

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: On-site Inspection

B187768079

FACILITY: Guardian Industries-Carleton		SRN / ID: B1877
LOCATION: 14600 ROMINE RD, CARLETON		DISTRICT: Jackson
CITY: CARLETON		COUNTY: MONROE
CONTACT: Alex Logan , EHS Coordinator		ACTIVITY DATE: 06/06/2023
STAFF: Brian Carley	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled targeted on-site inspection		
RESOLVED COMPLAINTS:		

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### PURPOSE

On June 29, 2022, I arrived at the facility and met with Alex and Benjamin Kroeger, EH&S Manager of Guardian for the purpose of determining compliance of Guardian Industries with their ROP No. MI-ROP-B1877-2021b. Lindsey Wells from TPU was on-site the day of the inspection to observe the stack test on Line 2. The ROP was modified on August 18, 2021, when Guardian's minor modification request to have EUSEAMER removed from the ROP was approved. Safety glasses, hi-vis vest, and safety boots are required for the inspection.

### BACKGROUND

Guardian Industries has two lines that manufacture glass using the float method with each line's emissions being controlled by its own control device consisting of a dry scrubber, particulate filter, and selective catalytic reduction. Float glass uses common glass-making raw materials, typically consisting of sand, soda ash (sodium carbonate), dolomite, limestone, and salt cake (sodium sulfate) etc. Other materials may be used as colorants, refining agents or to adjust the physical and chemical properties of the glass. The raw materials are mixed in a batch process, then fed together with suitable cullet (waste glass), in a controlled ratio, into a furnace where it is heated to approximately 1,500 °C (~2,700 °F) and mixed to create molten glass that has a uniform composition per the requirements of the type of glass that is to be made.

The molten glass is then fed into a delivery canal and is poured onto a bath of molten tin. The glass flows onto the tin surface forming a floating ribbon with perfectly smooth surfaces on both sides and of even thickness. The glass ribbon is pulled through the tin bath by rollers at a controlled speed. Variation in the flow speed and roller speed enables glass sheets of varying thickness to be formed.

Once off the tin bath, the glass sheet passes through a lehr kiln, where it is cooled gradually so that it anneals without strain and does not crack from the temperature change. On exiting the "cold end" of the kiln, the glass is cut to size by machines with any waste glass sent to crushers to be recycled as cullet.

This facility also has two emergency generators, a fire pump, and a cold cleaner, which are other operations also covered by the ROP. The generators and the fire pump are subject to Subpart

ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engine (RICE MACT) as an area source.

### **COMPLIANCE DETERMINATION**

*Unless otherwise noted in the inspection report all timeframes for the records received was May 1, 2022 through April 30, 2023.*

#### **Source-Wide**

This table covers the hazardous air pollutants (HAP) emissions from all process equipment source-wide including equipment covered by other permits, grand-fathered equipment, and exempt equipment. Based on the records provided during the inspection, the three highest total aggregate 12 month rolling totals emitted was 0.00623 tons, 0.00624 tons, 0.00625 tons of HAPS in July, August, and October 2022, respectively. Most of the HAP emissions was selenium with a 12 month rolling total of 0.00443 tons (also in August and October 2022). They are keeping track of the individual emissions of selenium and other HAP metals that are emitted from Line #2 as well as the aggregate totals as required by Special Condition (SC) VI.2 (see attachment 1). This is well under the individual HAPs limit of 8.9 tons/year and 22.4 tons/year aggregate HAPs (SC I.1 and I.2, respectively). I determined that they are complying with this table.

#### **EU00079**

This emission unit is also known as Line #1 of the two that manufacture glass at this facility by using the float method. The emissions from this line are controlled with a control device consisting of a dry scrubber, particulate filter, and a SCR. AQD received notification of the completion of the construction of the control device on August 15, 2019. They are permitted to use glass manufacturing HAP metals on this unit, which will make them subject to the National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources, 40 CFR Part 63 Subpart SSSSSS (Subpart 6S) once they start using them to make glass on this line. At the time of the inspection, they have not used any glass manufacturing HAP metals (arsenic, cadmium, chromium, lead, manganese, and nickel) in the glass making process on this line. Any condition in this table related to Subpart 6S was not reviewed as it has not gone into effect yet. During the week of June 5, 2023, they were conducting their annual stack tests and to determine compliance with the emission limits for PM and sulfuric acid mist per SC V.3 and V.4. They were also conducting RATAs on the CEMS to recertify the NOx (inlet and outlet), SO<sub>2</sub> and flow CEMS (SC IV.5, VI.2, and Appendix 3 of MI-ROP-B1877-2021b).

At the time of the inspection, they told me that they have not had any abnormally low production rate days (as defined in the permit) or needed to exclude any days from NO<sub>x</sub> and SO<sub>2</sub> 30 day rolling averages due to maintenance on the control device or applied to EPA for an alternative compliance option for NO<sub>x</sub>. Therefore, they had not had to use the equations listed in SC I.10 through 13 or record the hours and describe the corrective actions per SC III.5 and VI.10. I asked for and received a spreadsheet for the tons of glass pulled for the periods of March 2023 through May 2023 and it showed that their maximum raw glass production in tons/day for that time period being 452 tons, which is well under their limit of 550 tons/day with per SC II.1 and VI.8 (see attachment 2). They can only burn natural gas in this emission unit (SC II.2), and they are monitoring and recording natural gas usage rates. I requested and received the natural gas usage for Line #1 for March through May 2023 (see attachment 3). Their current malfunction abatement plan (MAP) was

reviewed and approved on March 3, 2020 (SC III.1). They said that the last time that they had updated their MAP on May 2023, but the updates were simple administrative changes. This kind of update does not require AQD review or approval. The last canal change was done on this line on May 11 through 14, 2020 (SC III.2). They are maintaining the control device and recording the maintenance activities per SC III.3 (see attachment 4). The last time they had a furnace startup was in 2014 after they had finished rebricking this line. Therefore, any condition that dealt specifically with furnace startup and shutdown were not reviewed. They provided the SCR NOx removal efficiency for each day of the timeframe, and it was above their permitted limit of 80% removal efficiency based on a 30 day rolling average (see attachments 5). The SCR NOx removal efficiency during the timeframe ranged from 80.5% to 85.6%. At the time of the inspection, the control device was in operation and the ancillary equipment was operating properly (SC IV.1 through IV.4 and SC IV.6 through 9). They are currently complying with their PM and H<sub>2</sub>SO<sub>4</sub> limits in Section I of this table per their last stack test done during the week of June 27, 2022, as required by SC V.1 through 5 (see file for submitted reports). The stack tests showed an emission rate of 0.07 lbs PM/ton glass pulled (PM permitted limit is 0.45 lbs/ton glass pulled) and a H<sub>2</sub>SO<sub>4</sub> emission rate of 0.13 lbs/hr (permitted limit: 1.6 lbs/hr).

They are continuously monitoring NOx, SO<sub>2</sub>, and flow using CEMS, which were last certified during the week of June 27, 2022 (see file for RATA report) as required by SC VI.1 through 4. The recertification of the CEMS by RATA is scheduled to be done later this week. They provided the daily records for May 2023 of the NOx and SO<sub>2</sub> lbs/ton glass produced as required by SC VI.5 (see attachment 6). They have not had a situation where they needed to recertify their CEMS since their last RATA (SC VI.6 and 7). They stated that they had to bypass the control device for maintenance during the requested timeframe four times (SC VI.9), which they provided information about for each instance (see attachment 7). They also provided the daily raw glass production for Line 1 for May 2023 as required by SC VI.8 (see attachment 8). I requested and received the following daily information for the week of May 21<sup>st</sup> (5/21/23 through 5/27/23) as required by SC VI.12 (see attachment 9): hourly NOx CEMS emissions (in ppm) before and after the SCR; hourly SO<sub>2</sub> CEMS emissions in lbs/hr; the 30-day rolling average NOx removal efficiency as calculated each day; and the 30-day rolling average SO<sub>2</sub> emission rate as calculated each day. They have submitted all required reports specified in Section VII of their ROP (see files), which include the annual and semiannual certification, RATA reports, and stack test results. Using a rangefinder, I was able to determine that the stack height for Line 1 to be ~204 feet above the ground, which is greater than their minimum height requirement of 199 feet (SC VIII.1). I have determined that they are complying with this table.

### **EU00080**

This emission unit is also known as Line #2 of the two that manufacture glass at this facility by using the float method. The emissions from this line are controlled with a control device consisting of a dry scrubber, particulate filter, and a SCR. This line is also subject to Subpart 6S because they are now using a glass manufacturing metal HAP (chromium in the form of iron chromite) in their glass making process. During the week of June 5, 2023, they were conducting their annual stack tests and to determine compliance with the emission limits for PM and sulfuric acid mist per SC V.3 and V.4. On the day of the inspection, they are conducting the stack tests on Line 2. They were also conducting RATAs on the CEMS to recertify the NOx (inlet and outlet), SO<sub>2</sub> and flow CEMS (SC IV.5, VI.2, and Appendix 3 of MI-ROP-B1877-2021b).

At the time of the inspection, they told me that they have not had any abnormally low production rate days (as defined in the permit) or needed to exclude any days from NO<sub>x</sub> and SO<sub>2</sub> 30 day rolling averages due to maintenance on the control device or applied to EPA for an alternative compliance option for NO<sub>x</sub>. Therefore, they had not had to use the equations listed in SC I.12 through 15 or record the hours and describe the corrective actions per SC III.5 and VI.11. I asked for and received a spreadsheet for the tons of glass pulled for the periods of March 2023 through May 2023 and it showed that their raw glass production was well under their limit of 650 tons/day per SC II.1 and VI.8 (see attachment 10). They can only burn natural gas in this emission unit (SC II.2), and they are monitoring and recording natural gas usage rates per SC II.2 and SC VI.9. I requested and received the natural gas usage for Line #2 for March through May 2021 (see attachment 3). Their current malfunction abatement plan (MAP) was reviewed and approved on February 22, 2018 (SC III.1). They said that they have updated their MAP on May 2023, but the updates were simple administrative changes related to updating asset numbers. This kind of update does not require AQD review or approval. The last canal change was done on this line on October 17-20, 2022 (SC III.2). They are maintaining the control device and recording the maintenance activities per SC III.3 (see attachment 4). The last time they had a furnace startup was in October 2016, and compliance with SC III.4 and SC VI.12 was verified during the last inspection (see file for 7/9/19 inspection report). Therefore, any condition that dealt specifically with furnace startup and shutdown were not reviewed. They provided the SCR NO<sub>x</sub> removal efficiency for each month of the timeframe and it was above their permitted limit of 80% removal efficiency (see attachment 11). At the time of the inspection, the control device was in operation and the ancillary equipment was operating properly (SC IV.1 through IV.4 and SC IV.6 through 9). They are complying with their PM, H<sub>2</sub>SO<sub>4</sub>, glass manufacturing metal HAPS, and selenium limits in Section I of this table per their last stack test done September 16, 2020 (HAPS and selenium, which needs to be done once every 5 years) and during the week of June 27, 2022 (PM and H<sub>2</sub>SO<sub>4</sub>), as required by SC V.1 through 5 (see file for submitted reports). In those reports, they showed an emission rate of 0.005 lbs PM/ton glass pulled (PM permitted limit is 0.45 lbs/ton glass pulled), their selenium emission rate was 0.007 lbs/hr (permitted limit: 2.03 lbs/hr), their metal HAPS emission rate was 0.000023 lbs/ton glass pulled (permitted limit: 0.02 lbs/ton glass pulled), and a H<sub>2</sub>SO<sub>4</sub> emission rate of 0.31 lbs/hr (permitted limit: 1.6 lbs/hr).

They are continuously monitoring NO<sub>x</sub>, SO<sub>2</sub>, and flow using CEMS, which were last certified on during the week of June 27, 2022 (see file for RATA report) as required by SC VI.1 through 4. They provided the daily records for May 2023 of the NO<sub>x</sub> and SO<sub>2</sub> lbs/ton glass produced as required by SC VI.5 (see attachment 12). They have not had a situation where they needed to recertify their CEMS since their last RATA (SC VI.6 and 7). They also provided the daily raw glass production for Line 2 for May 2023 as required by SC VI.8 (see attachment 8). They stated that they have had to bypass the control device once for maintenance during the requested timeframe, which they provided records per SC VI.10 (see attachment 7). I requested and received the following daily information for the week of May 21<sup>st</sup> (5/21/23 through 5/27/23) as required by SC VI.13 (see attachment 13): hourly NO<sub>x</sub> CEMS emissions (in ppm) before and after the SCR; hourly SO<sub>2</sub> CEMS emissions in lbs/hr; the 30-day rolling average NO<sub>x</sub> removal efficiency as calculated each day; and the 30-day rolling average SO<sub>2</sub> emission rate as calculated each day. In a past inspection, they provided me with a copy of their Notification of Compliance Status that they submitted to EPA on June 12, 2020 due to that they could not find a copy of the original notification. They have since

found the original notification which they had submitted on July 9, 2015. I was able to verify in our files that we had received that notification. That document plus the other information gathered during this inspection meets the requirements of SC VI.15. They have submitted all required reports specified in Section VII of their ROP (see files), which include the annual and semiannual certification, RATA reports, and stack test results. They also provided the NOx emissions in tons/year for 2022 that they used to compare with their baseline actual emissions and their pre-construction projections (see attachment 14). Using a rangefinder, I was able to determine that the stack height for Line 1 to be ~152 feet above the ground, which is greater than their minimum height requirement of 150 feet (SC VIII.1). I have determined that they are complying with this table.

#### **EUDUSTL1**

This table covers a pulse jet dust collection used to filter glass particles from Line #1 crushing operation. This glass crusher was in operation at the time of the inspection and I did not see any visible emissions coming from the exhaust of the dust collector. They are inspecting the dust collector daily and recording the pressure drop of the baghouse per SC VI.1. I asked for and received the daily inspection records for the months of March, April, and May 2023 (see attachments 15-17). The records show that they are in compliance with their monitoring requirements with the pressure drop staying between 0 to 8 inches of water and that they have not had monitor downtime. Based on the records, they did not record any incident that required Method 9 readings during those 3 months (SC VI.3). The last time that they replaced the pressure gauge on June 4, 2021, as required by SC VI.2. Using a rangefinder, I was able to determine that the stack height for Line 1 to be ~33 feet above the ground, which is greater than their minimum height requirement of 30 feet (SC VIII.1). I determined that they are in compliance with this table.

#### **EUDUSTL2**

This table covers a pulse jet dust collection used to filter glass particles from Line #2 crushing operation. This glass crusher was in operation at the time of the inspection and I did not see any visible emissions coming from the exhaust of the dust collector. They are inspecting the dust collector daily and recording the pressure drop of the baghouse per SC VI.1. I asked for and received the daily inspection records for the months of March, April, and May 2021 (see attachments 15-17). The records show that they are in compliance with their CAM plan with the pressure drop staying between 0 to 8 inches of water and that they have not had monitor downtime. Based on the records, they did not record any incident that required Method 9 readings (SC VI.3). They have not had a need to replace the pressure gauge since the last inspection, which occurred on June 22, 2021 (SC VI.2). I determined that they are in compliance with this table.

#### **EUL2WASTESILO**

This table covers an 800 ft<sup>3</sup> air pollution control system waste silo equipped with a passive bin vent on the east side of the Line 2 waste management building. The waste silo is under vacuum by the waste blower package. They are maintaining the bin vent per SC IV.1 with the last recorded maintenance being done on June 14, 2022 (see 6/29/22 inspection report). I determined that they are complying with this table.

#### **EUL1WASTESILO**

This table covers an 800 ft<sup>3</sup> air pollution control system waste silo equipped with a passive bin vent on the east side of the Line 1 waste management building. The waste silo is under vacuum by the waste blower package. They are maintaining the bin vent per SC IV.1 with the last recorded maintenance being done on June 21, 2022 (see 6/29/22 inspection report). I determined that they are complying with this table.

#### **EUFIREPUMP**

This table covers a Rule 285(2)(g) exempt existing fire pump, which is an emergency compression ignition (CI) engine, 100-500 HP, subject to the RICE MACT. The fire pump has a non-resettable hour meter install on it as required by SC IV.1. As of the inspection, it was currently reading 485.4 hours total usage. They operated the fire pump for 17.6 hours in 2022, which is well below the 100 hours limit in SC III.1.a (see attachment 18). They have also only run the fire pump for 5.2 hours from January 1, 2021 through May 31, 2021 (see attachment 18). They have not had to run the fire pump for emergency situations during the requested timeframe (SC III.1.b). They do not utilize an oil analysis program (SC III.3) and Alex said that they change the oil on EUFIREPUMP annually. They do maintenance on the fire pump and record it (see attachment 19), with the last oil and filter change, air cleaner inspections, and hose and belt inspection last done on October 27, 2022, per the RICE MACT. They do follow the manufacturer's maintenance plan instead of developing one of their own per SC III.4. This is a diesel fuel fired pump, which uses ultra-low sulfur diesel fuel (see attachment 20). They are keeping track of the usage rate on a monthly basis as required by SC VI.1 (see attachment 21). I determined that they are complying with this table.

#### **FG00097**

This table covers two diesel oil fired emergency backup electrical generators with a maximum rated capacity of 2500 brake horsepower (BHP) each. They are using ultra low sulfur diesel fuel (15 ppm sulfur based on supplier's analysis) for those generators, which is well below their limit of 0.04% sulfur by weight in the diesel fuel (see attachment 20). They are keeping track of the operating hours and the amount of fuel consumed in the generators (see attachment 22). They are below their limit of 51,000 gallons per 12 month rolling time period as determined at the end of each month (SC II.1) reporting 12-month totals that ranges from 5,9991.7 gallons (December 2022) to 2,330.9 gallons (May 2022) consumed during the timeframe. They were also below their limit of 700 generator-hours per 12 month rolling time period as determined at the end of each calendar month (SC III.1). The monthly 12-month rolling time period ranged from a minimum of 16.3 hours to a maximum of 41.9 hours of operation over the time period. They did not have any emergency situations during the requested timeframe where the generators ran (SC III.3.a). All the hours that the generators ran were for maintenance checks and readiness testing (SC III.3.b) and were recorded per SC VII.3 (see attachment 23). The generators were inspected by Michigan CAT with Generator #1 being inspected on September 9, 2022 and Generator #2 on September 12, 2022. During that inspection, the oil change, the oil filter change, the air cleaner, hoses, and belt were inspected and recorded as required by SC III.4, VI.2, and VI.4.d (see attachments 24 and 25). They do follow the manufacturer's maintenance plan instead of developing one of their own per SC III.7. They weren't required to submit an Initial Notification and Notification of Compliance Status for these units based on 40 CFR 63.6645(a)(5), which exempts emergency RICE units. They are maintaining the records required for the RICE MACT per SC VI.4. I determined that they are complying with this table.

**FG00098**

This table covers any cold cleaners (a.k.a. parts cleaners) that are on site at this facility. The only cold cleaner in use at the time of the inspection was using a citrus based biodegradable detergent and therefore is not subject to the requirements of this table. There are two other cold cleaners on site (one on Line 1 and the other is on Line 2) but they do not currently have any solvents whatsoever in them and were mainly used as storage. I determined that they are in compliance with this table.

**Compliance Determination**

Based on the information that I received during my inspection and of the required reports that they have submitted, I have determined that this facility is complying with MI-ROP-B1877-2021b.

NAME Bruce Carling      DATE 7/11/23      SUPERVISOR [Signature]

