VEOLIA

October 10, 2016

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

Re: **September 2016 Monthly Operating Report**

Dear Mr. Merancy:

Enclosed please find Veolia Water's Monthly Operating Report for the month of September 2016.

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

Sincerely,
Veolia Water North America – Northeast, LLC

John Batorski
Plant Manager
Veolia Water Naugatuck

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

(enclosure)

Veolia Water NA -Naugatuck
500 Cherry Street, Naugatuck, CT 06770
Tel 203-723-1433 / 203-723-8539
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Borough of Naugatuck
Monthly WPCF Report September 2016

This report summarizes the activities at the Borough POTW for September 2016:

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.	-	523
Effluent Avg.	30	7
Removal Efficiency	85%	99%
Plant Process Data*	**Limit**	**Actual**
Carbonaceous BOD (mg/l)		
Influent Avg.	-	331
Eff Avg(Nov 1 – May 31)	25	
Eff Avg(June – Oct 31)	15	4
Removal Efficiency	85%	99%

Discharge Permit Exceedance: None

	Naugatuck	**Middlebury**	**Oxford**	**OTR**
Sept. Flow Avg. (MGD)	3.5	0.328	0.045	N/A
Sludge Liquid Total (MGal)				7759.9
Sludge Cake Total (Wet Tons)				2952.9
Septage Total (MGal)	49,995	43,000	147,700	621,950

Discharge Permit Exceedance: None

Safety Incidents and Odor Complaints

	Month	YTD
Recordable Accidents	0	0
Lost Time Accidents	0	0
Odor Complaints	2	7
Unconfirmed Odor Complaints	0	0

1. **Compliance & Regulatory Issues**
   - **a.** Meetings, site visits, and telephone conferences were held in September regarding the Naugatuck MACT upgrade. Hans Tuneblom, Dan Gorka and John Batorski met with CPPE and EnviroCare personnel to discuss their MACT emission equipment. In light of the recent fire at an in state and out of state incinerator, the initial carbon system may not be the best fit. Revised quotations are due by the end of October. The Control Plan and Site Specific Monitoring Plans continue to be works in progress.
   - **b.** The SO_2 analyzer that was rented last month was kept for further data analysis (we have ordered an SO2 analyzer). Various feed points for caustic addition and pH settings are under evaluation. The caustic feed point was changed to the venturi throat to take advantage of better mixing. Caustic consumption continues to average over 1000 gal/day and as high as 2000 gal/day.
   - **c.** The annual stack test has been scheduled for the week of Nov. 14, 2016. The ITT was sent to CTDEEP requesting those test dates.

d. EPA (John Melcher and Dave Turin) was on site Sept 27 and 28 to review the collection system records, jetting, plant bypasses, pump stations, SPCC Plan, and related records and protocol. Jim Stewart, Borough of Naugatuck and plant staff also attended the 2 day meeting.

2. Odor Complaints

a. There were 2 odor complaints in September. Two odor complaints were received from the Oxford area.

3. Personnel

a. No report.

4. Health & Safety

a. Monthly safety meetings were held.

5. Operational Information

a. Testing continues with caustic and soda ash feed points. Preliminary data suggests that feeding caustic directly into the venturi throat is more efficient. We will monitor pH, caustic consumption and SO2 to determine optimum feed points for compliance with the new MACT limit of 15 PPM.

b. Doosan Fuel cells has marked out the location for the three fuel cells that will be installed. The location required that we relocate existing storage trailers and misc. parts. The only available location required approximately $18,000 of grading to place the storage trailers and parts.

6. Collections

a. A replacement ARI vehicle, 1 ton utility pickup for collections is in progress. The current vehicle is a 2001 and has a hole in the floor boards. This vehicle is used to plow the plant and collection system pump stations.

7. Maintenance

a. Replacement LED exterior lighting is being installed as the original lamp heads were failing.

b. Load cells for the thermal dryer are still on order. We are trying to expedite delivery as the installation will require the thermal fluid to be drained in the thermal dryer loop. We will likely request Haarslev to be onsite to assist with the installation.

c. Staff spent several days relocating all parts stored in trailers near the blower building. That area has been designated for the fuel cell installation.

d. The original scum troughs for the primary tank #1 have been replaced.

e. New conduit and wires have been installed for the #4 secondary tank.

f. A new sludge transfer pump installation is underway replacing an old transfer pump.

8. Capital Projects

a. Planning has continued for the incinerator MACT upgrade. Doosan Fuel Cell of America requested general plant mechanical and electrical drawings.

Borough of Naugatuck
Collections Systems Report
September 2016

VEOLIA WATER

	Calls for Service
1	09/07 - 64 Spencer St - Lateral problem
2	09/17 - 142 Gorman St - Lateral problem
3	09/25 - Platts Mill Station - Float problems
4	
5	
6	

This Month	Year to Date
3	16

	Calls Caused By Collection System	Reason
1		
2		
3		
4		

Video Inspections

	Street Name	Type	Footage
1	09/06 - Red Robin 14-107 downstream	cctv	55
2	09/16 - Train station lateral	cctv	80
3	09/28 - Pleasant View storm sewer	cctv	20
7			
9			
10			
11			

This Month		Year to Date	
155	Feet	1350	Feet

6 month list
Call for service
Officer used

High Velocity Cleaning

	Street Name	Date	Footage	Officers	Cars	Total Hours
1	Bluebird Dr 11-137 to 11-136	2-Sep	260	1	1	
2	Horton Hill Rd 11-136 to 14-51	2-Sep	590	1	1	
3	Horton Hill Rd 14-55 to 14-51	2-Sep	580	1	1	
4	Red Robin Rd 14-107 to 14-105	2-Sep	290	1	1	
5	Union City Rd 4-88 to 4-86	2-Sep	405	1	1	
6	Crestwood Dr 4-10 to 4-86	2-Sep	70	1	1	
7	Union City Rd 4-86 to 4-85	2-Sep	445	1	1	4
8	Meadow Lark Rd 14-38A 14-35	6-Sep	1025			
9	Tawney Thrush Rd 14-41A to 14-35	6-Sep	65			
10	Summerfield St 15-40 to 16-4	8-Sep	960			
11	Summerfield St 16-4 to 16-2	8-Sep	355			
12	Hillview St 16-13 to 16-13A	12-Sep	375			
13	Hillview St 16-13 to 16-12	12-Sep	280			
14	Hillview St 16-2 to 16-12	12-Sep	280			
15	Summerfield St 16-16 to 16-3	13-Sep	630			
16	Brighton Rd 5-41 to 5-37	14-Sep	740			
17	North Ridge Rd 1-16 to 1-12	14-Sep	950			
18	Nichols Rd 1-12 to 1-11	14-Sep	525			
19	Nichols Rd 1-11 to 1-8	15-Sep	615			
20	Moonlight Cir 11-79 to 11-77	15-Sep	400			
21	Moonlight Cir 11-87 to 11-77	15-Sep	320			
22	Moonlight Cir easement 11-77 to 11-76	15-Sep	120			
23	Platts Mills Rd no #s	20-Sep	950			
24	Clearview Cir 6-109 to 6-104	26-Sep	325			
25	Clearview Cir easement 6-104 to 6-98	26-Sep	135			
26	Pine St 6-102 to 6-96	26-Sep	1270			
27	Southview St 9-193A to 9-193C	28-Sep	300	1	1	4
28	Casper Ct 6-126A to 6-127	29-Sep	510			
29	Craige Cir 6-120 to 6-126A	29-Sep	450			

This Month		Year to Date	
14220	Feet	50813	Feet

	Root Treatment		
	Street Name	Type	Footage
1	Eagle St 7-254 to 7-96	root cutter	705
2			
3			

This Month		Year to Date	
705	Feet	5646	Feet

	Pump Station Services			
	Work performed	Location	Date	Notes
1	Weekly pump station checks	All 5	9/2/2016	Cleaned floats, Maple/May panel is scheduled for repair
2	Weekly pump station checks	All 5	9/9/2016	Cleaned floats, Hopbrook gen exercised and high wetwell test
3	Weekly pump station checks	All 5	9/16/2016	
4	Weekly pump station checks	All 5	9/22/2016	Cleaned floats, generators exercised, Kinsley stage 1 services
5	Weekly pump station checks	All 5	9/30/2016	Cleaned floats
6				
7				

PUMP RUN TIMES		HOURS		
STATION		Pump 1	Pump 2	Pump 3
	End Reading	1,072.30	1290.9	795.5
Inwood	Start Reading	1,030.00	1251.1	753
	Hrs Run	42.30	39.8	42.5

PUMP RUN TIMES		HOURS	
STATION		Pump 1	Pump 2
	End Reading	4146.6	3336.1
MAPLE & MAY	Start Reading	4082.6	3281.8
	Hrs Run	64	54.3

PUMP RUN TIMES		HOURS		
STATION		Pump 1	Pump 2	Flow Meter
	End Reading	4864	8992.1	5785012
Platts Mill	Start Reading	4860.6	8783.3	5502661
	Hrs Run	3.4	208.8	282351

#2 pump is lead pump.
Lag pump has inadequate pipe length for accurate flow readings.

PUMP RUN TIMES		HOURS	
STATION		Pump 1	Pump 2
	End Reading	1607	1268.7
Hopbrook	Start Reading	1580.2	1252.8
	Hrs Run	26.8	15.9

PUMP RUN TIMES		HOURS	
STATION		Pump 1	Pump 2
	End Reading	9257.6	10882.6
HORTON HILL	Start Reading	9207.9	10836.5
	Hrs Run	49.7	46.1

Vac Truck Information

Days out of the plant working		
This Month	YTD	Remaining
14	42	108

Fuel Information	Fuel Cost	Fuel Used			
	$139.78	54.2	Gallons	YTD Gallons	
			Gallons	221.9	Gallons
			Gallons		
			Gallons		
			Gallons	YTD Fuel Cost	
This Months Total	$139.78	54.2	Gallons	$578.78	

	Mileage		Engine Hours
Month Start	201473.2	Month Start	6573
Month End	202005.8	Month End	6607.3
Total	532.6	Total	34.3

Utility Truck Information	Fuel Cost	Fuel Used		
	$76.22	29.55	Gallons	YTD Gallons
	$87.52	33.93	Gallons	158.42
			Gallons	
			Gallons	YTD Fuel Cost
Monthly Totals:	**$163.74**	**63.48**	Gallons	$406.06

	Other tasks and notes
1	09/01 - Checked on Maple/May due to bad panel.
2	09/06 - Checked on Maple/May due to bad panel. Found obstruction in pipe on Red Robin. Scheduled dig with G&L.
3	09/07 - Serviced Vac Truck. Replaced fuel filters, oil filters, changed oil, repaired AC system, repaired drivers seat, tightened belts.
4	09/08 - Measured out floats for new float system at Maple/May pump station.
5	09/12 - Primmary skimmings 1 load.
6	09/16 - Inspected North Main St siphon repair.
7	09/19 - Fixed noisy/loose lid on Donavan Rd. Started preperations for EPA and DEEP inspections.
8	09/20 - Prepared the dry well at Platts Mill for resurfacing. Made a material list for the forms and tools needed. Cleaned up debris.
9	09/21 - Vacuumed out and cleaned Maple/Mays wetwell. #2 pump needed an adjustment. An electrician worked on the panel at Maple/May.
10	Bought materials needed for Platts Mills dry well and started to construct the forms. Met with Kinsley Power for generator services.
11	09/22 - Finished constructing the forms for Platts Mills. 34 bags of concrete were needed for the drywell and a pad at Inwood pump station.
12	Continued with cleaning the pump stations and dug the footing for the pad at Inwood. Replaced the battery for Inwoods generator.
13	09/23 - Mixed and poured the concrete for Platts Mills drywell repair. Mixed and poured the concrete for Inwoods pad. Brushed the tops of
14	the newly poured concrete and tarped them due to possible rain. Electrician finished rewiring the panel and replaced a float at Maple/
15	Mays pump station. Station is in good working order.
16	09/24 - Pumpstation clean up continued at Hopbrook. Painted columns, cleared leaves, vacuumed out the panel. Platts Mills - dismantled the form
17	for the dry well and discarded the used material, trimmed branches around the building, hosed down the buildings walls, swept/vacuumed,
18	painted gas lines, painted door. Maple/May - attached door stop, cleared leaves, swept/vacuumed, fixed panels. Inwood - painted gas lines,
19	painted door, painted grating, swept/vacuumed, concrete pad finished.
20	09/25 - Platts Mills call-in - high alarm,electrician on site. Pulled both pumps to de-rag and inspect, replaced three floats on float stick.
21	09/26 - Painted gas lines, painted building door, swept/vacuumed at Horton Hill
22	09/27 - EPA and DEEP inspection of the collections department, all day.
23	09/28 - EPA and DEEP inspection continued, some of which was outside of the plant. They were shown a demonstration of cleaning a sewer
24	line. They were also shown one example of a m/h that has a sanitary line flowing through a storm m/h. They were also taken to two
25	pump stations, Platts Mill and Inwood. Continued inspection at these pump stations.
26	09/28 - The storm m/h at the intersection of Pleasant View and Fairview that was shown to EPA seemed to have a small amount of tissue paper
27	in the line. This is a cause for concern and CCTV work was performed on the storm line. Small amount of sewer infiltration was seen.
28	To CCTV the sanitary line, the m/h needed to be located. The m/h 9-194 was found using a metal detector and marked out on the road.
29	09/29 - G&L was scheduled to uncover the paveover on Fairview m/h 9-194. Met with Manny from the town to discuss possible locations of
30	lateral connections and main line direction on Pleasant View.
31	09/30 - Met with G&L on Fairview St to uncover the paved over m/h 9-194. - Met with an electrician at Platts Mills to go over plans to run all new
32	wire from the panel out to the wetwell. The trench for the conduit was discussed and marked out. Mowed lawn at Maple/May.
33	
34	Non Contractual Work
35	09/06 - Lifted storm m/h lids for street department on Maple st and Oak st.
36	09/16 - Met at train station to camera lateral from m/h in the road. 80 feet

VEOLIA

Sent via certified mail #7014 1200 0002 2237 0285 on October 7, 2016

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

October 7, 2016

Re: September 2016 Reports for Naugatuck, CT WPCF, NPDES # CT0100641

Dear Sir/Madam:

Enclosed please find the *Monthly Operating Report* for September 2016. 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 September 2016.

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)

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

Naugatuck WPCF

Sample month/year September, 2016

Facility ID: 088-001

Permit #: CT0100641

Date received: (stamped)

	Daily Flow			Primary Sludge			Aeration Tank #1				Return Sludge		Aeration Tank #2				Return Sludge		Waste Sludge	Dry Solids to Incineration	Waste Accepted		CBOD (5-Day)		
	Max.	Min.	Total	Vol.	% solids	wt.	MLSS	SVI	High D.O.	Low D.O.			MLSS	SVI	High D.O.	Low D.O.	% Flow	%Solids			Septic	Indust	Inf.	Prim eff.	Final eff.
Units	mgd			MG		lbs.			mg/l		% Flow	% Solids			mg/l				lbs	lbs	gal	gal	mg/l		
Freq.	Daily			Work Day			Work Day		4/ work day				Work Day		4/Work Day		Work Day		Wk Day	Wk Day	Work Day		3/week		
1	4.8	1.8	3.7	0.539			3,820	139	2.0	1.1	246	0.82	4,124	121	1.9	1.2	246	0.82	2,462	183,826	28,500				
2	5.0	1.7	3.6	0.376			3,916	130	2.0	1.1	242	0.75	4,232	118	1.9	1.2	242	0.86	2,417	181,699	45,550				
3	4.9	1.9	3.4	0.547					5.0	1.0	285				5.0	1.2	285		628	156,852	5,000				
4	4.7	1.9	3.3	0.570					1.9	1.1	243				1.8	1.1	243		0	150,882	0				
5	3.2	0.2	3.2	5.000					3.5	0.3	331				2.4	0.0	331		1,257	147,702	0		210	250	<4
6	5.0	1.5	3.4	0.508			4,604	111	2.0	1.0	264	0.71	5,200	96	1.9	1.0	264	0.83	1,896	116,682	42,000		190		<4
7	5.0	2.2	3.8	0.557			4,280	117	2.0	0.9	247	0.89	4,516	115	4.1	1.2	247	0.88	2,179	208,402	44,770		760		<4
8	4.9	2.0	3.8	0.559			5,052	107	3.2	0.7	250	0.78	5,328	107	3.6	1.1	250	0.82	673	182,341	35,000				
9	4.8	1.5	3.8	0.541			6,932	72	2.8	0.5	250	0.92	6,376	83	2.0	0.7	250	0.86	0	153,267	42,325				
10	5.0	2.1	3.7	0.530					1.9	0.5	244				1.7	0.6	244		0	136,088	4,000				
11	4.8	1.5	3.5	0.526					1.8	1.3	261				1.9	0.9	261		0	129,263	0		360	360	<4
12	4.7	1.8	3.5	0.535			6,568	99	1.9	0.6	250	1.07	6,176	110	2.9	1.0	250	1.21	0	116,354	53,250		210		<4
13	4.6	1.6	3.9	0.537			6,312	108	2.1	0.4	232	1.07	5,952	114	3.0	0.1	232	0.99	866	168,104	30,450		620		<4
14	4.7	2.3	3.5	0.519			6,324	103	3.0	0.9	257	1.38	5,832	120	1.9	1.1	257	1.17	3,062	159,736	34,500				
15	4.5	1.6	3.4	0.529			6,564	94	2.5	0.4	274	1.23	6,988	94	1.9	0.8	274	1.14	4,768	155,205	56,750				
16	4.6	1.5	3.5	0.518			5,292	127	1.7	0.4	263	1.04	5,980	104	1.8	0.5	263	0.99	3,596	141,915	47,050				
17	4.8	1.7	3.4	0.525					2.4	0.5	273				3.0	0.6	273		2,499	121,723	4,750				
18	4.8	1.7	3.4	0.530					1.3	0.6	286				1.7	0.7	286		853	124,236	3,000		290	340	<4
19	4.5	1.7	3.5	0.543			7,164	91	1.6	0.7	225	1.21	7,220	83	2.2	1.1	225	1.07	2,807	128,006	49,250		630		<4
20	5.2	1.6	3.6	0.516			6,732	82	1.6	0.7	260	1.12	7,224	76	2.2	1.1	260	1.09	3,583	112,165	35,250		160		<4
21	4.6	1.9	3.5	0.503			6,280	99	1.4	0.5	272	1.16	7,724	83	1.4	0.5	272	1.12	4,107	159,736	22,250				
22	4.7	1.7	3.4	0.507			5,348	116	5.0	0.7	268	1.13	6,756	90	5.0	0.7	268	1.15	4,107	153,267	33,750				
23	4.7	1.6	3.5	0.543			5,444	101	2.4	0.7	257	1.06	7,100	85	1.8	1.2	257	1.23	4,125	171,560	39,550				
24	4.7	1.6	3.3	0.556					2.6	0.7	287				1.8	1.2	287		4,125	172,645	4,750				
25	4.9	1.7	3.4	0.559					2.8	0.5	257				2.3	0.8	257		4,125	141,572	1,100		200	290	<4
26	4.6	1.7	3.4	0.557			6,444	99	2.1	0.6	294	1.06	6,624	104	1.8	1.2	294	0.96	3,639	147,862	36,500		190		<4
27	4.7	2.1	3.5	0.544			7,172	78	3.0	0.6	256	1.06	6,996	80	2.9	0.8	256	1.18	4,035	157,514	62,500		150		<4
28	4.7	2.0	3.6	0.545			5,264	106	2.4	0.7	247	1.09	5,692	93	2.4	0.9	247	0.89	2,972	162,878	34,350				
29	4.7	1.7	3.5	0.151					5.0	0.0	198				2.5	0.0	198		2,378		19,500				
30	4.3	2.4	3.5	0.566			6,480	74	2.4	0.6	244	0.97	6,596	80	1.8	1.2	244	1.06	2,438	171,793	47,000				
Total	141.1	52.2	105.38																69,598	4,413,275	862,645				
Ave.	4.7	1.7	3.51	0.668			5,800	103	2.5	0.7	259	1.02	6,132	98	2.4	0.9	1.03	1.02	2,320	152,182	28,755		331	310	4

	Suspended Solids			Settleable Solids	Turbidity	Chlorine Dose		Chlorine Residual		Chlorine Residual Average	Fecal Coliform	E. Coli	Ammonia			Nitrite			Nitrate			TKN		
	Inf.	Prim Eff.	Final Eff.	Eff.	Eff.			high	low				Inf.	Prim Eff.	Final Eff.	Inf.	Prim Eff.	Final Eff.	Inf.	Prim. Eff.	Final Eff.	Inf.	Prim Eff.	Final Eff.
Units	mg/l			ml/l	NTU	lbs	mg/l	mg/l		mg/l	#/100ml	#/100ml	mg/l			mg/l			mg/l			mg/l		
Freq.	3/week			Wk Day	Wk Day	4/Work Day		4/work day		4/wk day	3/week	See table A of permit	3/week	Mthly	3/wk	Monthly			Monthly			Monthly		
1				0.0	2.8	129.59	4.20	0.050	0.020	0.033														
2				0.0	2.6	129.59	4.29	0.050	0.010	0.032														
3						98.53	3.45	0.040	0.010	0.027														
4						89.54	3.28	0.040	0.000	0.015														
5	650	210	<5			92.58	3.43	0.040	0.000	0.022			28.90	30.7	0.25	0.145	<0.010	<0.010	<0.02	<0.02	2.930	55.40	44.90	1.920
6	570		5	0.0	1.8	95.88	3.38	0.050	0.030	0.043	35		21.20		0.19	0.690		<0.010	0.94		2.600	46.60		1.760
7	850		<5	0.0	2.1	98.11	3.06	0.030	0.000	0.005	10		25.20		0.13	0.030		<0.010	<0.02		3.520	66.80		1.850
8				0.0	1.4	106.57	3.38	0.050	0.000	0.015	10													
9				0.0	2.7	121.32	3.86	0.040	0.000															
10						132.33	4.24	0.040	0.000	0.020														
11	600	430	<5			166.03	5.62	0.030	0.000	0.005			30.20		0.36	0.019		<0.010	<0.02		0.470	62.00		1.830
12	340		6	0.0	2.0	157.22	5.36	0.050	0.000	0.020	<10		30.30		0.33	0.016		<0.010	<0.02		1.180	51.40		1.540
13	620		<5	0.0	1.9	124.88	3.89	0.050	0.030	0.038	<10		30.20		0.26	0.025		0.039	<0.02		1.720	61.40		1.930
14				0.0	2.4	136.45	4.70	0.050	0.020	0.038	10													
15				0.0	2.3	154.14	5.42	0.050	0.000	0.027														
16				0.0	3.2	158.19	5.48	0.050	0.000	0.030														
17						110.67	3.94	0.050	0.000	0.022														
18	410	410	<5			86.06	3.04	0.040	0.010	0.027			28.80		0.46	0.022		0.070	<0.02		1.140	52.80		1.880
19	920		<5	0.0	3.8	93.66	3.19	0.050	0.020	0.035	30		30.20		0.31	0.051		0.038	<0.02		2.140	82.40		2.140
20	150		<5	0.0	4.7	95.43	3.22	0.040	0.000	0.025	10		28.20		0.53	0.024		0.036	<0.02		3.230	41.90		2.610
21				0.0	4.6	82.69	2.87	0.030	0.000	0.018	<10													
22				0.0	6.1	83.46	2.98	0.050	0.000	0.028														
23				0.0	6.5	87.93	3.04	0.050	0.000															
24						91.06	3.28	0.030	0.000	0.015														
25	170	190	7			94.74	3.36	0.030	0.000	0.015			28.20		0.59	0.020		0.047	<0.02		3.870	51.60		2.880
26	510		18	0.0	5.5	94.63	3.39	0.020	0.000	0.007	20		29.80		0.46	0.012		0.030	<0.02		3.600	53.20		2.820
27	480		9	0.0	6.3	94.75	3.21	0.050	0.000	0.032	10		30.20		0.48	0.014		0.022	<0.02		3.730	54.00		3.440
28				0.0	6.0	111.34	3.70	0.050	0.000	0.023	10													
29						88.24	3.01	0.040	0.000															
30				0.0	7.0	78.91	2.70	0.050	0.000	0.018														
Total																								
Ave.	523	310	7	0.0	3.8	109.48	3.73	0.043	0.005	0.024	13		28.45	30.7	0.36	0.089	0.010	0.028	0.10	0.02	2.511	56.63	44.90	2.217

	Total N			Total N	Low D.O.	pH		Total P			Total P	Ortho P			Temp.		Arsenic		Copper	Nickel		Selenium	
	Inf.	Prim. Eff.	Final Eff.	Eff.	Eff.	Inf.	Eff.	Inf.	Prim. Eff.	Final Eff.	Eff.	Inf.	Prim. Eff.	Final Eff.	Inf.	Eff.	Inf.	Eff.	Eff.	Inf.	Eff.	Inf.	Eff.
Units	mg/l			lb/d	mg/l	S.U.		mg/l			lb/d	mg/l			F		mg/l		mg/l	kg/day		kg/day	
Freq.	Monthly			Mthly	4/wk day	Work Day		Nov-March (Monthly) (April-October) 2/week			Apr - Oct	Nov-March (Monthly) (April - October) 2/week			Work day		Weekly		Mthly	Weekly		Weekly	
1					5.8	7.2	7.3								75	91							
2					5.8	7.3	7.4								74	90							
3																							
4																							
5	55.6	44.9	4.9	131				9.40		10.30	278	3.10		9.86			<0.0040	0.007	0.015	0.13	0.31	0.12	0.05
6	48.2		4.4	125	6.1	7.4	7.4			8.93	253			9.30		82							
7	66.9		5.4	171	6.0	7.2	7.3									81							
8					5.9	7.3	7.3								74	90							
9					5.7	7.4	7.4								74	91							
10																							
11	62.0		2.3	67						6.26	185			5.90			<0.0040	0.005		0.10	0.30	0.67	0.03
12	51.4		2.7	79	5.7	7.2	7.4			7.09	208			7.00	74	87							
13	61.4		3.7	117	5.7	7.5	7.4								73	88							
14					5.6	7.3	7.4								76	89							
15					5.4	7.3	7.3								74	89							
16					5.4	7.3	7.3								72	89							
17																							
18	52.8		3.1	88						11.40	322			11.70			<0.0040	0.004		0.15	0.24	0.64	0.04
19	82.5		4.3	126	6.2	7.7	7.5			11.30	332			11.60	71	87							
20	41.9		5.9	177	5.6	7.3	7.3								70	86							
21					5.8	7.6	7.4								74	87							
22					5.5	7.2	7.3								72	88							
23					5.4	7.4	7.2								74	88							
24																							
25	51.6		6.8	193						17.20	485			17.50			<0.0040	0.007		0.15	0.28	0.13	0.06
26	53.2		6.4	181	5.7	7.6	7.4			19.10	534			17.20	69	83							
27	54.0		7.2	210	6.1	7.3	7.3								70	82							
28					6.2	7.4	7.2								72	86							
29																							
30					5.7	7.3	7.2								74	85							
Total																							
Ave.	56.8	44.9	4.8	139	5.8	7.4	7.3	9.40		11.45	325	3.10		11.26	72.8	86.9	0.0040	0.0058	0.015	0.13	0.28	0.39	0.04

	Zinc		Alkalinity	
			Pri. Eff.	
	Inf.	Eff.		Eff.
Units	kg/day		mg/l	
Freq.	Weekly		Monthly	
1			230	130
2			260	130
3				
4				
5	3.18	0.432		
6			140	140
7			200	140
8			150	70
9			220	180
10				
11	3.98	0.419		
12			250	160
13			380	170
14			260	180
15			250	150
16			230	140
17				
18	5.04	0.502		
19			240	140
20			200	80
21			270	70
22			260	130
23			250	110
24				
25	5.09	0.800		
26			220	130
27			210	120
28			240	130
29				
30			280	120
Total				
Ave.	4.32	0.538	237	131

Sludge Disposal Location:

Please return forms to:

DEEP - Water Bureau

ATTN: Municipal Wastewater Monitoring Coordinator

Municipal Facilities

79 Elm Street

Statement of Acknowledgement

I certify under pentalty 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

Plant Manager

Signature: John Batorski

Date: 10-7-16

September 2016 Sludge Data

Source	Gallons	Wet Tons
Beacon Falls	149,500	
Bedford Hills	26,000	
Bristol		502.94
Casella - Chicopee		122.98
Casella - Glen Cove		287
Casella - Holyoke		751.84
Casella - Huntington		315.14
Casella - Walden		12.7
Casella - Yorktown		50.56
Cranston		123.81
Danbury		21.02
Glastonbury	169,000	
Groton	117,000	
Heritage Village Water	45,500	
Litchfield	45,500	
Mahopac	402,000	
Mattabassett		381.98
Middletown	318,500	
New Hartford	32,500	
New London	234,000	
New Rochelle		287.52
North Canaan	32,500	
North Haven	97,500	
Ossining	578,500	
Pawling	84,500	
Peekskill	32,500	
Plainville	149,500	
Plymouth	71,500	
Port Chester	962,000	
Poughkeepsie	383,500	13.71
Redding	6,500	
Rhinebeck WPCF		10.88
Ridgefield	84,500	
Seymour Cake		70.79
Southbury	182,000	
Southington	682,500	
Stratford	676,000	
Synagro Ansonia	117,000	
Synagro Branford	19,000	
Synagro Bridgeport East	220,500	
Synagro Bridgeport West	773,500	
Synagro East Windsor	6,500	
Synagro Mystic	6,500	
Synagro New Canaan	110,500	
Synagro Newtown	19,500	
Synagro Norwalk	169,000	
Thomaston Treatment	58,500	
Torrington	325,000	
Westport	91,898	
Windham	279,500	
Total	**7,759,898**	**2952.87**

Nutrient Analysis Report

For compliance with General Permit for Nitrogen Discharges

Facility Name: NAUGATUCK TREATMENT Co.
Permit Number: CT0100641

Month: Sep-16
Design Flow: 10.3 MGD

Final Effluent

Plant Name	Sample Date (mm/dd/yyyy)	Average Daily Flow (mgd)	TKN (mg/l)	(Nitrite + Nitrate) (mg/l)	Total Nitrogen (mg/l)	Total Nitrogen (lbs/d)
NAUGATUCK TRE.	9/5/2016	3.24	1.92	2.94	4.9	132
NAUGATUCK TRE.	9/6/2016	3.4	1.76	2.61	4.4	125
NAUGATUCK TRE.	9/7/2016	3.84	1.85	3.53	5.4	173
NAUGATUCK TRE.	9/11/2016	3.54	1.83	0.48	2.3	68
NAUGATUCK TRE.	9/12/2016	3.52	1.54	1.19	2.7	79
NAUGATUCK TRE.	9/13/2016	3.85	1.93	1.76	3.7	119
NAUGATUCK TRE.	9/18/2016	3.39	1.88	1.21	3.1	88
NAUGATUCK TRE.	9/19/2016	3.52	2.14	2.18	4.3	126
NAUGATUCK TRE.	9/20/2016	3.55	2.61	3.27	5.9	175
NAUGATUCK TRE.	9/25/2016	3.38	2.88	3.92	6.8	192
NAUGATUCK TRE.	9/26/2016	3.35	2.82	3.63	6.5	182
NAUGATUCK TRE.	9/27/2016	3.54	3.44	3.75	7.2	213
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					0	0
					Total Pounds	1672
					Average Pounds	139.3333333

Date of Last Calibration of Flow Meter: 7/9/2016

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 submitting false information including the possibility of fine and imprisonment for knowing violations.

Authorized Official: _____

Title: _____

Sent electronically 10-6-16
J Bates

DMR Copy of Record

Permit

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

Report Dates & Status

Monitoring Period:	From 09/01/16 to 09/30/16	**DMR Due Date:**	10/15/16	**Status:**	NetDMR Validated

Considerations for Form Completion

Principal Executive Officer

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

No Data Indicator (NODI)

Form NODI: –

Parameter Code	Parameter Name	Monitoring Location	Season #	Param. NODI		Quantity or Loading Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Quality or Concentration Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units	# of Ex.	Frequency of Analysis	Sample Type
					Sample										=	93	15 - deg F		01/60 - Once Every 2 Months	GR - GRAB
00011	Temperature, water deg. fahrenheit	W - See Comments	0	–	Permit Req.											Req Mon INST MAX	15 - deg F		01/60 - Once Every 2 Months	GR - GRAB
					Value NODI															
					Sample	=	3.5	=	5.2	03 - MGD									99/99 - Continuous	TM - TOTALZ
00056	Flow rate	1 - Effluent Gross	0	–	Permit Req.		Req Mon MO AVG		Req Mon DAILY MX	03 - MGD									99/99 - Continuous	TM - TOTALZ
					Value NODI															
					Sample						=	5.4					19 - mg/L		01/01 - Daily	GR - GRAB
00300	Oxygen, dissolved [DO]	1 - Effluent Gross	0	–	Permit Req.						>=	5 INST MIN					19 - mg/L		01/01 - Daily	GR - GRAB
					Value NODI															
					Sample															
00310	BOD, 5-day, 20 deg. C	T - See Comments	1	–	Permit Req.											Opt Mon DAILY MX	19 - mg/L		01/00 - Quarterly	CP - COMPOS
					Value NODI											9 - Conditional Monitoring - Not Required This Period				
					Sample						=	7.2			=	7.5	12 - SU		01/01 - Daily	GR - GRAB
00400	pH	1 - Effluent Gross	0	–	Permit Req.						>=	6 INST MIN			<=	9 INST MAX	12 - SU		01/01 - Daily	GR - GRAB
					Value NODI															
					Sample						=	5.8			=	5.8	12 - SU		01/60 - Once Every 2 Months	GR - GRAB
00400	pH	S - See Comments	0	–	Permit Req.							Req Mon INST MIN				Req Mon INST MAX	12 - SU		01/60 - Once Every 2 Months	GR - GRAB
					Value NODI															
					Sample						=	3.7			=	3.7	12 - SU		01/60 - Once Every 2 Months	GR - GRAB
00400	pH	W - See Comments	0	–	Permit Req.							Req Mon INST MIN				Req Mon INST MAX	12 - SU		01/60 - Once Every 2 Months	GR - GRAB
					Value NODI															
					Sample								=	6.7	=	18	19 - mg/L		03/07 - Three Per Week	CP - COMPOS
00530	Solids, total suspended	1 - Effluent Gross	0	–	Permit Req.								<=	30 MO AVG	<=	45 DAILY MX	19 - mg/L		03/07 - Three Per Week	CP - COMPOS
					Value NODI															
					Sample								=	523			19 - mg/L		03/07 - Three Per Week	CP - COMPOS
00530	Solids, total suspended	G - Raw Sewage Influent	0	–	Permit Req.									Req Mon MO AVG			19 - mg/L		03/07 - Three Per Week	CP - COMPOS
					Value NODI															
					Sample															
					Permit															CP -

Sent electronically 10-7-16
John Batorski

00530	Solids, total suspended	T - See Comments	1	–	Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample	=	0.30				19 - mg/L	03/07 - Three Per Week	CP - COMPOS
00610	Nitrogen, ammonia total [as N]	1 - Effluent Gross	2	–	Permit Req.	<=	4 MO AVG				19 - mg/L	03/07 - Three Per Week	CP - COMPOS
					Value NODI								
					Sample								
00610	Nitrogen, ammonia total [as N]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample								
00615	Nitrogen, nitrite total [as N]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample								
00620	Nitrogen, nitrate total [as N]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample								
00665	Phosphorus, total [as P]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample								
00720	Cyanide, total [as CN]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample								
00722	Cyanide, free [amen. to chlorination]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample	=	0.0056	=	0.007		19 - mg/L	01/07 - Weekly	CP - COMPOS
01002	Arsenic, total [as As]	1 - Effluent Gross	0	–	Permit Req.		Req Mon MO AVG		Req Mon DAILY MX		19 - mg/L	01/07 - Weekly	CP - COMPOS
					Value NODI								
					Sample			=	0.004		19 - mg/L	01/07 - Weekly	CP - COMPOS
01002	Arsenic, total [as As]	G - Raw Sewage Influent	0	–	Permit Req.				Req Mon DAILY MX		19 - mg/L	01/07 - Weekly	CP - COMPOS
					Value NODI								
					Sample			=	3.0		69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
01002	Arsenic, total [as As]	S - See Comments	0	–	Permit Req.				Req Mon INST MAX		69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI								
					Sample								
01002	Arsenic, total [as As]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L		
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample	=	0.08				19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
01002	Arsenic, total [as As]	W - See Comments	0	–	Permit Req.				Req Mon INST MAX		19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI								
					Sample	=	0.5				60 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
01012	Beryllium, total [as Be]	S - See Comments	0	–	Permit Req.				Req Mon INST MAX		69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI								
					Sample								
01012	Beryllium, total [as Be]	T - See Comments	1	–	Permit Req.					Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI					9 - Conditional Monitoring - Not Required This Period			
					Sample	=	0				19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
					Permit							01/60 - Once Every 2	

01012 Beryllium, total [as Be]	W - See Comments	0	--	Req.								Req Mon INST MAX	19 - mg/L	Months	GR - GRAB
				Value											
				NODI											
				Sample											
01027 Cadmium, total [as Cd]	T - See Comments	1	--	Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
				Value								9 - Conditional Monitoring - Not Required This Period			
				NODI											
				Sample							=	0	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
01027 Cadmium, total [as Cd]	W - See Comments	0	--	Permit Req.								Req Mon INST MAX	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
				Value											
				NODI											
				Sample											
01032 Chromium, hexavalent [as Cr]	T - See Comments	1	--	Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
				Value								9 - Conditional Monitoring - Not Required This Period			
				NODI											
				Sample											
01034 Chromium, total [as Cr]	T - See Comments	1	--	Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
				Value								9 - Conditional Monitoring - Not Required This Period			
				NODI											
				Sample							=	0.01	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
01034 Chromium, total [as Cr]	W - See Comments	0	--	Permit Req.								Req Mon INST MAX	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
				Value											
				NODI											
				Sample						=	0.015	= 0.015	19 - mg/L	01/30 - Monthly	CP - COMPOS
01042 Copper, total [as Cu]	1 - Effluent Gross	0	--	Permit Req.							Req Mon MO AVG	Req Mon DAILY MX	19 - mg/L	01/30 - Monthly	CP - COMPOS
				Value											
				NODI											
				Sample											
01042 Copper, total [as Cu]	T - See Comments	1	--	Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
				Value								9 - Conditional Monitoring - Not Required This Period			
				NODI											
				Sample							=	1.09	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
01042 Copper, total [as Cu]	W - See Comments	0	--	Permit Req.								Req Mon INST MAX	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
				Value											
				NODI											
				Sample											
01045 Iron, total [as Fe]	T - See Comments	1	--	Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
				Value								9 - Conditional Monitoring - Not Required This Period			
				NODI											
				Sample							=	2.55	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
01045 Iron, total [as Fe]	W - See Comments	0	--	Permit Req.								Req Mon INST MAX	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
				Value											
				NODI											
				Sample											
01051 Lead, total [as Pb]	T - See Comments	1	--	Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
				Value								9 - Conditional Monitoring - Not Required This Period			
				NODI											
				Sample							=	0.02	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
01051 Lead, total [as Pb]	W - See Comments	0	--	Permit Req.								Req Mon INST MAX	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
				Value											
				NODI											
				Sample											
01059 Thallium, total [as Tl]	T - See Comments	1	--	Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
				Value								9 - Conditional Monitoring - Not Required This Period			
				NODI											
				Sample	=	0.28	=	0.31	01 - kg/d					01/07 - Weekly	CP - COMPOS
01067 Nickel, total [as Ni]	1 - Effluent Gross	0	--	Permit Req.	<=	2.14 MO AVG	<=	3.94 DAILY MX	01 - kg/d					01/07 - Weekly	CP - COMPOS
				Value											
				NODI											
				Sample			=	0.15	01 - kg/d					01/07 - Weekly	CP - COMPOS

01067 Nickel, total [as Ni]	G - Raw Sewage Influent	0	–	Permit Req.				Req Mon DAILY MX	01 - kg/d							01/07 - Weekly	CP - COMPOS
				Value NODI													
				Sample													
01067 Nickel, total [as Ni]	T - See Comments	1	–	Permit Req.								Opt Mon DAILY MX	19 - mg/L			01/90 - Quarterly	CP - COMPOS
				Value NODI								9 - Conditional Monitoring - Not Required This Period					
				Sample						=	0.05		19 - mg/L			01/60 - Once Every 2 Months	GR - GRAB
01067 Nickel, total [as Ni]	W - See Comments	0	–	Permit Req.								Req Mon INST MAX	19 - mg/L			01/60 - Once Every 2 Months	GR - GRAB
				Value NODI													
				Sample													
01077 Silver, total [as Ag]	T - See Comments	1	–	Permit Req.								Opt Mon DAILY MX	19 - mg/L			01/90 - Quarterly	CP - COMPOS
				Value NODI								9 - Conditional Monitoring - Not Required This Period					
				Sample	=	0.538	=	0.8	01 - kg/d							01/07 - Weekly	CP - COMPOS
01092 Zinc, total [as Zn]	1 - Effluent Gross	0	–	Permit Req.	<=	3.79 MO AVG	<=	5.68 DAILY MX	01 - kg/d							01/07 - Weekly	CP - COMPOS
				Value NODI													
				Sample			=	5.09	01 - kg/d							01/07 - Weekly	CP - COMPOS
01092 Zinc, total [as Zn]	G - Raw Sewage Influent	0	–	Permit Req.				Req Mon DAILY MX	01 - kg/d							01/07 - Weekly	CP - COMPOS
				Value NODI													
				Sample													
01092 Zinc, total [as Zn]	T - See Comments	1	–	Permit Req.								Opt Mon DAILY MX	19 - mg/L			01/90 - Quarterly	CP - COMPOS
				Value NODI								9 - Conditional Monitoring - Not Required This Period					
				Sample						=	0.78		19 - mg/L			01/60 - Once Every 2 Months	GR - GRAB
01092 Zinc, total [as Zn]	W - See Comments	0	–	Permit Req.								Req Mon INST MAX	19 - mg/L			01/60 - Once Every 2 Months	GR - GRAB
				Value NODI													
				Sample													
01097 Antimony, total [as Sb]	T - See Comments	1	–	Permit Req.								Opt Mon DAILY MX	19 - mg/L			01/90 - Quarterly	CP - COMPOS
				Value NODI								9 - Conditional Monitoring - Not Required This Period					
				Sample													
01105 Aluminum, total [as Al]	T - See Comments	1	–	Permit Req.								Opt Mon DAILY MX	19 - mg/L			01/90 - Quarterly	CP - COMPOS
				Value NODI								9 - Conditional Monitoring - Not Required This Period					
				Sample						=	10		19 - mg/L			01/60 - Once Every 2 Months	GR - GRAB
01105 Aluminum, total [as Al]	W - See Comments	0	–	Permit Req.								Req Mon INST MAX	19 - mg/L			01/60 - Once Every 2 Months	GR - GRAB
				Value NODI													
				Sample	=	0.04	=	0.06	01 - kg/d							01/07 - Weekly	CP - COMPOS
01147 Selenium, total [as Se]	1 - Effluent Gross	0	–	Permit Req.	<=	35 MO AVG	<=	75 DAILY MX	01 - kg/d							01/07 - Weekly	CP - COMPOS
				Value NODI													
				Sample	=	0.39			01 - kg/d							01/07 - Weekly	CP - COMPOS
01147 Selenium, total [as Se]	G - Raw Sewage Influent	0	–	Permit Req.		Req Mon MO AVG			01 - kg/d							01/07 - Weekly	CP - COMPOS
				Value NODI													
				Sample						=	5.7		69 - mg/kg			01/60 - Once Every 2 Months	GR - GRAB
01147 Selenium, total [as Se]	S - See Comments	0	–	Permit Req.								Req Mon INST MAX	69 - mg/kg			01/60 - Once Every 2 Months	GR - GRAB
				Value NODI													
				Sample													
01147 Selenium, total [as Se]	T - See Comments	1	–	Permit Req.								Opt Mon DAILY MX	19 - mg/L			01/90 - Quarterly	CP - COMPOS
				Value NODI								9 - Conditional Monitoring - Not Required This Period					

01147	Selenium, total [as Se]	W - See Comments	0	--	Sample							=	0.1	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.								Req Mon INST MAX	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI											
39516	Polychlorinated biphenyls [PCBs]	S - See Comments	0	--	Sample											
					Permit Req.								Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI								B - Below Detection Limit/No Detection			
46000	Phenols	T - See Comments	1	--	Sample											
					Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI								9 - Conditional Monitoring - Not Required This Period			
50060	Chlorine, total residual	1 - Effluent Gross	0	--	Sample					=	0.02	=	0.04	19 - mg/L	04/01 - Four Per Day	GR - GRAB
					Permit Req.						Req Mon MO AVG	<=	.06 DAILY MX	19 - mg/L	04/01 - Four Per Day	GR - GRAB
					Value NODI											
50060	Chlorine, total residual	T - See Comments	1	--	Sample											
					Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI								9 - Conditional Monitoring - Not Required This Period			
51040	E. coli	1 - Effluent Gross	0	--	Sample					<=	126 AVERAGE	<=	410 INST MAX	13 - #/100mL	03/07 - Three Per Week	GR - GRAB
					Permit Req.						9 - Conditional Monitoring - Not Required This Period		9 - Conditional Monitoring - Not Required This Period			
					Value NODI											
70318	Solids, total, percent	S - See Comments	0	--	Sample	=	23.8							23 - %	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.		Req Mon INST MIN							23 - %	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI											
70319	Solids, fixed, % of total solids	S - See Comments	0	--	Sample	=	18.1							23 - %	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.		Req Mon INST MIN							23 - %	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI											
70322	Solids, volatile % of total solids	S - See Comments	0	--	Sample	=	81.9							23 - %	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.		Req Mon INST MIN							23 - %	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI											
71900	Mercury, total [as Hg]	T - See Comments	1	--	Sample											
					Permit Req.								Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS
					Value NODI								9 - Conditional Monitoring - Not Required This Period			
71900	Mercury, total [as Hg]	W - See Comments	0	--	Sample							=	0.0024	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.								Req Mon INST MAX	19 - mg/L	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI											
74055	Coliform, fecal general	1 - Effluent Gross	0	--	Sample					=	13	=	26.2	13 - #/100mL	03/07 - Three Per Week	GR - GRAB
					Permit Req.					<=	200 30DA GEO	<=	400 7 DA GEO	13 - #/100mL	03/07 - Three Per Week	GR - GRAB
					Value NODI											
78407	Zinc, sludge, total, dry weight [as Zn]	S - See Comments	0	--	Sample							=	789	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.								Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI											
78408	Lead, sludge, total, dry weight [as Pb]	S - See Comments	0	--	Sample							=	40.7	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.								Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Value NODI											
78409	Nickel, sludge, total, dry weight [as Ni]	S - See Comments	0	--	Sample							=	47.1	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB
					Permit Req.								Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB

					Value NODI											
					Sample											
78471	Mercury, sludge, total, dry weight [as Hg]	S - See Comments	0	--	Permit Req.						=	0.6	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
												Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
					Value NODI											
					Sample											
78473	Chromium, sludge, total, dry weight [as Cr]	S - See Comments	0	--	Permit Req.						=	43.3	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
												Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
					Value NODI											
					Sample											
78475	Copper, sludge, total, dry weight [as Cu]	S - See Comments	0	--	Permit Req.						=	570	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
												Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
					Value NODI											
					Sample											
78476	Cadmium, sludge, total, dry weight [as Cd]	S - See Comments	0	--	Permit Req.						=	2.62	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
												Req Mon INST MAX	69 - mg/kg	01/60 - Once Every 2 Months	GR - GRAB	
					Value NODI											
					Sample			=	4	=	4		19 - mg/L	03/07 - Three Per Week	CP - COMPOS	
80126	BOD, carbonaceous [5 day, 5 C]	1 - Effluent Gross	1	--	Permit Req.			<=	15 MO AVG	<=	25 DAILY MX		19 - mg/L	03/07 - Three Per Week	CP - COMPOS	
					Value NODI											
					Sample			=	331				19 - mg/L	03/07 - Three Per Week	CP - COMPOS	
80126	BOD, carbonaceous [5 day, 5 C]	G - Raw Sewage Influent	0	--	Permit Req.				Req Mon MO AVG				19 - mg/L	03/07 - Three Per Week	CP - COMPOS	
					Value NODI											
					Sample											
80126	BOD, carbonaceous [5 day, 5 C]	T - See Comments	1	--	Permit Req.							Opt Mon DAILY MX	19 - mg/L	01/90 - Quarterly	CP - COMPOS	
					Value NODI							9 - Conditional Monitoring - Not Required This Period				
					Sample	=	99.1						23 - %	03/07 - Three Per Week	CA - CALCTD	
81011	Solids, suspended percent removal	K - Percent Removal	0	--	Permit Req.	>=	85 MN % RMV						23 - %	03/07 - Three Per Week	CA - CALCTD	
					Value NODI											
					Sample	=	99						23 - %	03/07 - Three Per Week	CA - CALCTD	
81383	Carbonaceous oxygen demand, % removal	K - Percent Removal	0	--	Permit Req.	>=	85 MN % RMV						23 - %	03/07 - Three Per Week	CA - CALCTD	
					Value NODI											
					Sample											
TDA3D	Noael Static 48Hr Acute D. Pulex	T - See Comments	1	--	Permit Req.		Opt Mon MINIMUM						2T - % survival	01/90 - Quarterly	CP - COMPOS	
					Value NODI		9 - Conditional Monitoring - Not Required This Period									
					Sample											
TDA8C	Noael Static 48Hr Acute Pimephales	T - See Comments	1	--	Permit Req.		Opt Mon MINIMUM						2T - % survival	01/90 - Quarterly	CP - COMPOS	
					Value NODI		9 - Conditional Monitoring - Not Required This Period									

Submission Note

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

Edit Check Errors

No errors.

Comments

Attachments

No attachments.

Report Last Saved By

NAUGATUCK WPCF

User: John.Batorski@Veoliawaterna.com

Name: John Batorski

Date/Time: 2016-10-07 07:51 (Time Zone: -04:00)

VEOLIA

Sent Certified R.R.R. mail # 7014 1200 0002 2237 0278 on October 6, 2016

October 6, 2016

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: CGA and Opacity Audit Test Reports

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

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

Test Report – CEMS Cylinder Gas & Opacity Audit Third Quarter 2016

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. 4931

September 19, 2016

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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. Robert Ciriello / Project Technician
Unit Tested:	Sludge Incinerator Exhaust Stack
Test Date:	September 9, 2016

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 9, 2016.

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. The opacity audit was performed to satisfy the requirements of Performance Specification 1, Section 7.0.

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 utilizes 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 EAOOOAA 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.

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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. The opacity audit was performed to satisfy the quarterly Performance Specification 1, Section 7.0. The testing satisfies 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. No field changes were necessary for this test program.

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 2016. The CEMS oxygen and carbon monoxide CGA and opacity audit were conducted on September 9, 2016.

The CGA was conducted in accordance with the test procedures and acceptance criteria of 40 CFR 60, Appendix B. 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 concentrations of audit gases conformed to range specifications defined in 40 CFR 60, Appendix A. The responses of the monitors to the gas standards were recorded by the facility data acquisition and handling system (DAHS) as one-minute averages. The RA of each monitor was determined for each standard as the difference between the average response to the standard, 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.

The opacity audit was performed by alternately passing three filters of differing optical density (≈ 10%, 20% and 30%) in to 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 audit is based on the results of five passes of the filters.

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.

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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.

4.2 Opacity Audit Procedure

The opacity audit was performed by alternately passing three filters of different known opacity values (9.74, 19.96, and 31.97) in to 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 audit is based on the results of five passes of the filters.

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.

Environmental

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.

Environmental

TABLES

Table 3.1 Summary of Results
Cylinder Gas Audit
FB Incinerator
Veolia Water NA - Naugatuck, CT
Naugatuck, Connecticut
3rd Qtr - 2016

CEMS	Test Date	Monitor	Span / Units	Cylinder Gas Audit				
				Standard Conc.	Average Response	Error (% of std.conc.)	Error (abs. diff.)	CGA Criteria
Oxygen	09/09/16	Siemens	0-25%	5.01	4.90	2.20	0.11	15.0% or 0.5% O_2
				10.00	9.90	1.00	0.10	15.0% or 0.5% O_2
Carbon Monoxide	09/09/16	TECO	0-300 ppm	75.00	76.17	1.56	1.17	15.0% or 5 ppm
				167.80	167.17	0.38	0.63	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: 9/9/16
AUDITOR: Anthony Downs

Run #	Zero	Low	Mid	High
Pre Zero	0.00			
1		8.66	19.40	32.21
2		8.60	19.72	32.18
3		8.91	19.40	32.30
4		8.85	19.31	32.21
5		8.86	19.40	32.21
6 Min Avg		8.90	19.88	32.21
Post Zero	0.00			

	Actual Filter Values		Corrected Filter Values (2)
PATH LENGTH CORRECTION FACTOR (PLCF) =	1.000	-	N/A
LOW CAL FILTER VALUE (S/N F684) =	9.74	-	9.74
MID CAL FILTER VALUE (S/N F359) =	19.96	-	19.96
HIGH CAL FILTER VALUE (S/N G368) =	31.97	-	31.97

N	Low	Value	Delta L	Del L^2
1	8.7	9.7	0.4	0.1
2	8.6	9.7	-1.1	1.3
3	8.9	9.7	-0.8	0.7
4	8.9	9.7	-0.9	0.8
5	8.9	9.7	-0.9	0.8
Sum =			-3.4	3.7
A = Sum (Delta L) ^ 2 =			11.3	
B = Sum (Delta L ^ 2) =			3.7	
N =			5.0	
(N * B) - A =			7.1	

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

ME = **-0.7**

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

CI = **0.7**

Calibration Error = ABS (ME) + CI

Calibration Error (1) = **1.4**

6 Minute Average Mean Error = **0.8**

N	Mid	Value	Delta L	Del L^2
1	19.4	20.0	-0.6	0.3
2	19.7	20.0	-0.2	0.1
3	19.4	20.0	-0.6	0.3
4	19.3	20.0	-0.7	0.4
5	19.4	20.0	-0.6	0.3
Sum =			-2.6	1.4
A = Sum (Delta L) ^ 2 =			6.6	
B = Sum (Delta L ^ 2) =			1.4	
N =			5.0	
(N * B) - A =			0.5	

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

ME = **-0.5**

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

CI = **0.2**

Calibration Error = ABS (ME) + CI

Calibration Error (1) = **0.7**

6 Minute Average Mean Error = **0.1**

N	High	Value	Delta L	Del L^2
1	32.2	32.0	0.2	0.1
2	32.2	32.0	0.2	0.0
3	32.3	32.0	0.3	0.1
4	32.2	32.0	0.2	0.1
5	32.2	32.0	0.2	0.1
Sum =			1.3	0.3
A = Sum (Delta L) ^ 2 =			1.6	
B = Sum (Delta L ^ 2) =			0.3	
N =			5.0	
(N * B) - A =			0.0	

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

ME = **0.3**

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

CI = **0.1**

Calibration Error = ABS (ME) + CI

Calibration Error (1) = **0.3**

6 Minute Average Mean Error = **0.2**

(1) - Calculated per 40 CFR 60 Appendix F Procedure 3 (CE $\leq$ 3.0)
(2) - Corrected Filter Value = 1-(1-Actual Filter Value)^{PLCF} where the actual filter value = (Labeled % opacity / 100)

VEOLIA
WATER

Sent Certified R.R.R. mail #7014 1200 0002 2237 0247 on September 16, 2016

Water Toxics Program Coordinator
Connecticut Department of Energy and Environmental Protection
Bureau of Water Protection & Land Reuse
79 Elm Street
Hartford, CT 06106-5127

September 16, 2016

Re: Stormwater Monitoring Report Naugatuck, CT WWTP, NPDES # CT0100641

Dear Sir/Madam,

Enclosed are the results for the recent Storm Water Testing at the Naugatuck WWTP.

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)

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

Storm Water Testing Bench Sheet

Storm magnitude must be >.1 inch

Storm must be 72 hours after last measurable storm of >.1 inch

Grab sample must be taken in first 30 minutes of storm.

DATE OF RAIN EVENT 8/10/16

DATE OF LAST RAIN EVENT 8/2/16
72 HOURS PRIOR

TIME OF START 10:50 am

TIME OF SAMPLE 11:15 am
WITHIN 30 MINUTES OF START TIME

MAGNITUDE OF STORM .13

PH OF SAMPLE 6.77

New England Biolabs
A Division of GZA

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

77 Batson Drive
Manchester, CT 06042
T: 860.647.9560
F: 860.647.7160
www.nebo.com

Stormwater Monitoring Report (SMR) Instruction Form:

Client Name/Project: Phoenix Environmental Test Date: 8/11/16

Sample ID #1: BN 89819
Sample ID #2:
Sample ID #3:
Sample ID #4:
Sample ID #5:
Sample ID #6:
Sample ID #7:
Sample ID #8:
Sample ID #9:
Sample ID #10:

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

- Complete the "Facility Information" section on page one of the SMR. ✓
- Complete the "Sampling Information" section on page one of the SMR. If you failed to record the date of the previous storm event it may be found at www.wunderground.com. ✓
- Complete the "Monitoring Results" section on page one of the SMR. Don't forget to include the units in the results section (e.g. 0.1 mg/L). If you have additional monitoring for 'discharge to impaired waters' please fill in the box on top of page 3. ✓
- If you have exceeded any of the Bench Marks (see monitoring results section) please refer to Section 5 (e)(1)(B)(iv) on page 32 of the permit located on the CT DEEP website: http://www.ct.gov/deep/lib/deep/Permits_and_Licenses/Water_Discharge_General_Permits/storm_indust_mod.pdf
- An authorized official from your facility must sign the "Statement of Certification" section of the SMR. ✓
- Fill in the Data Tracking Sheet with your facility information and chemical analysis results for each event tested. Keep this information in your files for submittal to the DEEP after all four events are filled in. ✓

Please detach this instruction form and within 90 days of your sample collection date, file the completed form with the CT DEEP

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

An Equal Opportunity Employer M/F/V/H

General Permit for the Discharge of Stormwater Associated with Industrial Activity, effective 10/1/2011
Stormwater Monitoring Report Form
Sector G - Municipal or Federal Facilities

Facility Information

Permittee Name: BOROUGH OF NAUGATUCK Site Name: NAUGATUCK WWTP
Mailing Address: 500 CHERRY ST. EXT. NAUGATUCK, CT 06770
Contact Person: JOHN BATORSKI Title: PLANT MANAGER
Business Phone: 203-723-1433 ext: 2015 Email: JOHN.BATORSKI@VEOLIA.COM
Site Address: 500 CHERRY ST EXT. NAUGATUCK, CT 06770
Receiving Water (name/basin): NAUGATUCK RIVER
Permit #: GSI CT0100641 Primary SIC:
Discharges into an Impaired Waterbody: Yes ☐ No ☒ (if yes, complete the table on page 3 of this form)

Sample Information

Sample Location: UPSTREAM OF OUTFALL Person Collecting Sample: RAFAL GACIARZ / TOM DEUER
Date/Time Collected: 8/10/16 @ 1115 Date of Previous Storm Event: 8-2-16
This report is for samples required: Semi-annually ☐ Annually ☒ Other ☐
Check here if the sample contains **snow or ice melt**: ☐
Check here if a benchmark exceedance is soley due to background or off site sources ☐ see note below

Monitoring Results

Parameter	Required Frequency	Results (units)	Benchmark	Benchmark Exceedance (see pg 4)	Test Method	Laboratory Name
Oil & Grease	Semi-annual	<1.4 mg/L	5.0 mg/L	☐	1664A	Phoenix
Rainfall pH	Semi-annual		n/a			
Sample pH	Semi-annual	7.15 SU	5-9 SU	☐	SM4500-HB	Phoenix
COD	Semi-annual	74 mg/L	75 mg/L	☐	SM5220D	
TSS	Semi-annual	39 mg/L	90 mg/L	☐	SM2540D	
TP	Semi-annual	2.49 mg/L	0.40 mg/L	☐	SM4500PE	
TKN	Semi-annual	5.18 mg/L	2.30 mg/L	☐	351.1	
NO_3-N	Semi-annual	<0.02 mg/L	1.10 mg/L	☐	353.2	
Total Copper	Semi-annual	0.033 mg/L	0.059 mg/L	☐	200.7	
Total Zinc	Semi-annual	0.095 mg/L	0.160 mg/L	☐	200.7	
Total Lead	Semi-annual	0.007 mg/L	0.076 mg/L	☐	200.7	
24 Hr. LC_{50}	Annual -Year 1&2	>100%	n/a		EPA-821-R-02-012	NEB
48 Hr. LC_{50}	Annual -Year 1&2	>100%	n/a		EPA-821-R-02-012	NEB

*** See Additional Sector G Monitoring Section on page 3 of this form for Federal or Municipal facilities with <u>incidental solid deicing material storage only.</u>**

Exemptions

List here any parameter(s) that will not be sampled for the remainder of the permit term: see note below

NOTE: Complete the "Data Tracking Table" (page 4 on this form) to show the parameter is eligible for the monitoring exemption in Section 5(e)(1)(B)(iii) of the general permit. If you are discontinuing monitoring for impaired water parameters (per Section 5(e)(1)(D)), or parameters that are present due to natural or background levels or off site run-on (per Section 5(e)(1)(B)(V)), attach additional supporting information to this form.

STORMWATER ACUTE TOXICITY TEST DATA SHEET

(required annually only during Year 1 and Year 2 of the permit)

Site Name:	Phoenix / BN89819	COC #	C36-2874
Date / Time Begin:	8/11/16 @ 1710	Date / Time End:	8/13/16 @ 1710
Sample Hardness (mg/L):	32	Sample Conductivity (µS):	222
Test Species: *Daphnia pulex* < 24 hrs old		Dilution Water Hardness (mg/L):	46

Effluent Dilution	Number of Organisms Surviving			Dissolved Oxygen (mg/L)			Temperature (°C)			pH (su)		
Hour	00	24	48	00	24	48	00	24	48	00	24	48
CONTROL 1	5	5	5	9.0	9.1	9.2	19	19	19	7.4	7.4	7.4
CONTROL 2	5	5	5	9.0	9.1	9.2	19	19	19	7.4	7.4	7.4
CONTROL 3	5	5	5	9.0	9.1	9.2	19	19	19	7.4	7.4	7.4
CONTROL 4	5	5	5	9.0	9.1	9.2	19	19	19	7.4	7.4	7.4
6.25% A	5	5	5	8.3	8.7	9.2	19	19	19	7.1	7.1	7.1
6.25% B	5	5	5	8.3	8.7	9.2	19	19	19	7.1	7.1	7.1
6.25% C	5	5	5	8.3	8.7	9.2	19	19	19	7.1	7.1	7.1
6.25% D	5	5	5	8.3	8.7	9.2	19	19	19	7.1	7.1	7.1
12.5% A	5	5	5	8.7	8.8	9.1	19	19	19	7.1	7.1	7.1
12.5% B	5	5	5	8.7	8.8	9.1	19	19	19	7.1	7.1	7.1
12.5% C	5	5	5	8.7	8.8	9.1	19	19	19	7.1	7.1	7.1
12.5% D	5	5	5	8.7	8.8	9.1	19	19	19	7.1	7.1	7.1
25% A	5	5	5	8.6	8.7	8.8	19	19	19	7.2	7.1	7.1
25% B	5	5	5	8.6	8.7	8.8	19	19	19	7.2	7.1	7.1
25% C	5	5	5	8.6	8.7	8.8	19	19	19	7.2	7.1	7.1
25% D	5	5	5	8.6	8.7	8.8	19	19	19	7.2	7.1	7.1
50% A	5	5	5	8.2	8.6	8.8	19	19	19	7.1	7.2	7.1
50% B	5	5	5	8.2	8.6	8.8	19	19	19	7.1	7.2	7.1
50% C	5	5	5	8.2	8.6	8.8	19	19	19	7.1	7.2	7.1
50% D	5	5	5	8.2	8.6	8.8	19	19	19	7.1	7.2	7.1
100% A	5	5	5	7.3	8.0	7.9	19	19	19	6.9	7.2	7.1
100% B	5	5	5	7.3	8.0	7.9	19	19	19	6.9	7.2	7.1
100% C	5	5	5	7.3	8.0	7.9	19	19	19	6.9	7.2	7.1
100% D	5	5	5	7.3	8.0	7.9	19	19	19	6.9	7.2	7.1

REFERENCE TOXICANT RESULTS

Test Species	Date	Reference Toxicant	Source	LC50
Daphnia pulex	8/1/16	$CuNO_3$#16-0311-05	NEB	2.17 µg/L

Additional Monitoring:Sector G

For Federal or Municipal facilities with incidental solid deicing material storage only:

Parameter	Required Frequency	Results (units)	Benchmark	Test Method	Laboratory Name
Chloride	Semi-annual Years 1&2 only		n/a		
Cyanide	Semi-annual Years 1&2 only		n/a		

Additional Monitoring for Discharges to Impaired Waters (if applicable):

Parameter	Frequency	Results (units)	Test Method	Laboratory Name

Statement of Certification

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

John Batorski Signature of Permittee	Sept. 16, 2016 Date
John Batorski Name of Permittee (print or type)	Plant Manager Title (if applicable)
Signature of Preparer (if different than above)	Date
Name of Preparer (print or type)	Title (if applicable)

Please send all completed forms to:

WATER TOXICS PROGRAM COORDINATOR
BUREAU OF WATER PROTECTION AND LAND REUSE
CT DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

General Permit for the Discharge of Stormwater Associated with
Industrial Activity, effective 10/1/2011
Data Tracking Sheet
Sector G - Municipal for Federal Facilities

Permittee Name: BOROUGH OF NAUGATUCK	Permit # GSI CT0100041
Site Name: NAUGATUCK WWTP	
Site Address: 500 CHERRY ST EXT. NAUGATUCK, CT 06770	
Sample Location: PLANT STORMWATER TANK DISCHARGE	

Enter the sample dates and the data reported for the four (4) most recent semi-annual sample results at this discharge location into the chart below. To determine the average for the four samples add up each of the four results and then divide that number by 4. ***Only monitoring collected under the current permit (effective 10/1/11), can be used to earn the monitoring exemption.***

$$\text{Average} = \frac{(\text{Sample 1} + \text{Sample 2} + \text{Sample 3} + \text{Sample 4})}{4}$$

	Sample Result						
Parameter	1	2	3	4	Average	Benchmark*	Qualify for exemption?
Sample Date	8-9-13	9-16-14	8-4-15	8-10-16			
O&G	1.5	<1.4	4.0	<1.4	2.08	5.0 mg/L	
Sample pH	6.97	7.14	7.26	7.15	7.13	5-9 S.U.	
COD	60	35	128	74	74.25	75 mg/L	
TSS	59	<5.0	90	39	48.25	90 mg/L	
TP	3.57	1.33	4.2	2.49	2.90	0.40 mg/L	
TKN	3.16	2.56	2.99	5.18	3.47	2.30 mg/L	
NO3-N	0.31	0.40	0.21	<0.02	0.235	1.10 mg/L	
Total Copper	0.030	0.012	0.084	0.033	0.052	0.059 mg/L	
Total Zinc	0.191	0.102	0.255	0.095	0.161	0.160 mg/L	
Total Lead	0.017	0.003	0.015	0.007	0.011	0.076 mg/L	

*If the average of the four (4) most recent samples is less than the benchmark listed, your facility is no longer required to sample semi-annually for that parameter for the rest of the permit (current permit expires 9/30/2016). If your facility qualifies for an exemption from monitoring for sample pH, your facility is also exempt from monitoring rainfall pH for the remainder of the permit.

If the average of the four (4) most resent samples is equal to or greater than the benchmark listed, check the appropriate box on page 1.If so, you have exceeded the benchmark and must continue to sample this parameter semiannually until the average is below the benchmark. See Section 5(e)(1)(B) of the General permit for requirements when exceeding a benchmark.

If the sample result reported by the testing laboratory was below detection limit, for the purpose of averaging, use a value that is 1/2 the detection limit for that parameter in the formula above. For example, if the result for Oil & Grease was <2.0 mg/L, use a value of 1.0 mg/L for determining the average. Please refer to Section 5 e(1)B(iii) of the General Permit for a more detailed explanation.

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

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

Coolant: IPK ☐ ICE ☐ No ☐
Temp °C Pg of

Data Delivery:
☐ Fax #:
☐ Email:

Customer: NGB
Address:

Project: Storm Waters
Report to: Deb L
Invoice to:
Phone #:
Fax #:

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: Date:

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

Analysis Request: Aquatic

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container [ ] oz [ ] oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml (L-H-200ml)	PL H2SO4 [ ] 250ml [ ] 1500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria (as is)	Bacteria (w/thio)
C36-2872	BN 89803	SW	8/10/16	1135	X									
C36-2873	BN 89801	SW	↓	—	X									
C36-2874	BN 89819	SW	↓	11:15	X									
C36-2875	BN 89850	SW	↓	—	X									
C36-2876	BN 89852	SW	↓	14:45	X									
C36-2877	BN 90055	SW		10:45	X									
C36-2878	BN 90057			10:17	X									
C36-2879	BN 90059			9:50	X									
C36-2880	BN 90054	↓	↓	12:55	X									
C36-2881	BN 90065	↓	8/10/16	10:30	X									
C36-2882	BN 90093	↓	"	11:00	X									

Relinquished by:	Accepted by:	Date:	Time:
[illegible]	[illegible]	8-11-16	8:30
[illegible]	Celeste [illegible]	8/11/16	0900

Comments, Special Requirements or Regulations:

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

RI
☐ Direct Exposure (Residential)
☐ GW
☐ Other

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

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

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

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

State where samples were collected:

2016 STORM WATER

PHOENIX
Environmental Laboratories, Inc.

Tuesday, September 13, 2016

Attn: Mr. Tom Deller
Veolia Water, Naugatuck Plant
500 Cherry Street
Naugatuck, CT 06770

Project ID: NAUGATUCK
Sample ID#s: BN89819

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Telephone (860) 645-1102 Fax (860) 645-0823

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 13, 2016

FOR: Attn: Mr. Tom Deller
Veolia Water, Naugatuck Plant
500 Cherry Street
Naugatuck, CT 06770

Sample Information		Custody Information		Date	Time
Matrix:	STORM WATER	Collected by:	TD	08/10/16	11:15
Location Code:	VEOLIANA	Received by:	LK	08/10/16	14:07
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	7766000379				

Laboratory Data

SDG ID: GBN89819
Phoenix ID: BN89819

Project ID: NAUGATUCK
Client ID: STORM WATER

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Copper	0.033	0.005	mg/L	1	08/13/16	LK	E200.7
Lead	0.007	0.002	mg/L	1	08/13/16	LK	E200.7
Zinc	0.095	0.002	mg/L	1	08/13/16	LK	E200.7
Fecal Coliforms	>2000	10	/100 mls	10	08/10/16 16:30	CB/CB	SW9222D
C.O.D.	74	10	mg/L	1	08/12/16	EG	SM5220D-97
Ammonia as Nitrogen	3.04	0.05	mg/L	1	08/15/16	WHM	E350.1
Nitrate-N	< 0.02	0.02	mg/L	1	08/10/16 22:57	KD	E353.2
Oil and Grease by EPA 1664	< 1.4	1.4	mg/L	1	08/11/16	MA	E1664A
pH	7.15	0.10	pH Units	1	08/11/16 00:07	RR/EG	SM4500-H B-00
Nitrogen Tot Kjeldahl	5.18	0.10	mg/L	1	08/15/16	WHM	E351.1
Phosphorus, as P	2.49	0.05	mg/L	5	08/16/16	JR	SM4500PE-99
Total Suspended Solids	39	5.0	mg/L	1	08/11/16	AS/KH	SM2540D-97
Total Metals Digestion	Completed				08/10/16	AG	
Aquatic Toxicity	Completed				09/12/16	*	

Project ID: NAUGATUCK
Client ID: STORM WATER

Phoenix I.D.: BN89819

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

* See Attached

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director
September 13, 2016
Reviewed and Released by: Deb Lawrie, Project Manager

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

September 13, 2016

QA/QC Data

SDG I.D.: GBN89819

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 355298 (mg/L), QC Sample No: BN89801 (BN89819)													
ICP Metals - Aqueous													
Copper	BRL	0.005	0.019	0.016	NC	103			102			75 - 125	20
Lead	BRL	0.002	0.006	0.005	NC	102			100			75 - 125	20
Zinc	BRL	0.002	0.158	0.140	12.1	104			102			75 - 125	20

PHOENIX

Environmental Laboratories, Inc.
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Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

September 13, 2016

QA/QC Data

SDG I.D.: GBN89819

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 355360 (mg/L), QC Sample No: BN89601 (BN89819)													
Oil and Grease by EPA 1664A	BRL	1.4				103						85 - 115	20
QA/QC Batch 355497 (mg/L), QC Sample No: BN89602 (BN89819)													
C.O.D.	BRL	10	18	16	NC	107			96.1			85 - 115	20
QA/QC Batch 355655 (mg/L), QC Sample No: BN89742 (BN89819)													
Ammonia as Nitrogen	BRL	0.05	0.18	0.17	NC	106			99.9			85 - 115	20
Nitrogen Tot Kjeldahl	BRL	0.10	0.75	0.7	6.90	102			95.7			85 - 115	20
QA/QC Batch 355343 (mg/L), QC Sample No: BN89746 (BN89819)													
Total Suspended Solids	BRL	5.0	10	10	NC	85.0						85 - 115	20
QA/QC Batch 355797 (mg/L), QC Sample No: BN89766 (BN89819)													
Phosphorus, as P	BRL	0.01	0.59	0.57	3.40	106			100			85 - 115	20
QA/QC Batch 355320 (mg/L), QC Sample No: BN89850 (BN89819)													
Nitrate-N	BRL	0.02	0.47	0.46	2.20	97.0			99.4			85 - 115	20
QA/QC Batch 355374 (pH), QC Sample No: BN89938 (BN89819)													
pH			6.37	6.50	2.00	97.7						85 - 115	20

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
September 13, 2016

Tuesday, September 13, 2016

Criteria: None

State: CT

Sample Criteria Exceedences Report

GBN89819 - VEOLIANA

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Cooler: Yes [x] No [ ]
Coolant: IPK [ ] ICE [x] No [ ]
Temp 3 °C Pg of

PHOENIX
Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

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

Data Delivery:
[ ] Fax #:
[x] Email: tom.deller@veolia.com

Customer: Veolia Water, NA
Address: 500 Cherry St Ext
Naugatuck, Ct 06770
Attn: Tom Deller

Project: Naugatuck
Report to: Tom Deller
Invoice to: 2016 Storm Water
Phone #: 203-723-1433 ext 2004
Fax #: 203-723-8539

Project P.O: 2016 Storm Water

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: T-Deller Date: 8-10-16

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

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Aquatic Toxicity	Copper, Lead, Zinc	Fecal Coliforms, COD, NH3	Nitrate-N, Oil & Grease, pH, TKN	Total Phosphorus, TSS																				
8C1819	Storm Water	GW	8/10/2016	11:15am	x	x	x	x	x													x	2	x	x		x		

Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [x] H2SO4	PL As is [x] 250ml [ ] 500ml [x] 1000ml	PL H2SO4 [ ] 250ml [x] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle

Relinquished by:	Accepted by:	Date:	Time:
T-Deller		2016/8/10	12:52
	TTOWNS	8/10	1407

Comments, Special Requirements or Regulations:

2016 Storm Water

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

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

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

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

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

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

State where samples were collected: CT

PHOENIX Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

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

Cooler: Yes [x] No [ ]
Coolant: IPK [ ] ICE [x] No [ ]
Temp 3 °C Pg of

Data Delivery:
[ ] Fax #:
[x] Email: tom.deller@veolia.com

Customer: Veolia Water, NA
Address: 500 Cherry St Ext
Naugatuck, Ct 06770
Attn: Tom Deller

Project: Naugatuck
Report to: Tom Deller
Invoice to: 2016 Storm Water
Phone #: 203-723-1433 ext 2004
Fax #: 203-723-8539

Project P.O: 2016 Storm Water

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: T-Deller Date: 8-10-16

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

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Aquatic Toxicity	Copper, Lead, Zinc	Fecal Coliforms, COD, NH3	Nitrate-N, Oil & Grease, pH, TKN	Total Phosphorus, TSS	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [x] H2SO4	PL As is [x] 250ml [ ] 500ml [x] 1000ml	PL H2SO4 [ ] 250ml [x] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle
801819	Storm Water	GW	8/10/2016	11:15am	X	X	X	X	X				X	2	X	X		X	

Relinquished by:	Accepted by:	Date:	Time:
T-Deller		2016/8/10	12:52
	TTOWLER	8/10	1407

Comments, Special Requirements or Regulations:

2016 Storm Water

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

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

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

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

State where samples were collected: CT

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

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

* SURCHARGE APPLIES

VEOLIA

Sent Certified R.R.R. mail #7014 1200 0002 2237 0254 on October 4, 2016

Connecticut Department of Energy and Environmental Protection
Bureau of Water Management
Chronic ATMR
79 Elm Street
Hartford, CT 06106-5127

October 4, 2016

Re: 2016 Chronic Aquatic Toxicity Monitoring Report

Dear Sir:

Enclosed please find the Naugatuck Chronic Aquatic Toxicity Monitoring Report for 2016.

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)

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

STATE OF CONNECTICUT**DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHRONIC ATMR PART 1

FACILITY NAME:	Naugatuck WPCF	PIPE:	CT0100641
RECEIVING WATER:	Naugatuck River	WATERBODY ID:	6900

SAMPLE INFORMATION		Site Water	DSN-001 Effluent	Rain ?
Sample #1	Collection Dates	8/22/16	8/21-22/16	
	Collection Times	0915		
	Flow (gpd)			
Sample #2	Collection Dates	8/24/16	8/23-24/16	
	Collection Times	1000	0149-0200	
	Flow (gpd)			
Sample #3	Collection Dates	8/26/16	8/25-26/16	
	Collection Times	1015	0144-0137	
	Flow (gpd)			

CHRONIC TOXICITY SUMMARY: Single Concentration			
Invertebrate: Ceriodaphnia dubia	Lab Water	Site Water	100% Effluent - DSN-001
48-hour % Survival	100%	100%	100%
7-day % Survival	100%	100%	100%
Mean # young/female	27.9	29.8	29.9
# females with 3 broods	10	9	9
% Fecundity	NA	NA	NA
Growth (weight; mg/mysid)	NA	NA	NA
Acceptability Criteria met?	Yes	Yes	
Vertebrate: Pimephales promelas	Lab Water	Site Water	100% Effluent - DSN-001
48-hour % Survival	100%	100%	97.5%
7-day % Survival	100%	95%	92.5%
Growth (weight; mg/fish)	0.695	0.771	0756
Acceptability Criteria met?	Yes	Yes	

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 submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Official: John Batorski Title: Plant Manager

Signature John Batorski Date: 10-4-16

STATE OF CONNECTICUT**DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHRONIC ATMR PART 1

FACILITY NAME:	Naugatuck WPCF	PIPE:	CT0100641
RECEIVING WATER:	Naugatuck River	WATERBODY ID:	6900

CHRONIC TOXICITY SUMMARY: Definitive Multi-Concentration Tests			
Invertebrate: Ceriodaphnia dubia	**Lab Water Not Applicable**	**Site Water Not Applicable**	**Effluent - DSN-001 (%)**
48-hour LC50			>100%
7-day LC50			>100%
7-day EC50 (reproduction)			**Not Applicable**
7-day EC50 (growth)			**Not Applicable**
IC25 (reproduction)			>100%
IC50 (reproduction)			>100%
C-LOEC-Survival			>100%
C-NOEC-Survival			100%
C-LOEC-Reproduction (Fecundity)			>100%
C-NOEC-Reproduction (Fecundity)			100%
C-LOEC-Growth			**Not Applicable**
C-NOEC-Growth			**Not Applicable**
Vertebrate: Pimephales promelas	**Lab Water Not Applicable**	**Site Water Not Applicable**	**Effluent - DSN-001 (%)**
48-hour LC50			>100%
7-day LC50			>100%
7-day EC50 (growth)			**Not Applicable**
IC25 (growth)			>100%
IC50 (growth)			>100%
C-LOEC-Survival			>100%
C-NOEC-Survival			100%
C-LOEC-Growth			>100%
C-NOEC-Growth			100%

STATE OF CONNECTICUT**DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHRONIC ATMR PART 1

FACILITY NAME:	Naugatuck WPCF	**PIPE:**	CT0100641
RECEIVING WATER:	Naugatuck River	**WATERBODY ID:**	6900

TOXICITY LAB MEASUREMENTS

	Effluent #1	Receiving Water#1	Effluent #2	Receiving Water #2	Effluent #3	Receiving Water #3
Sample Dates	8/21-22/16	8/22/16	8/23-24/16	8/24/16	8/25-26/16	8/26/16
NEB COC #'s	C36-3028	C36-3029	C36-3052	C36-3053	C36-3074	C36-3075
Arrival Temperature (°C)	9.6	9.8	9.6	9.5	23.1	23.6, 22.1
Dissolved Oxygen (mg/L)	9.7	9.3	8.6	8.9	4.6	6.1
pH (SU)	7.2	7.0	7.3	7.2	7.1	7.2
Alkalinity (mg/L as $CaCO_3$)	110	20	125	35	120	35
Hardness (mg/L as $CaCO_3$)	128	30	124	72	122	84
Salinity (ppt)	< 1	<1	< 1	< 1	<1	<1
Specific Conductivity (µmhos/cm)	1,206	189	1,163	419	1,192	486
TRC (mg/L)	0.032	0.051	<0.02	0.026	0.075	<0.02

New England Bioassay
A Division of GZA

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

77 Batson Drive
Manchester, CT 06042
T: 860.643.9560
F: 860.646.7169
www.nebio.com

CHRONIC AQUATIC TOXICITY TEST REPORT

Borough of Naugatuck WPCF
DSN 001
NPDES Permit: CT0100641
Receiving Water: Naugatuck River

Test Start Date: 8/23/16

Test Period: August 2016

Report Prepared by:

New England Bioassay
A Division of GZA GeoEnvironmental, Inc.
77 Batson Dr.
Manchester, CT 06042

NEB Project Number: 05.0044745.00

Report Date: September 26, 2016

Report Submitted to:

Phoenix Environmental Laboratories, Inc.
587 East Middle Turnpike
P.O. Box 370
Manchester, CT 06040

Sample ID: BN95828/29

Please contact the Lab Manager, Kim Wills, at (860) 858-3153 or Kimberly.wills@gza.com if you have any questions concerning these results.

An Equal Opportunity Employer M/F/V/H

Whole Effluent Toxicity Testing Report Instruction Form

Client Name/Project: Naugatuck WPCF Test Date: 8/23/16

Sample ID: BN95828/29

Your results were as follows:

☒ Monitoring Only

☐ Fail – Please proceed according to the instructions in your permit.

☐ Invalid – **Retesting is still required. Retest report will be sent at a later date under separate cover.**

☐ Original Test Invalid – **Valid retest performed. Both test and retest results are attached.**

☐ Retesting will be or has been performed according to the Case 1 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water.

☐ This is your _____ case of dilution water toxicity. Please proceed according to the Case 2 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water. The alternate dilution water you select for future tests for this species should be described as follows: "synthetic laboratory water made up according to EPA's toxicity test protocols, by adding specified amounts of salts into deionized water in order to match the hardness of our receiving water." Writing this letter should help you to avoid retests in the future.

☐ Available information is insufficient to determine whether this test passed or failed. Please compare results to your permit limits. Please submit a current copy of your permit to the NEB Lab so that we can determine the status of future tests results and help ensure your compliance with permit requirements.

Please complete the items on this list before reporting these results according to the instructions in the "Monitoring and Reporting" Section of your permit.

- Please complete, sign and date the upper portion of the "Whole Effluent Toxicity Test Report Certification" page which is the page directly following this page.
- Fill in the Sample Type and Sample Method (upper right) and the Permit Limits (lower left) on the New England Bioassay-EPA Toxicity Test Summary Sheet(s) if they are incomplete.
- Fill in any missing information on the NEB Chain-of-Custody documents. This includes ensuring that the following information is recorded: Sampler's name and title, Facility name and address, Sample collection methods, Sample collection start and end dates and times, Types of sample, Chlorination status of samples upon shipment to NEB, Site description and Sample collection procedures.
- Monitoring results should be summarized on your monthly Discharge Monitoring Report Form.
- Signed and dated originals of this report must be submitted to the State (and Federal) Agencies specified in the "Monitoring and Reporting" section of your permit.

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

Whole Effluent Toxicity Test Report Certification

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 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.

Executed on 10-4-16
[Date]

[Authorized Signature]

John Batorski
[Print or Type Name and Title]

Borough of Naugatuck
[Print or Type the Permittee's Name]

CT0100641
[Print or Type the NPDES Permit No.]

Since the WET test and report check is complicated, New England Bioassay has certified the validity of the WET test data in the section below. Please note that this does not relieve the permittee from its responsibility to sign and certify the report under 40 C.F.R. S 122.41(k).

Whole Effluent Toxicity Test Report Certification

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 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.

Executed on 9/26/16
[Date]

[Authorized Signature]

Kim Wills, Laboratory Manager
[Print or Type Name and Title]

New England Bioassay
[Print or Type Name of Bioassay Laboratory]

24. Telephone Contacts
If you have questions, please contact Joy Hilton, Water Technical Unit, at (617) 918-1877 or David McDonald, Ecosystem Assessment Unit, at (617) 918-8609.

New England Bioassay - EPA Toxicity Test Summary Sheet

Facility Name: Naugatuck WPCF
NPDES Permit Number: CT0100641

Test Start Date: 8/23/16
Pipe Number: _____

Test Type	Test Species	Sample Type	Sample Method
_ Acute	_ Fathead Minnow	_ Prechlorinated	_ Grab
_ Chronic	X Ceriodaphnia	_ Dechlorinated	X Composite
X Modified (chronic reporting acute values)	_ Daphnia Pulex	_ Chlorine Spiked in Lab	_ Flowthru
_ 24hr screening	_ Mysid Shrimp	_ Chlorinated on site	_ Other
	_ Sheepshead	_ Unchlorinated	
	_ Menidia		
	_ Sea Urchin		
	_ Champia		
	_ Selenastrum		
	_ Other_____		

Dilution Water

X receiving water collected at a point upstream of or away from the discharge, free from toxicity or other sources of contamination; (Receiving water name: Naugatuck River)

_ alternate surface water of known quality and a hardness, etc. to generally reflect the characteristics of the receiving water; (Surface water name:_____)

_ synthetic water prepared using either Millipore Mill-Q or equivalent deionized water and reagent grade chemicals; or deionized water combined with mineral water;

_ or artificial sea salts mixed with deionized water;

_ deionized water and hypersaline brine; or

Effluent sampling date (s): 8/21-22/16 8/23-24/16 8/25-26/16

Effluent concentrations tested (in%): 0 6.25 12.5 25 50 100

* Permit limit concentration: Monitoring only

Was effluent salinity adjusted? No If yes, to what value? N/A ppt

With sea salts? N/A Hypersaline brine solution? N/A

Actual effluent concentrations tested after salinity adjustment (%): 0 6.25 12.5 25 50 100

Reference Toxicant test date: 8/24/16

Test Acceptability Criteria

Mean Control Survival: 100%
Mean Diluent Survival: 100%
Mean Control Weight: N/A
Mean Diluent Weight: N/A

Mean Control Reproduction: 27.9 young/female
Mean Diluent Reproduction: 29.8 young/female
Mean Control Cell Count: N/A
Mean Diluent Cell Count: N/A

	Limits		Results
LC50	Monitoring only	LC50	>100%
		Upper Value	±∞
		Lower Value	100%
		Data Analysis Method Used	Graphical
A-NOEC	N/A	A-NOEC	100%
C-NOEC	Monitoring only	C-NOEC	100%
		LOEC	>100%
IC25	N/A	IC25	>100%
IC50	N/A	IC50	>100%

CERIODAPHNIA DUBIA AQUATIC TOXICITY TEST REPORT

Test Reference Manual:	EPA 821-R-02-013, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms", Fourth Edition
Test Method:	*Ceriodaphnia dubia* Survival and Reproduction Test – 1002.0
Test Type:	Modified Chronic Static Renewal Freshwater Test
Temperature:	25 ± 1°C
Light Quality:	Ambient Laboratory Illumination
Photoperiod:	16 hours light, 8 hours dark
Test Chamber Size:	30 mL
Test Solution Volume:	Minimum 15 mL
Renewal of Test Solutions:	Daily, using most recently collected sample
Age of Test Organisms:	Less than 24 hours
Number of Neonates Per Test Chamber:	1
Number of Replicate Test Chambers Per Treatment:	10
Number of Neonates Per Test Concentration:	10
Feeding Regime:	Fed 0.1 mL each of YCT and algal suspension per exposure chamber daily.
Aeration:	None
Dilution Water:	Naugatuck River
Alternate Control Water:	NEB Lab Synthetic Soft Water (hardness 50 ± 5 mg/L)
Effluent Concentrations:	0%, 6.25%, 12.5%, 25%, 50% and 100% effluent
Test Duration:	Until 60% of control females have three broods - 6 days
End Points:	Survival and reproduction.
Test Acceptability:	Control Survival: ≥ 80% Yes X No _ Control Reproduction: Average ≥ 15/control female Yes X No _
Sampling Requirements:	A minimum of 3 samples are collected Yes X No _ Samples first used within 36 hours of collection Yes X No _

Sample Volume Required: Minimum 2 liters/day

Test Organism Source: NEB

Test Acceptability Criteria: Mean Alternate Water Control Survival = 100%
Mean Dilution Water Control Survival = 100%
Mean Alternate Control Reproduction = 27.9 /female
Mean Dilution Control Reproduction = 29.8 / female

Test Results:

	Limits	Results	Status
48-hour LC50	Monitor only	>100%	Monitor only
Upper Value		± ∞	
Lower Value		100%	
Data Analysis Method Used		Graphical	
A-NOEC		100%	
Survival C-NOEC		100%	
Reproduction C-NOEC		100%	
Reportable C-NOEC	Monitor only	100%	Monitor only
LOEC		>100%	
MATC		>100%	

Reference Toxicant Data:

Date: 8/24/16
Toxicant: Sodium chloride
Dilution Water: NEB Lab Synthetic Soft Water
Source: New England Bioassay
IC_{25}: 1.24 g/L
In Acceptable Range: Yes X No _____

Dechlorination Procedures: Chlorine is measured using 4500 CL-G DPD Colorimetric Method.

X Dechlorination is not allowed under this permit

_ Sample was dechlorinated by adding sodium thiosulfate to the sample prior to test initiation. Since dechlorination of the effluent was necessary, a thiosulfate control of diluent water spiked with sodium thiosulfate was also included in the test series. Chlorine was _____ mg/L in a dechlorinated sample.

_ Chlorine Measurement was elevated due to interference. Chlorine was _____ mg/L in a filtered sample.

_ Total Residual Chlorine was re-measured following aeration, and was found to be _____ mg/L.

Additional Notes or Other Conditions Affecting the Test:

PIMEPHALES PROMELAS AQUATIC TOXICITY TEST REPORT

Test Reference Manual:	EPA 821-R-02-013, "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms", Fourth Edition
Test Method:	*Pimephales promelas* Larval Survival and Growth Test – 1000.0
Test Type:	Modified Chronic Static Renewal Freshwater Test
Temperature:	25 ± 1°C
Light Quality:	Ambient Laboratory Illumination
Photoperiod:	16 hours light, 8 hours dark
Test Chamber Size:	600 mL
Test Solution Volume:	Minimum 250 mL
Renewal of Test Solutions:	Daily, using most recently collected sample
Age of Test Organisms:	Less than 24 hours
Number of Larvae Per Test Chamber:	10
Number of Replicate Test Chambers Per Concentration:	4
Number of Larvae Per Test Concentration:	40
Feeding Regime:	Fed 0.15 g newly hatched brine shrimp nauplii twice daily.
Cleaning:	Siphoned daily, immediately before test solution renewal.
Aeration:	DO concentration fell below 4.0 mg/L — Yes_ No X Aerated at <100 bubbles/minute — Yes_ No X
Dilution Water:	Naugatuck River
Alternate Control Water:	NEB Lab Synthetic Soft Water (hardness 50 ± 5 mg/L)
Effluent Concentrations:	0%, 6.25%, 12.5%, 25%, 50% and 100% effluent
Test Duration:	7 days
End Points:	Survival and growth.
Test Acceptability:	Control Survival: ≥ 80% — Yes X No_ Control Average Dry Weight ≥ 0.25 mg — Yes X No_
Sampling Requirements:	A minimum of 3 samples are collected — Yes X No_

Samples first used within 36 hours of collection. Yes X No _

Sample Volume Required: Minimum 2.5 liters/day

Test Organism Source: NEB

Test Acceptability Criteria: Mean Alternate Water Control Survival = 100%
Mean Dilution Water Control Survival = 95%
Mean Alternate Water Control Weight = 0.695 mg
Mean Dilution Water Control Weight = 0.771 mg

Test Results:

	Limits	Results	Status
48-hour LC50	Monitor only	>100%	Monitor only
Upper Value		±∞	
Lower Value		100%	
Data Analysis Method Used		Graphical	
A-NOEC		100%	
Survival C-NOEC		100%	
Growth C-NOEC		100%	
Reportable C-NOEC	Monitor only	100%	Monitor only
LOEC		>100%	
MATC		>100%	

Reference Toxicant Data:

Date: 8/1/16
Toxicant: Sodium chloride
Dilution Water: NEB Lab Synthetic Soft Water
Source: New England Bioassay
IC_{25}: 1.35 g/L
In Acceptable Range: Yes X No _____

Dechlorination Procedures: Chlorine is measured using 4500 CL-G DPD Colorimetric Method.

X Dechlorination is not allowed under this permit

_ Sample was dechlorinated by adding sodium thiosulfate to the sample prior to test initiation. Since dechlorination of the effluent was necessary, a thiosulfate control of diluent water spiked with sodium thiosulfate was also included in the test series. Chlorine was _____ mg/L in a dechlorinated sample.

_ Chlorine Measurement was elevated due to interference. Chlorine was _____ mg/L in a filtered sample.

_ Total Residual Chlorine was re-measured following aeration, and was found to be _____ mg/L.

Additional Notes:

NEW ENGLAND BIOASSAY TOXICITY DATA FORM
CHRONIC COVER SHEET

CLIENT: Phoenix Environmental Laboratories
ADDRESS: 587 East Middle Turnpike
Manchester, CT 06040
SAMPLE TYPE: Naugatuck WPCF
DILUTION WATER: Naugatuck River

C.dubia TEST ID # 16-1196a
COC # C36-3028/29
PROJECT # 05.0044745.00

INVERTEBRATES

TEST SET UP (TECH INIT) CB
TEST SPECIES *Ceriodaphnia dubia*
NEB LOT# Cd16 (RMH 191)
AGE < 24 hours
TEST SOLUTION VOLUME (mls) 15
NO. ORGANISMS PER TEST CHAMBER 1
NO. ORGANISMS PER CONCENTRATION 10

Laboratory Control Water (SRCF)

Batch Number	Hardness mg/L $CaCO_3$	Alkalinity mg/L $CaCO_3$
C36-S016	46	30

	DATE	TIME
TEST START:	8/23/16	1308
TEST END:	8/29/16	1131

Results of *Ceriodaphnia dubia* Chronic Test

		95% Confidence Limits
48 Hour LC50	>100%	100%±∞
7 Day LC50	>100%	100%±∞
Survival NOEC	100%	
Survival LOEC	>100%	
Reproduction NOEC	100%	
Reproduction LOEC	>100%	
Reproduction IC_{25}	>100%	

NOEC: NO OBSERVABLE EFFECT CONCENTRATIC LOEC: LOWEST OBSERVABLE EFFECT CONCENTRATION

Comments:

REVIEWD BY: DATE: 9/26/16

NEW ENGLAND BIOASSAY - CHRONIC TOXICITY TEST BROOD DATA SHEET

FACILITY NAME & ADDRESS:	Naugatuck WPCF, 500 Cherry Street Ext., Naugatuck CT 06770				
NEB PROJECT NUMBER:	05.0044745.00	NEB TEST NUMBER:	16-1196a	COC #	C36-3028/29
TEST ORGANISM:	*Ceriodaphnia dubia*	AGE:	<24 hours	Lot #	Cd16 (RMH 191)
START DATE:	8/23/16	TIME: 1308	END DATE: 8/29/16	TIME:	1131

Effluent Concentration	Cup #	A1	A2	A3	A4	A6	A7	A8	A9	A10	A11	Total Live young	# Live Adults	Analyst-Transfer	Analyst-Counts
		Culture Lot#				Cd16 (RMH 191)									
	Day Number	Replicate													
		A	B	C	D	E	F	G	H	I	J				
NEB Lab Synthetic Control	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10	CB	
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10	PD	
	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10	CB	
	3	6	7	3	5	6	7	6	5	6	6	57	10	CW	CW
	4	✓	10	12	11	✓	10	12	✓	11	✓	66	10	CW	CW
	5	13	✓	✓	✓	11	✓	✓	7	✓	10	41	10	CB	CB
	6	15	16	16	12	15	13	14	12	6	14	133	10	KO	KO
	7														
	totals	34	33	31	28	32	30	32	24	23	30	297	10		MG
Naugatuck River Diluent		A	B	C	D	E	F	G	H	I	J				
	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10		
	3	6	4	6	7	5	7	6	6	4	6	57	10		
	4	16	11	11	12	✓	14	✓	12	✓	12	88	10		
	5	✓	✓	✓	✓	11	✓	12	✓	13	✓	36	10		
	6	7	16	14	16	15	15	✓	12	8	14	117	10		
	7														
	totals	29	31	31	35	31	36	18	30	25	32	298	10		
6.25%		A	B	C	D	E	F	G	H	I	J				
	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	2	✓☒	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	9		
	3	X	6	6	6	7	5	6	4	5	5	50	9		
	4	X	12	11	12	✓	12	12	14	12	14	99	9		
	5	X	✓	✓	✓	10	✓	✓	✓	✓	✓	10	9		
	6	X	13	12	16	13	14	11	16	14	14	123	9		
	7														
	totals	0	31	29	34	30	31	29	34	31	33	282	9		

Notes:

NEW ENGLAND BIOASSAY - CHRONIC TOXICITY TEST BROOD DATA SHEET

FACILITY NAME & ADDRESS:	Naugatuck WPCF, 500 Cherry Street Ext., Naugatuck CT 06770		
NEB PROJECT NUMBER:	05.0044745.00	ORGANISM: *Ceriodaphnia dubia*	START DATE: 8/23/16

Effluent Concentration	Day Number	Replicate A	B	C	D	E	F	G	H	I	J	Total Live Young	# Live Adults	Analyst-Transfer	Analyst-Counts
12.5%	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10		
	3	5	4	5	4	7	6	4	4	4	7	50	10		
	4	✓	5	14	13	✓	12	✓	12	14	✓	70	10		
	5	11	8	✓	✓	10	✓	12	✓	✓	12	53	10		
	6	12	13	15	18	16	15	✓	13	17	14	133	10		
	7														
	totals	28	30	34	35	33	33	16	29	35	33	306	10		
25%		A	B	C	D	E	F	G	H	I	J				
	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10		
	3	6	7	5	4	6	6	6	6	4	7	57	10		
	4	10	8	12	11	✓	13	12	12	8	5	91	10		
	5	✓	✓	✓	✓	11	✓	✓	✓	✓	✓	11	10		
	6	14	14	16	15	16	14	14	16	15	11	145	10		
	7														
	totals	30	29	33	30	33	33	32	34	27	23	304	10		
50%		A	B	C	D	E	F	G	H	I	J				
	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10		
	3	5	5	4	6	4	6	5	5	4	4	48	10		
	4	5	12	13	12	✓	12	19	12	10	✓	95	10		
	5	✓	✓	✓	✓	11	✓	✓	✓	✓	13	24	10		
	6	15	15	14	16	17	16	14	16	16	14	153	10		
	7														
	totals	25	32	31	34	32	34	38	33	30	31	320	10		
100%		A	B	C	D	E	F	G	H	I	J				
	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10		
	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	10		
	3	5	4	5	4	6	6	5	5	6	4	50	10		
	4	10	14	13	✓	✓	12	12	11	12	✓	84	10		
	5	✓	✓	✓	✓/x	11	✓	✓	✓	✓	14	25	10		
	6	15	16	16	X	15	14	14	17	16	17	140	10		
	7														
	totals	30	34	34	4	32	32	31	33	34	35	299	10		

CETIS Analytical Report

Report Date: 15 Sep-16 08:43 (p 1 of 6)
Test Code: 16-1196a | 05-5731-1265

Ceriodaphnia 7-d Survival and Reproduction Test — New England Bioassay

Analysis ID:	08-1487-6850	Endpoint:	2d Survival Rate	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:42	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Batch ID:	15-6471-2189	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:08	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 11:31	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	5d 22h	Source:	In-House Culture	Age:	<24h

Sample ID:	12-6536-4518	Code:	4B6BEE26	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X)	Linear	427754	200	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC50	>100	n/a	n/a	<1	n/a	n/a

2d Survival Rate Summary — Calculated Variate(A/B)

Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	D	10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
6.25		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
12.5		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
25		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
50		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
100		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10

2d Survival Rate Detail

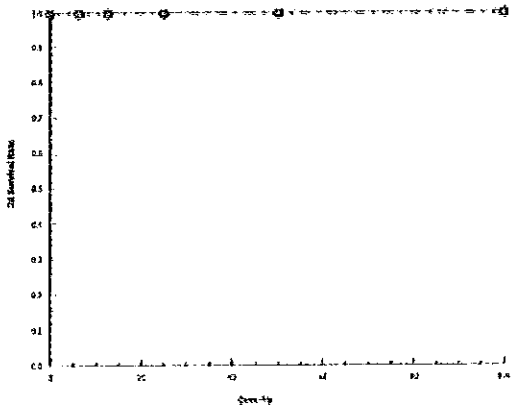
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

2d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Analysis ID:	08-1487-6850	**Endpoint:**	2d Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:42	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



Ceriodaphnia 7-d Survival and Reproduction Test — New England Bioassay

Analysis ID:	11-7805-9905	Endpoint:	6d Survival Rate	CETIS Version:	CETISv1.9 2
Analyzed:	15 Sep-16 8:42	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Batch ID:	15-6471-2189	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:08	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 11:31	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	5d 22h	Source:	In-House Culture	Age:	<24h

Sample ID:	12-6536-4518	Code:	4B6BEE26	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X)	Linear	431111	200	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC50	>100	n/a	n/a	<1	n/a	n/a

6d Survival Rate Summary

			Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	D	10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
6.25		10	0.9000	0.0000	1.0000	0.1000	0.3162	35.14%	10.0%	9	10
12.5		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
25		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
50		10	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	10	10
100		10	0.9000	0.0000	1.0000	0.1000	0.3162	35.14%	10.0%	9	10

6d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

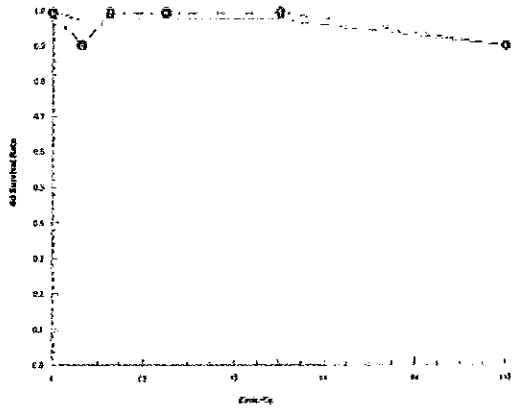
6d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Ceriodaphnia 7-d Survival and Reproduction Test — New England Bioassay

Analysis ID:	11-7805-9905	**Endpoint:**	6d Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:42	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



Ceriodaphnia 7-d Survival and Reproduction Test — New England Bioassay

Analysis ID:	13-7424-6268	Endpoint:	Reproduction	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:43	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Batch ID:	15-6471-2189	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:08	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 11:31	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	5d 22h	Source:	In-House Culture	Age:	<24h

Sample ID:	12-6536-4518	Code:	4B6BEE26	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1725047	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
Control Resp	29.8	15	>>	Yes	Passes Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	>100	n/a	n/a	<1	n/a	n/a
IC50	>100	n/a	n/a	<1	n/a	n/a

Reproduction Summary

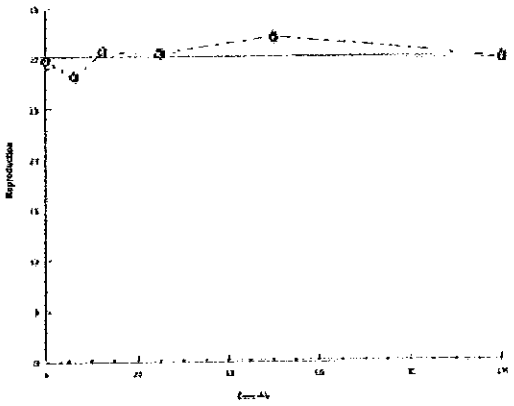
						Calculated Variate			
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	10	29.8	18	36	1.625	5.138	17.24%	0.0%
6.25		10	28.2	0	34	3.186	10.08	35.73%	5.37%
12.5		10	30.6	16	35	1.796	5.68	18.56%	-2.69%
25		10	30.4	23	34	1.077	3.406	11.20%	-2.01%
50		10	32	25	38	1.054	3.333	10.42%	-7.38%
100		10	29.9	4	35	2.919	9.231	30.87%	-0.34%

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	29	31	31	35	31	36	18	30	25	32
6.25		0	31	29	34	30	31	29	34	31	33
12.5		28	30	34	35	33	33	16	29	35	33
25		30	29	33	30	33	33	32	34	27	23
50		25	32	31	34	32	34	38	33	30	31
100		30	34	34	4	32	32	31	33	34	35

Analysis ID:	13-7424-6268	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:43	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Analytical Report

Report Date: 15 Sep-16 08:43 (p 1 of 2)
Test Code: 16-1196a | 05-5731-1265

Ceriodaphnia 7-d Survival and Reproduction Test — New England Bioassay

Analysis ID:	08-2554-5950	Endpoint:	6d Survival Rate	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:43	Analysis:	STP 2xK Contingency Tables	Official Results:	Yes

Batch ID:	15-6471-2189	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:08	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 11:31	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	5d 22h	Source:	In-House Culture	Age:	<24h

Sample ID:	12-6536-4518	Code:	4B6BEE26	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	100	> 100	n/a	1

Fisher Exact/Bonferroni-Holm Test

Control	vs	Group	Test Stat	P-Type	P-Value	Decision(α:5%)
Dilution Water		6.25	0.5000	Exact	1.0000	Non-Significant Effect
		12.5	1.0000	Exact	1.0000	Non-Significant Effect
		25	1.0000	Exact	1.0000	Non-Significant Effect
		50	1.0000	Exact	1.0000	Non-Significant Effect
		100	0.5000	Exact	1.0000	Non-Significant Effect

Data Summary

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	D	10	0	10	1	0	0.0%
6.25		9	1	10	0.9	0.1	10.0%
12.5		10	0	10	1	0	0.0%
25		10	0	10	1	0	0.0%
50		10	0	10	1	0	0.0%
100		9	1	10	0.9	0.1	10.0%

6d Survival Rate Detail

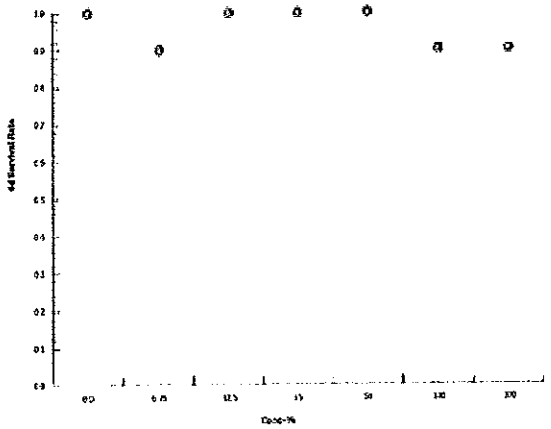
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.25		0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

6d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
6.25		0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
12.5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
25		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
50		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
100		1/1	1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1

Analysis ID:	08-2554-5950	**Endpoint:**	6d Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:43	**Analysis:**	STP 2xK Contingency Tables	**Official Results:**	Yes

Graphics



CETIS Analytical Report

Report Date: 15 Sep-16 08:43 (p 1 of 2)
Test Code: 16-1196a | 05-5731-1265

Ceriodaphnia 7-d Survival and Reproduction Test — New England Bioassay

Analysis ID:	09-7182-0181	Endpoint:	Reproduction	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:43	Analysis:	Nonparametric-Control vs Treatments	Official Results:	Yes

Batch ID:	15-6471-2189	Test Type:	Reproduction-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:08	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 11:31	Species:	Ceriodaphnia dubia	Brine:	Not Applicable
Duration:	5d 22h	Source:	In-House Culture	Age:	<24h

Sample ID:	12-6536-4518	Code:	4B6BEE26	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	100	> 100	n/a	1	22.96%

Steel Many-One Rank Sum Test

Control vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water	6.25	104	75	3	18	Asymp	0.8098	Non-Significant Effect
	12.5	112	75	3	18	Asymp	0.9455	Non-Significant Effect
	25	107	75	3	18	Asymp	0.8746	Non-Significant Effect
	50	120	75	4	18	Asymp	0.9902	Non-Significant Effect
	100	119.5	75	4	18	Asymp	0.9889	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
Control Resp	29.8	15	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	76.75	15.35	5	0.3435	0.8842	Non-Significant Effect
Error	2412.9	44.6833	54			
Total	2489.65		59			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	18.34	15.09	0.0025	Unequal Variances
Distribution	Shapiro-Wilk W Normality Test	0.6764	0.9459	3.2E-10	Non-Normal Distribution

Reproduction Summary

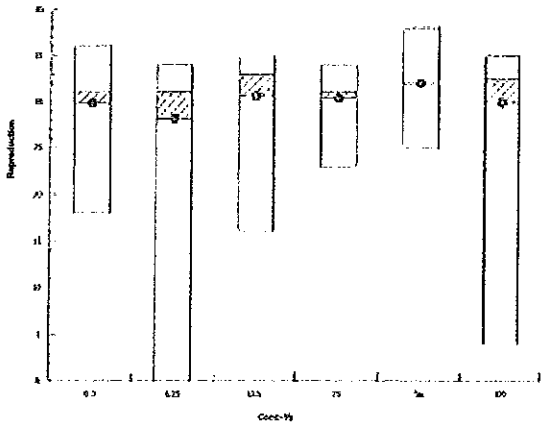
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	10	29.8	26.12	33.48	31	18	36	1.625	17.24%	0.00%
6.25		10	28.2	20.99	35.41	31	0	34	3.186	35.73%	5.37%
12.5		10	30.6	26.54	34.66	33	16	35	1.798	18.56%	-2.68%
25		10	30.4	27.96	32.84	31	23	34	1.077	11.20%	-2.01%
50		10	32	29.62	34.38	32	25	38	1.054	10.42%	-7.38%
100		10	29.9	23.3	36.5	32.5	4	35	2.919	30.87%	-0.34%

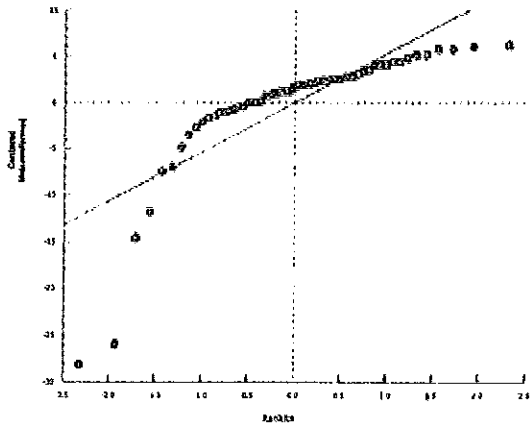
Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	29	31	31	35	31	36	18	30	25	32
6.25		0	31	29	34	30	31	29	34	31	33
12.5		28	30	34	35	33	33	16	29	35	33
25		30	29	33	30	33	33	32	34	27	23
50		25	32	31	34	32	34	38	33	30	31
100		30	34	34	4	32	32	31	33	34	35

Analysis ID:	09-7182-0181	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:43	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Graphics





NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDRESS: Naugatuck WPCF, 500 Cherry Street Ext., Naugatuck CT 06770
NEB PROJECT NUMBER: 05.0044745.00 TEST ORGANISM *Ceriodaphnia dubia*
DILUTION WATER SOURCE: Naugatuck River START DATE: 8/23/16 TIME: 1308

ANALYST	CB	ER	CB	KO	CB	CB		
NEB Lab Synthetic Control	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.7	25.8	26.0	26.0	26.0	25.8		
D.O. mg/L Initial	8.2	8.2	8.1	8.1	8.0	8.1		
pH s.u. Initial	7.8	7.8	7.4	7.4	7.6	7.8		
Conductivity µS Initial	175	177	174	176	175	175		
Temp °C Final	24.7	25.5	24.9	25.8	25.1	26.0		
D.O. mg/L Final	8.4	8.5	8.4	8.4	8.6	8.4		
pH s.u. Final	7.8	7.9	8.0	8.3	8.2	7.3		
Conductivity µS Final	194	197	192	196	194	223		
Naugatuck River Diluent	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.5	25.4	26.0	26.0	26.0	24.9		
D.O. mg/L Initial	8.3	8.6	8.8	8.9	8.8	8.4		
pH s.u. Initial	7.7	7.7	7.4	7.3	7.6	7.6		
Conductivity µS Initial	185	187	415	418	486	485		
Temp °C Final	24.7	25.5	24.8	25.8	25.1	25.9		
D.O. mg/L Final	8.3	8.6	8.4	8.5	8.6	8.5		
pH s.u. Final	7.8	7.9	7.9	8.2	8.2	7.4		
Conductivity µS Final	206	212	426	426	499	506		
6.25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.3	25.4	26.0	26.0	26.0	24.9		
D.O. mg/L Initial	8.5	8.6	8.6	8.9	9.0	8.7		
pH s.u. Initial	7.5	7.5	7.5	7.4	7.6	7.7		
Conductivity µS Initial	254	256	468	470	534	533		
Temp °C Final	24.6	25.6	24.8	25.8	25.1	25.9		
D.O. mg/L Final	8.4	8.7	8.4	8.4	8.7	8.6		
pH s.u. Final	7.7	8.0	7.9	8.2	8.3	7.7		
Conductivity µS Final	270	280	487	481	545	551		
12.5%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.3	25.4	26.0	26.0	26.0	25.0		
D.O. mg/L Initial	8.5	8.6	8.6	8.8	8.6	8.6		
pH s.u Initial	7.4	7.3	7.5	7.5	7.6	7.6		
Conductivity µS Initial	321	323	521	518	580	580		
Temp °C Final	24.7	25.6	24.7	25.6	25.1	26.0		
D.O. mg/L Final	8.4	8.7	8.5	8.5	8.7	8.7		
pH s.u Final	7.7	8.0	7.9	8.2	8.3	7.9		
Conductivity µS Final	337	349	539	534	590	602		

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDRESS: Naugatuck WPCP, 500 Cherry Street Ext., Naugatuck CT 06770
NEB PROJECT NUMBER: 05.0044745.00 TEST ORGANISM *Ceriodaphnia dubia*
DILUTION WATER SOURCE: Naugatuck River START DATE: 8/23/16 TIME: 1308

25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.5	25.4	26.0	26.0	25.8	25.0		
D.O. mg/L Initial	8.6	8.6	8.6	8.7	8.5	8.6		
pH s.u. Initial	7.4	7.3	7.5	7.5	7.6	7.6		
Conductivity µS Initial	439	446	599	605	663	661		
Temp °C Final	24.6	25.6	24.7	25.7	25.1	26.0		
D.O. mg/L Final	8.3	8.6	8.5	8.5	8.7	8.7		
pH s.u. Final	7.7	8.1	8.0	8.3	8.3	8.0		
Conductivity µS Final	451	466	610	631	679	689		
50%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.0	25.4	26.0	26.0	25.4	25.2		
D.O. mg/L Initial	8.6	8.6	8.6	8.7	8.4	8.6		
pH s.u. Initial	7.4	7.4	7.5	7.5	7.5	7.5		
Conductivity µS Initial	694	698	788	790	839	841		
Temp °C Final	24.7	25.6	24.7	25.7	25.1	26.0		
D.O mg/L Final	8.5	8.7	8.7	8.6	8.7	8.7		
pH s.u. Final	7.9	8.2	8.0	8.3	8.4	8.1		
Conductivity µS Final	696	719	797	808	844	867		
100%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.4	25.4	25.0	25.7	24.8	26.0		
D.O. mg/L Initial	8.7	8.8	8.6	8.8	7.3	8.3		
pH s.u. Initial	7.4	7.4	7.5	7.5	7.4	7.4		
Conductivity µS Initial	1,182	1,188	1,152	1,159	1,186	1,192		
Temp °C Final	24.7	25.6	24.8	25.7	25.0	26.0		
D.O. mg/L Final	8.5	8.7	8.7	8.6	8.7	8.8		
pH s.u. Final	8.1	8.3	8.2	8.4	8.5	8.3		
Conductivity µS Final	1,165	1,205	1,160	1,158	1,179	1,204		
	1	2	3	4	5	6	7	Remarks
Temp °C Initial								
D.O. mg/L Initial								
pH s.u. Initial								
Conductivity µS Initial								
Temp °C Final								
D.O. mg/L Final								
pH s.u. Final								
Conductivity µS Final								

Table of Random Permutations of 16 **C.dubia Test ID#** 16-1196a

7	12	15	15	1	2	7	16	10	2	14	15	7	13	13	10	6	1	8	10
13	3	8	16	7	10	11	10	13	5	11	7	13	16	7	7	5	13	2	14
3	1	4	5	14	13	3	14	9	13	13	2	9	15	6	2	8	4	5	8
11	8	16	14	15	6	2	6	2	16	8	5	12	3	9	13	4	3	10	4
14	9	1	6	3	9	14	13	8	6	5	8	14	7	3	15	13	11	4	7
2	16	10	13	5	5	13	2	11	7	3	12	5	14	12	16	2	2	9	15
4	6	13	7	2	15	1	9	1	4	7	10	6	9	11	9	7	6	16	11
6	14	6	10	4	14	4	15	3	3	4	16	2	6	5	1	12	10	6	9
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12	10	7	12	9	11	9	8	12	14	15	4	11	8	16	8	9	14	14	1
15	7	5	2	10	7	8	12	6	15	6	13	16	12	15	4	11	8	12	6
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5	4	3	9	12	1	6	1	15	11	2	6	4	11	2	11	3	7	11	16
			conc			rep													
11	8	16	5	5	13	1	13	2	16	14	12	9	8	7	5	13	3	13	3
2	2	8	8	14	16	4	3	8	11	10	14	15	1	2	11	4	5	15	9
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16	11	2	1	14	16	6	9	3	4	16	14	3	15	11	11	3	9	12	5
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13	12	5	11	3	11	15	8	2	7	11	7	8	14	6	4	4	4	15	11
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6	9	7	14	9	14	10	11	15	11	12	1	12	12	14	16	3	11	11	8
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3	3	12	11	5	9	6	6	3	10	13	12	9	6	2	15	7	15	7	13
10	15	11	5	13	7	12	5	2	7	11	5	10	15	12	3	1	13	13	10
8	13	13	3	3	10	13	2	4	1	8	6	11	14	15	6	9	16	2	2
16	16	5	12	11	6	1	3	8	16	3	7	2	5	16	14	13	7	14	15

Ceriodaphnia dubia **Culture Chart** Lot # Cd16(RMH 191) A

Brood mother source: RMH 183 A-13 Source's brood size: 22 (Qty.) Naugatuck 8.23-16

Tech	AH	AH	AH	AH	MG		MG	AH		AH						
Date	8-15	8-16	8-17	8-18	8-19		8-21	8-22		8-23						
Day acc.	0	1	2	3	4	5	6	7		8	9	10	11	12	13	14
Cup # 1	N	N	N	N	5		9	Y	1	T1 Y 17						
2	N	N	N	N	5		11	Y	2	T2 Y 16						
3	N	N	N	N	7		9	Y	3	T3 Y 19						
4	N	N	N	N	6		9	Y	4	T4 Y 19						
5	N	N	N	N	5		9	Y	5	Y						
6	N	N	N	N	5		9	Y	6	T5 Y 17						
7	N	N	N	N	6		9	Y	7	T6 Y 20						
8	N	N	N	N	4		11	Y	8	T7 Y 16						
9	N	N	N	N	5		11	Y	9	T8 Y 16						
10	N	N	N	N	5		12	Y	10	T9 Y 16						
11	N	N	N	N	5		10	Y	11	T10 Y 17						
12	N	N	N	N	5		10	Y	12	Y						
13	N	N	N	N	5		10	Y	13	Y						

Y = neonates present, and *criterion has been met:* ≥ 20 neonates produced in total by 3rd brood. **N** = no neonates

2B = two broods present. **2Y** = two broods and criterion met: ≥ 20 neos. by 3rd brood. **X** = brood mother dead **ae** = aborted eggs

✓ or **P** = neonates present after renewal on previous day (see time in log). **A→** = acceptable for acute testing only

T# = neonates used in test, replicate number of test noted (and brood counted). acc. = *if acclimated*, H_2O type used w/ renewal this day.

Test organism collection:

Project #	Symbols (✓ / P)	Tray diagram used? (Y/N)	Time period, neonates released	Collection date / time
044745	T	Y	8-22-16/1640 → 8-23-16/0630	8-23-16/1200
	T			
	T			
	T			
	T			
	T			

NEW ENGLAND BIOASSAY TOXICITY DATA FORM
CHRONIC COVER SHEET

CLIENT: Phoenix Environmental Laboratories
ADDRESS: 587 East Middle Turnpike
Manchester, CT 06040
SAMPLE TYPE: Naugatuck WPCF
DILUTION WATER: Naugatuck River

P.promelas TEST ID # 16-1196b
COC # C36-3028/29
PROJECT # 05.0044745.00

VERTEBRATES

TEST SET UP (TECH INIT) KM
TEST SPECIES *Pimephales promelas*
NEB LOT# Pp16 (8-23)
AGE < 24 hours
TEST SOLUTION VOLUME (mls) 400
NO. ORGANISMS PER TEST CHAMBER 10
NO. ORGANISMS PER CONCENTRATION 40

Laboratory Control Water (SRCF)

Batch Number	Hardness mg/L $CaCO_3$	Alkalinity mg/L $CaCO_3$
C36-S016	46	30

	DATE	TIME
TEST START:	8/23/16	1304
TEST END:	8/30/16	1430

Results of *Pimephales promelas* Chronic Test

		95% Confidence Limits
48 Hour LC50	>100%	100%±∞
7 Day LC50	>100%	100%±∞
Survival NOEC	100%	
Survival LOEC	>100%	
Growth NOEC	100%	
Growth LOEC	>100%	
Growth IC_{25}	>100%	

NOEC: NO OBSERVABLE EFFECT CONCENTRATI LOEC: LOWEST OBSERVABLE EFFECT CONCENTRATION

Comments:

REVIEWD BY: DATE: 9/26/16

NEB'S SURVIVAL DATA SHEET FOR FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

FACILITY NAME & ADDRESS:	Naugatuck WPCF, 500 Cherry Street Ext., Naugatuck CT 06770						
NEB PROJECT NUMBER:	05.0044745.00	TEST NUMBER:	16-1196b	COC #	C36-3028/29		
TEST ORGANISM:	*Pimephales promelas*	AGE:	<24 hours	Lot #	Pp16 (8-23)		
START DATE:	8/23/16	TIME:	1304	END DATE:	8/30/16	TIME:	1430

Effluent Concentration	Replicate Number	Number of Survivors								
		Day								
		0	1	2	3	4	5	6	7	Remarks
	ANALYST	KM	ER	PD	CW	CB	CB	ER	KW	
NEB Lab Synthetic Control	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
Naugatuck River Diluent	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	9	9	8	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
6.25%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
12.5%	A	10	10	10	9	9	8	8	8	
	B	10	10	10	10	10	10	9	9	
	C	10	10	10	10	10	10	10	9	
	D	10	10	10	10	10	10	10	10	
25%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	10	10	10	10	10	10	
	D	10	10	10	10	10	10	10	10	
50%	A	10	10	10	10	10	10	10	10	
	B	10	10	10	10	10	10	10	10	
	C	10	10	9	9	9	9	9	9	
	D	10	10	10	10	10	10	10	10	
100%	A	10	10	10	10	10	10	10	10	
	B	10	10	9	9	9	9	9	8	
	C	10	10	10	10	9	9	9	9	
	D	10	10	10	10	10	10	10	10	

D.O. concentration fell below 4.0 mg/L _____

All test solutions were aerated at <100 bubbles/minute as of _____

CETIS Analytical Report

Report Date: 15 Sep-16 08:47 (p 1 of 6)
Test Code: 16-1196b | 00-7165-3051

Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	09-2758-7427	Endpoint:	2d Survival Rate	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Batch ID:	12-3585-2502	Test Type:	Growth-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:04	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 14:30	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	6d 1h	Source:	In-House Culture	Age:	<24h

Sample ID:	00-2506-4680	Code:	17E74E8	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X)	Linear	1396647	200	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC50	>100	n/a	n/a	<1	n/a	n/a

2d Survival Rate Summary

			Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	D	4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	40	40
6.25		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	40	40
12.5		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	40	40
25		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	40	40
50		4	0.9750	0.9000	1.0000	0.0250	0.0500	5.13%	2.5%	39	40
100		4	0.9750	0.9000	1.0000	0.0250	0.0500	5.13%	2.5%	39	40

2d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	0.9000	1.0000
100		1.0000	0.9000	1.0000	1.0000

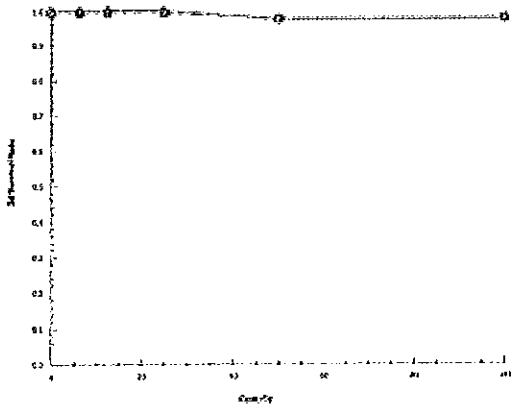
2d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	9/10	10/10
100		10/10	9/10	10/10	10/10

Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	09-2758-7427	**Endpoint:**	2d Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	14-7024-3133	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	12-3585-2502	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	23 Aug-16 13:04	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	29 Aug-16 14:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	6d 1h	**Source:**	In-House Culture	**Age:**	<24h

Sample ID:	00-2506-4680	**Code:**	17E74E8	**Client:**	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	**Material:**	WWTF Effluent	**Project:**	
Receipt Date:	23 Aug-16 09:55	**Source:**	Naugatuck WPCF		
Sample Age:	37h	**Station:**			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X)	Linear	238651	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
Control Resp	0.95	0.8	>>	Yes	Passes Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC50	>100	n/a	n/a	<1	n/a	n/a

7d Survival Rate Summary

Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
			Calculated Variate(A/B)								
0	D	4	0.9500	0.8000	1.0000	0.0500	0.1000	10.53%	0.0%	38	40
6.25		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-5.26%	40	40
12.5		4	0.9000	0.8000	1.0000	0.0408	0.0817	9.07%	5.26%	36	40
25		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-5.26%	40	40
50		4	0.9750	0.9000	1.0000	0.0250	0.0500	5.13%	-2.63%	39	40
100		4	0.9250	0.8000	1.0000	0.0479	0.0957	10.35%	2.63%	37	40

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	0.8000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		0.8000	0.9000	0.9000	1.0000
25		1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	0.9000	1.0000
100		1.0000	0.8000	0.9000	1.0000

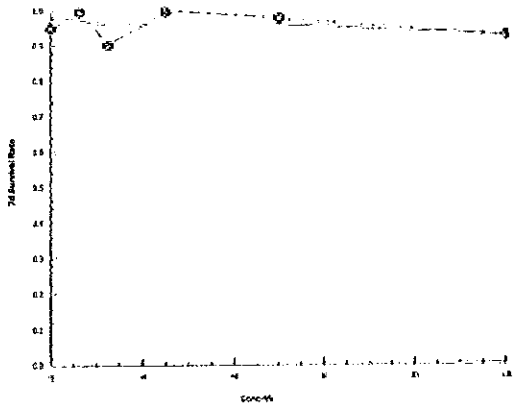
7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	9/10	10/10
100		10/10	9/10	10/10	10/10

Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	14-7024-3133	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	16-4493-1538	Endpoint:	Mean Dry Biomass-mg	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	Analysis:	Linear Interpolation (ICPIN)	Official Results:	Yes

Batch ID:	12-3585-2502	Test Type:	Growth-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:04	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 14:30	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	6d 1h	Source:	In-House Culture	Age:	<24h

Sample ID:	00-2506-4680	Code:	17E74E8	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	983958	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits Lower	TAC Limits Upper	Overlap	Decision
Control Resp	0.771	0.25	>>	Yes	Passes Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC25	>100	n/a	n/a	<1	n/a	n/a
IC50	>100	n/a	n/a	<1	n/a	n/a

Mean Dry Biomass-mg Summary

			Calculated Variate						
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	0.771	0.681	0.914	0.05503	0.1101	14.27%	0.0%
6.25		4	0.788	0.687	0.865	0.03965	0.0793	10.06%	-2.21%
12.5		4	0.7542	0.695	0.804	0.02773	0.05547	7.35%	2.17%
25		4	0.748	0.713	0.778	0.01495	0.0299	4.00%	2.98%
50		4	0.7025	0.576	0.858	0.05913	0.1183	16.83%	8.89%
100		4	0.7562	0.723	0.815	0.02035	0.04069	5.38%	1.91%

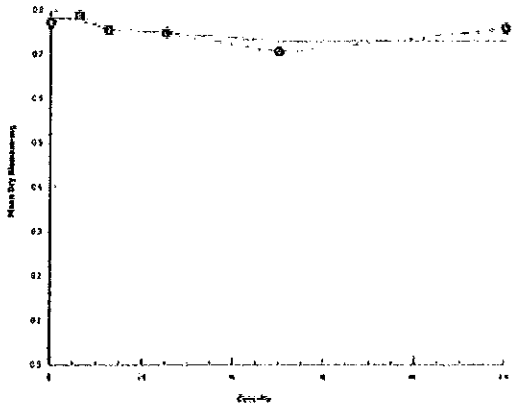
Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.914	0.681	0.801	0.688
6.25		0.765	0.835	0.687	0.865
12.5		0.719	0.804	0.799	0.695
25		0.778	0.713	0.734	0.767
50		0.576	0.662	0.858	0.714
100		0.815	0.723	0.737	0.75

Fathead Minnow 7-d Larval Survival and Growth Test — **New England Bioassay**

Analysis ID:	16-4493-1538	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Analytical Report

Report Date: 15 Sep-16 08:47 (p 1 of 4)
Test Code: 16-1196b | 00-7165-3051

Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	20-7757-6024	Endpoint:	7d Survival Rate	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Batch ID:	12-3585-2502	Test Type:	Growth-Survival (7d)	Analyst:	
Start Date:	23 Aug-16 13:04	Protocol:	EPA/821/R-02-013 (2002)	Diluent:	Receiving Water
Ending Date:	29 Aug-16 14:30	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	6d 1h	Source:	In-House Culture	Age:	<24h

Sample ID:	00-2506-4680	Code:	17E74E8	Client:	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	Material:	WWTF Effluent	Project:	
Receipt Date:	23 Aug-16 09:55	Source:	Naugatuck WPCF		
Sample Age:	37h	Station:			

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	100	> 100	n/a	1	11.84%

Dunnett Multiple Comparison Test

Control vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water	6.25	-1.02	2.407	0.18	6	CDF	0.9837	Non-Significant Effect
	12.5	1.091	2.407	0.18	6	CDF	0.3826	Non-Significant Effect
	25	-1.02	2.407	0.18	6	CDF	0.9837	Non-Significant Effect
	50	-0.4748	2.407	0.18	6	CDF	0.9361	Non-Significant Effect
	100	0.5453	2.407	0.18	6	CDF	0.6277	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits Lower	Upper	Overlap	Decision
Control Resp	0.95	0.6	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.081829	0.0163658	5	1.466	0.2496	Non-Significant Effect
Error	0.200996	0.0111665	18			
Total	0.282825		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Levene Equality of Variance Test	3.649	4.248	0.0187	Equal Variances
Variances	Mod Levene Equality of Variance Test	1.227	4.248	0.3368	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9008	0.884	0.0224	Normal Distribution

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.9500	0.7909	1.0000	1.0000	0.8000	1.0000	0.0500	10.53%	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-5.26%
12.5		4	0.9000	0.7701	1.0000	0.9000	0.8000	1.0000	0.0408	9.07%	5.26%
25		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-5.26%
50		4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	-2.63%
100		4	0.9250	0.7727	1.0000	0.9500	0.8000	1.0000	0.0479	10.35%	2.63%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.336	1.093	1.578	1.412	1.107	1.412	0.07622	11.41%	0.00%
6.25		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-5.71%
12.5		4	1.254	1.056	1.453	1.249	1.107	1.412	0.06231	9.93%	6.10%
25		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-5.71%
50		4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	-2.66%
100		4	1.295	1.061	1.529	1.331	1.107	1.412	0.07348	11.35%	3.05%

Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	20-7757-6024	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	0.8000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		0.8000	0.9000	0.9000	1.0000
25		1.0000	1.0000	1.0000	1.0000
50		1.0000	1.0000	0.9000	1.0000
100		1.0000	0.8000	0.9000	1.0000

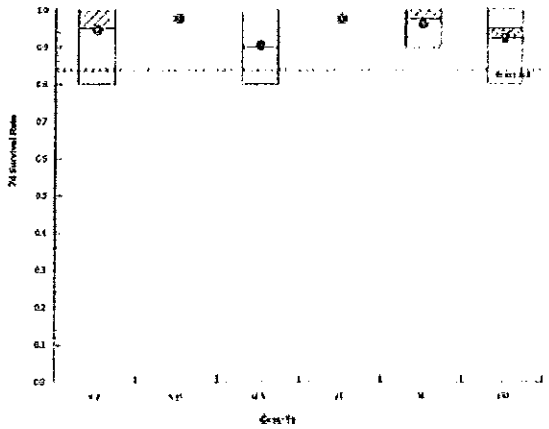
Angular (Corrected) Transformed Detail

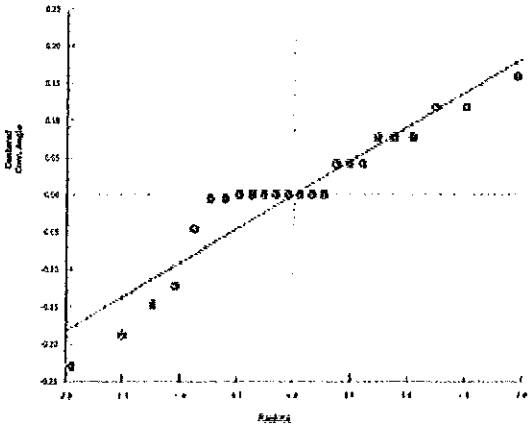
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.412	1.107	1.412	1.412
6.25		1.412	1.412	1.412	1.412
12.5		1.107	1.249	1.249	1.412
25		1.412	1.412	1.412	1.412
50		1.412	1.412	1.249	1.412
100		1.412	1.107	1.249	1.412

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	8/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		8/10	9/10	9/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	9/10	10/10
100		10/10	8/10	9/10	10/10

Graphics





Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	11-3922-7425	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	**Analysis:**	Parametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	12-3585-2502	**Test Type:**	Growth-Survival (7d)	**Analyst:**	
Start Date:	23 Aug-16 13:04	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Receiving Water
Ending Date:	29 Aug-16 14:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	6d 1h	**Source:**	In-House Culture	**Age:**	<24h

Sample ID:	00-2506-4880	**Code:**	17E74E8	**Client:**	Phoenix Environmental Labs
Sample Date:	22 Aug-16 00:34	**Material:**	WWTF Effluent	**Project:**	
Receipt Date:	23 Aug-16 09:55	**Source:**	Naugatuck WPCF		
Sample Age:	37h	**Station:**			

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	100	> 100	n/a	1	17.57%

Dunnett Multiple Comparison Test

Control vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water	6.25	-0.302	2.407	0.136	6	CDF	0.9069	Non-Significant Effect
	12.5	0.2976	2.407	0.136	6	CDF	0.7312	Non-Significant Effect
	25	0.4087	2.407	0.136	6	CDF	0.6864	Non-Significant Effect
	50	1.217	2.407	0.136	6	CDF	0.3303	Non-Significant Effect
	100	0.2621	2.407	0.136	6	CDF	0.7448	Non-Significant Effect

Test Acceptability Criteria

		TAC Limits			
Attribute	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
Control Resp	0.771	0.25	>>	Yes	Passes Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0165427	0.0033085	5	0.5222	0.7563	Non-Significant Effect
Error	0.114041	0.0063356	18			
Total	0.130584		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Bartlett Equality of Variance Test	6.878	15.09	0.2299	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9727	0.884	0.7339	Normal Distribution

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.771	0.5959	0.9461	0.7445	0.681	0.914	0.05503	14.27%	0.00%
6.25		4	0.788	0.6618	0.9142	0.8	0.687	0.865	0.03965	10.06%	-2.20%
12.5		4	0.7542	0.666	0.8425	0.759	0.695	0.804	0.02773	7.35%	2.17%
25		4	0.748	0.7004	0.7956	0.7505	0.713	0.778	0.01495	4.00%	2.98%
50		4	0.7025	0.5143	0.8907	0.688	0.576	0.858	0.05913	16.83%	8.88%
100		4	0.7562	0.6915	0.821	0.7435	0.723	0.815	0.02035	5.38%	1.91%

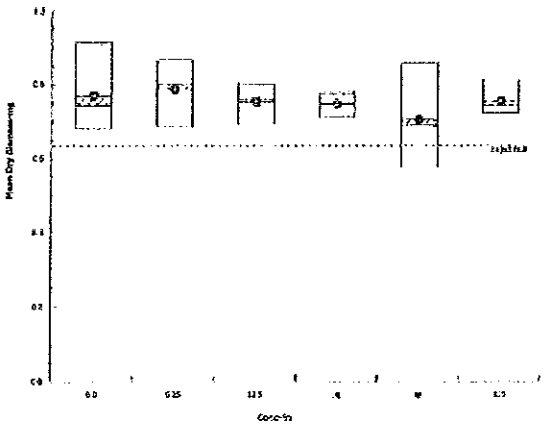
Mean Dry Biomass-mg Detail

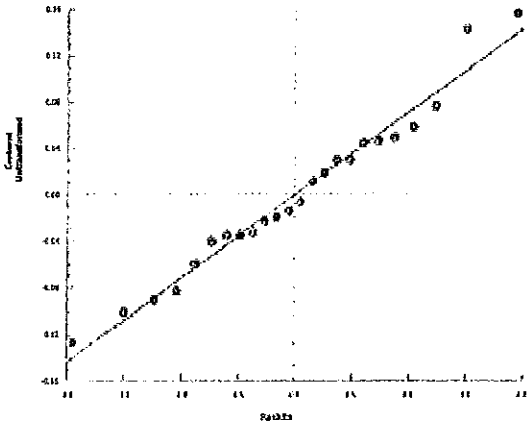
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.914	0.681	0.801	0.688
6.25		0.765	0.835	0.687	0.865
12.5		0.719	0.804	0.799	0.695
25		0.778	0.713	0.734	0.767
50		0.576	0.662	0.858	0.714
100		0.815	0.723	0.737	0.75

Fathead Minnow 7-d Larval Survival and Growth Test — New England Bioassay

Analysis ID:	11-3922-7425	Endpoint:	Mean Dry Biomass-mg	CETIS Version:	CETISv1.9.2
Analyzed:	15 Sep-16 8:47	Analysis:	Parametric-Control vs Treatments	Official Results:	Yes

Graphics





NEW ENGLAND BIOASSAY WEIGHT DATA FOR FATHEAD MINNOW LARVAL SURVIVAL AND GROWTH TEST

FACILITY NAME & ADDRESS:	Naugatuck WPCF, 500 Cherry Street Ext., Naugatuck CT 06770		
NEB PROJECT #	05.0044745.00	NEB TEST NUMBER:	16-1196b
TEST START DATE	8/23/16	WEIGHING DATE:	9/14/16
TEST END DATE	8/30/16		
DRYING TEMPERATURE (°C)	100 ± 4	DRYING TIME:	minimum 6 hours
ANALYST-INITIAL WEIGHTS	CB	ANALYST-FINAL WEIGHTS	RTF

Effluent Concentration	Replicate Number	A Weight of boat (mg)	B Dry Weight: Foil and Larvae (mg)
NEB Lab Synthetic Control	A	925.00	931.71
	B	933.53	940.70
	C	927.89	935.62
	D	936.48	942.67
Naugtuck River Diluent	A	930.36	939.50
	B	927.92	934.73
	C	935.33	943.34
	D	930.32	937.20
6.25%	A	933.18	940.83
	B	933.41	941.76
	C	930.73	937.60
	D	930.51	939.16
12.5%	A	934.26	941.45
	B	932.00	940.04
	C	934.13	942.12
	D	931.95	938.90
25%	A	932.22	940.00
	B	932.03	939.16
	C	932.67	940.01
	D	935.90	943.57
50%	A	933.62	939.38
	B	927.89	934.51
	C	929.94	938.52
	D	927.88	935.02
100%	A	925.42	933.57
	B	927.89	935.12
	C	934.56	941.93
	D	933.02	940.52

Concentration	Rep	Final Weight (mg)	Initial Weight (mg)	Total Weight (mg)	Average per fish (mg)	Mean fish weight (mg)	Standard Deviation
NEB Lab Synthetic Control	1	931.71	925.00	6.71	0.671	0.6950	0.065625198
	2	940.70	933.53	7.17	0.717		
	3	935.62	927.89	7.73	0.773		
	4	942.67	936.48	6.19	0.619		
Naugtuck River Diluent	1	939.50	930.36	9.14	0.914	0.7710	0.110057561
	2	934.73	927.92	6.81	0.681		
	3	943.34	935.33	8.01	0.801		
	4	937.20	930.32	6.88	0.688		
6.25%	1	940.83	933.18	7.65	0.765	0.7880	0.079305317
	2	941.76	933.41	8.35	0.835		
	3	937.60	930.73	6.87	0.687		
	4	939.16	930.51	8.65	0.865		
12.5%	1	941.45	934.26	7.19	0.719	0.7542	0.055469962
	2	940.04	932.00	8.04	0.804		
	3	942.12	934.13	7.99	0.799		
	4	938.90	931.95	6.95	0.695		
25%	1	940.00	932.22	7.78	0.778	0.7480	0.029899833
	2	939.16	932.03	7.13	0.713		
	3	940.01	932.67	7.34	0.734		
	4	943.57	935.90	7.67	0.767		
50%	1	939.38	933.62	5.76	0.576	0.7025	0.118258192
	2	934.51	927.89	6.62	0.662		
	3	938.52	929.94	8.58	0.858		
	4	935.02	927.88	7.14	0.714		
100%	1	933.57	925.42	8.15	0.815	0.7563	0.04068886
	2	935.12	927.89	7.23	0.723		
	3	941.93	934.56	7.37	0.737		
	4	940.52	933.02	7.50	0.750		

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDRESS:	Naugatuck WPCF, 500 Cherry Street Ext., Naugatuck CT 06770							
NEB PROJECT NUMBER:	05.0044745.00			TEST ORGANISM		*Pimephales promelas*		
DILUTION WATER SOURCE:	Naugatuck River			START DATE:		8/23/16	TIME:	1304
ANALYST	CB	ER	CB	KO	CB	CB	ER	
NEB Lab Synthetic Control	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.7	25.8	26.0	26.0	26.0	25.8	26.0	
D.O. mg/L Initial	8.2	8.2	8.1	8.1	8.0	8.1	8.2	
pH s.u. Initial	7.8	7.8	7.4	7.4	7.6	7.8	7.7	
Conductivity µS Initial	175	177	174	176	175	175	175	
Temp °C Final	25.3	25.5	25.8	25.8	25.5	25.8	25.2	
D.O. mg/L Final	7.3	6.9	7.0	7.0	7.2	6.9	7.6	
pH s.u. Final	7.3	7.4	7.4	7.6	7.7	7.7	7.5	
Conductivity µS Final	201	218	200	190	205	193	211	
Naugatuck River Diluent	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.5	25.4	26.0	26.0	26.0	24.9	24.1	
D.O. mg/L Initial	8.3	8.6	8.8	8.9	8.8	8.4	8.7	
pH s.u. Initial	7.7	7.7	7.4	7.3	7.6	7.6	7.6	
Conductivity µS Initial	185	187	415	418	486	485	480	
Temp °C Final	25.2	25.4	25.8	25.8	25.4	25.2	25.1	
D.O. mg/L Final	7.3	6.7	6.9	7.1	7.4	7.5	7.2	
pH s.u. Final	7.2	7.3	7.3	7.5	7.6	7.0	7.3	
Conductivity µS Final	213	229	412	430	506	511	529	
6.25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.3	25.4	26.0	26.0	26.0	24.9	24.0	
D.O. mg/L Initial	8.5	8.6	8.6	8.9	9.0	8.7	8.9	
pH s.u. Initial	7.5	7.5	7.5	7.4	7.6	7.7	7.6	
Conductivity µS Initial	254	256	468	470	534	533	537	
Temp °C Final	25.3	25.6	25.8	25.8	25.5	25.8	25.1	
D.O. mg/L Final	7.3	6.6	7.1	7.2	7.4	6.9	7.1	
pH s.u. Final	7.1	7.1	7.3	7.5	7.6	7.1	7.3	
Conductivity µS Final	273	300	479	485	556	553	578	
12.5%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.3	25.4	26.0	26.0	26.0	25.0	24.0	
D.O. mg/L Initial	8.5	8.6	8.6	8.8	8.6	8.6	8.9	
pH s.u. Initial	7.4	7.3	7.5	7.5	7.6	7.6	7.6	
Conductivity µS Initial	321	323	521	518	580	580	588	
Temp °C Final	25.5	25.8	25.9	25.9	25.7	25.9	25.1	
D.O. mg/L Final	7.3	6.6	6.8	6.8	7.1	6.9	6.8	
pH s.u. Final	7.1	7.1	7.3	7.5	7.6	7.2	7.3	
Conductivity µS Final	336	359	530	531	594	598	625	

NEB'S DATA SHEET FOR ROUTINE CHEMICAL AND PHYSICAL DETERMINATIONS

FACILITY NAME & ADDRESS:	Naugatuck WPCF, 500 Cherry Street Ext., Naugatuck CT 06770							
NEB PROJECT NUMBER:	05.0044745.00			TEST ORGANISM			*Pimephales promelas*	
DILUTION WATER SOURCE:	Naugatuck River			START DATE:			8/23/16 TIME: 1304	
25%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	24.5	25.4	26.0	26.0	25.8	25.0	24.0	
D.O. mg/L Initial	8.6	8.6	8.6	8.7	8.5	8.6	8.9	
pH s.u. Initial	7.4	7.3	7.5	7.5	7.6	7.6	7.6	
Conductivity µS Initial	439	446	599	605	663	661	680	
Temp °C Final	25.4	25.7	25.9	25.8	25.6	25.6	25.6	
D.O. mg/L Final	7.2	6.1	6.7	6.8	7.0	7.0	6.2	
pH s.u. Final	7.1	7.1	7.4	7.5	7.6	7.3	7.4	
Conductivity µS Final	458	482	614	619	688	686	723	
50%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.0	25.4	26.0	26.0	25.4	25.2	24.0	
D.O. mg/L Initial	8.6	8.6	8.6	8.7	8.4	8.6	8.9	
pH s.u. Initial	7.4	7.4	7.5	7.5	7.5	7.5	7.5	
Conductivity µS Initial	694	698	788	790	839	841	846	
Temp °C Final	25.0	25.5	25.9	25.8	25.6	25.7	25.7	
D.O. mg/L Final	7.2	6.1	6.7	6.9	6.9	6.8	6.1	
pH s.u. Final	7.3	7.4	7.6	7.7	7.7	7.5	7.4	
Conductivity µS Final	717	736	809	802	861	862	880	
100%	1	2	3	4	5	6	7	Remarks
Temp °C Initial	25.4	25.4	25.0	25.7	24.8	26.0	24.5	
D.O. mg/L Initial	8.7	8.8	8.6	8.8	7.3	8.3	8.9	
pH s.u. Initial	7.4	7.4	7.5	7.5	7.4	7.4	7.5	
Conductivity µS Initial	1,182	1,188	1,152	1,159	1,186	1,192	1,197	
Temp °C Final	25.5	25.8	25.7	25.6	25.4	25.3	25.5	
D.O. mg/L Final	7.2	6.2	6.6	6.9	6.9	7.0	6.2	
pH s.u. Final	7.5	7.6	7.7	7.8	7.9	7.7	7.6	
Conductivity µS Final	1,188	1,220	1,184	1,178	1,220	1,223	1,239	
	1	2	3	4	5	6	7	Remarks
Temp °C Initial								
D.O. mg/L Initial								
pH s.u. Initial								
Conductivity µS Initial								
Temp °C Final								
D.O. mg/L Final								
pH s.u. Final								
Conductivity µS Final								

Table of Random Permutations of 16 **P.promelas Test ID#** **16-1196b**

7	12	15	15	1	2	7	16	10	2	14	15	7	13	13	10	6	1	8	10
13	3	8	16	7	10	11	10	13	5	11	7	13	16	7	7	5	13	2	14
3	1	4	5	14	13	3	14	9	13	13	2	9	15	6	2	8	4	5	8
11	8	16	14	15	6	2	6	2	16	8	5	12	3	9	13	4	3	10	4
14	9	1	6	3	9	14	13	8	6	5	8	14	7	3	15	13	11	4	7
2	16	10	13	5	5	13	2	11	7	3	12	5	14	12	16	2	2	9	15
4	6	13	7	2	15	1	9	1	4	7	10	6	9	11	9	7	6	16	11
6	14	6	10	4	14	4	15	3	3	4	16	2	6	5	1	12	10	6	9
10	15	2	1	13	12	16	3	4	8	10	1	15	5	14	12	14	12	3	2
12	10	7	12	9	11	9	8	12	14	15	4	11	8	16	8	9	14	14	1
15	7	5	2	10	7	8	12	6	15	6	13	16	12	15	4	11	8	12	6
16	2	11	8	8	8	15	5	16	1	1	9	8	1	8	14	16	5	13	5
9	13	14	3	6	4	10	11	5	12	9	3	10	4	4	3	10	9	1	3
8	11	9	4	11	3	12	7	7	10	12	14	3	10	1	6	15	16	15	12
1	5	12	11	16	16	5	4	14	9	16	11	1	2	10	5	1	15	7	13
5	4	3	9	12	1	6	1	15	11	2	6	4	11	2	11	3	7	11	16
		ren			conc														
11	8	16	5	5	13	1	13	2	16	14	12	9	8	7	5	13	3	13	3
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14	12	4	16	16	11	14	10	5	12	3	3	12	14	15	13	6	4	1	16
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7	9	7	7	11	1	7	16	13	1	13	2	4	2	1	2	12	2	10	14
13	16	9	1	1	8	10	9	9	4	1	16	2	3	8	14	1	10	6	10
1	6	7	4	8	6	5	2	8	15	4	6	6	1	4	5	7	13	2	10
9	15	11	3	11	15	9	10	1	3	8	2	15	7	9	8	16	1	14	3
10	16	4	5	12	9	16	11	7	1	7	16	11	8	3	3	12	2	3	4
4	14	1	9	5	5	4	13	6	8	15	5	12	5	7	16	5	11	8	1
7	3	13	14	15	2	1	14	16	5	14	9	2	16	1	12	6	14	4	13
16	11	2	1	14	16	6	9	3	4	16	14	3	15	11	11	3	9	12	5
3	10	16	16	13	7	13	1	11	14	9	10	16	2	10	2	10	7	10	16
11	13	9	13	4	13	8	3	5	13	10	12	5	12	5	14	13	16	5	6
15	2	3	12	9	12	2	4	13	10	3	13	14	4	2	1	14	8	6	12
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13	12	5	11	3	11	15	8	2	7	11	7	8	14	6	4	4	4	15	11
12	5	10	7	2	14	7	15	14	16	13	1	9	10	12	10	11	10	9	8
8	9	8	10	6	4	11	7	10	11	6	8	4	9	8	15	8	6	11	9
2	7	6	2	1	8	10	6	15	12	1	11	7	11	13	6	1	15	13	15
6	4	15	8	16	10	14	16	9	6	12	3	10	6	14	7	2	12	16	7
5	8	12	15	7	3	12	5	12	9	5	15	1	13	15	13	15	5	1	2
13	4	10	4	16	13	16	13	5	3	6	14	1	16	8	7	2	3	3	12
5	14	4	6	8	2	15	1	13	14	16	4	15	4	3	12	12	1	4	7
2	2	2	15	14	16	9	12	16	6	10	15	14	9	10	1	14	8	8	16
7	12	15	8	12	3	5	14	7	12	5	13	16	1	7	5	11	2	9	3
6	9	7	14	9	14	10	11	15	11	12	1	12	12	14	16	3	11	11	8
14	5	16	7	10	8	11	8	14	13	7	11	6	3	11	4	4	6	6	9
15	11	8	9	7	12	8	7	1	15	9	3	3	7	13	11	10	4	5	1
11	6	6	1	4	1	3	16	12	5	4	9	13	13	6	8	15	9	1	14
4	10	3	16	2	11	7	9	6	9	1	8	4	11	5	2	16	10	12	4
1	8	1	13	1	15	4	4	11	4	2	16	5	8	1	9	5	12	16	6
9	7	14	2	6	4	14	10	9	8	15	10	7	10	9	10	6	14	10	11
12	1	9	10	15	5	2	15	10	2	14	2	8	2	4	13	8	5	15	5
3	3	12	11	5	9	6	6	3	10	13	12	9	6	2	15	7	15	7	13
10	15	11	5	13	7	12	5	2	7	11	5	10	15	12	3	1	13	13	10
8	13	13	3	3	10	13	2	4	1	8	6	11	14	15	6	9	16	2	2
16	16	5	12	11	6	1	3	8	16	3	7	2	5	16	14	13	7	14	15

NEW ENGLAND BIOASSAY
INITIAL CHEMISTRY DATA

CLIENT: Naugatuck WPCF
NEB JOB # 05.0044745.00
TEST ID # C.dubia 16-1196a P.promelas 16-1196b

DATE RECEIVED	8/23/16		8/25/16		8/26/16	
SAMPLE TYPE:	EFF #1	RIVER #1	EFF #2	RIVER #2	EFF #3	RIVER #3
COC #	C36-3028	C36-3029	C36-3052	C36-3053	C36-3074	C36-3075
pH (SU)	7.2	7.0	7.3	7.2	7.1	7.2
Temperature (^{0}C)	9.6	9.8	9.6	9.5	23.1	23.6, 22.1
Dissolved Oxygen (mg/L)	9.7	9.3	8.6	8.9	4.6	6.1
Conductivity (µmhos)	1,206	189	1,163	419	1,192	486
Salinity (ppt)	< 1	< 1	< 1	< 1	<1	<1
TRC - DPD (mg/L)	0.032	0.051	<0.02	0.026	0.075	<0.02
Hardness (mg/L as $CaCO_3$)	128	30	124	72	122	84
Alkalinity (mg/l as $CaCO_3$)	110	20	125	35	120	35
Tech Initials	PD	PD	CW	CW	CB	CB

NOTE: NA = NOT APPLICABLE

Data Reviewed By: [signature] Date Reviewed: 9/29/16

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

CHAIN OF CUSTODY RECORD

Temp °C Pg of

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

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

Customer: NCS
Address:

Project:
Report to:
Invoice to:

Project P.O:

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature: Date:

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

Analysis Request: Agitate, Citric

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled				Agitate	Citric
3028	BN95828	WW	8/22/16	0934	X		Nagashuck Eff #1	1	
3028	BN95829	GW	8/22/16	9:15	X		Nagashuck Rawr #1	1	

Relinquished by:	Accepted by:	Date:	Time:
Nagashen	Pat Crane	8/23/16	09:55

Comments, Special Requirements or Regulations:
Verbal Nagashuck

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

RI
☐ Direct Exposure (Residential)
☐ GW
☐ Other

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

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

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

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

State where samples were collected:

* SURCHARGE APPLIES

Sample Set #2

NEW ENGLAND BIOASSAY
CHAIN-OF-CUSTODY

EFFLUENT		RECEIVING WATER	
Sampler:		Sampler:	
Title:		Title:	
Facility:	Naugatuck WPCF	Facility:	Naugatuck WPCF
Address:		Address:	

Sample Information

Collection Method: ___ Grab / X Composite	Collection Method: X Grab / ___ Composite
Sample ID: Effluent #2	Sample ID: Naugatuck River #2
Start & End Dates: 8/23 – 24/16	Date Collected: 8/24/16
Start & End Times: 0149 – 0200	Time Collected: 1000
Type of Sample: X WWTF Effluent; ___ Industrial Effluent; ___ Other ___	Type of Sample: X Receiving Water; ___ Other ___
Is the sample: ___ Prechlorinated; ___ Dechlorinated; ___ Chlorine spiked in lab; ___ Chlorinated on site; ___ Unchlorinated	Is the sample: X Unchlorinated

Site Description:

Sample Collection Procedures:

Sample Shipment

Method of Shipment: Phoenix

Relinquished By: Date: Time:

Received By: Date: 8/25/16 Time: 0940

FOR NEB USE ONLY

Temperature of Effluent Upon Receipt at Lab: ~~10.5~~ 9.6 °C

Temperature of Receiving Water Upon Receipt at Lab: 9.5 °C

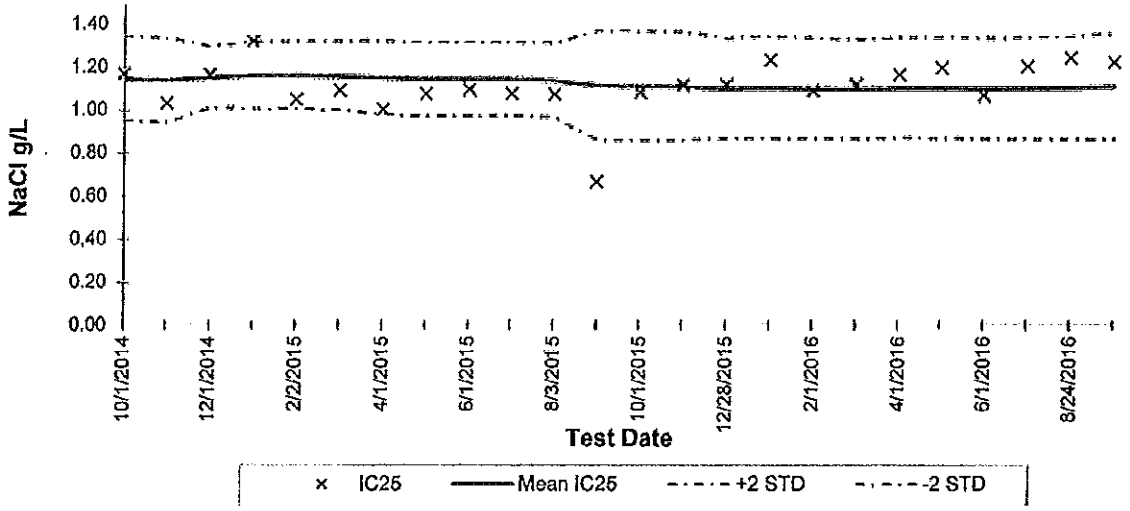
Effluent COC# C36 - 3052

Receiving Water COC# C36-3053

IF THIS COOLER IS MISPLACED OR THE LABEL IS LOST, PLEASE SHIP TO:
KIM WILLS, NEW ENGLAND BIOASSAY, 77 BATSON DRIVE, MANCHESTER CT 06042

New England Bioassay
Reference Toxicant Data: *Ceriodaphia dubia* Chronic Reproduction IC25

Reference Toxicant: Sodium chloride
Test Dates: Oct 2014 - Sept 2016



Test ID	Date	IC_{25}	Mean IC_{25}	STD	-2STD	+2STD	CV	CV National 75th%	CV National 90th%
14-1629	10/1/2014	1.17	1.15	0.10	0.95	1.34	0.08	0.45	0.62
14-1886	11/3/2014	1.03	1.14	0.10	0.94	1.34	0.09	0.45	0.62
14-1982	12/1/2014	1.17	1.15	0.07	1.01	1.30	0.06	0.45	0.62
15-79	1/5/2015	1.32	1.16	0.08	1.01	1.32	0.07	0.45	0.62
15-148	2/2/2015	1.05	1.16	0.08	1.00	1.32	0.07	0.45	0.62
15-378	3/23/2015	1.09	1.16	0.08	1.00	1.32	0.07	0.45	0.62
15-460	4/1/2015	1.00	1.15	0.09	0.98	1.32	0.08	0.45	0.62
15-602	5/1/2015	1.07	1.14	0.09	0.97	1.32	0.08	0.45	0.62
15-750	6/1/2015	1.10	1.14	0.09	0.97	1.32	0.08	0.45	0.62
15-955	7/1/2015	1.07	1.14	0.09	0.97	1.32	0.07	0.45	0.62
15-1211	8/3/2015	1.07	1.14	0.09	0.97	1.31	0.08	0.45	0.62
15-1375	9/9/2015	0.66	1.11	0.13	0.86	1.37	0.11	0.45	0.62
15-1540	10/1/2015	1.08	1.11	0.13	0.86	1.37	0.11	0.45	0.62
15-1691	11/2/2015	1.12	1.11	0.13	0.86	1.36	0.11	0.45	0.62
15-1897	12/28/2015	1.12	1.10	0.12	0.87	1.33	0.11	0.45	0.62
16-37	1/4/2016	1.23	1.11	0.12	0.87	1.34	0.11	0.45	0.62
16-138	2/1/2016	1.09	1.10	0.12	0.87	1.34	0.11	0.45	0.62
16-307	3/1/2016	1.12	1.10	0.12	0.87	1.33	0.11	0.45	0.62
16-463	4/1/2016	1.16	1.10	0.12	0.87	1.34	0.11	0.45	0.62
16-596	5/2/2016	1.19	1.10	0.12	0.87	1.34	0.11	0.45	0.62
16-707	6/1/2016	1.07	1.10	0.12	0.87	1.34	0.11	0.45	0.62
16-880	7/1/2016	1.20	1.10	0.12	0.87	1.34	0.11	0.45	0.62
16-1212	8/24/2016	1.24	1.10	0.12	0.86	1.34	0.11	0.45	0.62
16-1258	9/8/2016	1.22	1.11	0.12	0.87	1.35	0.11	0.45	0.62

Sample Set #3

PHOENIX Environmental Laboratories, Inc.

CHAIN OF CUSTODY RECORD

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

Temp Pg of

Data Delivery:
☐ Fax #:
☐ Email:

Customer: Veolia Naugatuck
Address:

Project: Chronic Toxicity - Friday
Report to:
Invoice to:

Project P.O:
Phone #:
Fax #:

Client Sample - Information - Identification

Sampler's Signature: R. Gacimez Date: 8-26-16

Matrix Code:
DW=drinking water WW=wastewater S=soil/solid O=oil
GW=groundwater SL=sludge A=air X=other

Analysis Request

Phoenix Sample #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	BOD, TSS, CLN, HEX CR	NO2, NO3, NH3, PHENOLS	Total & Amenable Cyanide	Al, Fe, Be, As, Cd(F), Cr, Cu	Pb(F), Tl, Ni, Ag, Zn, Sb	Se(F), Hg	Total P					Cubetainer	Soil VOA Vials [ ] methanol [ ] 30ml Bisulfate	GL Soil container [ ] 1oz	GL Soil container [ ] 1oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 250ml [ ] As is [ ] HCl	FL As is [ ] 250ml [ ] As is [X] H2SO4	FL H2SO4 [ ] 250ml [ ] 50ml [X] 100ml	FL HNO3 250ml [ ] 500ml	FL NaOH 250ml	Bacteria Bottle	
C36-3074	Effluent 23.1°C	WW	8-25-16 to 8-26-16	24hr	X	X	X	X	X	X	X					1					1	1	1	1	1		
C36-3075	Naugatuck River 23.6, 22.1°C	AQ	8-26-16	10:15am	X	X	X	X	X	X	X					2					1	1	1	1	1		

Relinquished by:	Accepted by:	Date:	Time:
R. Gacimez		8/26/16	1229
		8/26/16	150

Comments, Special Requirements or Regulations:
EFFLUENT START 8/25/16 1:44pm STOP 8/26/16 1:37pm

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

CT/RI
☐ RCP Cert
☐ GW Protect
☐ GA Mobility
☐ GB Mobility
☐ SW Protection
☐ Res. Vol.
☐ Ind. Vol.
☐ Res. Criteria
☐ Other

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

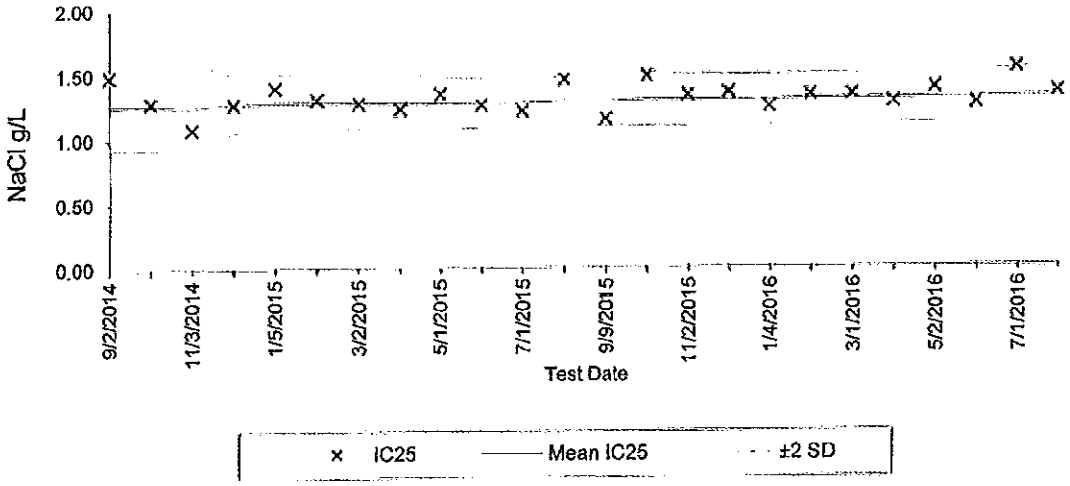
Data Format
☐ Excel
☐ PDF
☐ GIS/Key
☐ EQuIS
☐ Other

Data Package
☐ ASP-A
☐ NJ Reduced Deliv. *
☐ NJ Hazsite EDD
☐ Phoenix Std Report
☐ Other

State where samples were collected: _____

New England Bioassay
Reference Toxicant Data: *Pimephales promelas* 7-day Chronic Growth IC25

Reference Toxicant: Sodium chloride
Test Dates: Sept 2014 - Aug 2016



Test ID	Date	IC_{25}	Mean IC_{25}	STD	-2STD	+2STD	CV	CV National 75th	CV National 90th
14-1427	9/2/2014	1.49	1.27	0.17	0.92	1.61	0.13	0.38	0.45
14-1630	10/1/2014	1.29	1.27	0.17	0.93	1.61	0.13	0.38	0.45
14-1887	11/3/2014	1.08	1.25	0.17	0.91	1.60	0.14	0.38	0.45
14-2051	12/1/2014	1.28	1.28	0.11	1.07	1.50	0.08	0.38	0.45
15-80	1/5/2015	1.39	1.29	0.11	1.07	1.51	0.08	0.38	0.45
15-149	2/2/2015	1.31	1.30	0.11	1.08	1.51	0.08	0.38	0.45
15-255	3/2/2015	1.28	1.29	0.11	1.08	1.51	0.08	0.38	0.45
15-461	4/1/2015	1.24	1.29	0.11	1.08	1.50	0.08	0.38	0.45
15-604	5/1/2015	1.35	1.28	0.10	1.09	1.48	0.08	0.38	0.45
15-803	6/1/2015	1.27	1.28	0.10	1.09	1.48	0.08	0.38	0.45
15-956	7/1/2015	1.22	1.28	0.10	1.09	1.46	0.07	0.38	0.45
15-1212	8/3/2015	1.46	1.30	0.09	1.11	1.49	0.07	0.38	0.45
15-1376	9/9/2015	1.16	1.29	0.10	1.10	1.49	0.08	0.38	0.45
15-1541	10/1/2015	1.49	1.31	0.10	1.10	1.51	0.08	0.38	0.45
15-1742	11/2/2015	1.34	1.30	0.10	1.10	1.50	0.08	0.38	0.45
15-1881	12/1/2015	1.36	1.30	0.10	1.10	1.50	0.08	0.38	0.45
16-36	1/4/2016	1.25	1.30	0.10	1.11	1.49	0.07	0.38	0.45
16-139	2/1/2016	1.34	1.31	0.10	1.12	1.50	0.07	0.38	0.45
16-308	3/1/2016	1.34	1.31	0.10	1.12	1.50	0.07	0.38	0.45
16-464	4/1/2016	1.28	1.31	0.10	1.12	1.50	0.07	0.38	0.45
16-597	5/2/2016	1.39	1.31	0.10	1.12	1.50	0.07	0.38	0.45
16-708	6/1/2016	1.27	1.31	0.10	1.12	1.50	0.07	0.38	0.45
16-881	7/1/2016	1.54	1.32	0.11	1.11	1.53	0.08	0.38	0.45
16-1064	8/1/2016	1.35	1.32	0.11	1.11	1.54	0.08	0.38	0.45

Officials OK bond for upgrades at plant

By Luke Marshall
Staff Writer

NAUGATUCK — The Joint Boards of Mayor and Burgesses and Finance last week approved bonding $8.5 million to make upgrades to the wastewater treatment plant.

Naugatuck is mandated by the Environmental Protection Agency to make upgrades to the incinerator at the borough-owned plant. The upgrades are meant to reduce the amount of phosphorous and other pollutants, such as mercury, emitted, and other issues including insurance.

The plant is run by Veolia North America, a private company, but the borough is responsible for the cost of the improvements under a settlement the two parties reached in June that resolved a number of ongoing issues.

The work is expected to cost up to $8.2 million. The other $300,000 is for potential engineering costs, Mayor N. Warren "Pete" Hess said. Veolia is responsible to pay for all the engineering costs, but the borough wants to have someone monitor the work and make sure everything is OK, he said.

"We will probably spend less than $300,000 but we will keep our eye on the ball," Hess said.

Hess said Veolia has already started the engineering work.

The upgrades include adding a conditioner to the incinerator. The conditioner is another step in the process to clean the output from the incinerator and keep it under the mandatory air quality standards. In addition to the conditioner, the upgrades will include a new heat exchanger, a new carbon absorber and new electrical equipment.

The bond will add $756,500 in debt services to the 2017-18 budget, Controller Robert Butler said. That amount will decrease each subsequent year until the bond is paid off.

Board of Finance Vice Chairman Andrew Bottinick asked if the planned upgrade will ensure the incinerator remains in compliance.

Hess said the borough estimates the work will keep the plant in compliance for up to 12 years. In six years, the borough's original $25 million bond for the plant will be paid and the contract with Veolia ends.

"In six years something is going to happen at the wastewater treatment plant and there are many, many possibilities," Hess said.

Board of Finance member Dan Sheridan expressed concerns about bonding more than necessary.

Butler said if the cost of the upgrades comes in less than $8.5 million the borough will use the money from the bond that wasn't spent to pay it down.

Butler said the borough's other option is to use its own money to do the work and bond

ODOR COMPLAINT REPORT

CALLER INFORMATION: DATE: 9/8/16 TIME: 4:44 PM

CALL TAKEN BY: Odor hotline

NAME OF COMPLAINTANT: Manny Tavares PHONE NUMBER: 203-597-7359

ADDRESS/LOCATION WHERE ODOR IS BEING DETECTED: 42 Gunntown Rd. Oxford line

STRENGTH OF ODOR: FAINT ___ NOTICABLE ___ DEFINITE ___ STRONG ___ OVERWHELMING ✓

DESCRIPTION OF ODOR: AMMONIA ___ CABBAGE ___ FECAL ___ FISHY ___ GARLIC ___ MEDICINAL ___ ROTTEN EGGS ___ SKUNKY ___ SOLVENT/FUEL ___ OTHER ___

DOES THE CALLER WANT A FOLLOW-UP CALL? YES ___ NO ___ getting no response from Oxford WPCA wants alternative solution

DON'T FORGET TO THANK THE CALLER FOR THEIR CONCERN!!

ODOR INVESTIGATION:

(FROM CONTROL ROOM WEATHER STATION)

WIND DIRECTION: ___ WIND SPEED: ___ WEATHER: TEMP ___ RAIN ___ HUMID ___ DRY ___ UNSEASONABLY WARM/COLD ___

COMPLETE PLANT SURVEY LISTING POSSIBLE SOURCES OF ODORS CONTRIBUTING TO THE COMPLAINT:

ODOR CONTROL EQUIPMENT STATUS:

PRIMARY SCRUBBER: ON ___ OFF ___ PH ___ ORP ___ MAKE UP WATER: 0.5-1 GPM ___ SPRAYS ___

FILTER BLDG SCRUBBER: ON ___ OFF ___ PH ___ ORP ___ MAKE UP WATER: 1-3 GPM ___ SPRAYS ___

PERMANGANATE FEEDERS:

AERATION: ON ___ OFF ___ VERIFIED OPERATIONAL: YES ___ NO ___

SLUDGE STORAGE: ON ___ OFF ___ VERIFIED OPERATIONAL: YES ___ NO ___

ODOR COUNTERACTANT SYSTEM: ON ___ OFF ___ VERIFIED OPERATIONAL: YES ___ SPRAYS ___

COMPLAINT REVIEWED BY: John Batorski DATE: 9-9-16 TIME: ~ 8:25 AM

RETURN CALL MADE BY: " DATE: " TIME: "

RETURN CALL RESULTS:

Spoke to Manny - told him we cannot do anything but offer assistance - which we have - to include chemicals -

I will text him the CTDEEP Odor inspector Lou Santos - office # 860-424-3464, email lou.santos@ct.gov

Th

The CTDEEP complaint line ~ 860-424-3436 ~ is the number to call

63011rev1

ODOR COMPLAINT REPORT

CALLER INFORMATION: DATE: 9-9-16 TIME: 7:08 am

CALL TAKEN BY: Odor hotline

NAME OF COMPLAINTANT: Alyse Cassilon PHONE NUMBER: 203-815-5284

ADDRESS/LOCATION WHERE ODOR IS BEING DETECTED: 80 Lewis St.

STRENGTH OF ODOR: FAINT ___ NOTICABLE ___ DEFINITE ___ STRONG ___ OVERWHELMING ✓

DESCRIPTION OF ODOR: AMMONIA ___ CABBAGE ✓ FECAL ___ FISHY ___ GARLIC ___ MEDICINAL ___ ROTTEN EGGS ___ SKUNKY ___ SOLVENT/FUEL ___ OTHER ___

DOES THE CALLER WANT A FOLLOW-UP CALL? YES ___ NO ___

DON'T FORGET TO THANK THE CALLER FOR THEIR CONCERN!!

ODOR INVESTIGATION:

(FROM CONTROL ROOM WEATHER STATION)

WIND DIRECTION: ESE WIND SPEED: 2.0 WEATHER: TEMP 72.7 RAIN ___ HUMID ___ DRY ✓
UNSEASONABLY WARM/COLD ___

COMPLETE PLANT SURVEY LISTING POSSIBLE SOURCES OF ODORS CONTRIBUTING TO THE COMPLAINT:

ODOR CONTROL EQUIPMENT STATUS:

PRIMARY SCRUBBER: ON ✓ OFF ___ PH 8.0 ORP 860 MAKE UP WATER: 0.5-1 GPM ✓
SPRAYS — partially clogged —

FILTER BLDG SCRUBBER: ON ✓ OFF ___ PH ~~8.67~~ 8.0 ORP 867 MAKE UP WATER: 1-3 GPM ✓
SPRAYS ___

PERMANGANATE FEEDERS:

AERATION: ON ✓ OFF ___ VERIFIED OPERATIONAL: YES ✓ NO ___

SLUDGE STORAGE: ON ✓ OFF ___ VERIFIED OPERATIONAL: YES ✓ NO ___

ODOR COUNTERACTANT SYSTEM: ON ___ OFF ___ VERIFIED OPERATIONAL: YES ___ SPRAYS ___

COMPLAINT REVIEWED BY: John Batorski DATE: 9-9-16 TIME: 8:16 AM

RETURN CALL MADE BY: John Batorski DATE: " TIME: "

RETURN CALL RESULTS:
Left voice mail - cause was identified as a missing cover on pri. tank - cover will be replaced immediately.
Further investigation revealed partially clogged scrubber spray — spray was immediately cleaned and staff made aware.

JB

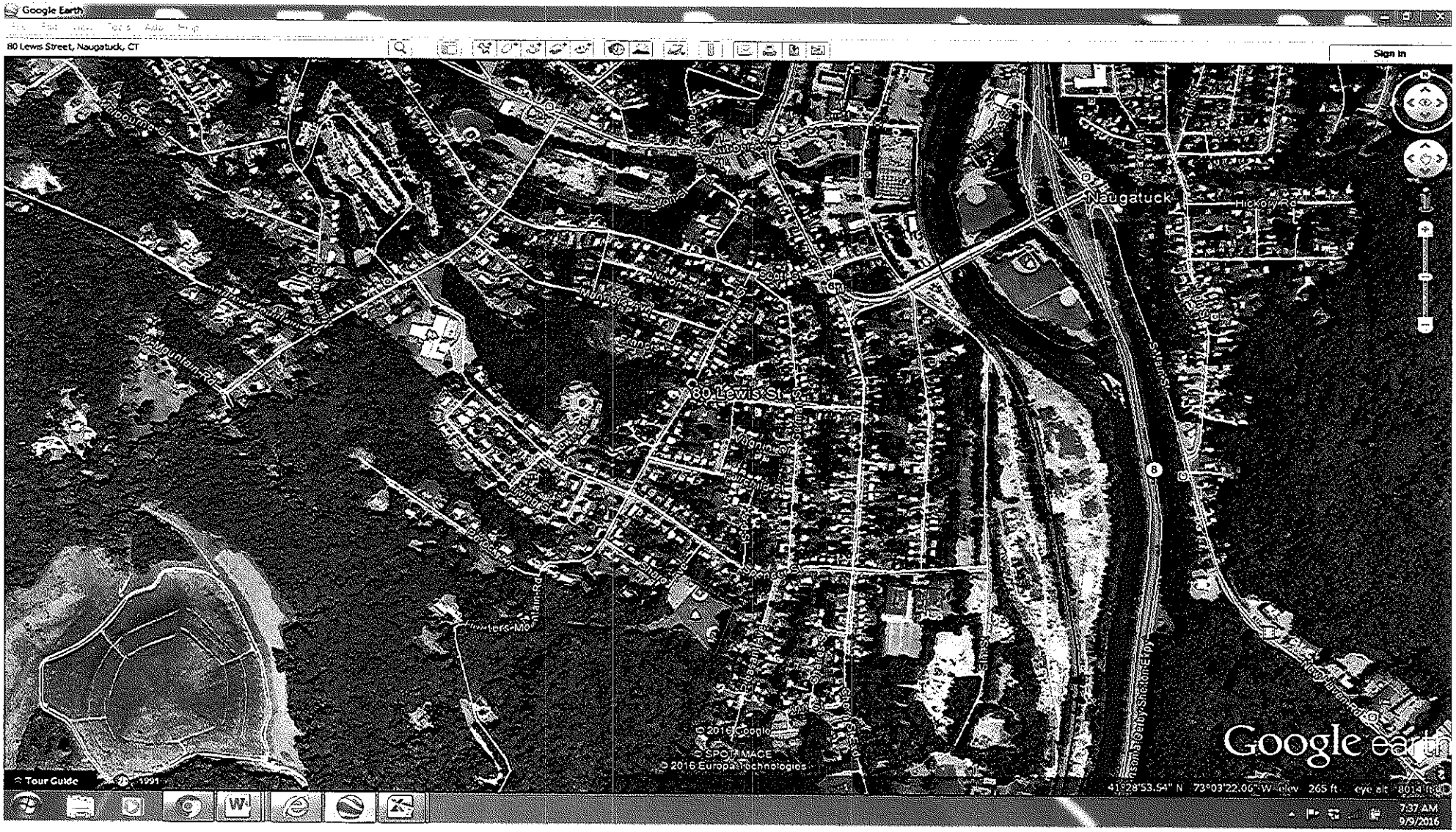
63011rev1

WeatherLink 6.0.0 09/09/16 8:16a: admin

File Setup Reports Browse Window Help

Browse Records

Date	Time	Temp Out	Hi Temp	Low Temp	Out Hum	Dew Pt.	Wind Speed	Wind Dir	Wind Run	Hi Speed	Hi Dir	Wind Chill	Heat Index	THW Index	Bar	Rain	Rain Rate	Heat D-D	Cool D-D	In Temp	In Hum	In Dew	In Heat	In EMC
9/09/16	3:45a	72.6	72.7	72.6	99	72.3	6.0	ESE	0.50	9.0	ESE	72.6	76.0	76.0	------	0.00	0.00	0.000	0.026	73.4	82	67.6	75.4	16.85
9/09/16	3:50a	72.6	72.7	72.6	99	72.3	7.0	SE	0.58	10.0	ESE	72.6	76.0	76.0	------	0.00	0.00	0.000	0.026	73.1	79	66.2	74.9	15.69
9/09/16	3:55a	72.6	72.7	72.6	99	72.3	7.0	SE	0.58	10.0	ESE	72.6	76.0	76.0	------	0.00	0.00	0.000	0.026	72.7	78	65.4	74.2	15.30
9/09/16	4:00a	72.5	72.6	72.5	99	72.2	7.0	SE	0.58	9.0	ESE	72.5	75.9	75.9	------	0.00	0.00	0.000	0.026	72.6	83	67.1	74.4	17.25
9/09/16	4:05a	72.5	72.5	72.5	100	72.5	7.0	SE	0.58	9.0	SE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	73.1	85	68.3	75.2	18.07
9/09/16	4:10a	72.5	72.5	72.5	100	72.5	7.0	SE	0.58	9.0	ESE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	73.1	81	66.9	75.0	16.49
9/09/16	4:15a	72.4	72.5	72.4	100	72.4	7.0	SE	0.58	9.0	ESE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	72.9	79	66.0	74.6	15.69
9/09/16	4:20a	72.4	72.5	72.4	100	72.4	6.0	SE	0.50	9.0	ESE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	72.6	81	66.4	74.3	16.50
9/09/16	4:25a	72.4	72.4	72.4	100	72.4	7.0	SE	0.58	9.0	ESE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	72.9	84	67.8	74.9	17.67
9/09/16	4:30a	72.4	72.5	72.4	100	72.4	7.0	SE	0.58	9.0	SE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	73.3	83	67.8	75.3	17.25
9/09/16	4:35a	72.4	72.4	72.4	100	72.4	7.0	SE	0.58	9.0	ESE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	73.1	80	66.6	74.9	16.09
9/09/16	4:40a	72.3	72.4	72.3	100	72.3	7.0	SE	0.58	10.0	SE	72.3	75.9	75.9	------	0.00	0.00	0.000	0.025	72.7	79	65.8	74.3	15.70
9/09/16	4:45a	72.4	72.4	72.3	100	72.4	6.0	SE	0.50	9.0	ESE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	72.6	82	66.8	74.4	16.85
9/09/16	4:50a	72.4	72.4	72.4	100	72.4	5.0	ESE	0.42	8.0	ESE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	73.1	85	68.3	75.2	18.07
9/09/16	4:55a	72.3	72.4	72.3	100	72.3	6.0	SE	0.50	8.0	SE	72.3	75.9	75.9	------	0.00	0.00	0.000	0.025	73.3	82	67.5	75.3	16.85
9/09/16	5:00a	72.4	72.4	72.3	100	72.4	6.0	SE	0.50	8.0	SE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	72.9	80	66.4	74.7	16.09
9/09/16	5:05a	72.5	72.5	72.4	100	72.5	5.0	SE	0.42	8.0	SE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	72.6	80	66.1	74.2	16.10
9/09/16	5:10a	72.4	72.5	72.4	100	72.4	6.0	SE	0.50	8.0	SE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	72.7	84	67.6	74.6	17.66
9/09/16	5:15a	72.4	72.4	72.4	100	72.4	6.0	SE	0.50	9.0	SE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	73.3	85	68.5	75.4	18.08
9/09/16	5:20a	72.5	72.5	72.4	100	72.5	6.0	SE	0.50	9.0	SE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	73.3	81	67.1	75.2	16.48
9/09/16	5:25a	72.6	72.6	72.5	100	72.6	4.0	SE	0.33	7.0	SE	72.6	76.2	76.2	------	0.00	0.00	0.000	0.026	73.1	79	66.2	74.9	15.69
9/09/16	5:30a	72.6	72.6	72.6	100	72.6	4.0	SE	0.33	8.0	SE	72.6	76.2	76.2	------	0.00	0.00	0.000	0.026	72.7	81	66.5	74.4	16.50
9/09/16	5:35a	72.7	72.7	72.6	100	72.7	5.0	SE	0.42	8.0	SE	72.7	76.3	76.3	------	0.00	0.00	0.000	0.027	72.9	84	67.8	74.9	17.67
9/09/16	5:40a	72.7	72.8	72.7	100	72.7	5.0	SE	0.42	9.0	SSE	72.7	76.3	76.3	------	0.00	0.00	0.000	0.027	73.4	85	68.6	75.5	18.09
9/09/16	5:45a	72.7	72.8	72.7	100	72.7	6.0	SE	0.50	8.0	SSE	72.7	76.3	76.3	------	0.00	0.00	0.000	0.027	73.4	82	67.6	75.4	16.85
9/09/16	5:50a	72.6	72.7	72.6	100	72.6	5.0	SE	0.42	9.0	SSE	72.6	76.2	76.2	------	0.00	0.00	0.000	0.026	73.3	80	66.8	75.2	16.08
9/09/16	5:55a	72.5	72.6	72.5	100	72.5	6.0	SE	0.50	8.0	SSE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	72.7	80	66.2	74.4	16.10
9/09/16	6:00a	72.7	72.7	72.5	100	72.7	4.0	SE	0.33	7.0	SE	72.7	76.3	76.3	------	0.00	0.00	0.000	0.027	72.9	84	67.8	74.9	17.67
9/09/16	6:05a	72.7	72.8	72.6	100	72.7	4.0	SE	0.33	6.0	SE	72.7	76.3	76.3	------	0.00	0.00	0.000	0.027	73.3	83	67.8	75.3	17.25
9/09/16	6:10a	72.6	72.7	72.6	100	72.6	1.0	ESE	0.08	4.0	ESE	72.6	76.2	76.2	------	0.00	0.00	0.000	0.026	73.3	81	67.1	75.2	16.48
9/09/16	6:15a	72.7	72.7	72.6	100	72.7	1.0	ESE	0.08	5.0	ESE	72.7	76.3	76.3	------	0.00	0.00	0.000	0.027	73.1	79	66.2	74.9	15.69
9/09/16	6:20a	72.6	72.7	72.6	100	72.6	3.0	ESE	0.25	5.0	ESE	72.6	76.2	76.2	------	0.00	0.00	0.000	0.026	72.7	78	65.4	74.2	15.30
9/09/16	6:25a	72.5	72.6	72.5	100	72.5	4.0	SE	0.33	7.0	SE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	72.6	82	66.8	74.4	16.85
9/09/16	6:30a	72.4	72.5	72.4	100	72.4	3.0	SE	0.25	6.0	SSE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	73.1	85	68.3	75.2	18.07
9/09/16	6:35a	72.5	72.5	72.4	100	72.5	2.0	SE	0.17	6.0	SE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	73.3	82	67.5	75.3	16.85
9/09/16	6:40a	72.4	72.5	72.4	100	72.4	4.0	SE	0.33	5.0	SE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	73.1	80	66.6	74.9	16.09
9/09/16	6:45a	72.3	72.5	72.3	100	72.3	4.0	SE	0.33	6.0	SE	72.3	75.9	75.9	------	0.00	0.00	0.000	0.025	72.9	79	66.0	74.6	15.69
9/09/16	6:50a	72.4	72.4	72.3	100	72.4	3.0	ESE	0.25	6.0	ESE	72.4	76.0	76.0	------	0.00	0.00	0.000	0.026	72.6	78	65.3	74.1	15.30
9/09/16	6:55a	72.5	72.6	72.4	100	72.5	3.0	SE	0.25	6.0	ESE	72.5	76.1	76.1	------	0.00	0.00	0.000	0.026	72.6	82	66.8	74.4	16.85
9/09/16	7:00a	72.6	72.6	72.5	100	72.6	3.0	SE	0.25	6.0	ESE	72.6	76.2	76.2	------	0.00	0.00	0.000	0.026	73.1	84	68.0	75.2	17.67
9/09/16	7:05a	72.6	72.6	72.6	100	72.6	3.0	ESE	0.25	6.0	ESE	72.6	76.2	76.2	------	0.00	0.00	0.000	0.026	73.3	81	67.1	75.2	16.48
9/09/16	7:10a	72.7	72.7	72.6	100	72.7	2.0	ESE	0.17	5.0	ESE	72.7	76.3	76.3	------	0.00	0.00	0.000	0.027	73.1	79	66.2	74.9	15.69
9/09/16	7:15a	72.9	72.9	72.7	100	72.9	3.0	ESE	0.25	6.0	ESE	72.9	76.5	76.5	------	0.00	0.00	0.000	0.027	72.6	78	65.3	74.1	15.30
9/09/16	7:20a	72.8	72.9	72.8	100	72.8	3.0	ESE	0.25	5.0	ESE	72.8	76.4	76.4	------	0.00	0.00	0.000	0.027	72.7	82	66.9	74.5	16.85
9/09/16	7:25a	72.9	73.0	72.8	100	72.9	4.0	ESE	0.33	5.0	ESE	72.9	76.5	76.5	------	0.00	0.00	0.000	0.027	73.1	83	67.6	75.1	17.25
9/09/16	7:30a	73.2	73.2	73.0	100	73.2	2.0	ESE	0.17	5.0	ESE	73.2	76.8	76.8	------	0.00	0.00	0.000	0.028	72.9	80	66.4	74.7	16.09


Google Earth
80 Lewis Street, Naugatuck, CT
Sign In
Naugatuck
Hickory Rd
Scott St
80 Lewis St
Mountain Rd
Brooklyn St
Main St
Tour Guide
1991
© 2016 Google
© SPOT IMAGE
© 2016 Europa Technologies
Google earth
41°28'53.54" N 73°03'22.06" W elev 265 ft eye alt 8014 ft
7:37 AM
9/9/2016

ODOR COMPLAINT REPORT

CALLER INFORMATION: DATE: 9-14-16 TIME: 7:01 am

CALL TAKEN BY: Odor hotline

NAME OF COMPLAINTANT: Lynn PHONE NUMBER: 203-723-1745

ADDRESS/LOCATION WHERE ODOR IS BEING DETECTED: 45 Ward St.

STRENGTH OF ODOR: FAINT ___ NOTICABLE ___ DEFINITE ___ STRONG ✓ OVERWHELMING ___

DESCRIPTION OF ODOR: AMMONIA ___ CABBAGE ___ FECAL ___ FISHY ___ GARLIC ___ MEDICINAL ___ ROTTEN EGGS ___ SKUNKY ___ SOLVENT/FUEL ___ OTHER ___

DOES THE CALLER WANT A FOLLOW-UP CALL? YES ___ NO ___ odor woke her up

DON'T FORGET TO THANK THE CALLER FOR THEIR CONCERN!!

ODOR INVESTIGATION:

(FROM CONTROL ROOM WEATHER STATION)

WIND DIRECTION: E WIND SPEED: 0.0 WEATHER: TEMP 72.9 RAIN ___ HUMID ___ DRY ✓ UNSEASONABLY WARM/COLD ___

COMPLETE PLANT SURVEY LISTING POSSIBLE SOURCES OF ODORS CONTRIBUTING TO THE COMPLAINT:

ODOR CONTROL EQUIPMENT STATUS:

PRIMARY SCRUBBER: ON ✓ OFF ___ PH 8.38 ORP 859 MAKE UP WATER: 0.5-1 GPM ✓ SPRAYS ___

FILTER BLDG SCRUBBER: ON ✓ OFF ___ PH 8.05 ORP 879 MAKE UP WATER: 1-3 GPM ✓ SPRAYS ___

PERMANGANATE FEEDERS:

AERATION: ON ✓ OFF ___ VERIFIED OPERATIONAL: YES ✓ NO ___

SLUDGE STORAGE: ON ✓ OFF ___ VERIFIED OPERATIONAL: YES ✓ NO ___

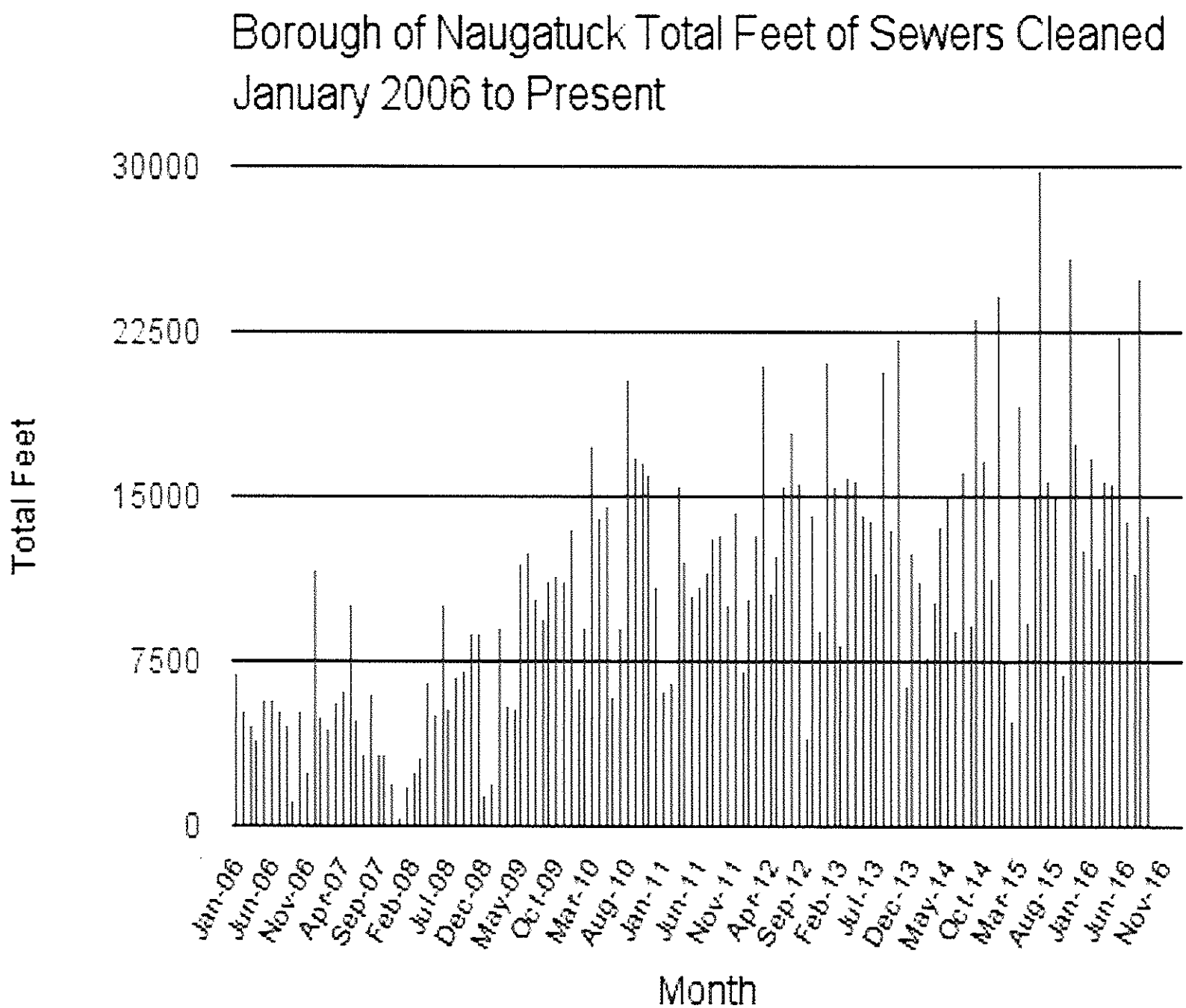
ODOR COUNTERACTANT SYSTEM: ON ✓ OFF ___ VERIFIED OPERATIONAL: YES ✓ SPRAYS ___

COMPLAINT REVIEWED BY: Christopher Malinuch DATE: 9/14/16 TIME: 10:00 am

RETURN CALL MADE BY: Christopher Malinuch DATE: 9/14/16 TIME: 11:00 am

RETURN CALL RESULTS:

No answer, left message with cell phone number as contact


Borough of Naugatuck Total Feet of Sewers Cleaned
January 2006 to Present
30000
22500
15000
7500
0
Total Feet
Jan-06
Jun-06
Nov-06
Apr-07
Sep-07
Feb-08
Jul-08
Dec-08
May-09
Oct-09
Mar-10
Aug-10
Jan-11
Jun-11
Nov-11
Apr-12
Sep-12
Feb-13
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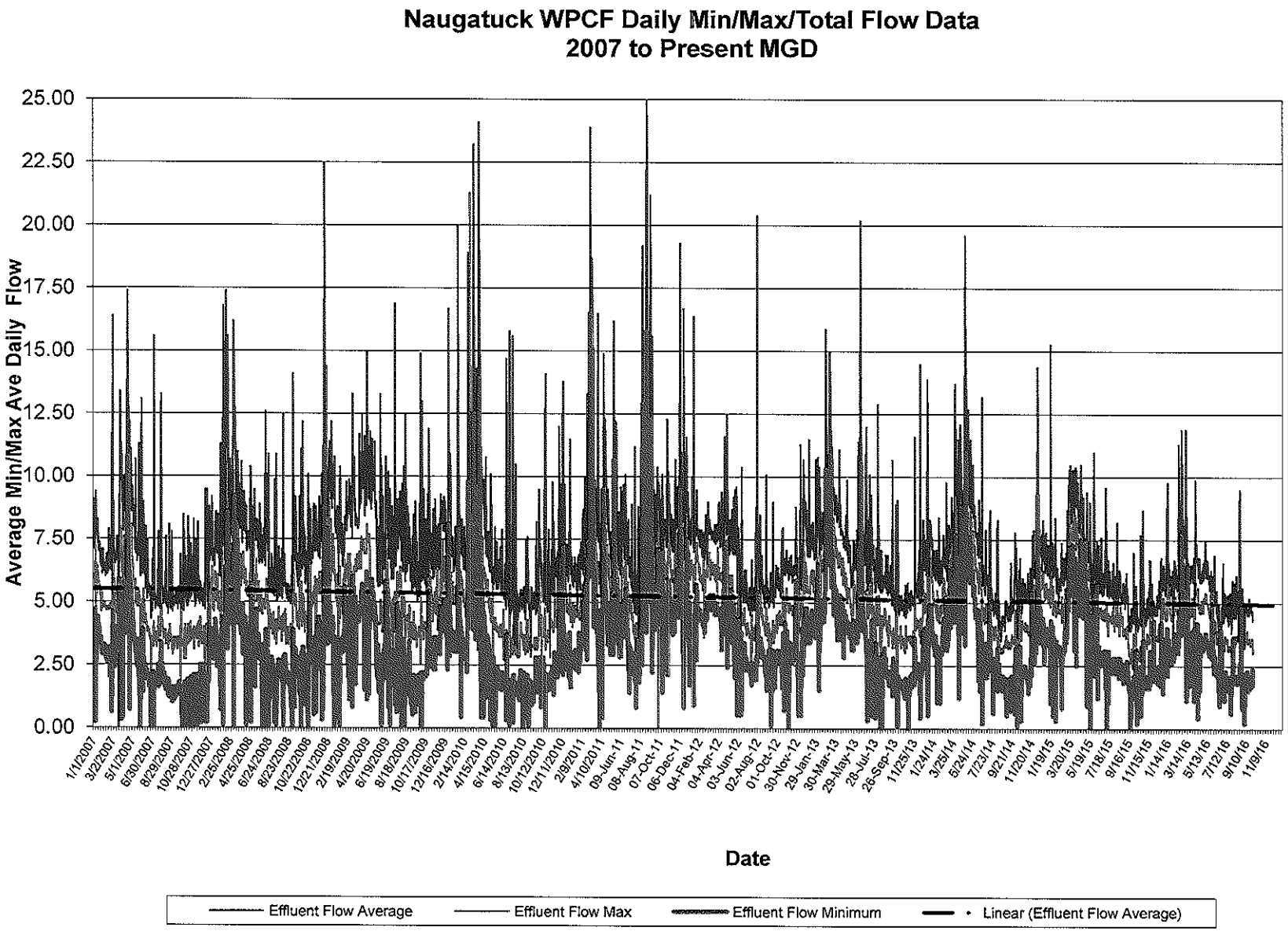
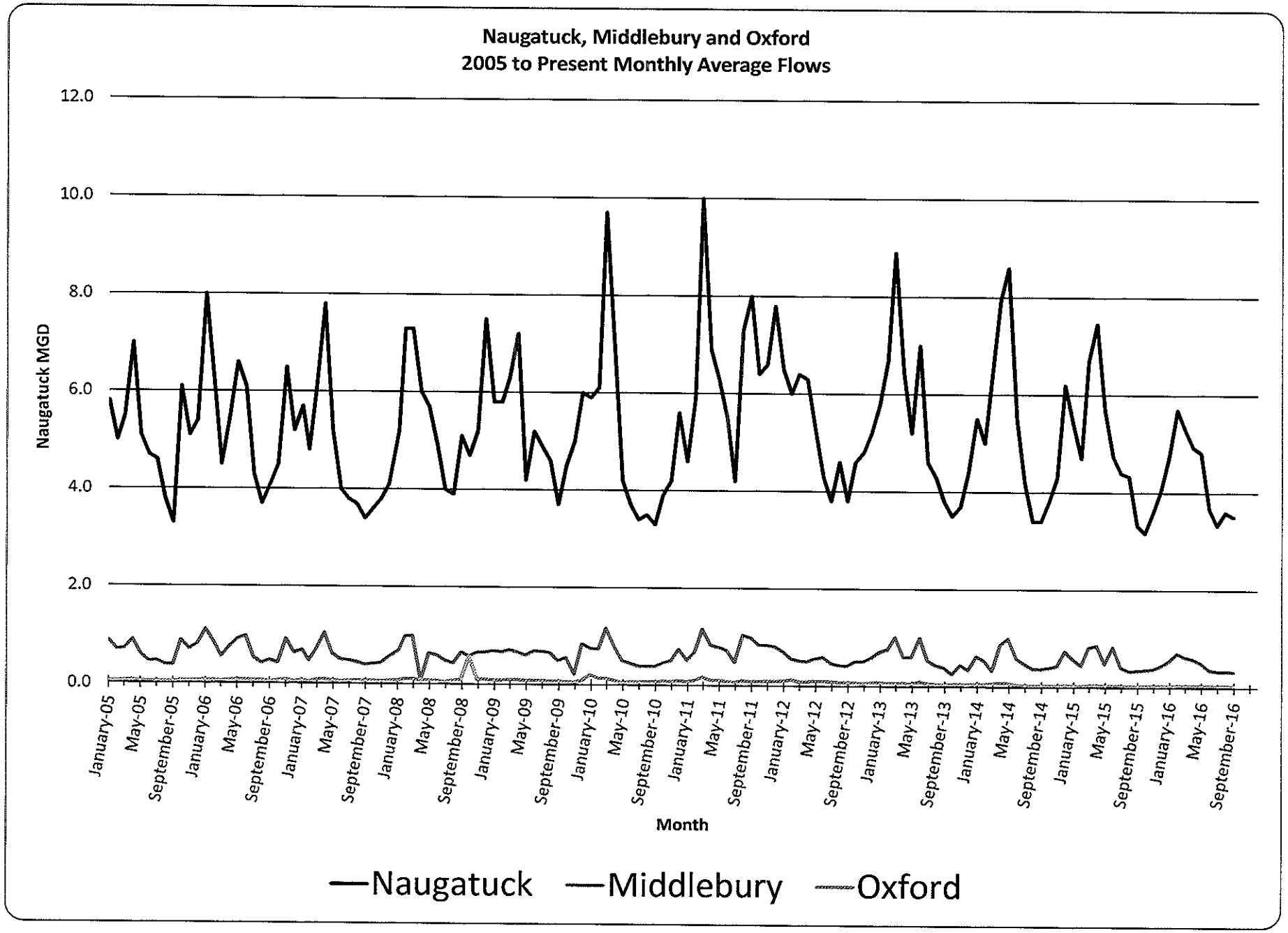
Dec-13
May-14
Oct-14
Mar-15
Aug-15
Jan-16
Jun-16
Nov-16
Month


Naugatuck WPCF Daily Min/Max/Total Flow Data
2007 to Present MGD
Average Min/Max Ave Daily Flow
25.00
22.50
20.00
17.50
15.00
12.50
10.00
7.50
5.00
2.50
0.00
1/1/2007
3/2/2007
5/1/2007
6/30/2007
8/29/2007
10/28/2007
12/27/2007
2/25/2008
4/25/2008
6/24/2008
8/23/2008
10/22/2008
12/21/2008
2/19/2009
4/20/2009
6/19/2009
8/18/2009
10/17/2009
12/16/2009
2/14/2010
4/15/2010
6/14/2010
8/13/2010
10/12/2010
12/11/2010
2/9/2011
4/10/2011
09-Jun-11
08-Aug-11
07-Oct-11
06-Dec-11
04-Feb-12
04-Apr-12
03-Jun-12
02-Aug-12
01-Oct-12
30-Nov-12
29-Jan-13
30-Mar-13
29-May-13
28-Jul-13
26-Sep-13
11/25/13
1/24/14
3/25/14
5/24/14
7/23/14
9/21/14
11/20/14
1/19/15
3/20/15
5/19/15
7/18/15
9/16/15
11/15/15
1/14/16
3/14/16
5/13/16
7/12/16
9/10/16
11/9/16
Date
Effluent Flow Average
Effluent Flow Max
Effluent Flow Minimum
Linear (Effluent Flow Average)


Naugatuck, Middlebury and Oxford
2005 to Present Monthly Average Flows
Naugatuck MGD
12.0
10.0
8.0
6.0
4.0
2.0
0.0
January-05
May-05
September-05
January-06
May-06
September-06
January-07
May-07
September-07
January-08
May-08
September-08
January-09
May-09
September-09
January-10
May-10
September-10
January-11
May-11
September-11
January-12
May-12
September-12
January-13
May-13
September-13
January-14
May-14
September-14
January-15
May-15
September-15
January-16
May-16
September-16
Month
Naugatuck
Middlebury
Oxford