



Powering Today. Protecting Tomorrow.

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March 1, 2022

Mr. Jeffrey Meyer, Manager
Division of Air Enforcement
Bureau of Air Compliance & Enforcement - Northern
7 Ridgedale Avenue
Cedar Knolls, NJ 07927

Subject: Essex County Resource Recovery Facility
Program Interest (Title V) Number 07736
NEA200001-07736 – Administrative Consent Order
Progress Report #9

Dear Mr. Meyer:

On behalf of Covanta Essex Company and in accordance with the Item #17 under the above referenced Administrative Consent Order (ACO) NEA200001-07736, attached is Progress Report #9 explaining the status of Covanta Essex Company's compliance with the Compliance Schedule required by the ACO.

If you have any questions or need additional information please contact Patricia Earls of my staff at 973-817-7322 or pearls@covanta.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Pat Earls".

Patricia Earls
New Jersey Regional Environmental Manager

Attachments

Mr. Jeffrey Meyer

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"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this letter and all attached documents and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant civil and criminal penalties, including the possibility of fine or imprisonment or both, for submitting false, inaccurate, or incomplete information."



David Blackmore
Facility Manager

3 / 1 / 22
Date

Covanta Essex Company, PI #07736
Progress Report #9
NEA200001-07736 – Administrative Consent Order, Item #17

A. Identification of Site and Reference to ACO

Covanta Essex Company, PI #07736
Administrative Consent Order (ACO) NEA200001-07736

B. Status of Permitting and Planning Approvals, and any work at the site and progress to date

Status of Permitting and Planning Approvals:

Other than the Title V Operating Permit Renewal (BOP170001) and the Solid Waste Operating Permit Renewal (RRF200001), there are currently no other permitting or planning approvals pending or in progress related to the requirements of the ACO.

Work at the site and progress since submittal of Progress Report #8 on December 30, 2021:

- Implementation of the Communications and Community Engagement Plan is ongoing. The facility is currently working on the first bi-annual Community newsletter for 2022 to be mailed out by the end of March.
- On August 17, 2021, Covanta Essex Company also posted a Hotline number on the Covanta Essex website. The Hotline is available 24 hours per day, seven days per week and allows the public to call Covanta to obtain the latest information on facility incidents or announcements. Callers can leave a message with the hotline operator which will be immediately emailed to plant management along with the caller's contact information so that a timely response can be provided. The Hotline has the capability to speak to residents in English, Spanish, and Portuguese. To date, there have been no calls received from the public to the hotline to date.
- On December 16, 2021, a virtual Open Meeting was conducted via a Zoom webinar by Covanta for the Essex facility from 5:00 to 6:00 pm. During the Open Meeting, a presentation was provided by Jack Bernardino, the Area Asset Manager for New Jersey, Dave Blackmore, the Facility Manager for the Essex facility, and Michael Van Brunt, the Vice President of Environmental and Sustainability for Covanta. Participants in the Open Meeting included members of the local community, one member of the NJDEP, a member of the NJ Audubon Society, and some members of local universities and businesses. Some members of local Environmental groups did register for the meeting but did not attend. The presentation has also been posted on the Covanta Essex website and was emailed to all registrants for the Open Meeting. The next Open Meeting will be held in June, 2022.
- A technical notice of deficiency (NOD) on the Solid Waste Operating Permit Renewal (RRF200001) application were received from the NJDEP Solid Waste Permitting division in a

letter dated November 10, 2021. The NOD requested that Covanta Essex Company make changes to the facility O&M manual to incorporate the purple plume prevention procedures from reports submitted pursuant to the ACO requirements. These changes were completed and submitted to NJDEP on January 10, 2022. As part of these changes, a new section was added to the Administrative Plans and Index section of the O&M manual identified as section API-3A, Purple Plume Mitigation Plan. This section includes protocols and procedures to prevent the delivery of iodinated waste to Covanta Essex and procedures and training at Covanta Essex to prevent processing of any iodinated waste delivered to Covanta Essex and deposited in the tipping floor area. A copy of the new section API-3A is attached to this report for your reference.

C. Difficulties or problems encountered during the reporting period, and actions taken to rectify any difficulties or problems

There have been no difficulties encountered during this reporting period.

D. Activities planned for the next reporting period

Activities planned for the next reporting period are as follows:

- Covanta is planning to issue the first facility newsletter in March, 2022. The newsletter will be available in English, Spanish and Portuguese and will include updates relating to facility operations, job opportunities, community activities and answers to frequently asked questions.

E. The required and actual completion dates for each item required by this ACO

See the updated table, included as Attachment 2 to this report, that lists action items required by the ACO along with required due dates and actual completion dates where applicable.

F. An explanation of any non-compliance with the compliance schedule

There are no instances of non-compliance with the schedule.

G. Evaluation of all corrective measures implemented to date

Covanta Essex Company continues to implement our Community Outreach efforts and enhanced tipping floor inspection procedures in order to prevent iodinated waste from being combusted in the boilers. The successful identification of the source of the iodinated waste believed to have caused the purple plume events in 2019 and 2020, and subsequent permanent re-direction of that waste to another non-Covanta disposal facility, has resulted in no further purple plume opacity events at Covanta Essex Company since April 7, 2020.

The annual Open Meeting that was held virtually on December 16, 2021 from 5:00 to 6:00 pm via a Zoom webinar conducted by Covanta for the Essex facility was a successful event based on the levels of attendance and participation by members of the public as well as the positive feedback received during the meeting. Another in-person Open Meeting will be held by Covanta Essex Company at a local café (Blue Print Café) and will be scheduled for June of 2022.

Going forward, Covanta Essex Company will host two Open Meetings per year. Each December, the Open Meeting will be held virtually to avoid weather issues and allow for a greater level of attendance as observed during the December 2020 and December 2021 meetings. Each June, the Open Meeting will be an in-person event held either at the facility or at the Blue Print Café on Raymond Boulevard in Newark which is within a mile of the facility.

As part of a greater transparency with the local community, Covanta Essex Company has implemented an additional notification procedure whereby the Ironbound Community Corporation (ICC) is contacted by phone and email of any emission exceedance events at the facility. Ms. Maria Lopez-Nunez, who is the Deputy Director, Organizing and Advocacy for the ICC, is notified of each event. Efforts have been made to get other organizations and local residents to sign up for our mailing list on our webpage in order to receive notifications of facility events, but no sign ups have been received to date from these groups. We will continue these efforts during the Open Meetings and all correspondence from Covanta.

In 2018, Covanta Essex installed 10 HD digital cameras on the tipping floor. These originally included 2 cameras with additional pan, tilt and zoom (PTZ) capability. In 2019, after the increase in purple plume events, two of 10 HD digital cameras in the overhead location in front of Bays 2 and 13 were replaced with the PTZ cameras for a total PTZ capability for 4 of 10 cameras. This PTZ capability allows for greater visual observation of loads. All recorded video footage by the cameras is stored and available for review for up to 40 days.

Attachment 1




PURPLE PLUME MITIGATION PLAN

Original, January 2022

VOLUME IX, CHAPTER 3A

Approved by:



Date:

1/10/22

COVANTA ESSEX COMPANY

API3A-1

**OPERATIONS AND MAINTENANCE MANUAL
VOLUME IX - CHAPTER 3A**

PURPLE PLUME MITIGATION PLAN

Original, January 2022

Purple Plume Mitigation

On December 20, 2019, Covanta Essex submitted a Purple Plume Prevention Plan to NJDEP (see Attachment 1) outlining planned efforts to eliminate the occurrence of purple plumes which occur when iodine containing waste is combusted. This was the basis of the requirements included in this Purple Plume Mitigation Plan (Plan) outlined below.

Iodine containing waste is prohibited from being delivered to the Covanta Essex facility. The following plan includes protocols and procedures to prevent the delivery of iodinated waste to Covanta Essex and procedures and training at Covanta Essex to prevent processing of any iodinated waste delivered to Covanta Essex and deposited in the tipping floor area.

1.0 Procedures to increase education and outreach

1.1 Distribution of Flyers

Covanta Essex distributes informational flyers (see Attachment 2) to the Essex County Utility Authority (ECUA) at least annually which ECUA includes in their billing invoices to all Essex county haulers to alert them of the problem created by the presence of iodine in waste delivered to Covanta Essex. Flyers are also sent to all the commercial haulers and the Department of Sanitation of New York (DSNY) at least annually that deliver waste to Covanta Essex.

These informational flyers may also be sent to local businesses identified using the Virtual Drive-By Procedure described in Section 2.1 below to educate them about iodine containing materials in the waste stream, and Covanta will also offer assistance to interpret any reagent SDS sheets.

1.2 Hospital Outreach

The following hospitals are known to deliver waste to the facility and will be sent the informational flyers referenced in section 1.1 above on an annual basis to continue to inform them that iodine containing waste is prohibited from being delivered to the Covanta Essex facility:

- St. Barnabas Medical Center, Livingston NJ
- Clara Mass Medical Center, Belleville, NJ
- Beth Israel Medical Center, Newark, NJ
- St. Michael's Medical Center, Newark, NJ
- UMDNJ Hospital, Newark, NJ
- East Orange General Hospital, East Orange NJ
- VA Medical Center, East Orange, NJ

1.3 Essex County Solid Waste Advisory Committee (SWAC) Outreach

When necessary, Covanta Essex will solicit route information from members of the Essex County SWAC where commercial stops are incorporated into municipal routes. This information is used in the “Virtual Drive-By” procedure discussed in Section 2.1 below.

1.4 Website Link

A website link has been created by Covanta Essex that lists all waste types that are prohibited from being accepted at Covanta Essex including waste that contains iodine. This link will be maintained on the website with the most current information. This link will be included on all correspondence with ECUA, DSNY and all haulers delivering waste to the Covanta Essex facility. The link address is <https://info.covanta.com/prohibited-wastes>.

1.5 Troy Chemical Outreach

Covanta Essex used the “Virtual Drive-By” procedure discussed in Section 4.2 to identify Interstate Waste Services (IWS) as the waste hauler for Troy Chemical who was identified as the source of the iodinated waste after the April 7, 2020 purple plume event. Covanta Essex has reached out to Troy Chemical numerous times since then to inform them that IPBC and any other iodine containing compounds in their waste are not acceptable to be delivered to Covanta Essex. Troy Chemical has not responded to Covanta Essex. After receiving no response, Covanta Essex contacted IWS and instructed them to divert all waste from Troy Chemical to another disposal location. Future attempts to contact Troy Chemical will only be made in the event that waste from their Newark facility is discovered in any loads delivered to the facility.

1.6 Outreach via Covanta Invoicing

Covanta Essex has created invoice templates for its non-Essex County commercial waste haulers and other haulers that are billed directly by Covanta which include the above referenced website link for prohibited waste types. These will be used for all future billing cycles. The website link address is listed in section 1.4 above. A copy of an invoice containing the website link is included as Attachment 3 to this Plan.

1.7 Plant Signage for Prohibited Waste

The signs posted on the scalehouse that list all the prohibited waste types for the Covanta Essex facility shall include iodine containing waste as a prohibited waste type. The signage shall be updated as needed.

2.0 Procedures to identify potential generators/sources of iodine containing waste, to ensure these wastes are not included in the waste streams coming to the facility and inspection/interception protocols to ensure these waste types are not processed through the facility

2.1 Virtual Drive-By Procedure

Covanta Essex has developed a detailed procedure to identify potential generators/sources of iodinated wastes in the facility’s service area. These steps are summarized below:

Step	Action	Output	Covanta Essex Responsibility
1	Conduct Virtual Drive-By using Google Maps and going street by street and documenting: <ul style="list-style-type: none"> • the location (town, city) • business name and type • website address • contact information • list of products that may contain iodine. 	List of businesses that potentially use iodine in their operation. Business types may include: <ul style="list-style-type: none"> • Large scale chemical companies; • Hospitals/Medical Labs • Printing companies • Veterinary clinics • College chemistry labs • Research facilities • Photography studios 	Covanta support staff
2	Identify businesses that have waste delivered to Covanta Essex	Smaller pool of companies/haulers to investigate	Business Manager
3a	Contact hauler/generator to confirm that they delivered iodine-containing waste. If confirmed, then develop a plan to re-route source to a transfer station, ban their deliveries, or remove the iodine material from their waste stream	Confirmation of source	Business Manager
3b	Use the New Jersey’s Community Right To Know database to check the inventory of target businesses for iodinated compounds	Confirmation of iodine-containing compounds on site	Environmental Specialist
4	Distribute flyers to customers/haulers	Educate waste generators/sources	Business Manager
5	Update waste screening protocols and train Covanta business units in screening non-residential waste approvals for targeted businesses and iodine containing wastes	Updated waste approvals	Covanta Business Units/Environmental Specialist

This procedure will be implemented in the event of any future purple plume events at the facility to identify the generator of the iodine containing waste.

2.2 Increased Hospital Load Inspections and Throwdown Inspections

All MSW loads received from hospitals are subject to inspection to check for iodine containing material in the waste which is prohibited. The procedure for these inspections includes pictures of typical items that may be found in hospital waste that could contain iodine to educate and train tipping floor operators. In a letter dated November 5, 2019 to NJDEP, Covanta Essex submitted its Hospital Waste Load inspection procedure and the original form used to identify loads of iodinated waste received at the facility. The Hospital Waste Load inspection procedure has been updated and now includes the following additional requirement that the waste will be raked as thinly as possible so that most of the waste is visible while performing the inspection. The current Hospital Load inspection procedure is included as Attachment 4 to this Plan. The standard throwdown inspection form for all waste load inspections has been updated and now also includes a section for identification of iodine containing waste as unacceptable waste and can also be used to document all hospital waste inspections. This form will now be used to document all waste load inspections, including Hospital waste load inspections. The updated form is included in Attachment 5.

Throwdown inspections are required to be performed on a minimum of 10% of all waste loads received per day. The inspections shall be done on a random basis throughout each shift.

3.0 Digital Camera Use

Between 2018 and 2019, Covanta Essex installed 10 HD digital cameras on the tipping floor. Four of the 10 cameras have additional pan, tilt and zoom (PTZ) capability. This PTZ capability allows for greater visual observation of loads. Additionally, 3 new HD digital cameras were installed over each of the three boiler feed chute hoppers. All recorded video footage by the cameras is stored and available for review for 40 days.

Covanta Essex plans to also install 7 additional HD digital cameras on the East Wall of the tipping floor, 4 additional HD digital cameras on the North side of the refuse pit, and 3 additional HD digital cameras on the South side of the refuse pit as part of the planned fire system upgrade to be installed in 2022. A diagram of the current and proposed locations of all cameras on the tipping floor and refuse pit are included as Attachment 6 to this Plan.

3.1 Tipping Floor Monitoring

The tipping bay office is located inside the North entrance of the tipping floor. For each operations shift, one tipping floor operator is stationed at the North entrance and a second operator operates the front end loader. Once the load has exited the scale and proceeded to the North entrance to the tipping floor (the waste receiving area), the truck is required to present a scale ticket to the operator at the entrance and is inspected for proper decals. Once approved, the truck is then assigned a bay where it can deposit its load of waste.

The computer monitor located in the tipping bay office displays all tipping floor camera views

which allows the tipping floor operator that is stationed at the North entrance to view all bays where waste is deposited. The operator can zoom in on any load using the cameras equipped with PTZ capability and can visually inspect the load for prohibited or unprocessable waste types as the truck unloads onto the tipping bay floor. The use of the cameras in addition to the throwdown inspections allows for greater visibility of all loads delivered to the tipping floor so that unprocessable waste can be identified and prevented from being processed.

4.0 Training

4.1 Annual Environmental Training

A training program is conducted annually to review all sections of the Environmental Compliance Operating Manual (ECOM) and is provided by the Environmental Specialist to all Covanta Essex employees who have responsibilities affecting the operation of the facility, including, but not limited to chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane/load handlers. Section 3 of the ECOM covers types of waste that are acceptable and unacceptable at the facility, including waste with iodine, and required procedures for inspecting waste loads on the tipping floor, handling any unacceptable waste that is identified on the tipping floor, and management of the refuse pit by the refuse crane operators.

4.2 Waste Inspection and Camera Use Training

Refresher training will be provided to tipping floor attendants and refuse crane operators on completing inspections focused on MSW loads from hospitals on both the tipping floor and within the refuse pit on an annual basis. Training will include a review of inspection methods and proper completion of the throwdown inspection sheet and procedures for rejecting unacceptable and prohibited waste including iodine containing waste. The training will also include a review of the use of the cameras on the tipping floor for monitoring of loads.

4.3 Control Room Operator Purple Plume Response Procedure

All Control Room Operators (CROs) have been provided a procedure detailing response steps to be taken if a purple plume event occurs to minimize the impact of the event on opacity. The procedure is in a binder that is kept in the control room for easy access to all CROs when needed if an event occurs. This procedure is also included in Attachment 7 to this plan.

5.0 Annual Review of Plan

The Purple Plume Mitigation Plan shall be reviewed on an annual basis to assess whether further improvements or enhancements could be made to ensure that iodine containing waste is not processed at the Covanta Essex facility.

Attachment 1

VIA E-MAIL AND CERTIFIED MAIL

December 20, 2019

Richelle B. Wormley, Director
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Re: Covanta Essex Company – Draft Purple Plume Prevention Plan

Dear Ms. Wormley and Mr. Hastry:

On behalf of Covanta Essex Company (“Covanta”), I am writing in furtherance of our meeting on December 10th to discuss Covanta’s ongoing efforts to prevent purple (iodinated) plumes at the Essex County Resource Recovery Facility (“Facility”) located at 183 Raymond Boulevard in Newark. Covanta understands and appreciates the concerns expressed by the Ironbound Community Corporation and the New Jersey Department of Environmental Protection (“DEP”) regarding these atypical visible emissions, and we are committed to finding a solution to prevent their occurrence.

As explained in the presentation that we shared with you last week, a copy of which is attached, a plume with a pink to purple color is caused when sufficient quantities of iodine are present in municipal solid waste and/or other nonhazardous waste (Type 10 and 27) that is combusted in the Facility’s boilers. Covanta has been working rigorously to develop a two-pronged solution to prevent the occurrence of purple plumes: (1) develop a robust set of plans and procedures to prevent delivery of iodinated waste to the Facility in the first instance, and (2) in the event that iodinated waste nevertheless makes its way into the boilers, to have a system in place to reduce iodine emissions and thus minimize the formation of a purple plume.

The purpose of this letter is to present in DRAFT form our proposed strategy to address the five (5) specific action items identified by DEP for inclusion in Covanta’s Purple Plume Prevention Plan:

1. Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.
2. Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP) to screen/manage waste once it arrives at the Facility.
3. Evaluate potential human health risks associated with purple plume emissions.
4. Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume event.
5. Review and evaluate the safety and efficacy of the proposed purple plume mitigation system

In response to DEP's request, Covanta will secure the services of independent contractors to review past and present efforts to prevent purple plume events, results obtained to date, and other ideas for consideration. Purple plumes are not acceptable to us and we welcome all efforts to prevent delivery of iodinated waste to the Facility.

Covanta's proposed approaches to the five action items, further detailed in Covanta's Purple Plume Prevention Plan attached, are as follows:

- The attached responses to action items 1 and 2 identify a wide range of efforts already implemented by the Facility to identify potential sources of iodinated waste, to prevent delivery of such waste to the Facility, and to detect the presence of iodinated waste on the Facility's tipping floor to keep it from reaching the boilers. Those efforts are continuing; however, to date we have not identified a generator of iodinated waste that can be linked to the plume events at the facility. We are also installing high resolution digital cameras that will record all waste charged to a boiler. If a purple plume should develop, those cameras and back up files would assist in identifying the nature of the waste and potential identification of the source (hauler/generator). Other technology-based solutions under consideration include iodine monitors in the pit area.
- The response to action item 3 will include 2 parts with Part 1 being an assessment of ground level impacts of iodine and Part 2 being an assessment of established iodine exposure standards. Part 1 will be based on a recently completed facility-wide risk screening assessment completed in connection with the Facility's Title V operating permit renewal. That report -- "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" -- was submitted to DEP on October 4, 2018. The report includes ambient impacts determined from dispersion modeling using the U.S. Environmental Protection Agency AERMOD model, and was designed to correlate facility operating conditions with short term and long term ground level impacts. The results from Part 1 will be compared to established iodine exposure standards and will serve as the foundation for a timely and complete evaluation of potential human health risks associated with purple plumes.
- The Facility's response to action item 4 identifies all recent community outreach efforts. With regard to purple plume events, Covanta has engaged with local and regional media including the *Star-Ledger*, *Newark Patch*, *News 12 NJ* and *CBS 2 New York* to educate the public and explain the events. The facility also created an educational flyer/poster used for outreach to customers, haulers and hospitals that explains the type of waste that may contain iodine and provides

contact information to discuss alternative disposal options. We will be formulating a plan for alerting the local community in the event of a purple plume. In the meantime, the annual Open Public Meeting for the Facility occurred at the Blueprint Café (369 Raymond Boulevard, Newark), on December 18, 2019, during which we responded to questions from the public based on currently available information.

- In response to action item 5, the Facility has been actively involved in the development of a possible purple plume prevention technology. A test skid for one boiler (unit) is currently scheduled for delivery in the January-February time frame with testing scheduled to occur sometime in the 1st quarter of 2020. Testing would be limited to demonstrating that the injection of sodium thiosulfate solution promotes the formation of sulfur dioxide, which in turn reacts with iodine to prevent a plume from developing. This mitigation technology is in the development phase and would only be used when a plume is developing; it would not be in operation on a continuous basis. Implementation on all 3 combustion units at the Facility would occur only following a complete evaluation of the technology, and subject to any necessary DEP approvals.

We are evaluating qualified independent contractors so that we can implement their review as soon as we arrive at a final plan. We expect that each action item may require its own contractor or contractors and that each action will also have its own implementation schedule. The plan is to implement each as soon as possible.

We look forward to your feedback on this draft action plan however that does not mean that we have stopped researching the issues. Efforts on each of the five action items are continuing and will continue as we wait for your response. We are available to discuss at your convenience.

If you have any questions, please contact Patricia Earls at 973-817-7322 or pearls@covanta.com.

Sincerely,



David Blackmore
Facility Manager

Cc: Anthony Fontana, Solid Waste Permitting
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Brian Bahor, Covanta
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DRAFT
Covanta Essex Purple Plume Prevention Plan

Action Item	Action
1	Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.
2	Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP's) to screen/manage waste once it arrives at the Facility.
3	Evaluate potential human health risks associated with purple plume emissions.
4	Review and evaluate Covanta's community outreach practices in general, as well as upon occurrence of a purple plume.
5	Review and evaluate the safety and efficacy of the proposed purple plume mitigation system.

DRAFT Action Item # 1

1.0 Action

Review and evaluate efforts made to date/planned to identify potential generators/sources of iodinated waste to prevent further deliveries of such waste to the Facility.

1.1 Purpose

An independent contractor will review past and ongoing efforts to identify generators who could be the source of iodinated waste causing colored plumes.

1.2 Goal

Prevent further deliveries of iodinated waste.

1.3 Scope of contractor review

1.3.1 Background

Table 1 summarizes the outreach and inspection plan including a brief summary of efforts to date by Covanta Essex to investigate generators and haulers and inspections at Covanta Essex. This plan is an evolving work-in-progress and is updated to include lessons learned and new information and ideas.

1.3.2 Scope of contractor review

The independent contractor will review efforts outlined in Table A to identify and contact generators and to inspect deliveries of hospital waste and other non-hazardous waste known as Type 10 & 27. Contractor's review should consider any new ideas or approaches that would improve that outreach effort to prevent deliveries and/or activities at site to inspect waste deliveries.

Table A Outreach and Inspection Plan for Iodine Bearing Waste

A.1 Purpose

To minimize or eliminate the presence of iodine in the MSW that is received and processed at the Facility, the following actions have been and continue to be implemented by Covanta Essex:

A.2 Outreach to generators

Direct contact with generators and haulers where possible

Goal	Activity
Inform haulers and customers that iodine in waste is not acceptable	A flyer in English and Spanish has been distributed to the Essex County Utility Authority (ECUA) and has been included in their billings to all Essex County haulers
	That same flyer was mailed to all the commercial haulers that deliver waste to the Facility
	That same flyer has also been sent to the Department of Sanitation of New York (DSNY)
	Covanta hosted its annual Hauler Day at the Facility on 11/21/19 and the flyer was also handed out to drivers on the tipping floor that day.
Transfer Station waste	Transfer stations in Paterson and Totowa owned by Covanta affiliates separate out hospital waste from other waste and divert this waste to landfill to minimize amount of this waste sent to the Facility.
Direct outreach by phone to hospitals that have waste delivered to the Facility. Major hospitals include;	<ul style="list-style-type: none"> • St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ • St. Michael’s Medical Center, Newark, NJ • UMDNJ Hospital, Newark, NJ • East Orange General Hospital, East Orange, NJ • VA Medical Center, East Orange, NJ
Contacted Interstate Waste Services (IWS), the hauler for:	<ul style="list-style-type: none"> • St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ
	IWS is to distribute our iodine flyer to the hospitals
Other hospitals	Attempting to reach out to others – but identifying responsible party for handling and disposal of waste is not always clear. With the help of the Essex County SWAC, we have enlisted the services of their consultant, Mr. Wayne DeFeo, to assist in contacting hospitals in Essex County that have waste delivered to the Facility.
Findings to date	One empty bottle and one small packet of povidone iodine solution from UMDNJ from tipping floor inspection

Identify other sources of iodinated waste.

Goal	Activity
Identify other generators beyond hospitals	Evaluating generators in Essex County, Passaic County and New York City
	Medical service providers including dental offices, veterinary hospitals and offices, urgent care facilities, surgery centers, dialysis centers, doctor's offices, and X-ray contrast media producers
	Adding chemical companies and food manufacturers
	Compare waste delivery schedule with past plume events

A.3 Facility Inspections

A.3.1 Hospital Waste Inspections

Goal	Activity
Prevent iodinated waste from hospitals from being mixed in the pit	Haulers have to identify loads from hospitals on the Origin and Disposal form that is presented to the scale house. The name of the hospital is specified on the form and this is noted on the stage ticket by the scale house operator
	Tipping floor inspections of loads with stage ticket marked "Hospital"
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance

A.3.2 Other Type 10 and Type 27 Waste Inspections

Goal	Activity
Prevent iodinated waste from industrial or commercial generators from being mixed in the pit (a)	Haulers have to identify Type 27 loads on the Origin and Disposal form that is presented to the scale house. The stage ticket is marked "Type 27" by the scale house operator
	Tipping floor inspections are performed on these loads on the tipping floor.
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance
	A review of customers delivering waste to the Facility either the day before or the day of a purple plume event for the last 5 years was performed to determine if there was any pattern that might indicate a potential source of iodine. A list of customers was generated and will now also be the target of detailed inspections. These customers include both Type 10 and Type 27 waste types. This is in addition to the normal inspections which is performed on 10% of the incoming trucks per day.

- (a) Iodine has many uses including as an additive to nutrition products, and a wide range of medical, agricultural, and industrial applications. The leading application of iodine is in the production of X-ray contrast media (22%). Another application of iodine is in polarizing film in liquid crystal display (LCD) screens, where iodine is incorporated as a polyiodide (I₃⁻ or I₅⁻). Potassium iodide is used in iodine tablets to be taken during nuclear accidents to protect the thyroid against exposure to radioactive iodine. Iodine based biocides are often used in paints as an in-can preservative as well as to prevent mold growth after application. Other applications include pharmaceuticals, disinfectant iodophors and povidone-iodine, fluoride derivatives, heat stabilization of nylon, or as process enabler in polymerization of plastics or other processes requiring chemical synthesis. An additional use of iodine is in Red Dye #3 which is a dye used in various food products and printing ink. Red dye #3 contains 58% iodine.

DRAFT Action Item # 2

2.0 Action

Review and evaluate the effectiveness of waste acceptance practices and other Best Management Practices (BMP) to screen/manage waste once it arrives at the Facility

2.1 Purpose

Evaluate existing practices to investigate content of trucks delivered to the facility.

2.2 Goal

If an iodinated waste is delivered to the facility, prevent it from being combusted.

2.3 Scope of contractor review

Review existing practices and procedures. Review must consider health and safety of personnel on site while facility is conducting normal business practices.

DRAFT Action Item # 3

3.0 Action

Evaluate potential human health risks associated with purple plumes.

3.1 Purpose

An independent contractor will review results from the recent dispersion modeling report to determine the ground level impacts of iodine and possible health impacts.

3.2 Goal

Estimate the ground level impact of iodine and how it compares with documented health-based standards.

3.3 Scope of contractor review

3.3.1 Background

Covanta recently completed a facility-wide risk screening assessment in connection with the Facility's Title V operating permit renewal. That report -- "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" -- was submitted to DEP on October 4, 2018. This report is described as a second-level risk screening assessment which determined ambient impacts from dispersion modeling from application of U.S. Environmental Protection Agency's AERMOD model. Second-level screening is a more rigorous evaluation as compared to first-level screening which uses dispersion look-up tables and DEP's risk screening spreadsheet.

The report was designed to correlate facility operating conditions with short term and long term ambient impacts. The results provide the ability to estimate ambient level iodine concentrations for comparison with established iodine exposure standards.

3.3.2 Scope of contractor review

The response to action item 3 will include 2 parts with Part 1 being an assessment of ground level impacts of iodine and Part 2 being an assessment of established iodine exposure standards. Part 1 will be based on the recently completed facility-wide risk screening assessment "Air Quality Evaluation and Modeling Report, Hazardous Air Pollutants Risk Assessment" completed in connection with the Facility's Title V operating permit renewal.

Part 2 will include a survey of recognized exposure standards for iodine for comparison with estimate ground level impacts.

DRAFT Action Item # 4

4.0 Review and evaluate Covanta’s community outreach practices in general, as well as upon occurrence of a purple plume.

4.1 Purpose

Ensure effectiveness of community outreach practices, including timely communication in the event of a purple plume.

4.2 Goal

Covanta, along with Corporate Outreach and Communication resources will continue to plan community outreach activities as has been done historically. In addition, Covanta will investigate methodologies for communicating relevant operational information, including incidents involving a purple plume, to the community.

4.3 Scope

Develop outreach activities and present options on an immediate notification in the event of a purple plume.

4.3.1 Background

Community Outreach is typically targeted at developing long term, meaningful relationships with various members and groups within the community. Covanta has participated in a number of events to support various initiatives and address issues within its community.

Historically, operational information, whether routine or a deviation have not been communicated to the community directly, unless triggered as part of a specific incident with possible immediate impacts to the community or environment.

4.3.2 Scope of Contractor Review – general community outreach

An Agency with expertise in Marketing and Communications will review the Facility’s outreach activities and communication actions including options on an immediate notification in the event of a plume.

Goal	Activity
Plan Community Outreach Activities	Follow past practice to develop an outreach strategy appropriate for the facility stakeholders and local community.
Investigate Communication Methodologies	Determine what information and what timeframe is appropriate to communicate to the community.
	Investigate communication technologies appropriate for large scale communication of information.

Examples of previous outreach activities in 2018 and 2019 that would be reviewed to determine appropriateness for 2020 include:

- 1.0 Meet periodically with stakeholders:
 - Essex County Utilities Authority
 - Essex County Executive
 - City of Newark
 - Ironbound Community Corporation
 - Ironbound Business District
 - Newark Board of Education
- 2.0 Member Essex County Solid Waste Advisory Committee
- 3.0 Member Newark Regional Business Partnership
- 4.0 Accept Pharmaceutical Takeback:
 - Newark Police
 - Essex County
 - New Jersey Field Office DEA
- 5.0 Board member and Participant in NJ Clean Communities Program (includes litter cleanup at Valisburg Park)
- 6.0 Food Drive to benefit Pierre Toussaint Food Pantry Newark
- 7.0 Event Sponsor
 - Millburn Township Earth Day
 - Essex County Parks Earth Day
 - Holiday Lights at Turtleback Zoo
 - Giraffe Exhibit at Turtleback Zoo
- 8.0 Coordinate with Go Green Initiative pilot in Newark City School District. Provide support for Sustainable Jersey School Certification
- 9.0 Sustainable Jersey Sponsor
- 10.0 Donated reusable water bottles to Miller Street School for field trip and to teach about waste reduction
- 11.0 Conduct tours for visitors from NJIT, Rutgers, other community groups
- 12.0 Host Annual Open House
- 13.0 Sponsor 4E-waste collection events (1 in Ironbound)
- 14.0 Install Rain Garden at St. Benedict's School in Newark
- 15.0 Newark Sustainability Summit Participant
- 16.0 Hosted a 4-week summer program for Boys and Girls Club
- 17.0 Publish Quarterly Newsletter to the Community & Stakeholders

4.3.3 Scope of Contractor Review – community outreach for an event

An Agency with expertise in Marketing and Communications will review Covanta’s proposed outreach activities and communication actions including options on an immediate notification in the event of a plume.

Goal	Activity
Evaluate Outreach and Communication Plan	Engage an Agency with Marketing and Communications expertise to review Covanta Essex’s proposed outreach activities and communication actions, which will include an option for notification in the event of a plume.

DRAFT: Action Item # 5

5.0 Review and evaluate the safety and efficacy of the proposed purple plume prevention system

5.1 Purpose

An independent contractor will review the plan to use sodium thiosulfate to prevent a purple plume. Note that the addition of sodium thiosulfate is proposed only during a purple plume event and would not be in continuous operation.

5.2 Goal

Evaluate viability of sodium thiosulfate and other possible options for preventing the plume.

5.3 Scope of contractor review

5.3.1 Background

A colored plume with a pink to purple color is due to iodine in municipal solid waste and/or other nonhazardous waste (Type 10 and 27) that is combusted in a municipal waste combustor (MWC) at the Facility. Iodine is converted to a component of flue gas including I_2 which is the form that promotes a pinkish/purplish plume. Control of I_2 requires mitigation technology in an addition to the existing air pollution control systems. The proposed sodium thiosulfate (ST) system would only inject a ST solution when needed, it would not be in continuous operation.

ST prevention was initially used at a hazardous waste incinerator in Ohio where it is added to a wet scrubber only when iodinated waste is incinerated. That facility has the advantage of knowing when iodinated waste is being combusted because such waste is accepted for disposal as part of that company's normal business. In contrast, Covanta does not purposefully accept iodinated waste for disposal and any delivery of iodine occurs as a constituent of MSW. Application of ST at a MWC was initially evaluated at Covanta's sister facility in Lancaster, PA as a "proof of concept" that ST would breakdown and form SO_2 which is known to react with I_2 . Initial efforts at the Covanta Lancaster facility have demonstrated the potential for ST as a prevention strategy however there are significant design differences between the Covanta Lancaster and Covanta Newark facilities including the equipment (grate, furnace and boiler), MSW quantity and origin and flue gas residence time and temperature through the system. We are not assuming that the ST prevention technology information from Covanta Lancaster translates directly to the Newark Facility and are therefore proposing to implement ST technology on one unit to confirm its potential as an I_2 mitigation technology.

Covanta has conducted R&D tests to evaluate the optimum injection location however that is a work in progress. Covanta is also using three consultants affiliated with universities to evaluate the basic ST prevention strategy and other issues that may impact its effectiveness.

5.3.2 Scope of contractor review

Independent contractors have already been involved in various aspects of the prevention design and optimization. The new independent contractor will be tasked to review the entire strategy and to consider alternative solutions. The scope of the contractor's review will include but not be limited to general mitigation chemistry, ST injection strategy and alternative prevention strategies.

AGENDA

Covanta Essex Purple Plume Management Plan
December 10, 2019 Meeting
Covanta Essex and NJDEP

Purpose - provide responses to questions posed by NJDEP -

- What actions Covanta has taken to date to identify source(s) of iodine
- Describe why SO₂ levels drop to near zero right before and during purple plume events. Is the SO₂ being converted to sulfuric acid for example?
- Can Covanta quantify how much iodine would be needed to generate a purple plume for about 3 hours (e.g. June 2019 event)?
- Background info on sodium thiosulfate contemplated for mitigation of purple plumes. What type of emissions are produced?

Goals:

- Identify underlying knowledge about iodine plume – its origin and mitigation
- Identify steps to prevent and mitigate purple plumes from iodinated waste
- Solicit NJDEP feedback on mitigation with generators

Covanta Essex : Purple plume management strategy

Situation:

Opacity exceedances correlated with purple plumes are presumably due to iodine in MSW delivered to the facility

Remedy: A two part solution

Part 1: Prevent delivery of iodinated waste to Covanta Essex

Refer to handout “Outreach and Inspection Plan for Iodine Bearing Waste Covanta Essex County Resource Recovery Facility (ECRRF)

Part 2 : Evaluate plume mitigation technology

- a. Theory and Research
- b. Field program results
- c. Next steps

Part 1: Outreach as purple plume management strategy

Purpose of outreach plan

To minimize or eliminate the presence of iodine in the MSW that is received and processed at the Essex County Resource Recovery Facility (ECRRF), the following actions have been and continue to be implemented by Covanta Essex Company.

Plan Outline

1.0 Outreach to generators

- Direct contact with generators and haulers where possible

2.0 Inspections

- Other Type 10 and 27 Waste Inspections
- Hospital Waste Inspections

3.0 Other

- Managing any collected iodine Waste
- Technology Upgrades

Part 1: Outreach as purple plume management strategy

1.0 Outreach to generators - Direct contact with generators and haulers where possible

Goal	Activity
Inform haulers and customers that iodine in waste is not acceptable	<p>A flyer in English and Spanish has been distributed to the Essex County Utility Authority (ECUA) which has been included in their billings to all Essex county haulers</p> <p>That same flyer was mailed to all the commercial haulers that deliver waste to the ECRRF</p> <p>That same flyer was also sent to the Department of Sanitation of New York (DSNY)</p> <p>Covanta hosted its annual Hauler Day at the Essex facility on 11/21/19 and the flyer was also handed out to drivers on the tipping floor that day.</p>
Transfer Station waste	<p>Covanta owned transfer stations in Paterson and Totowa separate out hospital waste from other waste and divert this waste to landfill to minimize amount of this waste sent to ECRRF.</p>
Direct outreach by phone to hospitals that have waste delivered to Covanta Essex. Major hospitals include;	<ul style="list-style-type: none"> • St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ • St. Michael's Medical Center, Newark, NJ • UMDNJ Hospital, Newark, NJ • East Orange General Hospital, East Orange, NJ • VA Medical Center, East Orange, NJ
Contacted Interstate Waste Services (IWS), the hauler for;	<ul style="list-style-type: none"> • St. Barnabas Medical Center, Livingston, NJ • Clara Maass Medical Center, Belleville, NJ • Beth Israel Medical Center, Newark, NJ
Other hospitals	<p>IWS is to distribute our iodine flyer to the hospitals</p> <p>Attempting to reach out to others – but identifying responsible party for handling and disposal of waste is not always clear.</p> <p>With the help of the Essex County SWAC, we have enlisted the services of their consultant, Mr. Wayne DeFeo, to assist in contacting hospitals in Essex County that have waste delivered to the ECRRF.</p>
Findings to date	<p>One empty bottle and one small packet of povidone iodine solution from UMDNJ from tipping floor inspection</p>

Part 1: Outreach as purple plume management strategy

2.0 Inspections

2.1 Hospital Waste Inspections

Goal	Activity
Prevent iodinated waste from hospitals from being mixed in the pit	Haulers have to identify loads from hospitals on the Origin and Disposal form that is presented to the scale house. The name of the hospital is specified and this is noted on the stage ticket by the scale house operator
	Tipping floor inspections of loads with stage ticket marked “Hospital”
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance

2.2 Other Type 10 and 27 Waste Inspections

Goal	Activity
Prevent iodinated waste from industrial or commercial generators from being mixed in the pit (a)	Haulers have to identify Type 27 loads on the Origin and Disposal form that is presented to the scale house. The stage ticket is marked “Type 27” by the scale house operator
	Tipping floor inspections are performed on these loads on the tipping floor.
	Waste is pushed into the pit ONLY after the load is inspected and cleared for acceptance
	A review of customers delivering waste to the Essex facility either the day before or the day of a purple plume event for the last 5 years was performed to determine if there was any pattern that might indicate a potential source of iodine. A list of customers was generated and will now also be the target of detailed inspections. These customers include both Type 10 and Type 27 waste types.
	Based on research on other uses of iodine, we’ve notified commercial haulers to note customers that manufacture X-ray contrast solution, film and food products.

Part 1: Outreach as purple plume management strategy

2.2 Continued

- (a) Possible sources of iodine from medical, agricultural, and industrial applications include; 1) iodine is in the production of X-ray contrast media, 2) polarizing film in liquid crystal display (LCD) screens, 3) Potassium iodide is used in iodine tablets to be taken during nuclear accidents, 4) Iodine based biocides are often used in paints as an in-can preservative as well as to prevent mold growth after application, 5) pharmaceuticals, disinfectant iodophors and povidone-iodine, fluoride derivatives, heat stabilization of nylon, or as process enabler in polymerization of plastics or other processes requiring chemical synthesis and 6) Red Dye #3 which is a dye used in various food products and printing ink. Red dye #3 contains 58% iodine.

3.0 Other

3.1 Managing any collected iodine Iodine Waste

- Iochem Coporation, the largest producer of medical grade iodine in North America, has offered to take any recovered iodine in BULK quantities for free at their facility in Oklahoma. They will consider smaller quantities in bottles depending on the quantity.
- In the event that Covanta identifies hospitals or other sources that need assistance with disposal of any expired iodine containing material, this can be an alternative for disposal of that material in an environmentally sound way.

3.2 Technology Upgrades

Goal	Activity
Hi definition cameras on tipping bay and hoppers	Installed one camera over Bay 2 on tipping floor with high definition zoom capability to provide an additional tool to see waste in tipping bays. Can also record footage for review after a purple plume event. Plan is to install additional cameras on tipping floor and over boiler feed hoppers.

Part 2: Plume mitigation technology – theory and research -

Background:

- Iodine is known to generate a pink/purple plume when it is present as diatomic iodine - I₂
- Observations at Covanta Essex and elsewhere have identified a unique characteristic of iodine where it reacts with SO₂
- The primary chemical reaction under consideration;



- Equation 1 establishes that iodine (I₂) reacts with SO₂ on a 1:1 molar basis
- Equation 1 explains why SO₂ goes to “zero” when a purple plume develops (see following slide of Oct 10th event as an example)
- If H₂SO₄ was generated, it would be removed by the semi dry scrubber system
- Hydrogen iodide (HI) is a very reactive gas (similar to HCl) and would dissolve quickly in water and react with calcium hydroxide

Additional research;

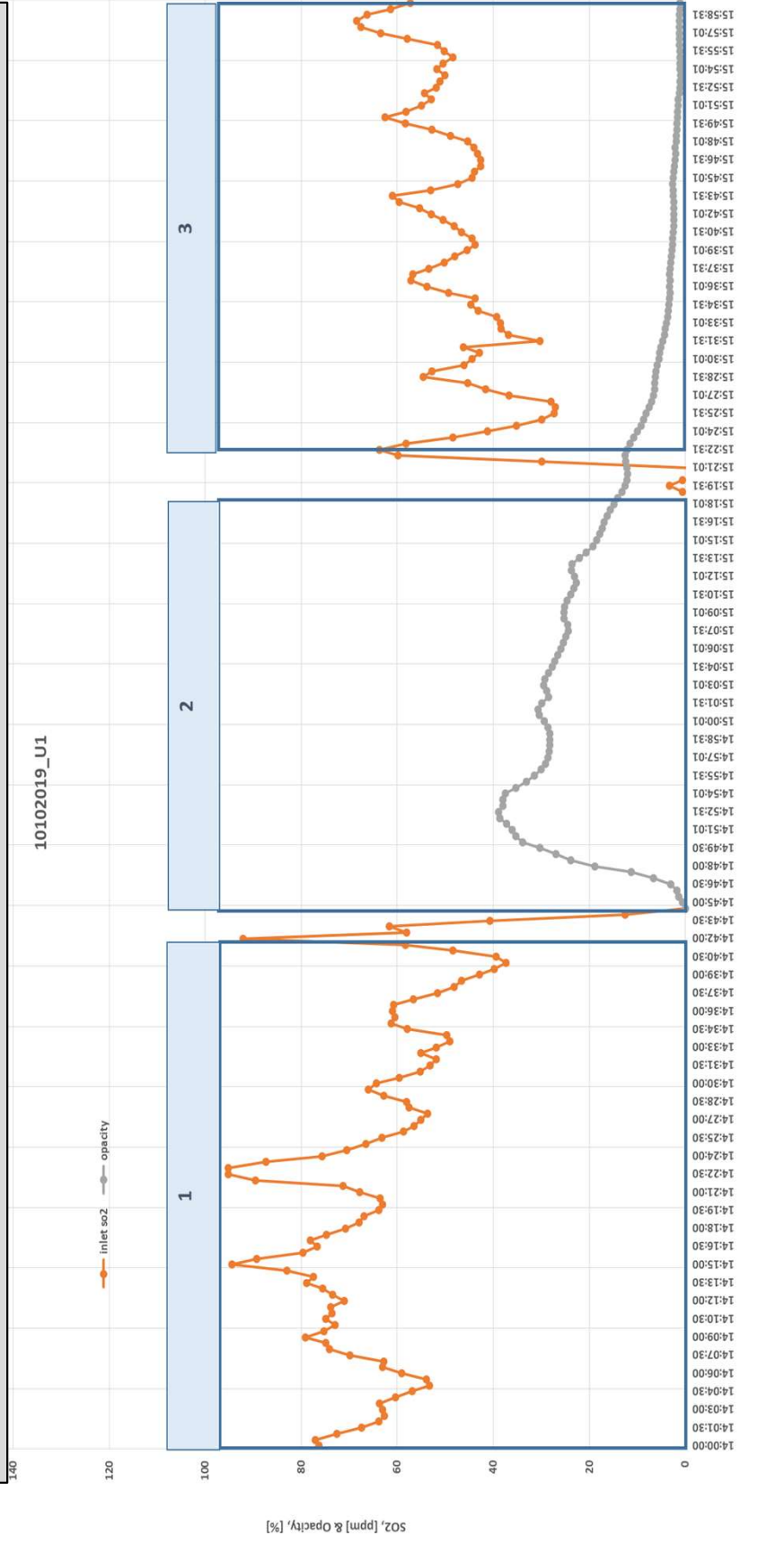
1. Utilization of corporate resources and independent 3rd parties to research;
 - Potential causes of colored plumes
 - Potential mitigation technology/chemistry for colored plumes
 - Iodine behavior
2. Effectiveness of sodium thiosulfate at Covanta Lancaster

Part 2: Plume mitigation technology

– October 10, 2019 as example of SO₂ and I₂ reaction -

Observations

- Average SO₂ concentration pre and post plume is ~ 40 to 50 ppmdv7
- SO₂ during plume is zero



Part 2: Evaluation of June 19, 2019 Opacity event

CEM time	OPACITY DATA				Average
	L1	L2	L3	Average	
12:12	0	2	1	1	
12:18	0	12	3	5	
12:24	0	27	13	13	
12:30	1	34	20	18	18.5
12:36	1	25	15	14	
12:42	1	32	16	16	
12:48	2	50	21	24	
12:54	3	39	39	27	
13:00	6	27	35	23	
13:06	6	23	32	20	
13:12	7	22	25	18	
13:18	8	18	22	16	
13:24	7	16	18	14	
13:30	7	16	15	13	
13:36	7	15	16	13	
13:42	5	15	16	12	
13:48	4	12	15	10	
13:52	4	11	18	11	
14:00	3	13	17	11	
14:06	3	17	10	10	
14:12	3	17	10	10	
14:18	2	26	9	12	
14:24	2	17	9	9	
14:30	2	12	10	8	
AVG	3.5	20.8	16.9	13.7	

Overview

- All 3 MWC units had elevated opacity readings and pink or purple colored plume
- Unit 2 and 3 had opacity above the opacity limit of 10 % as a 6-minute average
- The maximum 1-hour average opacity was estimated to be 18.5 % and correlated to 30 ppm of I₂ at actual stack conditions
- 30 ppm of stack I₂ was initially estimated to create a maximum 1-hour ground level concentration of 0.0045 ppm when using dispersion modeling results from a recent air toxics analysis (March 2019).
- Ambient impacts were below NJ DOH workplace references for I₂ (OSHA, NIOSH and ACGIH)
- Current estimate of average I₂ was ~ 18 ppm, actual concentration, during maximum hour
- I₂ behavior is being researched

Covanta Essex : Essex test plan

Background

- Sodium thiosulfate (ST) is used at a hazardous waste incinerator in Ohio where it is added to a wet scrubber
- Application of ST at a municipal waste combustor at Covanta Lancaster was novel idea that was based on adding SO₂ to facilitate reduction of I₂
- Grate/furnace design of Covanta Lancaster and Covanta Essex are different (see next slide)
- Covanta Lancaster has semi dry scrubbing technology, somewhat similar to Covanta Essex however details are different
- “full scale” R&D test has demonstrated the potential to mitigate purple plumes though not conclusive. Questions remain which is the driving force behind additional test program.

ST strategy

- Chemical reaction: $Na_2S_2O_3 + 2HCl \rightleftharpoons 2NaCl + S + SO_2 + H_2O$
- Store ST as 30 weight % solution
- Inject only when necessary

Covanta Essex Plan

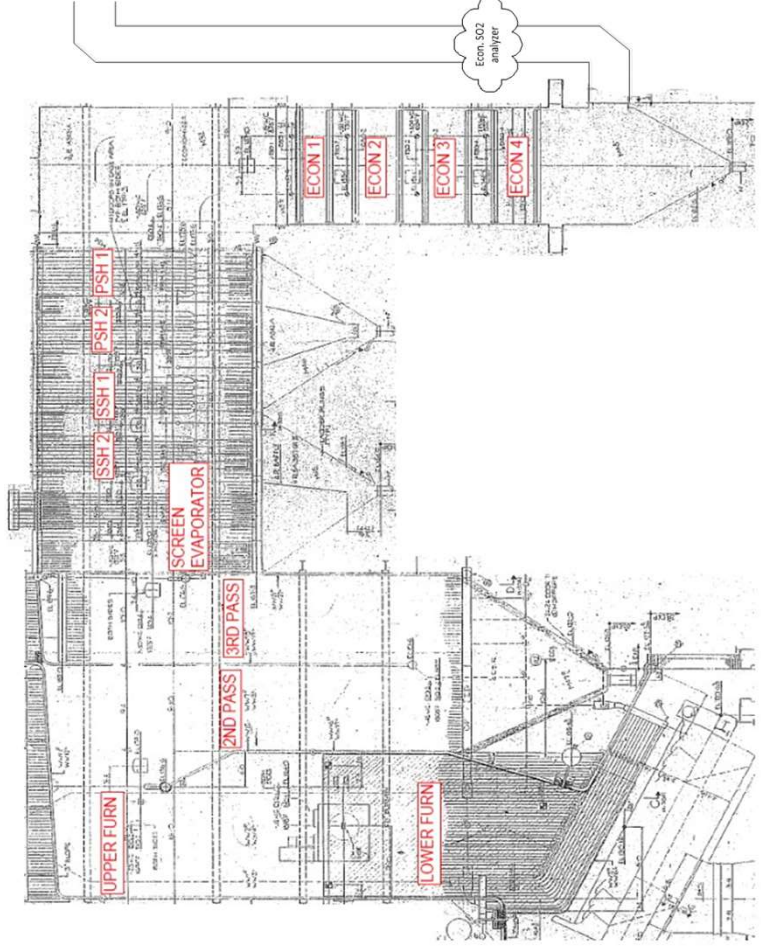
- Deliver test skid (pumps, valves, etc.) in Q1 2020.
- Conduct demonstration test in Q1 or early Q2 2020 to understand effectiveness in converting ST to SO₂
- Continue to learn from other ongoing efforts at Covanta Lancaster.

Grate/furnace/boiler: Covanta Lancaster and Essex

Different design, waste and operating conditions create different flue gas velocities, residence time and temperature profile through unit – therefore separate evaluation required

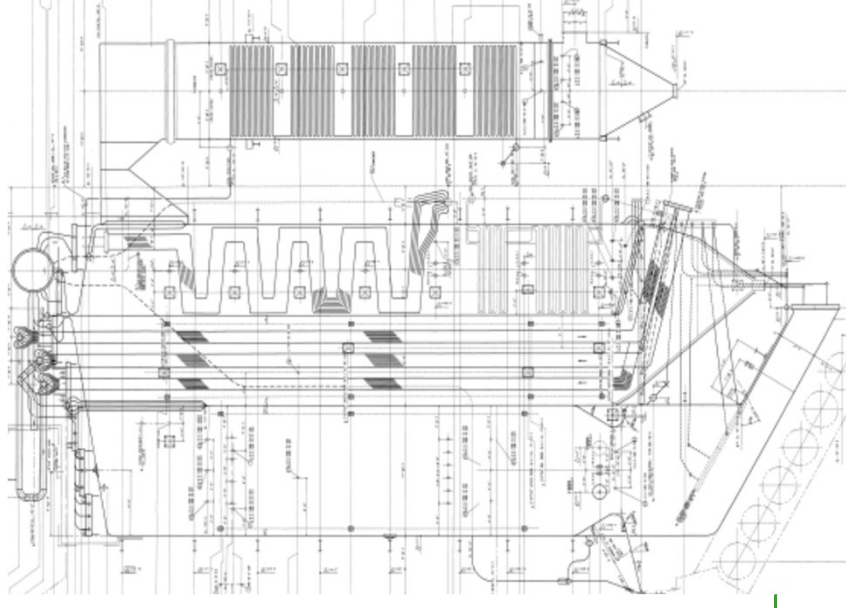
Covanta Lancaster

- Martin Gmbh grate/furnace/boiler
- Three units, each rated at nominal 400 TPD



Covanta Essex

- DBA roller grate/furnace/boiler
- Three units, each rated at nominal 933 TPD



Covanta Essex : Summary and Conclusions

Summary

- A 2-part program is being implemented to prevent purple plumes at Covanta Essex;
 1. Outreach efforts to prevent deliveries of iodinated waste to Covanta Essex.
 2. Evaluation of mitigation technology to control an opacity event if iodinated waste is delivered and combusted.
- Outreach efforts to waste generators, haulers and others have been underway and are being expanded.
- Mitigation technology is under investigation where injection of sodium thiosulfate is used to remove iodine from flue gas
- Deliver test skid (pumps, valves, etc.) in Q1 2020.
- Conduct demonstration test in Q1 or early Q2 2020 to understand effectiveness in converting ST to SO₂
- Additional research is being conducted in parallel thru independent 3rd parties on causes and control of colored plumes

Conclusions

- Existing outreach and communication is being expanded but at present we have not identified any sources of waste that could cause the colored plumes
- Sodium thiosulfate is being evaluated as a mitigation technology however implementation at Covanta Essex requires a field test program to evaluate its effectiveness.

Attachment 2

What is the Purple Plume?

Visible evidence that iodine is in the waste stream

WE NEED YOUR HELP!!

Please Keep Iodine Out of the Waste Stream



We need your help in preventing iodine from getting into the waste that you deliver to the Covanta Essex Energy-from-Waste facility. Combustion of iodine can lead to the discharge of unwanted, visible Pink/Purple plumes from the facility stack.

If you have waste that contains iodine, please contact [Jack Bernardino](mailto:Jack.Bernardino@covanta.com) at 732-956-1436.

**Covanta Essex thanks you
for your cooperation!**

183 Raymond Blvd
Newark, NJ 07105



COVANTA

¿QUE ES UN HUMO COLOR PURPURA?

Es la evidencia visible de que los residuos contienen yodo.

¡Necesitamos Tu Ayuda!

Por favor mantenga el yodo fuera del flujo de residuos



Necesitamos tu ayuda para evitar que el yodo ingrese a los desechos que usted deposita en las instalaciones de Covanta Essex Energy- from Waste. La combustión de yodo puede conducir a visibles descargas de humos no deseados, color rosado / púrpura de la pila de chimenea.

Si tiene desechos que contienen yodo, comuníquese con [Jack Bernardino al 732-956-1436](tel:732-956-1436).

¡Covanta Essex gracias por su cooperacion!

183 Raymond Blvd
Newark, NJ 07105



COVANTA

Attachment 3



INVOICE

Invoice:
Invoice Date:
Page:

376080ESSEX
12/15/21
2 of 2

Line	From Date PO Ref#	To Date	Ticket # Manifest#	Approval #	Description Origin/ destination	Qty Truck#	UOM	Unit Amount	Original
									Net Amount
1	12/09/2021	12/09/2021	2305107	13149	Aphis Waste Ton-Indirect Feed International - 9900	0.230 11953	TON		
2	12/10/2021	12/10/2021	2305371	13149	Aphis Waste Ton-Indirect Feed International - 9900	7.170 11941	TON		
3	12/15/2021	12/15/2021	2306518	13149	Aphis Waste Ton-Indirect Feed International - 9900	7.250 11941	TON		
					Recycle Tax	14.650			
					Environmental, Insurance and Sec Recovery Fet	14.650			

Total Amount:

Remittance Information:

Use following for ACH : JPMORGAN CHASE BANK N.A.
Chicago, IL
Bank/ABA/Routing # : 071000013, Bank Acct. # : 675522767
Account name: **Covanta Energy, LLC**
Reference: Customer No.:COV13680 Invoice No.: 376080ESSEX

Use following for WIRE : JPMORGAN CHASE BANK N.A.
New York, NY
Bank/ABA/Routing # : 021000021, Bank Acct. # : 675522767
Account name: : **Covanta Energy, LLC**
Reference: Customer No.:COV13680 Invoice No.: 376080ESSEX

For overnight and local courier, the following address is required:
JPMorgan Attn: Lockbox Covanta Energy, LLC, Lockbox # : 28893
4 Chase Metrotech Center - 7th floor East
Brooklyn, NY 11245

**ALL REMITTANCES MUST REFERENCE Customer No.:COV13680 Invoice No.: 376080ESSEX.
PLEASE EMAIL ALL PAYMENT REMITTANCE INFORMATION TO customerpayments@covanta.com**

Help us prevent unacceptable waste at Covanta Essex. Click <https://info.covanta.com/prohibited-wastes> for more info.

Attachment 4

COVANTA ESSEX HOSPITAL LOAD INSPECTION PROCEDURE

1. FLAGGING LOADS AT SCALEHOUSE

- a. Haulers delivering from hospitals in Essex County will be identifying loads from hospitals on the O&D forms going forward. The current known haulers are but not limited to:
 - i. Interstate Waste Services (IWS)
 - ii. T. Farese
 - iii. LT Roselle; and
 - iv. Giordano Company
- b. These loads are typically compactor loads that contain 100% hospital waste.
- c. The scalehouse operator is to make a note on the stage ticket that the load is from a hospital by marking "Hospital" on the ticket for the tipping floor operator.

2. WASTE INSPECTIONS ON THE TIPPING FLOOR

- a. Once a notification is received from the scale house or the "Hospital" notation is observed on the stage ticket at the North entrance door, the tipping floor operator will have Bay #4 cleared if there is waste in the bay so that the hospital load can be dumped into Bay #4 for a closer inspection. Hold the truck at the door until Bay 4 is ready to receive the load.
- b. Once the load is dumped into Bay 4 and the truck has left the bay and it is safe to do so, the tipping floor operator will walk over to Bay 4 for a closer visual inspection of the load. The "Covanta Essex Hospital Load Inspection Form" (attached) will be used to document the inspection. To provide for the operator's safety, no loads are to be dumped in Bay 3 or Bay 5 during the inspection.
- c. A visual inspection of the load will be conducted to determine if there are any containers of iodine containing material or any medications which contain iodine. The operator will use the visual aids provided for examples of this material to determine if it is visibly present in the load.
 - i. The inspector will conduct a visual inspection only and will not handle the load or the materials directly.
 - ii. The inspector may use a long handled tool such as a fire hook to move materials as needed. The waste will be raked as thinly as possible so that most of the waste is visible.
- d. If nothing is observed that appears to contain iodine, the operator will note that the load is acceptable on the inspection form and the load can be pushed into the refuse pit.
- e. If material is identified that may contain iodine, the operator will note this on the inspection form and will contact the Shift Supervisor, Chief Engineer, and/or Environmental Specialist for further instructions. The load is to be left in Bay 4 until the material can be examined by one of the above supervisors.
- f. If it is determined that the material does appear to contain iodine, the material will be isolated in the unacceptable waste container on the tipping floor for alternate disposal.
- g. The customer, hauler, and Essex County will be notified of the material observed in the compactor.

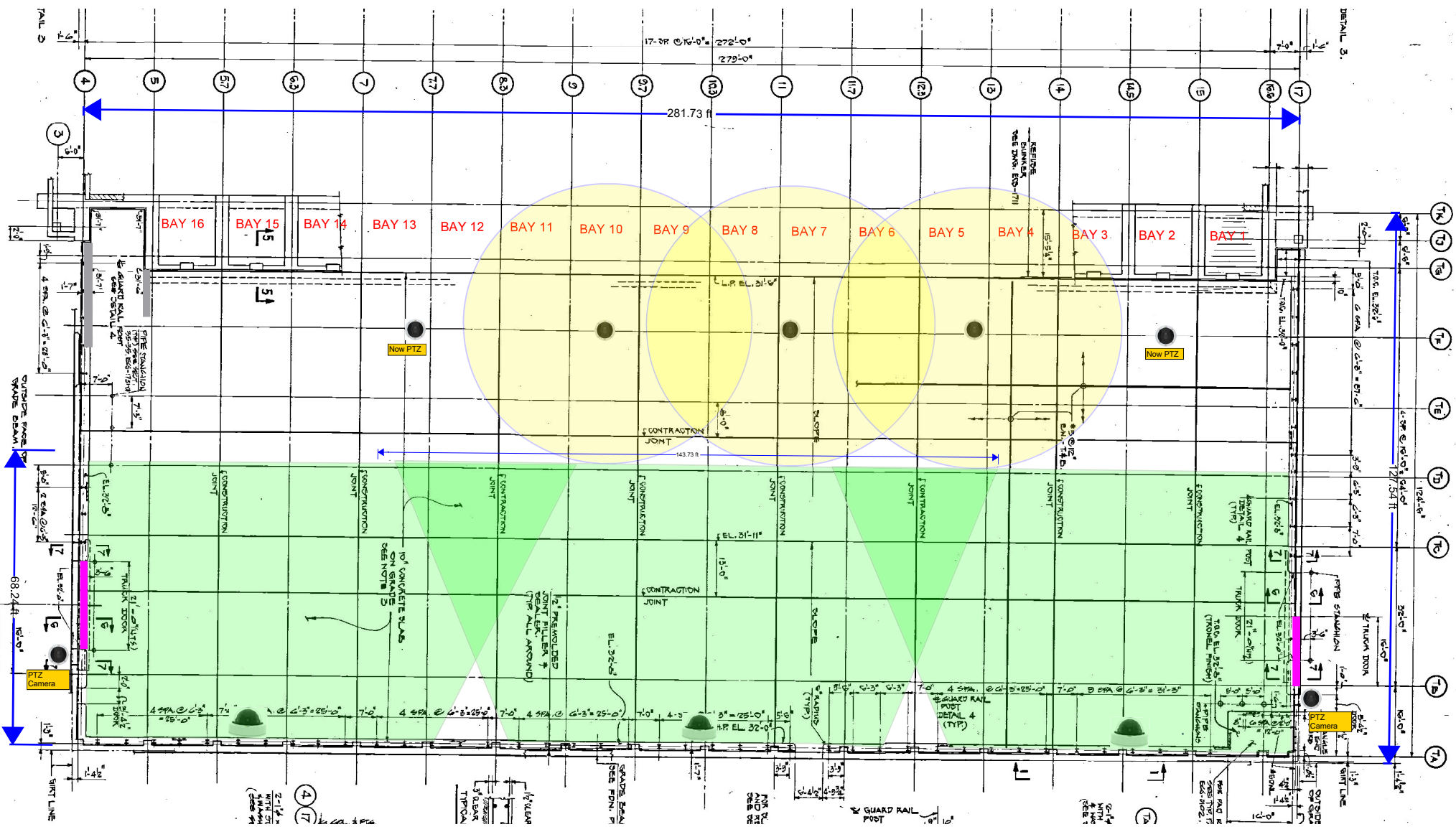
Attachment 5

COVANTA ESSEX WASTE LOAD INSPECTION REPORT

INSPECTION TYPE: (CIRCLE ONE)			VISUAL (ON FLOOR)					CAMERA (TIPPING BAY OFFICE)										
BAY ASSIGNMENT:			2	3	4	5	6	7	8	9	10	11	12	13	14	15	CIRCLE BAY # ASSIGNED	
INSPECTOR:			VEHICLE DATA:					COMPANY VEHICLE #										
DATE:			TYPE OF VEHICLE		NJDEP DECAL #			TRUCK #		NJ DEP # <i>(Painted)</i>								
TIME:			TRUCK															
HAULER:			ROLL-OFF					LIC PLATE #										
								FRONT		REAR								
TAG#:			TRANSFER															
WASTE TYPE:			ACCT. #					HOSPITAL WASTE?		YES NO								
UNACCEPTABLE WASTE TYPES AND IDENTIFIERS																		
POTENTIALLY HAZARDOUS:																		
LIQUID SOAKED DEBRIS _____						RADIOACTIVE MATERIAL _____						MOTORS _____						
EXPLOSIVES _____						DRY/POWDERED MATERIAL _____						PAINTS _____						
INDUSTRIAL CONTAINERS _____						PRESSURIZED VESSELS _____						WET SOLIDS _____						
						WARNING LABELS _____						UNUSUAL ODOR _____						
IODINE WASTE:																		
LIQUID IODINE _____						MEDICATIONS W/IODINE _____						INDUSTRIAL CHEMICALS _____						
ANTISEPTIC IODINE _____						DYES OR INKS _____						OTHER _____						
- BETADINE ANTISEPTIC _____						PHOTO FILM/CHEM _____												
- POVIDONE IODINE _____																		
REGULATED MEDICAL WASTE:																		
CULTURES AND STOCKS (CLASS 1) _____						ANIMAL WASTE (CLASS 5) _____												
PATHOLOGICAL WASTE (CLASS 2) _____						ISOLATION WASTE (CLASS 6) _____												
HUMAN BLOOD & BLOOD PRODUCTS (CLASS 3) _____						UNUSED SHARPS (CLASS 7) _____												
SHARPS (CLASS 4) _____																		
RECYCLABLES:																		
ALUMINUM _____						CARDBOARD _____						PLASTIC _____						
GLASS _____						BULK LOAD (100%) _____												
BULKY WASTE (TYPE 13):																		
APPLIANCES _____						SHEET ROCK _____						C & D WASTE _____						
TAR PAPER/SHINGLES _____						BALES _____						AUTO PARTS _____						
METAL PRODUCTS _____						BED SPRINGS _____						OTHER (SEE COMMENTS) _____						
CEILING TILES _____						RUBBER PRODUCTS _____												
TYPE 27 - UNACCEPTABLE PORTIONS																		
NJDEP PROHIBITED WASTE _____						HAZARDOUS WASTE _____												
NON-RESPONDENT/INSUFFICIENT TO SURVEY _____						HAZ. EFFECT ON ASH _____												
HAZARDOUS IMPACT ON EMISSIONS _____						NON-COMBUSTIBLES _____												
OVERALL RESULTS:																		
ACCEPTABLE LOAD _____						UNACCEPTABLE LOAD _____						DRIVER SAFETY VIOLATION _____						
COMMENTS:																		
FOR REJECTED LOADS CONTACT ONE OF THE FOLLOWING INDIVIDUALS IMMEDIATELY UPON REJECTION:																		
1) SHIFT SUPERVISOR ON DUTY																		
2) ENVIRONMENTAL SPECIALIST																		
2) OPERATIONS MANAGER																		
*NOTE: CONTACT IN THE ORDER LISTED / CHECK BOX OF THE INDIVIDUAL THAT WAS CONTACTED																		
PLEASE INCLUDE PICTURES OF ALL UNACCEPTABLE WASTE																		

Attachment 6

GROUND FLOOR PLAN AT EL. 32'-0"



DETAIL 3.

3" CONC. SLAB

TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ

- 17
- 16.6
- 15
- 14.5
- 14
- 13
- 12.3
- 11.7
- 11
- 10.2
- 9.7
- 9
- 8.3
- 7.7
- 7
- 6.3
- 5.7
- 5
- 4

CM-01-01

CM-01-02

CM-01-03

CM-01-04

CM-01-05

CM-01-06

CM-01-07

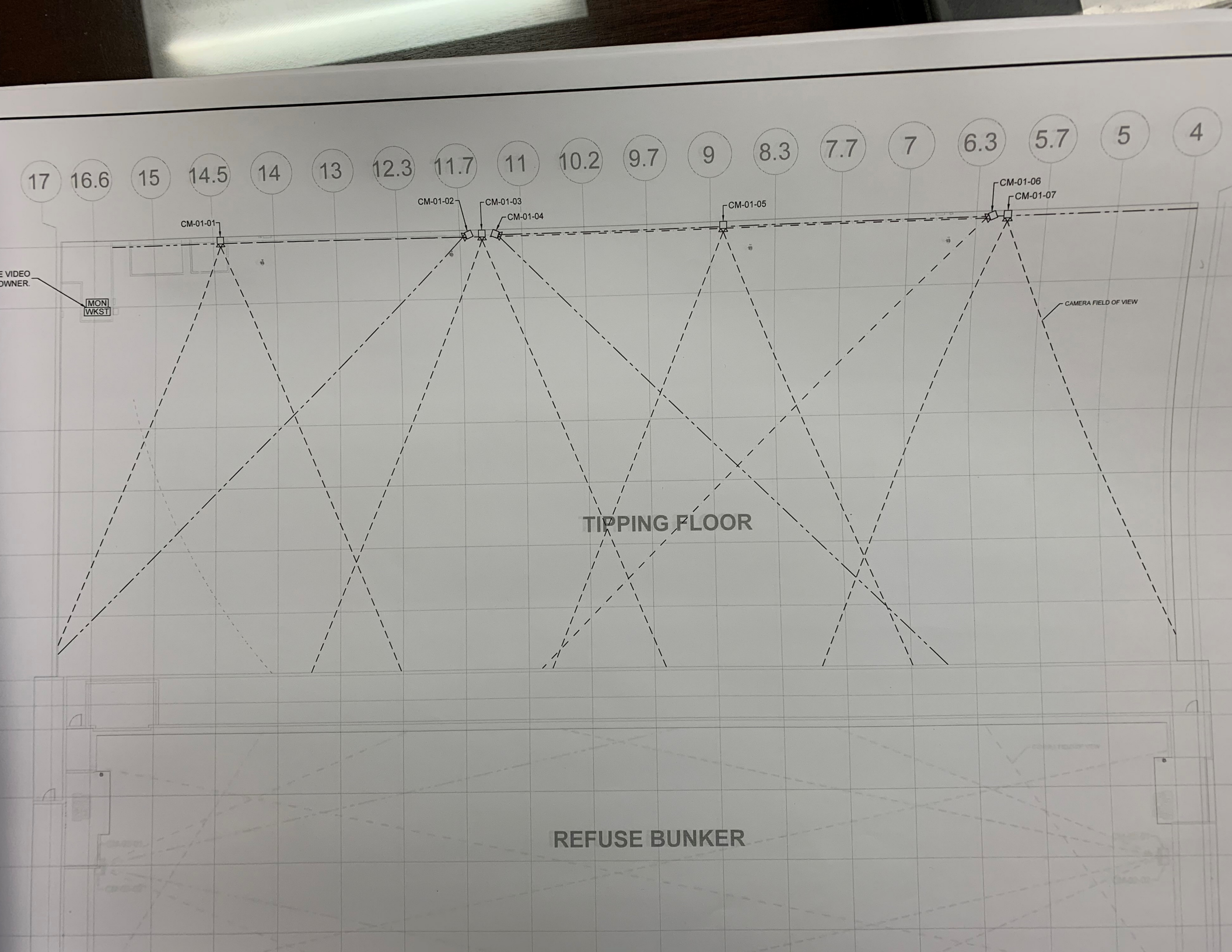
E VIDEO
OWNER

MON
WKST

CAMERA FIELD OF VIEW

TIPPING FLOOR

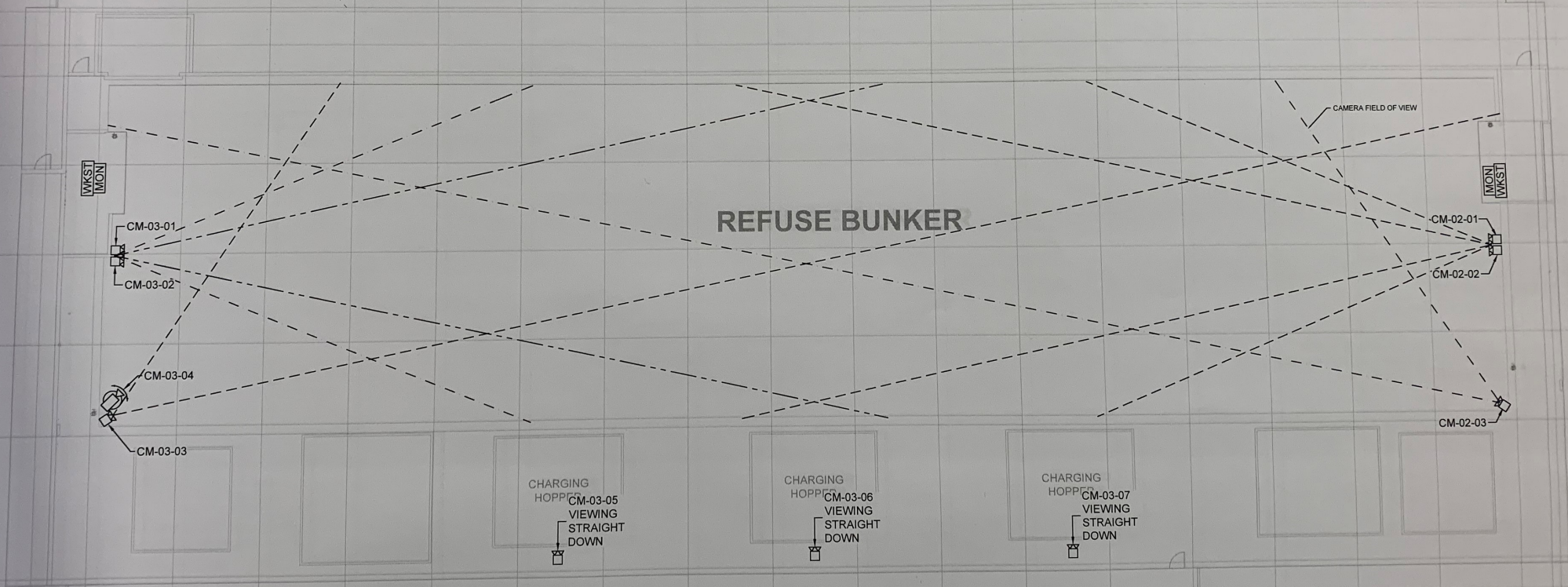
REFUSE BUNKER



TIPPING FLOOR

REFUSE BUNKER

BOILER AREA



Attachment 7

Response Steps for a Purple Plume Event

An alarm to alert the operator that a purple plume event may be happening has been added to Citect. The alarm is based on inlet SO₂ dropping to a very low level compared to where it was several minutes earlier. This alarm will clear when inlet SO₂ increases to a more normal level. The alarm will only function when the affected controller is in AUTO. This may occur shortly before or at the same time that opacity levels begin to spike.

The following response steps should be taken when this alarm comes in or when a visible observation of a purple plume is made:

1. When the alarm comes in on Citect for a purple plume indicated by a rapid decrease in inlet SO₂, pull up the control screen for purple plume in Citect for the affected boiler.
2. Pull up the trend screen on Citect called "Purple Plume" for the affected boiler to verify a rapid decrease in SO₂ and increase in opacity.
3. Check stack camera to get a visual observation of a purple plume if possible.
4. If alarm is verified by step 2 and/or step 3 above, decrease furnace draft to a setpoint of -0.1. Reduce the steam flow setpoint by 20 klb/hr until opacity begins to decrease.
5. Do not increase lime slurry flow. Reduce lime slurry flow until the event is over.
6. Report any opacity exceedance to NJDEP Hotline within 15 minutes of the end of the first 6 minute averaging period that is above the 10% limit. When the event is over, if there are additional exceedances, another call must be made to the Hotline to follow up on the previous notification with the updated exceedance information.

Note: Based on the trends from some of the past events, inlet SO₂ has been seen to increase after a few minutes, only to drop back to near zero several minutes later and/or to be jumping up and down at a level below where it was prior to the event. This is most likely due to more than one pocket of the source of the iodine in the fuel stream. Therefore, at the present time the alarm has been implemented, but control logic has not.

Purple Plume Opacity Decision Tree

Purple Plume Alarm in Citect

- Based on inlet SO₂ dropping to a very low level compared to where it was several minutes earlier.
- Only functions when the affected controller is in AUTO.

Purple Plume Alarm is Triggered in Citect?

Yes

No

Pull up the control screen for purple plume in Citect for the affected boiler.
Pull up trend on Citect called "Purple Plume" for Boiler that is alarming. Determine if inlet SO₂ is rapidly decreasing and opacity is increasing indicating a real purple plume event

Treat event like any other opacity spike

Check stack camera to get a visual observation of plume if possible.

Can purple plume be verified in either of the above steps?

No

Treat event like any other opacity spike

Yes

- Decrease furnace draft to a setpoint of -0.1.
- Reduce the steam flow setpoint by 20 klb/hr until opacity begins to decrease.
- Reduce lime slurry flow. Do not increase slurry flow.
- Report any exceedance to NJDEP Hotline.

Non-Purple Plume Opacity Decision Tree

If opacity is spiking with no corresponding sharp drop in inlet SO₂, then the event is not a purple plume event. Follow response steps below.

- Decrease lime slurry flow to the minimum rate.
- Decrease furnace draft to a setpoint of -0.1.
- Begin to reduce the steam flow setpoint by increments of 5 klb/hr until opacity begins to decrease.
- Report any exceedance to NJDEP Hotline.

Attachment 2

Covanta Essex Company ACO Requirements

Requirement	Description	Deadline	Required Due Date	Actual Completion Date
Phase I a)	COVANTA ESSEX COMPANY ("COVANTA") shall hire an independent public relations consultant or other similarly qualified consultant to develop a formal public outreach program and/or review and supplement as necessary, COVANTA's existing program if one either formally or informally exists. A plan, detailing the program, shall be developed and shall include, but not be limited to, procedures to provide timely updates on any operational upsets that result in permit excursions, periodic notifications to local community groups, including electronic and other agreed to forms of communication and the establishment of a website link. COVANTA shall reach out to local community groups to determine notification schedules and deliverables for purposes of planning and program development.	Within 30 calendar days of effective date of ACO	11/9/2020	11/6/2020
Phase I b)	The plan and program shall also provide that COVANTA conduct a community outreach event to communicate with local community groups on a bi-annual basis.	Bi-annual	Ongoing	6/16/2021
Phase I c)	COVANTA shall complete and submit the plan to the Department for comment.	Within 90 calendar days of effective date of ACO	1/7/2021	1/7/2021
Phase I c)	Within fourteen (14) calendar days after addressing any modifications to the plan, COVANTA shall initiate the planned program.	Within 14 calendar days of addressing NJDEP comments on Community Outreach plan	11/16/2021	11/16/2021 - Plan implementation was already in progress
Phase I d)	COVANTA shall hire an independent waste operations consultant to review and develop new protocols or supplement as necessary, COVANTA's existing waste receipt, inspection and handling protocols. Protocols shall include but are not limited to items listed below under Phase I d)i through v.	Within 30 calendar days of effective date of ACO	11/9/2020	11/6/2020
Phase I d)i	Procedures to increase education and outreach to all customers and haulers via direct communications with responsible entities and printed messaging on all invoice bills regarding acceptable/prohibited waste types.	Within 90 calendar days of effective date of ACO	1/7/2021	1/7/2021
Phase I d)ii	Specific procedures to address iodinated wastes including methodologies to identify potential generators/sources of these wastes, development of proactive steps to ensure these wastes are not included in the waste streams coming to the facility and inspection/interception protocols to ensure these waste types are not processed through the facility.	Within 90 calendar days of effective date of ACO	1/7/2021	1/7/2021
Phase I d)ii	As a potential measure for enhancing COVANTA's iodine waste inspection/interception protocols, iodine monitors shall be evaluated for their potential effectiveness to monitor vapor phase iodine. The evaluation shall be submitted to the Bureau of Air Monitoring within thirty (30) calendar days of the effective date of this ACO.	Within 30 calendar days of effective date of ACO	11/9/2020	11/6/2020

Requirement	Description	Deadline	Required Due Date	Actual Completion Date
	Response to NJDEP comments on iodine monitor evaluation received on 12/11/20	No required deadline for response	NA	4/6/2021
	Response to NJDEP comments on iodine monitor evaluation received on 5/18/21	No required deadline for response	NA	Call held on 6/29/21 to discuss comments
	Submittal of Halogenated Waste Pollution Prevention Plan report to NJDEP by July 30, 2021 pursuant to agreement made on call on 6/29/21	7/30/2021	7/30/2021	7/29/2021
Phase I d)ii	If the Department deems that the monitors are effective in monitoring vapor phase iodine, the monitors shall be installed, in accordance with Department review and approval, within 60 calendar days of such approval.	Within 60 calendar days of effective date of ACO	NA	NA
Phase I d)iii	Installation of Digital Cameras at appropriate locations throughout the facility to monitor waste streams being tipped in the transfer house and being conveyed into the boilers. The Digital Cameras should have recording capability and data retention that can record for 30 days.	Within 90 calendar days of effective date of ACO	1/7/2021	1/7/2021
Phase I d)iv	Additional dedicated training to employees responsible for 1) monitoring truck deliveries and unloading and 2) operating the grapples used to mix waste in the pit and transfer waste from the pit to the feed hopper for each boiler, to train the employees to identify inappropriate waste material.	Within 90 calendar days of effective date of ACO	1/7/2021	1/7/2021
Phase I d)v	Enhanced employee training program to ensure compliance with COVANTA's Solid Waste and Air Permits, applicable Best Management Practices, and procedures for identifying and preventing iodine from entering the Facility.	Within 90 calendar days of effective date of ACO	1/7/2021	1/7/2021
Phase I e)	Within ninety (90) calendar days of the effective date of this ACO, excepting the Iodine monitor evaluation noted in d)ii. above, COVANTA shall provide the protocols and procedures outlined above for Department comment.	Within 90 calendar days of effective date of ACO	1/7/2021	1/7/2021
Phase I e)	Within fourteen (14) calendar days after addressing any modifications to the protocols and procedures, COVANTA shall implement same. COVANTA is encouraged to proactively implement any enhanced protocols and procedures outlined above prior to the required 90-day due date	Within 14 calendar days of addressing NJDEP comments on Waste Receipt, Inspection and Handling protocols	1/10/2022	1/10/2022
Phase II a)	Identification and estimation of air pollutant emissions and the air dispersion modeling of the impacts of the identified purple plumes shall be performed by an independent third party, and reports containing the air dispersion modeling results shall be submitted to the Department detailing the estimated potential health impacts associated with the purple plume events. Modeling shall include the impact of iodine associated acid gases with an estimation of emissions. Modeling reports shall be provided to the DEP by a qualified thirdparty modeling expert acceptable to the Bureau of Evaluation and Planning.	Within 45 days of protocol approval	7/23/2021	7/20/2021

Requirement	Description	Deadline	Required Due Date	Actual Completion Date
Phase II a)1.	Prior to conducting and modeling or health risk assessment COVANTA ESSEX COMPANY shall provide detailed estimates of all emissions associated with the purple plumes including, but not limited to, iodine and other associated acid gases and, the methodologies used to estimate the amount and duration of the emissions within 45 calendar days of the Effective Date of this ACO.	Within 45 calendar days of effective date of ACO	11/23/2020	11/19/2020
Phase II a)2.	Within 90 calendar days of the Effective Date of this ACO but prior to conducting and modeling or health risk assessment COVANTA ESSEX COMPANY shall submit a written protocol that is prepared by an independent third party for DEP approval to the Bureau of Evaluation and Planning that is consistent with a) Technical Manual 1002 Guidance on Preparing an Air Quality Modeling Protocol b) Technical Manual 1003 Guidance on Preparing Risk Assessment for Air Contaminant Emissions.	Within 90 days of effective date of ACO	1/7/2021	1/7/2021
	Response to NJDEP comments on air quality modeling protocol received on 2/26/21	Within 60 days of receipt of comments	4/26/2021	4/21/2021
Phase II a)3.	Once reviewed and approved by the Department, an independent third party shall conduct the modeling and risk assessment consistent with the protocol approval and submit results within 45 calendar days of Department approval.	Within 45 calendar days of protocol approval	7/23/2021	7/20/2021
Phase II a)4.	If upon completion of DEP's review of the modeling and risk assessment identified in Phase 2, Paragraph a.3 of this ACO, there are verified findings that the emission of the purple plumes caused a non-negligible health impact (See NJDEP Division of Air Quality Technical Manual 1003) to the public, Covanta shall disclose the findings to the public. In doing so, Covanta is encouraged to include posting the findings on its website. Covanta will disclose the non-negligible health impact within 5 days of receiving the verified findings.	Within 5 days of receiving non-negligible health impact results	NA	No non-negligible health impacts identified
Phase II b)	A mitigation plan shall be submitted to the Department for inclusion into COVANTA ESSEX COMPANY's Solid Waste and Title V permits. The mitigation plan shall consider findings from the evaluation of waste generators and how tipping floor procedures can be adjusted to improve a visual assessment of waste deliveries. Upon approval, the mitigation plan shall be referenced in the pending Title V Operating Permit renewal (BOP170001) under review by the Department and shall be incorporated into the renewal of the current Solid Waste Facility Permit (RRF190001) which expires February 23, 2021.	Plan shall be submitted upon approval by the Department of the protocols and procedures required to be submitted under Phase I e) within 90 days of effective date of ACO	1/10/2022	Modification of O&M manual to include procedures was submitted in response to SW Operating Permit NOD on 1/10/22. This will also be incorporated in the Title V renewal.
Phase II c)	COVANTA ESSEX COMPANY shall provide a written report detailing efforts made at the facility located in Lancaster PA and operated by Covanta Lancaster, Inc. The report shall include information that explains the formation of purple plumes including the estimated iodine feed rate where the creation of a plume event has been made.	Within 60 calendar days of effective date of ACO	12/8/2020	12/7/2020

Requirement	Description	Deadline	Required Due Date	Actual Completion Date
Item 14	All reports submitted to the Department shall be made available on COVANTA ESSEX COMPANY's website within one week of being submitted to the Department. This requirement shall exclude the report required and identified in Phase II, paragraph c.	Within 1 week of submittal of any required report to NJDEP.	Ongoing	Completed as applicable.
Item 17	<p>COVANTA ESSEX COMPANY shall submit progress reports to the Department by the first calendar day of every other month beginning 30 calendar days from the Effective Date of this ACO. Each report shall explain the status of COVANTA ESSEX COMPANY's compliance with the Compliance Schedule required by this ACO and shall include, but not be limited to, the following:</p> <p>A. identification of the site and reference to this ACO;</p> <p>B. the status of permitting and planning approvals, and any work at the site and progress to date;</p> <p>C. difficulties or problems encountered during the reporting period, and actions taken to rectify any difficulties or problems;</p> <p>D. activities planned for the next reporting period;</p> <p>E. the required and actual completion dates for each item required by this ACO;</p> <p>F. an explanation of any non-compliance with the compliance schedule; and</p> <p>G. evaluation of all corrective measures implemented to date.</p>	First calendar day of every other month beginning 30 calendar days from the effective date of ACO.	11/1/2021	3/1/2022 (Next report due by 5/1/22)
Item 18	In settlement of the violations cited in the above findings, COVANTA ESSEX COMPANY shall pay a penalty of \$24,400 (Twenty Four Thousand, Four Hundred Dollars) by check made payable to the "Treasurer, State of New Jersey" and remitted to the Division of Revenue at the address stated on the enclosed invoice(s) within thirty (30) calendar days of the Effective Date of this ACO.	Within 30 calendar days of effective date of ACO	11/9/2020	11/5/2020