OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
OREGON TITLE V OPERATING PERMIT
REVIEW REPORT for

Covanta Marion, Inc.

State of Oregon Department of Environmental Quality

Western Region
4026 Fairview Industrial Drive SE
Salem, OR 97302
Telephone (503) 378-8240

Source Information:

SIC	4953

NAICS	562213

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	X
Emission credits	NA
Compliance schedule	NA
Source test [date(s)]	Annually

COMS	X
CEMS	CO, SO_2, NO_x
Ambient monitoring	NA

Reporting Requirements

Annual report (due date)	March 15
Emission fee report (due date)	March 15
SACC (due date)	August 30
Quarterly report (due dates)	NA
GHG report	X

Monthly report (due dates)	NA
Excess emissions report	X
Other reports	NA

Air Programs

NSPS (list subparts)	Cb
NESHAP (list subparts)	ZZZZ
CAM	X
Regional Haze (RH)	NA
Synthetic Minor (SM)	NA
Part 68 Risk Management	NA
CFC	NA
TACT	NA

Title V	X
Major HAP source	X
Federal major source (listed source)	X
NSR	NA
PSD (1983, 1988)	X
GHG	X

TABLE OF CONTENTS

LIST OF ABBREVIATIONS USED IN THIS REVIEW REPORT

ACDP	Air Contaminant Discharge Permit
Act	Federal Clean Air Act
ASTM	American Society of Testing and Materials
BACT	Best Available Control Technology
BDT	Bone Dry Tons
BDU	Bone Dry Units
Btu	British thermal unit
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CMS	Continuous Monitoring System
CO2e	Carbon dioxide equivalent
CO	Carbon Monoxide
COMS	Continuous Opacity Monitoring System
CPMS	Continuous parameter monitoring system
DEA	Drug Enforcement Administration
DEQ	Department of Environmental Quality
dscf	Dry standard cubic feet
dscfm	Dry standard cubic feet per minute
EF	Emission factor
EPA	US Environmental Protection Agency
ESP	Electrostatic precipitator
EU	Emissions Unit
FCAA	Federal Clean Air Act
FSA	Fuel sampling and analysis
ft^3	cubic feet
GHG	Greenhouse Gases
gpm	gallons per minute
g/dscm	gram per dry standard cubic meter
gr/dscf	Grain per dry standard cubic feet (1 pound = 7000 grains)
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040
HCFC	Halogenated Chloro-Fluoro-Carbons
ID	Identification label
I&M	Inspection and maintenance
lb	pound
kg	kilogram
M	thousand
MACT	Maximum Achievable Control Technology
MB	material balance
Mgal	one thousand gallons
MMBtu	one million British thermal units
$MMft^3$	one million cubic feet
NA	Not applicable
NO_x	Nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
O_2	Oxygen
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
ORS	Oregon Revised Statutes
O&M	Operation and maintenance
Pb	Lead
PCD	Pollution Control Device
PM	Particulate matter
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PM_{10}	Particulate matter less than 10 microns in size
ppm	Parts per million
PSD	Prevention of Significant Deterioration
PSEL	Plant Site Emission Limit
scf	standard cubic foot
scfm	standard cubic foot per minute
SERP	Source Emissions Reduction Plan
SIC	Standard Industrial Code
SO_2	Sulfur dioxide
SSM plan	Startup, Shutdown, and Malfunction Plan
ST	Source test
SW	Solid Waste
TRS	Total Reduced Sulfur
VE	Visible emissions
VMT	Vehicle miles traveled
VOC	Volatile organic compounds

INTRODUCTION

1. In accordance with OAR 340-218-0120(1)(f), this review report is intended to provide the legal and factual basis for the draft permit conditions. In most cases, the legal basis for a permit condition is included in the permit by citing the applicable regulation. In addition, the factual basis for the requirement may be the same as the legal basis. However, when the regulation is not specific and only provides general requirements, this review report is used to provide a more through explanation of the factual basis for the draft permit conditions.

2. The proposed permit is a renewal of the existing Oregon Title V Operating Permit, which was issued on 7/2/12, and was scheduled to expire on 4/1/17. The current permit remains in effect until the renewal permit is issued because the permittee filed a complete and timely renewal application on 3/30/16. No permit modifications, administrative amendments or notices of approval for construction have been issued since the last permit renewal. An Off-Permit Change notification was submitted on 11/8/12 for combustion of treated sewage sludge at the facility.

This proposed renewal includes the following changes:

a. Revising conditions concerning opacity to align with new state rules on how opacity is measured (6 minute average instead of 3 minute aggregate in an hour)
b. Revising conditions concerning grain loading to align with new state rules concerning significant figures (e.g., 0.10 gr/dscf instead of 0.1 gr/dscf)
c. Revising emission estimates based on a detailed review of emission factors from recent source tests (2009-2018) and CEM data (2007-2018) for the facility
d. DEQ style (e.g., DEQ instead of Department) and template changes
e. Correcting cross-references due to different permit condition numbering
f. Each combustor is limited to burning no more than 10% medical waste unless testing of the combustor is completed while the combustor is burning more than 10% medical waste then the combustor is limited to burning no more than the test rate, whichever is greater, as long as no emission limit was exceeded.

PERMITTEE IDENTIFICATION

3. Covanta Marion, Inc. (CMI) owns and operates a Solid Waste-to-Energy Facility (Facility) in Brooks, Oregon. Construction approval for the Facility was issued by DEQ in 1983 and the Facility began operations in 1986. The primary objective of the CMI Facility is to provide for the disposal of solid waste. In order to achieve this primary objective the Facility receives, stores, and combusts solid waste as defined in Oregon Revised Statues (ORS) 459.005 and the Facility's Solid Waste Permit. The combustible fraction of the solid waste is utilized to produce steam, which is in turn utilized in a turbine generator to produce electricity which is sold to the local utility. The Facility operates 24 hours per day, 365 days per year, except for periods of scheduled and unscheduled maintenance.

The Facility is located on approximately 16 acres east of Exit 263 on Interstate-5 on Northeast Brooklake Road. CMI provides the necessary utilities, including on-site potable and industrial water systems, and a pumping station and pipeline to the Willamette River for discharge of treated cooling and process water. Sewage services are provided by Brooks Sewer District. Electricity for in-plant use is generated by the Facility and provided by Portland General Electric (PGE) when the turbine generator is off-line. The Facility is tied to the PGE grid via the on-site switchyard. The switchyard distributes the power to the local utility power grid for sale and distribution. Natural gas service is supplied from a natural gas main located near the site.

FACILITY DESCRIPTION

4. Fuel

The Facility is authorized by DEQ to accept solid waste (under Solid Waste Permit No. 364), which is defined in OAR 340-093-0030(85) as "all useless or discarded putrescible and non-putrescible materials including, but not limited to garbage , rubbish, refuse, ashes, paper and cardboard, sewage sludge, septic tank and cesspool pumpings or other sludges, useless or discarded commercial, industrial, demolition and construction materials, discarded or abandoned vehicles or parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid materials, dead animals, and containers of infectious wastes".

Additionally, CMI is authorized under the Solid Waste Permit to accept for disposal the following: a) cannery wastes; b) conditionally exempt small quantity generator hazardous wastes; c) narcotics, illicit drugs, and equipment and other materials used in the production of illicit drugs; d) pharmaceutical wastes such as prescription and over-the-counter drugs, and DEA-controlled substances; and e) infectious wastes. The facility may accept other wastes if it develops a Special Waste Management Plan which is approved by DEQ.

The Facility is also authorized to accept solid wastes from commercial waste collection vehicles operated by individual commercial and industrial sources and other sources approved by DEQ.

The Facility is prohibited from accepting the following: a) hazardous wastes except as provided in DEQ's Administrative Rules; b) materials used for fertilizer or for other productive purposes or which are salvageable as such materials are used on land in agricultural operations and the growing or harvesting of crops and the raising of animals; c) solid waste from individual private citizens delivering their own household wastes; d) out-of-state wastes classified as hazardous wastes in their state of origin even if such wastes would not be classified hazardous wastes if they originated in Oregon; e) lead-acid batteries; f) discarded or abandoned motor vehicles; g) off spec used oil; h) explosives; i) friable or non-friable asbestos-containing material; and j) radioactive wastes except as allowed by the source's solid waste permit for temporary storage. Undigested sewage sludge and septic pumpings are not acceptable unless specifically authorized by DEQ.

Facility Operation

After being weighed, unprocessed acceptable waste is delivered to a storage pit in the refuse building. From the pit, the waste is lifted by one of two electrically powered overhead cranes and placed into one of the two combustion units charging hoppers. Prior to being placed into one of the charging hoppers, the refuse is mixed in the pit to ensure a more homogeneous fuel mix. Mixing is accomplished by spreading freshly delivered refuse across the pit. Medical waste may be stored on site or is directly transported by conveyor from the tipping floor to one of two charging hoppers, except on rare occasions, the crane is used to deliver medical waste to the boilers.

Combustion

Combustion takes place in two boilers with integral waterwall furnaces. Each boiler operates independently of the other. The Facility can process a total of 550 tons per day of solid waste. Most SW is lifted into the charging hoppers by crane. However, some wastes, such as medical waste, are delivered to the charging hoppers via a conveyor system. To seal the feed chute from outside air infiltration, and to maintain control of the furnace draft, the hopper is kept full of solid waste.

From the feed chute, waste is pushed by hydraulic ram feeders onto the Martin Reverse-action Reciprocating Stoker Grate. The stoker system is sloped downward and is composed of alternating rows of fixed and moving grate bars. The reciprocating grate bars push upward against the natural downward movement of the waste bed creating a constant rolling movement that ensures the waste is continually agitated. This creates an under-fire bed of burning waste onto which fresh waste is fed. A forced draft fan pulls air from above the charging hoppers to control odors and prevent them from escaping the refuse building. This fan also supplies combustion air to the underside of the stoker grate bars in volumes that are controlled to meet the necessary combustion conditions. The uniform air distribution also cools the grate bars to prolong grate bar life. Additional combustion air is introduced above the stoker at the front and rear walls of the furnace. The resulting flame turbulence prevents the escape of unburned gases from the furnace.

The combustion residue or bottom ash slowly makes its way to the end of the grate where it falls into a water quenching trough in the Martin Ash Discharger.

Inside the boiler, water-filled tubes form the furnace walls throughout the boiler. The heat from the combustion process in the furnace converts the water in the tubes to steam. The superheater further heats the steam before it is sent to a turbine which drives the generator, which produces electricity.

Exhaust steam from the turbine-generator is condensed in a water-cooled condenser. The resulting condensate is recovered and pumped back to the boilers for reuse. The heat absorbed by the condensing water is transferred and dissipated in the cooling tower located east of the main building.

Emission Controls

Cooled exhaust gases resulting from the combustion of solid waste leave the boiler and enter the air pollution control system.

Each boiler is equipped with a spray dryer absorber (SDA) for acid gas removal, a selective non-catalytic reduction (SNCR) system for control of nitrogen oxides, a dry activated carbon injection system for mercury emissions control, and a fabric filter baghouse (equipped with a bag leak detection system) for the control of particulate matter emissions. Each fabric filter baghouse is followed by an induced draft fan, which directs the cleaned flue gas to a dedicated flue in a common stack. Each unit is also equipped with continuous emission and parameter monitoring systems to provide feedback on the effectiveness of the air pollution control systems and equipment.

EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION

5. The emissions units at this facility are summarized below:

Emissions Unit	EU ID	Pollution Control Device/Practice	PCD ID
Municipal waste combustor unit 1	MWC-1	Baghouse	C-1
		Spray Dryer Absorber	C-3
		Dry Activated Carbon Injection	C-5
		Selective Non-catalytic Reduction	C-6
Municipal waste combustor unit 2	MWC-2	Baghouse	C-2
		Spray Dryer Absorber	C-4
		Dry Activated Carbon Injection	C-5
		Selective Non-catalytic Reduction	C-6

Emissions Unit	EU ID	Pollution Control Device/Practice	PCD ID
Municipal waste combustor-Facility Total for PSEL	MWC-FT	N/A	NA
Categorically Insignificant Activities including Reciprocating Internal Combustion Engines	RICE	None	NA
Aggregate insignificant emissions including fugitive dust emissions from vehicle traffic on paved roads and material handling of lime and carbon.	AI	None	NA

6. Provided below is a description of each of the emissions units and control devices at this facility:

MWC-1 and MWC-2
Emissions units Municipal Waste Combustor unit 1 (MWC-1) and Municipal Waste Combustor unit 2 (MWC-2) each consist of a mass burn waterwall waste-to-energy boiler (Devices D-1 and D-2, respectively). Both boilers are manufactured by Zurn and the combustion grates are manufactured by Martin GmbH. The waste feed is continuous using a hydraulic ram. Each boiler is rated at 107 million Btu/hr heat input. The combined boilers can combust up to 550 tons of waste per day. The waste has a nominal heating value of 4,000 to 5,000 Btu/lb.

MWC-FT
Emissions unit Municipal Waste Combustor-Facility Total (MWC-FT) consists of the total emissions from all emissions units for the purpose of demonstrating compliance with the facility's plant site emission limits.

RICE
This emissions unit currently only consists of a 1986 Cummins 244 HP emergency fire pump which is considered a categorically insignificant activity.

AI
Emissions unit Aggregate Insignificant activities (AI) includes the following:

a. Refuse delivery truck and hauling truck travel on paved roads within the facility.
b. Pneumatic delivery of pebble and dolomitic lime into the storage silos, which are equipped with baghouses.
c. Pneumatic delivery of carbon to the carbon storage silo which is equipped with a baghouse.

Refuse delivery trucks stop on the incoming scales to weigh and then enter the tipping floor to off-load refuse into the storage pit. To exit the facility site, the trucks travel around the enclosed ash storage building and exit onto Brooklake Road. Ash hauling trucks travel directly to the enclosed ash storage building, where they are loaded with ash for transport to the ash monofill or to a landfill. These paved areas are maintained in a clean condition by sweeping, ash is stored and transported in a wetted condition, and a cleanup program collects spilled refuse as needed.

The Facility receives deliveries of dolomitic and pebble lime, and carbon into storage silos on an as-needed basis. These materials are transferred pneumatically from the delivery trucks into the silos. The silos are equipped with baghouses to control particulate matter emissions.

The combined particulate matter emissions from these activities are less than 1 ton/year as shown in Appendix A.

Acid Gas Controls
Semi-dry lime slurry scrubbers are used to control acid gas emissions on each boiler (control devices C-3 and C-4). The lime volumetric flow meter provided with each scrubber measures dilute slurry of varying lime concentration (i.e., weight percent) of $Ca(OH)_2$ in suspension. Each spray dryer operates with a feedback control loop which uses a stack SO_2 emissions rate (as lb/hr) set point. The lime injection rate into each spray dryer increases when the stack

SO_2 emission rate exceeds the set point. The scrubbers were manufactured by Teller Environmental Systems, Inc. and were installed when the plant was constructed in 1983.

NO_x Controls
In 1998, a SNCR system was installed to control NO_x emissions (control device C-6). Aqueous ammonia along with additional carrier water is injected into each furnace above the combustion grates through one nozzle positioned on the front wall of the furnace. Two additional wall boxes are provided per combustion unit (one on each side of the furnace). The alternate locations permit relocation of the injection nozzles to optimize performance, if required. The main chemical reaction forming the basis of the SNCR process is:

$$4\ NO + 4NH_3 + O_2 \rightarrow 4\ N_2 + 6\ H_2O$$

The principal components of the system include: an aqueous ammonia storage tank, an ammonia feed pump skid, a carrier water supply from the existing demineralized water system, a purge air system, and injection nozzles.

Hg Controls
The mercury emissions control system (control device C-5) utilizes a pneumatic feed system that injects dry activated carbon directly into the flue gas ductwork downstream of the economizer of each combustion unit. The system was installed in 1998 and consists of two independent carbon injection trains, each dedicated to one of the two combustion units. The carbon injection systems are fed from a common carbon storage silo that is equipped with a baghouse vent filter. The silo has two outlet hoppers to ensure each injection train is independently fed and controlled. From the outlet hoppers, the carbon is fed directly into dedicated surge bins, each equipped with gravimetric feeders for controlling the carbon feed rate. Each injection train is equipped with a pneumatic conveying system to transport the carbon from the feeder (using an air blower and eductor) to the flue gas duct. The carbon, containing adsorbed mercury is captured in the baghouse for disposal along with the combustion fly ash. A "Y" injection system capable of injecting carbon to both units simultaneously from one feed system is available should one of the independent systems fail.

Particulate Matter Controls
Baghouses (control devices C-1 and C-2) are used to remove particulate matter from the exhaust gas after the semi-dry lime slurry scrubbers. Each baghouse has an air-to-cloth ratio of 1.8:1. The design pressure drop is 3 inches of water at a design flow rate of 57,390 actual cubic feet per minute. Reverse air is used to clean the bags on an automatic schedule. The design removal efficiency of the AFT bags is 99.998%. The baghouses were manufactured by American Air Filter Company and installed when the municipal waste combustors were installed in 1983. A bag leak detection system was added in 2017 to Unit 1 and a second system is scheduled to be installed in Unit 2 in 2019.

Categorically insignificant activities at the facility include the following:

- Constituents of a chemical mixture present at less than 1% by weight of any chemical or compound regulated under Divisions 20 through 32 of this chapter, or less than 0.1% by weight of any carcinogen listed in the U.S. Department of Health and Human Service's Annual Report on Carcinogens when usage of the chemical mixture is less than 100,000 pounds/year
- Evaporative and tail pipe emissions from on-site motor vehicle operation
- Distillate oil, kerosene, gasoline, natural gas or propane burning equipment, provided the aggregate expected actual emissions of the equipment identified as categorically insignificant do not exceed the de minimis level for any regulated pollutant, based on the expected maximum annual operation of the equipment. If a source's expected emissions form all such equipment exceed the de minimis levels, then the source may identify a subgroup of such equipment as categorically insignificant with the remainder not categorically insignificant. The following equipment may never be included as categorically insignificant: (A) an individual distillate oil, kerosene or gasoline burning equipment with a rating greater than 0.4 million Btu/hour; (B) any individual natural gas or propane burning equipment with a rating greater than 2.0 million Btu/hour

- Office activities
- Janitorial activities
- Personal care activities
- Groundskeeping activities including, but not limited to building painting and road and parking lot maintenance
- On-site laundry facilities
- Instrument calibration
- Maintenance and repair shop
- Air cooling or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment
- Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analysis, including associated vacuum producing devices but excluding research and development facilities
- Temporary construction activities
- Warehouse activities
- Accidental fires
- Air vents from air compressors
- Air purification systems
- Continuous emissions monitoring vent lines
- Demineralized water tanks
- Pre-treatment of municipal water, including use of deionized water purification systems
- Electrical charging stations
- Instrument air dryers and distribution
- Blueprint making
- Routine maintenance, repair, and replacement such as anticipated activities most often associated with and performed during regularly scheduled equipment outages to maintain a plant and its equipment in good operating condition, including but not limited to steam cleaning, abrasive use, and woodworking
- Electric motors
- Storage tanks, reservoirs, transfer and lubricating equipment used for ASTM grade distillate or residual fuels, lubricants, and hydraulic fluids
- On-site storage tanks not subject to any New Source Performance Standards (NSPS), including underground storage tanks (UST), storing gasoline or diesel used exclusively for fueling of the facility's fleet of vehicles
- Natural gas, propane, and liquefied petroleum gas (LPG) storage tanks and transfer equipment
- Pressurized tanks containing gaseous compounds
- Storm water settling basins
- Fire suppression and training
- Health, safety, and emergency response activities
- Emergency generators and pumps used only during loss of primary equipment or utility service due to circumstances beyond the reasonable control of the owner or operator, or to address a power emergency as determined by DEQ
- Non-contact steam vents and leaks and safety and relief valves for boiler steam distribution systems
- Non-contact steam condensate flash tanks
- Non-contact steam vents on condensate receivers, deaerators and similar equipment
- Boiler blowdown tanks
- Industrial cooling towers that do not use chromium-based water treatment chemicals
- Ash piles maintained in a wetted condition and associated handling systems and activities
- Combustion source flame safety purging on startup

EMISSION LIMITS AND STANDARDS, TESTING, MONITORING, AND RECORDKEEPING

<u>STATE REQUIREMENTS</u>

7. The following Chapter 340 Oregon Administrative Rules that have specific requirements (e.g., emission limits or standards, monitoring, recordkeeping, or reporting requirements) have been determined to be applicable to this facility. The "Oregon Title V Monitoring and Testing Guidance" and OAR 340 Division 230 were used to determine the inspection and maintenance schedules and testing requirements.

340-208-0110(4):

The 20% opacity limit applies to the municipal waste combustors as well as the categorical and aggregate insignificant activities. This opacity limit is being streamlined in the permit with the more restrictive Division 230 opacity limit of 10%.

COMS are used to show compliance with the opacity limits for the municipal waste combustors.

340-208-0210(1):

Since this facility is located in a special control area, the requirement to minimize fugitive emissions by taking preventative measures applies. Measures to be taken include the following:

1) Maintaining paved roads and open storage areas in a clean condition.
2) Maintaining a cleanup program to collect any materials that may have spilled.
3) Storing and transporting all materials collected from the boiler grates and the air pollution control equipment in a wetted condition or other method equally or more effective in preventing materials from becoming airborne.

340-208-0300:

Air contaminants from the source are not allowed to cause a nuisance. This requirement is only enforceable by the state. The source is required to immediately investigate any air quality nuisance complaint and respond back to the complainant within 24 hours if possible. A log is to be maintained of complaints received, investigation results and actions taken. In addition, the tipping floor area must be maintained on negative draft such that air from the tipping floor area and pit area is utilized as combustion air in the boilers.

340-208-0450:

The particulate matter fallout nuisance rule applies to this facility. This requirement is only enforceable by the state. The source is required to immediately investigate any complaint and respond back to the complainant within 24 hours if possible. A log is to be maintained of complaints received, investigation results and actions taken.

OAR 340 Division 212:

Because the Emission Guidelines for Municipal Waste Combustors constructed before 9/20/84 in 40 CFR Part 60 Subpart Cb were promulgated in December 1995, Compliance Assurance Monitoring requirements are already incorporated into the rules and monitoring requirements of OAR 340 Division 230 for the two municipal waste combustors. Thus, the pollutants subject to Division 230 limits and standards are exempt from CAM. However, the general state opacity and grain loading standards are not exempt from CAM. The attached table shows the emission units at the facility and the CAM applicability. Essentially, the Division 230 monitoring requirements for a COMS on the exhausts is used to satisfy the CAM requirements for the general state opacity and grain loading standards as well as the state CAM requirements of Division 212. As the table below shows the grain loadings are well under the state standard of 0.10 gr/dscf with the COMS showing opacity below 2%, which is the normal opacity from the units.

	Unit 1	Unit 2

Source Test Date	gr/dscf @12% CO_2	Opacity (%)	gr/dscf @12% CO_2	Opacity (%)
2009	0.0082	2	0.0047	2
2010	0.0064	2	0.0057	2
2011	0.0031	0	0.0044	0
2012	0.0069	0	0.0047	0
2013	0.0091	0.5	0.0065	0
2014	0.0093	2	0.00726	1
2015	0.0075	2	0.0067	2
2016	0.0039	2	0.0047	2

OAR 340 Division 215:

Greenhouse gas reporting rules are applicable to the facility because they emit greater than 2500 metric tons of CO2e (2756 tons CO2e). Both biogenic and anthropogenic emissions are included in Oregon reporting rules and Plant Site Emission Limits.

OAR 340-218-0050(3)(a)(C) / 340-226-0120(1):

Each combustor is limited to burning no more than 10% medical waste unless testing of the combustor is completed while the combustor is burning more than 10% medical waste then the combustor is limited to burning no more than the test rate, whichever is greater, as long as no emission limit was exceeded.

OAR 340 Division 222:

Plant Site Emission Limits (PSEL). The source must keep records of plant wide emissions for each pollutant on a 12- month rolling basis. The records must be updated for each 12-month period by the end of the following month.

340-228-0210(2)(b)(A):

The 0.10 gr/scf particulate matter emission limit applies to each municipal waste combustor. An annual source test conducted utilizing Oregon DEQ Method 5 will determine compliance with this standard.

OAR 340 Division 230:

Oregon incinerator rules for municipal waste combustors are applicable to the facility and are equal or more stringent than the federal rules for municipal waste combustors in 40 CFR Part 60 Subpart Cb.

OAR 340 Division 245:

The facility is subject to the new rules in OAR 340 Division 245 (Cleaner Air Oregon) which is a risk-based toxic air contaminant permitting program. After the company submitted a toxic emission inventory in 2018, DEQ analyzed the emissions submittal of the facility along with many other Oregon facilities and developed a ranking of the facilities state-wide in order to prioritize the timing of which facilities would go through the Division 245 permitting and risk analysis requirements. The Covanta facility was ranked in Group 1 of the prioritized sources, meaning it will be “called in” in 2019 to begin the risk analysis procedures. Because of the

potential elongated timing for the Cleaner Air Oregon analysis process, this permit renewal will not be held up awaiting the risk analysis eventually required by Cleaner Air Oregon. When that analysis is completed in the future, the permit will be modified accordingly.

Insignificant Emissions Units

As identified earlier in this Review Report, this facility has insignificant emissions units (IEUs) that include categorically insignificant activities and aggregate insignificant emissions. For the most part, the standards that apply to IEUs are for opacity (20% limit) and particulate matter (gr/dscf limits). DEQ does not consider it likely that IEUs could exceed an applicable emissions limit or standard because IEUs are generally equipment or activities that do not have any emission controls (e.g., small natural gas fired space heaters) and do not typically have visible emissions. Since there are no controls, no visible emissions, and the emissions are less than one ton per year, DEQ does not believe that monitoring, recordkeeping, or reporting is necessary for assuring compliance with the standards.

FEDERAL REQUIREMENTS

8. The applicability of various federal requirements are as follows:

NSPS (40 CFR Part 60)

Emission Guidelines for Municipal Waste Combustors constructed before 9/20/84 in 40 CFR Part 60 Subpart Cb (12/95) apply to this facility because it was permitted for construction and operation in December 1983 even though it only became operational in 1986. Applicable requirements of this rule have been previously incorporated into the permit and updated to reflect more stringent standards for some pollutants in OAR 340 Division 230.

The Reciprocating Internal Combustion Engine NSPS does not apply to the emergency fire pump because it was manufactured prior to the applicability date for new engines.

NESHAP (40 CFR Part 63)

The facility is a major source of hazardous air pollutants. However it is not currently subject to National Emissions Standards for Hazardous Air Pollutants Regulations except for the following.

- National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) are applicable to the existing emergency fire pump at the facility. Applicable requirements were placed into the permit during the last renewal and will be expanded in this renewal.

Commercial and Industrial Solid Waste Incinerator (CISWI) Rules in 40 CFR Part 63 do not apply to this facility because the 40 CFR Part 60 Subpart Cb rules exempt it from CISWI.

Compliance Assurance Monitoring (CAM) (40 CFR Part 64)

Because the Emission Guidelines for Municipal Waste Combustors constructed before 9/20/84 in 40 CFR Part 60 Subpart Cb were promulgated in December 1995, Compliance Assurance Monitoring requirements are already incorporated into the rules and monitoring requirements of OAR 340 Division 230 for the two municipal waste combustors. Thus, the pollutants subject to Division 230 limits and standards are exempt from CAM. However, the general state opacity and grain loading standards are not exempt from CAM. The attached table shows the emission units at the facility and the CAM applicability. Essentially, the

Division 230 monitoring requirements are used to satisfy the CAM requirements for the general state opacity and grain loading standards.

Accidental Release (40 CFR Part 68)

The facility is not subject to this regulation, which requires a risk management plan for toxic and flammable substances releases.

GHG Title V permitting and PSD requirements (40 CFR parts 51, 52, 70 and 71) and GHG Reporting Program (40 CFR Part 98)

The CO_2 emissions from wood combustion were not considered for GHG permitting in the last renewal due to EPA's deferral for biogenic sources in existence at the time of the last renewal. However, the deferral has expired and now CO_2 emissions must be considered from wood combustion. As such, the baseline and proposed PSELs have been recalculated under the latest GHG rules. The proposed GHG emissions are above the DEQ de minimis level for establishing a PSEL and the company must report their GHG emissions annually to DEQ as well as to EPA.

PLANT SITE EMISSION LIMITS

BASELINE EMISSION RATE

9. This facility did not operate nor was it permitted to operate during the baseline period of 1977 or 1978. Therefore the baseline emission rate is zero for all pollutants, except GHGs. No baseline is being established for $PM_{2.5}$ per OAR 340-222-0048(3). The GHG baseline emission rate is being set according to OAR 340-222-0048(1)(b) and is based on calendar year 2003 as requested by the permittee in the last permit renewal.

FACILITY HISTORY

10. In December 1983, DEQ issued air, water, and solid waste permits for the construction and operation of the Facility. The Air Contaminant Discharge Permit (ACDP) established operating and emission conditions for the Facility based on a determination of Best Available Control Technology (BACT), ambient impact modeling, and other criteria in accordance with the Prevention of Significant Deterioration (PSD) requirements of then OAR 340-028-1940 for PM/PM_{10}, CO, NO_x, SO_2, Pb, MWC Organics (PCDD/PCDF), F, MWC metals, and MWC acid gases. The Facility became operational in 1986 and has operated continuously since that time. A PSD permit action also occurred in 1988 for a NO_x emissions increase from the facility.

PROPOSED PLANT SITE EMISSION LIMITS (PSEL)

11. The proposed annual Plant Site Emission Limit calculations are shown in the attached detail sheets and are summarized below.

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis			Plant Site Emission Limit (PSEL)		
		Original 1983	Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
PM	0	61	49	49	24	24	---
PM_{10}	0	61	29	29	14	16	2
$PM_{2.5}$	NA	NA	22	26	12	16	4
CO	0	170	139	170	99	99	---
NO_x	0	290	360	360	337	337	---

SO_2	0	220	79	79	39	39	---
VOC	0	0	0	0	De minimus	39	39
Pb	0	1.6	0.6	1.6	De minimis	De minimis	---
MWC Organics (PCDD/PCDF)	0	$2.8x10^{-4}$	$6.5x10^{-6}$	$6.5x10^{-6}$	$3.0x10^{-6}$	$3.0x10^{-6}$	---
F	0	4.8	3	3	De minimis	De minimis	---
MWC Acid Gases ($HCl+SO_2$)	0	289	95	82	55	42	-13
MWC Metals (Hg+Cd+Pb)	0	2.1	2.1	2.1	De minimis	De minimis	---
GHGs (CO_2e)	196,000	NA	92,200	196,000	107,100	214,400	107,300

a. The baseline period is 1978 for all pollutants, except GHGs. The baseline emission rate for GHGs is based on the emissions during 2003 as requested by the company and allowed by OAR 340-222-0048(1)(b). No baseline emission rate is being established for $PM_{2.5}$ per OAR 340-222-0048(3).

b. The netting basis for all pollutants, except VOC, $PM_{2.5}$, and GHGs, was originally established in a 1983 Prevention of Significant Deterioration approval.

b.i. The NO_x netting basis was originally established at 290 T/Y in the 1983 PSD permitting action. It was increased to 492 T/Y in a 1988 PSD permitting action. New rules in 1998 required a reduction in NO_x emissions resulting in the netting basis being decreased to 360 T/Y.

b.i.i. The original 1983 PSD approval level for dioxins was based on a TCDD value of $5.1x10^{-6}$ T/Y. This value has been converted to a PCDD/PCDF basis using source test results and are expressed as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.

b.iii. The 1983 PSD permitting action did not address cadmium. Thus the original netting basis for MWC metals is the sum of the mercury and lead levels = 0.5 + 1.6 = 2.1 T/Y.

b.iv. The initial netting basis for $PM_{2.5}$ was established for the first time in the last renewal in accordance with OAR 340-222-0046(1)(a) and (2)(b).

b.v. The netting basis for GHGs was established for the first time in the last permit renewal and was equal to the baseline emission rate for GHGs. The baseline and netting basis for GHGs are being recalculated in this permit renewal based on the latest EPA GHG rules (no biogenic deferral).

c. In accordance with OAR 340-222-0041(2), the proposed PSELs for PM_{10}, $PM_{2.5}$, NO_x, MWC Acid Gases, and GHGs are being set at the source's potential to emit since they are greater than the SERs.

d. In accordance with OAR 340-222-0020(3)(a), no PSEL is being established for Pb, F, or MWC Metals as the potential emissions are less than the de minimis levels in OAR 340-200-0020(31).

e. The PM, SO_2, CO, VOC, and MWC Organics PSELs are being set at the generic PSEL levels in accordance with OAR 340-222-0041(1) since the projected emission levels are less than the SER but greater than the de minimis levels.

f. The changes in the PSELs for all pollutants from the last permit reflect emission factor changes from source test results and CEM data since the last permit.

g. Because the Unassigned Emissions are equal to or less than the SER for all pollutants, no reductions to the Unassigned Emissions and Netting Basis will be made at this permit renewal per OAR 340-222-0055(3).

h. The PSEL is a federally enforceable limit on the potential to emit.

COMPONENTS OF THE PROPOSED PSEL

Based on more recent source test data on the municipal waste combustor units and the addition of $PM_{2.5}$ and GHGs as regulated pollutants, the netting basis for the facility is now as follows:

Pollutant	New Netting Basis (tons/year)
PM	49
PM_{10}	29
$PM_{2.5}$	26
CO	170
NO_x	360
SO_2	79
VOC	-0-
Pb	1.6
MWC Organics (PCDD/PCDF)	$6.5x10^{-6}$
F	3
MWC Acid Gases ($HCl+SO_2$)	82
MWC Metals (Hg+Cd+Pb)	2.1
GHG (CO_2e)	196,000

The components of the PSEL are as follows:

Pollutant	PSEL (tons/yr)	Unassigned Emissions (tons/yr)
PM	24	25
PM_{10}	16	13
$PM_{2.5}$	16	10
CO	99	71
NO_x	337	23
SO_2	39	40
VOC	39	-0-
MWC Organics (PCDD/PCDF)	$3.0x10^{-6}$	$3.5x10^{-6}$
MWC Acid Gases ($HCl+SO_2$)	53	40
MWC Metals (Hg+Cd+Pb)	---	2.1
Pb	---	1.6
F	---	3
GHG (CO_2e)	214,400	-0-

SIGNIFICANT EMISSION RATE COMPARISON

The proposed Plant Site Emission Limits are less than the netting basis or less than the netting basis plus the Significant Emission Rate for all pollutants so no further air quality analysis is required.

Pollutant	SER (tons/yr)	Requested increase over netting basis (tons/yr)
PM	25	-0-
PM_{10}	15	-0-
$PM_{2.5}$	10	-0-
CO	100	-0-
NO_x	40	-0-
SO_2	40	-0-
VOC	40	39
Pb	0.6	-0-
MWC Organics (PCDD/PCDF)	$3.5x10^{-6}$	-0-
F	3	-0-
MWC Acid Gases ($HCl+SO_2$)	40	-0-
MWC Metals (Hg + Cd + Pb)	15	-0-
GHG (CO_2e)	75,000	18,400

The following control equipment has been added since the startup of the facility.

Control Equipment	Installation Date
Selective Non-Catalytic Reduction Systems	1998
Activated Carbon Injection Systems	1998
Bag Leak Detection System	2017 and 2019

HAZARDOUS AIR POLLUTANTS

12. The facility is a major source of Hazardous Air Pollutants because it is estimated that the source has the potential to emit greater than 10 tons per year of an individual HAP and is subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) which are applicable to the existing emergency fire pump at the facility. Applicable requirements were placed into the permit during the last renewal and will be expanded in this renewal.

Hazardous air pollutant emissions at the proposed operation levels are summarized in the following table based on emission factors derived from 2009-2018 source tests. In addition to the projected emissions estimates below, the company also recently submitted information to DEQ under the Cleaner Air Oregon initiative. The Cleaner Air Oregon initiative prioritized sources for call-in under the program. This facility is in the first call-in list of twenty sources which means it will likely be called in to do a detailed risk assessment within the first twelve months of the program or by 3/1/20.

Pollutant	Potential to emit (tons/year)
Lead	0.0035
Total Dioxin/furans	$1.1x10^{-06}$
Mercury	0.0032
Cadmium	0.0009

Hydrogen Chloride	14.3
Arsenic	
Chromium VI	
Hydrogen Fluoride	
Nickel	
Total HAPS	14.3

STRATOSPHERIC OZONE DEPLETING SUBSTANCES

13. CMI does not manufacture, sell, distribute, or use in the manufacturing of a product any stratospheric ozone-depleting substances. Therefore, the 1990 Clean Air Act, as amended, Sections 601-608, do not apply to the facility except that air conditioning and fire extinguishers or other equipment containing Class I or Class II substances must be serviced by certified repairmen to ensure that the substances are recycled or destroyed appropriately.

TEST METHODS AND PROCEDURES

14. The permittee is required to conduct annual particulate matter, opacity, lead, cadmium, mercury, dioxin/furans, and hydrogen chloride performance tests on each of the two municipal waste combustors. In addition, the permittee is required to perform annual performance tests for visible emissions from the ash handling system. For dioxin/furans, the permittee may conduct the annual tests on one of the two municipal waste combustors provided the test results over a two year period show that the emissions from both municipal waste combustors are less than 15 ng/dscm @ 7% O_2. If any annual performance test indicates a dioxin/furan emission level of greater than 15 ng/dscm @ 7% O_2, performance tests thereafter shall be conducted annually on both of the municipal waste combustor units until and unless all annual performance tests for both municipal waste combustor units over a two year period indicate a dioxin/furan emission level less than or equal to 15 ng/dscm @ 7% O_2. Performance test reports shall be submitted to DEQ within 60 days following the completion of the performance test.

MONITORING REQUIREMENTS

15. The source has determined, and DEQ agrees, that Compliance Assurance Monitoring (CAM) is applicable for particulate matter emissions from emissions units MWC-1 and MWC-2. However, the monitoring already required in the permit has been determined to be sufficient for CAM purposes and no additional monitoring is being required.

16. As identified earlier in this Review Report, this facility has insignificant emissions units (IEUs) that include categorically insignificant activities and aggregate insignificant emissions, as defined in OAR 340-200-0020. For the most part, the standards that apply to IEUs are for opacity (20% limit) and particulate matter (gr/dscf limits). DEQ does not consider it likely that IEUs could exceed an applicable emissions limit or standard because IEUs are generally equipment or activities that do not have any emission controls (e.g., small natural gas fired space heaters) and do not typically have visible emissions. Since there are no controls, no visible emissions, and the emissions are less than one ton per year, DEQ does not believe monitoring, recordkeeping, or reporting is necessary for assuring compliance with the standards.

17. In addition to the testing described above, the permittee shall continuously monitor opacity, sulfur dioxide emissions, nitrogen oxides emissions, carbon monoxide emissions, diluent gas concentrations, unit load, PM control device inlet temperature, and carbon injection parameters. Continuous monitoring shall be performed in accordance with state and federal requirements such that the data will be reliable and accurate,

including periodic calibrations and RATA. The permittee is also required to prepare an operating manual and train the operators on an annual basis. The operating manual addresses good combustion practices and startup, shutdown, and malfunction procedures.

RECORDKEEPING REQUIREMENTS

18. The permit includes requirements for maintaining records of all monitoring and testing information. These records include test results, continuous emissions monitoring data and QA/QC, parameter monitoring data, visible emissions data, the date and time of measurements; and, all corrective actions, including the date, time, and outcome.

REPORTING REQUIREMENTS

19. The permit includes requirements for submitting semi-annual and annual monitoring reports that include compliance certifications. The annual monitoring report will also include operation data, emissions inventory data, and an emissions fee report. The permittee is required to immediately notify DEQ of any excess emissions and keep records of the excess emissions.

GENERAL BACKGROUND INFORMATION

20. Other permits issued or required by the Department include:

- Solid Waste Permit 364
- NPDES Wastewater Discharge Permit 101240
- NPDES Stormwater Discharge Permit 1200-Z

21. This source is located in an area that is currently designated as maintenance for carbon monoxide and ozone and attainment for all other pollutants. The source is located within 200 kilometers of 6 designated Class I or scenic areas but is not located within 10 kilometers of any Class I area. The facility is located approximately 25 km from the Portland maintenance area for CO and ozone.

COMPLIANCE HISTORY

22. DEQ staff inspected the facility on 8/23/18, 8/22/16, 6/18/14, and 6/19/12 and found it to be in compliance with all permit conditions.

23. Only one air quality related complaint was received by DEQ during the prior permit period. A complaint on 3/16/15 regarding odors from the facility could not be substantiated by DEQ personnel. Plant personnel also received and investigated 6 complaints in 2015 and 2016 regarding odors but could not correlate the odors with plant operations.

24. DEQ has taken no formal enforcement actions against the source since the last permit renewal.

SOURCE TEST RESULTS

25. Summaries of the results of recent performance source tests are attached.

PUBLIC NOTICE

26. Because this is a Title V permit renewal, which is a Category III permitting action, the permit was placed on a **35-day public notice period from Sept. 26, 2019 to Oct. 31, 2019.** During the public notice period, DEQ received comments from 13 individuals and 4 comments from environmental organizations. Two

people requested a public hearing. Because 10 people did not request a public hearing, DEQ did not hold a public hearing.

Based on the comments received, DEQ prepared a list of 22 issues and concerns and provided a technical response to each issue as shown in the attached document. Based on the comments and information provided during the public notice period, DEQ is proposing six changes to the draft permit as follows.

1. Dioxin/furan source testing must be done annually on both combustor units for at least two years starting in 2021 (modify Condition 43).
2. Scheduled startup and shutdown emissions of HCl and dioxin must be measured by source tests once by 12/31/21 if the company cannot provide startup and shutdown information from another Covanta or energy from waste facility that DEQ considers representative of Covanta Marion emissions (add Condition 35.g).
3. Scheduled startup and shutdown operating procedures for the combustion of medical waste will be added to the permit (new Condition 26).
4. Detailed recordkeeping of medical waste (blue bin, grey bin, in-county) being combusted will be required on a daily, monthly, quarterly and annual basis for each combustor and during any source tests (modify Conditions 34.b, 43.d, 70.b, and 80).
5. A detailed listing and accounting of the types and quantities of industrial and special wastes processed at the facility during the year will be required in the annual report (modify conditions 34.b, 70, and 80).
6. A listing of all startup, shutdowns, and malfunctions during the year with emissions measured by the CEMs and CPMSs during those periods must be submitted with the annual report (modify Condition 80).
7. Each combustor is limited to burning no more than 10% medical waste unless testing of the combustor is completed while the combustor is burning more than 10% medical waste then the combustor is limited to burning no more than the test rate, whichever is greater, as long as no emission limit was exceeded.

A proposed permit will be sent to EPA for a 45 day review period.

If EPA does not object in writing, any person may petition the EPA within 60 days after the expiration of EPA's 45-day review period to make such objection. Any such petition must be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided for in OAR 340-218-0210, unless the petitioner demonstrates it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period.

EMISSION DETAIL SHEETS AND ATTACHMENTS

Proposed Emissions
Netting Basis Emissions and Historical Notes
GHG Baseline Emissions
Source Test Results and CEM Data
CAM Table
Comments Received During Public Notice Period
Summary of Issues and DEQ Response

APPENDIX A

PROPOSED PSEL CALCULATION DETAIL SHEETS

Covanta Marion
EMISSION CALCULATION DETAIL SHEET
Proposed Operations

Pollutant: PM

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0225 lb/k lb steam	2009-2018 STs	14.6
AI	--	--	--	1.0
			Total PM	**15.6**

Because the projected emissions are greater than the de minimis value but less than the SER, The PM PSEL will be set at the generic emission level of 24 tons per year.

Pollutant: PM_{10}

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0225 lb/k lb steam	DEQ Factor (PM_{10} = 100% PM)	14.6
AI	--	--	---	1.0
			Total PM_{10}	**15.6**

Because the projected emissions are greater than the SER, the PM_{10} PSEL will be set at a source specific emission level of 16 tons per year.

Pollutant: $PM_{2.5}$

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0225 lb/k lb steam	DEQ Factor ($PM_{2.5}$ = 100% PM_{10})	14.6
AI	--	--	---	1.0
			Total $PM_{2.5}$	**15.6**

Because the projected emissions are greater than the SER, the $PM_{2.5}$ PSEL will be set at a source specific emission level of 16 tons per year.

Pollutant: VOC

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	17,520 hours	0.22 lb/hr	1999 ST	1.9
			Total VOC	**1.9**

Because the projected emissions are greater than the de minimis value of 1 ton/year but less than the SER, the VOC PSEL will be set at the Generic PSEL level of 39 tons/year.

Pollutant: CO

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.066 lb/k lb steam	Max. of 2007-2018 CEM data	42.9
			Total CO	**42.9**

Because the projected emissions are greater than the de minimis value but less than the SER, the CO PSEL will be set at the generic emission level of 99 tons per year.

Pollutant: SO_2

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0429 lb/k lb steam	Max. of 2007-2018 CEM data	27.9
			Total SO_2	**27.9**

Because the projected emissions are greater than the de minimis value but less than the SER, the SO_2 PSEL will be set at the generic emission level of 39 tons per year.

Pollutant: NO_x

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.519 lb/k lb steam	Max. of 2007-2018 CEM data	337.4
			Total NO_x	**337.4**

Because the projected emissions are greater than the SER, the NO_x PSEL will be set at a source specific emission level of 337 tons per year.

Pollutant: Pb

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	5.55E-6 lb/k lb steam	2009-2018 STs	0.0036
			Total Pb	**0.0036**

Because the projected emissions are less than the de minimis value of 0.1 ton/year, no PSEL is required.

Pollutant: Municipal Waste Combustor Acid Gases

For purposes of the PSEL, MWC Acid Gases are measured as the sum of sulfur dioxide and hydrogen chloride gases.

Pollutant: SO_2

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0429 lb/k lb steam	Max. of 2007-2018 CEM data	27.9
			Total SO_2	**27.9**

Pollutant: HCl

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.022 lb/k lb steam	2009-2018 STs	14.3
			Total HCl	**14.3**

MWC Acid Gases PSEL = SO_2 + HCl = 27.9 + 14.3 = 42 tons/year

Pollutant: Municipal Waste Combustor Metals

For purposes of the PSEL, MWC Metals (measured as particulate matter using EPA Method 29) consists of the sum of mercury (Hg), cadmium (Cd), and lead (Pb) emissions.

Pollutant: Pb

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	5.55E-6 lb/k lb steam	2009-2018 STs	0.0036
			Total Pb	**0.0036**

Pollutant: Hg

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	4.99E-6 lb/k lb steam	2009-2018 STs	0.0032
			Total Hg	**0.0032**

Pollutant: Cd

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	1.36E-6 lb/k lb steam	2009–2018 STs	0.0009

			Total Cd	**0.0009**

MWC Metals PSEL = Hg + Cd + Pb = 0.0036 + 0.0009 + 0.0032 = 0.0077 tons/year, which is less than the de minimis level of 1 ton/year, thus no PSEL is required.

Pollutant: F

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	17,520 hours	6.94E-3 lb/hr	1998 – 2001 STs	0.061
			Total F	**0.061**

Because the projected emissions are less than the de minimis value of 3 ton/year, no PSEL is required.

Pollutant: Municipal Waste Combustor Organics (PCDD/PCDF)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	1.69E-9 lb/k lb steam	2009-2018 STs	1.1E-6
			Total MWC Organics	**1.1E-6**

Because the projected emissions are greater than the de minimis value of 0.5E-6 but less than the SER, the MWC Organics (Dioxins/Furans) PSEL will be set at the Generic PSEL level of 3.0E-6 tons per year.

Pollutant: GHGs (without biomass exemption)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT-MSW	1,300,000 k lbs steam	328.88 lb/k lb steam	40 CFR Part 98 Subpart C	213,775
MWC-FT-NG	10 MMcf NG	120,494 lb/MMcf	40 CFR Part 98 Subpart C	602
			Total GHGs	**214,377**

Because the projected emissions are greater than the SER, the GHG PSEL will be set at 214,400 tons CO_2e per year due to rounding.

Aggregate Insignificant Emissions

Pollutant: PM

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
Carbon Unloading	150 tons	0.001 ton/ton	99.9% BH	0.15
Lime Unloading	3000 tons	0.0022 lb/ton	AP-42 Table 11.17-4 with 99.9% BH	0.003
Paved Roads—loaded trucks	3900 VMT	0.048 lb/VMT	AP-42 13.2.1 with 75% sweeping control	0.09
Paved Roads—unloaded trucks	15,600 VMT	0.035 lb/VMT		0.27
			Total PM	**0.51**

Pollutant: PM_{10}

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
Carbon Unloading	150 tons	0.001 ton/ton	100% of PM	0.15
Lime Unloading	3000 tons	0.0001 ton/ton	100% of PM	0.003
Paved Roads	0.36 tons PM	20% of PM	AP-42 13.2.1	0.07
			Total PM_{10}	**0.22**

Pollutant: $PM_{2.5}$

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
Carbon Unloading	150 tons	0.001 ton/ton	100% of PM	0.15
Lime Unloading	3000 tons	0.0001 ton/ton	100% of PM	0.003
Paved Roads	0.36 tons PM	5% of PM	AP-42 13.2.1	0.02
			Total $PM_{2.5}$	**0.17**

APPENDIX B

NETTING BASIS DETAIL SHEETS
And
Historical Notes

Covanta Marion
EMISSION CALCULATION DETAIL SHEET
Netting Basis

Pollutant: PM (PSEL + SER)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0225 lb/k lb steam	2009-2018 STs	14.6
AI	--	--	--	1.0
Generic PSEL addition				8.4
Unassigned (SER)				25
			Total PM	**49**

Pollutant: PM_{10} (PSEL + unassigned)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0225 lb/k lb steam	DEQ Factor (PM_{10} = 100% PM)	14.6
AI	--	--	---	1.0
Unassigned				13
			Total PM_{10}	**29**

Pollutant: $PM_{2.5}$ (PSEL + SER)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0225 lb/k lb steam	DEQ Factor ($PM_{2.5}$ = 100% PM_{10})	14.6
AI	--	--	---	1.0
Unassigned (SER)				10
			Total $PM_{2.5}$	**26**

Pollutant: CO (PSEL + unassigned)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.066 lb/k lb steam	Max. of 2007-2018 CEM data	42.9
Generic PSEL addition				56.1
Unassigned				71
			Total CO	**170**

Pollutant: SO_2 (PSEL + SER)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	0.0429 lb/k lb steam	Max. of 2007-2018 CEM data	27.9
Generic PSEL addition				11.1
Unassigned (SER)				40
			Total SO_2	**79**

Pollutant: NO_x (1998 Rule Limit)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	200 ppm each stack	1998 Rule Limit	360
			Total NO_x	**360**

(a) NO_x Emission Limit:
lb NO_x / 10^6 Btu Heat Input = [200 ppm / 10^6] x [46 lbs / lb mole] x
[1 mole / 385.3 dscf] x [9595 dscf / 10^6 Btu] x [20.9 / (20.9 – 7% O_2)]
= 0.3445 lb NO_x / 10^6 Btu

Heat Input = 1,608,000 Btu / 1000 lb steam

NO_x Emissions = [1,608,000 Btu / 1000 lb steam] x [0.3445 lb NO_x / 10^6 Btu] x [1,300,000,000 lb steam / year] x [1ton / 2000 lb] = 360 tons / year.

Pollutant: Pb (PSEL + SER)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	5.55E-6 lb/k lb steam	2009-2018 STs	-0- (0.0036)
Unassigned (SER)				0.6
			Total Pb	**0.6**

Pollutant: Municipal Waste Combustor Acid Gases

For purposes of the netting basis, MWC Acid Gases are measured as the sum of sulfur dioxide and hydrogen chloride gases.

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT---SO_2	1,300,000 k lbs steam	0.0429 lb/k lb steam	Max. of 2007-2018 CEM data	27.9
MWC-FT---HCl	1,300,000 k lbs steam	0.022 lb/k lb steam	2009-2018 STs	14.3
Unassigned (SER)				40
			Total MWC Acid Gases	**82**

Pollutant: Municipal Waste Combustor Metals

For purposes of the netting basis, MWC Metals (measured as particulate matter using EPA Method 29) consists of the sum of mercury (Hg), cadmium (Cd), and lead (Pb) emissions.

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT—Pb	1,300,000 k lbs steam	5.55E-6 lb/K lb steam	2009-2018 STs	0.0036
MWC-FT—Hg	1,300,000 k lbs steam	4.99E-6 lb/k lb steam	2009-2018 STs	0.0033
MWC-FT—Cd	1,300,000 k lbs steam	1.36E-6 lb/k lb steam	2009-2018 STs	0.0009
Unassigned (SER)				2.1
			Total MWC Metals	2.1

Pollutant: F (PSEL + SER)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	17,520 hours	6.94E-3 lb/hr	1998 – 2001 STs	-0- (0.061)
Unassigned (SER)				3
			Total F	**3**

Pollutant: Municipal Waste Combustor Organics (PCDD/PCDF) (PSEL + SER)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,300,000 k lbs steam	1.69E-9 lb/ k lb steam	2009-2018 STs	1.1E-6
Generic PSEL addition				1.9E-6
Unassigned (SER)				3.5E-6
			Total MWC Organics	**6.5E-6**

Pollutant: GHGs (without biomass exemption) (baseline 2003)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,120,000 k lbs steam	349.95 lb/k lb steam	Based on EF from 2009 GHG Report	195,972
			Total GHGs	**195,972**

The netting basis will be rounded to 196,000 tons CO_2e per year.

Covanta Marion, Inc.

Netting Basis Historical Notes

Pollutant	Date or Permit Issuance Date	Netting Basis (tons/yr)	PSEL (tons/yr)	Unassigned Emissions (tons/yr)	Comment
PM	Baseline	0	0	0	Not in operation
	1983 PSD	69	69	0	PSD permit issued
	7/1/07	49	24	25	PSEL should have been generic, so unassigned reduced to SER and NB reduced the same
	9/1/07 permit	49	24	25	PSEL still generic so unassigned and NB unchanged
	7/2/12 permit				
	2019 permit				
PM_{10}	Baseline	0	0	0	Not in operation
	1983 PSD	69	69	0	PSD permit issued
	7/1/07	29	14	15	PSEL should have been generic, so unassigned reduced to SER and NB reduced the same
	9/1/07 permit	29	14	15	PSEL still generic so unassigned and NB unchanged
	7/2/12 permit				
	2019 permit	29	16	13	PSEL increased to 16 from ST data, unassigned reduced by 2 to 13 while NB remains unchanged
$PM_{2.5}$	Baseline	0	0	0	Not in operation, $PM_{2.5}$ not a regulated pollutant

	1983 PSD	0	0	0	PSD permit issued, $PM_{2.5}$ not a regulated pollutant
	7/1/07	0	0	0	$PM_{2.5}$ not a regulated pollutant
	9/1/07 permit				
	5/1/11	29			$PM_{2.5}$ becomes a regulated pollutant, NB should equal PM_{10} NB as of this date
	7/2/12 permit	22	12	10	NB set at PSEL plus SER
	2019 permit	26	16	10	PSEL increased to 16 from ST data, unassigned remains at 10, so NB is reduced to PSEL plus unassigned
CO	Baseline	0	0	0	Not in operation
	1983 PSD	170	170	0	PSD permit issued
	7/1/07	170	99	71	PSEL was generic, unassigned was less than SER so no reduction of NB required
	9/1/07 permit				
	7/2/12 permit	139	99	71	NB incorrectly reduced to 139 (PSEL plus 40 (not SER))
	2019 permit	170	99	71	NB corrected as PSEL plus unassigned
NO_x	Baseline	0	0	0	Not in operation
	1983 PSD	290	290	0	PSD permit issued
	1988 PSD	492	492	0	PSD action added 202 tons to PSEL and NB
	1998	364	369	128	Rule change reduced allowable to 200 ppm reducing NB by 128 which became unassigned
	7/1/07	364	369	40	Unassigned should have been reduced to 40 but NB stays at

					rule limit
	9/1/07 permit	364	369	0	Unassigned was incorrectly reduced to zero
	2009	364	369	0	Rule change increased limit to 205 ppm but NB can't be increased
	7/2/12 permit	360	337	23	PSEL reduced from CEM data, NB recalculated at 360 using 1998 rule limit, unassigned equals NB minus PSEL
	2019 permit	360	337	23	No changes as PSEL still the same from CEM data
SO_2	Baseline	0	0	0	Not in operation
	1983 PSD	220	220	0	PSD permit issued
	7/1/07	220	220	0	No change in PSEL so no change to NB or unassigned
	9/1/07 permit				
	7/2/12 permit	79	39	40	PSEL reduced to 39 (generic) from CEM data, unassigned reduced to SER, NB equals PSEL plus unassigned
	2019 permit	79	39	40	No change in PSEL so no change to unassigned or NB
Pb	Baseline	0	0	0	Not in operation
	1983 PSD	1.6	1.6	0	PSD permit issued
	7/1/07	0.6	0	0.6	PSEL was zero since projected emission less than de minimis, unassigned reduced to SER, NB equals unassigned
	9/1/07 permit				
	2009	0.6	0	0.6	Although a rule change reduced the emission limit from 0.44 to 0.20 mg/dscm, the PSEL was zero and not based on the emission limit but

					instead on ST data and thus the NB or unassigned was not reduced
	7/2/12 permit 2019 permit	0.6	0	0.6	No change in PSEL so no change to unassigned or NB
MWC Metals (Pb+Cd+Hg)	Baseline	0	0	0	Not in operation
	1983 PSD	2.1	2.1	0	PSD permit issued (only Pb and Hg considered)
	7/1/07 9/1/07 permit	2.1	0	2.1	PSEL was zero since projected emission less than de minimis, unassigned reduced to SER, NB equals unassigned
	2009	2.1	0	2.1	Although a rule change reduced the emission limits for all three metals , the PSEL was zero and not based on the emission limits but instead on ST data and thus the NB or unassigned was not reduced
	7/2/12 permit 2019 permit	2.1	0	2.1	No change in PSEL so no change to unassigned or NB
MWC Acid Gases (SO_2+HCl)	Baseline	0	0	0	Not in operation
	1983 PSD	289	289	0	PSD permit issued (220 SO_2, 69 HCl)
	7/1/07	289	289	0	No change in PSEL so no change to NB or unassigned
	9/1/07 permit	280	240	40	PSEL reduced due to CEM and ST data, unassigned reduced to SER, NB equals PSEL plus unassigned
	7/2/12 permit	95	55	40	PSEL reduced due to CEM and ST data, unassigned stays at SER, NB equals PSEL plus unassigned

	2019 permit	82	42	40	PSEL reduced to 42 to correct acid gas calculation, unassigned stays at SER, NB equals PSEL plus unassigned
F	Baseline	0	0	0	Not in operation
	1983 PSD	4.8	4.8	0	PSD permit issued
	7/1/07	3	0	3	PSEL was zero since projected emission less than de minimis, unassigned reduced to SER, NB equals unassigned
	9/1/07 permit				
	7/2/12 permit				
	2019 permit				
Dioxins	Baseline	0	0	0	Not in operation
	1983 PSD	2.8E-4	2.8E-4	0	PSD permit issued
	7/1/07	6.5E-6	3.0E-6	3.5E-6	PSEL was generic based on ST data, unassigned set at SER, NB equals PSEL plus unassigned
	9/1/07 permit				
	2009	6.5E-6	3.0E-6	3.5E-6	Although a rule change reduced the emission limit for dioxins , the PSEL was based on ST data and thus the NB or unassigned was not reduced
	7/2/12 permit	6.5E-6	3.0E-6	3.5E-6	No change in PSEL so no change to unassigned or NB
	2019 permit				
VOC	Baseline	0	0	0	Not in operation
	1983 PSD	0	0	0	PSD permit issued, VOC did not go through PSD
	5/11/98 permit	0	9.4	0	PSEL based on 1986-1997 STs
	12/27/01 permit	0	39	0	PSEL became generic based on 1986-1997 STs and new DEQ rules

	7/1/07	0	0	0	PSEL was zero since projected emission less than de minimis based on 1998-2001 ST data, unassigned and NB remain at zero
	9/1/07 permit				
	7/2/12 permit				

APPENDIX C

Covanta Marion
EMISSION CALCULATION DETAIL SHEET
GHG Baseline (2003)

Pollutant: GHGs (without biomass exemption) (baseline 2003)

Source	Production Parameter	Emission Factor	Reference	Emissions (tons/year)
MWC-FT	1,120,000 k lbs steam	349.95 lb/k lb steam	Based on EF from 2009 GHG Report	195,972
			Total GHGs	**195,972**

Note: The GHG baseline will be set at 196,000 tons CO_2e per year due to rounding.

APPENDIX D

Source Test Results
And CEM Data

Source Tests

VOC

Date	Unit 1 (lb/hr)	Unit 2 (lb/hr)
1998	0.158	0.099
1999	0.220	0.054
2000	0.127	0.053
2001	0.021	0.052
Avg.	0.132	0.065
Grand Avg.	0.0985	

F

Date	Unit 1 (lb/hr)	Unit 2 (lb/hr)
1998	<7.74E-3	<8.17E-3
1999	<6.79E-3	<6.34E-3
2000	<6.73E-3	<7.27E-3
2001	<6.23E-3	<6.20E-3
Avg.	6.87E-3	7.00E-3
Grand Avg.	6.94E-3	

Covanta Source Test Results

Particulate Matter (Filterable PM)

[mg/dscm @ 7% O_2]

Date	Unit 1	Unit 2	Regulatory Limit – Each Unit
2009	15.15	5.42	27
2010	1.23	1.88	25
2011	6.23	6.62	25
2012	5.49	5.64	25
2013	5.64	7.05	25
2014	10.8	6.09	25
2015	6.42	5.31	25
2016	2.82	2.80	25
2017	2.38	4.24	25
2018	13.1	20.0	25
Sum	69.26	65.05	
Average	6.93	6.51	25
Range	1.23-15.15	1.88-20.0	
Range Factor	12	11	

Particulate Matter (Total PM)

	Unit 1				Unit 2			
Date	gr/dscf @12% CO_2	Lb/hr	K lb steam/hr	Lb/K lb steam	gr/dscf @12% CO_2	Lb/hr	K lb steam/hr	Lb/K lb steam
2009	0.0082	1.91	69.4	0.0274	0.0047	1.08	68.2	0.0159
2010	0.0064	1.24	69.0	0.0179	0.0057	1.89	68.7	0.0273
2011	0.0031	1.00	70.5	0.0141	0.0044	0.96	68.4	0.0140
2012	0.0069	1.77	69.4	0.0254	0.0047	1.09	68.5	0.0159
2013	0.0091	2.29	68.6	0.0334	0.0065	1.48	68.8	0.0214
2014	0.0093	2.23	69.8	0.0319	0.00726	1.74	67.9	0.0256
2015	0.0075	1.71	70.2	0.0244	0.0067	1.56	68.2	0.0229
2016	0.0039	0.94	70.0	0.0134	0.0047	1.09	68.4	0.0160
2017	0.0049	1.14	68.5	0.0167	0.0076	1.78	68.3	0.0261
2018	0.0066	1.66	68.6	0.0241	0.0100	2.41	68.4	0.0352
Sum		15.89		0.2290		15.08		0.2203
Avg.		1.59		0.0229		1.51		0.0220
			Grand Average	0.0225				

Lead (Pb)
[mg/dscm @ 7% O_2]

Date	Unit 1	Unit 2	Regulatory Limit – Each Unit
2009	0.00279	0.00178	0.44
2010	0.00015	0.00004	0.20
2011	0.00081	0.00840	0.20
2012	0.00539	0.00781	0.20
2013	0.00257	0.00243	0.20
2014	0.02960	0.00174	0.20
2015	0.00158	0.00121	0.20
2016	0.00313	0.00384	0.20
2017	0.00116	0.00690	0.20
2018	0.00161	0.01473	0.20
Sum	0.04879	0.04888	
Average	0.00488	0.00489	0.20
Range	0.00015-0.0296	0.00004-0.01473	
Range factor	197	368	

Lead (Pb)

Date	Unit 1			Unit 2		
	Lb/hr	K lb steam/hr	Lb/K lb steam	Lb/hr	K lb steam/hr	Lb/K lb steam
2009	2.80E-4	69.6	4.02E-6	1.81E-4	68.0	2.66E-6
2010	0.154E-4	69.4	0.222E-6	0.043E-4	68.5	0.0658E-6
2011	0.804E-4	69.3	1.16E-6	8.50E-4	70.1	12.1E-6
2012	5.62E-4	68.7	8.18E-6	7.97E-4	68.5	11.6E-6
2013	3.07-4	69.1	4.44E-6	2.45E-4	67.3	3.64-6
2014	3.42E-4	69.6	4.91E-6	1.98E-4	68.6	2.83E-6
2015	1.68E-4	69.6	2.41E-6	1.40E-4	68.4	1.80E-6
2016	3.52E-4	69.7	5.02E-6	5.21E-4	68.7	7.59E-6
2017	1.22E-4	67.1	1.81E-6	6.98E-4	67.2	10.4E-6
2018	1.61E-4	64.7	2.49E-6	16.1E-4	68.4	23.5E-6
Sum	23.898E-4		34.662E-6	51.523E-4		76.186E-6
Avg.	2.39E-4		3.47E-6	5.15E-4		7.62E-6
		Grand Average	5.55E-6			

Dioxins/Furans (PCDD/PCDF)
[ng/dscm @ 7% O_2]

Date	Unit 1	Unit 2	Regulatory Limit – Each Unit
2009	0.315*	Not tested	30
2010	Not tested	0.200	15
2011	1.07*	Not tested	15
2012	Not tested	0.762	15
2013	0.519*	Not tested	15
2014	Not tested	0.372	15
2015	0.525*	Not tested	15
2016	Not tested	0.832*	15
2017	0.400*	Not tested	15
2018	Not tested	5.76*	15
Average	0.566	1.585	15
Average w/o med waste	---	0.445	
Average w med waste	0.566	3.296	
Range	0.315-1.07	0.200-5.76	
Range factor	3	29	

Dioxins/Furans (PCDD/PCDF)

Date	Unit 1			Unit 2		
	Lb/hr	K lb steam/hr	Lb/K lb steam	Lb/hr	K lb steam/hr	Lb/K lb steam
2009	3.06E-8	69.4	4.41E-10	---	---	Not tested
2010	---	---	Not tested	1.91E-8	68.3	2.79E-10
2011	10.89E-8	69.8	15.6E-10	---	---	Not tested
2012	---	---	Not tested	7.21E-8	68.4	10.6E-10
2013	6.11E-8	68.7	8.88E-10	---	---	Not tested
2014	---	---	Not tested	4.11E-8	69.4	5.92E-10
2015	5.62E-8	69.6	8.07E-10	---	---	Not tested
2016	---	---	Not tested	10.80E-8	68.3	15.8E-10
2017	4.30E-8	67.3	6.38E-10	---	---	Not tested
2018	---	---	Not tested	62.6E-8	68.9	90.8E-10
Sum	29.98E-8		43.34E-10	86.63E-8		125.91E-10
Avg.	6.00E-8		8.67E-10	17.33E-8		25.18E-10
		Grand Average	16.93E-10			

Mercury (Hg)
[mg/dscm @ 7% O_2]

Date	Unit 1	Unit 2	Regulatory Limit – Each Unit
2009	<0.00390	<0.000541	0.080
2010	<0.00187	<0.00100	0.050
2011	0.00477	0.00217	0.050
2012	0.0038	0.0008	0.050
2013	<0.01237	<0.00122	0.050
2014	<0.01049	<0.00169	0.050
2015	<0.00189	<0.00133	0.050
2016	<0.00153	<0.00133	0.050
2017	<0.00384	<0.00215	0.050
2018	<0.00314	<0.00207	0.050
Sum	0.0476	0.01431	
Average	0.00476	0.00143	0.050
Range	0.00153-0.0105	0.000541-0.00217	
Range factor	7	4	

Mercury (Hg)

Date	Unit 1			Unit 2		
	Lb/hr	K lb steam/hr	Lb/K lb steam	Lb/hr	K lb steam/hr	Lb/K lb steam
2009	<3.95E-4	69.6	<5.67E-6	<0.552E-4	68.0	<0.812E-6
2010	<1.91E-4	69.4	<2.75E-6	<0.970E-4	68.5	<1.42E-6
2011	4.88E-4	69.3	7.05E-6	2.16E-4	70.1	3.09E-6
2012	3.97E-4	68.7	5.78E-6	0.832E-4	68.5	1.22E-6
2013	<14.87E-4	67.3	<22.13E-6	<1.26E-4	67.3	<1.87E-6
2014	<12.45E-4	69.6	<17.90E-6	<1.93E-4	68.6	<2.83E-6
2015	<1.98E-4	69.6	<2.85E-6	<1.36E-4	68.4	<1.99E-6
2016	<1.71E-4	69.7	<2.45E-6	<1.80E-4	68.7	<2.62E-6
2017	<4.01E-4	67.1	<5.98E-6	<2.18E-4	67.2	<3.25E-6
2018	<3.13E-4	64.7	<4.84E-6	<2.27E-4	68.7	<3.30E-6
Sum	52.86E-4		77.40E-6	15.314E-4		22.402E-6
Avg.	5.29E-4		7.74E-6	1.53E-4		2.24E-6
		Grand Average	4.99E-6			

Cadmium (Cd)
[mg/dscm @ 7% O_2]

Date	Unit 1	Unit 2	Regulatory Limit – Each Unit
2009	0.000356	0.000466	0.040
2010	<0.000064	<0.000005	0.020
2011	0.00283	0.000627	0.020
2012	0.000382	0.000455	0.020
2013	0.000190	0.000170	0.020
2014	0.00277	0.000345	0.020
2015	0.000373	0.000292	0.020
2016	0.000586	<0.000471	0.020
2017	0.000270	0.00156	0.020
2018	0.002444	0.00285	0.020
Sum	0.010287	0.006241	
Average	0.00103	0.00062	0.020
Range	0.000064-0.002835	0.000005-0.00285	
Range factor	44	570	

Cadmium (Cd)

Date	Unit 1			Unit 2		
	Lb/hr	K lb steam/hr	Lb/K lb steam	Lb/hr	K lb steam/hr	Lb/K lb steam
2009	3.59E-5	69.6	5.17E-7	4.73E-5	68.0	6.96E-7
2010	0.65E-5	69.4	0.09E-7	0.07E-5	68.5	0.095-7
2011	28.39E-5	69.3	40.98E-7	6.26E-5	70.1	8.93E-7
2012	4.00E-5	68.7	5.82E-7	4.68E-5	68.5	6.89E-7
2013	1.97E-5	69.1	2.82E-7	1.71E-5	67.3	2.54E-7
2014	32.3E-5	69.6	46.3E-7	3.91E-5	68.6	5.60E-7
2015	3.96E-5	69.6	5.68E-7	3.00E-5	68.4	4.37E-7
2016	6.60E-5	69.7	9.49E-7	6.36E-5	68.7	9.27E-7
2017	2.87E-5	67.1	4.21E-7	15.77E-5	67.2	23.47E-7
2018	24.73E-5	64.7	38.24E-7	31.17E-5	68.4	45.40E-7
Sum	109.06E-5		158.80E-7	77.66E-5		113.525E-7
Avg.	10.91E-5		15.88E-7	7.77E-5		11.35E-7
		Grand Average	13.62E-7			

Hydrogen Chloride (HCl)
[ppm]

Date	Unit 1	Unit 2	Regulatory Limit – Each Unit
2009	12.92	5.89	29
2010	8.50	5.48	29
2011	10.69	5.52	29
2012	6.56	5.32	29
2013	12.87	8.64	29
2014	27.80	8.91	29
2015	23.33	3.43	29
2016	6.51	5.48	29
2017	6.12	9.55	29
2018	12.66	5.81	29
Sum	127.96	64.03	
Average	12.80	6.40	29
Range	6.12-23.33	3.43-9.55	
Range factor	4	3	

Hydrogen Chloride (HCl)

Date	Unit 1			Unit 2		
	Lb/hr	K lb steam/hr	Lb/K lb steam	Lb/hr	K lb steam/hr	Lb/K lb steam
2009	1.97	69.5	0.0283	0.87	67.3	0.0126
2010	1.27	69.3	0.0183	0.82	68.5	0.0119
2011	1.44	70.7	0.0203	0.82	70.7	0.0116
2012	1.14	69.0	0.0166	0.84	68.3	0.0123
2013	2.37	69.2	0.0343	1.33	66.5	0.0201
2014	5.18	69.7	0.0737	1.44	69.5	0.0211
2015	3.70	70.0	0.0526	0.55	68.1	0.0080
2016	1.04	70.0	0.0149	0.85	68.4	0.0125
2017	0.92	68.6	0.0135	1.46	68.8	0.0212
2018	2.07	68.4	0.0303	0.92	68.4	0.0134
Sum	21.10		0.3028	9.90		0.1447
Avg.	2.11		0.030	0.99		0.014
		Grand Average	0.022			

Covanta CEM Data

Year	Production (k lb steam)	CO Emissions (tons)	CO EF (lb/k lb steam)	NO_x Emissions (tons)	NO_x EF (lb/k lb steam)	SO_2 Emissions (tons)	SO_2 EF (lb/k lb steam)
2018	1,093,728	36.3	0.066	262.90	0.481	4.64	0.0085
2017	1,090,043	11.96	0.022	265.35	0.487	3.93	0.0072
2016	1,090,961	10.91	0.020	268.01	0.491	17.53	0.0321
2015	1,129,417	8.38	0.015	275.39	0.488	21.44	0.0380
2014	1,128,188	10.18	0.018	277.81	0.492	24.18	0.0429
2013	1,137,087	11.05	0.019	275.79	0.485	19.16	0.0337
2012	1,132,459	12.05	0.021	276.46	0.488	18.74	0.0331
2011	1,120,804	11.1	0.020	274.2	0.489	10.6	0.019
2010	1,115,979	12.0	0.022	274.1	0.491	10.6	0.019
2009	1,117,000	13	0.023	279	0.500	14	0.025
2008	1,101,000	13	0.024	285	0.518	10	0.018
2007	1,113,606	13	0.023	289	0.519	5	0.009
		Avg. EF	0.0259		0.5034		0.0279
		Max. EF	0.066		0.519		0.0429
PSEL/PTE @ max. EF	1,300,000	42.9		337.4		27.9	
Existing PSEL Limits		99 (generic)		337		39 (generic)	

Covanta Marion, Inc.

CAM Applicability Analysis 2019

Emission Point	Pollutant	Control Device Used?	Limit or Standard ?	Exempt from CAM?	PTE >100 T/Y Precontrol ?	CAM Required ?	PTE T/Y Post control	CAM Unit Size	Existing Monitoring
Municipal Waste Combustors 1 and 2	PM	Y-BH (99.9%)	Y-state general opacity, grain loading	N	Y-12,000	Y	15	S	COMS, Annual ST
			Y-MWC opacity, grain loading	Y					
	CO	N	Y-MWC	Y	N	N			CEMS
	NO_x	Y-SNCR	Y-MWC	Y	Y-?	N	337		CEMS
	SO_2	Y-dry lime slurry scrubber	Y-MWC	Y	Y-?	N	28		CEMS
	VOC	N	N	N	N	N			
	Pb	Y-BH	Y-MWC	Y	N	N			Annual ST
	Cd	Y-BH	Y-MWC	Y	N	N			Annual ST
	Hg	Y-Carbon injection	Y-MWC	Y	N	N			Annual ST
	HCl	Y-dry lime slurry scrubber	Y-MWC	Y	N	N			Annual ST
	Dioxins/furans	N	Y-MWC	Y	N	N			ST every other year
Ash Conveyor	PM	N	Y-MWC opacity	Y	N	N			Annual VE

Covanta

Comments Received

Name or Organization	Comment	DEQ Response
Thomas Grove	Requested a hearing	Only two people requested a hearing. It takes 10 or more people or an organization representing at least 10 people requesting a hearing before DEQ holds a hearing.
Douglas Corey	In support of the Covanta facility's continued operation	None needed
Norman Miles	Opposed to renewal	See Issue 1
	Should limit the amount of carbon released into the atmosphere	See Issue 2
Judy Skinner	Requested information on emissions of Covanta versus other US and European facilities	Provided comparison of Covanta Marion and Massachusetts combustors
Ray Quisenberry	Do not renew the permit	See Issue 1
	Emissions of toxins, particulates, and greenhouse gases from burning of garbage and plastics are unacceptable	See Issue 3
Patricia Kullberg	Asked about GHG emission statutory requirements	No statutory limits exist in EPA or DEQ for GHGs
Mike Hughes	Do not renew the permit	See Issue 1
	The permit should require reduction in emissions of pollutants	See Issue 3
	Stack testing for each burner should be required annually	See Issue 4
	Medical waste types (blue bin/grey bin) should be recorded and spot checked	See Issue 5
Sarah Deumling	All emissions should be reduced.	See Issue 3
	DEQ should work with Marion County and City of Salem to reduce the volume and toxicity of waste streams	See Issue 13
Thomas Ellis	Emission of particulates and GHGs should be reduced	See Issue 2; See Issue 3
	Dioxin testing should be done on both combustors every year	See Issue 4
	Emissions during start-up, shutdown, and malfunctions should be limited	See Issue 6
	Accidental fires should not be included in categorically insignificant activities	See Issue 7

Laurie Dougherty	GHG emissions should be reduced not increased	See Issue 2
	Particulate emissions are a serious health hazard	See Issue 3
	Emissions should be more closely monitored in the airshed and on the ground	See Issue 11
	The permit should incorporate Cleaner Air Oregon standards	See Issue 9
	Environmental justice should be taken into account due to low-income and minority residents nearby	See Issue 12
Tori Heroux, Neighbors for Clean Air	PM and VOCs should not be increased	See Issue 3
	Waste reduction and other efficiency measures should be considered	See Issue 13
	Waste from outside Oregon should not be incinerated	See Issue 14
	Heavy metals are concentrated in waste	See Issue 20
	Cleaner Air Oregon should be done	See Issue 9
	Environmental justice should be considered	See Issue 12
	GHGs are too high	See Issue 2
	Deny the permit	See Issue 1
Lisa Arkin, Beyond Toxics, Eastside Portland Air Coalition, 350 Salem OR, Neighbors for Clean Air, PCUN	PM should not be increased	See Issue 3
	GHGs should be reduced	See Issue 2
	Stack testing on combustors should be done annually for dioxins and with representative medical waste	See Issue 4
	Blue bin/grey bin waste should be recorded all year	See Issue 5
	Startup/shutdown/malfunction emissions should meet limits and standards	See Issue 6
	Special waste management plans should have rationale or basis for permitting combustion	See Issue 19
	Accidental fires should be considered significant with fire plan	See Issue 7
	Trucks hauling ash should have lined compartment	See Issue 18
	For Hg, SO_2. And HCl, the standards should not be limit or % reduction but limit and % reduction	See Issue 15
	CEMS for toxins should be installed	See Issue 8
	Apply CAO requirements in permit ASAP	See Issue 9
	Apply federal standards for medical waste incinerators	See Issue 16
	Covanta could exceed 10% medical waste	See Issue 17
	Do not approve permit	See Issue 1
Deborah Patterson	Emissions of particulates and GHGs should be decreased	See Issue 2; See Issue 3
	Standards should be maintained during shutdown	See Issue 6

	Adequate fire suppression equipment and insurance should be required	See Issue 7
	Continuous monitoring for toxins should be installed and operated	See Issue 8
	Emission standards should be tightened	See Issue 3
Cayetana Tabullo & Pamela Vaquez	Particulates and GHGs should not be increased	See Issue 2; See Issue 3
	Has health effects from emissions from the facility	See Issue 10
	Environmental justice must be taken into account	See Issue 12
	Continuous monitoring of toxins should be done	See Issue 8
	Comprehensive evaluation by independent third party should be done on air, water and soil for toxics	See Issue 11
	Deny the renewal	See Issue 1
	DEQ should hold a public hearing to discuss health risks and alternatives to burning	Only two people requested a hearing. It takes 10 or more people or an organization representing at least 10 people requesting a hearing before DEQ holds a hearing.
	Marion County has worst air pollution in Oregon	See Issue 20
Karen Hays	GHGs should be reduced	See Issue 2
Damon Motz-Storey, Oregon Physicians for Social Responsibility, PCUN, OPAL Environmental Justice Oregon, Neighbors for Clean Air, Global Alliance for Incinerator Alternatives, 350 PDX, 350 Salem OR	Comprehensive evaluation by independent third party should be done on air, water and soil for toxics, risk assessment, modeling, and GHG life cycle analysis	See Issues 2 and 11
	Deny the permit until an evaluation shows no health risk and is not a net contributor of GHGs	See Issue 1, 3, and 9
	Conduct a public hearing	Later rescinded in a 11/26/19 email
	Stack emissions are inadequately monitored	See Issue 22
	Environmental justice must be taken into account	See Issue 12
	Emission standards are based on BACT	Issue 3
	Rules do not regulate all known toxics and do not account for simultaneous toxic exposures	See Issue 9
	Stack tests are not done by disinterested 3rd parties	See Issue 22
	GHGs are too high	See Issue 3
Damon Motz-Storey, Oregon Physicians for Social Responsibility Plus 125 others	Deny the renewal	See Issue 1
	Annual stack testing is insufficient to determine compliance with limits	See Issue 22
	Continuous monitoring should be required	See Issue 8
	Particulate emissions should not be increased	See Issue 3
	GHGs should be reduced	See Issue 2
	The Cleaner Air Oregon process should be	See Issue 9

	completed before a permit is granted	

Summary of Issues and DEQ Response

Issue 1: The permit should be denied or not renewed.

DEQ Response: The authority for issuance of DEQ air quality permits is provided by Oregon Revised Statute 468A.045 and the specific procedures for issuance, denial, modification, and revocation of permits are contained in the Oregon Administrative Rules (OARs). If a facility complies with all of the provisions of the OARs and all state and federal rules and regulations for obtaining a permit, DEQ does not have the authority to deny it. DEQ completed a comprehensive review of the permit renewal application and has determined that Covanta has complied with all applicable rules and regulations to obtain a renewal of their Oregon Title V Operating Permit. Therefore, DEQ does not have the authority to deny the permit. However, there may be modifications or additions to the renewal permit that DEQ may incorporate as a result of the public comments as noted in DEQ's responses to the comments below and the proposed changes to the permit listed at the end of this document.

Issue 2: Greenhouse gas emissions should not be allowed to increase but instead should be reduced. The facility is a net contributor of GHGs.

DEQ Response: Greenhouse gas emissions (GHGs) from the facility occur from both biogenic (such as wood, cardboard) and anthropogenic (man-made such as plastics) sources in the solid waste combusted as well as natural gas used during startup and shutdown to maintain combustor temperature. Actual GHG emissions are calculated each year using emission factors in EPA's GHG rules in 40 CFR Part 98 and production data from the facility. The GHG Plant Site Emission Limit (PSEL) shown in the draft permit reflects the potential to emit of the facility based on the maximum anticipated steam production possible. Actual annual steam production is less than this potential and so actual historical GHG emissions have been less than the PSEL value.

Actual GHG emissions from the facility are not really increasing. The permitted GHGs appear to be increasing from the last permit only due to a change in the accounting method for GHGs. EPA rules at the time of the last renewal required DEQ to only use the anthropogenic GHG emissions for the PSEL. In 2015 EPA rules changed and now require that the PSEL contain both the anthropogenic and biogenic GHG emissions. Since the anthropogenic/biogenic emissions are nearly 50/50, this essentially doubles the GHG emissions that must be counted toward the PSEL. It should be noted that the total GHG emissions have always been required to be reported to DEQ and EPA each year.

Whether the facility is or is not a net contributor of GHGs to the environment over other potential disposal methods for solid waste is not part of DEQ's air permitting rules. DEQ rules regarding GHGs only requires GHG emission reporting and a PSEL since GHGs are a regulated pollutant.

Issue 3: Emissions of all pollutants should be reduced and not allowed to increase.

DEQ Response: Emissions of pollutants from the facility are regulated primarily through two DEQ rules: 1) the incinerator rules in OAR 340 Division 230 applicable to each combustor at the facility; and 2) the overall Plant Site Emission Limits required by OAR 340 Division 222.

The incinerator rules in OAR 340 Division 230 set maximum emission concentration limits for PM, CO, SO_2, NO_x, HCl, Pb, Hg, Cd, and dioxins as well as alternative minimum % removal requirements for SO_2, HCl, and Hg from each combustor. The emission limits in Division 230 can only be changed by a rule revision and cannot be done in a permit action. Such a revision took place in 2009 when EPA adopted (and the state was also required to adopt) lower limits for some of the pollutants. In fact, in that rulemaking DEQ actually adopted lower emission limits for Pb, Cd, and dioxins than required by the federal rules.

As shown in the tables below, the facility emissions are well below the emission standards in Division 230.

Pollutant	DEQ Emission Limit	2019 Source Test Avg.	2018 Source Test Avg.	2017 Source Test Avg.	2016 Source Test Avg.	2015 Source Test Avg.	2014 Source Test Avg.	2013 Source Test Avg.	Highest as % of Standard
Particulate Matter (PM)	25 mg/dscm	1.69	16.55	3.31	2.81	5.87	8.45	6.35	66%
Lead (Pb)	0.20 mg/dscm	0.0017	0.0082	0.0040	0.0035	0.0014	0.0153	0.0024	8%
Cadmium (Cd)	0.020 mg/dscm	0.0003	0.0026	0.0009	0.0005	0.0003	0.0015	0.0002	13%
Mercury (Hg)	0.050 mg/dscm	0.0036	0.0026	0.0030	0.0014	0.0016	0.0061	0.0056	12%
Dioxins/furans	15 ng/dscm	2.35	5.76	0.400	0.832	0.525	0.372	0.52	38%
Hydrogen Chloride (HCl)	29 ppm	11.90	9.26	7.83	6.00	13.37	18.36	10.73	63%

The highlighted values are the maximum concentration for each pollutant over the years.

	DEQ Emission Limit (ppm)	2018 CEM Max. (ppm)	2017 CEM Max. (ppm)	Highest as % of Standard
Carbon Monoxide (CO) 4-hr	100	66, 76, 94, 98	52, 76, 62, 50	98%
Nitrogen Oxides (NO_x) 24-hr	205	194, 194, 185, 180	181, 186, 194, 195	95%
Sulfur Dioxide (SO_2) 24-hr	29	24, 3, 9, 9	17, 25, 18, 16	86%

In addition to the emission concentrations limits, an alternative % reduction standard is applicable to SO_2, HCl, and Hg removal. As shown in the table below, these standards for mercury and HCl have also consistently been met. For SO_2, the range of % removal was 78% to nearly 100% in 2018.

Removal Efficiencies (%) During Source Tests

Year	Mercury		HCl	
	Unit 1	Unit 2	Unit 1	Unit 2
2019	97.1	87.9	98.8	98.4
2018	88.3	96.1	99.3	99.1
2017	92.1	97.0	99.4	98.7
2016	97.9	97.9	98.8	99.0
2015	96.5	98.0	96.5	98.7
2014	87.1	97.8	96.7	98.7
2013	94.4	98.2	98.3	98.0
2012	97.5	99.4	99.0	99.3
2011	97.5	98.7	99.2	99.3

Unit Average	94.3	96.8	98.4	98.8
Combined Average	95.6		98.6	
Requirement	85		95	

In fact, for SO_2, which is continuously measured with a CEM, the inlet concentration before the control device is often (24-43% of the time) lower than the required outlet concentration of 29 ppm as shown below.

2018 SO_2 Inlet Data

	Unit 1	Unit 2
Low (ppm)	7	<2
High (ppm)	165	130
# days < 29 ppm	88 (24% of year)	158 (43% of year)
Lowest % removal	73.9% (35 ppm---9 ppm)	40.1% (7 ppm---5 ppm)
Highest % removal	100%	100%

Plant Site Emission Limits (PSELs) for each regulated pollutant are required by OAR 340 Division 222 and provide an overall cap on total plant wide emissions. PSELs are set in each permit renewal based on the capacity of the facility (maximum amount of garbage combusted or steam produced) and an emission factor based on the average of recent source tests. PSELs for PM_{10} and $PM_{2.5}$ are being increased slightly in this permit renewal because the more recent source tests (2009-2018) have shown slightly higher emissions of these pollutants than during the last renewal (1998-2011 source tests) as shown in the table below. Other pollutants show both higher and lower emission factors than in the previous permit.

Emission Factor Comparisons

Pollutant	Prior Permit Emission Factor (lb/K lb steam)	Source Test Results From	2020 Permit Renewal Emission Factor (lb/K lb steam)	Source Test Results From
$PM/PM_{10}/PM_{2.5}$	0.0171	1998-2011	0.0225	2009-2018
CO	0.024	2007-2011 CEM Max	0.066	2007-2018 CEM Max
SO_2	0.025	2007-2011 CEM Max	0.0429	2007-2018 CEM Max
NO_x	0.519	2007-2011 CEM Max	0.519	2007-2018 CEM Max
Pb	1.13E-5	1998-2011	5.55E-6	2009-2018
Hg	1.28E-5	1998-2011	4.99E-6	2009-2018
Cd	7.1E-7	1998-2011	1.36E-6	2009-2018
HCl	0.024	1998-2011	0.022	2009-2018

Dioxins	1.1E-9	1998-2011	1.69E-9	2009-2018
GHGs	164.72	2009 GHG report (anthropogenic only)	328.88	40 CFR Part 98 Subpart C (anthropogenic + biogenic)
VOC	0.0985 lb/hr	1998-2001	0.22 lb/hr	1999
F	6.94E-3 lb/hr	1998-2001	6.94E-3	1998-2001

Although there is an increase in the two PSELs for PM_{10} and $PM_{2.5}$, the increases do not exceed the Significant Emission Rates, which if exceeded would require a more detailed analysis of the impacts of the emissions on air quality.

Although the federal (and Oregon delegated) emission standards are applicable to the facility, it should be noted that DEQ's overall Plant Site Emission Levels (PSELs) set in the Covanta permit actually restrict the emissions of all pollutants more than the emission standards in rule. For example, the PSEL for PM is set at 24 tons/year which back calculates to 16.3 mg/m^3, 35% more restrictive than the emission standard of 25 mg/m^3. Similarly, the PSEL for dioxin is set at 0.000003 tons/year which back calculates to 2.0 ng/dscm, 87% more restrictive than the emission standard of 15 ng/dscm. Other pollutants are similarly restricted by the PSELs as shown in the table below.

Emission Standards versus PSELs

Pollutant	Emission Standard	PSEL or PTE (tons/year)	PSEL Equivalent Standard	% More Restrictive Than Rule Standard
PM	25 mg/dscm	24	16.3 mg/m^3	35
PM_{10}	25 mg/dscm	16	10.8 mg/m^3	57
$PM_{2.5}$	25 mg/dscm	16	10.8 mg/m^3	57
CO	100 ppm	99	79 ppm	31
SO_2	29 ppm	39	14 ppm	52
NO_x	205 ppm	337	163 ppm	20
Pb	0.20 mg/dscm	0.0036 (PTE)	0.0024 mg/m^3	99
Hg	0.05 mg/dscm	0.0032 (PTE)	0.0022 mg/m^3	96
Cd	0.02 mg/dscm	0.0009 (PTE)	0.0006 mg/m^3	97
HCl	29 ppm	14.3 (PTE)	8.8 ppm	70
Dioxins	15 ng/dscm	3.0E-6	2.0 ng/m^3	87

Issue 4: Dioxin testing should be done on both combustors every year and with representative medical waste being combusted during the tests.

DEQ Response: Annual source tests conducted since 1998 at full load conditions, utilizing third party vendors, are used by the facility and DEQ to estimate emissions of dioxins. All of these tests are performed according to detailed scientific procedures spelled out in EPA or DEQ sampling methods. The company must submit a source test plan to DEQ for approval before any tests are conducted. DEQ reviews and approves the source test plan and then reviews the source test results, as well as observes some of the testing, to ensure that the proper sampling and analytical procedures have been followed, thereby assuring the accuracy of the results. Results from the 2009-2019 source tests for dioxin are shown below. Under DEQ rules, if all results on both combustors are less than 7 ng/cubic meter for two years, then testing can be reduced to every other year on each combustor.

Dioxins/Furans (PCDD/PCDF)[ng/dscm @ 7% O_2]

Date	Unit 1	Unit 2	Regulatory Limit – Each Unit
2009	0.315*	Not tested	30
2010	Not tested	0.200	15
2011	1.07*	Not tested	15
2012	Not tested	0.762	15
2013	0.519*	Not tested	15
2014	Not tested	0.372	15
2015	0.525*	Not tested	15
2016	Not tested	0.832*	15
2017	0.400*	Not tested	15
2018	Not tested	5.76*	15
2019	2.35*	Not tested	15
Average	0.863	1.585	15
Average w/o med waste	---	0.445	
Average w med waste	0.863	3.296	
Range	0.315-2.35	0.200-5.76	
Range factor	7	29	

As shown in the table above, results have been considerably less than this 7 ng/cubic meter threshold. However, emission tests the last two years have shown considerably higher results than in previous years when medical waste was combusted in the units during the tests. It is uncertain what caused the increase in dioxin emissions the last two years. Possibilities include combustion of more medical waste or more plastics or some other change in the solid waste constituents.

Because of the recent higher dioxin emission test results, DEQ believes it is now prudent to require annual source tests on both combustors for at least two years starting in 2021 to see if the higher dioxin emissions continue. In addition, a new requirement will be added to the permit which will require that detailed records be kept of the types and quantities of medical waste combusted during the source tests.

Issue 5: Medical waste types being combusted should be recorded at all times and spot checked as to the containers contents.

DEQ Response: DEQ agrees that medical waste types and quantities being combusted in each combustor should be recorded in detail throughout the year and during source test runs. DEQ will revise the permit to require this detailed recordkeeping of in-county/out-county and blue bin/grey bin medical waste quantities for each combustor. Although DEQ staff conduct comprehensive inspections at the facility at least every other year and observe the source tests annually, DEQ staff will not open medical waste containers for examination. The facility does this on a regular basis using a Standard Operating Procedure for handling regulated medical waste and also goes to the medical waste generators to verify that proper procedures and contents are accurate.

Issue 6: Emissions during start-up, shutdown, and malfunctions should be limited, are higher than during normal operations, and should meet limits and standards.

DEQ Response: Emission measurements using source tests during malfunctions are essentially impossible to undertake due to the infrequent and unexpected times that such events occur and the short duration of these events. The instrumentation and equipment needed to do such testing is not available on a short term notice. In addition, DEQ would not want to purposely require an upset condition to occur simply to measure the emissions. Instead, the DEQ would prefer that upset conditions be avoided and minimized by requiring good combustion practices and routine inspection and maintenance programs on the operating control equipment.

Continuous emission monitors (CEMs) for the criteria pollutants CO, SO_2, and NO_x do record emissions data during upsets, startup, and shutdown events but, until recently, there have been no reliable CEMS for the other pollutants due to their relatively low concentrations in the exhaust gas stream. The facility implements a DEQ approved Startup, Shutdown, and Malfunction (SSM) Plan which calls for all emission control devices to be online and operating before the municipal waste is introduced into the combustor for burning during startup situations which minimizes emissions. Similarly, these control devices remain operating to minimize emissions until all waste is combusted during shutdown situations. In addition, the facility maintains continuous parameter monitoring systems (CPMS) on the carbon injection rates, baghouse inlet temperature, and dry absorbent injection rates to ensure that the emission control systems are operating at their proper levels at all times. In addition, the facility does not charge medical waste to a combustor unit less than 48 hours before a scheduled shutdown and does not charge medical waste until 48 hours after startup.

DEQ staff have reviewed CEM information during recent known startup and shutdown situations and do not see any pronounced increase in the CEM measured emissions during these periods, which would indicate the unlikelihood of other significant pollutant increases during these periods. As previously mentioned, this is due to the various control systems being online before a startup occurs and remaining online after a shutdown is begun.
EPA performed a number of emission characterization tests at the Covanta Marion facility in 1986 and 1987 and as part of these studies conducted emission tests during startup and shutdown conditions and compared those results to the baseline or normal operating conditions. Overall, there was very little difference in any of the emissions during startup and shutdown situations versus normal operations due to the control systems being online during these situations. The following are quotes from the 1988 EPA report on these tests. "During shutdown and startup, CO averaged 6.9 and 8.0 ppmv, dry, respectively. CO averaged 10.2 ppmv, dry, during baseline operation." "Reduction of SO_2 across the control system was 74.5 percent during shutdown and 58.6 percent during startup. During baseline, SO_2 reduction was 69.2 percent." "Reduction of HCl across the control system was 90.8 percent during shutdown and 90.2 percent during startup. The reduction efficiency for HCl was 90.4 percent during baseline operations." "However, the CDD/CDF concentrations measured during shutdown were not significantly different from those during baseline operation." "Controlled CDD/CDF emissions (during startup) were also higher than baseline, although not significantly." "Reduction efficiencies consistently in the 80 to 90 percent range indicate positive control of CDD/CDF by the QR/FF control system during shutdown and startup operating conditions." "During shutdown, the average NO_x concentration was significantly lower than the average baseline value of 295

ppmv at 12 percent CO_2." "During the startup run, NO_x increased rapidly from zero and then steadily climbed to baseline levels."

However, public comments received during this and prior permit renewals have provided information which indicated that startup and shutdown emissions have been measured at other waste combustor facilities and showed elevated pollutant levels during these periods. DEQ has not been able to verify any of this submitted information. However, because of the uncertainty and lack of first-hand data for startup and shutdown emissions from the Covanta Marion facility, DEQ believes it may be prudent at this time to require the facility to conduct one set of source tests by 12/31/21 for HCl and dioxin emissions during a scheduled shutdown and a scheduled startup. This will require considerable coordination between DEQ, Covanta, and a source testing company but should be manageable since the events will be scheduled. In lieu of testing, the company may provide DEQ with startup and shutdown information from another Covanta facility. DEQ will review the information and determine if DEQ considers the information representative of Covanta Marion startup and shutdown emissions. If representative, no testing would be required at Covanta Marion. However, if not representative startup and shutdown testing would be required at Covanta Marion.

In addition, as is required by other states with municipal waste combustors, DEQ is adding a permit condition to require the company to submit in the annual report a listing of all startups, shutdowns, and malfunctions which have occurred during the year and the emissions measured by the CEMS during those periods.

Issue 7: Accidental fires should not be included in categorically insignificant activities. Adequate fire suppression equipment and insurance should be required.

DEQ Response: Accidental fires, by rule, are listed as a categorically insignificant activity for all DEQ air permits. Although fires may have occurred at other municipal waste combustor facilities in the US, DEQ is unaware of any fires which may have occurred at the Covanta Marion facility. Prior to dumping garbage in the pit at the facility, trucks are visually inspected for any evidence of combustion or fire within the garbage truck as they enter the facility and scale area.

Requirements for fire suppression equipment and fire insurance at the facility are outside the authority of DEQ. These issues are controlled by the insurance carrier for the facility. The facility has equipment and procedures to prevent and control any fire which might occur. Facility personnel are trained in fire hose and fire extinguisher operation. Monthly fire extinguisher testing occurs. Fire drills are conducted quarterly and fire extinguishers are annually certified and serviced by an outside firm. Upgrades to the overall fire protection system at the facility have been recently completed and the system is tested monthly.

Issue 8: Continuous monitoring for toxins should be installed and operated.

DEQ Response: On May 10, 2006, the EPA revised and updated the rules (40 CFR Part 60, Subparts Cb and Eb) that regulates emissions from municipal waste incinerators. One of the provisions in the updated rules was the option for a facility to install and operate continuous emission monitoring systems for measuring the amounts of PM, Cd, Pb, Hg, HCl, and/or Dioxins/Furans being discharged from the stack in lieu of conducting annual stack tests for these pollutants to demonstrate compliance with the emission standards. Although the option to continuously monitor these stack emissions is theoretically available, because of the very low emission rates of these pollutants from the two incinerator stacks, Covanta has previously indicated that they have chosen not to use this monitoring option.

EPA does not give states the authority to approve any major alternatives to testing or monitoring requirements contained in the rules. Covanta would need to petition EPA for approval to use CEMs that are not currently required by the existing rules for air toxics or other pollutants. DEQ would modify the Title V permit to require the use of a CEM that EPA approves. Any Oregon legislation could possibly expand DEQ's authority to approve a CEM, but EPA would still also have to approve the CEM.

DEQ staff have recently reviewed information on the state of CEMs for PM and toxics and believes that the technology, though technically feasible, is not warranted due to the low pollutant emission concentrations at the facility and the difference between the measured emissions and the emission standards. DEQ will continue to follow any developments in CEM monitoring technology developed or approved by EPA for potential future use at the Covanta facility.

In addition, depending on the results of the CAO risk assessment discussed in Issue 9 below, DEQ will review the need for possible toxics CEMs at the conclusion of the CAO process for the facility. DEQ will also review the need for possible toxics CEMs depending on the results of the source tests conducted during startup and shutdown as discussed in Issue 6 above.

It should be noted that although emissions of toxics are not currently continuously monitored, operating parameters for the systems which control emissions are continuously measured. This includes exhaust temperature for dioxin control, carbon feed rate for Hg control, dry absorbent feed rate for SO_2 and HCl control, baghouse pressure drop and opacity for PM and metals control, and operating steam load level. In addition to the opacity COMs, the facility has recently installed baghouse leak detection systems on both combustor exhausts to give an early warning of any bag failures or leaks which might cause an increase in PM emissions.

Issue 9: Cleaner Air Oregon standards and rules should be incorporated into the permit before issuance.

DEQ Response: The Cleaner Air Oregon program and rules approved in November 2018 add public health-based protection from emissions of toxic air contaminants to the state's existing air permitting regulatory framework. The goal of the CAO program is to evaluate potential health risks to people near commercial and industrial facilities that emit regulated toxic air contaminants, communicate those results to affected communities, and reduce those risks to below health-based standards if required.

A prioritization process was established as a method to initiate a call-in process for existing permitted sources such as Covanta Marion. This prioritization process was not a risk assessment and the results should not be interpreted as a health assessment or statement of potential health risks. The process was undertaken to determine a priority for facilities in each DEQ region for entry into the program. Health risks associated with emissions of toxic air contaminants from prioritized facilities can only be determined after the facility has completed an approved health risk assessment after being called into the CAO program.

DEQ calculated a prioritization score for each facility based on the emissions information submitted to DEQ by each facility and then considered additional qualitative criteria, such as sufficiency of the emissions data, distance to the nearest exposure location, and whether or not emissions are controlled, among other criteria. Using the results of these evaluations, DEQ established four groups for call-in to the CAO program.

Covanta Marion is in the first call-in group of 20 facilities. The facilities in the first group aren't necessarily those that may have the highest health risk. Six of these facilities were called in first, two from each DEQ region. Covanta Marion was not in this initial call-in group. Covanta Marion will likely be called in during 2020 and undergo the full CAO risk assessment procedures. After call-in, Covanta Marion will be required to complete a detailed risk assessment, which includes the following steps: 1) submittal of a revised emissions inventory within 90 days; 2) completing a modeling protocol that shows how emissions will be modeled and risks calculated; 3) submittal of a risk assessment work plan (if the facility chooses to do a more complex Level 3 or 4 risk assessment) that shows how the company intends to assess community risks; and 4) perform and submit the detailed risk assessment. Each of these steps would require DEQ review and approval.

If the approved risk assessment shows risk above the source permit level, then DEQ would add conditions to their permit to make sure that risk does not exceed applicable Risk Action Levels. If the risk is above the TBACT level, then the facility will also be required to submit a Risk Reduction Plan that would either demonstrate that they already have the Best Available Control Technology for Air Toxics (TBACT) or show how and when the facility will make changes to reduce risk to below the TBACT level.

Due to the uncertainty of the call-in date for the Covanta Marion facility and the unknown timing and extent of the risk assessment required, DEQ is not holding up issuance of the renewal permit. When the CAO process for the facility is completed, any additional requirements or conditions will be added to the permit at that time.

Issue 10: Emissions from the facility are causing public health effects.

DEQ Response: DEQ has no factual information or data that facility emissions are causing public health effects. In fact, DEQ ambient monitoring results indicates that the area around Covanta is in compliance with the National Ambient Air Quality Standards for criteria pollutants, designed to protect public health and welfare with an adequate margin of safety. More information on the measured pollutant levels around Oregon can be found in the 2018 annual report located at Data and Reports/Publications on the main DEQ website. For instance, as shown on pages 17 and 18 of the report, the Air Quality Index for Salem and Silverton consistently remain in the good and moderate ranges. In addition, as shown on pages 23 and 25, the ozone levels around Salem are consistently well below the NAAQS, particularly when wildfire smoke from outside the area is not counted. Pages 36, 39, and 40 also show that $PM_{2.5}$ levels at Salem also are well under the daily and annual standards.

The company performed screening modeling (which usually overestimates the groundlevel concentrations from an emission source, i.e., errors on the side of the environment and public health protection) in the original permit application in 1983 for the following pollutants: PM, SO_2, NO_x, CO, lead, dioxin, and HCl. Estimated emissions from the facility of these pollutants in 1983 are shown in the table below. Modeling results showed compliance with the NAAQS for the criteria pollutants and levels less than other guideline values for dioxin and HCl as shown in the following table:

Pollutant	1983 Estimated Emissions (tons/year)	Modeling Time Interval	Maximum Predicted Concentration	1983 Ambient Standard or Guideline
PM	61	24 hour	0.98 ug/m^3	150 ug/m^3
		Annual	0.15 ug/m^3	60 ug/m^3
SO_2	220	3 hour	34 ug/m^3	1300 ug/m^3
		24 hour	10 ug/m^3	260 ug/m^3
		Annual	1.8 ug/m^3	60 ug/m^3
NO_x	290	Annual	0.70 ug/m^3	100 ug/m^3
CO	170	1 hour	10.8 ug/m^3	40,000 ug/m^3
		8 hour	8.1 ug/m^3	10,000 ug/m^3
Lead	1.6	24 hour	0.03 ug/m^3	1.5 ug/m^3 (quarterly average)
Dioxin	0.0000051	Annual	0.012 pg/m^3	6.8 pg/m^3 (guideline)
HCl	69.0	8 hour	3.3 ug/m^3	150 ug/m^3 (guideline)

NO_x emissions were subsequently modeled again in 1987 during a permit modification at an increased emission rate of 492 tons/year with the modeling result being 0.82 ug/m^3, also well under the NAAQS of 100 ug/m^3.
It should be noted that the above projected emission rates are all higher than the current PSELs for the facility, as shown in the table below. This would indicate that any modeling undertaken today would show ambient concentrations even lower than those above, which are already well under the NAAQS.

Pollutant	1983/1998 Emissions Modeled (tons/yr)	Proposed PSEL or PTE (tons/yr)
PM	61	24
SO_2	220	39

NO_x	492	337
CO	170	99
Pb	1.6	0.0036
HCl	69	14.3
Dioxins	0.0000051	0.000003

As noted in Issue 9 above, the Cleaner Air Oregon program will evaluate potential health risks to people near commercial and industrial facilities that emit regulated toxic air contaminants, communicate those results to affected communities, and reduce those risks to below health-based standards, if required. Covanta Marion is in the first call-in group of 20 facilities under the program. The facilities in the first group aren't necessarily those that may have the highest health risk. Six of these facilities were called in first, two from each DEQ region. Covanta Marion was not in this initial call-in group. Covanta Marion will likely be called in during 2020 and undergo the full CAO risk assessment procedures. After call-in, Covanta Marion will be required to complete a detailed risk assessment, which includes the following steps: 1) submittal of a revised emissions inventory within 90 days; 2) completing a modeling protocol that shows how emissions will be modeled and risks calculated; 3) submittal of a risk assessment work plan (if the facility chooses to do a more complex Level 3 or 4 risk assessment) that shows how the company intends to assess community risks; and 4) perform and submit the detailed risk assessment. Each of these steps would require DEQ review and approval.

If the approved risk assessment shows risk above the source permit level, then DEQ would add conditions to their permit to make sure that risk does not exceed applicable Risk Action Levels. If the risk is above the TBACT level, then the facility will also be required to submit a Risk Reduction Plan that would either demonstrate that they already have the Best Available Control Technology for Air Toxics (TBACT) or show how and when the facility will make changes to reduce risk to below the TBACT level.

Issue 11: A comprehensive evaluation by an independent third party should be done on the air, water and soil for toxics. Emissions should be more closely monitored in the airshed and on the ground.

DEQ Response: This issue is beyond the scope of this air quality permitting action. Discussions of such an evaluation was done in the 2007 Presiding Officer Report (Issue 3) concerning health data and cancer rates in Marion County and DEQ believes the conclusions of that discussion still stand.

However, concerning mercury, DEQ's Water Quality Division has conducted a detailed study of the Willamette River drainage as part of its setting a Total Daily Maximum Load (TMDL) for mercury in the river. That study showed that only about 3% of all mercury in the drainage basin comes from point sources such as Covanta, whereas 21% of all mercury comes from global sources or smaller area sources in the drainage. The main sources of mercury (and therefore of mercury in fish) in the drainage are from resuspension of sediments, erosion of soils, and runoff from native soils.

Mercury emissions from the facility have been controlled by carbon injection since 1998 with estimated emissions as shown in the following table.

Year	Outlet Rate	
	Avg. Lbs/hr/unit	Total Lbs/yr
1986	0.0508	848
1991	0.0640	1068
1996	0.0237	396

1998	0.00237	40
1999	0.00482	80
2000	0.00201	34
2001	0.00113	18
2002	0.00371	62
2003	0.00161	26
2004	0.00106	17
2005	0.00057	9
2006	0.00370	60
2007	0.00045	7
2008	0.00057	9
2009	0.00023	4
2010	0.00012	2
2011	0.00029	5
2012	0.00024	4
2013	0.00067	11
2014	0.00072	12
2015	0.00017	3
2016	0.00018	3
2017	0.00031	5
2018	0.00036	6
2019	0.00037	6
Avg. Since 1998	0.00111	19.3

Based on the source test results from 1986 through 1996, DEQ estimates that slightly over 9000 pounds of mercury were cumulatively emitted from the facility in the 12 years prior to the installation of the carbon injection controls. Based on the source test results from 1998 through 2019, DEQ estimates that slightly over 400 pounds of mercury were cumulatively emitted from the facility in the 21 years since installation of the carbon injection controls, which have a 91-98% removal rate. These amounts would then have been dispersed from the facility stacks around the Willamette Valley and beyond according to wind patterns. In addition, mercury in the solid waste stream sent to the facility has been reduced in recent years since the instigation of a mercury recycling program by Marion County in 2004. This recycling program is apparent with measurements of the inlet uncontrolled mercury emissions decreasing from around 922 lbs/year prior to the recycling program to 353 lbs/year after the recycling program was initiated as shown in the following table.

Year	Inlet Rate	
	Avg Lbs/hr/unit	Total Lbs/yr
1986	0.0508	848
1991	0.0640	1068
1996	0.0237	396
1998	0.08850	1486
1999	0.03464	582
2000	0.04784	802
2001	0.03843	642
2002	0.096	1608
2003	0.05187	862
	Average	922

2004	0.04539	740
2005	0.02616	426
2006	0.05174	832
2007	.0344	564
2008	.0223	362
2009	0.0119	193
2010	0.0286	465
2011	0.0160	265
2012	0.0162	272
2013	0.0215	358
2014	0.0113	189
2015	0.0078	130
2016	0.0111	184
2017	0.0126	208
2018	0.0059	97
	Average	353

For the above reasons, DEQ believes it is highly unlikely that if any soil, water, or food testing were done that it would pinpoint Covanta as the source of mercury.

Similarly, dioxins are emitted from other combustion processes besides the Covanta facility. In fact, DEQ's emission inventory estimate for Marion County in 2002 showed 0.49 lbs/year from area sources and only 0.0011 lbs/year from Covanta. The area source emissions were primarily from residential burning. Some of this residential burning occurs in burn barrels which have been estimated to emit 10,000 times more dioxins and 1000 times more furans for the same amount of waste that would have been burned in an incinerator. In addition, dioxins were emitted in the past in automobile exhaust when leaded gasoline was used. The use of catalytic converters on more recent automobiles has precluded the use of leaded gasoline and current cars do not emit dioxins. However, a dioxin "legacy" exists from the prior automobile exhausts due to the persistent nature of dioxins.

Based on the source test results from 1986 through 2019 (shown in the table below) DEQ estimates that only 21 grams of dioxin have been cumulatively emitted over the 31 years of facility operation.

Year	Total Dioxin Emissions 10^{-7} Lbs/Hr
1986	3.110
1991	0.341
1996	0.008
1998	1.979
1999	0.488
2000	1.243
2001	1.507
2002	1.489
2003	1.548
2004	1.716
2005	1.596
2006	2.460
2007	4.300
2008	8.280
2009	0.612

2010	0.382
2011	2.180
2012	1.444
2013	1.220
2014	0.822
2015	1.124
2016	2.160
2017	0.860
2018	0.860
2019	5.18
Average	**1.877**

This amount would then have been dispersed from the facility stacks around the Willamette Valley according to wind patterns.

For the above reasons, DEQ believes it is highly unlikely that if any soil, water, or food testing were done that it would pinpoint Covanta as the source of the dioxin.
Regarding other potential toxics emitted from the facility, as noted in Issue 9 above, the Cleaner Air Oregon program will evaluate potential health risks to people near the Covanta facility for toxic air contaminants, communicate those results to affected communities, and, if necessary, further reduce those risks to below health-based standards.

Issue 12: Environmental justice should be taken into account in issuing the permit.

DEQ Response: DEQ implements the federal NAAQS, which are protective of all populations including sensitive populations such as children and the elderly. DEQ considers environmental justice in the permitting process although there are no separate air quality standards for environmental justice communities. Considerations include additional outreach and meetings with communities and public hearings.

DEQ has incorporated environmental justice considerations into multiple aspects of the Cleaner Air Oregon regulations as well. Cleaner Air Oregon provides additional health protection for sensitive populations living near industrial facilities through protective risk-based standards, development of procedures to prioritize facilities for call-in that are near sensitive populations and overburdened communities, and development of expanded public engagement procedures and guidelines.

Environmental justice indicators such as census data reflecting income and minority status of households are included in the formula used to prioritize facilities for call-in to the program. Facilities with higher percentages of low-income, minorities, and children under 5 years old are ranked higher in the prioritization.
DEQ will post submittals (e.g., emissions inventory used for risk assessment, modelling protocol, risk assessment work plant, risk assessment, risk reduction plan) from sources on the DEQ website for the community to review. DEQ may hold one or more public meetings when a facility owner or operator requests source risk limits above a certain level specified in CAO rules as a Community Engagement Level. DEQ may also hold one or more community meetings for any other reporting, monitoring or permitting action associated with CAO implementation.

Issue 13: Waste reduction and other efficiency measures should be taken into account to reduce the waste being burned.

DEQ Response: DEQ agrees with this comment and concept. DEQ promotes recycling as a high priority in the solid waste management hierarchy and has worked closely with Marion County officials in the past regarding recycling programs and public education and outreach. Landfills represent the last priority in the solid waste management hierarchy and can have inherent emission and environmental problems themselves, even when well

managed. For example, DEQ receives numerous complaints about odors from the landfills near Corvallis and McMinnville on an ongoing basis despite employment of well managed and designed landfill gas collection systems. In contrast, DEQ rarely gets odor complaints about the Covanta facility. It should be noted that if the amount of waste being burned in the Covanta facility was instead landfilled at Coffin Butte, the landfill life would be reduced considerably.

Issue 14: Waste from outside Oregon should not be incinerated.

DEQ Response: DEQ air quality rules do not limit or have the authority to restrict the combustion of out of state waste at the Covanta Marion facility.

Issue 15: For Hg, SO_2, and HCl, the standards should not be a limit or % reduction but should be a limit and % reduction.

DEQ Response: As noted in Issue 3, these pollutant emissions by rule are regulated through either a set concentration limit or an alternative % reduction requirement. To change this to a concentration limit and a % reduction requirement would take a rule change and not a change to the permit. The current rule language reflects federal rules for all MSW incinerators, new or existing.

Emission of these three pollutants are controlled by carbon absorption in the case of Hg and dry absorbent injection for HCl and SO_2. During periods of low inlet concentrations of these pollutants the control systems are not as effective and, although an emission limit would easily be achieved, the % reduction requirement may not be possible to achieve.

Issue 16: Federal standards for medical waste incinerators should be applied to the facility.

DEQ Response: Although DEQ has the authority to adopt stricter emission standards than EPA's standards, the setting of stricter standards must have a significant and well documented basis for such action. Any new standards must first be promulgated into rule by the EQC before such standards or limits could be placed in a permit. The facility has indicated to DEQ that it has no plans to become a medical waste incinerator.

The following table presents a comparison of EPA and DEQ limits for incinerators. As noted by the highlighted items in the table, those pollutants already have lower DEQ limits than require by EPA Subpart Cb. The existing emissions at Covanta could meet all but one of the emission limits for a new incinerator but could only meet two of the emission limits for a new medical waste incinerator.

Pollutant	Highest Emission Rate 2013-2019 from Source Tests	Covanta (OR Rules OAR 340 Division 230)	EPA Existing Incinerator (40 CFR Part 60, Subpart Cb)	EPA New Incinerator (40 CFR Part 60, Subpart Eb)	Large New Medical Waste Incinerator (40 CFR Part 60, Subpart Ec)
PM	16.55 mg/m^3	25 mg/m^3	25 mg/m^3	20 mg/m^3	18 mg/m^3
HCl	18.36 ppm	29 ppm	29 ppm	25 ppm	5.1 ppm
SO_2	29 ppm	29 ppm	29 ppm	30 ppm	8.1 ppm
CO	98 ppm	100 ppm	100 ppm	100 ppm	11 ppm
NO_x	195 ppm	205 ppm	205 ppm	150 ppm	140 ppm
Cadmium	0.0026 mg/m^3	0.020 mg/m^3	0.035 mg/m^3	0.010 mg/m^3	0.00013 mg/m^3
Lead	0.0153 mg/m^3	0.20 mg/m^3	0.40 mg/m^3	0.14 mg/m^3	0.00069 mg/m^3
Mercury	0.0061 mg/m^3	0.050 mg/m^3	0.050 mg/m^3	0.050 mg/m^3	0.0013 mg/m^3
Dioxin	5.76 ng/m^3	15 ng/m^3	30 ng/m^3	13 ng/m^3	9.3 ng/m^3

Issue 17: The facility could exceed 10% medical waste being combusted.

DEQ Response: Medical waste combustion at the facility has been increasing over the years as shown in the table and more detailed information for 2019 shown below. The facility has indicated to DEQ that it has no plans to become a medical waste incinerator.

Year	MSW Burned (tons)	Medical Waste Burned (tons)	% Medical Waste
2011	185,573	*1926*	1.0
2012	188,123	2425	1.3
2013	182,725	2269	1.2
2014	186,368	1730	0.9
2015	182,769	1061	0.6
2016	178,262	3562	2.0
2017	172,620	8732	5.1
2018	176,433	10,897	6.2
2019	169,801	11,941	7.0

2019 Medical Waste Data

Total Medical Waste Burned	11,941 tons	
In-County medical waste		5.0 %
Out-County medical waste		5.8 %
Blue Bin medical waste		52.1 %
Grey Bin medical waste		37.1 %
57 days > 10% medical waste burned	15.6 % of days	
16 days due to only one combustor operating		
Highest daily % medical waste burned with both combustors operating		12.6%
Highest daily % medical waste burned with only one combustor operating		16.2%
Highest daily amount of medical waste combusted		71.84 tons

Municipal waste combustors such as Covanta are subject to EPA emission guidelines in 40 CFR Part 60 Subpart Cb. As such, under EPA rules, it is exempt from EPA rules for Hospital/Medical/Infectious Waste Incinerators in 40 CFR Part 60 Subpart Ec. EPA fact sheets and question and answer documents affirm that 40 CFR Part 60 Subpart Cb municipal waste combustors may burn any amount of medical waste and must only meet the EPA emission guidelines in 40 CFR Part 60 Subpart Cb . However, DEQ is limiting each combustor to burning no more than 10% medical waste unless testing of the combustor is completed while the combustor is burning more than 10% medical waste then the combustor is limited to burning no more than the test rate, whichever is greater, as long as no emission limit was exceeded.

Also, as noted in Issue 5 above, the facility will be required to keep detailed records of the types and quantities of medical waste burned in each combustor on a daily, monthly, quarterly, and annual basis.

Issue 18: Trucks hauling ash should have a lined compartment.

DEQ Response: This request is beyond the authority of DEQ to impose. A private company hauls the ash to the Coffin Butte Landfill under a contract with Marion County.

Issue 19: Special waste management plans should have a rationale or basis for permitting combustion.

DEQ Response: Although the Covanta facility normally combusts residential solid waste, there are times when special wastes are requested to be disposed of at the facility. The facility must request DEQ (both Air Quality and Solid Waste) approval to combust the waste. DEQ reviews the characteristics of the waste to ascertain what pollutants might be generated from its combustion and if the existing control systems would be adequate to minimize those emissions. Nearly all of the requests to DEQ for combustion of special wastes in the past 10 years have involved the combustion or injection of wastewaters into the combustors at the facility as shown in the table below. These wastes essentially consisted of water with some organics, with the water being evaporated and the organics being combusted in the units.

Date	Waste Description
12/28/16	Grease trap water and parking lot stormwater runoff
9/9/16	Laboratory waste waters
12/17/15	Drum rinse waters
12/17/15	Wastewater with organics
6/16/15	Dilute glycerin solution
4/7/10	North Marion County Disposal Facility leachate

Although the annual report prepared by the facility delineates the amount of municipal solid waste, medical waste, and industrial waste disposed of at the facility, the report does not describe in detail the types of industrial wastes or special wastes being processed at the facility. To better acknowledge the types of industrial and special wastes being processed at the facility, DEQ believes that the permit should require a breakdown of these materials in the annual report and will place a condition in the permit requiring such.

Issue 20: Marion County has the worst air pollution in Oregon.

DEQ Response: DEQ's ambient monitoring results would indicate that the area around Covanta is in compliance with the National Ambient Air Quality Standards for criteria pollutants, designed to protect public health and welfare. More information on the measured pollutant levels around Oregon can be found in the 2018 annual report located at Data and Reports/Publications on the main DEQ website. For instance, as shown on pages 17 and 18 of the report, the Air Quality Index for Salem and Silverton consistently remain in the good and moderate ranges. In addition, as shown on pages 23 and 25, the ozone levels around Salem are consistently well below the NAAQS, particularly when wildfire smoke from outside the area is not counted. Pages 36, 39, and 40 also show that $PM_{2.5}$ levels at Salem also are well under the daily and annual standards.

Issue 21: Heavy metals are concentrated in the waste ash.

DEQ Response: This statement is true. The air pollution control systems at the facility capture the heavy metals (Cd, Hg, Pb) as well as other pollutants (PM, SO_2, HCl, and dioxins). Essentially all of these captured pollutants report to and are contained in the ash (primarily fly ash) which is mixed with the bottom ash generated at the facility. This combined ash formerly was landfilled at an ash monofill north of Woodburn but is now being landfilled and used for daily cover at the Coffin Butte Landfill north of Corvallis. The facility tests the ash monthly for pH and twice per year for metals. In addition, the landfill must sample any leachate generated to determine waste characteristics before the leachate is disposed of.

Issue 22: Annual stack testing of other pollutants on an annual basis is insufficient to determine compliance with limits and are not done by disinterested parties.

DEQ Response: Continuous emission monitors (CEMs) are used to monitor emissions of CO, NO_x, and SO_2 from the facility and provide excellent data on the emission levels. These CEMs are required to have daily span and calibration checks and to have annual Relative Accuracy Test Audits (RATAs) and quarterly Cylinder Gas Audits (CGAs) performed under detailed criteria spelled out in EPA sampling methods to ensure their ongoing accuracy.

Annual source tests conducted since 1998 at full load conditions, utilizing third party vendors, are used by the facility and DEQ to estimate emissions of particulate matter, hydrogen chloride, cadmium, lead, mercury, and dioxins. Additional source tests on fluorides and VOCs have been conducted since the facility began operations but not on an annual basis in recent years. All of these tests are performed according to detailed scientific procedures spelled out in EPA or DEQ sampling methods. The company must submit a source test plan to DEQ for approval before any tests are conducted. DEQ reviews and approves the source test plan and then reviews the source test results, as well as observes some of the testing, to ensure that the proper sampling and analytical procedures have been followed, thereby assuring the accuracy of the results.

The Covanta facility is one of the most monitored facilities in the state and DEQ believes that the myriad of source tests and CEMs do provide a reasonable assurance of compliance with the emission standards and PSELs.

Proposed Changes to the Permit

Based on the above comments, discussions, and information, DEQ is proposing the following changes or additions to the Covanta Marion Title V permit renewal:

1. Dioxin/furan source testing must be done annually on both combustor units for at least two years starting in 2021 (modify Condition 43).
2. Scheduled startup and shutdown emissions of HCl and dioxin must be measured by source tests once by 12/31/21 if the company cannot provide startup and shutdown information from another Covanta or energy from waste facility that DEQ considers representative of Covanta Marion emissions (add Condition 35.g).
3. Scheduled startup and shutdown operating procedures for the combustion of medical waste will be added to the permit (new Condition 26).
4. Detailed recordkeeping of medical waste (blue bin, grey bin, in-county) being combusted will be required on a daily, monthly, quarterly and annual basis for each combustor and during any source tests (modify Conditions 34.b, 43.d, 70.b, and 80).

5. A detailed listing and accounting of the types and quantities of industrial and special wastes processed at the facility during the year will be required in the annual report (modify conditions 34.b, 70, and 80).
6. A listing of all startup, shutdowns, and malfunctions during the year with emissions measured by the CEMs and CPMSs during those periods must be submitted with the annual report (modify Condition 80).
7. Each combustor is limited to burning no more than 10% medical waste unless testing of the combustor is completed while the combustor is burning more than 10% medical waste then the combustor is limited to burning no more than the test rate, whichever is greater, as long as no emission limit was exceeded.