

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

B187763727

<b>FACILITY:</b> Guardian Industries-Carleton		<b>SRN / ID:</b> B1877
<b>LOCATION:</b> 14600 ROMINE RD, CARLETON		<b>DISTRICT:</b> Jackson
<b>CITY:</b> CARLETON		<b>COUNTY:</b> MONROE
<b>CONTACT:</b> Benjamin Kroeger , Environmental, Health & Safety Manager		<b>ACTIVITY DATE:</b> 06/29/2022
<b>STAFF:</b> Brian Carley	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Scheduled targeted inspection.		
<b>RESOLVED COMPLAINTS:</b>		

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### PURPOSE

On June 29, 2022, I arrived at the facility and met with Ben and Alex Logan of Guardian for the purpose of determining compliance of Guardian Industries with their ROP No. MI-ROP-B1877-2021b. 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 June 1, 2021, through May 31, 2022.*

**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 highest total aggregate 12 month rolling total emitted was 0.228 tons of HAPS in July 2021. Most of the HAP emissions was selenium with a 12 month rolling total of 0.185 tons (also in July 2021). 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 (see attachment 1). This is well under the individual HAPs limit of 8.9 tons/year and 22.4 tons/year aggregate HAPs. 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 SSSSSS) 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 SSSSSS was not reviewed as it has not gone into effect yet. During the week of June 27, 2022, 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), SO2 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 NOx 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 NOx. Therefore, they had not had to use the equations listed in SC I.10 through 13 or record the hours 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 2022 through May 2022 and it showed that their maximum raw glass production in tons/day for that time period being 456.5 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 per SC II.2. I requested and received the natural gas usage for Line #1 for March through May 2022 (see attachment Doc 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 24, 2021, but the updates were simple administrative changes related to how they designate shift managers or supervisors. 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 Doc 4). The last time they had a furnace startup was in 2014 after they had finished rebricking this line. They provided the SCR NO<sub>x</sub> 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 5-8). The SCR NO<sub>x</sub> removal efficiency during the timeframe ranged from 82.9% to 85.5%. 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 July 13, 2021 for PM and October 5, 2021 for H<sub>2</sub>SO<sub>4</sub>, as required by SC V.1 through 5 (see file for submitted reports). The stack test for H<sub>2</sub>SO<sub>4</sub> was originally done on July 13, 2021, but had to be redone in October due to failing the emissions test. They showed an emission rate of 0.10 lbs PM/ton glass pulled (PM permitted limit is 0.45 lbs/ton glass pulled) and the retest had a H<sub>2</sub>SO<sub>4</sub> emission rate of 0.39 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 July 14, 2021 (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 2021 of the NO<sub>x</sub> and SO<sub>2</sub> lbs/ton glass produced as required by SC VI.5 (see attachments 9 and 10, respectively). 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 during the requested timeframe nine times with only two instances that were for more than 1 hour (SC VI.9), which they provided information about for each instance (see attachment 11). I requested and received the following daily information for the week of May 22<sup>nd</sup> (5/22/22 through 5/29/22) as required by SC VI.13: hourly NO<sub>x</sub> CEMS emissions (in ppm) before and after the SCR (see attachment 12); hourly SO<sub>2</sub> CEMS emissions in lbs/hr (see attachment 13); the 30-day rolling average NO<sub>x</sub> removal efficiency as calculated each day (see attachment 14); and the 30-day rolling average SO<sub>2</sub> emission rate as calculated each day (see attachment 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. 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 SSSSSS 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 27, 2022, 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 NO<sub>x</sub> (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 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 2021 through May 2021 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 Doc 16). 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 24, 2021, but the updates were simple administrative changes related to how they designate shift managers or supervisors. This kind of update does not require AQD review or approval. The last canal change was done on this line on March 19 through 22, 2019 (SC III.2). They are maintaining the control device and recording the maintenance activities per SC III.3 (see attachment Doc 21). 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). 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 Doc 18). 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) and June 22, 2021 (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 0.02 lbs PM/ton glass pulled (PM permitted limit is 0.45 lbs/ton glass pulled), their selenium emission rate was 0.023 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 June 23-24, 2021 (see file for RATA report) as required by SC VI.1 through 4. They provided the daily records for May 2021 of the NO<sub>x</sub> and SO<sub>2</sub> lbs/ton glass produced as required by SC VI.5 (see attachment 19). 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 have had to bypass the control during the requested timeframe, which they provided records per SC VI.10 (see attachment 17). I requested and received the following daily information for the week of May 22<sup>nd</sup> (5/22/22 through 5/29/22) as required by SC VI.13: hourly NO<sub>x</sub> CEMS emissions (in ppm) before and after the SCR (see attachment 22); hourly SO<sub>2</sub> CEMS emissions in lbs/hr (see attachment Doc 23); the 30-day rolling average NO<sub>x</sub> removal efficiency as calculated each day (see attachment Doc 24); and the 30-day rolling average SO<sub>2</sub> emission rate as calculated each day (see attachment Doc 25). They provided me with a copy of their Notification of Compliance Status that they submitted to EPA on June 12, 2020 (see staff activity report for 6/22/21 inspection). 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 NO<sub>x</sub> emissions in tons/year from 2015 through 2020 that they used to compare with their baseline actual emissions and their pre-construction projections (see attachment 26). 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 2022 (see attachment Doc 23). 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. 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 attachment Doc 23). 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 record one incident on March 1, 2022 that required Method 9 readings, however a Method 9 reading was not conducted. They were doing training with the maintenance staff to prevent this from occurring again (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 attachment 32). 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 attachment 33). 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 471 hours total usage. They operated the fire pump for 27.9 hours in 2021, which is well below the 100 hours limit in SC III.1.a (see attachment 34). They have also only run the fire pump for 8.4 hours from January 1, 2021 through May 31, 2021 (see attachment 34). 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 Doc 35), with the last oil and filter change and the last air cleaner inspections done in October 2020, and hose and belt inspection last done on May 22, 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 37). However, they are not keeping track of the usage rate on a monthly basis as required by SC VI.1. They do need to improve their recordkeeping for this unit, but it is not something to send them a violation notice on. This will be followed up on a later date.

#### **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 Doc 37). They are keeping track of the operating hours and the amount of fuel consumed in the generators (see attachment Doc 35). 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 range from 8,294 gallons (August 2021) to 1,873.3 gallons (March 2022) consumed during the timeframe (see attachment Doc 36). 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 31.1 hours to a maximum of 58 hours of operation over the time period (see attachment Doc 36). 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). The generators were inspected by Michigan CAT with Generator #1 being inspected on April 6, 2021 and Generator #2 on April 5, 2021. During that inspection, the air cleaner, hoses, and belt were inspected and recorded as required by SC III.4, VI.2, and VI.4.d (see attachments 38 and 39). According to the inspection records by Michigan CAT, that they take an oil sample instead of doing annual oil changes. Guardian will need to get the records of the oil analysis, which contain the analysis of Total Base Number, viscosity, and percent water content as required by SC III.5. 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. They need to start submitting copies of the annual report that is required by the RICE MACT to AQD with their ROP annual certification, since AQD is now delegated to implement the RICE MACT as required in SCVII.4 (see attachment 40). They do need to get the records of the oil analysis for these units and maintain them on site, but it is not something to send them a violation notice on. This will be followed up on a later date.


#### **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**

They do need to maintain records for EUFIREPUMP for the fuel usage and FG00097 concerning the oil analysis of these units, which will be reevaluated during the next inspection. 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 DATE 6/29/22SUPERVISOR 