

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

A751357826

FACILITY: Quaker Houghton		SRN / ID: A7513
LOCATION: 9100 Freeland Street, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: John Bozick , Senior EHS Specialist		ACTIVITY DATE: 03/01/2021
STAFF: C. Nazaret Sandoval	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: FY 2021 Scheduled Inspection		
RESOLVED COMPLAINTS:		

SOURCE: SRN A7513 – Quaker Houghton (QH)

FACILITY ADDRESS: 9100 Freeland Street, Detroit, MI 48228

INSPECTOR: Nazaret Sandoval (EGLE- AQD)

QH REPRESENTATIVES:

Michael Francis, Plant Manager (partial attendance)

Nibras Nureldin, Process Engineer (partial attendance)

John Bozick, Senior Environmental, Health and Safety (EHS) Specialist

MAIN COMPLIANCE CONTACT:

John Bozick, Senior EHS Specialist

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1 - BACKGROUND INFORMATION

Quaker Houghton (QH) is located at 9100 Freeland Street in Detroit, Michigan. This manufacturing facility was originally constructed in 1954 but the ownership and the company's name have changed over the years. It was Whitfield Chemical from 1954 to 1975, Eppert Oil from 1975 to 2000 and D.A. Stuart from 2000 to 2008.

Houghton International bought the facility in 2008 and in November 2019 the company merged with Quaker Chemical to become Quaker Houghton.

In 2015 Houghton International purchased 7 acres from Freeland Properties, LLC at the adjacent 14320 Joy Road property; the property is now used by Quaker Houghton for its business activities.

QH is located in a mixed commercial-industrial area with mostly auto parts and used car dealers' businesses north of QH along Freeland Street. There are two chemical distribution facilities at the west side of QH: Chemcoa at 8951 Freeland and PVS Nolwood Chemicals at 9000 Hubbell Avenue. JSP Resins is about a ¼ mile Northeast of QH at 13881 West Chicago. Quikrete, a ready-mix concrete plant, is across the railroad track that borders QH's property along the east at 8951 Schaefer. The nearest residential homes from QH's property line are on Decatur Street at about 500 feet east of QH. The production building at QH includes a production area which is about 52,000 sq. ft. and the office and laboratories occupies 10,500 sq. ft. The south border of the property extends to Joy Rd.

2 - PROCESS OPERATIONS

QH is a custom blending and distributor of refined base lubricating oils used in products for metalworking applications. Some of the products manufactured and/or stored at the facility include synthetic oils, coolants, cleaners, rust preventatives, grinding oils, cutting oils, quenching oils, drawing oils, and honing oils. Oils and additives are compounded in mixing tanks to manufacture custom products. The blending capacity is about 200,000 gallons. Petroleum-based lubricating oils are composed of 80–90% of petroleum hydrocarbon distillates and 10–20% of additives. The additives are used to impart specific properties to the oil. The main additives include viscosity index improvers, anti-wear additives, corrosion

inhibitors and antifreeze agents. The SIC Code is 2992, Petroleum and Lubrication Oils. The NAICS Code is 324191.

The facility also operates a wastewater pre-treatment system which was installed in 2005 and operates on a 16-hour schedule concurrent with the production schedule and work week.

There are 150 aboveground storage tanks for storing product and raw materials. Most of the storage tanks are outside the production building at the farm-tank area with a total capacity of approximately 1.75 million gallons. There are some storage tanks inside the building, with a total capacity of about 192,000 gallons. The site operates two boilers for steam generation. The steam is used to maintain the temperatures in the blending tanks when mixing is occurring. It is also used in the hot-room, and in the hot boxes.

As cited above, a wide-range of custom-formulated specialty chemicals are manufactured at the facility at any given time, for a variety of industries. The percentage distribution for the products manufactured at the facility is as follows:

Steel Rolling Oils.....	31 %
Metal Cutting Oils.....	25 %
Cleaners.....	16 %
Heat Treating.....	12 %
Metal Forming.....	7 %
Rust Preventatives.....	4 %
Functional Fluids.....	3 %
Aluminum Rolling Oils.....	2 %
Lubricants.....	0.5 %

Raw materials are mostly liquids in the form of naphtha or oils, waxes, and grease which are received in bulk or 55-gallon drums. A variety of chemical powders are also used in the formulations. The manufacturing operations are conducted from 7 am to 3:30 pm, Monday through Friday, with extended hours when there are special orders or if the formulation and manufacture of a product requires a longer preparation time. The plant has the capacity to operate 7 days per week (if needed). The current production capacity is about 1,500,000 kg per week.

3 - INSPECTION NARRATIVE

On March 1, 2021, at about 10:30 AM I arrived at the facility and checked in with the guard at the plant's Freeland Street entrance. I filled out the COVID-19 health screening questionnaire visitor form. At the parking lot I met with Mr. John Bozick, QH 's Senior Environmental Health and Safety Specialist (EHS), who accompanied me to the office building. We met at a conference room with Michael Francis, QH' s Plant Manager, and with Nibras Nureldin, QH's Process Engineer.

At the opening meeting I stated the purpose of the inspection, which is to evaluate the facility's compliance with respect to the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), and the conditions of the General Permit to Install (PTI) No. 53-20, issued by AQD on 5/5/2020 for the 10 Million British Thermal Units (MMBTU) per hour natural gas boiler.

I asked QH's representatives to provide an overview of the plant site and a general description of the production areas and processes occurring at the facility. Mr. Francis used a Power Point presentation to talk about the historical background of the plant site, the changes in ownership, the occupied area, the plant capacity, and the percentual distribution

of the chemicals manufactured at the facility. The information was later forwarded to me via email, and it has been recapped in the first two sections of this report.

Mr. Bozick accompanied me during the plant walkthrough. I started the site inspection at the main production area in the central building where the manufacturing occurs. The mixing/blending tanks are grouped in blending areas labeled 1 to 5. Blend Area No. 4 is in a separate building located outside, between Tank Farm F and Tank Farm E. In the Blend Area 1, near tank M-19, there is a citric acid scrubber system. Mr. Bozick identified it as the odor control system operated when the product "Sturaco" is manufactured. Boiler room 1 is at the east corner of the building where Blend Area 2 is located. The boiler was in operations at the time of the visit. From the boiler room 1 we walked outside to the location of the storage tank farms. We continued our walk towards the south end of the property, passed the loading dock, and reached an open area used for drum and tote storage at the property's south boundary in the same area of the storage shed (a red building located at the most southeast corner). On the walk back (south) we stopped by the horizontal storage tank building and visited the other two blend areas (3 and 5). At the end of the plant tour, I asked Mr. Bozick to show me boiler room 2 and the waste wastewater treatment building. Per my observations during the plant walkthrough, which are complemented with the records provided by QH, the facility can be divided into the following areas identified in the attached plant layout:

- Production Area Inside the Buildings (main area has top ceiling fans and side bays)

There are five blending areas labeled as Blend Area 1 to 5; Blend Area 4 is located in the building between Tank Farms E and F, and the other four are located in the main production building. The areas comprise mixing/blending tanks labeled with the letter "M" and "B" (except for one tank labeled MSOAP in Blend Area 4). The facility uses 40 blender tanks with capacities varying from 1,000 gallons to 10,000 gallons, with a few tanks with listed at capacities of 125, 550, 650 and 770 gallons each. In most cases, during the pre-mix and formulation stages the blending tanks are first loaded with the main raw material (generally a base oil) by pumping it from a bulk storage tank using fixed piping. The blending tanks are heated to 100-180 degrees Fahrenheit (°F) using steam. Increased temperatures during blending and mixing result in higher rates of volatility and therefore higher emissions of VOCs and inorganic HAPs. The other liquid additives are pumped from drums to the blenders/mixers using flexible hoses. Some formulations require the addition of powders to the blenders/mixers using pneumatic powder feeders or by opening the top of the tanks. The powders can contribute to emissions of particulate matter (PM). Although the plant appears to have four (4) dust collectors installed to reduce nuisance dust within the facility, there is no information about the dust removal capture and efficiency. The citric acid scrubber (refer to the attached schematic) was installed to minimize odors generated during the production of Sturaco; it was not designed for the wide-scale removal of volatile organic compounds (VOC) or volatile hazardous air pollutants (HAP)s.

- Tanks Farms

Fixed storage tanks ranging in capacities from 9,000 gallons to 36,000 gallons are located outside the main production building in six tank farms labelled A to F, containing mostly bulk raw material, but there are some tanks storing intermediate, and finished products. Several tanks located outside store materials which contain VOCs. Use of storage tanks may result in VOC emissions from tank breathing and working losses.

- Horizontal Tanks – Total capacity 192,000 gallons

Horizontal tanks F201 to F248 and F401 to F424 with a total capacity of 192,000 gallons are located inside the building annex to the shipping and receiving area. The tanks are

placed in platforms from the ground to the ceiling, one on top of the other. Tanks F201 to F248 are 2,000-gallon tanks placed vertically in groups of four from bottom to top, in a row of twelve, for a total of 48 tanks. F401 to F424 are 4,000-gallon tanks in a row of eight with three tanks per group, for a total of 24 tanks. These tanks contain a variety of fluids from distilled water to final products. Some of the tanks storing products are equipped with black insulation jackets. At the time of the visit there were several empty tanks.

- Shipping/Receiving Building and Storage Shed

Includes a Loading Docks, the Receiving Containment Area, and the Warehouse Storage Shed (a separate building located to the southeast within the 14320 Joy Road property). Raw material (generally liquid) is received in bulk tanker trucks that are weighted in truck scales and offloaded to bulk storage tanks. The railroad track bordering QH's property at the east side is used by QH for transporting liquid raw material in railcars which is offloaded at the pump house and transferred to bulk storage tanks. Raw material in totes and drums are stored at the storage shed. In general, QH doesn't keep finished products at the site, they are mostly shipped directly to QH's warehouse in Southfield, MI. Out of spec products are stored in totes or drums in the open area near the red storage shed. There is a railroad spur track by the shipping/receiving area that traverses QH's property from the southeast to the west. That track is only used by PVS Nolwood Chemicals.

- Wastewater Treatment Building

A building along Freeland at the northwest end of the property houses the wastewater treatment equipment. Wastewater is treated there after being previously processed in a coalescing filter located at the production area. The filter acts as an oil-water separator. The water is pumped to a wastewater tank and the suspended solids are coagulated and sent to a filter press which generates a solid cake sent for disposal. The effluent is collected in a concrete box before it is discharged to the sewer. This effluent is routinely sampled and regulated by the Detroit Water and Sewerage Department. The treatment of waste waters may involve chemical reactions which emit VOCs.

- Boiler Rooms (Natural gas-fired indirect heating units)

The facility uses two natural gas industrial boilers for generating steam used to heat the process/blending tanks. A 10 MMBTU per hour Cleaver-Brook Model FLX-1000 Flexible Watertube Boiler is located in boiler room 1 southeast of blend area No. 2. The other boiler, rated at 8 MMBTU per hour, is in the boiler room 2 near the offices and the entrance to the main building. Natural gas combustion contributes to VOC and PM emissions.

- Laboratories

The labs are located on the first floor of the main production building,

4 - RECORDS REQUEST, FOLLOW-UP, COLLECTED RECORDS AND DISCUSSIONS

The following timeline offers an overview of the specific records that AQD requested QH to provide as part of the inspection conducted on 3/1/2021 at the QH Detroit facility. Also included in this section are the follow-up activities, email communications and discussions, as well as the outcomes from AQD and QH.

11/9/2020 – Email from AQD to QH requesting preliminary records

In preparation for the FY 2021 inspection, AQD reached out to Mr. John Bozick early in the fiscal year and asked him to provide the following:

- 1) A description of the activities/process/chemical products that are manufactured at the site.
- 2) A layout for the plant, specifying a list of equipment that have been permitted by AQD or the process equipment that qualify for a Rule 201 exemption.
- 3) Copies of old Wayne County permits (if any) or AQD current permits (in any). A copy of "AQD Permit to Install (PTI) exemption handbook" was provided to QH.

11/10/2020 – Email from QH responding to AQD's records request of 11/9/2020

AQD received a description of the process operations, a copy of the plant layout, and a copy of General Permit No. 53-20 issued by AQD on 5/5/2020 for the operation of a natural gas boiler. The 10 MMBTU / hour boiler generates steam used to keep the mixing tanks at specific temperatures.

12/4/2020 – Follow-up email from AQD to QH requesting additional information about QH's claimed permit exemptions

In the email, AQD explained to QH that Rule 201 of the Michigan Air Pollution Control Rules requires a person to obtain an approved PTI for any potential source of air pollution unless the source is exempt from the permitting process. AQD requested QH to demonstrate that all the storage and blending operations at the facility are exempt from permitting. Rule 278 establishes requirements of eligibility for exemptions listed in Rules 280 through 291.

In addition, AQD requested: 1) A tank inventory (i.e., IDs, tank capacities, product stored) identifying chemicals and HAPs. 2) An NSPS applicability analysis for QH's operations indicating if the facility is subject to any of the NSPS standards. 3) PTE calculations for VOCs and HAPs.

12/7/2020 – Email from QH responding to AQD email of 12/4/2020. Air Emission Evaluation and PTE Report

In its response, QH indicated that a consultant had prepared an evaluation of the facility's emissions sources and calculated the PTE as part of the evaluation. The email included a cover letter dated 4/29/2020 and a nine-page report with attachments. A copy of the report with its attachments is enclosed.

The report presented the air emission estimate from the sources of air pollutants at the facility. An inventory listing the chemical storage tanks was also submitted. The report concluded that only the 10 MMBTU per hour boiler required a permit to install from AQD, and the rest of the equipment and processes installed at the facility qualify for a Rule 201 exemption.

AQD reviewed the report and disagreed with its conclusions relating to the VOC storage, blending, and mixing tanks. The report was unclear, and it did not identify by rule the specific exemptions that QH was claiming. Additionally, the emission factors used to estimate the VOC emissions from the blending/mixing tanks and to calculate the facility's PTE, appear to be inaccurate. AQD provided its comments to the report in subsequent communications with QH.

3/1/2021 – AQD inspected the Detroit QH manufacturing facility

Refer to "Inspection Narrative" in this report.

3/2/2021 – Email from QH in response to AQD records requested on 3/1/2021

QH provided some of the records requested during the inspection. AQD received the quarterly and annual boiler inspection and maintenance reports, and the natural gas

consumption for year 2020. Refer to “General Permit No. 53-20 –Compliance Evaluation.”

3/4/2021 – Follow up email from AQD to QH in reference to the air emissions estimate

In the email, AQD asked QH to clarify/identify the specific exemption(s) that the facility is claiming for the storage tanks, mixing tanks, and any other equipment or process installed and operating at the plant.

AQD indicated that it appears as if the mixing, blending and transfer operations occurring in some of the “mixing tanks” at Quaker Houghton may not be exempt from permitting. It is apparent that some of the tanks are functioning as reactors. During the formulations of the products, the mixing of the raw materials at the temperatures that the tanks are kept, seem to generate chemical reactions. Per definition in AQD Rule 118 (a), “Reactor means a vessel which may be jacketed to permit temperature control and which is designed to contain materials during chemical reaction”. Rule 284(2)(c), which exempts the storage and surge capacity of lubricating, hydraulic and thermal oils, is not applicable to mixing vessels. Clarification is needed to differentiate tanks that are used exclusively for storage from tanks that may also be used for mixing or as reactors.

AQD requested a revised demonstration identifying the exemptions that QH is using to be exempt from the requirements of Rule 201(1) to obtain a permit to install. AQD also asked QH to revise the VOC emission factors used in the PTE calculations and requested backup testing data to substantiate the VOC emission factors. In other words, the emission factor should be justified either by conducting tests at the Detroit facility or by presenting evidence of emission factors obtained at other QH facilities or manufacturing facilities with similar processes to those occurring at QH in Detroit.

3/8/2021 – Follow up email from QH – Plant Background and Products

The email contained the information that Michael Francis provided in the slide presentation at the opening meeting during the AQD inspection on March 1, 2021. The email included: the site background, the site’s ownership history , the plant storage capacity, the production capacity, the current product distribution and the plant layout.

5/10/2021 – QH response to AQD’s request for a permit exemption demonstration

The email included a report dated 5/10/2021 with an updated excel emission calculations and an updated tank list. QH indicated that the report was a revised version of the emission inventory dated 4/29/2020, submitted to AQD in December 2020. The purpose of the report was to clearly state the specific permit exemptions claimed by QH. The submittal included backup calculations as well as the methodology and the assumptions that were used to estimate the VOCs, PMs and HAPs potential emissions from the various emission sources operating at QH. The report concluded that based on the results of the facility-wide emissions a PTI is not required.

Although the report answered one of the questions posted by AQD, by identifying the usage of Rule 291 (emission units with “the minimis” emissions) to justify permit to install exemption; AQD did not agree with the conclusions because the VOC emission calculations were still not acceptable. QH did not revise the emission factors (EFs) that were used for the VOC emission calculations. The EFs were the same that QH used in the submittal of April 29, 2020, which were already questioned by AQD. The Rule 278a demonstration continues pending (see entry for 6/30/2021).

6/30/2021 – AQD email to QH in reference to the VOC emission factors from QH blending thanks in report dated 5/10/2021

AQD explained the conclusions within the revised report remain unsubstantiated, because the analysis within the report failed to identify and utilize the VOC content in QH's raw material formulations or in the final products. Instead, QH elected to utilize an emission factor from EPA AP-42, Table 6.4-1, "Paint and Varnish Manufacturing" which estimates VOC emissions based on the total amount of product from a mixing tank of acrylic varnish (0.01 pounds VOC / pound of product). However, without information relating to the type and proportions of the base-oil and additives used in the formulations it is uncertain if the emission factor selected by QH for the VOC emissions estimate is adequate (e.g. emission factors within AP-42 range as high as 0.08 pounds VOC / pound of product).

Further, in the submittal the production amount has been multiplied by 0.43, which only reflects the portion of the product represented by VOCs and is therefore inconsistent with the denominator of the AP-42 emission factor. If 43 % represents the maximum VOC content, then the emission factor to be used is 0.43 pounds VOC per pound of product. There is also ambiguity with the conversion factor (density in pounds/gallon) used by QH to get the pounds processed in the tanks.

Finally, QH's VOC emissions calculations exclude any hydrocarbon with a vapor pressure equal to or less than 0.1 millimeters of mercury. But this is based upon a definition of volatile organic compound within the AQD rules that has been long superseded. The current definition, at Rule 122(f), does not exclude compounds based upon vapor pressure.

In conclusion, AQD believes that QH must use EF that fits the actual operations taking place during the formulation of the products manufactured in the blending tanks. AQD provided an example and a link to the South Coast Air Quality Management Division's "VOC Emission Factors for Use of Organic-Containing Materials – December 2014", which offers two options for estimating VOC emissions from organic-containing material. The first option recommends utilizing a mass balance to calculate VOC emissions from the VOC content of mixed material using the Safety Data Sheets (SDS) of the ingredients. If actual VOC data from SDS is not available, then the second option is to use the "Default Emission Factors for Organic-Containing Material" listed on the table provided, where, for example, a generic factor of 1.5 lbs. VOC / gal of lubricants is listed under "Miscellaneous Material" for Lubricants. AQD scheduled a virtual meeting with QH on July 21, 2021, to discuss the above cited concerns.

7/21/2021 – Meeting at QH to discuss VOC PTE calculations from the blender/mixing tanks

I met with Michael Francis and John Bozick at QH Detroit manufacturing facility. At the facility we connected online with Scott Meldenson (EHS Director, Pennsylvania) and with Branson Verba (Protect All Solutions, Environmental Project Manager). Mr. Verba is the consultant engineer who prepared QH's air emission estimate reports on behalf of QH. In this meeting, I reiterated AQD's position with respect to the VOC emission factors used in the reports. I went over the issues described in AQD email of 6/30/2021. I also explained the concept of uncontrolled emissions and capture of emissions. It appears as if the only air emissions that are captured at QH are those exhausted to the Citric Acid scrubber when "Sturaco" is produced in the designated blending tank (B5, M19 or M20). The rest of the air emissions appear to be dispersed in the general plant environment and are uncontrolled. At the conclusion of the meeting QH agreed to further investigate the company's corporate records to track

down the testing protocol, the data collected, and the emission factors derived during past testing at other QH facilities manufacturing similar products.

8/24/2021 – AQD email to QH with a link to an EPA guidance for calculating PTE at batch plant

The AQD provided a link to the August 29, 1996 document entitled “Clarification of Methodology for Calculating Potential to Emit (PTE) for Batch Chemical Production Operations” authored by John S. Seitz, then Director of EPA’s Office of Air Quality Planning and Standards. The method provided a suggested procedure for PTE calculations.

This concludes the exchange of communications between AQD and QH in relation to records request, air emission estimate, emission factors, and PTE calculations.

5 - COMPLAINTS HISTORY AND VIOLATION NOTICES

During year 2021 AQD Detroit Office received various odor complaints from residents living near the Detroit QH manufacturing facility at Freeland Street. The complainants reported alleged odors from the operations at QH. Since January 2021, up to the completion of this inspection report, AQD has received a total of thirteen (13) complaints reporting nuisance odors on seven (7) separate days.

AQD staff has responded to the complaints by visiting the area and conducting odor investigations in the vicinity of QH’s plant and around the neighboring homes. An odor investigation conducted on 4/19/2021 resulted in the issuance of a violation notice to QH. During the odor surveillance conducted on 4/19/2021, AQD staff found objectionable chemical odors in nearby neighborhoods, attributable to QH operations. The odors were of sufficient intensity, duration, and frequency as to cause unreasonable interference with the comfortable enjoyment of life and property, and therefore QH was determined to be in violation of Rule 901(b).

As a result of the odor investigations, AQD have found what it appears to be a correlation. Whenever QH was producing a batch of Sturaco, AQD received odor complaints, and the complainants have characterized the odor as “Natural Gas Odor.” After conversations with QH regarding Sturaco’s formulation and its chemical composition, QH suspected that one of the additives in the formulation, which is identified as 2,5-dimercapto-1,3,4-thiadiazole (DMTD) can generate mercapto-sulfides during the manufacturing process and that seems to be the compound causing the unpleasant odors. This also correlates with the “Natural Gas Odor” reported by the complainants. The distinct Mercaptan odor that characterizes natural gas leaks is a result of the addition of Mercaptan to natural gas.

QH responded to the violation notice with a letter dated May 18, 2021. QH accepted responsibilities and proposed actions to minimize odors. Some of the action included evaluating other additives to substitute DMTD in the product formulation and the evaluation of the odor suppression system to see if it was operating as designed.

As of August 30, 2021, QH decided to temporarily suspend the production of the Sturaco formulated with the DMTD compound, until a permanent solution can be achieved.

6 - GENERAL PERMIT No. 53-20 – COMPLIANCE EVALUATION

The general permit to install No. 53-20 was issued to QH on 4/29/2020 for FG-BOILERS. FG-BOILERS is described as “One or more propane or natural gas-fired boiler with a maximum rated heat capacity input of 100 million BTU per hour, and each controlled by a low-NOx burner”. Currently, the permit covers the Cleaver-Brook Model FLX-1000 Flexible Watertube natural-gas fired boiler with a rated heat input of 10 million Btu per hour. The following special conditions (SC) apply to FG-BOILERS:

SC I.1, III.1, V.1, VI.3 and VI.4 – In Compliance

The permit establishes NOx emission limit of 0.05 pounds per million Btu of heat input. To verify compliance with the NOx emission limit, AQD may require testing at owner's expense in accordance with SC V.1. Per SC VI.3, the permittee shall keep on file a demonstration that the low-NOx burner is designed to emit no more than 0.05 pound of NOx per million Btu of heat input (manufacturer's guarantee, test data, etc. could be used to demonstrate compliance with the NOx emission limit). In addition, the permittee shall operate FG-BOILERS in accordance with the manufacturer's recommendations for safe and proper operation and to minimize malfunctions. Records of malfunctions of the control equipment, maintenance records, testing results, etc. should be kept on file and made available to AQD upon request.

QH performs boiler maintenance in accordance with the manufacturer specifications. Quarterly and annual inspections are conducted. A copy of the most recent maintenance records was provided via email on 3/2/2021. The annual inspection conducted on 10/5/2020 by a contractor, included a report titled "CSD-1 Control Test Report Checklist". The report listed all the devices and controls that were checked and/or tested during the annual service. No problems were found. A copy of a record for a winter service performed by the same contractor, which was completed on 2/8/2021, was also provided. The maintenance tasks included: cleaning the strainers, testing the relief valve, testing the auto feed, testing the safety controls, inspecting the Low Water Cutoff Controls (LWCO) operation. There was no repair needed.

SC II.1, II.2, VI.1 and VI.2 – In Compliance

The permittee shall only burn propane or natural gas in FG-BOILERS. The fuel usage in FG-BOILERS is limited to 1,400 million standard cubic feet (SCF) per 12-month rolling time as determined at the end of each calendar month. The fuel usage for FG-BOILERS shall be monitored and recorded daily with a properly calibrated device. Fuel usage records (daily, monthly, and 12-month rolling) for FG-BOILERS, shall be kept on file and available upon request.

AQD requested natural gas usage records and they were sent via email dated 3/2/2021. QH uses natural gas bills to record the quantity of natural gas that the boiler combusts monthly. Monthly records for year 2020 were tabulated by QH in an excel sheet, in units of therms of energy (1 therm is approximately 100 cubic feet of natural gas). QH calculated the 12-month rolling for the year. The 12-month rolling was equal to 747,194 therms, for an equivalent of 74,719,100 cubic feet of natural gas. That figure is less than the limit of 1,400 million cubic feet.

SC VII. 1 - For compliance evaluation refer to Section 7 of this report

The permittee shall notify AQD of the date when construction was commenced and the actual date of startup. The notification shall be submitted in accordance with 40 CFR 60.48c, not later than 30 calendar days after such date.

The 10 million Btu / hour, Cleaver-Brook Model FLX-1000 Flexible Watertube natural-gas fired boiler, was already installed and operating at the Freeland Street facility in Detroit before QH completed the purchase of the existing manufacturing facility. QH submitted a permit application to AQD on 3/10/2020 and the application indicated that the boiler was an existing equipment installed on 10/01/2019.

VIII.1 – In Compliance

The exhausted gases from the boiler discharge unobstructed vertically upwards to the ambient air from an air stack with an exit point not less than 1.5 the building height (from ground level to the point of discharge).

SC IX.1 – In Compliance

The permittee shall not replace or modify any portion of FG-BOILERS, including control equipment, nor install additional boilers unless all the requirements cited in the permit under SC IX.1 a) to c) are met.

There have been no replacements, modifications, or additions of new boilers since the issuance of the general permit No. 53-20.

7 - NSPS SUBPART Dc – Federal Requirements for Boilers

According to 60.40c the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 100 million British thermal units per hour (MMBtu/h) or less, but greater than or equal to 10 MMBtu/h.

Therefore the 10 MMBtu/h Cleaver-Brook Model FLX-1000 Flexible Watertube Boiler, installed on 10/1/2019, is subject to the NSPS Subpart Dc requirements.

For natural gas-fired boilers the requirements are reduced to a few reporting and recordkeeping requirements cited under 60.48c.

For instance, per 60.48c (a), the owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and the date of actual startup, as provided by §60.7.

AQD has not received this notification

The NSPS Initial Notification and Information Template (EQP3551) for Small Industrial /Commercial / Institutional Steam-Generating Units is available at the EGLE's website and can be accessed following this path: EGLE/AIR/COMPLIANCE/Compliance Resources by Topic/Boiler-NSPS.

Per 60.48c(g)(2), the affected facilities that combusts only natural gas (or other specified fuels) may elect to record and maintain records of the amount of fuel combusted during each calendar month instead of maintaining daily records.

QH keeps monthly records of natural gas usage.

Per 60.48c(i), monthly fuel usage records shall be maintained separately for each boiler for a period of two years following the date of such record.

This condition will be evaluated in a future visit when a two-year's worth of data has been recorded.

8 - MAERS (Michigan Annual Emission Report System)

QH is not currently reporting its annual emissions to MAERS.

For information about MAERS submittal applicability and guidelines, please check the EGLE website at: EGLE - Environment, Great Lakes & Energy (michigan.gov) / Air / Emissions and the AQD's policy and procedures No. AQD-013.

According to MAERS guidelines, facilities or emission units that are regulated under an opt-out permit are required to report to MAERS. The general permit No. 53-20, issued to QH for a natural gas boiler, is an opt-out permit. Therefore, QH seems to be subject to MAERS reporting. Also, the facility will be subject to air emission fees.

AQD will discuss MAERS requirements and fee category issues in a follow up conversation with QH.

9 - CONCLUSION

Based on the facility inspection conducted on 3/1/2021 and the subsequent review of the facility records and the air emission reports; AQD has determined that QH failed to demonstrate the applicability of the exemptions cited in Rules 280 to Rule 291. The Rule 278a demonstration report, revised on 5/20/2021, was not adequate. More specifically, the VOC emission factors used to estimate the Potential To Emit (PTE) at the facility, are not suitable to the operations occurring at QH. AQD has requested QH substantiate the VOC emission factors, either by conducting testing at the Detroit facility or by presenting evidence of emission factors obtained at other QH facilities or manufacturing facilities with similar processes to those occurring at QH in Detroit.

With respect to the odor complaints, QH temporarily stopped utilizing the odor generating compound as of August 30, 2021. However, AQD requires a permanent solution to the problem to assure the nuisance odors are controlled and to ensure the facility complies with Rule 901(b).

QH shall submit the NSPS Subpart Dc start up notification required by 60.48c(a) for the 10 MMBtu/h Cleaver-Brook boiler.

QH has to evaluate, based in the MAERS guidelines, if emissions reporting is required.

NAME GAandoral DATE 10/29/2021 SUPERVISOR JK

