# EXHIBIT O1

# NOTICES OF VIOLATIONS



March 9, 2015

#### FED EX - NEXT DAY

Heather Henry Air Quality Specialist Air Quality Program PA Department of Environmental Protection 2 East Main Street Norristown, PA 19401

> RE: Air Quality Permit Violations Chester City, Delaware County TVOP-23-00038 PADEP February 18, 2015 Correspondence

Dear Ms. Henry:

Please allow this letter to serve as DELCORA's response to the above referenced correspondence.

With regard to the Authority's plan to prevent further exceedances of the solids throughput restriction, we propose the following abatement plan. Moving forward, using the real-time information of the amount of tonnage processed for the day provided by our SCADA system, a Standard Operating Procedure (SOP) will be implemented that requires action be taken, up to and including shutting off the feed to the incinerator(s), prior to exceeding the daily tonnage limit. We will then resume the feed to the incinerator(s), once the new monitoring period (day) has started. I have attached a copy of the SOP for your files.

Should any further information be required concerning this report, please contact me at 610-876-5523, ext. 264.

Respectfully Submitted,

Michael J. DiSantis Director of Operations and Maintenance

MJD:bab attachment

ADMINISTRATION [610-876-5523 [FAX: 610-876-2728] CUSTOMER SERVICE/BILLING []610-876-5526 []FAX: 610-876-1460 PURCHASING & STORES 610-876-5523 FAX: 610-497-7959 PLANT & MAINTENANCE 610-876-5523 FAX: 610-497-7950 Heather Henry PADEP March 9, 2015 page 2

cc: J. Rebarchak, DEP W. Stroble, DEP K. McLemore, DEP Mr. Harwick, DEP Delaware County Planning Department R. Willert, DELCORA E. Bothwell, DELCORA D. Dutton, DELCORA File

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# DELCORA WESTERN REGIONAL TREATMENT PLANT

# STANDARD OPERATING PROCEDURE

Effective in	nmediately, on a da	ily basis, the following procedure must be used:							
•	At 9:00 PM, the 0 duty are to check for that day, for e logged in the e-Op	Operations Foreman and Incinerator Operators on the actual tonnage processed, as listed on SCADA each incinerator in service. The tonnage must be os log.							
•	If the then curren exceedance of th (Midnight) of the taken.	t feed rate(s) to the incinerator(s) will result in an e 48 dry tons per day per incinerator at the end daily processing period, corrective action must be							
•	First Course of Action - Divert sludge cake to the stand-by sludge trailer prior to exceeding the 48 dry ton limit.								
•	<ul> <li>Second Course of Action - If the stand-by sludge trailer is available, then the sludge cake feed to the incinerator(s) mus reduced to ensure that the 48 dry ton limit is not exceeded.</li> </ul>								
٠	Third Course of A the sludge cake fe	Third Course of Action - If the first two options are not possible, then the sludge cake feed to the incinerator(s) must be shut off.							
•	After Midnight, sludge cake feed would then resume to the affected incinerator(s).								
•	All actions must be recorded in the e-Ops log.								
ailure to f	ollow this procedure	may result in disciplinary action.							

Signature: Michael J. DiSantis	Title: Director of O&M	Date: 3/2/2015		
Code: Permit Compliance	Last Revision Date:			



February 18, 2015

-3 FEB 2 4 2015 BY: 2015-0211 CC. File Copy

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Air Quality Permit Violations Chester City Delaware County TVOP-23-00038

Dear Mr. DiSantis:

On February 3 and 4, 2015, I conducted a compliance inspection of Delaware County Regional Water Quality Control Authority's (DELCORA) Western Regional Treatment Plant. Based on my observations made during the inspection and review of records, I documented the following violations of the Department of Environmental Protection's (DEP) Air Quality Regulations:

Contrary to Condition Nos. 007, Sources 001 and 002: Sewage Sludge Incinerator 1 and 2, Section D of TVOP-23-00038, the dry solids feed to each incinerator is limited to 48 tons per day. Facility records document the following exceedances of this limit on the following dates:

Incinera	tor No. 1	Incinerator No. 2						
Date	Throughput	Date	Throughput					
2/22/2014	49.2 tons	5/2/2014	55.48 tons					
5/23/2014	51.28 tons							
8/13/2014	48.85 tons							
8/14/2014	48.54 tons							
9/26/2014	51.78 tons							
10/17/2014	48.82 tons							

These exceedances are contrary to the aforementioned permit conditions and constitute violations of 25 Pa. Code Section 127.444.

Contrary to Condition No. 022, Section C of TVOP-23-00038, daily site monitoring was not conducted on the following dates: 1/29/13, 2/5/13, 2/1/14, 2/12/14, 2/13/14, 2/27/14, 4/12/14, 4/24/14, 5/21/14, and 6/7/14. Failure to perform daily site monitoring is contrary to the aforementioned permit condition and it is a violation of 25 Pa. Code Section 127.444.

Contrary to Condition No. 031, Section C of TVOP-23-00038, during 2013 DELCORA received 18,000 gallons of sludge (1.71 dry metric tons per year) from East Norriton-Plymouth Whitpain JSA. Sampling for this sludge generator did not take place during 2013 according to the schedule outlined in Condition No. 031. Failure to perform sampling is contrary to the aforementioned permit condition and it is a violation of 25 Pa. Code Section 127.444.

Per Condition No. 010, Source ID: C05, Section D of Plan Approval No. 23-0038E, detailed Standard Operating Procedures and Preventive Maintenance Schedules for the scrubber system are to be provided to the Department for review and approval within 60 days after completion of construction of the scrubber system or earlier. Construction was completed on July 25, 2014. Contrary to this condition, Air Quality did not receive these procedures/schedules within 60 days of completion of construction, which constitutes a violation of 25 Pa. Code Section 127.444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

I am requesting that you submit an abatement plan within 15 days of receiving this letter describing how you will prevent the sludge throughput exceedances from recurring.

As the daily site monitoring and sampling violations were reported to Air Quality, and corrective actions were included with the reports, I do not request a response from DELCORA regarding these violations.

Air Quality received Standard Operating Procedures and Preventive Maintenance Schedules for the B-4 Scrubber on February 13, 2015. Therefore, I do not request further action at this time from DELCORA regarding this violation.

This Notice of Violation is neither an order nor any other final action of the DEP. It neither imposes nor waives any enforcement action available to the DEP under any of its statutes. If the DEP determines that an enforcement action is appropriate, you will be notified of this action.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely,

Heather Henry

Air Quality Specialist Air Quality

cc: Mr. Stroble Mr. McLemore Mr. Rebarchak Mr. Harwick (via email) Delaware County Planning Department Enforcement File Re 30 (NM15) 049-01

2700-FM-AQ0023 Rev. 1/2008 pennsylvania		INSPECTIO	N RI	EPORT	Commonwealth of Pennsylvania Department of Environmental Protection Air Quality Program						
Date(s) of Inspection:     TV     PA       PA     SM     GP       PA     SM     M       PA     M		Permit #(s):	Expiratio	on Date: 2 10 1 18	Case #: PF ID #:						
Plant Name:		Municipality:	6.5	417/15	Cour	TALID - Plant Code #:	2				
WESTER PORT PL	jes-	100 6 6	674	ST.	-	13-71826	298-1				
Responsible Official:	_		Mailing	Address:	- 6	h					
Title:	-		11	ID E	2	ST					
PLUCIES CONTROL SPER. PO BOX 999											
Phone #(s):	(	(1.1.212)	Ċ	the star		PA 19016	- 0999				
Mark (X) All Inspection Types T	hat	Apply To This Ins	spectio	on:							
Full Compliance Evaluation (FCE)		Plan Approval Inspecti	on			File Review (FR)					
Operating Permit Inspection (PI)		Initial Permit Inspection	n (IPI)			Complaint Inspection (	CI)				
Routine/Partial (RTPT)		Follow-Up Inspection (	Ref. Date	:)		Sample Collection (SC	)				
Minor Source(s) Inspection (RFD)		Stack Test Observation	n			Multi-Media Inspection	(MM)				
Other:		Announced									
Annual Compliance Certification Received:	YE			Date Received	:	33120	14				
AIMS Report Received:	YE			Date Received	:	2 26 000	1				
Mark (X) All Activities That App	y:	1				1					
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Pre-Inspection Observations		Check For New/Unrepo	orted Sou	rces	Sample(s) Collected	lected					
Visible Emissions Observations		Verify Operation of CE	MS		Other						
Comments/Recommendations:	-1	E	nforcem	ent since last F	CE		, attach summary)				
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Compliance Status: In In Out	endi	ng 🗌 Awaiting Co. R	Report	Nee	ds a	Follow-Up Inspection?	Yes No				
Company Representative:	Title	e:		Signature:		9 #	Date:				
DANIEL WITTON	1	priess Contral		Daniel	med Duthon _ 2/3/D						
DEP Representative:	Title	atus s		Signature:	t	1th	Date/Time: 3.7				
This document is official notification that a representa inspection are shown above and on any attached p sample results or from any additional review of Depar	tive of ages, tment	f the Department of Environ and may include violations records. Notification will be	mental Pro uncovere forthcomin	tection, Air Quality F d during the inspec g, if such violations	Progra	m, inspected the identified /iolations may also be disc pted.	site. The findings of this covered upon review of				
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Mark (X) All Inspection Types That Apply To This Inspection:														
Full Compliance Evaluation (FCE)	Plan	Approval Inspecti	on			File Review (FR)								
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AIMS Report Received:	YES			Date Received	:									
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September 16, 2015

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Permit No. TVOP-23-00038 Air Quality Permit Violations Chester City Delaware County

Dear Mr. DiSantis:

On September 11, 2015, I completed a review of Delaware County Regional Water Quality Control Authority's (DELCORA) Western Regional Treatment Plant's semiannual PAL report for the January 1 through June 30, 2015 period. Based on my review of the report, I documented the following violations of the Department of Environmental Protection's (DEP) Air Quality Regulations:

Per Condition No. 007, Source 002: Sewage Sludge Incinerator 2, Section D of TVOP-23-00038, the dry solid feed to this incinerator is limited to 48 dry solid tons per day. Exceedances of this throughput limit occurred on June 5<sup>th</sup> (49.33 tons), June 7<sup>th</sup> (49.65 tons) and June 8<sup>th</sup> (53.56 tons). The exceedances are contrary to the aforementioned permit condition and constitute violations of 25 Pa. Code Section 127.444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

Sludge rate exceedances have occurred each year over the past four years. Earlier sludge rate exceedences in 2012 and 2013 were cited in a Notice of Violation dated June 20, 2013, and sludge rate exceedances in 2014 were cited in a Notice of Violation dated February 18, 2015. I am requesting that you send me a report within 15 days of receiving this letter in which you describe how DELCORA will prevent these violations from being repeated.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely, Heather Henry

Air Quality Specialist Air Quality

cc: Mr. Stroble Mr. McLemore Mr. Rebarchak Mr. Harwick (via email) Delaware County Planning Department Enforcement File RE (TDB15) 259-1





September 22, 2015

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Heather Henry Air Quality Specialist Air Quality Program PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401

> RE: Air Quality Permit Violations Chester City, Delaware County TVOP-23-00038 PADEP September 16, 2015 Correspondence

Dear Ms. Henry:

Please allow this letter to serve as DELCORA's response to the above referenced correspondence.

With regard to the Authority's plan to prevent further repeat of these exceedances, we will re-educate our staff on the use of the Standard Operating Procedure (SOP) to ensure that it is uniformly and consistently implemented. We understand the Department's concern in this matter and appreciate the patience shown while we work to resolve this issue.

Should any further information be required concerning this response, please contact me at 610-876-5523, ext. 264.

Respectfully Submitted,

Michael J. DiSantis Director of Operations and Maintenance

MJD:bab

 ADMINISTRATION
 CUSTOMER SERVICE/BILLING

 □610-876-5523
 □610-876-5526

 □FAX: 610-876-2728
 □FAX: 610-876-1460

PURCHASING & STORES 610-876-5523 FAX: 610-497-7959 PLANT & MAINTENANCE 1610-876-5523 FAX: 610-497-7950

R:\DEP\Violations\2015\PADEP-NOV-Air-dry solids feed exceedances-RESPONSE - 9-22-2015.doc

. Heather Henry PADEP September 22, 2015 page 2

- cc: W. Stroble, DEP K. McLemore, DEP J. Rebarchak, DEP Mr. Harwick, DEP Delaware County Planning Department File
- bc: R. Willert, DELCORA via email link E. Bothwell, DELCORA via email link D. Dutton, DELCORA via email link



September 16, 2015

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Permit No. TVOP-23-00038 Air Quality Permit Violations Chester City Delaware County

Dear Mr. DiSantis:

On September 11, 2015, I completed a review of Delaware County Regional Water Quality Control Authority's (DELCORA) Western Regional Treatment Plant's semiannual PAL report for the January 1 through June 30, 2015 period. Based on my review of the report, I documented the following violations of the Department of Environmental Protection's (DEP) Air Quality Regulations:

Per Condition No. 007, Source 002: Sewage Sludge Incinerator 2, Section D of TVOP-23-00038, the dry solid feed to this incinerator is limited to 48 dry solid tons per day. Exceedances of this throughput limit occurred on June 5<sup>th</sup> (49.33 tons), June 7<sup>th</sup> (49.65 tons) and June 8<sup>th</sup> (53.56 tons). The exceedances are contrary to the aforementioned permit condition and constitute violations of 25 Pa. Code Section 127.444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

Sludge rate exceedances have occurred each year over the past four years. Earlier sludge rate exceedences in 2012 and 2013 were cited in a Notice of Violation dated June 20, 2013, and sludge rate exceedances in 2014 were cited in a Notice of Violation dated February 18, 2015. I am requesting that you send me a report within 15 days of receiving this letter in which you describe how DELCORA will prevent these violations from being repeated.

Scanned to server emailed to MJD bab This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely, Heather Henry

Air Quality Specialist Air Quality

cc: Mr. Stroble Mr. McLemore Mr. Rebarchak Mr. Harwick (via email) Delaware County Planning Department Enforcement File RE (TDB15) 259-1



June 7, 2016

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 East 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Mile Blanks TRATS BY 2016-0674 CC: KJW MJB EAB.

Re: Operating Permit No. TVOP-23-00038 Air Quality Permit Violations Chester City Delaware County

Dear Mr. DiSantis:

On June 3, 2016, I completed a review of Delaware County Regional Water Quality Control Authority's (DELCORA) Western Regional Treatment Plant's TVOP compliance certification for 2015. Based on my review of the report, I documented the following violations of the Department of Environmental Protection's (DEP) Air Quality Regulations:

Contrary to Condition No. 031, Section C of TVOP-23-00038, during 2015 DELCORA received sludge from Aberdeen Proving Grounds WWTP, Ambler Borough, Maryland and Virginia Milk, Puratos, Riverside, and Upper Gwynedd. Sampling for these six sludge generators did not take place during 2015 according to the schedule outlined in Condition No. 031. Failure to perform sampling according to the aforementioned permit condition is a violation of 25 Pa. Code Section 127.444.

Contrary to Condition 005(a)(2), Section D of PA-23-0038E, the B-4 Scrubber irrigation water flow rate was not monitored on 47 days during 2015. Failure to perform daily monitoring of the flow rate is a violation of 25 Pa. Code Section 127.444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

As corrective actions were included in the TVOP compliance certification, I do not request a response from DELCORA at this time.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely,

Heather Henry

Air Quality Specialist Air Quality

cc: Mr. Stroble Mr. McLemore Mr. Rebarchak Mr. Harwick (via email) Delaware County Planning Department Enforcement File Re 30 (NM16) 158-01



September 8, 2016

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Air Quality Permit Violations Chester City Delaware County TVOP-23-00038

Dear Mr. DiSantis:

On August 26, 2016 I conducted an inspection at Delaware County Regional Water Quality Control Authority (DELCORA) in response to an odor complaint received by the Department of Environmental Protection's (DEP) on August 25, 2016. On August 29, 2016 I had spoken with you and obtained additional information. Based on my investigative findings, I documented the following violations of DEP Air Quality Regulations:

On August 23, 2016 the bioscrubber – PA-23-0038E Source ID 05: Sludge Holding Tanks and Bldg B-4 Scrubber – went down due to a broken pipe. The bioscrubber was down from August 23, 2016 to August 25, 2016. DELCORA did not provide an initial notification to DEP Air Quality regarding the scrubber going down on August 23, 2016, nor did it provide a follow-up report per Conditions 025(a), (b) and (c), Section C of TVOP-23-00038. These are violations of 25 Pa. Code Section 127,444.

While the scrubber was down, the lid on T-23 tank in the B-4 Building was removed for maintenance. Exhaust fans to the scrubber were left in the on position while the scrubber was down and the lid was off, which resulted in the air not being scrubbered and malodor in the outdoor atmosphere on August 25, 2016. I do not consider it good maintenance practice to leave exhaust fans leading to the scrubber in the on position while this control device is not operating and the T-23 tank is in the open position, as without control malodor in the outdoor atmosphere is highly likely. This is contrary to Condition No. 033, Section C of TVOP-23-00038, which states, "The permittee shall ensure that the air cleaning devices and sources, listed in Section A, of this Permit, are operated and maintained in a manner consistent with good operating and maintenance practices to control and minimize malodor...." Therefore, I consider it a violation of 25 Pa. Code Section 127.444.

BY: 2016-1062 CE: MJD CE: MJD CE: MJD CE: MJD CELAJ LENTON Dutton

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

Within 15 days of receiving this Notice of Violation, I request that DELCORA provide me with a follow-up report regarding the broken pipe incident at the scrubber. I request that the report describe the malfunction(s), including the root cause(s) of the broken pipe, the emission(s), the duration, and all corrective action(s) taken.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely.

Heather Henry Air Quality Specialist Air Quality

cc: Mr. Stroble Mr. McLemore Mr. Rebarchak <u>ra-epaircompliance@pa.gov</u> Delaware County Planning Department Enforcement File Re 30 (NM16) 251-02



September 19, 2016

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Heather Henry Air Quality Specialist Air Quality Program PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401

> RE: Air Quality Permit Violations Chester City, Delaware County TVOP-23-00038 PADEP NOV - September 8, 2016 Correspondence

Dear Ms. Henry:

Please allow this letter to serve as DELCORA's response to the above referenced correspondence.

With regard to the maintenance issues on the Sludge Holding Tanks and Building B-4 Scrubber (Biotower), the following occurred. On 7/23/2016, the line feeding the water spray system cracked. A repair was made that day and after the curing period for the repair, was placed back into service on 7/24/2016. On 7/25/2016, the ball valves that automatically operate the spray system were determined to have also failed. This was not readily apparent as the valve operators opened and closed as required (the system cycles on for 3 minutes then is off for 10 minutes); however, the spray water was not reaching the biotower which was determined by monitoring the flow meter to the spray system. The valves were replaced on 7/25/2016 which then allowed the system to again be fully functional. The failures were the result of excessive vibration caused by high water pressure to the unit combined with the intermittent operation of the spray system. As for corrective actions in addition to the repairs, we have revised the water supply piping to reduce pressure and vibration on the system and have installed a check valve on the nutrient feed to the spray system to prevent back feed from the spray system. Lastly, we have revised our procedure for maintenance issue notification to ensure that the Department receives proper notification of maintenance activity as required.

As a clarification, the fan for the biotower was never out of service during this incident. The biotower continued to operate without the intermittent spray system in service. Attached are the  $H_2S$  readings during the period the spray system was out of service. These readings indicate that despite the maintenance issues, the unit was working; we

ADMINISTRATION 610-876-5523 FAX: 610-876-2728 PURCHASING & STORES 1610-876-5523 FAX: 610-497-7959

PLANT & MAINTENANCE 610-876-5523 FAX: 610-497-7950

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Heather Henry PADEP September 19, 2016 page 2

were just not scrubbing all of the odorous sources due to Tank T-23's lid being removed. During the time that the lid on Tank T-23 was removed, the damper for the air withdrawal to the biotower was closed so the biotower was only pulling odorous air from the sludge holding tanks. The fan that was left running was the building B-4 exhaust fan. With the lid removed from Tank T-23 and no scrubbing of the odorous air from the building, the odorous air was exhausted to the atmosphere untreated. While we recognize the odor issue and resulting complaints, we respectfully disagree that we were in violation of Condition N. 033, Section C of the TVOP. Moving forward, we have put a policy in place to address the operation of Building B-4's exhaust fan that will prevent recurrence of this issue.

Should any further information be required concerning this response, please contact me at 610-876-5523, ext. 264.

Respectfully Submitted.

Michael J. DiSantis Director of Operations and Maintenance

MJD:bab attachment

cc: J. Rebarchak, DEP W. Stroble, DEP K. McLemore, DEP Delaware County Planning Department R. Willert, DELCORA via email link E. Bothwell, DELCORA via email link D. Dutton, DELCORA via email link File

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#### DATA RECORDING SHEET ECOFILTER EF1262 SYSTEM

BioAir Solutions, LLC 110 Kresson-Gibbsboio Rd Suite 303 Voorhees NJ 08043 Phone (856) 258-6969 Fax (856) 258-6975 service@bioarsolutring cum

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#### DATA RECORDING SHEET ECOFILTER EF1262 SYSTEM

BioAlr Solutions, LLC 110 Kresson-Gibbsboro Rd. Suite 303 Voorhees, NJ 08043 Phone (856) 258-8969 Fax (856) 258-8975 senorest beautsolutons.com

			1	UTIUTY BRAIN PH WATER FLOW WATER USE H2S IRRIGATION SETTINGS															
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September 8, 2016

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Air Quality Permit Violations Chester City Delaware County TVOP-23-00038

Dear Mr. DiSantis:

On August 26, 2016 I conducted an inspection at Delaware County Regional Water Quality Control Authority (DELCORA) in response to an odor complaint received by the Department of Environmental Protection's (DEP) on August 25, 2016. On August 29, 2016 I had spoken with you and obtained additional information. Based on my investigative findings, I documented the following violations of DEP Air Quality Regulations:

On August 23, 2016 the bioscrubber – PA-23-0038E Source ID 05: Sludge Holding Tanks and Bldg B-4 Scrubber – went down due to a broken pipe. The bioscrubber was down from August 23, 2016 to August 25, 2016. DELCORA did not provide an initial notification to DEP Air Quality regarding the scrubber going down on August 23, 2016, nor did it provide a follow-up report per Conditions 025(a), (b) and (c), Section C of TVOP-23-00038. These are violations of 25 Pa. Code Section 127,444.

While the scrubber was down, the lid on T-23 tank in the B-4 Building was removed for maintenance. Exhaust fans to the scrubber were left in the on position while the scrubber was down and the lid was off, which resulted in the air not being scrubbered and malodor in the outdoor atmosphere on August 25, 2016. I do not consider it good maintenance practice to leave exhaust fans leading to the scrubber in the on position while this control device is not operating and the T-23 tank is in the open position, as without control malodor in the outdoor atmosphere is highly likely. This is contrary to Condition No. 033, Section C of TVOP-23-00038, which states, "The permittee shall ensure that the air cleaning devices and sources, listed in Section A, of this Permit, are operated and maintained in a manner consistent with good operating and maintenance practices to control and minimize malodor...." Therefore, I consider it a violation of 25 Pa. Code Section 127.444.

BY: 2016-1062 CE: MJD CE: MJD CE: MJD CE: MJD CELAJ LENTON Dutton

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

Within 15 days of receiving this Notice of Violation, I request that DELCORA provide me with a follow-up report regarding the broken pipe incident at the scrubber. I request that the report describe the malfunction(s), including the root cause(s) of the broken pipe, the emission(s), the duration, and all corrective action(s) taken.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely.

Heather Henry Air Quality Specialist Air Quality

cc: Mr. Stroble Mr. McLemore Mr. Rebarchak <u>ra-epaircompliance@pa.gov</u> Delaware County Planning Department Enforcement File Re 30 (NM16) 251-02



March 6, 2017

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Incinerator No. 1 Plan Approval Violations Plan Approval No. 23-0038F Chester City Delaware County

Dear Mr. DiSantis:

On August 17-19, 2016, Delaware County Regional Water Control Authority (DELCORA) performed source testing of Sewage Sludge Incinerator No. 1 (Source: 001) while operating on WESP and RTO control train No. 2. I completed a compliance review of the results on March 2, 2017, and I identified the following violations:

The HCl (EPA Method 26A) emissions measured at the stack outlet were 1.4 ppmvd @ 7% O<sub>2</sub>. Under PA-23-0038F, Condition No. 003(a)(4), Source 001, Section D, the emission limit is 1.2 ppmvd @ 7% O<sub>2</sub>. The exceedance of the HCl emission limit is a violation of 25 Pa. Code Section 127.444.

PA-23-0038F, Section D, Condition No. 008(e) for Source 001: Sewage Sludge Incinerator No. 1 requires that within 60 days after completion of source testing, copies of the complete test report be submitted to the Department of Environmental Protection (DEP), Southeast Regional Office (SERO). SERO received the test report on February 1, 2017. Failure to provide the test report to DEP within 60 days of completion of source testing is a violation of 25 Pa. Code Section 127.444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.



cc: C. Hurst, B. Karch D. Dutton, E. Bothwell, I. Piro, M. Sweeney, Stan Chilson-GHD

RE: Secondary Combustion Chamber-Wet Scrubber This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

As corrective actions were discussed with Ms. Tina Vogler of Air Quality Permitting and retests were performed the week of February 20, 2017, I do not request a response to this Notice of Violation from DELCORA at this time.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely, Heather Henry

Air Quality Specialist Air Quality

cc: Mr. McLemore Mr. Stroble Mr. Rebarchak <u>ra-epaircompliance@pa.gov</u> Delaware County Planning Department Enforcement File Re 30 (NM17) 062-01



Duttor

June 28, 2017

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Operating Permit No. TVOP-23-00038 TVOP Violations City of Chester Delaware County

Dear Mr. DiSantis:

On June 14 and 15, 2017, I performed a compliance inspection of the Delaware County Regional Water Control Authority (DELCORA) air emission sources. I identified the following violation of the Department of Environmental Protection's (DEP) Air Pollution Rules and Regulations:

Contrary to TVOP Section D, Source C04: Belt Filter Press Room Process Scrubber of TVOP, Condition No. 009(b)(6), following a scrubber media change out on or about January 31, 2016, records show that the pressure drop across the scrubber was below the permitted range (6.0-9.5) from February 2016 through June 14, 2017. I had recorded a pressure drop of 5.37 in. w.g. on June 14, 2017. This is a violation of 25 Pa. Code Section 127.444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

I request that DELCORA provide me with an abatement plan as to how the violation will be corrected within 15 days of receiving this Notice of Violation.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely, 0 -h

Heather Henry Air Quality Specialist Air Quality

cc: Mr. McLemore Operations Chief Mr. Rebarchak <u>ra-epaircompliance@pa.gov</u> Delaware County Planning Department Enforcement File Re 30 (NM17) 178-07 DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY P.O. Box 999 • Chester, PA 19016-0999



July 12, 2017

FED EX - NEXT DAY

Heather Henry Air Quality Specialist Air Quality Program PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401-4915

> RE: Air Quality Permit Violations Chester City, Delaware County TVOP-23-00038 PADEP June 28, 2017 Correspondence

Dear Ms. Henry:

Please allow this letter to serve as DELCORA's response to the above referenced correspondence.

In regards to the recorded pressure drop data for the Belt Filter Press Process Scrubber on January 31, 2016, DELCORA maintenance staff completed a total change out of the media in this unit. The media installed was the same type as was removed. Additionally, as part of the media change out, a complete cleaning of the scrubber including a steam cleaning of the inside of the vessel, not just an acid wash of the media, was performed. Following this event, the base line pressure drop was 4.7 inches w.g. We also saw a marked increase in air flow through the unit. We attributed the lower pressure drop to media being new (the removed media had broken down and was compacting, creating more pressure drop and reduced air flow), as well as the unit being completely clean. For on-going maintenance of the unit, when the pressure drop is 1.0 inches greater than the base line, we then initiate an acid wash. After an acid wash, we establish a new base line, then continue to perform subsequent acid washes when there is a 1.0 inches or greater change.

We recognize and acknowledge that the permit language states a specific range for the pressure drop and that our current readings are not in the specified range. However, we can provide documentation that all other parameters for the scrubber remain in compliance and the unit is removing the required pollutants. We respectfully request a meeting with the Department to determine the path forward in resolving this issue as we value our compliance record and are committed to environmental compliance.

 ADMINISTRATION
 CUSTOMER SERVICE/BILLING

 □610-876-5523
 □610-876-5526

 □FAX: 610-876-2728
 □FAX: 610-876-1460

 R:\DEP\Violations\2017\PADEP-NOV-Air Emission Violation - Response -7-12-2017 rev. MJD.doc

PURCHASING & STORES 610-876-5523 FAX: 610-497-7959 PLANT & MAINTENANCE [610-876-5523 FAX: 610-497-7950 Heather Henry PADEP July 12, 2017 page 2

Thank you for your consideration in this matter. Should any further information be required concerning this response, please contact me at 610-876-5523, ext. 264.

Respectfully Submitted,

Michael J. DiSantis Director of Operations and Maintenance

MJD:bab

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cc: J. Rebarchak, PADEP K. McLemore, PADEP Operations Chief, PADEP <u>ra-epaircompliance@pa.gov</u> via email Delaware County Planning Department R. Willert, DELCORA via email link C. Hurst, DELCORA via email link D. Dutton, DELCORA via email link File



June 28, 2017

(C: STAFF Dutton

Mr. Michael J, DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Operating Permit No. TVOP-23-00038 TVOP Violations City of Chester Delaware County

1

Dear Mr. DiSantis:

On June 14 and 15, 2017, I performed a compliance inspection of the Delaware County Regional Water Control Authority (DELCORA) air emission sources. I identified the following violation of the Department of Environmental Protection's (DEP) Air Pollution Rules and Regulations:

Contrary to TVOP Section D, Source C04: Belt Filter Press Room Process Scrubber of TVOP, Condition No. 009(b)(6), following a scrubber media change out on or about January 31, 2016, records show that the pressure drop across the scrubber was below the permitted range (6.0-9.5) from February 2016 through June 14, 2017. I had recorded a pressure drop of 5.37 in. w.g. on June 14, 2017. This is a violation of 25 Pa. Code Section 127,444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

I request that DELCORA provide me with an abatement plan as to how the violation will be corrected within 15 days of receiving this Notice of Violation.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely, C .....

Heather Henry Air Quality Specialist Air Quality

cc: Mr. McLemore Operations Chief Mr. Rebarchak ra-epaircompliance@pa.gov Delaware County Planning Department Enforcement File Re 30 (NM17) 178-07

## DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY P.O. Box 999 • Chester, PA 19016-0999



September 22, 2017

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Kevin McLemore Air Quality District Supervisor **Delaware & Chester Counties** Bureau of Air Quality PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401

> RE: Western Regional Treatment Plant June 14th and 15th, 2017 Inspection Report

Dear Mr. McLemore:

DELCORA has received and reviewed the inspection report dated June 29th, 2017 that details observations and recommendations resulting from the inspection Heather Henry conducted at our Western Regional Treatment Plant. We have two clarifications to be made regarding the Process Description. On page 2, paragraph 4, the second to last sentence should read, "The wet scrubbing system consisted of a quench stage (pre-cooler) to initially cool the gases, a packed-bed stage (sub-cooler) to further condense, and a multiple-venturi stage (Ringjet control venturi) for added particulate matter removal." Several references are made within the report to operating the Incinerators using fuel oil, however, DELCORA no longer uses fuel oil for this application as we now solely use natural gas for this.

DELCORA's response to the actionable observations included within this report are as follows:

- 1. Page 9, Observations #2 DELCORA has contracted GHD to complete updated dispersion modelling reflecting the new incineration system. Using the factors from this modelling, we will complete these calculations and submit them to DEP. DELCORA requests that DEP grant an extension to November 30th, 2017 to submit these calculations.
- 2. Page 11, Observations #1 DELCORA will use the emission factors derived from the performance tests conducted on Incinerator 1 in August 2016 and on Incinerator 2 in February 2017 for all emissions calculations since the upgrades were completed for each unit.
- 3. Page 14, Observations #1 DELCORA conducted the annual testing of Incinerator 1 on August 15th and 16th and of Incinerator 2 on August 23rd and 24th. Test result reports are currently being prepared for submission to DEP.
- 4. Page 15, Observations #1 DELCORA submitted to DEP the 12-hour block averages for the referenced parameters on July 27th, 2017.
- 5. Page 16, Observations #1 Same as Response #4.

ADMINISTRATION 610-876-5523

CUSTOMER SERVICE/BILLING PURCHASING & STORES 610-876-5526 □ FAX: 610-876-2728 □ FAX: 610-876-1460

610-876-5523 FAX: 610-497-7959

**PLANT & MAINTENANCE** 610-876-5523 FAX: 610-497-7950

Kevin McLemore PADEP September 22, 2017 page 2

- Page 18, Observations #1 Same as Response #4.
- 7. Page 19, Observations #1 Same as Response #2.
- 8. Page 28, Observations #1 The media within the Belt Filter Press Room Process Scrubber was thoroughly cleaned and partially replaced on January 31<sup>st</sup>, 2016 leading to the pressure drop across the scrubber being below the current operating limit defined in this permit. Operating at a lower pressure drop increases the efficiency of the associated equipment and does not negatively impact scrubber emission quality. As indicated in the manufacturer's design drawings, the design pressure drop is 5.5 inches water gauge at 12,000 ACFM and DELCORA intends to lower the operating range to 4.2 to 6.7 inches water gauge to more closely match the design conditions. At DEP's direction, a minor permit modification requesting this change was submitted to James Rebarchak of DEP on August 11<sup>th</sup>, 2017. DELCORA received Mr. Rebarchak's response, dated August 25<sup>th</sup>, 2017, that a minor permit modification can no longer address this request as a Notice of Violation has been issued regarding this parameter. He directed that a plan approval application will be required to process this request. DELCORA is preparing this application and will be submitting it to DEP in short order.
- 9. Page 29, Observations #1 Same as Response #8.

Please review the above responses and let us know if you have any questions regarding them or any other items pertaining to the inspection report at this time. DELCORA will continue to proceed as detailed in these responses barring further guidance from the Department. Thank you for your consideration.

Sincerely,

Michael J. DiSantis Director of Operations & Maintenance

#### MJD:bab

cc: H. Henry, PA DEP
R. Willert, DELCORA via email link
C. Hurst, DELCORA via email link
D. Dutton, DELCORA via email link
B. Karch, DELCORA via email link
I. Piro, DELCORA via email link
M. Sweeney, DELCORA via email link
Stan Chilson, GHD, pdf via email
File
DEPARTMENT OF ENVIRONMENTAL PROTECTION	Inspection Report Heather Henry June 29, 2017		SOUTHEAST REGIONAL OFFICE AIR QUALITY PROGRAM
Date(s) of Inspection:	Inspection Type:		Federal ID: eFACTS PF ID:
June 14 & 15, 2017	Full Compliance Inspection		23-7182698-1 482687
Company Name:	Municipality:		County:
DELCORA	Chester City		Delaware
Plant Name:	Physical Location:		eFACTS Inspection ID:
Western Regional Treatment Plant	100 East 5 <sup>th</sup> Street		2604644, 2604651
Responsible Official:		Mailing Address:	
Michael DiSantis, Director of Operations and Maintenance, 610-		100 East 5 <sup>th</sup> Street	
876-5523 (ext. 264)		DO Box 000	
Dan Dutton, Process Control Specialist: 610-876-5523 (ext, 212)			
		Chester, PA 19016-0999	
Send Final Inspection Report to:			
disantism@delcora.org			

## Recommendations

Based on my observations during the inspection and review of required records, I recommend that the Department consider DELCORA to be out-of-compliance for the following reasons:

• Contrary to TVOP Section D, Source C04: Belt Filter Press Room Process Scrubber of TVOP, Condition No. 009(b)(6), the scrubber was operated with a pressure drop below the permitted range (6.0-9.5) from January 2016 through June 14, 2017. This is a violation of 25 Pa. Code Section 127.444.

I recommend the issuance of a Notice of Violation.

On-Site Permits	Source(s)	Type (status)	Effective	Expires
TVOP-23-00038	Facility Wide	Active (Modification)	6/26/2014	2/21/2018
PA-23-0038F	Installation of control trains	Active	4/1/2015	10/1/2016
	on Incinerator Nos. 1 & 2 and			
	remove afterburner function			
	from incinerators' upper			
	hearth and relocate it			
	downstream at the RTO			

## **Facility Description**

## Process Description

DELCORA, Western Regional Treatment Plant receives municipal and industrial waste through the county sewer system and by tanker truck. Three main sewer lines feed DELCORA: an in-plant pump station (residential and industrial waste), Kimberly Clark and Chester Pumping Station (residential and small business waste), and the Marcus Hook Industrial Complex and Marcus Hook Pumping Station (residential and small business waste). The solids portion of the waste is separated and incinerated. The wastewater is treated and discharged directly into the Delaware River.

Wastewater is pumped and sludge is skimmed through various processes involving the following: grit removal, primary settling and skimming, aeration, secondary clarification, and dissolved air flotation. VOCs are generated during the wastewater treatment process. Further emissions are generated during sludge treatment via dewatering, incineration and odor control.

Once sludge from the primary treatment process and outside deliveries (tankers) is sent to the sludge mix/holding tanks, it is pumped to the belt filter press for dewatering. Water is "squeezed" out and the remaining sludge cake is sent via conveyor to the incinerators.

Odors are controlled via two scrubbers: One – a bio trickling scrubber – controls odors from the sludge holding tanks and the B-4 grease processing and sludge thickening building, and the other – a packed bed scrubber – controls odors from the belt filter press room. Air is pulled through the enclosed tanks, ductwork or room and a slight negative pressure is maintained to contain odorous gases. In the case of the packed bed scrubber, a recycling solution of chlorine, caustic and water is pumped to the top of the scrubber tower. This solution trickles down and removes the upward flowing gases, such as hydrogen sulfide. The bio trickling scrubber utilizes bacteria to digest the hydrogen sulfide and other odorous compounds from the effluent vapors.

Two separate, but identical incinerators handle the sludge cake. Sludge enters the incinerators through the first hearth. Rabble arms push the sludge cake across each hearth. When the sludge reaches the edge of one hearth, it drops down to the next. This process continues through the hearths. Ash cools in the last couple of hearths. A variable-frequency drive (VFD) fan modulates the draft in the furnace to keep it at negative pressure.

Multiple control devices are installed for pollution control. Exhaust leaving each incinerator first enters a wet scrubbing system to remove HCl and other particulates. The wet scrubbing systems are not interchangeable between incinerators. The scrubbing systems consist of a quench section to initially cool gases, a single adjustable throat venturi (RingJet control venturi) and a packed bed scrubber. Packing media is made of stainless steel. Two fans ensure a negative pull on the gases from the scrubbing system.

From the scrubbing system, gases enter one of two wet electrostatic precipitator/regenerative thermal oxidizer (WESP/RTO) trains. Gases entering the WESP, first pass through a demister section. The WESPs remove submicron particles that can escape the wet scrubbing system and accumulate in the RTOs' heat absorption media. From the WESP, gases enter the RTO. The WESPs control PM and the RTOs control VOC, total hydrocarbons (THC), malodorous compounds, visible emissions and carbon monoxide. WESP/RTO control train 1 and WESP/RTO control train 2 are interchangeable between the incinerators. A butterfly valve allows gases to bypass the WESPs and RTOs. The butterfly valve is to be closed when sludge is fed to the incinerators. Bypass stacks accompany each incinerator. Equipment failures can trigger bypass conditions.

Sludge incineration is a continuous process that uses natural gas, although DELCORA is permitted to use No. 2 fuel oil. Ash is piped to two outdoor storage silos and transported off site.

CEMS are installed and continuously monitor oxygen, moisture and total hydrocarbons (THC). The CEMS are not state certified.

A trailer mounted Godwin 320 hp (350 kW) diesel generator, engine model No. 6135HF485 is stored on site next to Pump Station EPS-1. It is used at various DELCORA pump stations for emergency purposes. It is also used at the Western Regional Treatment Plant.

Four No. 2 fuel oil fired boilers supply steam for building heat only.

#### Site Access and Safety Information

All visitors to DELCORA sign in at the Administrative Building. Required personal protective equipment includes hard hat, steel toed boots, safety glasses, and ear plugs.

## Processes

## **TVOP Source List**

SF ID	Source	Fuel	Control
030	No. 2 Fuel Oil Fired Boilers (4 Total)	No. 2 fuel oil	
	<ul> <li>Two 1.02 MMBtu/hr boilers</li> </ul>		
	located in Building B-2		
	<ul> <li>Two 1.34 MMBtu/hr boilers</li> </ul>		
	located in Building B-3		
001	Sewage Sludge Incinerator No. 1	Natural gas, or	C01: Venturi and Impingement Tray
		No. 2 fuel oil	Scrubber 1
002	Sewage Sludge Incinerator No. 2	Natural gas, or	C02: Venturi and Impingement Tray
		No. 2 fuel oil	Scrubber 2
110	Wastewater Treatment Process		
111	4-250,000 Gal Sludge Holding Tanks		C05: Sludge Holding Tanks & Building
			C-4 Scrubber
500	Miscellaneous VOC Sources		
			C04: Belt Filter Press Room Process
			Scrubber

## Plan Approval 23-0038F Source List

SF ID	Source	Control
001	Sewage Sludge Incinerator No. 1	C06: Quench & Multi-Venturi Scrubber SSI 001
		C10: Wet Electrostatic Precipitator SSI 001
		C12: Regenerative Thermal Oxidizer SSI 001
002	Sewage Sludge Incinerator No. 2	C07: Quench & Multi-Venturi Scrubber SSI 002
		C11: Wet Electrostatic Precipitator SSI 002
		C13: Regenerative Thermal Oxidizer SSI 002

## **Pre-Inspection Activities**

Date of Last Compliance Inspection

February 3 and 4, 2015

File Review

Enforcement Since Last Full Compliance Inspection

Since the time of the last full compliance inspection, DELCORA has been in violation of the following regulations for the following reasons.

### February 18, 2015 NOV

Violations of 25 Pa. Code Section 127.444:

• Contrary to Condition No. 007, Sources 001 and 002: Sewage Sludge Incinerator 1 and 2, Section D of TVOP-23-00038, the 48 tons per day dry solids feed limit was exceeded on 7 days during February through October 2014.

- Contrary to Condition No. 022, Section C of TVOP-23-00038, daily site monitoring was not conducted on 10 days during 2013-2014.
- Contrary to Condition No. 031, Section C of TVOP-23-00038, during 2013 DELCORA received 18,000 gallons of sludge (1.71 dry metric tons per year) from East Norriton-Plymouth Whitpain JSA. Sampling for this sludge generator did not take place during 2013 according to the schedule outlined in Condition No. 031.
- Contrary to Condition No. 010, Source ID: C05, Section D of Plan Approval No. 23-0038E, detailed Standard Operating Procedures and Preventive Maintenance Schedules for the bio scrubber were not provided to the Department for review and approval within 60 days after completion of construction of the scrubbing system.

## September 16, 2015 NOV

Violations of 25 Pa. Code Section 127.444:

• Contrary to Condition No. 007, Sources 002: Sewage Sludge Incinerator No. 2, Section D of TVOP-23-00038, the 48 tons per day dry solids feed limit was exceeded on 3 days in June 2015.

## June 7, 2016 NOV

Violations of 25 Pa. Code Section 127.444:

- Contrary to Condition No. 031, Section C of TVOP-23-00038, during 2015 DELCORA received sludge from Aberdeen Proving Grounds WWTP, Ambler Borough, Maryland and Virginia Milk, Puratos, Riverside and Upper Gwynedd. Sampling for the 6 sludge generators did not take place during 2015 according to the schedule outlined in Condition No. 031.
- Contrary to Condition 005(a)(2), Section D of PA-23-0038E, the B-4 Scrubber irrigation water flow rate was not monitored on 47 days during 2015.

### September 8, 2016 NOV

Violations of 25 Pa. Code Section 127.444:

 On August 23, 2016 the bio scrubber – PA-23-0038E Source ID 05: Sludge Holding Tanks and Bldg B-4 Scrubber – went down due to a broken pipe. The bio scrubber was down from August 23, 2016 to August 25, 2016. While the scrubber was down, the lid on T-23 tank in the B-4 Building was removed for maintenance. Exhaust fans to the scrubber were left in the on position while the lid was off, which resulted in the air not being scrubbed and malodor in the outdoor atmosphere on August 25, 2016. DELCORA did not provide an initial notification to DEP Air Quality regarding the scrubber going down on August 23, 2016, it did not provide a follow-up report per Conditions 025(a), (b) and (c), Section C of TVOP-23-00038, nor did it ensure the air cleaning devices and sources were maintained and operated in a manner consistent with good operating and maintenance practices to control and minimize malodor per Condition No. 033, Section C of TVOP-23-00038.

## March 6, 2017 NOV

Violations of 25 Pa. Code Section 127.444:

- On August 17-19, 2016, DELCORA performed source testing of Incinerator No. 1 while operating on WESP and RTO control train No. 2. The HCl (EPA Method 26A) emissions measured at the stack outlet were 1.4 ppmvd @ 7% O<sub>2</sub>. Under PA-23-0038F, Condition No. 003(a)(4), Source 001, Section D, the emission limit is 1.2 ppmvd @ 7% O<sub>2</sub>.
- Contrary to PA-23-0038F, Section D, Condition No. 008(e) for Source 001, the Department received the test report on February 1, 2017, over 60 days following completion of testing on August 19, 2016.

In all instances abatement plans were provided to the Department and presumably the corrective measures were implemented. Enforcement action has been taken by the Department. A Consent Assessment of Civil Penalty

(CACP) was executed on December 30, 2015 and a \$6,270.00 penalty was collected regarding the violations documented in the February 2015 NOV. A CACP was executed on June 27, 2016 and a \$3,900 penalty was collected regarding the violations documented in the September 2015 NOV. This CACP included CEMS related violations. A CACP was executed on March 2, 2017 and a \$9,900 penalty was collected regarding the violations documented in the June 2016 NOV. This CACP included CEMS related violations. Violations documented in the September 2016 NOV. This CACP included CEMS related violations. Violations documented in the September 2016 NOV were referred for enforcement action, but action has not yet been taken by the Department to date.

Retesting of Incinerator No. 1 for HCl while operating on WESP and RTO control train 2 took place on February 24, 2017. A preliminary review shows passing results. As of the writing of this inspection report, the retest stack test report has not been reviewed by PA DEP Stack Testing Section.

Since the time of the last full compliance inspection, 4<sup>th</sup> Quarter 2014 through 3<sup>rd</sup> Quarter 2016 CEMS reports have been processed and as stated above there have been CEMS penalties associated with Hearth 1 continuous temperature monitoring requirements. The requirement to continuously monitor Hearth 1 temperature ended in 3<sup>rd</sup> Quarter 2016 with completion of modifications to the incinerators and installation of new controls.

### Recent Emission Inventory Submission (Section C, Condition No. 026)

The 2016 Emission Inventory Production Report was received on February 28, 2017. I reviewed the report and accepted it on March 27, 2017.

#### Status of Continuous Emission Monitors

CEMS are installed and continuously monitor oxygen (pre- and post-control), moisture and total hydrocarbons (THC). The CEMS are not state certified.

#### Applicable MACT/NESHAP and NSPS

40 CFR Part 60, Subpart O: Sewage treatment plant NSPS

40 CFR Part 60, Subpart MMMM: Emissions Guidelines and Compliance Times for Existing Sewage Sludge Incinerator Units 40 CFR Part 60, Subpart LLL: Standards of Performance for New Sewage Sludge Incinerator Units

40 CFR Part 61, Subpart C: Beryllium NESHAP

40 CFR Part 61, Subpart E: Mercury NESHAP

#### MACT/NESHAP, NSPS and Other Required Reports

All TVOP reporting requirements have been satisfied since the time of my last compliance inspection. Annual oxygen exhaust gas correlation is included with the 2015 and 2016 annual compliance certifications. The following reports were received on the following dates. All reports have been reviewed under separate cover.

• Semiannual Plantwide Applicability Limit (PAL) report

Report	Date Received
January 1 through June 30, 2015	7/24/2015
July 1 through December 31, 2015	1/27/2015
January 1 through June 30, 2016	7/26/2016
July 1 through December 31, 2016	1/26/2017

- Annual sewage sludge metals report to EPA and Department by February 19 of each year
- Annual monthly average THC in exit gas report by February 19 of each year

Report	Date Received
2015	2/16/2016
2016	2/21/2017

• 40 CFR Part 60.155, Subpart O semiannual report

Report	Date Received
January 1 through June 30, 2015	7/24/2015
July 1 through December 31, 2015	1/27/2016
January 1 through June 30, 2016	7/26/2016
July 1 through December 31, 2016	1/30/2017

• Quarterly reports of all instances of scheduled and unscheduled preventive and corrective maintenance on scrubbers

Report	Date Received
1 <sup>st</sup> Qrtr 2015	4/13/2015
2 <sup>nd</sup>	7/15/2015
3 <sup>rd</sup>	10/19/2015
4 <sup>th</sup>	1/15/2016
1 <sup>st</sup> Qrtr 2016	4/14/2016
2 <sup>nd</sup>	7/18/2016
3 <sup>rd</sup>	10/17/2016
4 <sup>th</sup>	1/19/2017
1 <sup>st</sup> Qrtr 2017	4/24/2017

Annual TVOP Compliance Certification and Semi-Annual Deviation Reports (Section C, Condition No. 023)

Туре	Period Covered	Date Received	Due Date		
2014 Annual	1/1/14-12/31/14	3/26/15	4/1/15		
Summary: Significant devia	ations noted were documented	during February 2015 full co	mpliance inspection.		
February 18, 2015 NOV fol	lowed.				
2015 Annual	1/1/15-12/31/15	3/28/16	4/1/16		
Summary: 6 instances of m	Summary: 6 instances of missed sludge hauler sampling contrary to Condition No. 031(b), Section C of the				
TVOP, and 47 instances of no B-4 Scrubber irrigation flow rate monitoring (operators taking readings when cycle					
not running), which is contrary to monitoring conditions of PA-23-0038E. NOV issued on June 7, 2016.					
2015 Semiannual	1/1/15-6/30/15	9/28/15	10/1/15		
Summary: Bioscrubber water irrigation rate readings taken when cycle not running on 30 days during reporting					
period. Range for irrigation water flow rate being determined under plan approval. Similar missed readings (total					
of 3 days) reported for pH o	of 3 days) reported for pH of inlet irrigation water and pressure drop (7 days).				
2016 Annual	1/1/16-12/31/16	3/30/17	4/1/17		
Summary: Mechanical failure and failure to take readings when the water is not cycling is cited for missed					
monitoring on the following dates at the bioscrubber: January 6 through 22, 2016; January 30, 2016; February 4,					
25 and 26, 2016; March 11, 15-17, 21, 2016; April 9, 2016; August 21-25, 2016 (all mechanical failure);					
September 7, 2016 and Nov	September 7, 2016 and November 23, 2016. I was informed during the compliance inspection that heat tracing				

had been installed to address the mechanical failures during the cold months. NOV had been issued on June 7, 2016 for failure to take readings on 47 days when cycle not running during 2015. Operators were instructed to record flow when cycle running. DEP has not yet taken enforcement action regarding the 2015 deviations. If failure to record scrubber flow continues, I recommend Department action.

No valid data for Incinerator No. 1 THC during July 2016, but no CEMS certified by PA DEP. Facility substituted highest value from month prior to estimate emissions. No exceedances of limits.

With the exception of 8/23/2016 through 8/25/2016 incident, which resulted in a September 8, 2016 Notice of Violation, reported incidents reviewed under separate cover. Previously reported incidents reviewed under separate cover resulted in relatively low excess emissions.

All other deviations included are of relatively short duration.

2016 Semiannual	1/1/16-6/30/16	9/30/16	10/1/16
Summary: See above. I h	ad reviewed 2016 semiannual	deviation report and 2016 TV	OP annual at the same time.

## Title V Emission Fees (Section B, Condition No. 016)

I checked Air Quality's Air Information Management System. Since the time of my last compliance inspection Annual Air Emissions Fees up to and including 2015 have been fully paid.

## **Inspection Description**

On June 14, 2017 Tina Vogler and Paul Barnhart of PA DEP Air Permitting and I met with Mike DiSantis, Dan Dutton and Ian Piro of DELCORA for an unannounced full compliance inspection. On this date, we performed a walk-through inspection of the air emission sources and controls. I returned to the facility on June 15, 2017 to review required records. I did not detect malodors upon entry or exit of the facility on either day of the inspection.

The following inspection report is arranged on a source-by-source, condition-by-condition basis. Observations and discussions pertaining to the permit conditions follow each condition, or group of conditions.

### PA-23-0038F Conditions, Requirements and Observations

Approaching the incinerator building from the administrative offices, both bypass stacks appeared to be in the closed position. Incinerator No. 2 was operating on control train No. 2. We walked down the WESP and RTO control trains. Ductwork appeared to be in good condition. I did not see visible emissions from the combined stack or ductwork.

We observed the ash storage silos and unloading area. A truck was parked under one of the two silos, but no unloading was taking place. I did not see evidence of ash on the paved surfaces under and near the unloading station, nor did I see evidence of ash on the surrounding vegetation. The unloading chamber is operated pneumatically.

### Source 001 & 002: Sewage Sludge Incinerator Nos. 1 & 2

### Emission Restriction(s), Condition Nos. 002-004

(a) Each incinerator shall comply with the more stringent of the following limitations for particulate matter (includes filterable particulate matter):

- a. In accordance with 25 Pa. Code Section 123.12, 0.1 grain per dry standard cubic foot or less, corrected to 12% carbon dioxide in the effluent gas
- b. In accordance with 40 CFR Section 60.152, 0.65 g/kg dry sludge input (1.30 lb/ton dry sludge input), after controls
- c. An emission rate specified in a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM, once the plan is available
- d. The Department reserves the right to add additional restrictions to the PM emissions limits, or include PM2.5 emission limits, based on stack testing data developed under this Plan Approval and other information presented by the permittee
- e. In accordance with 40 CFR Part 60.152(a)(2), no owner or operator shall discharge or cause the discharge into the atmosphere any gases which exhibit ≥20% opacity
- (b) Ensure that the incinerators do not emit air pollutants in excess of the following amounts, measured in the combined final stack:
  - a. SOx, the more stringent of:
    - i. 26 ppmdv @ 7% O2
    - ii. An emission rate specified in the Federal Plan pursuant to 40 CFR Part 60, Subpart MMMM, once the plan is available
  - b. NOx, the more stringent of:
    - i. 15.0 lb/hr
    - ii. An emission rate specified in the Federal Plan pursuant to 40 CFR Part 60, Subpart MMMM, once the plan is available
  - c. CO, the more stringent of:
    - i. 11.81 lb/hr
    - ii. An emission rate specified in the Federal Plan pursuant to 40 CFR Part 60, Subpart MMMM, once the plan is available
  - d. HCl, the more stringent of:
    - i. 1.2 ppmdv @ 7% O2
    - ii. An emission rate specified in the Federal Plan pursuant to 40 CFR Part 60, Subpart MMMM, once the plan is available
- (c) Limit emissions from each incinerator to the more stringent of the following on a 12-month rolling basis:
  - a. SOx: 32.9 tons/yr, and 65.8 tons/yr for both incinerators
  - b. NOx: 65.7 tons/yr
  - c. CO: 51.72 tons/yr
  - d. OR, a rate in tons/yr on a 12-month rolling basis for each of the pollutants, calculated from an emission rate specified in a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM
- (d) Ensure THC emissions from incinerators does not exceed 100 ppmv monthly average concentration on a volumetric basis, measured as propane and corrected to 7% oxygen and 0% moisture
- (e) Comply with emissions limits for pollutants to include, but not limited to dioxins/furans, cadmium and lead, as required by a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM
- (f) Department reserves the right to modify the above limitations based on stack testing data developed under this Plan Approval and other information presented by the permittee
- (g) Ensure that mercury emissions from the incinerators do not exceed the more stringent of the following requirements:
  - a. In accordance with 40 CFR Section 61.52(b), mercury emissions shall not exceed 3200 grams of mercury per 24-hour period
  - b. A limit specified by a Federal Plan developed pursuant to 40 CFR Part 60 Subpart MMMM, once the plan is available
  - c. As an alternative means for demonstrating compliance with the mercury emissions limit set in (a) above, may use Method 105 of Appendix B and the procedures specified in 40 CFR Part 61.54

(h) In accordance with 40 CFR Section 61.32(a), emissions to atmosphere shall not exceed 10 grams (0.022 lb) of beryllium over a 24-hour period

### **Observations**

PA DEP requested delegation to enforce the Federal Plan requirements for sewage sludge incinerators in August 2016. EPA has not yet acted on the request.

Following installation of controls, compliance testing took place on August 17-19, 2016 for Incinerator No. 1, operating on WESP/RTO Control Train No. 2. The following pollutants were tested via the following methods: filterable particulate matter (FPM; EPA Method 5) and condensable particulate matter (CPM; EPA Method 202); filterable PM-2.5 (EPA Method 201A) and CPM (EPA Method 202); hydrogen chloride (HCl; EPA Method 26A); sulfur oxides (SOX; EPA Method 8); nitrogen oxides (NOX as NO2; EPA Method 7E); carbon monoxide (CO; EPA Method 10); dioxins/furans (PCDD/PCDF; EPA Method 23); metals including mercury (EPA Method 29); total hydrocarbons (THC; EPA Method 25A); and visual emissions (VE; Method 9). As documented in a May 2, 2017 stack test review memo, PA DEP Stack Testing Section performed a preliminary review of the results and deemed the report lacking in specific information. Subsequently, DELCORA provided a revised report to PA DEP on June 8, 2017. PA DEP Stack Testing Section has not yet completed its review of the revised report.

On February 21-24, 2017, following installation of controls, compliance testing took place for Incinerator No. 2 operating on WESP/RTO Control Train No. 1. HCl retesting of Incinerator No. 1 while operating on Control Train No. 2 also took place during this test campaign. Following the recommendation of PA DEP Stack Testing Section, filterable particulate matter (EPA Method 5) retesting also took place for Incinerator No. 1 while operating on Control Train No. 2 as the July 2016 conditional approval for the protocol had specified post-test acetone rinse recovery volumes of 200 ml, and GHD stack testing group did not follow this PA DEP guidance in August 2016. PA DEP permitting approved an extension for submittal of the test results and on June 8, 2017, PA DEP received them.

#### Throughput Restrictions, Condition No. 007

- (a) Combination of both incinerators is limited to 96 tons per day dry solids
- (b) Determine the average allowable daily concentration of contaminants in the sludge fed to this sewage sludge incinerator using the calculations and procedures specified in the Condition No. 007
- (c) Use air dispersion modeling to determine a daily dispersion factor (DF) for use in calculation of daily allowables to assure that the risk specific concentration limits for pollutant concentrations in Condition No. 007 are not exceeded
- (d) Submit calculations of the dispersion factors and the allowable sludge content to the Department within 90 days of submission of the stack test report to the Department. In the event that this deadline cannot be met, the permittee may request an extension of the due date in writing and include a justification for the extension, and the Department may grant an extension for a reasonable cause.

#### **Observations**

DELCORA has not yet submitted the calculations using the dispersion factors and the allowable sludge content. Mr. Dutton and Mr. Piro stated that an extension request will be submitted to the Department.

#### Testing Requirements, Condition No. 008

(a) Perform stack test on each incinerator and air pollution control equipment train using the Department approved procedures within 180 days of startup of each incinerator for PM (filterable and condensable), NOx, SOx, CO, THC, VOC and VOC destruction efficiency, opacity (EPA M9), arsenic, cadmium, chromium, lead, and nickel. Source testing shall be conducted for all pollutants required to be tested in a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM, and may include but may not be limited to HCl, dioxins/furans, and mercury

- a. Testing schedule of this condition applies, provided a Federal Plan, developed pursuant to 40 CFR Subpart MMMM is available at least 2 months prior to the date of protocol submittal. Testing shall occur at another schedule other than specified if required by the Federal Plan.
- b. If the Federal Plan is not available in the time frame indicated, testing shall take place within 4 month after the plan is available or at another time as specified by the Department or at a time specified by the plan
- (b) Testing shall be repeated at a schedule and for pollutants specified by a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM

#### **Observations**

See the above Observations section following the Emission Restrictions above.

#### Monitoring Requirements, Condition No. 013 and 017

- (a) On a continuous basis, in the sewage sludge incinerator combined stack exit gas, post controls:
  - a. THC concentration
  - b. Oxygen concentration
  - c. Information used to determine/measure moisture content
- (b) Temperature of Hearth Nos. 1-8 in each incinerator on a continuous basis
  - a. A minimum of 2 thermocouples shall monitor each hearth in the combustion zone (Hearths 3-6) and a minimum of 1 thermocouple shall monitor the hearth in the drying and cooling zones (Hearths 1, 2, 7, 8)
- (c) Oxygen content of incinerator exhaust gas, measured in accordance with 40 CFR Part 60 Section 60.153(b)(2) until an alternate oxygen request is submitted to and approved by EPA pursuant to 40 CFR Section 60.13(i)
- (d) Hours of operation which sludge is charged to the incinerator
- (e) Additional parameters specified in a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM
- (f) Monitor combined final incinerator stack for visible emissions for minimum of one six-minute period, once per day that either or both incinerators are operating – date, time, duration that visible emissions are observed, and identification of the incinerators that are operating shall be noted.
  - a. As an alternate, may install, maintain, and operate COM in the combined stack
- (g) Observe the emergency bypass stacks for the presence or absence of visible emissions at least once during a bypass event

## **Observations**

DELCORA relocated the probes for the existing THC and moisture CEMS in the shared stack. These values are continuously displayed in the data monitoring system and continuously recorded in the data historian. As a spot check during my records review, I obtained a screenshot displaying the THC uncorrected and corrected values while both incinerators were in operation. [Attachment 1] The hourly average is below the limit of 100 ppm, although compliance is determined on a monthly average basis.

Hearth temperatures are continuously monitored and recorded in the data historian for both incinerators. [Attachment 1] Two thermocouples monitor temperature in hearths 1 through 6, and one monitors temperature in hearths 7 and 8.

The incinerator foreman is tasked with performing daily observations for visible emissions of the incinerator stack. Observations are made once per shift (two 12-hour shifts) and recorded in eOps, the electronic work task and management tool for operations. Mr. Dutton showed me examples in the data historian.

The bypass stack is continuously monitored via a video camera in the incinerator control room. It is also displayed on the incinerator process control screen as being closed or open. During the walkthrough, I saw that Incinerator No. 2 bypass stack was displayed in the closed position on the process control screen, using the SCADA system. DELCORA has reported several bypass events since the new control trains were installed. Visible emissions observations are provided with the reports. Incident reports have been reviewed under separate cover.

## Recordkeeping Requirements, Condition 022

- (a) THC in sewage sludge incinerator stack exit gas, continuously
- (b) Monthly average THC concentration in the combined stack, measured as propane @ 7% oxygen and 0% moisture
- (c) Continuous oxygen concentration and information used to measure moisture content in stack exit gas
- (d) Temperature monitoring records for Hearth Nos. 1-8
- (e) Additional parameters specified in a Federal Plan pursuant to 40 CFR Part 60, Subpart MMMM
- (f) VOC, SOx, NOx, CO on daily basis, summed each month and on a consecutive 12-month rolling basis for each incinerator. A 12-month rolling total of VOC and SOx emissions shall be maintained for the combination of both incinerators.
- (g) Mercury and beryllium on a 24-hour basis
- (h) Record visible emissions with date, time of day, opacity and incinerator operating
- (i) Record extent of visible emission observed with date, time of day, incinerator on emergency bypass and reason for emergency bypass
- (j) Additional parameters specified in a Federal Plan pursuant to 40 CFR Part 60, Subpart MMMM

#### **Observations**

See Observations following the Monitoring Requirements regarding most of these requirements.

I reviewed the emission calculation spreadsheets maintained by Mr. Dutton for the period since my last compliance inspection through May 2017. At no time were the 12-month rolling criteria pollutant limits in the current plan approval exceeded. However, as previously mentioned, EPA has not yet delegated Subpart MMMM to Pennsylvania and therefore Pennsylvania has not yet adopted the Federal Plan. Therefore, I cannot fully determine compliance, as the conditions for the criteria pollutant limits are accompanied by the following statement "...or a rate in tons/yr on a 12-month rolling basis for each of the pollutants, calculated from an emission rate specified in a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM."

Mr. Dutton informed me that emissions were calculated using emission factors derived from the 2012 incinerator compliance stack testing campaign. I informed him that now that factors are available from the August 2016 and February 2017 tests these should be used to calculate emissions for 2017 as they are more representative of emissions, given the installation of the new scrubbing systems and WESP/RTO control trains.

## Work Practice Requirements, Condition Nos. 031-037

- (a) In accordance with 40 CFR Section 60.153(a)(1):
  - a. Install, calibrate, maintain and operate a flow measuring device which can be used to determine either the mass or volume of sludge charged to the incinerator. Flow measuring device shall be certified by the manufacturer to have an accuracy of  $\pm 5\%$  over its operating range. Calibrate per manufacturer's instructions.
- (b) In accordance with 40 CFR Section 60.153(a)(2):
  - a. Provide access to the sludge charge so that a well-mixed representative grab sample of the sludge can be obtained.
  - b. Install, calibrate, maintain and operate a monitoring device that continuously measures and records the oxygen content of the incinerator exhaust gas. Oxygen monitor shall be located

upstream of any rabble shaft cooling air inlet into the incinerator exhaust gas stream, fan, ambient air recirculation damper, or any other source of dilution air. Oxygen monitoring device shall be certified by the manufacturer to have a relative accuracy of  $\pm 5\%$  over its operating range and calibrated by the method prescribed by the manufacturer at least once each 24-hour period.

- (c) In accordance with 40 CFR Section 60.153(b)(4):
  - a. Install, calibrate, maintain and operate a device for measuring fuel flow to each incinerator for both No. 2 fuel oil and for natural gas. Certify flow measuring device by the manufacturer to have a relative accuracy of  $\pm 5\%$  over its operating range. Fuel flow measuring device shall be operated continuously and data recorded during all periods of operation of the incinerator.
- (d) Install, calibrate, maintain, and operate a device that measures and records THC in the shared stack, post controls. The instrument shall:
  - a. Employ a flame ionization detector
  - b. Have a heated sampling line maintained at a temperature of 150 degrees Celsius (302 degrees F) or higher continuously
  - c. Be calibrated at least once every 24-hour operating period using propane
- (e) Calibrate, maintain and operate a device that measures and records information used to determine oxygen content in the combined incinerator stack exit gas, post controls, according to manufacturer's instructions and according to good air pollution control practices
- (f) Calibrate, maintain, and operate a device that measures and records information used to determine the moisture content in the combined incinerator stack post controls exit gas. Calibrate this instrument in accordance with manufacturer's instructions and in accordance with good air pollution control practices.
- (g) Implement operation and maintenance practices required to minimize air infiltration into the combustion exhaust gas stream. The practices shall be part of standard operating practices for the incinerators.
- (h) Stack oxygen CEM system shall be operated and maintained in accordance with the applicable provisions of 40 CFR Part 60, Appendices B and F
- (i) Ensure following operational parameters are maintained continuously for this incinerator:
  - a. Each fuel burner shall be installed, maintained and operated in accordance with the manufacturer's specifications for good air pollution control practices
  - b. Entire air pollution control train including scrubbers, wet electrostatic precipitator and regenerative thermal oxidizer shall continue to be operated for a minimum of 1 hour after sludge charging to the incinerator ceases
  - c. A training plan shall be maintained and training shall be provided to persons who operate the incinerator, based on good air pollution control practices, good engineering practices, good operational practices, and operational instructions in accordance with the manufacturer's specifications. Persons who have not satisfactorily completed the training program shall be prohibited from operating the incinerator.
  - d. Training plan to include requirements contained in a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM once the Federal Plan is available
- (j) 14 dual fired burners to be fired on No. 2 fuel oil only or natural gas supplied by a utility
- (k) If mercury emissions exceed 1.6 kg (3.5 lb) per 24-hr period, demonstrated either by stack sampling per 40 CFR Section 61.53 or sludge sampling per Section 61.54, monitor mercury emissions at intervals of at least once per year by use of Method 105 Appendix B or the procedures specified in Section 61.53(d)(2)(4). Results of the monitoring shall be reported and retained per Section 61.53(d)(5) and (6) or Section 61.54 (f) and (g).
  - a. This condition no longer applies when a Federal Plan pursuant to 40 CFR Part 60, Subpart MMMM is available with more stringent emissions limitations
- (I) When sludge is being charged to this incinerator, incinerator exhaust gas shall be directed in a series to a Quench and Multiple Venturi Scrubber, a Wet Electrostatic Precipitator, and a Regenerative Thermal Oxidizer

- (m) A warm up sequence for the incinerator during which the control devices may be bypassed is allowed, provided no sludge is charged to the incinerator
- (n) During cooldown, continue to direct incinerator exhaust gas to the air pollution control system train for a minimum of 1 hour after sludge no longer charged to incinerator
- (o) Concentration of the following metals in the sludge fed to the incinerator shall not exceed the following monthly averages. May accept sludge generated by outside sources to be incinerated if the average monthly concentrations of the following metals in the sludge fed to the incinerator are not exceeded:
  - a. Arsenic: 50.0 mg/kg dry sludge
  - b. Cadmium: 55.0 mg/kg dry sludge
  - c. Chromium: 2000.0 mg/kg dry sludge
  - d. Lead: 550.0 mg/kg dry sludge
  - e. Nickel: 420.0 mg/kg dry sludge
  - f. Above limits apply until new limits for the monthly average allowable concentration of the contaminants listed in part are calculated from the control efficiency and dispersion factors

I was informed by instrumentation technician Kevin Blackwell that the various continuous monitoring devices are calibrated on regular schedules. Sludge flow monitors are calibrated on a quarterly basis by a third party, Smith Industries. Sludge throughputs for both incinerators are monitored in the control room. I obtained a screenshot of the CMS process control room screen during the records review. Dry sludge throughput is displayed on a 1 hourrolling, 24-hour rolling and 31-day rolling (monthly) basis. [Attachment 2] Oxygen, moisture and THC monitors are calibrated daily. Trace Environmental Systems, Inc. is contracted to perform the quarterly CGAs and annual RATAs. Thermocouples are checked for accuracy on a quarterly basis. Fuel flow monitors are calibrated by a third party, generally in December.

Oxygen is measured both pre- and post-control. The CMS process control room screen displays pre- as " $O_2$  Exit" and post- as " $O_2$  CEMS." The pre-control oxygen monitoring satisfies NSPS Subpart O requirements and post-control allows for the THC values to be corrected for oxygen.

Certificates of Training were provided to me for past and current incinerator operators. Current operators received training from a third-party consultant (Karl Monninger) in April and May 2017 regarding incinerator operations with the recently installed controls. [Attachment 3] Eight 8-hour hands-on incinerator operator training sessions were completed with the current operators. I was informed that DELCORA had not yet received the training certificates.

### Additional Requirements, Condition Nos. 038-039

- (a) Comply with the emission guidelines, compliance times and other requirements for existing sewage sludge incinerator units in accordance with a Federal Plan for Pennsylvania provided under 40 CFR Part 60 Subpart MMMM
- (b) Summary of capacities and locations of the dual fuel burners in each incinerator:

Hearth	Number of Burners	Size, MMBtu/hr
#2	2	0.6
#2	2	1.57
#3	2	2.7
#4	2	2.7
#5	2	2.7
#6	2	2.7
#8	2	2.7

DELCORA informed me that annual testing of both incinerators per Subpart MMMM will most likely take place in August 2017.

## Source C06 & C07: Quench & Multi-Venturi Scrubber SSI 001 & SSI 002

## Monitoring Requirements, Condition No. 001

- (a) Continuously monitor the following:
  - a. Pressure drop across the following equipment in (in. w.c.):
    - i. Subcooler Section of the Multi-Venturi Scrubber (Impingement Plates or Packed Bed)
    - ii. Multi-Venturi Section
    - iii. Combination of the Subcooler Section and the Multi-Venturi Section
  - b. Effluent scrubber water pH
  - c. Water flow rate to following equipment in (gpm):
    - i. Quench Water
    - ii. Subcooler Section Water (Impingement Plate or Packed Bed)
    - iii. Multi-Venturi Throat Water
  - d. Calculate hourly averages of the following:
    - i. Pressure drop across the subcooler section of the Multi-Venturi Scrubber (Impingement Plates or Packed Bed)
    - ii. Pressure drop across the Multi-Venturi Section
    - iii. Scrubber water effluent pH
    - iv. Water flow rate of Quench Water
    - v. Water flow rate of Subcooler Section Water (Impingement Plate or Packed Bed)
    - vi. Water flow rate of Multi-Venturi Throat Water
  - e. 12-hour block averages of the hourly averages of the following:
    - i. Pressure drop of Subcooler Section Water (Impingement Plate or Packed Bed)
      - ii. Pressure drop across the Multi-Venturi Section
      - iii. Water flow rate of Quench Water
      - iv. Water flow rate of Subcooler Section Water (Impingement Plate or Packed Bed)
      - v. Water flow rate of Multi-Venturi Section
- (b) Comply with additional monitoring requirements per Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM, when plan is available
- (c) Department reserves the right to modify the monitoring requirements based on information developed during the shakedown period and as provided by the permittee

### Recordkeeping Requirements, Condition No. 002

- (a) Record the following monitoring data:
  - a. Pressure drop across the following equipment in (in w.c.):
    - i. Subcooler section of the Multi-Venturi Scrubber (Impingement Plates or Packed Bed), every 15 minutes, as hourly averages and 12-hour block averages
    - ii. Multi-Venturi Section, every 15 minutes, as hourly averages and 12-hour block averages
    - iii. Combination of the Subcooler Section and the Multi-Venturi Scrubber, continuously, pursuant to 40 CFR Section 60.153(c)(1)
  - b. Scrubber effluent water pH, every 15 minutes, as hourly average and 3-hour block average of the hourly average of the scrubber effluent water pH
  - c. Water rate readings to the following equipment in gpm, every 15 minutes, as hourly averages and 12-hour block averages:
    - i. Quench Water
    - ii. Subcooler Section Water (Impingement Plate or Packed Bed)

## iii. Multi-Venturi Throat Water

- (b) Comply with additional recordkeeping requirements per Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM, when plan is available
- (c) Department reserves the right to modify recordkeeping requirements based on information developed during the shakedown period and as provided by the permittee

## Work Practice Requirements, Condition Nos. 003-005

- (a) Maintain following operating parameters:
  - a. Pressure drop across the Subcooler Section (Impingement Plate or Packed Bed): 4.0 to 6.0 in. w.c.
  - b. Pressure drop across the Multi-Venturi Throat: 14 to 18 in. w.c.
  - c. Scrubber Effluent Water pH: 2 to 5
  - d. Quench water rate: 120 to 190 gpm
  - e. Subcooler Section (Impingement Plate or Packed Bed) water rate: 400 to 600 gpm
  - f. Venturi Throat Water rate: 24 to 102 gpm
- (b) Values to be confirmed and refined during shakedown period and performance testing. Values will be finalized before incorporating in an operating permit based on a minimum of 6 months of data and values during performance testing
- (c) Once a Federal Plan for 40 CFR Subpart MMMM is available determination of suitable parameter ranges shall conform to the methodology of the plan if different from above
- (d) Once established, compliance with the above ranges shall be demonstrated based on a 12-hour block average for all parameters except pH. Compliance with pH shall be based on a 3-hour block average.
- (e) Install, operate and maintain the necessary instrumentation to allow monitoring. Once a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM is available, permittee shall conform to any applicable instrument specifications of the plan.
- (f) Pursuant to 40 CFR Section 60.153(b)(1) the owner/operator shall:
  - a. For incinerators equipped with a wet scrubbing device, install, operate, maintain and operate a monitoring device that continuously measures and records the pressure drop of the gas flow through the wet scrubbing device
  - b. Where a combination of wet scrubbers is used in a series, continuously monitor the pressure drop of the gas through the combined system
  - c. Device used to monitor scrubber pressure drop shall be certified by the manufacturer to be accurate within  $\pm 250$  pascals ( $\pm 1$  inch water gauge) and shall be calibrated on an annual basis in accordance with the manufacturer's instructions
  - d. The instrument for monitoring pressure drop shall measure the pressure drop across the combination of the Subcooler Section (Impingement Tray or Packed Bed) and the Multi-Venturi Section

### **Observations**

The above process parameters are displayed in both the SCADA system and the Trace Environmental Systems, Inc. continuous monitoring system (CMS). I obtained a screenshot from the CMS during the records review. [Attachment 4] I did not obtain the screenshot which displays pH. Process parameters are displayed and recorded as one minute, 15-minute and hourly averages in the CMS. I saw that 12-hour block averages are not being calculated and recorded. Ms. Vogler and I informed DELCORA that 12-hour block averages are required to be monitored and recorded for certain above stated parameters. I obtained the following instantaneous values from SCADA for Incinerator No. 2.

Parameter	Value
Multi-venturi subcooler section pressure drop	-0.77 in. w.c.
Multi-venturi section (RingJet) pressure drop	-13,93 in. w.c.

Combination of subcooler section and multi-	-22.10 in. w.c.
venturi section pressure drop	
Effluent scrubber water pH	5.5
Quench water flow	112 gpm
Subcooler section water flow	694 gpm
Multi-venturi throat water flow	90 gpm

## Additional Requirements, Condition No. 006

(a) Source comprises a Quench Section, a Subcooler/Condenser Section consisting of either an impingement tray or packed bed and a Multi-Venturi Section. Manufacturer shall be Envirocare, Hitachi or equivalent and the design inlet volume 50,800 acfm at 1000 °F.

### Source C10 & C11: Wet Electrostatic Precipitator SSI 001 & SSI 002

### Monitoring and Recordkeeping Requirements, Condition Nos. 001 and 002

- (a) Continuously monitor, calculate 12-hour block average values (from hourly values) and record the following:
  - a. Primary voltage
  - b. Secondary voltage
  - c. Secondary current
  - d. Spark rate
  - e. Influent water to the wet electrostatic precipitator, gal/min
- (b) Comply with additional monitoring and recordkeeping requirements per Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM, when plan is available
- (c) Department reserves the right to modify the monitoring and recordkeeping requirements based on information developed during the shakedown period and as provided by the permittee

### Work Practice Requirements, Condition Nos. 003 and 004

- (a) Install, operate and maintain the necessary instrumentation to conduct the monitoring
- (b) Once a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM is available, conform to applicable instrument specifications of the plan
- (c) Ensure that the following operating parameters are maintained:
  - a. Primary Voltage, AC: 480 volts +/- 15%
  - b. Secondary Voltage, DC: 50 to 83 kV
  - c. Influent water to the wet electrostatic precipitator: 0 to 100 gal/min
  - d. Establish operating ranges for secondary current and spark rate during the shakedown period and performance testing
- (d) Above ranges shall be confirmed and refined during the shakedown period and performance testing. Additionally, an operating range for secondary current and spark rate shall be established during the shakedown period and performance testing. Values will be finalized before incorporating in an operating permit based on a minimum of 6 months of data and values during performance testing.
- (e) Once a Federal Plan for 40 CFR Part 60 Subpart MMMM is available, determination of suitable parameter ranges shall conform to the methodology of the plan, if different than part (i) of this condition.
- (f) Once established, compliance with the parameter operating ranges shall be demonstrated on a 12-hour block average for all parameters

### **Observations**

As is the case for the scrubber process parameters, the process parameters for the wet electrostatic precipitators (WESP) are displayed in both the SCADA system and the Trace Environmental Systems, Inc. continuous

monitoring system (CMS). Process parameters are displayed and recorded as one minute, 15-minute and hourly averages in the CMS. 12-hour block averages are not being calculated and recorded. I obtained the following instantaneous values from SCADA for Incinerator No. 2 while operating on WESP No. 2. I was informed that the influent water circulates on a 4-hour interval, and at the time I obtained the value, there was no flow.

Parameter	Value
Primary voltage	
Secondary voltage	48 kV
Secondary current	403 mA
Spark rate	2 spark/min.
Influent water to WESP	0 gpm

Primary voltage is not displayed in SCADA or the CMS. I did not obtain this value.

### Additional Requirements, Condition No. 005

(a) Source comprises a Wet Electrostatic Precipitator – MegTec, Turbo Sonic, GeoEnergy Lundburg or equivalent of approximately 2900 square feet collecting surface area and 15, 260 acfm (at 100 °F) design inlet volume

#### Source C12 & C13: Regenerative Thermal Oxidizer SSI 001 & SSI 002

#### Monitoring Requirements, Condition No. 001

- (a) Continuously perform the following monitoring:
  - a. Pressure drop across regenerative thermal oxidizer in (in. w.c.)
  - b. Temperature of the combustion chamber of the regenerative thermal oxidizer in °F
- (b) Permittee shall calculate:
  - a. Hourly averages of the combustion chamber temperature and 12-hour block averages (from hourly averages)
- (c) Comply with additional monitoring requirements in accordance with a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM

#### Recordkeeping Requirements, Condition No. 002

- (a) Record the following monitoring data:
  - a. Pressure drop across the regenerative thermal oxidizer, every hour
  - b. Combustion chamber temperature, every 15 minutes
  - c. Hourly average of the combustion chamber temperature and as 12-hour block average
  - d. Hourly pressure drop readings for the regenerative thermal oxidizer
  - e. Hourly average combustion zone temperature of the thermal oxidizer
- (b) Comply with additional recordkeeping requirements in accordance with a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM

#### Work Practice Requirements, Condition No. 003-004

- (a) Ensure following operating parameters are maintained:
  - a. Pressure drop across the regenerative thermal oxidizer: 6 to 12 in. w.c.
  - b. Combustion chamber temperature of the regenerative thermal oxidizer: 1300 to 1600 °F
- (b) Once a Federal Plan for 40 CFR Subpart MMMM is available, determination of suitable parameter ranges shall conform to the methodology of the plan, if different then part (i) of this condition
- (c) Once established, compliance with the above range shall be demonstrated as a 12-hour block average
- (d) Install, operate and maintain the necessary instrumentation to conduct the monitoring

(e) Once a Federal Plan pursuant to 40 CFR Part 60 Subpart MMMM is available, permittee shall conform to any applicable instrument specifications of the plan

#### **Observations**

The process parameters for the regenerative thermal oxidizers (RTO) are displayed in both the SCADA system and the Trace Environmental Systems, Inc. continuous monitoring system (CMS). RTO pressure drop is displayed as one minute, 15-minute and hourly averages in the CMS. 12-hour block averages are not being calculated and recorded for pressure drop. It appeared that the RTO chamber temperature is displayed only as an instantaneous value in both the SCADA system and CMS. The RTO temperature is to be monitored and recorded every 15 minutes, and as an hourly average and 12-hour block average. I obtained the following instantaneous values from SCADA for Incinerator No. 2 while operating on WESP/RTO control train No. 2. The set point for the combustion chamber temperature is 1475 °F.

Parameter	Value
Pressure drop	-2.9 in. w.c.
Combustion chamber temperature	1468 °F

#### Additional Requirements, Condition No. 005

(a) Source comprises a regenerative thermal oxidizer manufactured by MegTec, Nestec, Durr or equivalent of approximately 16,00 acfm (at 100 °F) design outlet volume and 3 MMBtu/hr rated capacity

#### TVOP Permit Conditions, Requirements and Observations

#### Site-Wide Conditions

#### Condition No. 019, Section B

(a) 25 Pa. Code §§127.14(b) & 127.449: Authorization for DeMinimis Emission Increases

#### Condition No. 020, Section B

Reactivation of Sources

- (a) The permittee may reactivate a source at the facility that has been out of operation or production for a least one year, but less than or equal to five (5) years, if the source is reactivated in accordance with the requirements of 25 Pa. Code §§127.11a and 127.215, the reactivated source will not be considered a new source.
- (b) A source which has been out of operation or production for more than five (5) years but less than 10 years may be reactivated and will not be considered a new source if the permittee satisfies the conditions as specified in 25 Pa. Code §127.11a(b).

#### **Observations**

No sources at DELCORA are under a maintenance plan.

#### Condition No. 003, 015, 016 and 024 Section C

- (a) Plantwide Applicability Limit (PAL) of 82.56 tons per 12-month rolling period, calculated according to the Monitoring Requirements, which include the following sources:
  - a. Sewage Sludge Incinerator 1 (Source ID 001)
  - b. Sewage Sludge Incinerator 2 (Source ID 002)
  - c. Each of Two 1.02 MMBtu/hr No. 2 oil-fired boilers in building B-2 (part of Source ID 500)
  - d. Each of Two 1.34 MMBtu/hr No. 2 oil-fired boilers in building B-3 (part of Source ID 500)

- (b) Per 25 Pa. Code Section 127.218(g)(4), emissions calculations for compliance purposes shall include emissions from startups, shutdowns and malfunctions
- (c) Use following NOx emissions factors:
  - a. Factor of 20 pounds of NOx per thousand gallons of oil fired (U.S. EPA AP-42, Compilation of Air Pollution Emission Factors, Chapter 1.3, Table 1.3-1, September 1999, corrected May 2010) for four boilers.
- (d) Stack testing conducted for NOx, according to the requirements of Section D (Sources 001 and 002) shall serve as revalidation testing, unless another method is approved by the Department
- (e) Calculate and record NOx emissions daily, summed monthly and consecutive 12-month rolling totals per incinerator and per boiler set
- (f) During periods of no monitoring data, record and report maximum potential emissions
- (g) If fuels switched during the day, use formula per Condition 016(b)(2)

I reviewed the emissions tracking records for the PAL. Since the time of the last compliance inspection, the incinerators have only operated on pipeline natural gas. The PAL has not been exceeded in 2015 or 2016. Factors from 2012 stack testing have been used to calculate NOx emissions. I recommended to Mr. Dutton that he use factors from the August 2016 and February 2017 tests for 2017 and update the factors based on the results of the annual tests under Subpart MMMM moving forward as these are more representative of current incinerator operations. Site-wide NOx emissions for 2016 were 45.38 tons.

#### Condition No. 013, Section C

(a) Not to use fuel oil containing more than 0.2% sulfur by weight in any combustion unit. Beginning July 1, 2016, the maximum sulfur content in commercial fuel oil shall not exceed 0.05% by weight.

#### **Observations**

Fuel oil is combusted in the B-2 and B-3 building boilers. A fuel oil sample is obtained with each delivery and sent to ALS Environmental for sulfur in fuel oil analysis. I reviewed recent results from January 21, 2016, February 14, 2017 and February 22, 2017 sample dates. A sulfur content of 0.01 wt. % was determined via ASTM-D5453/D7039 in all cases.

#### Condition No. 018 and 025, Section C

(a) Monitor malodors, opacity, fugitive emissions monthly and record observations. Investigate, report to Environmental Department, take corrective action and record. Keep records for 5 years.

#### **Observations**

The shift foreman performs daily site-wide monitoring. Observations are recorded in eOps.

#### Condition No. 023, Section C

(a) Record of analyses of sludge generated by outside sources as monthly average (per 1 kg dry sludge), not to exceed:

Arsenic	50 mg/kg dry sludge	
Cadmium	55 mg/kg dry sludge	
Chromium	2000 mg/kg dry sludge	
Lead	550 mg/kg dry sludge	
Nickel	420 mg/kg dry sludge	

Metals are reported to PA DEP Air Quality on a yearly basis. I had previously reviewed the 2015 and 2016 reports and at no time were exceedances of the above limits reported. I reviewed records for January through May 2017. I obtained the highest monthly values for this period:

Arsenic	12 mg/kg dry sludge	
Cadmium	2.3 mg/kg dry sludge	
Chromium	43.5 mg/kg dry sludge	
Lead	45.3 mg/kg dry sludge	
Nickel	38.8 mg/kg dry sludge	

(b) Analysis of outside sludge per generator by following frequency (metric tons/year, dry weight basis):

Amount of sludge per generator	Frequency
0-290	1/year
290-1500	Quarterly
1500-15,000	Every 60 days

#### **Observations**

Mr. Dutton stated that to comply with this condition, monthly samples are obtained from all sludge generators.

## Condition No. 031, Section C

(a) Report all malfunctions within 1 hour of knowledge to Department, written report within 2 working days: Malfunctions, emissions, duration and corrective action

### **Observations**

Incidents are reviewed for compliance under separate cover.

### Condition No. 035, Section C

(a) In accordance with 25 Pa. Code Section 127.218(h), the effective date of the PAL period shall be August 24, 2011 and the PAL period will expire ten years from this issue date

Source by Source Conditions and Requirements, Section D

Source 030: No. 2 Fuel Oil Fired Boilers (4 Total)

#### Emission Restrictions, Condition Nos. 001-002

- (a) Each boiler limited to no greater than 3 pounds per hour, 15 pounds per day, or 2.7 tons per year VOC on a 12-month rolling basis
- (b) Comply with applicable requirements of 40 CFR Part 63, Subpart DDDDD no later than January 31, 2016, except as provided in 40 CFR Section 63.6(i)

#### **Observations**

I reviewed VOC emissions tracking records for the boilers. As of May 2017, the 12-month rolling VOC total for the boilers is 0.010 tons. VOC emissions from the boilers are also provided in the PAL reports. The 2015 and 2016 reports revealed no exceedances.

### Fuel Restrictions and Testing Requirements, Condition Nos. 003-006

- (a) Not to use fuel oil containing more than 0.2% sulfur by weight in any combustion unit. Beginning July 1, 2016, the maximum sulfur content in commercial fuel oil shall not exceed 0.05% by weight
- (b) Actual sulfur content of commercial fuel oil determined by one of the following:
  - a. In accordance with the sample collection, test methods and procedures specified under 25 Pa. Code Section 139.16 (relating to sulfur in fuel oil)
  - b. Other methods developed or approved by the Department or the Administrator of the EPA, or both
  - c. Beginning July 1, 2016, and prior to offering for sale, delivering for use, exchanging in trade or permitting the use of commercial fuel oil in this Commonwealth, a person other than the ultimate consumer that accepts a shipment of commercial fuel oil from a refinery or other transferor, shall sample, test and calculate the actual sulfur content of the commercial fuel oil if the shipment lacks the record required under 25 Pa. Code Section (g)(1) that enables the transferee to determine if the sulfur content of the shipment of commercial fuel oil meets the applicable maximum allowable sulfur content.

#### **Observations**

As previously discussed in this inspection report, DELCORA samples with each delivery.

#### Monitoring Requirements, Condition No. 007

(a) When the boilers are in operation, monitor the number of hours each boiler was in operation and the amount of fuel consumed monthly

#### **Observations**

The boilers are equipped with hour and fuel oil meters. Operating hours and fuel oil consumption is tracked.

#### Recordkeeping Requirements, Condition Nos. 008-014

- (a) Beginning with the refinery owner or operator who sells or transfers commercial fuel oil into or within this Commonwealth for use in this Commonwealth and ending with the ultimate consumer, each time the physical custody of, or title to, a shipment of commercial fuel oil changes hands on or after July 1, 2016, the transferor shall provide to the transferee an electronic or paper record, containing the following information:
  - a. Date of sale or transfer
  - b. Name and address of transferor
  - c. Name and address of transferee
  - d. Volume of commercial fuel oil being sold or transferred
  - e. Identification of the sulfur content to the shipment of commercial fuel oil, determined using the sampling and testing methods specified in 25 Pa. Code 123.22(f)(1):
    - i. For a shipment of No. 2 and lighter commercial fuel oil, "The sulfur content of this shipment is 500 ppm or below."
- (b) Copy of notification and report that was submitted to comply with 40 CFR Part 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that was submitted, per requirements in 40 CFR Part 63.10(b)(2)(xiv)
- (c) Records kept in compliance with requirements of 40 CFR Part 63, Subpart DDDDD shall be in a form suitable and readily available for expeditious review, per 40 CFR Part 63.10(b)(1)
- (d) Maintain records of each tune-up that is performed in compliance with 40 CFR Part 63, Subpart DDDDD
- (e) Keep records of supplier certifications or sampling results that demonstrate the sulfur content of the commercial fuel for each delivery of No. 2 Fuel Oil to this facility

#### Reporting Requirements, Condition Nos. 015-018

- (a) Submit to the Administrator all of the notifications in 40 CFR Sections 63.7(b) and (c), 63.8(e), (f)(4) and (6), and 63.9(b) through (h) that apply to this source by the dates specified
- (b) For units that are subject to conduct initial and subsequent 5-year tune-ups per 40 CFR Section 63.7540(a)(12), and not subject to emission limits or operating limits from Table 4 of 40 CFR Part 63, Subpart DDDDD, permittee shall submit only a 5-year compliance report instead of a semi-annual compliance report:
  - a. First compliance report must cover the period beginning on the compliance date that is specified for each boiler or process heater in Section 63.7495 (January 31, 2016) and ending on December 31, five years after the compliance date, postmarked or submitted no later than January 31 after the compliance date
  - b. Each subsequent 5-year compliance report shall cover the 5-year periods from January 1 to December 31 of that reporting period
  - c. Compliance report shall contain the following information:
    - i. Company and Facility name and address
    - ii. Process unit information, emissions limitations and operating parameter limitations
    - iii. Date of report and beginning and ending dates of the reporting period
    - iv. Total operating time during reporting period
    - v. Include date of most recent tune-up for each unit subject to only the requirement to conduct a 5-year tune-up per 40 CFR Section 63.7540(a)(12). Include the date of the most recent burner inspection if it was not done on a 5-year period and was delayed until the next scheduled or unscheduled shutdown.

#### Work Practice Requirements, Condition Nos. 019-023

- (a) Conduct tune-ups in accordance with the procedures in 40 CFR Sections 63.7540(a)(10)(i) through 63.7540(a)(10)(vi) every 5 years in accordance with 40 CFR Sections 63.7500(e) and 63.7540(a)(12)
- (b) In accordance with 40 CFR Sections 63.7515(d), the 5-year tune-up shall be conducted no more than 61 months after the previous tune-up
- (c) If the boiler is not operating on the required date for a tune-up, tune-up must be conducted within 30 calendar days of startup in accordance with 40 CFR Section 63.7540(a)(13)
- (d) Perform one-time energy assessment performed by a qualified energy assessor. Assessment completed on or after January 1, 2008 that meets or is amended to meet the energy assessment requirements in Condition No. 022, Section D, satisfies the energy assessment requirement. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirements. The energy assessment shall meet the requirements in Condition No. 022, Section D appropriate for the on-site technical hours listed in 40 CFR Section 63.7575.

#### **Observations**

The Department received the Initial Notification of Applicability for Major Sources for 40 CFR Part 63 Subpart DDDDD on May 31, 2013. The Notification of Compliance Status was received on January 20, 2017. The tuneups to satisfy Subpart DDDDD requirements took place on January 19, 2016 for both the Weil-McLain and Kewanee boilers. AECOM Technical Services, Inc. performed the energy assessment. I saw that the final audit report was dated June 4, 2010. No 5-year compliance report has been submitted as five years have not passed since January 31, 2016.

#### Source 001 & 002: Sewage Sludge Incinerator Nos. 1 & 2

#### Emissions Restrictions, Condition Nos. 001-005

(a) Except where noted, emissions from each incinerator limited to the following:

Combined VOC from both incinerators	24.90 tons, 12-month rolling basis	
THC	100 ppmv, monthly average, measured as propane and corrected to 7% moisture and 0% moisture	
РМ	0.1 gr/dscf, corrected to 12% CO2 0.65 g/kg dry sludge input (1.30 lb/ton dry sludge input) <20% opacity at any time	
SOx	19.52 lb/hr 85.5 tpy	
NOx	15.0 lb/hr 65.7 tpy	
СО	11.81 lb/h 51.72 tpy	
Mercury	3200 grams/24-hr pd *As an alternative may use Method 105, Appendix B and procedures specified in 40 CFR Part 61.54	

As previously discussed in this inspection report, I had reviewed 12-month rolling emission tracking records for the criteria pollutants since the time of my last compliance inspection through May 2017. I noted no exceedances.

### Fuel Restriction, Condition No. 006

- (a) No waste oil or other waste materials added to No. 2 fuel oil
- (b) Not to use fuel oil containing more than 0.2% sulfur by weight in any combustion unit. Beginning July 1, 2016, the maximum sulfur content in commercial fuel oil shall not exceed 0.05% by weight
- (c) Natural gas fired in incinerators supplied by a public utility

### **Observations**

I was informed that DELCORA now operates on uninterruptable natural gas service. Since the time of my last compliance inspection the incinerators have only operated on natural gas. During the walk-through, I obtained a natural gas flow of 1625 scfm from SCADA for Incinerator No. 2. Gas flow to each incinerator is also displayed in the CMS. [Attachment 1] Sulfur content of the gas is obtained from Transco's web portal. Transco is the supplier.

### Throughput Restriction, Condition No. 007

(a) Limit dry solids feed to each incinerator to 48 tons per day

## **Observations**

I skimmed through sludge throughput records for March 2015 through May 2017. The 48 tons per day limit was exceeded on May 10, 2017 (48.96 tons) and on May 28, 2017 (48.96 tons).

### Testing Requirements, Condition Nos. 008-013

(a) Stack test for PM, NOx, SOx, CO, THC, Arsenic, Beryllium, Cadmium, Chromium, Mercury, Nickel, and Lead within 5-year operating permit term. Shall be performed while incinerator is operating at maximum rated capacity to the extent possible but not less than 85% of this capacity
Lead to the extent of 0, 2012 which estimizes a proving a proving a proving a proving a proving a proving permit.

Last stack tested August 6-9, 2012, which satisfies requirements of this condition for the February 21, 2013 through February 21, 2018 permit term, unless additional testing is requested by the Department in writing

- (b) If dual fuels used, keep running log of fuel of lesser usage (12-month rolling period). If lesser fuel used for ≥30 days, test for NOx and CO at minimum.
- (c) If opts for alternative means for demonstrating compliance with 40 CFR Part 61.52(b) relating to emissions of mercury, then the permittee shall determine the mercury content of the dry sludge prior to firing in this incinerator at least once per calendar year using sampling/test methods described in 40 CFR Part 61, Section 61.54, Subpart E
- (d) Daily sludge grab sample (Method specified under 40 CFR Part 60.154(c)(2), except that determination of volatile solids, step (3)(b) of the method may not be deleted)
  - a. Dry sludge content
  - b. Volatile solids content
- (e) Notify Department and Administer at least 30 days prior to an emissions test for Beryllium and/or Mercury. Samples shall be taken over a period(s) as necessary to accurately determine maximum emission in any 24-hour period
- (f) If use the CEMs stack oxygen analyzer for compliance with 40 CFR Part 60 Subpart O, then conduct stack test for PM upon start-up of the incinerator to establish an oxygen limit for the CEM analyzer in accordance with 40 CFR Part 60, Subpart O
- (g) Delivery receipt from supplier showing maximum % sulfur in fuel each time fuel oil delivery made, or sample and test per ASTM D396-78 "Standard Specifications for Fuel Oils"

Most of these conditions have been previously discussed in this inspection report. Daily sludge grab samples are obtained straight from the belt-filter press room presses. The results of the volatile solids and total solids analyses (performed on-site) are displayed in the CMS. [Attachment 1] These values are posted at midnight from the previous day's samples.

### Monitoring Requirements, Condition Nos. 014-015

- (a) Total hydrocarbon compounds (THC) emissions continuously:
  - a. THC  $\leq$  100 ppmv monthly average, measured as propane, corrected to 7% O2 & 0% moisture
  - b. Calibrate oxygen monitor at least every 24 hours
  - c. Flame ionization detector
  - d. Heated sampling line maintained @ ≥150 degrees C (302 degrees F) at all times
  - e. Calibrate every 24 hours using propane
- (b) Temperature of hearths No. 1-6 continuously with two thermocouples to each hearth
- (c) Amount and type of fuel combusted on daily as well as monthly basis
- (d) Quantity of sewage sludge incinerated on continuous basis
- (e) Conduct oxygen monitoring as specified in 40 CFR Part 60.153(b)(2) if accurate, complete, and timely oxygen exhaust gas correlation reports are not submitted

### **Observations**

Compliance with these conditions has been previously discussed in this inspection report.

### Recordkeeping Requirements, Condition Nos. 016-022

- (a) Current, valid purchase contract with name of natural gas supplier and a specification of maximum total sulfur content of natural gas fuel
- (b) Delivery receipt from supplier showing maximum % sulfur (wt %) in fuel each time fuel oil delivery made, or sample and test per ASTM D396-78 "Standard Specifications for Fuel Oils"
- (c) If test per 40 CFR Part 61.54, permittee shall maintain records of sludge mercury content for 5 years
- (d) Maintain records of following:
  - a. THC concentrations in exit gas from incinerator stack, monthly and annually

- b. Information that Beryllium National Emission Standard for Beryllium in Subpart C of 40 CFR Part 61 are met
- c. Oxygen concentration and information used to measure moisture content in exit gas from incinerator stack
- d. Stack height for sewage incinerator
- e. Dispersion factor for site where incinerator located
- f. Control efficiency for Pb, Ar, Cd, Cr and Ni
- g. Risk specific concentration for Cr (mg/m<sup>3</sup>)
  - i. RSC = 0.0085/r
  - ii. r = decimal fraction of hexavalent Cr concentration in exit gas (in hundredths)
  - iii. RSC = risk specific concentration for chromium in micrograms per cubic meter
- (e) Calibration and maintenance log for the THC concentration & oxygen concentration in exit gas from incinerator, information needed to determine moisture content in exit gas & combustion temperatures
- (f) Amount & type of fuel combusted on daily, monthly and 12-month rolling basis
- (g) Quantity of sewage sludge incinerated, dry basis, daily (48 tons/day feed limit)
- (h) At minimum, temperature records from Hearths No. 1 and 5
- (i) Dates, time and reason of any cessation of charging of sewage sludge to the incinerator, other than for routine maintenance or planned outages
- (j) Continuous oxygen content of the incinerator exhaust gas
- (k) Copy of manufacturer's specification for the installation, maintenance and operation of fuel oil burners
- (1) Record of stack test protocols and reports
- (m) Record of satisfactory completion of incinerator operator training for all operators (mandatory) per training plan. Persons who have not satisfactorily completed the training program are prohibited from operating the incinerator
- (n) Total solids and volatile solids content of sludge charged to incinerator
- (o) Calculate emissions on daily, monthly & 12-month rolling basis
- (p) Bypass stack openings, causes of malfunctions & process upsets, corrective action
- (q) Instrumentation calibration checks and maintenance reports
- (r) Calculate and record total VOC emissions on monthly and 12-month basis for demonstration of compliance with VOC limit
  - a. Data acquired during THC emissions monitoring and recordkeeping for each incinerator shall be used in calculating these emissions
- (s) If dual fuels used, keep running log of fuel of lesser usage (12-month rolling period). If lesser fuel used for ≥30 days, test for NOx and CO at minimum.

I skimmed through monthly average THC values for the period following my last full compliance inspection through May 2017. At no time was the concentration-based limit for the incinerators exceeded. Other requirements have been previously discussed in this inspection report.

#### Reporting Requirements, Condition Nos. 023-025

- (a) 40 CFR Part 60.155, Subpart O semiannual incinerator (Δp and/or oxygen) reports, which contain the following:
  - a. Average scrubber pressure drop measurements across the combination of the Subcooler Section and the Multi-Venturi Scrubber for each period  $\geq 15$  min. when  $\Delta p$  was less than average  $\Delta p$ during most recent performance test by following percentage:

$PM \le 0.38 \text{ kg/Mg} (0.75 \text{ lb/ton})$	30%
PM > 0.38 kg/Mr (0.75 lb/ton)	-111E + 72.15

Where E is average PM emissions (kg/Mg)

- b. Average oxygen content in exhaust gas for each period  $\geq 1$  hr that content exceeds average content during most recent performance test by  $\geq 3\%$
- (b) If PM emission rate during last performance test >0.38 kg/Mg (0.75 lb/ton) dry sludge, report the following for each day a  $\Delta p$  or oxygen report is required (averaged over each 1-hr operating period):
  - a. Scrubber pressure drop
  - b. Oxygen content
  - c. Temperature of all hearths
  - d. Rate of sludge charging
  - e. Fuel use averaged over each 8-hr incinerator operating period
  - f. Moisture & volatile solids content of daily grab sample
- (c) Report the following to Department and EPA by February 19 of each year:
  - a. Total hydrocarbon concentrations in the exit gas, monthly average, annually
- (d) Annual oxygen exhaust gas correlation with annual compliance certification (conduct O2 monitoring if fails to submit reports)
  - a. Determine coefficient of correlation between combustion hearth 1 O2 content and stack gas O2 content (wet basis). Can be made without stack test for PM, provided operation at ≥ 85% of capacity. Corrective measures required if coefficient <0.80; reduce dilution air filtration and retest until ≥0.80</li>

## **Observations**

Compliance with the reporting requirements is determined at the time of report review. All reporting requirements have been satisfied since the time of the last compliance inspection.

Work Practice Requirements, Condition Nos. 026-032

- (a) Operation and maintenance plan to minimize air filtration into combustion exhaust gas stream
- (b) Stack oxygen CEM system operated and maintained in accordance with applicable provisions of 40 CFR Part 60, Appendices B and F
- (c) Instrumentation calibration checks and maintenance logs (THC, O2, moisture, temperature, and sludge throughput):
  - a. Flow measuring device for mass or volume of sludge charged
    - i. Certified accuracy of  $\pm 5\%$  over its operating range
    - ii. Calibrated per manufacturer's instructions
  - b. Oxygen monitor of exhaust gas
    - i. Certified accuracy of  $\pm 5\%$  over its operating range
    - ii. Calibrated per manufacturer's instructions, at least every 24 hr
  - c. Temperature measuring devices at every hearth
    - i. Operate continuously, record data
    - ii. Certified accuracy of  $\pm 5\%$  over its operating range
    - iii. Calibrated per manufacturer's instructions
  - d. Device for measuring fuel flow
    - i. Operate continuously, record data
    - ii. Certified accuracy of  $\pm 5\%$  over its operating range
    - iii. Calibrate per manufacturer's instructions
  - e. Device for measuring THC.
    - i. Employ flame ionization detector
    - ii. Heated sampling line maintained at ≥150 degrees C (302 degrees F) at all times
    - iii. Calibrate at least every 24 hrs using propane
  - f. Device for measuring moisture content in stack

- i. Calibrate per manufacturer's instructions
- (d) Training plan shall be maintained and training shall be provided to all persons who operate the incinerator. The plan shall be based on good air pollution practices, good engineering practices, good operating practices, and operational instructions per manufacturer's specifications. Persons who have not satisfactorily completed the training program shall be prohibited from operating the incinerator.
- (e) Only feed sludge into Hearth No. 3 unless permittee can demonstrate that feeding into another hearth does not cause air pollution
- (f) 14 dual fuel burners fired on No. 2 fuel only or utility supplied natural gas

These requirements were previously discussed in this inspection report.

## Additional Requirements, Condition No. 033

(a) Comply with the emission guidelines and compliance times for existing sewage sludge incineration units in accordance with 40 CFR Section 60.5035

### Source 111: Sludge Holding Tanks (4 – 250,000 gallon tanks)

Source consists of four tanks – ET1, ET2, ET3 and ET4 – that exhaust to scrubber (CO5)

## Emissions Restriction, Condition No. 001

(a) Included in Source 110, 140 tpy VOC emission restriction

## Throughput Restriction, Condition No. 002

(a) May not process residual waste in this source which has not been approved for processing by the Department

### Testing Requirements, Condition No. 003

(a) If at any time it is determined that the operator of this source or the associated air cleaning device is causing a malodor problem, the Department may require test for H<sub>2</sub>S in accordance with the Department's source testing manual

### Recordkeeping Requirement, Condition No. 004

(a) Record all residual waste loads that are emptied into these holding tanks

### Work Practice Requirements, Condition No. 005

(a) Holding tanks shall be exhausted to the Sludge Holding Tanks & Bldg B-4 Scrubber (Source C05) whenever they are in operation. The operating parameters for this scrubber are listed under Control Device C05 in this permit.

### **Observations**

Truck offloading was taking place during the inspection. I noted odors in the immediate vicinity of the sludge holding tanks where a truck was unloading and had disengaged the unloading hose. Waste loads are tracked via paper manifests. I was informed that DELCORA plans to install an electronic kiosk system to track wastes. PA DEP Waste Management regulates the types of waste DELCORA is permitted to accept.

### Source C04: Belt Filter Press Room Process Scrubber

Monitoring and Work Practice Requirements, Condition Nos. 001, 002 and 009-010

(a) Monitor and maintain operating parameters continuously:

	Limit	Value
pH, continuously	≥9	9.82
Oxidation reduction potential (ORP), continuously (for chlorine content)	≥500 millivolts (mV)	812 mV
Freshwater makeup flow rate (Dwyer series RM flow monitor)	≥1 gpm	6.2 gpm
Pressure drop across scrubber	6.0-9.5 inches w.g.	5.37 in. w.g.
Nominal flow rate of air into scrubber 2 (4" NPT plugs on duct to scrubber to measure airflow)	12,000 scfm	13,970.8 scfm
Recirculation water flow rate (Signet 5090 flow monitor)	≥150 gpm	153.3 gpm

- (b) Operate scrubber whenever one of belt filter presses is dewatering sludge
- (c) Scrubbing solution shall consist of mixture of plant chlorine and sodium hydroxide or sodium hydroxide and sodium hypochlorite. Alternatives to the above solutions may be used if approved by Department.
- (d) Initiate cleaning of packing in packed tower scrubber if increase in pressure drop since last cleaning is equal to or greater than 50% of baseline pressure
- (e) Maintain inward air flow to room:
  - a. Magnehelic gauge for pressure differential to determine pressure differential between ambient air and belt filter press room (room shall be maintained at negative pressure whenever dewatering sludge)
  - b. Alarm if pressure drop  $\geq 0$
  - c. Cease dewatering sludge if pressure drop  $\geq 0$  for over 2 hours

The belt filter press room scrubber was in operation. Three of the four presses were in operation at the time of the walk-through. I was informed that DELCORA was preparing for an acid wash of the scrubber. I obtained the above values from the various monitoring devices. The pressure drop was below the permitted range.

We walked through the belt filter press room. The door to the press room was closed on our approach and I could feel the inward flow of air upon entry. There are vents along an external wall of the press room. As I stood next to the vents, I could feel that air was being pulled from the outside into the room. The magnehelic gauge that measures the pressure differential between the outside air and the room read indicated negative pressure. The gauge read zero.

#### Recordkeeping Requirements, Condition No. 003

- (a) Record following on daily basis:
  - a. pH of scrubbing solution
  - b. Oxidation reduction potential of scrubbing solution
  - c. Pressure drop across scrubber
  - d. Recycle water flow rate to scrubber
  - e. Makeup water flow rate to the scrubber
- (b) Record once per shift: pressure differential between ambient atmosphere & belt filter press room
- (c) Keep copy of manufacturer's specification for the installation, maintenance and operation of odor scrubber
- (d) Record each time scrubber bypassed
- (e) Record each time an inspection, calibration and/or maintenance performed on scrubber

- (f) If belt filter press negative pressure differential alarm sounds as pressure differential increases to zero or becomes positive, record:
  - a. Cause and duration of non-negative pressure differential, corrective action taken, and date and time of occurrence
  - b. Date, time, reason odor scrubber bypassed

Regarding the belt filter pressure room differential pressure, I reviewed the daily log (June 14, 2017) maintained by the operator. The pressure drop was being recorded every hour. I was informed that should the pressure inside the press room become positive, an alarm will sound.

As a compliance check, I reviewed daily logs of scrubber operating parameters for 2016 through June 14, 2017. Maintenance is reported to the Department on a quarterly basis. It is noted in the daily logs. It appeared that operating parameters have been consistently monitored and recorded. Following maintenance performed on the scrubber on or about January 31, 2016, I saw that the pressure drop across the scrubber was consistently recorded as being below the permitted range through June 14, 2017. Pressure drop was typically in the 4-5 in. w.g. range. Additionally, I had recorded an air flow value of 13,970.8 scfm on June 14, 2017, which is above the permitted range. Mr. Dutton informed me that a scrubber media change out had taken place. He stated that the new media offered by the manufacturer was different from the media that had been used in the past. The "old" type media was no longer available.

#### Reporting Requirements, Condition Nos. 007-008

- (a) Quarterly reports of all instances of scheduled & unscheduled prevention & corrective maintenance on scrubber
- (b) Within 60 days of permit issuance, submit Standard Operating Procedures & Preventive Maintenance Schedules for scrubber. Standard Operating Procedures & Preventive Maintenance Schedules to include:
  - a. Calibration
    - i. Name, date, and start and end time that the instrument is being calibrated
    - ii. Function or parameter that is placed on hold while the instrument is being calibrated
    - iii. Operational status of the scrubber during calibration
  - b. Maintenance
    - i. Name, date, and start and end time that the instrument is being maintained
    - ii. Operational status of scrubber during maintenance or if back up equipment is being used to maintain scrubber operation during maintenance

### **Observations**

See Reports section of this inspection report.

#### Additional Requirements, Condition No. 011

(a) Scrubber is a single-stage packed tower countercurrent flow type scrubber manufactured by Duall, Model No. PT-513-72S

#### Source C05: Sludge Holding Tanks & Bldg B-4 Scrubber

## Emission Restriction(s), Condition No. 001

(a) Emissions from this scrubber shall be <1.0 ppmv H2S

#### Testing Requirements, Condition Nos. 002-004

- (a) Perform a stack test using Department approved procedures once every 5 calendar years, where 5 calendar years is defined beginning with the calendar year the latest stack test was performed and ending on December 31, five years later
- (b) Stack testing for this scrubber was completed on September 30 and October 1, 2015. Review of the test report by the Department's Source Test Group is pending. Permittee may be required to perform additional testing or provide additional data to fulfill the test requirements, depending on the results of the review.
- (c) At a minimum, stack test for H2S in the inlet and outlet to the scrubber. Tests shall be conducted in accordance with the provisions of EPA Method 15 or other Department approved methodology and 25 Pa. Code Chapter 139.
- (d) Results shall be reported as ppmv in the inlet and outlet streams to the scrubber and as destruction efficiency

#### **Observations**

Performance testing of the scrubber took place on September 30 through October 1, 2015. Weston Solutions, Inc. was contracted to perform the testing. The three-test run average inlet concentration was 43.3 ppmv and the three-test run average outlet concentration was 0.18 ppmv. The three-test run average destruction efficiency was determined to be 99.58%. The test results have not yet been reviewed by PA DEP Stack Test Section.

#### Monitoring Requirements, Condition No. 005

- (a) At least once per day, monitor the following operating parameters for this scrubber:
  - a. Pressure drop across the scrubber
  - b. Scrubber irrigation water flow rate
  - c. pH of the inlet irrigation water
  - d. H<sub>2</sub>S concentration in the scrubber outlet gas using a portable or stationary analyzer
- (b) Portable analyzer or stationary analyzer readings not to be relied upon to determine compliance with above limitations. Compliance determined via stack testing as indicated in Condition No. 002
- (c) Install or maintain necessary monitoring instrumentation

#### **Observations**

We performed a walk-through of the sludge thickening building. We observed grease handling operations (skimming) and the gravity belt thickeners in operation. A polymer is added to the sludge at this point in the process. The two screw conveyors and associated ductwork, the gravity belt thickeners and associated ductwork, and the partially enclosed grease skimmers all vent to the scrubber.

I accompanied the Operator at Large as he monitored and recorded the various operating parameters for the scrubber.  $H_2S$  is measured via a portable personal clip-style  $H_2S$  monitor. The operator obtained samples from both inlets of the irrigation water trains. He took these samples to the sludge trailer where a pH meter is located. Operating parameters are monitored and recorded twice per shift. Below are the values I obtained. These can be compared to the below limits.

Parameter	Value
Pressure drop across the scrubber	4.5 in. w.c.
Scrubber irrigation water flow rate	Upper: 50 gpm Lower: 50 gpm
pH of the inlet irrigation water	Upper: 4.8 Lower: 5.1
H <sub>2</sub> S concentration in the scrubber inlet	21.0 ppm

H <sub>2</sub> S	concentratio	on in the scrubber outlet	0.0 ppm

Recordkeeping Requirements, Condition Nos. 006-009

- (a) Record scrubber operating parameters, daily:
  - a. Pressure drop across the scrubber
  - b. Scrubber irrigation water flow rate
  - c. pH of the inlet irrigation water
  - d. H<sub>2</sub>S concentration in the scrubber outlet gas
- (b) Record interval for spraying of the irrigation water, whenever change is made
- (c) Record any maintenance performed on scrubber system to include description of maintenance and date performed
- (d) Record any inspections of samples taken from scrubber drainage, date, time of sample taken and results of inspection or analysis

### **Observations**

I skimmed through daily scrubber operating parameter records for 2016 through May 2017. I noted no multi-day periods of the scrubber operating outside any of the limits. The 2016 TVOP Compliance Certification cites mechanical failure and failure to take readings when the water is not cycling for missed monitoring on the following dates: January 6 through 22, 2016; January 30, 2016; February 4, 25 and 26, 2016; March 11, 15-17, 21, 2016; April 9, 2016; August 21-25, 2016; September 7, 2016 and November 23, 2016. Mr. Dutton informed me that heat tracing had been installed to address the mechanical failures during the cold months.

### Reporting Requirements, Condition No. 010

- (a) Provide the Department with a copy of any performance test reports, for H2S, organic compounds, or odor removal by the scrubber, performed in addition to the required performance testing
- (b) Reports shall contain results of the performance test and any operating data collected during the performance test and be submitted to the Department within 30 days of receipt of the test report by the permittee, or within 60 days of the performance test if the test is conducted by the permittee

### **Observations**

These requirements were fulfilled following the performance testing of the scrubber.

### Work Practice Requirements, Condition Nos. 011-012

- (a) Optimize the values of the following operating parameters for the scrubber, based on manufacturer's recommendations as available, while maintaining the following ranges:
  - a. Pressure drop across the unit: 4.0 to 9.7 in. w.c.
  - b. pH of the inlet irrigation water: 5.5 to 7.3
  - c. Irrigation water flow rate: 41 to 51 gallons/minute
    - i. Some minor deviations outside this range may be allowed provided they occur for no more than several days at once, the H2S concentration in the outlet is not increasing, and corrective action is taken
  - d. Interval of application of the irrigation water: 5 to 15 minutes
- (b) If any of the above parameters fall out of the specified ranges, take immediate corrective action to bring the parameter(s) into range. The corrective action and results shall be recorded.
- (c) Operate and maintain the scrubber and related instrumentation per Standard Operating Procedures and Preventive Maintenance Schedules recommended by the manufacturer or developed by the permittee and approved by the Department

(d) Ensure the scrubber and related instrumentation are operated and maintained in a manner consistent with good operating and maintenance practices, in accordance with good air pollution control practices and in accordance with manufacturer's specifications

### **Observations**

I was told that nitrogen and phosphorus are added to the utility water in the scrubber to maintain the bacteria's nutrient requirements. I was told that the irrigation water cycles every 15 minutes. Maintenance is reported to PA DEP in the quarterly reports of scheduled and unscheduled preventive and corrective maintenance.

#### Additional Requirements, Condition No. 013

- (a) Scrubber shall use Biotrickling Filter technology, which employs heterotrophic and autotrophic bacteria to degrade and remove H<sub>2</sub>S and odorous organic compounds from the inlet gas stream
- (b) Scrubber shall be a Bio-Air Solutions Eco-Filter, Model EF 1262 or equivalent
- (c) Design air flow of the scrubber shall be 11,500 cubic feet per minute at 70 degrees F
- (d) Scrubber shall recover odorous compounds from the Sludge Holding Tanks (Source ID 111) and from the Building B-4 grease processing and thickening areas

#### Source 110: Wastewater Treatment Process

#### Emissions Restrictions, Condition No. 001

- (a) Total VOC emissions from the following sources are limited to 140 tons per each consecutive 12-month period:
  - Grit removal system/Preparation tanks
  - Influent flume
  - Primary settling tank and weirs
  - Aeration tanks and weirs
  - Final clarification tanks and weirs
  - Post aeration tanks
  - Chlorine contact tanks and weirs
  - Plant effluent (outfall) channels and weirs
  - Dissolved air floatation
  - Dewatering operation
  - Four sludge holding tanks (Source 111)

## Monitoring and Recordkeeping Requirements, Conditions 002 and 003

- (a) Monitor and record influent and effluent wastewater flow daily, as well as associated parameters required to calculate VOC and HAP emissions from wastewater treatment process using monthly EPA Method 624 analyses and Water9 modeling
- (b) Record VOC and HAP emissions annually based on average wastewater flow and average influent VOC concentration over previous 12 months

I was informed that DELCORA calculates VOC and HAP emissions using the results of the sampling analyses and Water9. VOC and HAP emissions from the wastewater treatment process are included in the annual emission inventories. 2015 and 2016 VOC emissions have been well below 140 tons.

Pollutant	2015 (tons)	2016 (tons)
VOC	1.89	5.81
Benzene	0.39	0.79
Chloroform	0.27	0.25
Ethyl Benzene	0.17	0.36
Toluene	0.58	2.89
Xylenes	0.48	1.52

Source 500: Miscellaneous VOC Sources

### Emission Restriction, Condition No. 001

3 lbs/hr, 15 lbs/day, or 2.7 tons/yr VOC emissions limit for the following sources:

- Five final clarification tanks and weirs (5)
- Two post aeration tanks (2)
- Two chlorine contact tanks and weirs (2)
- Plant effluent (outfall) channels and weirs
- Dissolved air floatation
- Dewatering operation
- Three 20,000 gallon capacity No. 2 fuel oil storage tanks
- Four sludge-holding tanks

## Recordkeeping Requirements, Condition No. 002

(a) Calculate and record VOC emissions to comply with limits

#### **Observations**

I did not inspect this condition for compliance. Presumably emissions from these sources are included in the VOC emissions from the wastewater treatment process.

Request for Determination of Requirement for Plan Approval/Operating Permit (RFD) in past 5 years

Facility Name	RFD Application ID	Date Received	Date Approved
DELCORA Darby Creek Pump	4407	4/30/2014	5/9/2014
Station			

**RFD 4407:** Internal combustion engine located at DELCORA Darby Creek Pump Station, Calcon Road and Tribbett Avenue, Sharon Hill, Delaware County was determined to be exempt from Plan Approval pursuant to 25 Pa. Code Section 127.14(a)(8), Number 6, which exempts all internal combustion engines regardless of size with combined NOx emissions less than 100 lbs/hr, 1000 lbs/day, 2.75 tons per ozone season and 6.6 tons per year on a 12-month rolling basis for all exempt engines at the site. There are no other air emission sources at the facility. The facility is exempt from Operating Permit in accordance with Department guidance document 275-2101-003 as a facility with the potential to emit less than 25 tons/yr NOx, 100 tons/yr CO and actual emissions of less than 10 tons/yr NOx and 20 tons/yr CO.

## Attachments

- Attachment 1 Incinerator CMS screenshot from June 15, 2017
- Attachment 2 Incinerator CMS screenshot from June 15, 2017
- Attachment 3 Operator training documentation

Attachment 4 - Incinerator CMS screenshot from June 15, 2017

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Mg: Mike ASportis DEC 4-20171 - 2017-1389

# NOTICE OF VIOLATION

November 30, 2017

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Incinerator No. 2 Plan Approval Violations Plan Approval 23-0038F Chester City Delaware County

Dear Mr. DiSantis:

On August 23-24, 2017, Delaware County Regional Water Control Authority (DELCORA) performed source testing of Sewage Sludge Incinerator No. 2 (Source: 002). I completed a compliance review of the results on November 20, 2017, and I identified the following violations:

The HCl (EPA Method 26A) emissions measured at the stack outlet were 1.79 ppmvd @ 7% O<sub>2</sub>. Under PA-23-0038F, Condition No. 003(a)(4), Source 002, Section D, the emission limit is 1.2 ppmvd @ 7% O<sub>2</sub>. The exceedance of the HCl emission limit is a violation of 25 Pa. Code Section 127.444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

I request a response to this Notice of Violation in which you explain the corrective actions DELCORA has taken in response to the HCl emissions exceedance. DELCORA had proposed a retest date of October 30, 2017. If this date changed, I request that DELCORA provide DEP with a date the retest was performed in the response document. I request that a response be provided to me within 15 days of receiving this Notice of Violation.

Printed on Recycled Paper

-2-

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely,  $C \sim C$ Heather Henry

Air Quality Specialist Air Quality

Mr. McLemore cc: **Operations Chief** Mr. Rebarchak Central Office (via email) Delaware County Planning Department Enforcement File Re 30 (TDB17)333-11


DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY P.O. Box 999 • Chester, PA 19016-0999

December 19, 2017

## FED EX – NEXT DAY

via email: hehenry@pa.gov

Heather Henry Air Quality Specialist Air Quality Program PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401-4915

> RE: Incinerator No. 2 Plan Approval Violations Plan Approval 23-0038F Chester City, Delaware County PADEP November 30, 2017 Correspondence

Dear Ms. Henry:

Please allow this letter to serve as DELCORA's response to the above referenced correspondence.

On August 23-24, 2017, the Delaware County Regional Water Quality Control Authority (DELCORA) performed source testing on Sewage Sludge Incinerator No. 2 (Source: 002). This performance test identified Hydrogen Chloride (HCI) emissions in excess of the limit listed in Condition No. 003(a)(4), Source 002, Section D of Plan Approval No. 23-0038F. Upon becoming knowledgeable of this result, DELCORA notified both PADEP and USEPA via a letter dated October 6, 2017. This correspondence detailed DELCORA's intentions to investigate the root cause of the elevated HCI emissions and conduct additional performance testing.

The Authority completed a comprehensive review of the quench/multi-venturi scrubber system including inspection of the packed bed media, review of the pressure drop across the unit, alkalinity/chloride content of the water, quench inlet pressure, sub-cooling outlet temperature, and packed bed flow. All systems were found to be within the manufacturer's recommended operating ranges and design criteria. On November 8th, 2017, DELCORA conducted additional HCI source testing on Sewage Sludge Incinerator 2 with a preliminary result of 0.48 ppmvd (EPA26a) DELCORA intends to submit the official results to the Department as soon as they become available.

ADMINISTRATION 610-876-5523 FAX: 610-876-2728 CUSTOMER SERVICE/BILLING 1610-876-5526 FAX: 610-876-1460 PURCHASING & STORES 610-876-5523 FAX: 610-497-7959 PLANT & MAINTENANCE 610-876-5523 FAX: 610-497-7950 Heather Henry PADEP December 19, 2017 page 2

The August 23-24, 2017 source testing provided valuable insight during the shakedown period of this new system. DELCORA is working diligently to optimize the operation of this system and is currently in compliance for all parameters listed in Plan Approval 23-0038F including Condition No. 003(a)(4), Source 002.

Thank you for taking the time to review the compliance of our facility. If you have any questions regarding this correspondence please contact Ian Piro, Environmental Compliance Manager, at 610-876-5523, est. 288.

Sincerely,

Michael J. DiSantis Director of Operations and Maintenance

MJD/IP:bab

cc: J. Rebarchak, PADEP
 K. McLemore, PADEP via email: <u>kmclemore@pa.gov</u>
 Operations Chief, PADEP
 <u>ra-epaircompliance@pa.gov</u> via email
 Delaware County Planning Department
 R. Willert, DELCORA via email link
 C. Hurst, DELCORA via email link
 D. Dutton, DELCORA via email link
 I. Piro, DELCORA via email link
 File



SOUTHEAST REGIONAL OFFICE

# NOTICE OF VIOLATION

May 29, 2018

cc: RJW; MJD, Hurst, Piro, Dutton, Karch, File

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: TVOP Violations TVOP-23-00038 Chester City Delaware County

Dear Mr. DiSantis:

On May 18 and 21, 2018, I performed compliance reviews of DELCORA's 2017 Title V Compliance Certification and Plantwide Applicability Limit Emissions and Monitoring Semiannual Report for July 1 through December 31, 2017. I identified the following violations of the Department of Environmental Protection's (DEP) Air Pollution Rules and Regulations:

Contrary to TVOP, Section D, Condition Nos. 007 for Sewage Sludge Incinerator No. 1 and 2, the 48 dry tons per day sludge throughput limit was exceeded on May 10, 2017 (48.96 tons at Incinerator No. 1), May 28, 2017 (48.96 tons at Incinerator No. 1), and July 27, 2017 (50.40 tons at Incinerator No. 1 and 2). These daily throughput exceedances at the incinerators are violations of 25 Pa. Code Section 127,444.

Any violation of 25 Pa. Code Section 127.444 subjects a person to a variety of enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

As corrective action was provided in the Title V Compliance Certification, I do not request a response from DELCORA to this Notice of Violation at this time.

#### Mr. Michael J. DiSantis

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely, Heather Henry Air Quality Specialist Air Quality

cc: Mr. McLemore Ms. Gallagher Mr. Rebarchak Central Office (via email) Delaware County Planning Department Enforcement File Re 30 (TDB18) 149-4



April 1, 2019

cc: MJD, RJW, Hurst, Piro,

S.

Sweeney, Dutton,

Chilson-GHD, File

## NOTICE OF VIOLATION

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority (DELCORA) 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Title V Operating Permit 23-00038 and Plan Approval 23-0038F
 DELCORA
 Sewage Sludge Incinerator bypass incidents from April 16, 2018 through
 March 8, 2019
 Chester City
 Delaware County

Dear Mr. DiSantis:

On March 19, 2019, I completed a review of reports and supplementary information covering over 50 incidents of sewage sludge incinerator bypasses. These bypass incidents occurred from April 16, 2018 through March 8, 2019. I identified the following violations of the Department of Environmental Protection's (DEP) Air Pollution Regulations:

1. Plan Approval 23-0038F, Section D, Source ID Nos. 001 and 002: Sewage Sludge Incinerator 1 and 2, Condition Nos. 036 requires that when sludge is charged to an incinerator, the incinerator exhaust shall be directed in series to a Quench and Multiple Venturi Scrubber, a Wet Electrostatic Precipitator (WESP), and a Regenerative Thermal Oxidizer (RTO). As displayed in the following chart, bypasses of the control devices occurred prior to the cessation of sludge being charged to the incinerators:

Date	Incinerator	Control Train	Bypass	Sludge Feed
		Bypass	<b>Opening Time</b>	Cessation Time
April 16, 2018	No. 2	WESP/RTO	06:19 hours	06:24 hours
April 20, 2018	No. 1	WESP/RTO	08:47 hours	08:48 hours
April 20, 2018	No. 2	WESP/RTO	08:44 hours	08:46 hours
May 10, 2018	No. 2	WESP/RTO	09:52 hours	09:56 hours
May 16, 2018	No. 1	WESP/RTO	13:40 hours	13:49 hours
May 16, 2018	No. 2	WESP/RTO	13:38 hours	13:40 hours
July 3, 2018	No. 2	Scrubber/WESP/RTO	19:12 hours	Never ceased
July 6, 2018	No. 2	WESP/RTO	23:54 hours	Never ceased
July 13, 2018	No. 2	WESP/RTO	20:30 hours	20:31 hours
July 15, 2018	No. 1	WESP/RTO	08:27 hours	08:35 hours
July 24, 2018	No. 2	WESP/RTO	21:04 hours	21:13 hours

Date	Incinerator	Control Train	Bypass	Sludge Feed
		Bypass	Opening Time	Cessation Time
July 27, 2018	No. 1	WESP/RTO	21:02 hours	21:10 hours
August 3, 2018	No. 1	WESP/RTO	18:42 hours	18:55 hours
August 6, 2018	No. 1	WESP/RTO	15:07 hours	15:18 hours
August 9, 2018	No. 2	WESP/RTO	13:10 hours	13:15 hours
August 30, 2018	No. 2	WESP/RTO	02:16 hours	02:17 hours
September 12, 2018	No. 1	WESP/RTO	13:40 hours	Never ceased
September 17, 2018	No. 1	WESP/RTO	07:22 hours	07:23 hours
September 17, 2018	No. 2	WESP/RTO	07:19 hours	07:23 hours
October 14, 2018	No. 2	Scrubber/WESP/RTO	12:49 hours	12:59 hours
October 15, 2018	No. 2	Scrubber/WESP/RTO	08:57 hours	09:00 hours
October 15, 2018	No. 2	WESP/RTO	02:27 hours	02:29 hours
October 22, 2018	No. 2	WESP/RTO	09:02 hours	09:10 hours
October 25, 2018	No. 2	WESP/RTO	17:53 hours	18:03 hours
October 27, 2018	No. 2	WESP/RTO	05:10 hours	05:14 hours
October 30, 2018	No. 2	WESP/RTO	10:30 hours	10:31 hours
November 16, 2018	No. 2	WESP/RTO	14:55 hours	15:10 hours
November 21, 2018	No. 1	WESP/RTO	08:18 hours	08:25 hours
December 4, 2018	No. 1	WESP/RTO	06:00 hours	06:02 hours
January 12, 2019	No. 2	WESP/RTO	20:42 hours	20:48 hours
January 14, 2019	No. 1	WESP/RTO	07:13 hours	07:15 hours
January 29, 2019	No. 1	WESP/RTO	04:04 hours	04:15 hours
February 1, 2019	No. 2	WESP/RTO	19:20 hours	19:23 hours
February 19, 2019	No. 1	WESP/RTO	06:01 hours	06:02 hours
March 8, 2019	No. 1	WESP/RTO	09:10 hours	09:12 hours
March 8, 2019	No. 2	WESP/RTO	09:10 hours	09:12 hours

This is contrary to Plan Approval 23-0038F and is a violation of 25 Pa. Code Section 127.444.

2. Title V Operating Permit (TVOP) 23-00038, Section E, Group 1: Sewage Sludge Incinerator 1 and 2, Condition No. 025 states, "use of the bypass stack at any time that sewage sludge is being charged to the SSI unit is an emissions standards deviation for all pollutants listed in Table 3 of 40 C.F.R. Part 62 Subpart LLL." Therefore, the above bypass events constitute operating the incinerators in violation of the emission standards listed in TVOP 23-00038, Section E, Group 1 Incinerator 1 and 2, Condition No. 004(a)(1) through (7). This is contrary to TVOP-23-00038 and is a violation of 25 Pa. Code Section 127.444.

3. From April 16, 2018 to March 8, 2019, over 50 bypasses of the Sewage Sludge Incinerators' WESP/RTO control trains, and scrubbers in some instances, resulted in the uncontrolled release of an estimated 1.26 tons of particulate matter to the outdoor atmosphere. This is contrary to TVOP-23-00038, Section B, Condition No. 002 and is a violation of 25 Pa. Code Section 127.444, and 25 Pa. Code Section 121.7, which prohibits air pollution as defined in 25 Pa. Code Section 121.1.

#### Mr. Michael J. DiSantis

The above violations constitute unlawful conduct and a public nuisance as defined by Sections 8 and 13 of Air Pollution Control ACT (APCA), 35 P.S. Sections 4008 and 4013, respectively, for each day of violation. Violations of DEP Air Quality Regulations are subject to penalties of Sections 9 and 9.1 of the APCA. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of the DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If the DEP determines that an enforcement action is appropriate, you will be notified of this action.

No later than 15 days from receipt of this Notice of Violation, I request that DELCORA provide me with a corrective action plan addressing how sludge charge during a bypass will be prevented. Also, I request any corrective actions DELCORA has carried out or will carry out to prevent future bypass incidents since the last corrective action update was provided to me on November 15, 2018.

If you have any questions concerning this matter, please contact me at the address or telephone number located in the first page footer.

Sincerely. FOR

Heather Henry Air Quality Specialist Air Quality

cc: Mr. McLemore Ms. Gallagher Mr. Rebarchak Central Office (via email) Delaware County Planning Department Enforcement File Re 30 (TDBAQ19) 91

# DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY P.O. Box 999 • Chester, PA 19016-0999



April 25, 2019

FED EX – NEXT DAY

Heather Henry Air Quality Specialist Air Quality Program PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401-4915

> RE: Air Quality Permit Violations Chester City, Delaware County TVOP-23-00038 and Plan Approval 23-0038F PADEP NOV dated April 1, 2019

Dear Ms. Henry:

Please allow this letter to serve as DELCORA's response to the above referenced correspondence.

DELCORA recognizes and regrets the emissions incidents identified in the Department's NOV as well as any other incidents that have occurred since the implementation of the upgraded pollution controls for the incinerators at WRTP. While these pollution controls have significantly reduced overall pollutant emissions from the incinerators to well below required standards (see attached letter from GHD), this level of pollutant removal comes with the complexities and challenges of operating and maintaining the technologies and equipment required to perform this task. We believe this complexity is in part responsible for some of the incidents. Since the installation and start-up of these pollution controls, DELCORA has spent over \$1MM to revise and upgrade these new controls, many of which were identified in previous correspondence with the Department. We have also continued to train operations and maintenance staff on the system as we are routinely making revisions to improve our reliability. Lastly, we will continue to work to identify and revise equipment and system operation as needed.

Corrective actions, improvements, repairs, and programming changes that have been made to address these issues and refine the system since November 15, 2018 include:

> · Replacement of the poppet valve solenoids with an upgraded unit that includes heated enclosures.

ADMINISTRATION 610-876-5523

CUSTOMER SERVICE/BILLING 610-876-5526 FAX: 610-876-2728 FAX: 610-876-1460

PURCHASING & STORES 610-876-5523 FAX: 610-497-7959

PLANT & MAINTENANCE 610-876-5523 FAX: 610-497-7950

Heather Henry PADEP April 25, 2019 page 2

- Began tracking the timing of the poppet valves and have added an alarm to the SCADA system to notify operating staff to shut off sludge feed if the poppet valve operation takes longer than one second. This will result in the sludge feed being stopped prior to RTO failures caused by poppet valve failures.
- Due to the long lead time, spare media has been purchased to be on site if needed at a total cost of ~\$300,000.
- Completion of automated exhaust oxygen valves to include integration into SCADA and operator training. These valves now automatically open to provide enough oxygen to ensure complete combustion of flue gas prior to leaving the incinerators.
- Installed DC breaking resistors in the RTO's fan VFDs to address failures caused by DC over-voltage.

We would like to meet with the Department to discuss this matter further. Thank you in advance for your consideration in this matter. Should any further information be required concerning this response, please contact me at 610-876-5523, ext. 256.

Respectfully Submitted,

Michael J. DiSantis Director of Operations and Maintenance

MJD:bab attachment

cc: J. Rebarchak, DEP
K. McLemore, DEP
J. Gallagher, DEP
Delaware County Planning Department
S. Chilson, GHD via email
R. Willert, DELCORA via email link
C. Hurst, DELCORA via email link
M. Sweeney, DELCORA via email link
I. Piro, DELCORA via email link
D. Dutton, DELCORA via email link
File



April 26, 2019

Heather Henry Air Quality Specialist Air Quality Program PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401-4915

RE: Sewage Sludge Incinerator Bypass Incidents TVOP 23-00038 and Plan Approval 23-00038F City of Chester, Delaware County PADEP – NOV dated April 1, 2019

Dear Ms. Henry:

GHD submits this letter, on behalf of DELCORA, to serve as a compliment to DELCORA's response to the above referenced correspondence.

DELCORA has experienced several operational challenges in implementing more robust pollution control technology that was installed at their Western Regional Treatment Plant in 2016. This technology included a new Multi-Venturi Wet Scrubber, Wet Electrostatic Precipitator (WESP), and Regenerative Thermal Oxidizer (RTO) for each Multi-Heath Furnace (MHF). DELCORA has made numerous operational, mechanical, electrical, and process control changes since the units were installed to minimize process disturbances but did experience an inordinate amount of bypass incidents in 2018. However, given the vast improvements resulting from DELCORA's investment in improved air pollution control technology, this did not have an impact on the overall potential to emit. Contained within this report are tables demonstrating DELCORA's bypass emissions and total potential to emit for 2018.

To facilitate a better understanding of our comments please reference Figure 1 below, showing the general arrangement of the Incineration/two-stage thermal oxidization system.





Emissions from the MHF Start-Up Stack are "controlled emissions" versus "uncontrolled emissions" that result from opening of the Emergency Bypass Stack.

The "MHF Start-up Stack" or "Short Stack", as referred to by DELCORA, is located downstream of the wet scrubber and ID Fan. Numerous MHF installations equipped with similar wet scrubbers have demonstrated compliance with Particulate Matter (PM) regulatory emission limits of 80 mg/dscm at 7% O<sub>2</sub> and 1.3 lbs PM/dry ton incinerated (lbs/dt). These include; DELCORA prior to the improvement project to install the new control equipment, Buffalo Sewer Authority, Buffalo, NY, which has two same size diameter MHF's as DELCORA equipped with multi-venturi and impingement plate scrubber stages only, and other MHF installations. Those facts withstanding, we understand that DELCORA has agreed to use 2.2 lbs PM/dry ton incinerated to calculate the mass of PM emission during short stack openings.

Tables 1 and 2 below show the annual PM emissions on a mass based on PM concentrations, in mg/dscm at 7%O<sub>2</sub>, measured in the 2018 stack test.

Note: The conversion from concentration (mg/dscm) to pounds per dry ton incinerated (lbs/dt) incorrectly calculated in the 2018 stack test report as submitted to DEP. The concentrations are correct. The corrected conversion from mg/dscm to lbs/dt is presented in Tables 1 and 2 below. GHD via separated correspondence will submit a letter of explanation and revised stack test report to DEP.



DELCORA Incinerator 1							
2018 Stack Test Report Review							
		11/29/18	11/29/18	11/29/18			
per Table 4.2		Run 1	Run 2	Run 3	Average		
Stack Flow	dscfm	6,066	8,245	9,020	7,777 _		
Particulate matter	mg not corrected	10.9	4.7	4.9	6.8		
	lbs/hour	0.21	0.072	0.076	0.119		
Conversion to lbs/dt							
dscfm to dscm	ft3/min to_m3/min	172	234	255	220		
	m3/hr	10,308	14,010	15,327	13, <b>215</b>		
drytops	tons/day	44.6	44.6	44.6	44.60		
	tons/hr	1.86	1.86	1.86	1.86		
Particulate Matter	lbs/dt	0.113	0.039	0.041	0.064		

# Table 1 Incinerator 1 PM Emissions

Table 2 Incinerator 2 PM Emissions

DELCORA Incinerator 2 2018 Stack Test Report Review						
		11/27/18	11/27/18	11/27/18	-	
per Table 4.2		Run 1	Run 2	Run 3	Average	
Stack Flow	dscfm	10,916	12,923	10,799	11,546	
Particulate matter	mg not corrected	71.6	28.9	5.6	35	
	lbs/hour	1,44	0.58	0.11	0.71	
Conversion to lbs/dt				ĺ		
dscfm to dscm	ft3/min to_m3/min	309	366	306	327	
	m3/hr	18,549	21,959	18,350	19,619	
dry tons	tons/day	44.6	44.6	44.6	44.60	
	tons/hr	1.86	1.86	1.86	1.86	
Particulate Matter	lbs/dt	0.775	0.312	0.059	0.382	



	Actual Using 2018 Stack Tests			Regulatory Limit		
Particulate Matter in:	MHF1 MHF2 Total			Per MHF	Total	
lb/dt	0.064	0.382	0.446	1.30	2.60	
lb/hr @ 2 dt/hr	0.128	0.764	0.892	2.60	5.20	
lb/day @ 2 dt/hr	3.072	18.336	21.408	62.40	124.8	
maximum possible						
lb/yr	1,121	6,693	7,814	22,776	45,552	

## Table 3 Annual Emissions based on 2018 Stack Test

On an annual mass emission basis, DELCORA emit approximately 17% of their regulatory allowable PM emissions.

The emissions impact of the short stack bypasses is presented in Table 4 below. The calculation is based on 2.2 lbs/dt PM emission from the short stack.

DELCORA plans to test the PM emissions from the Short Stack during the next stack test.

 Table 4
 2018 Maximum Possible Emissions including Bypasses

2018 total bypass lb	3,940
maximum possible total lb for both MHF including	
bypasses	11,754
maximum possible percentage of regulatory limit	
emitted including bypasses	25.8%

Justifications for reduced emissions from the short stack include:

#### Particulate Matter (PM)

PM is primarily removed in the wet scrubber, upstream of the Short Stack. While it is true that the WESP polishes PM removal efficiency prior to the Final Stack, there are many MHFs in operation without WESPs that comply with PM emission standards.

### SO<sub>x</sub> and HCL

Both sulphur compounds and hydrochloric acid emissions are acid-based emissions neutralized in the wet scrubber before the Short Stack

#### NOx

NO<sub>x</sub> at the Short Stack will be less than NO<sub>x</sub> in the Final Stack, due to combustion in the RTO, downstream of the Short Stack. Final Stack NO<sub>x</sub> has been stack tested several times and is compliant with regulatory limits, therefore the Short Stack NO<sub>x</sub> should also be compliant.



## VOCs / THC

The primary function of the RTO, located downstream of the Short Stack, is destruction of VOCs, measured as THC. The initial performance stack testing of both MHF 1 (Aug 2016) and MHF 2 (Feb 2017), per PA DEP approved test protocol, required testing of VOCs Before and After the RTO. The VOC Before and After sample locations are shown in red in Figure 1 above.

The VOC emissions Before and After the RTO measured in the 2016/2017 stack tests are summarized below;

MHF 1 VOCs Before RTO VOCs After RTO Limit	31.7 ppmvd 1.5 ppmvd <b>100 ppmvd</b>
MHF 2 VOCs Before RTO VOCs After RTO Limit	38.6 ppmvd 1.06 ppmvd <b>100 ppmvd</b>

Writer's notes;

The test results show the VOC concentration at the Short Stack to average 31.7 ppmvd for MHF 1 and 38.6 ppmvd for MHF 2 compared to a limit of 100 ppmvd measured as Total Hydrocarbons (THC).

The definition of VOC excludes the methane and ethane fraction<sup>(1)</sup>. The method used in the 2016/2017 stack tests was reference Method 25A. Total Hydrocarbons, as propane, were measured and no methane or ethane was detected, therefore the ppm VOC is equivalent to ppm THC.

### Conclusion:

- Because the Short Stack is located downstream of the wet scrubber the PM, SO<sub>x</sub>, and HCl emissions from the short stack should be reduced to permit compliant values.
- NO<sub>x</sub> at the Final Stack was measured to be compliant. The NO<sub>x</sub> emissions at the Short Stack will be less than the final stack due to the additional combustion in the RTO, therefore they should also be compliant.
- The 2016 Stack Test data showed compliance with the THC limit of 100 ppmvd at the "Short Stack".

Should any further information be required concerning this report, please contact me by phone at 215-230-3663 or by email at <u>stan.chilson@ghd.com</u>.

We offer to meet with DEP to discuss the findings stated herein.



Heather Henry PA DEP April 26, 2019

Respectfully Submitted,

Otaly J. Chlan

Stanley J. Chilson, P.E. GHD Project Director

cc: Mr. McLemore, PA DEP
Ms. Gallagher, PA DEP
Mr. Rebarchak, PA DEP
Delaware County Planning Department
M. DiSantis, DELCORA via email
C. Hurst, DELCORA via email
M. Sweeney, DELCORA via email
D. Dutton, DELCORA via email
File



DRIG; M.DISCONHS DEGENVED JUL 29 2019 By ZO19-08 ZG FWD: BAB, MC

July 24, 2019

# NOTICE OF VIOLATION

Mr. Michael J. DiSantis Delaware County Regional Water Quality Control Authority (DELCORA) 100 E 5<sup>th</sup> Street P.O. Box 999 Chester, PA 19016-0999

Re: Title V Operating Permit 23-00038 and Plan Approval 23-0038F DELCORA Sewage Sludge Incinerator bypass incidents from March 21, 2019 thru July 17, 2019 Chester City Delaware County

Dear Mr. DiSantis:

On July 18, 2019, I completed a review of reports covering 27 incidents of sewage sludge incinerator bypasses. These bypass incidents occurred from March 21, 2019 through July 17, 2019. I identified the following violations of the Department of Environmental Protection's (DEP) Air Pollution Regulations:

1. Plan Approval 23-0038F, Section D, Source ID Nos. 001 and 002: Sewage Sludge Incinerator 1 and 2, Condition Nos. 036 requires that when sludge is charged to an incinerator, the incinerator exhaust shall be directed in series to a Quench and Multiple Venturi Scrubber, a Wet Electrostatic Precipitator (WESP), and a Regenerative Thermal Oxidizer (RTO). As displayed in the following chart, bypasses of the control devices occurred prior to the cessation of sludge being charged to the incinerators:

Date	Incinerator	Control Train Bypass	Bypass Opening Time	Sludge Feed Cessation Time
March 22, 2019	No. 2	WESP/RTO	09:52 hours	10:06 hours
March 22, 2019	No. 1	WESP/RTO	21:18 hours	21:20 hours
March 26, 2019	No. 1	WESP/RTO	02:25 hours	Never ceased
				during bypass
April 1, 2019	No. 1	WESP/RTO	04:28 hours	04:30 hours
April 23, 2019	No. 2	WESP/RTO	10:24 hours	10:27 hours

May 1, 2019	No. 1	WESP/RTO	11:08 hours	11:25 hours
Date	Incinerator	Control Train Bypass	Bypass Opening Time	Sludge Feed Cessation Time
May 3, 2019	No. 2	WESP/RTO	21:00 hours	21:02 hours
May 18, 2019	No. 1	WESP/RTO	01:15 hours	01:16 hours
May 22, 2019	No. 2	WESP/RTO	09:46 hours	09:47 hours
May 27, 2019	No. 1	WESP/RTO	21:23 hours	Never ceased during bypass
June 2, 2019	No. 1	WESP/RTO	13:32 hours	13:36 hours
June 12, 2019	No. 2	WESP/RTO	05:35 hours	05:42 hours
June 19, 2019	No. 2	WESP/RTO	14:45 hours	Never ceased during bypass
June 24, 2019	No. 2	WESP/RTO	08:37 hours	08:40 hours
July 2, 2019	No. 2	WESP/RTO	04:34 hours	04:40 hours
July 2, 2019	No. 1	WESP/RTO	20:38 hours	20:43 hours
July 4, 2019	No. 2	WESP/RTO	20:06 hours	20:10 hours
July 17, 2019	No. 2	WESP/RTO	03:30 hours	03:38 hours

This is contrary to Plan Approval 23-0038F and a violation of 25 Pa. Code Section 127.444.

- Title V Operating Permit (TVOP) 23-00038, Section E, Group 1: Sewage Sludge Incinerator 1 and 2, Condition No. 025 states, "use of the bypass stack at any time that sewage sludge is being charged to the SSI unit is an emissions standards deviation for all pollutants listed in Table 3 of 40 C.F.R. Part 62 Subpart LLL." Therefore, the above bypass events constitute operating the incinerators in violation of the emission standards listed in TVOP 23-00038, Section E, Group 1 Incinerator 1 and 2, Condition No. 004(a)(1) through (7). This is contrary to TVOP-23-00038 and a violation of 25 Pa. Code Section 127.444.
- TVOP 23-00038, Section E, Group 1: Sewage Sludge Incinerator 1 and 2, Condition No. 008(4)(i) requires that the quantity of sewage sludge incinerated be monitored on a continuous basis. On May 24, 2019, DELCORA reported a bypass at Incinerator No. 2 from 07:31 AM to 07:50 AM. In follow-up reporting, it was stated that the electronic monitoring system (SCADA) for sludge feed was down, therefore there was no way of knowing when sludge feed stopped. Failure to continuously monitor the sewage sludge feed is contrary to TVOP 23-00038 and a violation of 25 Pa. Code Section 127.444.

The above violations constitute unlawful conduct and a public nuisance as defined by Sections 8 and 13 of Air Pollution Control ACT (APCA), 35 P.S. Sections 4008 and 4013, respectively, for each day of violation. Violations of DEP Air Quality Regulations are subject to penalties of Sections 9 and 9.1 of the APCA. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of DEP. It neither imposes nor waives any enforcement action available to DEP under any of its statutes. If DEP determines that an enforcement action is appropriate, you will be notified of this action.

On June 19, 2019, representatives of DELCORA met with representatives of DEP and stated that a system would be implemented to ensure cessation of sludge prior to bypass within 90 days. I request that DEP be provided with an update on this project and if it is possible for DELCORA to implement the system sooner.

If you have any questions concerning this matter, please contact me at hehenry@pa.gov or at 484.250.5035.

Sincerely, Heather Henry

Air Quality Specialist Air Quality

cc: Mr. McLemore Ms. Gallagher Mr. Rebarchak Central Office (via email) Delaware County Planning Department Enforcement File Re 30 (TDB19) 205-2

# DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY PO. Box 999 • Chester, PA 19016-0999



September 19, 2019

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Heather Henry Air Quality Specialist Bureau of Air Quality PA Department of Environmental Protection Southeast Regional Office 2 East Main Street Norristown, PA 19401

> RE: **DELCORA Western Regional Treatment Plant** Sewage Sludge Incinerator bypass incidents From March 21, 2019 thru July 17, 2019 - Notice of Violation

Dear Ms. Henry:

DELCORA has received and reviewed the Notice of Violation dated July 24th, 2019 that details your review of bypass reports for events occurring at our Western Regional Treatment Plant from March 21, 2019 through July 17, 2019 and the resultant violations of the Department of Environmental Protection's Air Pollution Regulations. As stated in the Notice of Violation, DELCORA has worked to implement a system to ensure that sludge feed to an incinerator automatically ceases in the event that there is any bypass of that incinerator's scrubber or currently associated WESP and regenerative thermal oxidizer section. The process conditions that would trigger any bypass stack to open have been programmed to shut down the belt filter press sludge feed pumps that are feeding the belt filter presses feeding the incinerator experiencing a bypass. As of August 9th, 2019, this programming is operational well within the 90-day schedule.

Please let me know if you have any questions regarding this. Thank you for your consideration.

Sincerely,

Michael J. DiSantis **Director of Operations & Maintenance** 

MJD:mc

CC: Mr. McLemore, PA DEP Ms. Gallagher, PA DEP Mr. Rebarchak, PA DEP C. Hurst, DELCORA via email link M. Sweeney, DELCORA via email link File

CUSTOMER SERVICE/BILLING **ADMINISTRATION** 610-876-5526 610-876-5523 

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