TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit 21-3455
Air Discharge Permit Application CO-1036

OWENS-BROCKWAY GLASS CONTAINER, INC. – PLANT 2
SWCAA ID - 2284

Issued: March 4, 2021

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Air Quality Engineer
Southwest Clean Air Agency

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Abbreviations

acfm	Actual cubic feet per minute
ADP	Air Discharge Permit
AP-42	Compilation of Emission Factors, AP-42, Fifth Edition, Volume 1, Stationary Point and Area Sources – published by the US Environmental Protection Agency
BACT	Best available control technology
BART	Best Available Retrofit Technology
Btu	British thermal unit
CAS #	Chemical Abstracts Service registry number
CPM	Condensable particulate matter
cfm	Cubic feet per minute
CFR	Code of Federal Regulations
CO	Carbon monoxide
EPA	U.S. Environmental Protection Agency
g/hp-hr	Grams per horsepower hour
gr/dscf	Grains per dry standard cubic foot (68 °F, 1 atmosphere)
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
LAER	Lowest achievable emission rate
lb/hp-hr	Pounds per horsepower hour
lb/hr	Pounds per hour
lb/MMBtu	Pounds per million British thermal units
lb/MMscf	Pounds per million standard cubic feet
lb/ton glass	Pounds of pollutant emitted per ton of glass produced
lb/yr	Pounds per year
MBTT	Monobutyltin trichloride, aka MBTC, CAS #1118-46-3
MMBtu/hr	Millions of British thermal units per hour
MSDS	Material Safety Data Sheet
NO_X	Nitrogen oxides
PM	Particulate matter with an aerodynamic diameter less than 100 micrometers (includes both filterable particulate matter measured by EPA Method 5 and condensable particulate matter measured by EPA Method 202)
PM_{10}	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
ppm	Parts per million
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RCW	Revised Code of Washington
SQER	Small Quantity Emission Rate listed in WAC 173-460
SO_X as SO_2	Sulfur oxides expressed as sulfur dioxide
SWCAA	Southwest Clean Air Agency
TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
T-BACT	Best Available Control Technology for toxic air pollutants
tpd	Tons per day
tpy	Tons per year
VOC	Volatile organic compound
WAC	Washington Administrative Code

1. FACILITY IDENTIFICATION

Applicant Name:	Owens-Brockway Glass Container, Inc. – Plant 2
Applicant Address:	2310 N Hendrickson Drive, Kalama, WA 98625
Facility Name:	Owens-Brockway Glass Container, Inc. – Plant 2
Facility Address:	2310 N Hendrickson Drive, Kalama, WA 98625
Contact Person:	Neal Homan – Batch and Furnace Supervisor Dennis Buenger – Global Environmental Technical Leader
SWCAA Identification:	2284
Primary Process:	Glass Containers / Glass Container Manufacturing
SIC/NAICS Code:	3221 / 327213
Facility Classification:	Synthetic Minor for NO_X, SO_2. Title V due to 40 CFR 63 Subpart SSSSSS.

2. FACILITY DESCRIPTION

Owens-Brockway Glass Container, Inc. – Plant 2 (formerly Bennu Glass) is a wine bottle manufacturing facility in the Port of Kalama. The facility is dedicated to the production of wine bottles with production expected to range from 120 to 180 million bottles per year depending on specifications. The glass furnace has a production capacity of 275 tons per day.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit Application number CO-1036 (ADP Application CO-1036) received January 28, 2021 for installation of two new downdraft tables in the Mold Shop. With installation of these two new downdraft tables, all thermal spraying will be conducted using the four (two new and two existing) downdraft tables equipped with HEPA filters. Prior to installation of the downdraft tables, emissions from thermal spraying were collected by the Mold Shop Ventilation System using a cartridge collector with MERV 15 filters.

4. PROCESS DESCRIPTION

4.a <u>Raw Material Handling and Storage.</u> The manufacturing process primarily uses the following raw materials: silica sand, soda ash, limestone, feldspar, gypsum, Melite-40 (iron aluminum silicate with traces of calcium, magnesium, carbon, and sulfur), and cullet (broken glass). Other additives may be incorporated to give desired special product qualities (e.g., color). Most raw materials are received in bulk by rail and truck from commercial suppliers using a single below-grade unloading hopper. A steel building with a concrete floor encloses the rail car or truck during the unloading operation. A number of small volume additives are received in large tote bags. This material is transferred directly to small storage bins located inside the batch house area through the use of a freight elevator.

Cullet (rejected glass/bottles and/or offsite material) is stored in two different areas at the facility. Primary storage consists of a flat storage area near the batch house. Secondary storage consists of four storage silos adjacent to the raw material silos. Cullet is moved from flat storage to the reclaim system (surge hopper) via payloader. Cullet is moved from the surge hopper to the storage silos using a material elevator and conveyors similar to the raw material receiving system. All cullet goes through an inline jaw crusher to ensure proper material sizing.

The material elevator/conveyor systems associated with the raw material and cullet handling systems are totally enclosed. Dust collectors are installed at the base of each material elevator and at the top of the storage silos. The additive bins inside the batch house are commonly vented to a single dust collector. Many of the dust collectors discharge within building envelopes, and are not a significant source of emissions (majors scale #1, minors scales system, batch mixer, mixed batch conveyor, and cullet return dust collector). The remaining units discharge directly to the ambient air.

All of the silos exist as compartments within a single silo structure. Materials are conveyed to the top of the silo structure by the Raw Material Bucket Elevator (rated at 130 tons per hour at 100 lb/ft^3). Material is directed from the slide to the appropriate silo compartment by the revolving distributor. When a specific silo compartment is being filled, the dust collector associated with that silo is activated.

A batch house is used to mix raw materials in the proper ratios for use in the melt furnace. Raw materials and cullet (scrap glass) are withdrawn from the storage silos/bins, weighed, and conveyed to a mechanical mixer. Mixed material is then conveyed to surge bins located above the melt furnace. The batch house as a whole is completely contained within a building envelope, so fugitive dust emissions from these operations are expected to be negligible.

4.b Bottle Production. The facility manufactures glass containers (primarily wine bottles). Mixed raw materials are fed to an electrically boosted, oxy-fuel fired glass melting furnace, firing a mixture of natural gas/oxygen through six special flat-flame oxy-fuel burners. The furnace has 840 ft^2 of melting area and is capable of producing 275 tons per day of container glass. Waste gas from the furnace is exhausted through an air pollution control system and stack. The air pollution control system consists of a heat exchanger to cool the flue gas, a reactor or dry scrubber for the control of SO_2 emissions, and a baghouse for the control of filterable particulate matter.

After melting and conditioning in the furnace, molten glass exits the furnace through a gated throat and is distributed to one of two forehearths. A gob distributor at the end of each forehearth feeds glass into the associated bottle forming machines. A mixture of lubricating oil and water is sprayed continuously onto the gob sheer and immediately downstream to facilitate gob distribution. This activity produces steam and evaporated lubricating oil. Unevaporated material drains to the cullet water.

The gobs drop into metal molds used to form the bottle. To prevent the glass from adhering to the metal molds, the molds are periodically swabbed by hand with a mold release agent. The mold release agent is primarily a mixture of organic compounds, sulfur, and graphite. When the mold release agent contacts the hot mold, the organic components flash and burn off and a solid lubricant film is left on the inside of the metal mold.

Formed bottles come out of the machines, are coated with a tin oxide coating in the hot end coating hoods and travel through a lehr for tempering. After exiting the lehr, the bottles are sprayed with a dilute aqueous solution of polyethylene wax to add lubricity. Each bottle is then inspected for defects. Acceptable bottles are conveyed to packaging machines where they are either packed into cardboard cases or packaged in bulk. Both case pack and bulk pack bottles are palletized at the end of the process, and then moved to the warehouse by forklift. Bottles rejected at the inspection stage are sent to the cullet flat storage area using a combination of conveyors and tip bins.

Other sources of combustion emissions are process heaters associated with the two forehearths (gob heaters) and the "heat-shrink" packaging unit. Packaging activities do not include any type of printing operation.

The facility is expected to operate continuously (24 hours per day, 7 days per week) for 5 - 7 years. At the end of the five to seven year period, the furnace will be drained and re-bricked. Equipment associated with the process including air pollution control equipment will undergo major overhaul at this time if necessary.

4.c Mold Repair. The molding equipment includes numerous components that experience significant wear in the course of routine operation. These components are periodically removed and reconditioned in the facility's Mold Shop. Part of the reconditioning process involves "building up" worn component surfaces by thermal spraying the affected areas. Thermal spraying will be conducted at four downdraft tables with a nickel or a nickel based alloy that can contain up to 1% chromium. The four downdraft tables are equipped with HEPA filtration. The component surfaces are then machined down to the applicable physical dimensions.

4.d Emergency Power Generation. Two diesel engine driven generators are used to generate emergency electrical power for essential equipment at the facility whenever utility service is interrupted. Operation of the generators for the purposes of maintenance checks and readiness testing is limited to no more than 100 hours per year each. These engines are allowed to operate as many hours as necessary to provide emergency power. Emissions from the diesel engines are minimized through the use of ultra low sulfur diesel (≤ 0.0015% sulfur by weight) and the use of EPA Tier-certified engines.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Dust Collector – Raw Material Bucket Elevator. The Raw Material Bucket Elevator takes raw materials other than cullet from the unloading hopper to the distributor at the top of the raw material silos (Silos 1 – 5). The raw material elevator is rated at 130 tons per hour based on a material density of 100 pounds per cubic foot. Dust generated by the Raw Material Bucket Elevator is controlled by one Flex-Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm located at the base of the elevator. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of 15' above grade through a 5" diameter stack. The baghouse and exhaust is located between the silo structure and the main building.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.b Dust Collector – Mixed Batch Bucket Elevator. The Batch Mixer is located below the silos and discharges to a surge hopper which in turn discharges to Mixed Batch Conveyor 1. The Mixed Batch Bucket Elevator takes mixed material from Mixed Batch Conveyor 1 to Mixed Batch Conveyor 2 which feeds the two Mixed Batch Day Bins inside the main building.

Dust generated by the Mixed Batch Bucket Elevator is controlled by one Flex-Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of 12' above grade through a 5" diameter stack. The baghouse and exhaust is located on the northwest side of the silo structure.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.c Dust Collector – Mixed Batch Day Bins. The two Mixed Batch Day Bins are located in the northeast end of the main building and each have a capacity of approximately 40 tons. The Mixed Batch Day Bins are fed by Mixed Batch Conveyor 2.

Dust generated at the top of the Mixed Batch Day Bins is controlled by one Flex-Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts through the wall of the rooftop enclosure at a height of 82' above grade through a 5" diameter stack. The baghouse is located with the transfer from Mixed Batch Conveyor 2 to the Mixed Batch Day Bins in a rooftop enclosure above the Mixed Batch Day Bins on the roof of the main furnace building

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.d Dust Collector – Cullet Bucket Elevator. The Cullet Bucket Elevator takes cullet from the fully enclosed cullet crusher located off the ground near the base of the silo structure, to the distributor at the top of the cullet silos

(Silos 6 – 9). The Cullet Bucket Elevator has a rated capacity of 50 tons per hour based on a material density of 100 pounds per cubic foot.

Dust generated by the Cullet Elevator is controlled by one Flex-Kleen model 58BVBS9 IIG baghouse (dust collector), serial number 11796, rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of 20' above grade through a 5" diameter stack. The baghouse and exhaust is located on the north side of the silo structure.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.e <u>Dust Collector – Silo #1.</u> Silo #1 has a capacity of 27,000 cubic feet and is used to store sand. The silo is vented through a Flex Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade through a 5" diameter stack. The exhaust is located approximately in the center on the top of the silo structure.

5.f <u>Dust Collector – Silos #2 & #3.</u> Silos #2 & #3 each have a capacity of 6,000 cubic feet and are used to store soda ash (Na_2CO_3). The silos are vented together through a Flex Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade through a 5" diameter stack. The baghouse is located on the top of the silo structure, near the southwest edge.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.g <u>Dust Collector – Silo #4.</u> Silo #4 has a capacity of 4,100 cubic feet and is used to store feldspar. The silo is vented through a Flex Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade. The baghouse is located on the top of the silo structure, near the south-southwest edge.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.h <u>Dust Collector – Silo #5.</u> Silo #5 has a capacity of 8,100 cubic feet and is used to store limestone. The silo is vented through a Flex Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade through a 5" diameter stack. The baghouse is located on the top of the silo structure, near the east edge.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.i <u>Dust Collector – Silo #6.</u> Silo #6 has a capacity of 5,900 cubic feet and is used to store cullet. The silo is vented through a Flex Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This unit is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade through a 5" diameter stack. The baghouse is located on the top of the silo structure, near the northeast edge.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.j Dust Collector – Silo #7. Silo #7 has a capacity of 5,900 cubic feet and is used to store cullet. The silo is vented through a Flex Kleen model 58BVBS9 IIG baghouse (dust collector) rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade through a 5" diameter stack. The baghouse is located on the top of the silo structure, near the north edge (immediately to the east of the Silo #8 exhaust).

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.k Dust Collector – Silo #8. Silo #8 has a capacity of 5,900 cubic feet and is used to store cullet. The silo is vented through a Flex Kleen model 58BVBS9 IIG baghouse rated at 400 acfm. This baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade. The baghouse is located on the top of the silo structure, near the north edge (immediately to the west of the Silo #7 exhaust).

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.l Dust Collector – Silo #9. Silo #9 has a capacity of 5,900 cubic feet and is used to store cullet. The silo is vented through a Flex Kleen model 58BVBS9 IIG baghouse rated at 400 acfm. This unit is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts vertically at a height of approximately 122' above grade through a 5" diameter stack. The exhaust is located on the top of the silo structure, near the west edge.

Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	None

5.m Mold Shop. The mold shop is located in the northeast quarter of the main building. Reconditioning of worn parts, including thermal spraying operations, are conducted in the Mold Shop. All thermal spraying will be conducted at the four DualDraw downdraft tables with integral HEPA filtration. Dust generated by miscellaneous activities will continue to be collected by the Mold Shop Ventilation System with a maximum total rated airflow of 1,800 acfm. The Mold Shop Ventilation System uses a cartridge-style filter system to control particulate matter. The Mold Shop Ventilation System and the downdraft tables discharge within the main building. The main building enclosure is well ventilated with wall louvers and a roof peak vent to draw heat out of the building. It is assumed that emissions from the Mold Shop Ventilation System are all exhausted directly to the ambient air through the roof peak vent.

Mold Shop Ventilation System

Make / Model:	Donaldson Torit / DFO3-3 QS
Rated Airflow:	1,800 acfm
Filter Description:	570 ft^2 of filter area in 3 Ultra-Web filter cartridges, MERV 15
Exhaust Description:	Exhausts at a height of 15' above grade within the main building enclosure
Initial Operation:	2008

Downdraft Tables (4)

Make / Model:	DualDraw / BG3096-IN
Rated Airflow:	5,000 acfm
Filter Description:	MERV 8 pre-filter followed by HEPA final filter
Exhaust Description:	Out the back of the unit, within the Mold Shop
Initial Operation:	2 installed in 2020, 2 scheduled for installation in 2021

No applicable federal regulations apply to the Mold Shop.

5.n Glass Melt Furnace. The glass melt furnace has a rated capacity of 275 tons per day. The actual production rate may be limited by the type of bottles being produced. Mixed raw materials are fed into the oxy-fuel fired glass melting furnace, firing a mixture of natural gas and oxygen through six flat-flame oxy-fuel burners. Fuel and oxygen are mixed in the furnace. The electrical elements include one 3,600 kVA melter booster and one 80 kVA throat booster. The natural gas-fired oxy-burners have a maximum heat input of 40 MMBtu/hr.

The furnace exhaust gases flow through an air pollution control system consisting of a quench section, dry scrubber in the form of a rotary reaction chamber, and a baghouse before being exhausted through a stack at 100 feet above grade. Air is drawn through the system using a fan downstream of the baghouse. A bypass duct is installed to bypass gas past the dry scrubber and baghouse when necessary (e.g. for maintenance events). The air pollution control system was provided by Luhr Filter GmbH & Co. Water and ambient air are introduced into the glass melt furnace exhaust stream to reduce the temperature from 2,669°F to 482°F upstream of the dry scrubber.

The dry scrubber consists of a rotary reaction chamber where trona or sodium sesquicarbonate contacts the exhaust gases to reduce emissions of acid gases (primarily SO_2) upstream of the baghouse. The resulting solid material is captured in the baghouse and recycled to the melt furnace.

After melting and conditioning in the furnace, molten glass exits the furnace through a throat and is distributed to one of two forehearths. A gob distributor at the end of each forehearth feeds glass into the associated bottle forming machines. Formed bottles come out of the machines and travel through one of two electrically heated lehrs for tempering. Each bottle is then inspected for defects. Acceptable bottles are conveyed to packaging machines where they are either packed into cardboard cases or packaged in bulk. Both case pack and bulk pack bottles are palletized at the end of the process and then moved to the warehouse by forklift. Bottles rejected at the inspection stage are sent to the cullet flat storage area using a combination of conveyors and tip bins.

Dry Scrubber / Rotary Reaction Chamber Details

Reagent Usage:	up to 61 lb/hr
Inlet Flow Rate:	22,876 acfm
Inlet Temperature:	446°F

Baghouse Details

Make / Model:	Luhr Filter GmbH & Co. / DWF 3.2/4.0/2.5/68/48
Number of Bags:	860 "flat" bags
Filter Area:	8,342 ft^2
Inlet Flow Rate:	24,616 acfm
Inlet Temperature:	437 °F
Air to Cloth Ratio:	~ 3:1
Bag Material:	PTFE (polytetrafluorethylene fibers), needled felt

Stack Description

Height:	100 feet above grade
Diameter:	39.25" inside diameter (measured by Clint Lamoreaux 6/12/2012 prior to erection)
Exhaust Flow Rate:	24,126 acfm
Exhaust Temperature:	417 °F
Location:	Penetrates the main building roof north of the melt furnace at approximately 46° 1'56.44"N, 122°51'53.41"W

Important Dates:	July 4, 2012 – begin heating furnace July 13, 2012 – first raw materials fed to furnace July 17, 2012 – first glass poured ~September 24, 2012 – achieved highest pull rate (245 tpd) on "antique green" color

Applicable NSPS/NESHAP/MACT:	40 CFR 60 Subpart CC 40 CFR 63 Subpart SSSSSS

5.o Forehearth Heater - Line 1 (Gob Heater). Forehearth Heater – Line 1 utilizes one natural gas fired burner array with a rated heat input of 2.55 MMBtu/hr. The unit exhausts out of the roof vents on the northeast end of the building.

Make / Model:	Custom Built
Initial Operation:	2012
Applicable NSPS/NESHAP/MACT:	None

5.p Forehearth Heater - Line 2 (Gob Heater). Forehearth Heater – Line 2 utilizes one natural gas fired burner array with a rated heat input of 2.55 MMBtu/hr. The unit exhausts out of the roof vents on the northeast end of the building.

Make / Model:	Custom Built
Initial Operation:	2012
Applicable NSPS/NESHAP/MACT:	None

5.q Process Heater – "Shrink Wrap" Packaging. One natural gas fired process heater with a rated heat input of 0.15 MMBtu/hr. This unit is integral to the pallet shrink wrap unit.

5.r 62 kW Emergency Generator Engine. The emergency generator engine is used to drive a Kohler emergency generator that provides power to plant emergency lighting and the server room in the event of a power interruption. The following equipment details were available:

Engine Make / Model:	John Deere / 4045TF270E
Engine Serial Number:	PE4045T668179
Fuel:	Diesel
Horsepower Rating:	99 bhp at full standby load
Engine Built:	April 26, 2007
Generator Set Make / Model:	Kohler / 60REOZJB
Generator Set Output:	62 kW (standby)
Certification:	The engine is EPA certified Tier 2
Exhaust Description:	Exhausts vertically approximately 7 feet above ground level through 3.86" diameter stack at 1,004°F, 550 acfm
Location:	Southwest end of parking lot (46° 1'55.86"N, 122°51'59.66"W)
Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ

5.s 515 kW Emergency Generator Engine. The emergency generator engine is used to drive a Kohler emergency generator that provides emergency power to plant 480 volt utilities in the event of a power interruption. The following equipment details were available:

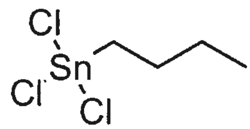
Engine Make / Model:	Kohler / D500 16.1B65 (engine is also labeled Volvo Penta / TAD1641GE)
Engine Serial Number:	Kohler (D16*028263*C3*A), Volvo Penta (2016028263)
Fuel:	Diesel
Horsepower Rating:	757 bhp at full standby load
Engine Built:	2008 model year (no nameplate or other documentation gives actual build date)
Generator Set Make / Model:	Kohler / 500REOZVB

Generator Set Output:	515 ekW (Standby)
Certification	The engine is EPA certified Tier 2
Exhaust Description:	Exhausts vertically approximately 8 feet above ground level through ~10" diameter stack at 893°F, 3,899 acfm
Location:	In corner between the main building, raw material unloading area and silo structure (46°1'55.90"N, 122°51'52.22"W)
Initial Operation:	2008
Applicable NSPS/NESHAP/MACT:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ

5.t East Hot End Coating Line. Monobutyltin trichloride (MBTT) is vaporized in a fume hood through which hot containers (hot from initial forming) pass through. The MBTT is pumped into the fume hood through metal tubing, and vaporized by the heat from the passing bottles. Fans mounted on the hoods pass the MBTT vapor past the bottles several times to enhance coating efficiency. When the MBTT ($C_4H_9Cl_3Sn$) contacts the bottle, the MBTT decomposes and a thin layer of tin (as SnO_2) is deposited on the surface of the bottle. Other decomposition products include HCl and CO. Vapors and decomposition products are exhausted from the hood into the building headspace above the coating line and furnace through a vertical vent approximately 6" in diameter. The building headspace is passively vented out of roof vents approximately 19.39 meters above grade. Due to the heat from the glass melt furnace, the passive vent rate is relatively high.

The MBTT is fed to the coating process from barrels. The barrels sit on a scale, so the amount of MBTT used over a given time period can be determined. It is estimated that approximately 1/3 of the tin contained in the MBTT is deposited on the bottles. An unquantified portion of the tin is deposited in the hood as evidenced by the material that must be cleaned from the hood periodically. Approximately 220 pounds per month of MBTT could be used in each hot end coating line.

Make:	Certincoat
Manufactured:	2011
Serial Number:	C3S 124
Applicable NSPS/NESHAP/MACT:	None



Structure of MBTT

5.u West Hot End Coating Line. Monobutyltin trichloride (MBTT) is vaporized in a fume hood through which hot containers (hot from initial forming) pass through. The MBTT is pumped into the fume hood through metal tubing, and vaporized by the heat from the passing bottles. Fans mounted on the hoods pass the MBTT vapor past the bottles several times to enhance coating efficiency. When the MBTT ($C_4H_9Cl_3Sn$) contacts the bottle, the MBTT decomposes and a thin layer of tin (as SnO_2) is deposited on the surface of the bottle. Other decomposition products include HCl and CO. Vapors and decomposition products are exhausted from the hood into the building headspace above the coating line and furnace through a vertical vent approximately 6" in diameter. The building headspace is passively vented out of roof vents approximately 19.39 meters above grade. Due to the heat from the glass melt furnace, the passive vent rate is relatively high.

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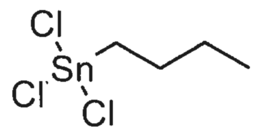
Make:	Certincoat
Manufactured:	2011
Serial Number:	C3S 123
Applicable NSPS/NESHAP/MACT:	None



Structure of MBTT

5.v Mold Swabbing. To prevent the glass from adhering to the metal molds, the molds are periodically swabbed by hand with a mold release agent. The mold release agent is primarily a mixture of organic compounds, sulfur, and graphite. When the mold release agent contacts the hot mold, the organic components flash and burn off and a solid lubricant film is left on the inside of the metal mold. Particulate matter from this activity is fugitive in nature and vents to ambient air through the roof vents at a height of 20.49 meters.

5.w Evaporative VOC Sources. Evaporative VOC sources include lubricating oils and hydraulic oils used at the facility and not recovered. Excess lubricating oils and hydraulic fluids that are not otherwise collected will ultimately drain into the cullet cooling water in the basement. The facility collects excess oil from the cullet cooling water system using an oil skimmer. Oil that makes it into the cullet cooling water system that is not removed by the oil skimmer is stripped in the direct contact Cullet Cooling Water Tower or evaporated at other points within the system. Waste oil is collected and sent off-site for disposal. Annual emissions are assumed to be the difference between oil purchases and oil wastes sent off-site.

SWCAA had determined that this category includes scoop lubricants. The scoops are short (a couple of feet long) curved troughs that transfer the hot gob falling from the sheers to the appropriate delivery trough feeding a mold. Scoop lubricants are mixed into a solution consisting primarily of water and sprayed continuously onto the scoops to lubricate the hot gob. Although there is brief contact with the hot gob, SWCAA believes that this process does not produce significant particulate matter due to burning of the scoop lubricant. SWCAA has observed that there is excess liquid draining off the bottom of the scoop and no smoke was noticeable by SWCAA during an observation on June 30, 2015.

5.x Auxiliary Equipment. The following equipment operates in support of the bottle manufacturing plant, but is not regulated as an emission unit:

- Two bottle annealing lehrs (electric).
- One E.W. Bowman mold preheat oven (electric).
- One fully enclosed Pennsylvania Crusher model DT 9x16 jaw crusher rated at 45 tph (cullet crusher).
- One Donaldson Torit model 2-2 cartridge collector with a maximum rated airflow or 1,000 acfm. This unit services welding stations in the Mold and Maintenance Shops.
- One Bad Batch Chute is expected to be used approximately once a month - ~8,000 lbs of glass flows down the chute with water to control dust generation in about 3 minutes, enclosed.
- Mixed Batch Conveyor – This unit vents inside an enclosed building. Emissions from the unit are controlled by a Flex-Kleen model 58BVBS9 IIG baghouse rated at 400 acfm. This unit is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester.
- Quench Conveyor Exhaust Fan – This unit exhausts steam generated in the quench conveyor in the basement and exhausts out the side of the building adjacent the rail lines.
- Cullet Return Dust Collector – A Donaldson Torit CPC-8 dust collector (2,140 – 5,360 cfm) collects dust from the cullet return conveyors and exhaust into the basement (not ambient air).

- Silo #10. This silo is located and vented within the furnace building. Used to store reagent (e.g. trona or sodium sesquicarbonate) for the dry scrubbing system. Storage capacity of 1,483 cubic feet, passively vented when loading through Luhr Filter GmbH & Co. silo ventilation filter, model #DF1.1/1.0/1.0/80/12 with 258 ft^2 ($24m^2$) of polyester needle felt bags. Also passively vents fluidizing air (~50 cubic feet, several times per hour).
- Cold End Treatment – A dilute (e.g. 0.5 – 1%) emulsion of polyethylene is sprayed onto the bottles before packaging. Overspray is contained within the packaging end of the building. The coating provides lubricity so the bottles can be moved smoothly through high speed handling equipment. The solution is sprayed on while the bottles are still warm to allow the polyethylene to "cure".
- Cullet Cooling Water Tower – This tower is a direct-contact single-cell cooling tower for the cullet cooling water and is located along the northeast wall of the building.

Make / Model:	Evapco / USS 19-811
Serial Number:	7626772
Recirculation Capacity:	400 gallons per minute
Design Drift:	< 0.001%
Airflow:	60,300 cfm
Exhaust Diameter:	~8'
Cycles of Concentration:	Not applicable – the cullet cooling water is used directly

- Air Compressor Coolant Cooling Tower – This tower provides closed circuit (non-contact) cooling for the compressors.

Make / Model:	Evapco / ATW 153-3I-2
Serial Number:	7325861
Recirculation Capacity:	800 gallons per minute
Design Drift:	< 0.001%
Airflow:	83,180 cfm
Exhaust Diameter:	Two fans, 7' each

- Electrode Cooling Tower – This tower provides closed circuit cooling (non-contact) for the furnace electrodes.

Make / Model:	Evapco / ATW 36-3F-2
Serial Number:	7328892
Recirculation Capacity:	200 gallons per minute
Design Drift:	< 0.001%
Airflow:	20,400 cfm
Exhaust Diameter:	Two fans, 3.5' each

5.y Equipment/Activity Summary.

ID No.	Generating Equipment/Activity	# of Units	Control Measure/Equipment	# of Units
Material Handling & Maintenance				
1	Raw Material Elevator	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
2	Mixed Batch Elevator	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
3	Mixed Batch Day Bins	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
4	Cullet Elevator	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1

ID No.	Generating Equipment/Activity	# of Units	Control Measure/Equipment	# of Units
5	Silos #1 & #2 – Sand	2	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
6	Silo #3 – Soda Ash	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
7	Silo #4 – Feldspar	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
8	Silo #5 – Limestone	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
9	Silo #6 – Cullet	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
10	Silo #7 – Cullet	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
11	Silo #8 – Cullet	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
12	Silo #9 - Cullet	1	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure	1
13	Mold Shop	N/A	Mold Shop Ventilation System – Fabric Filtration (Donaldson Torit – 1,800 acfm), Downdraft Tables (4) (DualDraw – 5,000 acfm)	5
Natural Gas Fired Equipment				
14	Glass Melt Furnace (40 MMBtu/hr Oxy-fuel, electric boost)	1	Oxy-fuel to minimize NO_X, Dry Scrubbing for acid gases, Baghouse for PM, Low Sulfur Fuel (Natural Gas)	1
15	Forehearth Heater – Line 1 (2.55 MMBtu/hr)	1	Low Sulfur Fuel (Natural Gas)	N/A
16	Forehearth Heater – Line 2 (2.55 MMBtu/hr)	1	Low Sulfur Fuel (Natural Gas)	N/A
17	Shrink Wrap Packaging Heater (0.15 MMBtu/hr)	1	Low Sulfur Fuel (Natural Gas)	N/A
Emergency Generators				
18	62 kW Emergency Generator Engine	1	Ultra Low Sulfur Diesel (≤ 0.0015% S) Limited Operation EPA Tier 2 Certification	N/A
19	515 kW Emergency Generator Engine	1	Ultra Low Sulfur Diesel (≤ 0.0015% S) Limited Operation EPA Tier 2 Certification	N/A
Tin Coating				
20	East Hot End Coating Line	1	None	N/A
21	West Hot End Coating Line	1	None	N/A
Other				
22	Mold Swabbing	N/A	None	N/A

ID No.	Generating Equipment/Activity	# of Units	Control Measure/Equipment	# of Units
23	Evaporative VOC Sources	N/A	Oil skimmer on cullet cooling water	1

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the wine bottle manufacturing facility, as proposed in ADP Application CO-928, consist of nitrogen oxides (NO_X), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM) sulfur dioxide (SO_2), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

6.a Raw Materials Handling. The majority of the material handling systems at the facility are enclosed. The associated dust collectors are the only significant point of emissions from material handling operations. A number of the dust collectors are located within a building enclosure, and do not discharge to the ambient atmosphere. These units are not included in the emission calculations presented below. There are 13 dust collectors that discharge raw material or cullet dust to the ambient air. Two of the dust collectors (the Mixed Batch Elevator and the Batch Day Bins) discharge HAP/TAP laden raw material dust to the ambient air.

Potential PM emissions (PTE) from these units were calculated based upon the rated capacity of each dust collector, a maximum outlet concentration of 0.005 gr/scf, and 8,760 hours of operation per year. Actual operation of the baghouses is expected to be less than 1,000 hours per year. PM emissions are assumed to be 100% PM_{10} and 80% $PM_{2.5}$. Some of the proposed raw materials contain chromium compounds that are emitted in small amounts as part of the dust emissions from the process. Potential emissions of these compounds have been estimated with the assumption that the particulate matter emissions have the same composition as the materials from which the dust is being controlled. The only sources that are ventilated to the ambient air and contain chromium compounds are the Mixed Batch Elevator and the Batch Day Bins.

Dust Collector	Rated Airflow (acfm)	Emission Factor gr/dscf	Hours of Operation	PM/PM_{10} lb/hr	PM/PM_{10} lb/yr	$PM_{2.5}$ (80% of PM) lb/yr
Silo No. 1	400	0.005	8,760	0.02	150	120
Silo No. 2 & 3	400	0.005	8,760	0.02	150	120
Silo No. 4	400	0.005	8,760	0.02	150	120
Silo No. 5	400	0.005	8,760	0.02	150	120
Silo No. 6	400	0.005	8,760	0.02	150	120
Silo No. 7	400	0.005	8,760	0.02	150	120
Silo No. 8	400	0.005	8,760	0.02	150	120
Silo No. 9	400	0.005	8,760	0.02	150	120
Majors Scale No. 1	vents inside		vents inside			
Minors System	vents inside		vents inside			
Batch Mixer	no vent		no vent			
Mixed Batch Bucket	400	0.005	8,760	0.02	150	120
Mixed Batch Conveyor	vents inside		vents inside			
Batch Day Bins	400	0.005	8,760	0.02	150	120
Raw Material Bucket	400	0.005	8,760	0.02	150	120
Cullet Elevator	400	0.005	8,760	0.02	150	120
Mold Shop Vent. System	1,800	0.005	8,760	0.08	676	541
			Total Emissions (tpy) =	**0.28**	**2,478**	**1,982**

Pollutant	Pollutant Weight per Batch (lbs)	Batch Weight (lbs)	Mix Ratio (%)	Total PM Emissions (lbs)	Emissions (lbs)
Chromium Oxide	3.06	3529.4	0.087%	300	0.26
			Total Emissions (lbs)	HAP =	0.26
				TAP (as Cr) =	0.18

Emissions must be calculated using the emission factors identified above unless new emission factors are developed through source testing.

6.b Glass Melt Furnace. Emissions from the Glass Melt Furnace include criteria air pollutants from the combustion of natural gas, and the generation of particulate matter and sulfur dioxide from the molten glass. Particulate matter may include crystalline silica from the handling of silica sand, and iron chromite ($FeCr_2O_4$). The silica sand is expected to be melted in the furnace without releasing significant amounts of particulate matter. Any chromium not incorporated into the glass is expected to be emitted in its trivalent form at less than the Small Quantity Emission Rate found in WAC 173-460 of 175 pounds per year. The Glass Melt Furnace baghouse is expected to provide a high level of control for particulate phase pollutants. The dry scrubbing system is expected to provide approximately 75% control of SO_2 emissions on average. Potential annual emissions were calculated using the assumption that the furnace will fire at full rate (40 MMBtu/hr of natural gas), producing glass at its rated capacity of 275 tons per day, for 8,760 hours per year.

Glass Melt Furnace

		CaO Content = 10%
Gas Firing Rate =	40 MMBtu/hr	Na_2O Content = 13%
Capacity =	275 tons per day	
Throughput (normal ops.) =	98,725 tons per year	* During bypass operations SO_X, HCl, HF, PM, chromium and lead are uncontrolled.
Throughput (bypass) =	1,650 tons per year	
Natural Gas Consumption =	350,400 MMBtu	

Pollutant	Normal Ops. lb/ton glass	Bypass lb/ton glass	lb/MMBtu	Normal Ops. tpy	Bypass tpy	Total tpy
NO_X	1	6.2		49.4	0.825	50.19
CO	0.2			9.9	0.165	10.04
VOC	0.2			9.9	0.165	10.04
SO_X as SO_2	0.5	2.0		24.7	1.65	26.33
PM (filterable)	0.09	1.0		4.4	0.825	5.27
PM (total)	0.27	1.5		13.3	1.2375	14.57
PM_{10}	0.27	1.5		13.3	1.2375	14.57
$PM_{2.5}$	0.27	1.5		13.3	1.2375	14.57
Benzene			2.1E-06	3.5E-04	5.9E-06	3.6E-04
Formaldehyde			7.4E-05	1.3E-02	2.12E-04	1.3E-02
HCl	0.0400	0.16		2.0	0.132	2.11
HF	0.0110	0.044		0.5	0.0363	0.58
Chromium (II & III)	5.4E-04	6.0E-03		2.7E-02	4.9E-03	3.1E-02
Lead	7.2E-04	8.0E-03		3.5E-02	6.6E-03	4.2E-02
CO_2 from combustion			116.98	20,158	337	20,494
CH_4 from combustion			0.0022	0.380	0.0063	0.39
N_2O from combustion			0.0002	0.038	0.0006	0.04
CO_2 from limestone, soda ash				16,854	282	17,136
Total CO_2e				37,032	619	37,651

Emission factors for benzene and formaldehyde are from AP-42 Section 1.4 (7/98). Uncontrolled emission factors for HCl, HF, chromium (II & III), and lead are from a document from the European Commission titled "Integrated Pollution Prevention and Control (IPPC) Reference Document on Best Available Techniques in the Glass Manufacturing Industry - December 2001". Control percentages for HCl and HF are assumed to mirror the control efficiency of the system for SO_2. Control efficiencies for chromium and lead are assumed to mirror the control efficiency for filterable PM. This likely overestimates controlled emissions of particle phase pollutants because the PM control efficiency does not account for removal of reagent added by the rotary reactor. Greenhouse gas emission factors are based on combustion emission factors from 40 CFR 98, and a mass balance for CO_2 emitted from carbonate raw materials.

Emissions must be calculated using the emission factors identified above unless CEMS data is available or new emission factors are developed through source testing.

6.c Forehearth Heaters. Potential emissions (PTE) from the combustion of natural gas in the Forehearth Heaters was calculated using the assumption that the heaters are operated at full rated capacity for 8,760 hours per year. All PM is assumed to be $PM_{2.5}$.

Forehearth Heaters (each)

Heat Input Rating =	2.55	MMBtu/hr
Natural Gas Heat Content =	1,020	Btu/scf
Natural Gas Heat Content =	1,026	Btu/scf for 40 CFR 98 GHG emission factors
Fuel Consumption =	21.900	MMscf/yr
Fuel Consumption =	21.772	MMscf/yr (calculated using 40 CFR 98 gas heat capacity)

Pollutant	Emission Factor lb/MMscf	Emission Factor lb/MMBtu	Emissions lb/yr	Emissions tpy	Emission Factor Source
VOC	5.5	0.0054	120	0.060	AP-42 Sec. 1.4 (7/98)
NOx	100	0.0980	2,190	1.10	AP-42 Sec. 1.4 (7/98)
CO	84	0.0824	1,840	0.92	AP-42 Sec. 1.4 (7/98)
$PM/PM_{10}/PM_{2.5}$	7.6	0.0075	166	0.083	AP-42 Sec. 1.4 (7/98)
SO_X as SO_2	0.6	5.88E-04	13	0.0066	AP-42 Sec. 1.4 (7/98)
Benzene	0.0021	2.06E-06	0.05	2.3E-05	AP-42 Sec. 1.4 (7/98)
Formaldehyde	0.075	7.35E-05	1.6	8.2E-04	AP-42 Sec. 1.4 (7/98)

Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/MMscf	tpy, CO_2e	
CO_2	53.06	1	116.98	120,019	1,307	40 CFR 98
CH_4	0.001	25	0.055	56.55	1	40 CFR 98
N_2O	0.0001	298	0.066	67.41	1	40 CFR 98
Total GHG - CO_2e			117.098	120,143	1,308	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.d Shrink Wrap Heaters. Potential emissions (PTE) from the combustion of natural gas in the Shrink Wrap Heaters were calculated using the assumption that the heaters are operated at full rated capacity for 8,760 hours per year. All PM is assumed to be $PM_{2.5}$.

Shrink Wrap Heaters

Heat Input Rating =	0.15 MMBtu/hr
Natural Gas Heat Content =	1,020 Btu/scf
Natural Gas Heat Content =	1,026 Btu/scf for 40 CFR 98 GHG emission factors
Fuel Consumption =	1.288 MMscf/yr
Fuel Consumption =	1.281 MMscf/yr (calculated using 40 CFR 98 gas heat capacity)

Pollutant	Emission Factor lb/MMscf	Emission Factor lb/MMBtu	Emissions lb/yr	Emissions tpy	Emission Factor Source
VOC	5.5	0.0054	7	0.0035	AP-42 Sec. 1.4 (7/98)
NOx	100	0.0980	129	0.064	AP-42 Sec. 1.4 (7/98)
CO	84	0.0824	108	0.054	AP-42 Sec. 1.4 (7/98)
$PM/PM_{10}/PM_{2.5}$	7.6	0.0075	10	0.0049	AP-42 Sec. 1.4 (7/98)
SO_X as SO_2	0.6	5.88E-04	1	0.00039	AP-42 Sec. 1.4 (7/98)
Benzene	0.0021	2.06E-06	0.00	1.4E-06	AP-42 Sec. 1.4 (7/98)
Formaldehyde	0.075	7.35E-05	0.1	4.8E-05	AP-42 Sec. 1.4 (7/98)

Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/MMscf	tpy, CO_2e	
CO_2	53.06	1	116.98	120,019	77	40 CFR 98
CH_4	0.001	25	0.055	56.55	0.04	40 CFR 98
N_2O	0.0001	298	0.066	67.41	0.04	40 CFR 98
Total GHG - CO_2e			117.098	120,143	77	

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.e Mold Shop. Emissions of PM from the downdraft tables are not expected to be significant because these units are equipped with HEPA filters. PM emissions from the Mold Shop ventilation system, equipped with MERV 15 filters, are calculated from a discharge rate of 1,800 cfm, a maximum outlet concentration of 0.005 gr/scf, and 8,760 hours of operation. Actual operation of the ventilation system is expected to be less than a single work shift (~2,080 hr/yr). PM emissions are assumed to be 100% PM_{10} and 80% $PM_{2.5}$.

Pollutant	Potential Emissions
PM/PM_{10}	0.34 tpy
$PM_{2.5}$	0.27 tpy

Potential emissions from thermal spraying compounds containing nickel, chromium, and boron were calculated assuming that up to 100 pounds per year of material could be utilized, containing up to 100% Ni, 1% Cr, and 5% B. The downdraft tables utilize a relatively high flow rate of 5,000 acfm and HEPA filters (at least 99.97% efficient for control of 0.3 µm particles), therefore the combined capture and control efficiency is likely to be quite good. SWCAA assumed an overall capture and control efficiency of 99% to account for the possibility that capture and filter fit is imperfect.

Thermal Spraying

Material Usage =	100	pounds per year
Maximum Ni Content =	100%	From Safety Data Sheet
Maximum Cr Content =	1%	From Safety Data Sheet
Maximum B Content =	5%	From Safety Data Sheet
% of Metal Emitted as Fume =	11%	See Emission Factor Source below
Cr^{+6} Emission Factor =	6.2E-03	lb Cr^{+6} / lb Cr sprayed
Particulate Control Efficiency =	99%	Estimated combined capture and control efficiency

Pollutant	Max Uncontrolled Emissions (lb/yr)	Max Controlled Emissions (lb/yr)	Emission Factor Source
Metal Fume (total)	11.00	0.11	"Airborne Toxic Control Measure to Reduce Emissions of Hexavalent Chromium and Nickel from Thermal Spraying", California Title 17. Flame spraying is conducted here. The Ni flame spray emission factor of 11% emitted as fume was used for the % of total metal emitted as fume (PM) and the % of Cr and B emitted as fume.
Metal Fume (PM_{10})	11.00	0.11	
Metal Fume ($PM_{2.5}$)	11.00	0.11	
Ni as Ni	11.00	0.11	
Cr as $Cr^{+2,\ +3}$	0.1038	1.04E-03	
Cr^{+6} compounds as Cr	0.0062	6.20E-05	
B as Boron Oxide	1.7712	1.77E-02	

Emissions must be calculated using the emission factors identified above unless new emission factors are developed through source testing.

6.f 62 kW Emergency Generator Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full standby load for 200 hours per year.

62 kW Emergency Generator Engine					
Hours of Operation =	200 hours				
Power Output =	99 hp				
Diesel Density =	7.206 lb/gal				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	5.10 gal/hr				
Pollutant	Emission Factor g/hp-hr	Emissions lb/hr	lb/yr	tpy	Emission Factor Source
NO_X	5.6	1.22	244	0.12	EPA Tier 2
CO	3.7	0.81	162	0.081	EPA Tier 2
VOC	1.14	0.25	50	0.025	AP-42 Section 3.3 (10/96)
SO_X as SO_2		0.0011	0.22	0.00011	Mass Balance
$PM/PM_{10}/PM_{2.5}$	0.3	0.065	13	0.0065	EPA Tier 2

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

Greenhouse Gas Emissions CO_2e. Potential emissions of greenhouse gases (expressed as CO_2e) were calculated in accordance with 40 CFR 98.

Greenhouse Gas Emissions						
Hours of Operation =	200 hours					
Fuel Consumption Rate =	5.10 gallons per hour					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	11	40 CFR 98 - General Combustion
CH_4	0.003	25	0.165	0.023	0.01	40 CFR 98 - General Combustion
N_2O	0.0006	298	0.394	0.054	0.03	40 CFR 98 - General Combustion
Total GHG - CO_2e			163.613	23	12	

In the future, annual emissions will be calculated using the emission factors identified above.

6.g 515 kW Emergency Generator Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full standby load for 200 hours per year.

515 kW Emergency Generator Engine

Hours of Operation =	200	hours
Power Output =	757	hp
Diesel Density =	7.206	lb/gal
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	36.80	gal/hr

Pollutant	Emission Factor g/hp-hr	Emissions lb/hr	lb/yr	tpy	Emission Factor Source
NO_X	3.87	6.46	1,292	0.65	Manufacturer
CO	2.6	4.34	868	0.43	EPA Tier 2
VOC	1.14	1.90	381	0.19	AP-42 Section 3.3 (10/96)
SO_X as SO_2		0.00796	1.6	0.00080	Mass Balance
$PM/PM_{10}/PM_{2.5}$	0.15	0.250	50	0.025	EPA Tier 2

Emissions must be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

Greenhouse Gas Emissions CO_2e. Potential emissions of greenhouse gases (expressed as CO_2e) were calculated in accordance with 40 CFR 98.

Greenhouse Gas Emissions

Hours of Operation =	200	hours
Fuel Consumption Rate =	36.80	gallons per hour
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	
CO_2	73.96	1	163.05	23	83	40 CFR 98 - General Combustion
CH_4	0.003	25	0.165	0.023	0.08	40 CFR 98 - General Combustion
N_2O	0.0006	298	0.394	0.054	0.20	40 CFR 98 - General Combustion
Total GHG - CO_2e			163.613	23	83	

In the future, annual emissions will be calculated using the emission factors identified above.

6.h East and West Hot End Coating Lines. In the hot end coating lines, monobutyltin trichloride (MBTT) is vaporized in a fume hood through which the bottles, which are hot from initial forming, pass through. The MBTT is pumped into the fume hood through metal tubing, and vaporized by the heat from the passing bottles. When the MBTT ($C_4H_9Cl_3Sn$) contacts the bottle, the MBTT decomposes and a thin layer of tin (as SnO_2) is deposited on the surface of the bottle. Other MBTT decomposition products include HCl and CO. Unreacted MBTT, HCl, and CO are emitted from the process.

Hot End Coating Lines	MBTT ($C_4H_9Cl_3Sn$) Application
Mwt. MBTT =	282.19
Mwt. Sn =	118.69
Mwt. Butyl Fraction =	58 (assumes forms butane or similar)
Amount Applied =	7,984 lb/year
Partition =	66.67% emitted un-reacted
Sn Emitted =	2,239 lb/year as Sn
Potential Decomposition Products (CO and HCl) from Reacted MBTT	
Amount Reacted =	2,661 lb/yr
Moles Reacted =	9.43 lb-moles/yr
Potential CO =	1,056 lb/yr (assumes all C forms CO)
Potential HCl =	1,032 lb/yr (assumes all Cl forms HCl)
Potential VOC =	5,870 lb/yr

6.i Mold Swabbing. The mold release agent is primarily a mixture of organic compounds, sulfur, and graphite. When the mold release agent contacts the hot mold, the organic components flash and burn off and a solid lubricant film is left on the inside of the metal mold. The mold release agents contain approximately 5% graphite which is expected to remain on the mold surface. The remainder of the material "burns off", forming mist and smoke. SWCAA has assumed that for every 100 pounds of mold release agent used, 90 pounds of particulate matter is formed. Because the mold release agent is a heavy oil/grease, SWCAA has assumed that negligible VOCs are formed. Using this assumption, 2.58 tons of PM resulted from mold swabbing in calendar year 2013. Because molds are swabbed by hand, the amount of mold release agent used is likely more variable than if the process was conducted by machine. SWCAA has conservatively assumed that increased use of mold swabbing materials could result in the formation of up to 4.0 tons per year of particulate matter. Annual PM emissions are assumed to be equal to 90% of the mass of mold swabbing compound used or purchased during the calendar year. Purchase records may be used to calculate annual emissions when use records are not available.

6.j Evaporative VOC Sources. Potential emissions are assumed to be 12.0 tons per year (130% of the calendar year 2013 emissions estimate). Annual emissions are assumed to be the difference between oil use or purchases and oil wastes sent off-site. Purchase records may be used to calculate annual emissions when use records are not available.

6.k Facilitywide Potential Emissions (PTE) Summary.

Pollutant	Potential Annual Emissions
Nitrogen oxides	53.21 tons
Carbon monoxide	12.97 tons
Volatile organic compounds	25.31 tons
Sulfur oxides as sulfur dioxide	26.35 tons
Particulate matter	20.01 tons
PM_{10}	20.01 tons
$PM_{2.5}$	19.76 tons
Toxic Air Pollutants	4.41 tons
Hazardous Air Pollutants	3.29 tons
CO_2e	40,439 tons

Pollutant	CAS Number	Category	Facilitywide Emissions (lbs/yr)	WAC 173-460 SQER (lbs/yr)[1]
Benzene	71-43-2	HAP/TAP A	0.8	20
Formaldehyde	50-00-0	HAP/TAP A	29.1	20
Hydrogen Chloride	7647-01-0	HAP/TAP B	5,245	175
Hydrogen Fluoride	7664-39-3	HAP/TAP B	1,159	175
Chromium II & III Comp. as Cr	C7440-47-3	HAP/TAP B	63	175
Chromium VI Comp. as Cr	C7440-47-3	HAP/TAP A	0.00006	None
Lead Compounds	---	HAP/TAP A	84	50
Nickel and Nickel Comp. as Ni	C7440-02-0	HAP/TAP A	0.1	0.5
Organic Tin Comp. as Sn	C7440-31-5	TAP B	2,239	175

[1] WAC 173-460 as in effect August 21, 1998.

7. REGULATIONS AND EMISSION STANDARDS

Regulations have been established for the control of emissions of air pollutants to the ambient air. Regulations applicable to the proposed facility that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the following regulations, codes, or requirements. These items establish maximum emissions limits that could be allowed and are not to be exceeded for new or existing facilities. More stringent limits are established in this Permit consistent with implementation of Best Available Control Technology (BACT):

7.a Title 40 Code of Federal Regulations (40 CFR) 60.7 "Notification and Recordkeeping" requires that notification shall be submitted to SWCAA, the delegated authority, for date construction commenced, anticipated initial startup, and initial startup.

7.b 40 CFR Part 60.8 "Performance Tests" requires that emission tests be conducted according to test methods approved in advance by the permitting authority and a copy of the results be submitted to the permitting authority.

7.c 40 CFR 60.290 et seq. (Subpart CC) "Standards of Performance for Glass Manufacturing Plants" applies to any glass melting furnace with a capacity larger than 5 tons per day of glass that commences operation after June 5, 1979. The regulation is applicable to this facility. Subpart CC establishes a filterable particulate matter emission limit of 0.1 g/Kg glass (0.2 lb/ton) for container glass facilities as measured using EPA Method 5 with a probe and filter temperature of up to 350 °F ± 25 °F. The particulate matter limit does not apply during routine maintenance of add-on pollution controls if: 1) Routine maintenance does not exceed 6 days per year; 2) Routine maintenance is conducted in a manner consistent with good air pollution control practices for minimizing emissions, and 3) A report is sent to the Administrator 10 days before the start of the routine maintenance (if 10 days cannot be provided, the report must be submitted as soon as practicable) and the report contains an explanation of the schedule of the maintenance.

7.d 40 CFR 60.670 et seq. (Subpart OOO) "Standards of Performance for Nonmetallic Mineral Processing Plants" establishes opacity and particulate matter emission limits for stationary (fixed) plants with capacities greater than 25 tons per hour and portable plants greater than 150 tons per hour that were constructed, reconstructed or modified after August 31, 1983. More stringent requirements apply to affected facilities constructed, reconstructed or modified on or after April 22, 2008. This facility operates an enclosed, stationary 45 ton per hour cullet crusher. Cullet is not considered a non-metallic mineral for the purposes of Subpart OOO and therefore is not subject to this regulation. In an EPA determination dated December 2, 1987 (ADI Control Number NR126) the EPA determined that glass recycling is not subject to Subpart OOO.

7.e 40 CFR Part 60.4200 et seq. "Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" requires that new diesel engines meet specific emission standards at the point of manufacture and during operation. In addition, maximum fuel sulfur contents are specified and minimum maintenance standards are required. The Emergency Generator Engines are affected sources because they were both manufactured after the April 1, 2006 applicability date.

7.f 40 CFR Part 61.160 et seq. "Subpart N – National Emission Standards for Inorganic Arsenic Emissions From Glass Manufacturing Plants" provides requirements for controlling arsenic emissions from glass manufacturing plants that use commercial arsenic as a raw material. This facility does not use arsenic as a raw material; therefore this regulation does not apply to this facility.

7.g 40 CFR 63.7 "Performance Testing Requirements" requires that notification shall be submitted to SWCAA, the delegated authority, for date construction commenced, anticipated initial startup, and initial startup.

The Emergency Generator Engines are subject to 40 CFR 63 Subpart ZZZZ. If the units comply with 40 CFR 60 Subpart IIII per §63.6590(c), then there are no further requirements under 40 CFR 63 Subpart ZZZZ, including performance testing; therefore §63.7 does not apply to these engines.

7.h 40 CFR 63.6580 et seq. (Subpart ZZZZ) "National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines" establishes national emission limitations and operating limitations for HAP emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. The Emergency Generator Engines are affected sources under this regulation; however per 40 CFR 63.6590(b)(3) existing stationary RICE are not subject to any requirements of this regulation, including initial notification. At an area source, an existing stationary RICE is any RICE for which construction or reconstruction commenced prior to June 12, 2006. A new stationary RICE at an area source must comply with Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII for compression ignition engines or 40 CFR 60 Subpart JJJJ for spark ignition engines. The Emergency Generator Engines are new diesel engines (built after June 12, 2006) at an area source, therefore compliance with 40 CFR 60 Subpart IIII constitutes compliance with 40 CFR 63 Subpart ZZZZ.

7.i 40 CFR 63.11448 et seq. (Subpart SSSSSS) "National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources" applies to any glass melting furnace that is continuous and that produces at least 45 Mg per year of glass (50 tpy) charged with arsenic, cadmium, chromium, lead, manganese, or nickel. The permittee's facility produces more than 45 Mg (50 tons) per year of glass charged with chromium oxide; therefore the permittee's glass melting furnace is subject to this rule. The facility began construction prior to September 20, 2007; however a new glass melt furnace was built, with construction beginning in 2011. The new glass melt furnace is the affected source; therefore the source is "new" for the purposes of this regulation.

This regulation also requires that area sources subject to this subpart obtain a permit under 40 CFR 70 (Air Operating Permit Program).

7.j 40 CFR 63.11504 et seq. (Subpart WWWWWW) "National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations" applies to a variety of activities that result in the application of a metal onto a surface, including thermal spraying and dry mechanical polishing of finished metals and formed products after thermal spraying. This facility conducts spray welding (a form of thermal spraying) in the mold shop to recondition worn parts. 40 CFR 63.11505(d)(4) exempts "plating, polishing, coating, or thermal spraying conducted to repair surfaces or equipment" from Subpart WWWWWW, therefore this regulation does not apply to activities at this facility.

7.k Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act [RCW 70A.15] and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.l RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Order of Approval (Air Discharge Permit) for installation and establishment of an air contaminant source.

7.m Washington Administrative Code (WAC) 173-401 "Operating Permit Regulation" requires all major sources and other sources as defined in WAC 173-401-300 to obtain an operating permit. This regulation is currently applicable to the permittee's facility because it is an affected source under 40 CFR 63 Subpart SSSSSS. 40 CFR 63.11449(e) reads "If you own or operate an area source subject to this subpart, you must obtain a permit under 40 CFR part 70 or 40 CFR part 71."

7.n WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" (as in effect August 21, 1998) requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety.

7.o WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.p SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.q SWCAA 400-040(1) "Visible Emissions" requires that no emission of an air contaminant from any emissions unit shall exceed twenty percent opacity for more than three minutes in any one hour at the emission point, or within a reasonable distance of the emission point.

7.r SWCAA 400-040(2) "Fallout" requires that no emission of particulate matter from any source shall be deposited beyond the property under direct control of the owner(s) or operator(s) of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

7.s SWCAA 400-040(3) "Fugitive Emissions" requires that reasonable precautions be taken to prevent the fugitive release of air contaminants to the atmosphere.

7.t SWCAA 400-040(4) "Odors" requires that any person who shall cause or allow the generation of any odor from any source, which may unreasonably interfere with any other property owner's use and enjoyment of their property use recognized good practices and procedures to reduce these odors to a reasonable minimum.

7.u SWCAA 400-040(6) "Sulfur Dioxide" requires that no person shall emit a gas containing in excess of one thousand ppm of sulfur dioxide on a dry basis, corrected to 7% O_2 or 12% CO_2 as required by the applicable emission standard for combustion sources.

7.v SWCAA 400-040(8) "Fugitive Dust Sources" requires that reasonable precautions be taken to prevent fugitive dust from becoming airborne, and minimize emissions.

7.w SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.

7.x SWCAA 400-060 "Emission Standards for General Process Units" requires that all new and existing sources not emit particulate matter in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

7.y SWCAA 400-109 "Air Discharge Permit Applications" requires that an air discharge permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An air discharge permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

7.z SWCAA 400-110 "New Source Review" requires that an Air Discharge Permit be issued by SWCAA prior to establishment of the new source, emission unit, or modification.

7.aa SWCAA 400-113 "Requirements for New Sources in Attainment or Nonclassifiable Areas" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
(3) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(4) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

New BACT Determination

8.a BACT Determination – Thermal Spraying (SWCAA 21-3455). Thermal spraying generates small particulate matter (fume), similar to welding. The top choice in a top-down BACT analysis is capture and control with HEPA rated filters. The applicant has proposed the use of two new downdraft tables equipped with HEPA rated filters so that all thermal spraying will be conducted at the four downdraft tables and subject to HEPA level filtration. This would be the top choice in a BACT analysis and therefore meets the requirements to utilize BACT.

Pre-Existing BACT Determinations

8.b BACT Determination – Thermal Spraying (SWCAA 20-3420). Thermal spraying generates small particulate matter (fume), similar to welding. The top choice in a top-down BACT analysis is capture and control with HEPA rated filters. The applicant has proposed the use of two new downdraft tables equipped with HEPA rated filters. However, thermal spraying may also be conducted at existing work stations controlled by MERV 15 filters in the Mold Shop Ventilation System. The nickel, chromium (II and III), and hexavalent chromium Acceptable Source Impact Levels are met with the exclusive use of MERV 15 filters. Upgrading to HEPA-rated filters could reduce total emissions of nickel and chromium by up to 1.7 pounds per year. The cost of the two new downdraft tables was $46,500. Based on thermal spraying of 100 pounds per year of nickel and nickel alloy with up to 1% chromium, potential nickel and chromium compounds, including hexavalent chromium compounds, are too small to justify retrofitting the Mold Shop Ventilation System with HEPA filters or purchasing additional downdraft tables equipped with HEPA filters.

8.c BACT Determination – Hot End Coating Lines (SWCAA 15-3131). The East and West Hot End Coating Lines are sources of unreacted MBTT (regulated as organic tin and VOC), and decomposition products (CO, HCl, and VOC). The only facilities in the United States that were identified as utilizing emission controls for this process were Owens-Brockway facilities originally utilizing $SnCl_4$ (not MBTT) as a coating product. These facilities contact the exhaust stream with anhydrous ammonia to precipitate ammonium chloride (controlling HCl), and pass the gas stream through a baghouse to capture the ammonium chloride and inorganic tin (which will form a solid in the presence of water and/or ammonia in the vapor stream). SWCAA understands that MBTT would react with ammonia to form a solid precipitate that could be collected by a fabric filter. The permittee's consultant has indicated that a single vendor supplies these proprietary control systems. No alternative vendors have been identified that provide a similar emission control system. If this control were to be implemented, the applicant's BACT analysis indicates that the cost-effectiveness would be over $25,000 per ton of MBTT controlled (over $60,000 per ton of tin) without including the costs of ammonia, electricity, or labor.

Literature from the manufacturer of the Hot End Coating Lines described a Certincoat© scrubber system available to control MBTT and HCl emissions from the Hot End Coating Lines, and that 11 scrubbers had been installed in Europe. The scrubber utilizes demineralized water as an input and concentrates the MBTT in the scrubbing liquor to a relatively high level. The United States vendor for this equipment indicated that the scrubber system had never been installed in the United States and that the knowledge of the system in Europe is "quite limited" at this time. The vendor indicated that the scrubber might be available on a "limited basis" and that the purchase cost was probably around 150,000 Euro. However, the vendor wrote "I do not think that we can adequately support the system in an ongoing manner."

Assuming that the scrubber could be used by the permittee, SWCAA estimated the cost effectiveness using factors from EPA's Air Pollution Cost Control Manual – 6th Edition, a Euro to US Dollar exchange rate of 1.26, an 8% cost of capital, and a 15 year equipment life. Because no control efficiency has been provided by the vendor, SWCAA conservatively assumed the scrubber to be 100% efficient. Using only the capital investment costs (no on-going operational costs), the cost-effectiveness of this option would be approximately $77,000 per ton of tin.

Carbon adsorption was evaluated as a potential control technology for unreacted MBTT. This technology has not been "demonstrated in practice", and neither SWCAA nor the applicant are aware of data demonstrating whether carbon adsorption would be an effective control method. For these reasons the applicant indicated that this option should be considered technically infeasible. However, at first inspection it would seem that MBTT is likely to be well controlled through carbon adsorption; therefore the cost-effectiveness of this option was investigated. The applicant's BACT analysis indicated a MBTT control efficiency of approximately $25,000 per ton without considering the costs of utilities, research and development, and testing.

In a worst-case assumption, SWCAA assumed that the material would not be amenable to carbon adsorber cycling (e.g. would not desorb well). Based on information received by Evoqua Water Technologies in May 2014, SWCAA estimated that approximately 50,000 pounds of activated carbon would be required per year at 2013 rates if the activated carbon could not be re-used (based on a 12.375% loading and a safety factor of 1.75). The cost-effectiveness of this approach would significantly exceed $25,000 per ton of MBTT controlled.

The applicant indicates that the MBTT formulation they utilize has reduced HCl emissions relative to tin tetrachloride. The applicant utilizes a coating chamber that is designed to maximize coating efficiency through the use of recirculation loops that direct the coating material vapors to the container surface multiple times. The applicant has proposed that these good manufacturing practices meet the requirements of BACT. SWCAA concurs because the baghouse and scrubber options are not cost-effective enough to be required as BACT and the use of carbon adsorption has not been demonstrated in practice.

8.d <u>BACT Determination – Glass Melt Furnace (SWCAA 11-2968).</u> The primary pollutants that can be addressed in a cost-effective manner with add-on air pollution control equipment are particulate matter and acid gases (primarily SO_2). CO and NO_X are most effectively minimized by careful combustion control.

Oxy-fuel firing, firing the furnace with natural gas and oxygen (at least 92% in this case), prevents the formation of most NO_X emissions by reducing the amount of N_2 available for oxidation. The applicant proposes reducing NO_X emission levels from an uncontrolled level on the order of 6 lbs NO_X/ton glass to 1.0 lb NO_X/ton glass. Oxy-fuel firing was the top choice in a top-down BACT analysis and therefore other, less effective control measures were not evaluated. To SWCAA's knowledge, the only other container glass plant that has been built in the United States in the past 25 years is the Owens-Brockway Glass Container facility in Windsor, Colorado. This facility was issued a permit in May 2007 with a permitted NO_X emission limit of 194.6 tons per year (equivalent to 1.25 lbs NO_X/ton glass at the full production rate).

The applicant stated that the effect of oxygen purity on NO_X emissions is not known, therefore there was no basis to evaluate whether the use of more expensive high purity O_2 (e.g. 99.5% rather than 92%) would provide cost effective (or any) NO_X emissions benefit.

Carbon monoxide and VOC emissions are expected to be relatively low unless a fuel rich zone develops within the furnace. This would be a dangerous condition; therefore oxygen levels in the furnace will be tightly controlled. SWCAA believes that the emission levels proposed by the applicant meet the requirements of BACT. Additional control of the relatively small amount of CO or VOC that might be generated in the glass melt furnace would not be cost-effective.

The following control options were reviewed by SWCAA for the control of PM and acid gases (primarily SO_2).

1. Dry Scrubber (rotary reactor) for acid gas control followed by baghouse for filterable PM control. This is the option proposed by the applicant.
2. Spray dry absorber for acid gas control followed by baghouse for PM control
3. Spray dry absorber for acid gas control followed by ESP for PM control
4. Wet ESP for both PM and SO_2 control
5. Cloud Chamber Scrubber for both PM and SO_2 control

6. Baghouse for filterable PM control followed by low energy wet scrubber for acid gas control
7. High energy venture scrubber for both PM and SO_2 control.
8. Addition of a low energy scrubber to the any of the options not already using a wet acid gas scrubbing technology.

Emissions of particulate matter originate primarily from reactions that result in the formation of Na_2SO_4 which condenses in the flue gas to form very small particles. Data published in the Air and Waste Management Associations Air Pollution Engineering Manual (2nd Edition, 2000) indicates that approximately 99.8% of the particles have a diameter less than 0.5 μm, and almost 40% have a diameter of less than 0.1 μm. AP-42 Section 11.15-9 (1/95) indicates that 91% of the particulate matter mass has an aerodynamic diameter of 2.5 um or less. Because the filterable particulate matter is very fine, effective scrubbing of particulate with a venturi scrubber would require relatively high pressure drops (25" w.c. or more). Baghouses and ESPs provide a higher level of PM control than wet scrubbers. When used with a dry absorber or spray dry absorber system, a baghouse has the added benefit of providing additional contact between the reactant (e.g. trona) with the flue gases for acid gas control.

High energy wet scrubbing systems would provide a higher level of acid gas control, but a lower level of PM control. On this basis alone, high energy wet scrubbing systems would be ranked lower than the applicant's proposed system in a top-down BACT analysis. The use of a low energy scrubber downstream of a dry scrubbing system is not a cost-effective control option for acid gases. Note that the applicant submits that wet scrubbers are not technically feasible because there are no known examples of wet scrubbing being applied to flat or container glass furnaces; therefore the long-term reliability of these systems is not known with this gas stream. SWCAA is aware that a Cloud Chamber Scrubber is currently in operation at a Verallia facility in Washington; however this installation is too new to have demonstrated long-term reliability.

Based on SWCAA's review of available emission control technologies for PM and acid gases, SWCAA has determined that the applicant's proposed emission control system consisting of a dry scrubber followed by a baghouse meets the requirements of BACT at the emission levels identified in Section 6.

8.e BACT Determination – Raw Material Handling and Storage (SWCAA 07-2718). The proposed use of process enclosures and high efficiency fabric filtration has been determined to meet the requirements of BACT for the types and quantities of air emissions emitted by the raw material handling and storage operations at this facility.

8.f BACT Determination – Process Heaters/Burners (SWCAA 07-2718). The proposed use of low sulfur fuel (natural gas) has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted by process heaters and burners at this facility.

8.g BACT Determination – Mold Shop (SWCAA 07-2718). The proposed use of process enclosure and high efficiency particulate filtration has been determined to meet the requirements of BACT and T-BACT for the mold repair operations in the Mold Shop at this facility.

8.h BACT Determination – Diesel Fired Emergency Generator Engines (SWCAA 09-2888). Available control measures for diesel engines include low sulfur fuel and add-on control equipment such as selective catalytic reduction units. Add-on control equipment is not economically or technically feasible because the engines will be operated only for short periods of time for testing, maintenance, and to provide emergency electricity. Under normal operating conditions the engines will only be operated for short periods of time and the stable operating temperature required for operation of add-on control equipment will not be achieved.

The use of modern diesel-fired engine design meeting the appropriate EPA Tier Emission Standard (Tier 2 in this case), the use of ultra-low sulfur diesel fuel (≤ 0.0015% sulfur by weight), limitation of visible emissions to 10% opacity or less, and limitation of engine operation to ≤100 hours per year for maintenance checks and readiness testing and ≤ 200 hours per year total usage has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from these engines.

PSD/CAM Determinations

8.i Prevention of Significant Deterioration (PSD) Applicability Determination. This permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.j Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source even though it is required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

NO_X is the only pollutant from this facility with emissions that exceed the PSD significant emission rate, and therefore the only criteria pollutant for which detailed dispersions modeling was conducted. At the emission rates proposed for the other criteria air pollutants, no adverse ambient air quality impact is anticipated. NO_X emissions from the Glass Melt Furnace were modeled by the applicant using EPA's AERMOD version 07026 plume dispersion model with AERMAP version 09040. Building downwash was evaluated using the BPIP-PRIME model and current locations and dimensions of facility buildings and stacks. One year of meteorological data from 2005 collected by Emerald Kalama Chemical was used in the analysis.

The following Glass Melt Furnace Stack parameters were utilized:

Stack Height:	30.48 meters
Stack Temperature:	487 K
Stack Velocity:	17.93 m/s
Stack Diameter:	0.899 meters

The results of the analysis indicated that the 1-hour and annual NO_2 NAAQS and the annual PSD increment would not be exceeded due to operation of the Glass Melt Furnace.

Although SO_2 and PM_{10} emissions from the glass furnace are below the PSD Significant Emission Rate, SWCAA also modeled the impact of these pollutants during bypass of the SO_2 and PM_{10} emission control equipment using EPA's TSCREEN dispersion model and measured background concentrations. The results of the model indicated that the National Ambient Air Quality Standards (NAAQS) are met even during uncontrolled operation (e.g. when the emission control equipment must be temporarily bypassed to perform scheduled maintenance).

Glass Melt Furnace Toxics

With the exception of formaldehyde, HCl, HF, and lead from the glass furnace, incremental increases in toxic air pollutant emissions as a result of changes addressed by this permitting action will not exceed the applicable Small Quantity Emission Rates (SQER) listed in WAC 173-460, therefore the impacts of these toxics are presumed to be below regulatory significance. SWCAA modeled the impact of formaldehyde, HCl, HF, and lead emissions from the glass furnace using EPA's TSCREEN dispersion model. The results of the model indicate that the maximum impact of formaldehyde, HCl, HF, and lead are all well below the applicable Acceptable Source Impact Levels found in WAC 173-460 (as in effect August 21, 1998).

Hot End Coating Lines

Emissions of organic tin and HCl from the hot end coating lines exceeds their respective Small Quantity Emission Rates listed in WAC 173-460 (as in effect August 21, 1998). The Permittee's consultant performed detailed dispersion modeling of organic tin emissions using AERMOD. The emission point (the roof vents) was represented as a series of elevated volume sources. The results of the modeling indicated that emissions of organic tin would exceed the Acceptable Source Impact Level beyond the plant boundary; therefore a Second Tier analysis was conducted. The Second Tier analysis consists of a Health Impacts Assessment for areas outside of the plant boundary at a maximum emission rate of 0.0322 grams per second.

The results of the Health Impacts Assessment were reviewed by the Washington Department of Ecology. In a document dated February 12, 2015 the Washington Department of Ecology concluded that this this emission rate is not likely to cause injury to human health due to inhalation of organic tin beyond the plant boundary.

SWCAA scaled the results of the organic tin modeling to determine that the maximum impact of HCl emissions from the Hot End Coating Lines is expected to be 0.82 $\mu g/m^3$ (24-hour average). This impact was added to the results of SWCAA's AERSCREEN modeling of HCl emissions from the Glass Melt Furnace (2.25 $\mu g/m^3$ (24-hour average with building downwash)), to yield a combined impact of 3.07 $\mu g/m^3$ (24-hour average). Note that this estimate is very conservative because the location of the maximum impact from these two sources will not be coincident and assumes a large building downwash component that is not usually present. This result is still well below the Acceptable Source Impact Level listed in WAC 173-460 of 7 $\mu g/m^3$ (24-hour average); therefore emissions of HCl will not have a significant adverse impact on ambient air quality.

Thermal Spraying in Mold Shop

Thermal spraying in the mold shop produces emissions of nickel, chromium, and boron compounds. Emissions of nickel and boron will be below the Small Quantity Emission Rate (SQER) listed in WAC 173-460 (as in effect August 21, 1998); therefore modeling was not required to demonstrate compliance with the Acceptable Source Impact Level (ASIL) for these elements. Modeling was required to demonstrate compliance with the ASIL for hexavalent chromium compounds because a SQER had not been established for that category. The ambient impact of emissions of hexavalent chromium compounds were modeled by scaling the result of the organic tin model conducted for by Trinity Consultants using AERMOD for Air Discharge Permit 15-3131. Organic tin originates from the Hot End Coating Lines, and is discharged from the same point (the roof vents) as emissions from the mold shop. The results indicate that no exceedance of the ASIL from either the version of WAC 173-460 adopted by SWCAA (in effect August 21, 1998) or the latest published version (in effect December 23, 2019).

Thermal Spraying Impact

Pollutant	Emissions lb/yr	Scaled Impact $\mu g/m^3$	Averaging Period	% of 1998 ASIL	% of 2019 ASIL
Ni as Ni	0.11	1.7E-05	Annual	0.8%	0.5%
Cr as $Cr^{+2, +3}$	1.04E-03	8.3E-07	24-hour	0.00005%	0.00002%
Cr^{+6} compounds as Cr	6.20E-05	9.7E-09	Annual	0.012%	0.2%
B as Boron Oxide ($B_2 0_3$)	1.77E-02	1.4E-05	24-hour	0.00004%	0.000005%

Conclusions

9.a Operation of the glass bottle manufacturing facility with the modifications proposed in ADP Application CO-1036, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.b Operation of the glass bottle manufacturing facility with the modifications proposed in ADP Application CO-1036, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards" to be violated.

9.c The glass bottle manufacturing facility, modified as proposed in ADP Application CO-1036, can be operated without causing a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue Air Discharge Permit 21-3455 in response to Air Discharge Permit Application CO-1036. Air Discharge Permit 21-3455 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a <u>General Basis.</u> Permit requirements established by this permitting action incorporate the operating schemes proposed by the applicant in Air Discharge Permit Applications CO-822, CO-868, CO-904, CO-928, CO-1029, and CO-1036. Emission limits for approved equipment are based on maximum potential emission levels as calculated in Section 6 of this Technical Support Document.

10.b <u>Emission Limits.</u> Annual emission limits were established at the potential to emit (PTE) of each emission unit as calculated in Section 6. With the exception of the Glass Melt Furnace, there will be no visible emissions from any of the baghouses or natural gas fired equipment if they are operating properly, therefore visible emissions from these units was limited to 0% opacity. As discussed in Section 8, the particulate matter generated by the Glass Melt Furnace is very fine, resulting in relatively high levels of light scattering even at very low levels of particulate matter emissions. Visual emissions from the Glass Melt Furnace were limited to 10% because SWCAA believes that this level will be achieved if the particulate matter emission limits are met. The baghouse leak detection system will be the primary tool for assuring compliance with the PM limits between source emission testing events.

The Glass Melt Furnace emission limits were established at levels that meet the requirements of BACT. In some cases these emission limits are lower than originally proposed by the applicant. SWCAA chose lower emission levels where the proposed emission levels were higher than the emission levels that could be reliably achieved by the proposed emission control equipment and were higher than the emission levels achieved in practice by similar equipment.

Very little information was available to quantify emissions of toxic air pollutants from the Glass Melt Furnace, including formaldehyde, hydrogen chloride, hydrogen fluoride, and lead, however there was some information to suggest that emissions of these pollutants might exceed the SQER listed in WAC 173-460. Because of this, the permit requires quantification (through source emissions testing), and requires that emissions of these pollutants not cause an exceedance of the respective ASIL listed in WAC 173-460. Based on the emission factors presented in Section 6, no ASIL will be exceeded. A wide margin of compliance is expected because dispersion modeling predicted that the ASILs for HCl, HF, and Pb would not be exceeded at emission rates of 10.53 tons per year, 2.90 tons per year, and 0.21 tons per year respectively. These emission rates are well above the maximum emissions predicted in Section 6.

Emissions from the mold shop consist of fugitive metal dust emitted from mold grinding and machining operations, welding fume, and thermal spraying fume. These emissions are controlled by a ventilation system with a cartridge collector and two downdraft tables installed primarily to control emissions from thermal spraying. As proposed, the facility will engage in a limited amount of welding as part of the mold repair process and for general facility maintenance. Information presented in ADP Application CO-822 indicates that the amount of welding rod to be used will be very small (~300 lb/yr) and emissions will be controlled with the dust collection system. Emissions potential is therefore very small from this activity. Consequently, these operations have been deemed insignificant and no specific permit requirements were established for welding operations. Emission limits for nickel compounds and hexavalent chromium compounds from thermal spraying were established at the Potential to Emit identified in Section 6. As indicated in Section 9, these emission levels assure compliance with the relevant Acceptable Source Impact Levels.

Emissions of organic tin from the Hot End Coating Lines was limited to the amount of tin that was reviewed as part of the Tier 2 Health Impacts Assessment. Emissions of hydrogen chloride from the Hot End Coating Lines were limited to the potential to emit identified in Section 6. As indicated in Section 9, this level of emissions will assure that the Acceptable Source Impact Level in WAC 173-460 is not exceeded.

10.c Operating Limits and Requirements. To minimize the impact of emissions on ambient air quality, discharges from the permitted baghouses and the Emergency Generator Engines are required to be exhausted vertically. Any device that obstructs or prevents vertical discharge (such as a rain cap without an inverted cone) is prohibited. This is good engineering practice and is required by SWCAA 400-200(1).

The permit allows the use of "#2 diesel or better" by the Emergency Generator Engines. In this case, "or better" includes road-grade diesel fuel with a lower sulfur content, biodiesel, and mixtures of biodiesel and road-grade diesel that meet the definition of "diesel" and contain no more than 0.0015% sulfur by weight.

Additional operating requirements for the Glass Melt Furnace and the associated emission control system come from 40 CFR 63 Subpart SSSSSS. Where all or a portion of the requirement has an origin in Subpart SSSSSS, the regulation citation is found in brackets at the end of the requirement.

One notable difference between the requirements of Subpart SSSSSS and Air Discharge Permit 15-3131 is that Air Discharge Permit 15-3131 requires operation of the baghouse leak detector at all times, not just when the Glass Melt Furnace is being charged with applicable metal HAP.

A minimum oxygen purity for the Glass Melt Furnace was required to assure that the NO_X emission limit is maintained. Monitoring and recording oxygen purity was chosen as an alternative to a NO_X CEMS.

A requirement to maintain a stoichimetric excess of oxygen in the Glass Melt Furnace was imposed to assure that excessive CO emissions are not generated.

The reagent feed to the Glass Melt Furnace dry scrubbing system must be at or above the reagent feed rate measured during the most recent source emissions test that demonstrated compliance with the SO_2 emission rate limit. Because there is a substantial difference between the SO_2 generation rate from clear/flint glass as opposed to colored glass (clear/flint glass produces much less SO_2), the rate for established for clear/flint glass cannot be used for colored glass.

10.d Monitoring and Recordkeeping. Sufficient monitoring and recordkeeping was established to document compliance with the annual emission limits and provide for general requirements (e.g. upset reporting, annual emission inventory submission). Specific monitoring requirements are established for glass production, fuel consumption, material throughput, and baghouse/generator operation. Monitoring requirements from 40 CFR 63 Subpart SSSSSS were incorporated into the permit.

For the Glass Melt Furnace, oxygen purity and excess oxygen monitoring and recordkeeping was required to assure on-going compliance with the NO_X and CO emission limits respectively. It has been noted that at low production rates the oxygen probe, which is located immediately downstream of the furnace exit, reads higher levels of oxygen than it should. It is believed that this is due to quench air somehow flowing "upstream" through some of the ductwork to influence the probe. To address this problem, an alternative monitoring scheme was provided whereby the permittee can measure the excess oxygen at a representative location whenever the oxygen to fuel ratio is reduced at a burner and at least once per day. It is expected that pressure taps near the exit if the boiler could be used for these measurements.

10.e Emission Monitoring and Testing Requirements. See Section 12.

10.f Reporting. Specific reporting deadlines were established for each reporting requirement. The submittal date refers to the earlier of the date the report is delivered to SWCAA or the postmarked date if sent through the US Post Office.

Upset conditions with the potential to cause excess emissions must be reported immediately in order to qualify for relief from penalty in accordance with SWCAA 400-107 for unavoidable exceedances. In addition, prompt reporting allows for prompt and accurate investigation into the cause of the event and the prevention of similar future incidents. The permit requires reporting of the annual air emissions inventory, and reporting of the data necessary to develop the emission inventory.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown," technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

The exhaust from the emergency generator engines may exceed 10% opacity during startup. Accordingly, the opacity limit is not applicable during the startup period defined in the permit.

11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to this facility. At times the Glass Melt Furnace exhaust will need to bypass the emission control system (e.g. to enable emission control system maintenance). During these limited events, the short-term emission limits based on use of the emission control system will not apply.

11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the approval conditions.

12. EMISSION MONITORING AND TESTING

12.a Emission Testing – Glass Melt Furnace. Initial and periodic source emissions testing was required to quantify emissions and help provide a reasonable assurance of compliance with the permitted emission limits. Testing for certain pollutants (HCl, HF, and Hg) was only required initially. As expected, emissions of these pollutants were below regulatory significance and therefore no further testing was required. Significant emissions of these pollutants are unlikely, but SWCAA could not find enough information to confirm this assumption without site-specific source emission testing. Initial testing must be repeated each time the furnace is replaced or reconstructed because minor changes, especially with respect to leaks or furnace pressure, could significantly impact emissions.

If EPA Method 29 is also conducted at the inlet, the initial test can be used to determine if the baghouse is necessary to meet the requirements of 40 CFR 63 Subpart SSSSSS. If the baghouse is not necessary to meet the requirements of Subpart SSSSSS, this would mean that certain requirements from Subpart SSSSSS will not need to be included in the Title V Air Operating Permit. Where similar requirements are included in the Air Discharge Permit, they would be designated and enforced as "State or Local Only" requirements.

Three hour particulate matter test runs were required to assure that enough particulate matter is collected to be quantifiable at the emission limit. The EPA has used a filterable particulate matter catch of 50 mg per sample as an appropriate target. The PM emission limit for this facility is 0.09 lb/ton glass, which correlates to a concentration of approximately 0.008 gr/dscf at the sampling site. To collect 50 mg of particulate, a total sample volume of 95 dscf would be required. Assuming an average sampling rate of 0.75 scfm, this means the sample duration must be slightly over two hours.

Unless otherwise approved by SWCAA, SO_2 emissions must be tested while the facility is producing glass with the greatest potential to create SO_2 emissions. Because this might constrain when testing can be coordinated with production schedules, SWCAA can approve testing on other glass recipes. SWCAA's approval would be conditioned on the scrubbing reagent injection rate being increased to a level that would accommodate the relative increase in SO_2 emissions expected when producing glass with a higher SO_2 emission potential.

13. FACILITY HISTORY

13.a General History. This facility was originally constructed with a cold-top electric glass melting furnace. The original furnace began heating on October 7, 2008, and began melting glass on October 15, 2008. On January 4, 2009, before achieving normal production, the glass furnace experienced a leak and was shut down. The furnace was re-built and re-heated beginning May 11, 2009. This new furnace was shut down on September 13, 2009 before achieving the quality of glass desired, when the owner was unable to secure funding for continuing operation. The glass furnace was not drained during this shutdown. This furnace was replaced with the current oxy-fuel glass furnace that began operation in July 2012.

13.b Previous Approvals. The following Orders/Permits have been issued for this facility:

Order/Permit Number	Application #	Date Issued	Description
07-2718	CO-822	3/27/07	Initial approval to construct a facility to produce between 120 and 180 million wine bottles per year.
09-2888	CO-868	8/28/09	Cameron submitted ADP Application CO-868 requesting approval for two emergency generator engines (one unpermitted, one different than originally permitted), eight silo vents, one bin vent, and vents from the bad batch chute and the quench conveyor. The quench conveyor system and other portions of the plant may be sources of fugitive VOC emissions from the evaporation of oils used in the process.
11-2968	CO-904	5/9/2011	Replacement of the failed glass melting furnace with a new electrically boosted oxy-fuel fired glass melting furnace.
15-3131	CO-928	7/14/2015	Approval to operate Hot End Coating Lines, mold swabbing, exhausting the Mixed Batch Day Bins Dust Collector to ambient air, and monitoring of the Glass Melt Furnace exhaust oxygen content at low production rates.
20-3420	CO-1029	6/25/2020	Approval of thermal spraying activities in the Mold Shop and installation of two downdraft tables equipped with HEPA filters for use with thermal spraying.

Bold font indicates that the Order or Air Discharge Permit will have been superseded or will no longer be in effect when Air Discharge Permit 21-3455 becomes effective.

14. PUBLIC INVOLMENT OPPORTUNITY

14.a Public Notice for Air Discharge Permit Application CO-1036. Public notice for Air Discharge Permit Application CO-1036 was published on the SWCAA internet website for a minimum of 15 days beginning on January 28, 2021.

14.b Public/Applicant Comment for Air Discharge Permit Application CO-1036. SWCAA did not receive formal comments, a comment period request, or any other inquiry from the public or the applicant regarding this Air Discharge Permit application. Therefore, no public comment period was provided for this permitting action.

14.c State Environmental Policy Act. The Cowlitz County Department of Building and Planning issued a Determination of Nonsignificance on July 11, 2006 that covers all the equipment and activities addressed by this permitting action (see Cowlitz County Review Number 06-07-1443). A later review by Cowlitz County Department of Building and Planning in December 2010 indicated that the largest change to date, modification of the plant to utilize a natural gas fired furnace, was also within the scope of the original SEPA. The current SWCAA permitting action only authorizes replacement of existing Mold Shop thermal Spraying benches. SWCAA issued a determination that this project is exempt from SEPA review on March 4, 2021 (Determination of SEPA Exempt - SWCAA 21-005).