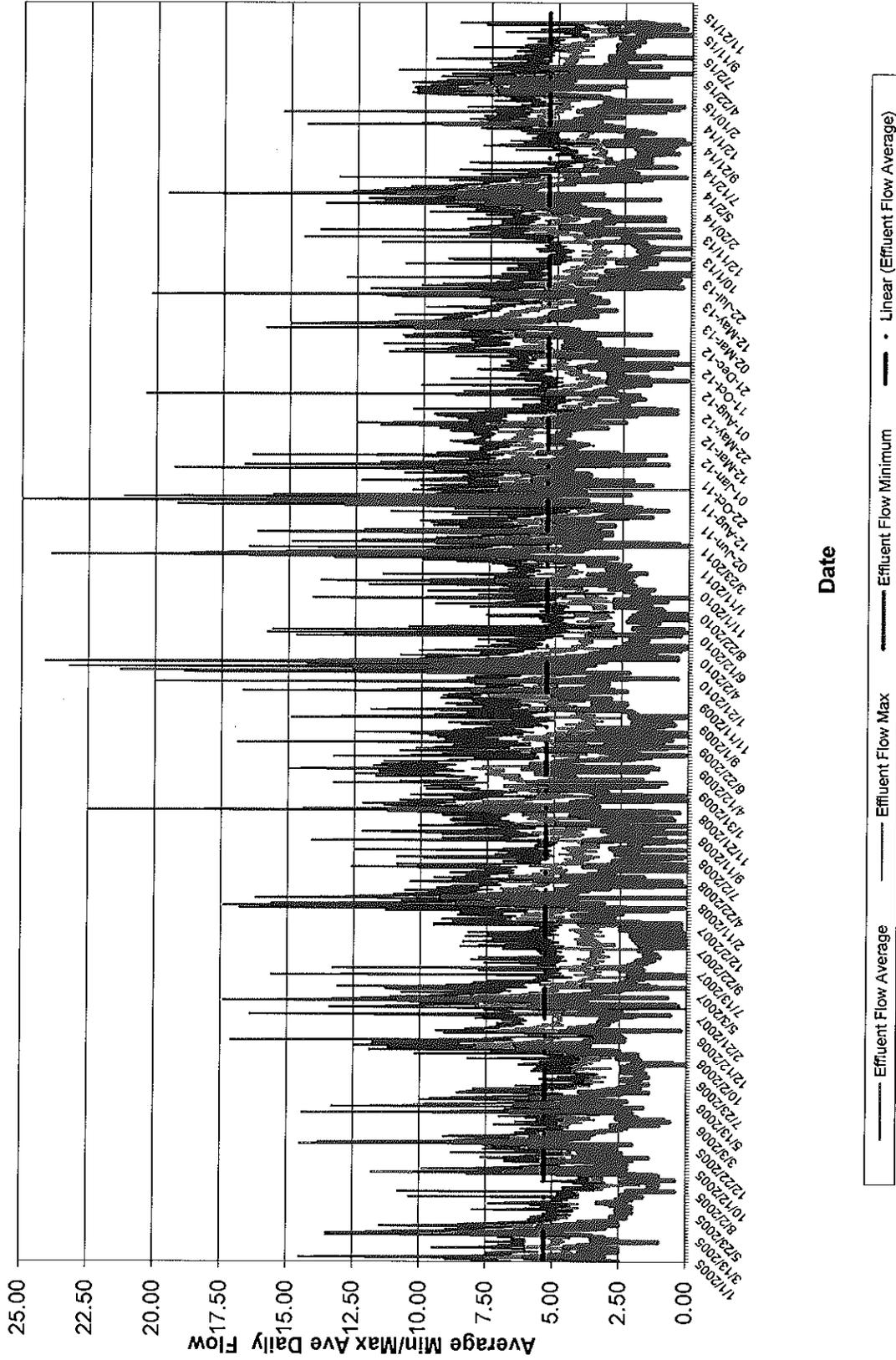
Names	
IUPAC name	
Bis(2-ethylhexyl) phthalate	
Other names	
Di-sec octyl phthalate, DEHP, Di(2-ethylhexyl) phthalate, Octyl phthalate	
Identifiers	
CAS Registry Number	117-81-7 ✓
ChEBI	CHEBI:17747 ✗
ChEMBL	ChEMBL402794 ✗
ChemSpider	8040 ✓
InChI	
Jmol-3D images	Image (http://chemapps.stolaf.edu/jmol/jmol.php?model=O%3DC%28OCC%28CC%29CCCC%29C1%3DCC%3DCC%3DC1C%28OCC%28CC%29CCCC%29%3DO)
KEGG	C03690 ✓
SMILES	
UNII	C42K0PH13C ✓
Properties	
Chemical formula	$C_{24}H_{38}O_4$
Molar mass	$390.56 \text{ g}\cdot\text{mol}^{-1}$
Appearance	colorless, oily liquid ^[1]
Density	0.99 g/mL (20°C) ^[1]
Melting point	$-50 \text{ }^\circ\text{C}$ ($-58 \text{ }^\circ\text{F}$; 223 K)
Boiling point	$385 \text{ }^\circ\text{C}$ ($725 \text{ }^\circ\text{F}$; 658 K)

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

Total Feet



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



Naugatuck, Middlebury and Oxford 2005 to Present Monthly Average Flows

