Owens-Brockway Glass Container, Inc. – Plant 2

Title V Basis Statement

Issued October 20, 2016

Southwest Clean Air Agency
11815 NE 99th Street, Suite 1294
Vancouver, WA 98682-2322
Telephone: (360) 574-3058

PERMIT #:	SW10-17-R0-A
PREPARED FOR:	Owens-Brockway Glass Container, Inc. – Plant 2 2310 North Hendrickson Dr. Kalama, WA 98625
PLANT SITE:	Owens-Brockway Glass Container, Inc. – Plant 2 2310 North Hendrickson Dr. Kalama, WA 98625
PERMIT ENGINEER:	Clinton H. Lamoreaux, Air Quality Engineer
REVIEWED BY:	Paul T. Mairose, Chief Engineer

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I. GENERAL INFORMATION AND CERTIFICATION

1. Company Name: Owens-Brockway Glass Container, Inc.

2. Facility Name: Owens-Brockway Glass Container, Inc. – Plant 2

3. Contact Person: Mathew Boswell, Plant Manger

4. Inspection Contact Person: Mathew Boswell, Plant Manger

5. Unified Business Identification Number: 603-043-786

6. SIC Number: 3221

7. Basis for Title V Applicability:

   This facility is an area source subject to 40 CFR 63.11448 et seq. Subpart SSSSSS "National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources". Subpart SSSSSS 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. In accordance with 40 CFR 63.11449(e), owners or operators of area sources subject to Subpart SSSSSS are required to obtain a permit under 40 CFR part 70 or 71.

   <u>Facilitywide Potential To Emit Summary</u>

Pollutant	**Emissions (tons per year)**
Nitrogen oxides	53.21
Carbon monoxide	12.97
Volatile organic compounds	25.31
Sulfur dioxide	26.35
Particulate Matter	20.01
PM_{10}	20.01
$PM_{2.5}$	19.76
Combined HAPs	3.29
CO_2 equivalent	40,439

8. Current Permitting Action:

   Air Operating Permit SW10-17-R0-A was issued as an administrative amendment primarily to correct typographical errors, most importantly errors listing inconsistent dates for permit effectiveness, application submittal, and expiration. In addition, this opportunity was taken to update regulatory citations to reflect the fact that the general regulations in SWCAA 400 were updated effective October 9, 2016 and update the submittal address for EPA Region 10. None of the updates resulted in material changes to the Air Operating Permit. In this Basis Statement, the explanation of P12 "Unavoidable Excess Emissions" was shortened to avoid any conflict with the version of

SWCAA 400-107 effective October 9, 2016, and the discussion of Req-12 was expanded to include a discussion of toxic air pollutant emission limits.

9. Attainment Area:

This facility is located in an area that is in attainment for all criteria pollutants.

10. Facility Description:

This facility manufactures glass bottles (primarily wine bottles) using a natural gas oxy-fuel fired glass melting furnace. Emissions are generated from raw material handling, the glass melt furnace, mold swabbing, hot end treatment, VOCs from the use of lubricating oils, small natural gas fired sources (e.g. gob heaters, shrink wrap heater), and two emergency generator engines. The facility began operation in July 2012 and reached full production rate in September 2012.

Raw Material Handling and Storage. 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.

<u>Bottle Production.</u> 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 an electrically heated 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 five to seven 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.

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 spray welding the affected areas. The component surfaces are then machined down to the correct physical dimensions. Air pollutant emissions from individual work stations are controlled with a central ventilation system. The central system uses a small cartridge collector to capture fine particulate matter collected by the system.

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.

11. SWCAA Air Discharge Permits:

The following table lists each Air Discharge Permit issued for this facility. Permits in bold contain no active requirements. The requirements may have been superseded, may have been of limited duration, or the equipment may have been removed.

Order/Permit Number	App. #	Date Issued	Description
07-2718	CO-822	3/27/2007	Initial approval to construct a facility to produce between 120 and 180 million wine bottles per year.
09-2888	CO-868	8/28/2009	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	This permit addressed: a. Belated approval to operate two Hot End Coating Lines. b. Mold swabbing, which was not identified in earlier permitting actions as a source of emissions. c. Exhausting the Mixed Batch Day Bins Dust Collector to the ambient air. d. Increasing the evaporative VOC emission limit to account for products not accounted for in previous permitting actions. e. Monitoring of the Glass Melt Furnace exhaust oxygen content at low production rates.

II. EMISSIONS UNIT DESCRIPTIONS

Summary Table

EU #	Emission Generating Equipment	Emission Control Measure / Equipment
EU-1	Raw Material Elevator	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-2	Mixed Batch Elevator	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-3	Mixed Batch Day Bins	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-4	Cullet Elevator	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-5	Silos #1 & #2 – Sand	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-6	Silo #3 – Soda Ash	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-7	Silo #4 – Feldspar	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-8	Silo #5 – Limestone	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-9	Silo #6 – Cullet	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-10	Silo #7 – Cullet	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-11	Silo #8 – Cullet	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-12	Silo #9 - Cullet	Fabric Filtration (Flex Kleen – 400 acfm) Process Enclosure
EU-13	Mold Shop	Mold Shop Ventilation System – Fabric Filtration (Donaldson Torit – 1,800 acfm)
EU-14	Glass Melt Furnace (40 MMBtu/hr Oxy-fuel, electric boost)	Oxy-fuel to minimize NO_X, Dry Scrubbing for acid gases, Baghouse for PM, Low Sulfur Fuel (Natural Gas)
EU-15	Forehearth Heater – Line 1 (2.55 MMBtu/hr)	Low Sulfur Fuel (Natural Gas)
EU-16	Forehearth Heater – Line 2 (2.55 MMBtu/hr)	Low Sulfur Fuel (Natural Gas)
EU-17	Shrink Wrap Packaging Heater (0.15 MMBtu/hr)	Low Sulfur Fuel (Natural Gas)
EU-18	62 kW Emergency Generator Engine	Ultra Low Sulfur Diesel (≤ 0.0015% S) Limited Operation (≤ 200 hr/yr) EPA Tier 2 Certification
EU-19	515 kW Emergency Generator Engine	Ultra Low Sulfur Diesel (≤ 0.0015% S) Limited Operation (≤ 200 hr/yr) EPA Tier 2 Certification

EU #	Emission Generating Equipment	Emission Control Measure / Equipment
EU-20	East Hot End Coating Line	None
EU-21	West Hot End Coating Line	None
EU-22	Mold Swabbing	None
EU-23	Evaporative VOC Sources	Oil skimmer on cullet cooling water

Detailed Descriptions

EU-1 Raw Material 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

EU-2 Mixed Batch 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

EU-3 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

EU-4 Cullet 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

EU-5 Silo #1

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 rated at 400 acfm. The baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester and exhausts at a height of approximately 122' above grade through a 5" diameter stack. The baghouse and exhaust is located approximately in the center on the top of the silo structure.

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

EU-6 Silos #2 & #3

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

EU-7 Silo #4

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

EU-8 Silo #5

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

EU-9 Silo #6

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

EU-10 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

EU-11 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

EU-12 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

EU-13 Mold Shop Ventilation System

Reconditioning of worn parts, including spray welding operations, are conducted in the Mold Shop. Dust and fumes from activities in the Mold Shop are vented through one Donaldson Torit model DFO3-3 QS cartridge collector with a maximum rated airflow of 1,800 acfm. This unit is equipped with 3 filter cartridges (570 ft^2 of total surface area) and exhausts at a height of 15' above grade within the main building enclosure. The mold shop is located in the northeast quarter of the main building. This unit draws air from the central dust collection system serving the Mold Shop work stations. The Mold Shop is located within the main building enclosure, but the main building enclosure is well ventilated with wall louvers and a roof peak vent to draw heat out of the building. For this reason, it is assumed that emissions from the cartridge collector are exhausted directly to the ambient air.

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

EU-14 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.

<u>Dry Scrubber / Rotary Reaction Chamber Details</u>

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

<u>Baghouse Details</u>

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

<u>Stack Description</u>

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

EU-15 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

EU-16 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

EU-17 Shrink Wrap Packaging Heater

The Shrink Wrap Packaging Heater consists of 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. The unit exhausts out of the roof vents near the southwest end of the building.

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

EU-18 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: 2007 model year (no nameplate or other documentation gives actual build date)
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

EU-19 515 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)

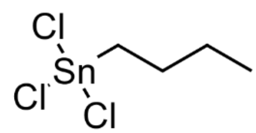
Initial Operation: 2008
Applicable NSPS/NESHAP/MACT: 40 CFR 60 Subpart IIII
40 CFR 63 Subpart ZZZZ

EU-20 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



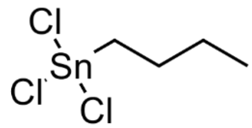
Structure of MBTT

EU-21 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.

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 123
Applicable NSPS/NESHAP/MACT:	None



Structure of MBTT

EU-22 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.

EU-23 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 has 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.

III. EXPLANATION OF INSIGNIFICANT EMISSIONS UNIT DETERMINATIONS

Each emission unit listed as insignificant in the permit has been reviewed by SWCAA to confirm its status. Emission units were determined to be insignificant as follows:

IEU-1 Cullet Crusher

One Pennsylvania Crusher model DT 9x16 jaw crusher rated at 45 tons per hour is used to crush cullet prior to storage in the silos. The crusher is fully enclosed and cannot be a source of fugitive emissions unless the enclosure is compromised. Cullet is not a non-metallic mineral subject to 40 CFR 60 Subpart OOO; therefore there are no federal standards that apply to the unit.

IEU-2 Maintenance Welding

Maintenance welding may be conducted at various locations in the facility and the Mold Shop (not including "spray welding"). Routine welding in the Mold and Maintenance Shops are vented through a Donaldson Torit model 2-2 cartridge collector rated at 1,000 cfm. Emissions from this discharge point are less than 0.1 ton/yr, well below the 0.75 ton PM_{10}/yr threshold of WAC 173-401-530(4)(e) without the use of any control device, so this unit/activity is considered insignificant. Based on a conservative estimate that no more than 2,000 lb of electrode is used annually and the highest value emission factor of 82 lb/1,000 lb from EPA AP-42 Table 12.19-1, the annual uncontrolled emissions are calculated to be:

2,000 lb electrode * (82 lb fume /1,000 lb electrode) * (1 ton/2,000 lb) = 0.08 tons/yr

IEU-3 Bad Batch Chute

The Bad Batch Chute is expected to be used approximately once per month. Approximately 8,000 lbs of glass will flow down the chute, with water to control dust generation, in about 3 minutes. The unit is fully enclosed. Even if the enclosure was compromised, the use of water should eliminate the possibility of generating significant emissions.

IEU-4 Mixed Batch Conveyor

Dust generated by the Mixed Batch Conveyor is controlled by a Flex-Kleen model 58BVBS9 IIG baghouse rated at 400 acfm. The baghouse is equipped with 9 filter bags (64.8 ft^2) made of 16 oz/yd^2 polyester. This unit is considered insignificant because it exhausts to a fully enclosed area (not ambient air).

IEU-6 Cullet Return Dust Collector

A Donaldson Torrit CPC-8 dust collector rated at 2,140 – 5,360 cfm collects dust from the cullet return conveyors and exhausts into the basement. This unit does not have a direct exhaust to ambient air and generation of particulate matter from this activity is considered insignificant.

IEU-7 Silo #10

Silo #10 is used to store trona or sodium sesquicarbonate for the dry scrubbing system. The silo has a storage capacity of 1,483 cubic feet, and is passively vented through a fabric filter. The filter is a Luhr Filter GmbH & Co. silo ventilation filter model #DF1.1/1.0/1.0/80/12 with 258 ft^2 ($24m^2$) of polyester needled felt bags. Air is exhausted through the silo during loading and when approximately 50 cubic feet of fluidizing air are discharged into the silo several times per hour. The silo and the vent are both located inside the building envelope. Due to the small quantity of potential gas flow through the filter and the fact that the unit vents into the workspace in the building, potential particulate matter emissions are expected to be negligible.

$$\frac{8{,}760 \text{ hours per year}}{\text{year}} * \frac{50 \text{ cubic feet}}{\text{minute}} * \frac{6 \text{ minutes}}{\text{hour}} * \frac{0.005 \text{ grains}}{\text{standard cu ft}} * \frac{1 \text{ pound}}{7{,}000 \text{ grains}} = \frac{2 \text{ pounds}}{\text{year}}$$

IEU-8 Raw Material Delivery

Raw materials other than cullet are delivered by belly-dump trucks to below-grade receiving pits in a drive-through structure adjacent the silo structure. Delivery is via choked flow with approximately 1 vertical foot of material exposed to the ambient air. Based on the design and observations of this activity at this facility by SWCAA personnel, no measurable dust will be generated. Any emissions from this activity would be fugitive and classified as insignificant in accordance with WAC 173-401-530(1)(d).

IEU-9 Cold End Treatment

A dilute (e.g. 0.5 – 1%) emulsion of polyethylene wax 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 wax to "cure". This unit is considered insignificant in accordance with WAC 173-401-530(1)(a) because PM_{10} emissions are believed to be insignificant and far below the 0.75 ton per year threshold, although quantification is not possible.

IEU-10 Cooling Towers

The following cooling towers are used at the facility:

- 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

Maximum potential PM_{10} emissions from these units were calculated using an iterative approach to determine the dissolved solids content that would produce the greatest amount of PM_{10}. Higher levels of dissolved solids will theoretically increase the average particle size. Using data from "Calculating Realistic PM_{10} Emissions from Cooling Towers, Abstract No. 216 Session No. AS-1b, J. Reisman and G. Frisbie, Greyston Environmental Consultants, Inc.", a water density of 1 g/cm^3 and a solids density of 2.2 g/cm^3, the following maximum PM_{10} emissions were calculated:

Drift from Cooling Towers					
Cooling Tower	Recirculation gpm	Design Drift (%)	Final TDS (ppm)	PM_{10} Fraction %	PM_{10} Emissions lb/yr
Cullet Cooling Water Tower	400	0.001%	3,918	39%	27
Air Compressor Coolant Cooling Tower	800	0.001%	3,918	39%	54
Electrode Cooling Tower	200	0.001%	3,918	39%	13
				Total =	94

Emissions from these discharge points are well below the 0.75 ton PM_{10}/yr threshold of WAC 173-401-530(4)(e); therefore these units are considered insignificant. The Air Compressor Coolant Cooling Tower and the Electrode Cooling tower would also be classified as insignificant under WAC 173-401-533(2)(m) because they are non-contact towers with a recirculation capacity less than 10,000 gpm that do not use chromium-based corrosion inhibitors.

IEU-11 62 kW Emergency Generator Engine Fuel Storage Tank

This fuel storage tank has a capacity of less than 1,100 gallons. Storage tanks not greater than 1,100 gallons capacity containing a material with a vapor pressure of less than or equal to 550 mmHg are defined in WAC 173-401-533(2)(b) to be insignificant emission units.

IEU-12 515 kW Emergency Generator Engine Fuel Storage Tank

This fuel storage tank has a capacity of less than 1,100 gallons. Storage tanks not greater than 1,100 gallons capacity containing a material with a vapor pressure of less than or equal to 550 mmHg are defined in WAC 173-401-533(2)(b) to be insignificant emission units.

IV. EXPLANATION OF SELECTED PERMIT PROVISIONS AND GENERAL TERMS AND CONDITIONS

P12. Excess Emissions
[SWCAA 400-107]

SWCAA 400-107 establishes criteria and procedures for determining when excess emissions are considered unavoidable. Emissions that meet the requirements to be classified as unavoidable are still considered excess emissions and are reportable but are excused and not subject to penalty. Notification of excess emissions is required as soon as possible and must occur by the next business day following the excess emissions event.

The provisions of SWCAA 400-107 do not apply to federal standards such as NESHAP/MACT standards. Such federal standards often have specific, and often more restrictive, affirmative defense provisions that only apply to malfunctions. In addition, the U.S. Court of Appeals for the D.C. Circuit in *NRDC v. EPA* (No. 10-1371) determined that EPA lacked the authority to provide an affirmative defense against suits for violations of federal standards. It holds that if EPA lacks the authority to provide this affirmative defense, state and local agencies likewise lack the same authority over federal Clean Air Act requirements. On May 22, 2015 EPA issued a SIP call to 36 states, including Washington, to modify affirmative defense provisions consistent with the *NRDC v. EPA* decision.

G2. Chemical Accident Prevention
[40 CFR 68]

Part 68 requires risk management plans be developed for the substances and thresholds listed in 40 CFR 68.130. The permittee uses no substance listed in 40 CFR 68.130, therefore this standard currently does not apply to this facility.

G11. Portable Sources
[SWCAA 400-110(5) (SIP only), SWCAA 400-110(6) (Local Only)]

SWCAA 400-110(6) establishes procedures for approving the operation of portable sources of air emissions that locate temporarily at project sites. These requirements are general standards, and apply to all portable sources of air contaminants. Common equipment subject to these conditions include emergency generators, engine-powered pumps, rock crushers, concrete batch plants, and hot mix asphalt plants that operate for a short time period at a site to fulfill the needs of a specific contract. Portable sources exempt from registration under SWCAA 400-101 are exempt from SWCAA 400-110 and not subject to the portable sources requirements. Among those categories listed in SWCAA 400-101 that are exempt are operations with potential to emit less than 1 ton per year of all criteria pollutants other than $PM_{2.5}$, and less than 0.5 tons per year of $PM_{2.5}$.

V. EXPLANATION OF OPERATING TERMS AND CONDITIONS

Req. 1-7 General Standards for Maximum Emissions

[SWCAA 400-040, SWCAA 15-3131]

SWCAA 400-040 establishes maximum emission standards for various air contaminants. These requirements are general standards, and apply to all sources of air contaminants. Therefore, these requirements apply to all emission units at the source, both EU and IEU. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing, monitoring, recordkeeping, or reporting requirements for IEUs except those specifically identified by the underlying requirements.

No specific monitoring was specified for Requirement 6 because there are no specific monitoring requirements that can be used to encompass the whole range of potential concealment and masking scenarios. The permittee is required to certify compliance with all terms and conditions of the permit, including these prohibited items, at least annually. The permittee must make a reasonable inquiry to determine if concealment or masking has occurred during the reporting period in order to certify compliance.

Req. 8 Emission Standards for Combustion and Incineration Units

[SWCAA 400-050]

SWCAA 400-050 establishes maximum emission standards for selected emissions from combustion and incineration units. These requirements apply to all combustion and incineration units at the source, both EUs and IEUs. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing, monitoring, recordkeeping, or reporting requirements for IEUs except those specifically identified by the requirements as applying to IEUs. The relevant combustion units identified by emission point are EU-14, EU-15, EU-16, EU-17, EU-18, and EU-19.

Req. 9 Emission Standards for General Process Units

[SWCAA 400-060]

SWCAA 400-060 establishes maximum particulate matter emission standards for general process units. These requirements apply to all general process units at the source, both EUs and IEUs. A General Process Unit is an emissions unit using a procedure or a combination of procedures for the purpose of causing a change in material by either chemical or physical means, excluding combustion. This would include the cullet crusher if it were not fully enclosed, and includes the Glass Melt Furnace. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing, monitoring, recordkeeping, or reporting requirements for IEUs except those specifically identified by the requirements as applying to IEUs.

Req. 10, 11 PM_{10} emissions from Material Handling and Mold Shop Baghouses
[SWCAA 15-3131]

Short-term concentration limits and annual emission limits were established for each material handling baghouse and the Mold Shop baghouse. Because these are relatively small baghouses with relatively small potential emissions, no source emissions testing was required for these units. Annual emissions must be calculated consistent with Section 6 of the Technical Support Document for Air Discharge Permit 15-3131. Consistent with the calculation methodology of Section 6, unless there are new source test results, emissions must be calculated assuming that each unit vents at its maximum rated airflow with an exhaust emission concentration of 0.005 gr/dscf.

Req. 12 Glass Melt Furnace Emission Limits
[SWCAA 15-3131]

Short-term limits were provided in both lb/ton glass (to represent BACT), and lb/hr (to protect ambient air quality). Particulate matter limits also are found in 40 CFR 60.292 and Table 1 of 40 CFR 63 Subpart SSSSSS. Both of these federal rules limit particulate matter to no more than 0.1 g/kg glass (0.2 lb/ton glass). This is less stringent than the 0.09 lb/ton glass limit provided in SWCAA 15-3131, therefore only the limit from SWCAA 15-3131 was listed.

Annual emissions must be calculated in accordance with the methodology found in Section 6 of the Technical Support Document for Air Discharge Permit 15-3131. The relevant portion of Section 6 is reproduced below:

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

Gas Firing Rate =		40 MMBtu/hr			CaO Content =	10%
					Na_2O Content =	13%
Capacity =		275 tons per day				
Throughput (normal ops.) =		98,725 tons per year				
Throughput (bypass) =		1,650 tons per year				
Natural Gas Consumption =		350,400 MMBtu				

* During bypass operations SO_X, HCl, HF, PM, chromium and lead are uncontrolled.

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.

During original permitting, very little information was available to quantify emissions of toxic air pollutants from the Glass Melt Furnace, including emissions of 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 SWCAA 15-3131 requires quantification (through source emissions testing), and requires that emissions of these pollutants not cause an exceedance of their 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 of the Technical Support Document for Air Discharge Permit 15-3131 (reproduced above).

Req. 13 Forehearth Heaters and Shrink Wrap Packaging Heater Emission Limits
[SWCAA 15-3131]

Annual emissions must be calculated in accordance with the methodology found in Section 6 of the Technical Support Document for Air Discharge Permit 15-3131. The relevant portion of Section 6 is reproduced below:

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	0.06	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	0.08	AP-42 Sec. 1.4 (7/98)
SO_X as SO_2	0.6	5.88E-04	13	0.01	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	53.0611		117.098	120,143	1,308	

Shrink Wrap Heater

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	0.004	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	0.005	AP-42 Sec. 1.4 (7/98)
SO_X as SO_2	0.6	5.88E-04	1	0.0004	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	53.0611		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.

Req. 14 - 16 Visible Emissions Limits
[SWCAA 15-3131]

SWCAA 15-3131 includes visible emission limits for every emission unit at the facility during normal operation. During startup, shutdown, and approved maintenance of the Glass Melt Furnace exhaust stack and startup of the emergency generator engines, the general opacity limit of SWCAA 400-040(1) (see Req.-1) applies.

Req. 17 Hot End Coating Lines Emission Limits
[SWCAA 15-3131]

Organic tin and hydrogen chloride emission limits were established in Air Discharge Permit 15-3131 to comply with Washington state toxics rules. Emissions must be calculated using a material balance approach with the assumption that one third of the tin utilized is deposited on surfaces unless other measurements are available.

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)

Req. 18 Mold Swabbing Emission Limits
[SWCAA 15-3131]

Annual emissions must be calculated in accordance with the methodology found in Section 6 of the Technical Support Document for Air Discharge Permit 15-3131. The relevant portion of Section 6 is reproduced below:

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.

Req. 19 Evaporative VOC Emission Limits
[SWCAA 15-3131]

Annual emissions must be calculated in accordance with the methodology found in Section 6 of the Technical Support Document for Air Discharge Permit 15-3131. The relevant portion of Section 6 is reproduced below:

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.

Req. 20 Emission Control Device Operation
[SWCAA 15-3131]

With certain exceptions for the Glass Melt Furnace dry scrubber and baghouse, all emission control devices must be operated when the equipment served by that control device is in operation. The Glass Melt Furnace cannot be "turned off"; therefore some allowances were made in the federal rules and in Air Discharge Permit 15-3131 for bypassing of these control devices when necessary to conduct maintenance. At a minimum, these control devices must be bypassed annually to conduct the inspections required by 40 CFR 53.11455(d)(1) and Condition 30 of SWCAA 15-3131. This inspection is considered an element of routine maintenance.

Req. 21, 22, 29 Stack Height, Stack Orientation, and Fuel Prohibitions
[SWCAA 15-3131]

No specific monitoring was specified for these requirements because a capital project would be necessary to change either the exhaust stack or the fuel source for the burners. The permittee is required to certify compliance with all terms and conditions of the permit, including these prohibited items, at least annually. The permittee must make a reasonable inquiry to determine if the Glass Melt Furnace exhaust stack or burner fuel sources were modified during the reporting period in order to certify compliance

Req. 23, 24 Glass Melt Furnace Emission Control System
[40 CFR 63 Subpart SSSSSS, SWCAA 15-3131]

These requirements come from 40 CFR 63 Subpart SSSSSS, except 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.

Req. 25 - 28 Glass Melt Furnace Operation Requirements
[SWCAA 15-3131]

These requirements from Air Discharge Permit 15-3131 are intended to minimize emissions from the Glass Melt Furnace. Because the Glass Melt Furnace cannot be turned off to minimize emissions if there is a malfunction with the control equipment, routine spare parts much be maintained on-site to minimize the amount of time emissions would be partially or entirely uncontrolled.

Req. 30 - 34 Emergency Generator Engine Requirements
[40 CFR 60.4207, 40 CFR 60.4211, SWCAA 15-3131]

These requirements all relate to operation of the emergency generator engines and cover the operating requirements imposed by 40 CFR 60 Subpart IIII and Air Discharge Permit 15-3131. 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.

VI. EXPLANATION OF OBSOLETE AND FUTURE REQUIREMENTS

1. Obsolete Regulatory Orders/Permits

The following Air Discharge Permits have been issued for this facility and are no longer in effect.

Air Discharge Permit	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	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 are sources of fugitive VOC emissions from the evaporation of oils used in the process. Air Discharge Permit 09-2888 superseded Air Discharger Permit 07-2718.

Air Discharge Permit	Application #	Date Issued	Description
11-2968	CO-904	5/9/2011	Approval for replacement of the failed glass melting furnace with a new electrically boosted oxy-fuel fired glass melting furnace. Air Discharge Permit 11-2968 superseded Air Discharge Permit 09-2888. Air Discharge Permit 11-2968 was superseded by Air Discharge Permit 15-3131 on July 14, 2015. Air Discharge Permit 15-3131 was issued for belated approval of two hot end coating lines, mold swabbing, exhausting the Mixed Batch Day Bins Dust Collector to ambient air, increasing the evaporative VOC emission limit and addressing alternative monitoring of the Glass Melt Furnace exhaust O_2 content at low production rates.

2. Future Requirements

No future requirements are anticipated.

VII. EXPLANATION OF MONITORING AND RECORDKEEPING TERMS AND CONDITIONS

Note that because this facility is not a major source, Compliance Assurance Monitoring (CAM) requirements of 40 CFR 64 are not applicable to any emission units at this facility.

M1. General Recordkeeping

This section is taken directly from SWCAA 15-3131 and WAC 173-401-615(2) and contains the general recordkeeping requirements that apply to monitoring requirements. Recordkeeping requirements were separated into Sections (a) through (d) to organize the requirements.

M2. Visual Equipment Inspection

This monitoring requirement is used to provide, by itself or in combination with other monitoring requirements, a reasonable assurance of compliance with the general requirements drawn from SWCAA 400 and specific requirements drawn from SWCAA 15-3131. With the exception of the requirements drawn from SWCAA 15-3131, no specific monitoring or recordkeeping is established by SWCAA 400 to determine the compliance status of any specific emission unit with the standards listed. Consequently, SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615.

M2 requires a survey of EU-1 through EU-14 to identify potential visible emissions. All of these emission units utilize baghouses to control particulate matter emissions. If emissions are not apparent during the initial survey, it is highly unlikely that the source is violating particulate matter or opacity standards and it is unnecessary to perform a formal Method 9 opacity observation. Excess visible emissions from the remaining emission units are unlikely and/or are only addressed by generally applicable requirements; therefore opacity observations have only been required when indicated by a compliant or if otherwise unusual emissions are observed.

M3. General Pollution Control Equipment Inspection

This monitoring requirement is used to provide, in combination with other monitoring requirements, a reasonable assurance of compliance with the general requirements drawn from SWCAA 400 and the specific requirements from SWCAA 15-3131 and 40 CFR 63 Subpart SSSSSS that rely on, or specifically require, proper operation of emission control devices. With the exception of the Glass Melt Furnace (EU-14), no specific monitoring or recordkeeping was established by SWCAA 400 or SWCAA 15-3131. Consequently, SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615 for those requirements. M3 is designed to assure compliance through a combination of periodic facility inspections, use of reasonable precautions and good work practices, and prompt corrective action whenever necessary.

M4. Complaint Monitoring

This monitoring requirement is used to provide, by itself or in combination with other monitoring requirements, a reasonable assurance of compliance with the general requirements drawn from SWCAA 400 and a specific odor nuisance requirement from Air Discharge Permit 15-3131. SWCAA 400 does not directly establish any specific regime of monitoring or recordkeeping for these requirements. Consequently, for these rules SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615. M4 is designed to assure compliance through prompt complaint response and corrective action whenever necessary.

M5. Glass Melt Furnace Source Emissions Testing Requirements

This monitoring requirement is used to provide, in combination with other monitoring requirements, a reasonable assurance of compliance with particulate matter emission limits from 40 CFR 60 Subpart CC, 40 CFR 63 Subpart SSSSSS, and SWCAA 400 and the emission limits for a number of pollutants provided in Air Discharge Permit 15-3131.

For the Glass Melt Furnace, the level of SO_2 (and other acid gases) and PM (including metals) emissions will be primarily influenced by how well the dry scrubber and baghouse are operating. For this reason, the annual source emissions test for particulate matter is augmented with continuous monitoring of the exhaust with a bag leak detection monitor (see Req-23, M8, and M9), monthly visual inspections of the exhaust and control equipment (see M2 and M3), and an annual inspection of the baghouse (see M8). This combination of monitoring is expected to provide a reasonable assurance that the PM and metals emission limits are met at all times.

Uncontrolled SO_2 emissions are expected to be relatively consistent due to the consistent glass recipes; therefore the primary factor impacting SO_2 emissions is how well the combination of dry scrubber and baghouse (which provides additional contact between the scrubbing reagent and the acid gases) are operating. Mechanical factors that impact mixing of the reagent and gas:solid contact in the dry scrubber are expected to change only slowly with time as parts wear, and therefore the annual source emissions test should provide a reasonable assurance that this factor is accounted for. The potential for short-term variation in emission control is addressed by the requirement found in M8 to monitor the amount of reagent fed to the dry scrubber each hour.

NO_X emissions are primarily controlled through the use of oxygen rather than air for combustion; therefore the oxygen concentration monitoring in M7 is the primary method of assuring the NO_X emission limits are met. The annual source emissions test serves as a backup assurance that this control is effective and that combustion patterns haven't changed, or air leakage developed, that could otherwise influence NO_X emissions.

Because the furnace provides a hot area with a significant residence time, carbon monoxide emissions should remain relatively low unless fuel rich zones develop. O_2:fuel ratio and excess O_2 monitoring is required in M7. The annual source emissions test serves as a backup assurance that this control is effective and that combustion patterns haven't changed or other failures haven't occurred that would influence CO emissions (e.g. a faulty O_2:fuel ratio measurement).

The 30 day pretest notification requirements under 40 CFR 60.8 and the 60 day pretest notification requirements of 40 CFR 63.7 for "initial" testing after reconstruction have been modified to 10 business days consistent with the requirements of Air Discharge Permit 15-3131. This is within SWCAA's authority as the "Administrator" of the applicable regulations (40 CFR 60 Subpart CC and 40 CFR 63 Subpart SSSSSS). In SWCAA's experience, 10 business days is entirely adequate to allow SWCAA time to review a test protocol. Longer time periods tend to cause the actual sampling date to be unnecessarily delayed.

M6. Monitoring of Material Handling & Maintenance Baghouses

This monitoring requirement is used to provide, in combination with other monitoring requirements, a reasonable assurance of compliance with the particulate matter emission limits for the material handling and maintenance baghouses. The monthly inspections required in M2 and M3 are the primary methods of assuring the baghouses continue to operate properly. The number of hours each unit operates is used to calculated annual emissions. The emission potentials of these baghouses are too small to warrant additional monitoring.

M7. Glass Melt Furnace Operations Monitoring

This monitoring requirement comes directly from Air Discharge Permit 15-3131 and is used to provide, by itself or in combination with other monitoring requirements, a reasonable assurance of compliance with emission limitations and operating requirements for the Glass Melt Furnace. Production and fuel consumption is used to calculate annual emissions as described in requirement explanations above. Oxygen monitoring is used to assure stoichiometric excess to minimize CO emissions, and oxygen purity to minimize NO_X emissions.

M8. Glass Melt Furnace Emission Control Equipment Monitoring

This monitoring requirement is used to provide, by itself or in combination with other monitoring requirements, a reasonable assurance of compliance with emission limits other than NO_X and CO, and the emission control and monitoring requirements from 40 CFR 63 Subpart SSSSSS and Air Discharge Permit 15-3131.

M9. Glass Melt Furnace Bag leak Detector Setup and Alarm Response

This monitoring requirement is used to provide, in combination with other monitoring requirements, a reasonable assurance of compliance with the particulate matter emission limits for the Glass Melt Furnace. Most of the requirements come directly from 40 CFR 63 Subpart SSSSSS. The baghouse leak detector has been operating since the furnace was brought on-line.

At the time of permit issuance, the baghouse leak detector is a triboelectric type probe with remote logging and alarm for which all of the setup requirements have been completed. The setup requirements would need to be reviewed again if the leak detector was replaced with a new make or model. The site-specific monitoring plan has been submitted and was most recently modified on October 30, 2015.

M10. 40 CFR 63 Subpart SSSSSS (Glass Melt Furnace) General Recordkeeping

This monitoring requirement is entirely from 40 CFR 63 Subpart SSSSSS and contains the recordkeeping that is used to document compliance with reporting and logging requirements of Subpart SSSSSS.

M11. Forehearth Heaters and Shrink Wrap Packaging Heater Monitoring

This monitoring requirement requires logging of the fuel usage by the Forehearth Heaters and the Shrink Wrap Packaging Heater in order to calculate emissions. In addition, maintenance and repair activities that may impact emissions must be recorded so that facility and SWCAA personnel can review whether emissions from the units might have changed, and provide background information in the event excess emissions are observed.

M12. Emergency Generator Engine Monitoring

This monitoring requirement is used to provide a reasonable assurance of compliance with all of the specific requirements relating to operation of the emergency generator engines. Condition 27 of Air Discharge Permit 15-3131 prohibits operating the emergency generator engines at the same time for maintenance checks and readiness testing to minimize the possibility of a significant adverse impact on nearby air quality. No specific monitoring was included in Air Discharge Permit 15-3131 to demonstrate compliance with this requirement; therefore a requirement to document the operating schedules for these units was added under the "gap-filling" provisions of WAC 173-401-615.

M13. Hot End Coating Lines Monitoring

This monitoring requirement is used to provide a reasonable assurance of compliance with the emission limits for the Hot End Coating Lines. Containers of monobutyltin trichloride are set on a scale during use, allowing the facility to confirm the usage rate. By weighing the container before usage, daily, and after disconnection from the feed system, daily and annual emissions of monobytultin trichloride, HCl, and CO can be calculated using the material balance approach described in the explanation for Req-17.

M14. Mold Swabbing

This monitoring requirement is used to provide a reasonable assurance of compliance with the emission limits for Mold Swabbing. The permittee is allowed to use purchase records rather than directly track the amount of mold swabbing compounds used to calculate annual emissions because it is unlikely that large quantities of mold swabbing materials will be stockpiled. However, if they are, the permittee will need to account for any remaining inventory at the end of a year to calculate annual emissions using purchase records.

M15. Evaporative VOC Monitoring

This monitoring requirement is used to provide a reasonable assurance of compliance with the evaporative VOC emission limit using a mass balance approach. Maintenance activities that can impact fugitive emissions, such as modifications to the cullet water skimmer or lubricant spray systems, must be recorded to allow investigation of excess emissions if they occur.

VII. EXPLANATION OF SELECTED REPORTING TERMS AND CONDITIONS

R1. Deviations from Permit Conditions

The permittee is required to report all permit deviations promptly. This reporting requirement is taken directly from WAC 173-401-615(3), SWCAA 400-107, and Conditions 38 and 39 of SWCAA 15-3131. The permittee is required to report all permit deviations no later than 30 days following the end of the month during which the deviation is discovered. Permit deviations associated with excess emissions must be reported to SWCAA as soon as possible. SWCAA may request a full report of any deviation if determined necessary. All deviations are also reported in each semi-annual report.

R2. Complaint Reports

The permittee is required to report all air quality related complaints to SWCAA within three business days of receipt to ensure prompt complaint response.

R3. Semi-annual Reports

The permittee is required to provide a semi-annual report on the status of all monitoring records and provide a certification of all reports that were not already certified. The certification must be consisted with WAC 173-401-520 which reads:

> "This certification and any other certification required under this chapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

R4. Annual Compliance Certification

The permittee is required to report and certify compliance with all permit terms and conditions on an annual basis. Annual compliance certification is required by WAC 173-401-630(5) for all requirements.

R5. Emission Inventory Reports

The permittee is required to report an inventory of emissions from the source on an annual basis. Annual reporting of emissions inventory is required under SWCAA 400-105 to be submitted to SWCAA by March 15th for the previous calendar year unless an extension is approved by SWCAA. SWCAA's Executive Director may extend the submittal date to April 15th (the deadline in WAC 173-400-105).

R6. Source Test Plans and Reports

The permittee is required to notify SWCAA in advance of all required source testing so that SWCAA personnel may be present during testing. The 30 day pretest notification requirements under 40 CFR 60.8 and the 60 day pretest notification requirements of 40 CFR 63.7 for "initial" testing after reconstruction have been modified to 10 business days consistent with the requirements of Air Discharge Permit 15-3131. This is within SWCAA's authority as the "Administrator" of the applicable regulations (40 CFR 60 Subpart CC and 40 CFR 63 Subpart SSSSSS). In SWCAA's experience, 10 business days is entirely adequate to allow SWCAA time to review a test protocol. Longer time periods tend to cause the actual sampling date to be unnecessarily delayed.

The permittee must also report test results within 45 days of test completion to allow timely review by SWCAA. Operating conditions are also to be included in all test reports to relate emissions to the method of operation. Source testing described in monitoring requirement M5 is subject to this reporting requirement.

X. COMPLIANCE HISTORY

The following Notices of Violation have been issued to this facility prior to the beginning of this permit term (February 17, 2016):

NOV#	Violation Date	Notes
4445	1/13/2009	Excess visible emissions were caused by heating the electrical glass melt furnace with a fired heater to drain the furnace after a leak on January 4, 2009. Much of the smoke was believed to be molybdenum fume from electrodes normally covered by molten glass. The incident was considered unavoidable.
4635	11/3/2012	The Glass Melt Furnace emission control system was bypassed for 39 hours after a technician accidentally tripped a PLC and power supply for the baghouse. Notice of Correction issued.
5252	10/9/2013	Failure to conduct the annual emission control system inspection and failure to maintain the required minimum regent feed rate to the dry scrubbing system. $1,875 penalty assessed.
5254	10/9/2013	Failure to maintain spare bag filters for the Glass Melt Furnace baghouse. Penalty was suspended.
5266	11/6/2014	Excess VOC emissions from evaporative sources, failure to maintain a differential pressure gage on a material handling baghouse, failure to monitor O_2 content of the Glass Melt Furnace exhaust during low production rates, and exhausting of a material handling baghouse to ambient air without a permit. $4,526 penalty assessed.
5274	12/26/2014	Extended Glass Melt Furnace emission control system bypass after a PUD power failure. Fuel flow was restored December 27, 2014, and the bypass continued until December 30, 2014. $1,875 penalty assessed.

XI. APPENDICES

Appendix A contains the methods by which visible emissions from the permittee's operations are to be evaluated when performing required monitoring.

Appendix B contains the Site Specific Monitoring plan for the Glass Melt Furnace baghouse.

XI. PERMIT ACTIONS

Air Operating Permit SW10-17-R0

1.	Renewal Permit Application Submitted:	July 12, 2013
2.	Permit Application Deemed Complete:	July 19, 2013
3.	Permit Application Sent to EPA:	November 3, 2015
4.	Draft Permit Issued:	November 3, 2015
5.	Proposed Permit Issued:	December 15, 2015
6.	Final Permit Issued:	February 17, 2016

Air Operating Permit SW10-17-R0-A (Administrative Amendment)

1.	Final Permit Issued:	October 20, 2016