

B0785

MARIKA

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B078541488

FACILITY: Quaker Chemical Corp.		SRN / ID: B0785
LOCATION: 14301 BIRWOOD AVENUE, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Brian J. Pelan , Environmental and Safety Supervisor		ACTIVITY DATE: 09/13/2017
STAFF: C. Nazaret Sandoval	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 2017 - Scheduled Inspection		
RESOLVED COMPLAINTS:		

1. FACILITY BACKGROUND

Quaker Chemical Corporation (Quaker) commenced operations at the current location in 1969. A wide-ranging of custom-formulated specialty chemicals can be manufactured at the facility at any given time for a variety of industries, including manufacturing fluids and oils for the steel, metal working, and fluid power industries. The range of products included: rolling oils, stamping fluids, corrosion prevention cleaners, hydraulic fluids, and cutting and grinding oils. However, during last eight years the operations at the Detroit facility have been significantly scaled back and some of the manufacturing operations have been transferred to the Middletown, Ohio plant. The production of rolling oils and hydraulic fluids has ceased and a great percentage of the manufactured products are to supply the automotive industry.

The time required for production can range from 4 to 22 hours. Raw materials are mostly liquids in the form of naphtha or oils, waxes, and grease which are received by rail and tanker in bulk or 55-gallon drums. A variety of chemical powders are also used in the formulations. The manufacturing operations are in one shift, from 7 am to 3:30 pm, Monday through Friday. There are few exceptions when operators may work overtime when there are special orders or if the formulation and manufacture of a product requires longer preparation time.

2. AQD PERMIT HISTORY

Quaker is a potential major source of particulate matter (PM) and Volatile Organic Compounds (VOCs) because the potential emission exceeds the 100 ton per year (TPY) major source thresholds for both PM and VOCs. To opt out of the Michigan's Renewable Operating Permit (ROP) and establish the facility as a "synthetic minor source" they obtained an Opt-Out Permit (PTI 254-98A) that was issued on May 2, 2014. The permit contains legally enforceable operational and production limits that reduce its Potential to Emit (PTE) to a level below the major source threshold. The permit also contains Hazardous Air Pollutants (HAP's) limits.

All the original Wayne County Permits issued to Quaker for the installation of their current equipment were voided on November 21, 2012. The equipment covered by the Wayne County Permits had either been removed from the facility or had been incorporated into permit to install PTI 254-98 issued by the AQD on December 19, 2000.

PTI 254-98 was voided on May 2, 2014 and it was replaced by the current permit, PTI 254-98A. No new equipment was added to the facility since the issuance of PTI 254-98 in year 2000; the only changes incorporated into the new permit were modifications to the product formulations and discontinuing a line of products previously manufactured at the facility.

PTI 254-98A updated the production and emission limits, as well as the emission units and the permit conditions to reflect the modifications made at the facility throughout the years.

3. COMPLAINTS, CONSENT ORDERS, VIOLATION NOTICES

The last inspection to this facility was conducted on 09/17/2012. Records show that there is no history of complaints; there are no outstanding consent orders and no letters of violation (LOVs) have been issued to this facility.

4. INSPECTION NARRATIVE

The purpose of the inspection was to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451 and Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) rules.

I arrived at the facility at 1:00 PM and met with Mr. Brian Pelan, EH&S Supervisor for the Middletown, OH facility. Mr. Pelan is the contact person for the environmental compliance issues for Quaker Detroit. Also present during the opening meeting and discussions were: Mr. Jeffery Metcalf, Maintenance Supervisor; and Mr. Stephen Harris, Operations Supervisor; both have permanent positions at Quaker- Detroit Plant.

During the meeting, we first discussed the permit provisions and requirements. I asked for updates and/or changes in the facility's operations.

To verify permit limits, I requested material and production records as well as records of the estimated emissions from each emission unit covered under PTI 254-98A. Records were collected for the period starting in August 2016 and ending in August 2017.

We started the discussion with the operations, maintenance and recordkeeping requirements cited on PTI 254-98A for the Air Scrubber System. Mr. Metcalf explained the process control and operational variables. The Air Scrubber System operation and maintenance records were requested at this time. Mr. Metcalf handed out examples of daily and monthly inspection records. He also handed out the updated Malfunctioning Abatement Plan (MAP) and we went over some of the specific sections of the MAP.

Mr. Metcalf left the meeting after finishing our discussions concerning the Air Scrubber System and we proceeded to tour the facility. Mr. Harris guided the tour and Mr. Pelan accompanied us for a portion of the facility walkthrough.

At the end of the facility tour I met with Mr. Pelan to complete the records review and for the closure meeting. I informed Mr. Pelan that final compliance determination with the conditions of PTI 254-98 and the current air quality regulations will be determined after conducting a detailed review and evaluation of the records that were provided during the meeting. I added that I would follow up with him via email if additional information is required to complete the evaluation.

5. PROCES DESCRIPTION

The facility can be divided into five main areas for the manufacturing process:

- Two production areas (Main Area and High Temp Area)
- Storage tanks for raw material, intermediate and product
- Unloading/filling operations (tankers, totes, drums)
- Wastewater treatment tanks (W Tanks)
- Natural gas-fired indirect heating units.

A copy of the building layout, was provided to AQD and has been included in Appendix A. The attached printout has not been updated and is the same version submitted to AQD during the inspection of year 2014. AQD have added minor changes to the layout, which are described later in the report. The layout shows the Main Production Area, Three-Stage Air Scrubbing System, Boiler Rooms and Laboratory, Tank Farms, the Warehouse, Office Building and Maintenance Areas. The "old" reactor room (not-in-use) is in the second floor of the building.

In the manufacturing process, a formula is issued for a batch product and raw materials are pumped from the storage tanks into one of the mixing/blending tanks. Powder is manually added into the top of the mix tanks. After a set amount of time needed for sufficient reaction or blending to occur, the content is transferred to an intermediate holding tank and finally loaded into tankers or drums/totes or sent back to the mix tanks for further processing.

During the last 5 years the products manufactured at Quaker Detroit have narrowed down or discontinued and the production rates have somehow declined. As a result, there are many tanks and vessels in the main production area and in the storage tank farm area that are empty or out of service (OOS). An updated list of the status of the mixing vessel and storage tanks was handed out during the inspection meeting of September 13, 2017. The list is included in Appendix B of this report.

I showed Mr. Pelan the list of chemical powders that was used as the basis for the permit evaluation in 2014. Mr. Pelan, indicated that there have not been changes in the type of chemicals powders used in the formulations and the list was adequate. Safety Data Sheets were not collected.

The following sections of the report describe the operations with more detail. Please Refer to the facility Layout in Appendix A when reading the description. For simplicity, each emission unit or group has been identified with the labels used in the PTI-254-98A

5.1 Production Areas

This section describes the equipment located in each production area. Appendix A includes a table with the list of mixing vessels located at the production areas. The updated table was provided on the day of the inspection (9/13/2017). The list includes: the vessel label I.D., capacity, construction material, dimensions, agitation type, gauging, type of heat and maximum temperatures of operation, primary utilization, and miscellaneous information.

EUMAINAREA - Main Production Area- (14 mixing/blending vessels) – Controlled Emissions

There are 14 main mixing vessels in this area, ranging from 300 gallons to 10,000 gallons in capacity. Most of the tanks are heated with steam jackets to approximately 220 to 250 °F. Some of the raw materials that are purchased in 55-gallon drums are stored in "hot boxes"; which are enclosed storage areas that heat materials between 140 and 200 °F. When needed, the drums are removed with a "Hi Lo" and the raw material is manually added to the tanks. This area generates VOCs, PM, HAPs emissions. All vessels are exhausted to the three-stage scrubber control equipment.

A new 60-gallon vessel (V-18) was added to the main area. This vessel is used for pilot studies with small batches and limited frequency. No additional information was provided during the visit in terms of the type of raw materials used in V-18; however, it seems like the vessel qualifies for exemption from permitting under Rule 283. Further information will be required in future visits. I was also informed that tank V-12 (15,800-GAL) has been permanently disconnected.

With one tank added and one removed, the total number of vessel in this area is still fourteen.

The rest of the vessels remain in the same location and seem to be processing the same type of chemicals for what they are permitted.

EUHIGHTEMPAREA - High Temperature Reactor Area (3 Vessels) -Controlled Emissions

This area includes 3 high-temperature batch vessels, SS-1, SS-2, SS-3. Only vessel SS-2 is currently used at the facility.

SS-2 is heated to release moisture off a raw material that is loaded into the tank. Once a desired specification is reached, the product is drawn off the tank and prepared for shipping to the customer. The exhaust is sent to the three-stage scrubber.

Another change in this tank area which was noted in the updated summary table is that PP2 was removed. This was a small (55 gal) pilot reactor originally moved to Detroit from another Quaker facility in early 2000. The tank had been installed but never used in Detroit. It was not user friendly for production and it was removed it late 2016.

5.2 Storage Tanks

Storage tanks are primarily used for oil and solvents. All bulk storage vessels contain liquid material only.

The storage tanks are located inside and outside the facility. Some of them are holding tanks for intermediate products, others are transfer tanks and the rest are storage tanks for final products. There are also some tanks that are currently empty, others are Out -of-Service (OOS) and a few have been removed since the last inspection. During the visit, I requested an update of the tank inventory that reflects the changes occurred in the last few years. A "Tank Inventory" was provided by Mr. Pelan during the meeting.

The inventory identifies the tanks located at each one of the tank-farm areas outside the building, those inside the production area, and the tanks located at the wastewater area. Refer to Appendix A for details about the tank identification/label number, the type of use, a description of the fluid stored in the tank, the tanks capacities in gallons and status of the tank (i.e. in-service or OOS). The tank-installation year and the true vapor pressure are not listed in the updated table, but that information was provided during the previous inspection.

EUISTORAGETANKS – (19) Storage Tanks Inside the Building – Controlled Emissions

PTI 254-98A lists a total of 21 tanks inside the production building; however, according with the updated tank list received during the inspection of 9/13/2017 there are 19 tanks.

Two tanks have been removed/changed usage since the last inspection: IS-14 and IS-28.

IS-14 (7,331 gallons) was a series of square tanks hooked together that were inside the building and began leaking. The tanks could not be repaired and were removed from the facility.

IS-28 has been converted from holding raw material to hold condensate return for the steam system and it is not listed in the inventory.

No changes in capacities, type of fluid stored, operational conditions, etc. were reported for the tanks listed in the summary table.

EUOSTORAGETANKS – (36) Storage Tanks Outside the Building – Uncontrolled Emissions

A total of 36 storage tanks are located outside the building at in four "Tank Farm" areas: A, B, C, and D. [Tanks No. 26, 29, 30 and 40 were removed previous to PTI 254-98A issuance).

Final products are all liquids material, transferred via flexible or hard piping from the mixing vessels to the holding tanks. From holding tanks each product is sent to a loading rack in preparation for shipment offsite. Products are shipped to customers via tanker trucks, totes or drums. Only VOC emissions are expected from the loading racks and these operations are controlled by the Air Scrubber System. No changes reported in this tank area.

5.3 Wastewater Treatment Operations - EUWASTEWATER

Wastewater is generated by the scrubbers and through general clean-up operations. Wastewater pretreatment operations include four storage tanks, two of them (W1, and W5) can be heated, aerated, and/or mixed for treatment. W3 and W4 are wastewater storage tanks. Treated water is sent to the city sewer. The emissions from all these tanks are routed to the scrubbers. These tanks are identified in the Tank Inventory – Appendix A.

5.4 Fuel Burning Equipment - EUPHASEHEAT 1/2 and EUSTEMGEN

Quaker has two (2) 10 MMBtu/hr high pressure steam generators/phase heaters units that use Therminol (Thermal Oil Fluid). They also have a 10 MMBtu/hr low pressure boiler. All three units burn natural gas. Natural gas is also used in the cooling/heating system that provides heat to the building.

The facility doesn't not have emergency generators.

6. CONTROL EQUIPMENT - Three-Stage Scrubber

A process flow diagram of the scrubber system has been included in Appendix A for reference. The three-stage scrubbing system collects all vented emissions from the mixing/blending vessels, holding/transfer tanks and from the storage tanks located inside of the facility. The outside storage tanks are not connected to the scrubber.

The first stage of the scrubber is a water system designed to remove larger solid particles. The next stage is a countercurrent packed bed acid scrubber containing dilute H₂SO₄ which is followed by a caustic scrubber (dilute NaOH). Acid is used to neutralize basic contaminants and to oxidize odor causing chemicals. The caustic is used to neutralize acid contaminants and remove contaminants generated in Stage 2. The scrubber exhaust stack exit through the roof of the main building and vents to the atmosphere.

At the time of the walkthrough, the plant was not in operation except for one vessel scheduled for a production batch. The operator was preparing the formulation and feeding the tank. In the control room, the scrubber control panel monitor shows automatic readings of the operational parameters which are monitored continuously. The alarms set points are also displayed. When I walked into the control room there was a problem with the monitor, (showing black screen) and I was not able to check the "actual" scrubber operational parameters; however, as indicated earlier, no batch were manufactured at that time.

A large sign is affixed outside of the control room stating that alarm conditions must be acknowledged and resolved within one hour or production must shut down. There is also a flashing red light by the sign as well as one inside the control room that is activated upon alarm conditions. It was explained to me that when alarm conditions are activated the adjustments are automatic; the operator in the control room waits for the system to "correct itself" which is generally achieved within 10-15 minutes.

7. COMPLIANCE EVALUATION

The facility operation was evaluated for compliance with the applicable regulations and the special conditions (SC) set in permit to install PTI 254-98A.

Except when noted, this evaluation covers the annual period within August 2016 to July 2017. The emission records are based on a 12-month rolling time as determined at the end of each calendar month.

For simplicity, in most cases, the special conditions from PTI 254-98A are cited exactly as they appear in the current permit or paraphrased

The emission units covered in the permit are listed below:

Emission Unit ID	Emission Unit Description Process Equipment & Control Devices (See NOTE at the bottom)	Flexible Group ID
EUMAINAREA	(14) mixers (or blend tanks) that range in capacity from 300 gallons to 15,800 gallons. The equipment is vented to the three-stage scrubber for control.	FGSCRUBBER
EUHIGHTEMPAREA	(3) reactors: SS-1, SS-2 and SS-3. The equipment is vented to the three-stage scrubber for control.	FGSCRUBBER
EUISTORAGETANKS	(19) storage tanks located inside of the building. These tanks are vented to the three-stage scrubber for control.	FGSCRUBBER
EUOSTORAGETANKS	(36) storage tanks located outside of a building. These tanks are uncontrolled.	
EUWASTEWATER	Waste water pretreatment operation consisting of (4) holding/treatment tanks. Treated water is sent to the city sewer. This equipment is vented to the three-stage scrubber for control.	FGSCRUBBER
EUPHASEHEAT1	10 MMBtu/hr natural gas fired phase heater.	FGCOMBUST
EUPHASEHEAT2	10 MMBtu/hr natural gas fired phase heater.	FGCOMBUST
EUSTEAMGEN	10 MMBtu/hr natural gas fired low-pressure steam generator.	FGCOMBUST

(*) NOTE: The description for some of the listed EUs has been modified according to the updated list of vessels/tanks provided during the inspection of 9/13/2017.

FGSCRUBBER

Description: Material loading, mixing, and packaging associated with blend tank operations; reactor operations; inside storage tanks; and waste water pretreatment operations that vented to the three-stage scrubber for control.

Emission Units: EUMAINAREA, EUHIGHTEMPAREA, EUISTORAGETANKS, EUWASTEWATER

POLLUTION CONTROL EQUIPMENT: Three-stage scrubber

SC I. EMISSION LIMITS – *In Compliance*

Pollutant	Limit	Time Period/ Operating Scenario	Highest Value for the Evaluated Period	Compliance YES or NO
1. PM	0.01 lbs per 1,000 lbs of exhaust gas	Test	Refer to comment under SC I.1	N/A
2. Neopentyl Glycol (CAS #126-30-7)	1,056 lbs /yr	12-month rolling time period as determined at the end of each calendar month	660 lbs. /year (refer to the records "Emission Summary" table in Appendix D)	YES

SC I.1 - Not Applicable

AQD did not request stack test to verify PM emissions during the evaluated period

SC I.2 - In Compliance

For the evaluated period, the highest 12-month rolling emission rate of Neopentyl glycol (CAS #126-30-7) from FGSCRUBBER was 0.33 tons/year = 660 lbs./year, reported on August 2016.

SC II. MATERIAL LIMITS – Not Applicable

SC III. PROCESS/OPERATIONAL RESTRICTIONS – *In Compliance*

Quaker shall not operate any portion of FGSCRUBBER unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the three-stage scrubber, has been submitted and is implemented and maintained. The MAP shall, at a minimum, specify the following:

SC III. 1a)

A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.

SC III. 1b)

An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.

SC III. 1c)

A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

Evaluation:

The MAP is reviewed in a regular basis to verify if the information is current and it is updated as needed. The last revision of the MAP was on 4/22/2017 (revision 3) to meet the current operation and permit requirements. Quaker keeps a record history of the MAP revisions in Section VII of the

document. A copy of the updated MAP was provided during the inspection of 9/13/2017 and it has been included in Appendix B.

AQD reviewed the MAP to verify if the process/operational restriction were met. The document is divided in seven sections and each section covers the items specified in permit conditions SC 1a to 1c, as required by Rule 911(2).

Section V of the MAP details a 6-step procedure for the implementation, which include: frequency of inspections, alarm conditions, principles of operation, operational set and alarming points, startup procedure, abnormal conditions and corrective actions/shutdown.

A software "Automatic Process and Control System" (APACS) is used to monitor, schedule and retain the records. The scrubber is inspected according to the schedule in the MAP. Examples of a daily log and a monthly scrubber inspection were provided at the meeting on 9/13/2017. See Appendix B.

The current MAP seems to adequately addresses the events that meets the characteristics of a malfunction. No new equipment has been installed since the last permit evaluation; hence no need for adjustments or amendments to the MAP.

Based on the information provided on the day of the inspection and the evaluation of the records collected, Quaker is considered to be in compliance with the process and operational restriction cited in SC III.1.

SC IV. DESIGN/EQUIPMENT PARAMETERS and pH – *In Compliance*

SC IV.1

QUAKER shall not operate EUMAINAREA, EUHIGHTEMPAREA, EUSTORAGETANKS, EUWASTEWATER unless the three-stage scrubber system is installed, maintained and operated in a satisfactory manner.

Evaluation:

Section V.4, Table 1 of the MAP details the operating parameters, the normal operating range, and alarming set points for a proper operation of the system.

Based on the information provided on the day of the inspection and the evaluation of the records collected, Quaker is considered to be operating the scrubber within the operational parameters recommended ranges, and the facility in compliance with SC IV.1

SC IV 2

This condition states that the facility shall equip and maintain the three-stage scrubber with devices to measure: the pressure-drop across the scrubber, the pH of the scrubbing liquid, and the scrubbing liquid water flow rate.

Evaluation:

As the MAP states, the field instruments are the primary indicator that the air scrubber system is functioning as designed. Each stage of the scrubber counts with flow meters, pressure indicators, and pH probes that are regularly maintained. Spare pumps and parts, as well as pH probes are critical devices that are kept on hand. APACS is the secondary automated indicator that monitors the system and it is verified against the primary indicators. The facility follows the maintenance recommendations practices recommended by the manufacturers of the Scrubber in the "Operational and Maintenance Plan". Refer to Appendix B for a list of the devices that are used to monitor the operational parameters in the scrubber system and the frequency of inspection.

SC V. TESTING/SAMPLING – Not Applicable**SC VI. MONITORING/RECORDKEEPING**

The following records shall be maintained on file for a period of five years and be available to AQD upon request

SC VI.1

Quaker shall complete all required records/calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition.

Evaluation:

Record were provided and are properly maintained on file.

SC VI.2

Quaker shall monitor and record, in a satisfactory manner, the FGSCRUBBER three-stage scrubber pressure drop, scrubbing liquid pH, and scrubbing liquid flow rate on a daily basis.

Evaluation:

Daily inspection results are kept in a log and at the end of month all the daily inspections for that month are scanned and stored electronically. Weekly, monthly, quarterly and annual inspection are scanned and stored electronically. All hard copies are recycled.

The cited parameters are continuously monitored and electronically recorded in the facility control room. A report of these parameters can be generated for any time period within the previous 3 months. Manual records are generated by the maintenance personnel every morning. As indicated earlier in this report, a daily log checklist for the month of August 2017 was handed out during the inspection on 9/13/2017. The records were checked against the recommended operational ranges and they were within the cited ranges.

During the plant walkthrough, I couldn't monitor/record the "actual" field values and/or the APAC control screen operational parameter (pressure drop, circulation flow, make up rate, and water pH) for the scrubber system because the production had already ceased for the day. However, based on the records collected on the day of the inspection and the evaluation of historical records, it seems like the operational parameters for the proper functioning of the Air Scrubber System are properly monitored.

SC VI.3

Quaker shall maintain a log of all significant maintenance activities conducted and all significant repairs made to the FGSCRUBBER three-stage scrubber. Maintenance records for the scrubber shall be consistent with the preventative maintenance program identified in earlier in SC III

Evaluation:

Although all equipment and devices conforming the Air Scrubber System shall be maintained for proper operation; the water circulation flow seems to be a critical parameter that can activate "red-strobe alarming conditions" and a failure of the pumps would require the shut-down of the scrubber if the issue is not promptly resolved. The water flow removes particles from the air stream. The fan function is also labeled as critical, the fan provides the correct amount of air flow so the columns function more efficiently.

Preventive maintenance activities are in place for critical parts. A summary table provided by Quaker on 9/25/2017 (see Appendix B) lists the spare components and the frequency of

replacement. A copy of a work order completed on 2/27/2016 for the replacement of a mechanical seal on a existing spare pump was handed out as an example of a corrective action after an equipment failure. Also in Appendix B, is a list of the latest major repairs/upgrades of the scrubber system components.

SC VI.4

Quaker shall calculate the neopentyl glycol (CAS #126-30-7) emission rate from FGSCRUBBER monthly using a method acceptable to the AQD District Supervisor to determine the annual emission rate on a 12-month rolling time period basis.

Evaluation:

Calculations of monthly and 12-month rolling, neopentyl glycol (CAS #126-30-7) emission rate from FGSCRUBBER were provided. The actual method was observed/evaluated in Mr. Pelan's laptop and it was considered adequate. (Monthly records for the evaluated period are in Appendix D)

SC VII. REPORTING

N/A

SC VIII. STACK/VENT RESTRICTIONS –

The exhaust gases from SVSCRUBBER discharges unobstructed vertically upwards to the ambient air. The sizes of the stack for the scrubber (i.e. diameter and height) remain the same as noted in the permit:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	
1. SVSCRUBBER	36	47	NO CHANGES

Evaluation:

AQD did not verify the dimensions of the stacks but Quaker indicated that there have not been changes in the stack dimensions

FGCOMBUST

Natural gas fired equipment

Emission Units: EUPHASEHEAT1, EUPHASEHEAT2, EUSTEAMGEN

POLLUTION CONTROL EQUIPMENT: NA

The only special conditions applicable to the FGCOMBUST group (i.e. Two High pressure steam generators/phase heaters units and the low-pressure boiler) are SC II.1, SC VI and SC VIII:

SC II.1 – Material Limits – *In Compliance*

SC. VI – Monitoring/Recordkeeping – *In Compliance*

Evaluation:

SCII.1 - Quaker burns pipeline quality natural gas in all equipment in FGCOMBUST.

SC VI - Quakers maintains monthly records of natural gas usage. The combined gas usage (for process and building heating) is monitored by the gas company that supplies the gas. Quaker gets the monthly and annual gas usage information from the gas company's website. Records are attached in Appendix C. Emissions generated by natural gas burning are calculated by Quaker using the AP 42 emission factors for natural gas combustion. All records are maintained for a period of five years.

SC VIII. STACK/VENT RESTRICTIONS – *In Compliance*

The exhaust gases from the stacks at the phase heater units, and the low-pressure steam generator discharge unobstructed vertically upwards to the ambient.

Visible emissions were not observed from the stacks

FGFACILITY

SC I. EMISSION LIMITS – *In Compliance*

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Highest Value for Evaluated Period	Compliance YES or NO
1. PM/PM10	30.5 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	2.00 tpy	YES
2. VOC	36.5 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	6.55 tpy	YES
3. Each Individual HAP	9 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	0 tpy	YES
4. Aggregate HAPs	22 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	0 tpy	YES

SC II. MATERIAL LIMITS – In Compliance

Material	Limit	Time Period / Operating Scenario	Equipment	Record for Evaluated Period	Compliance YES or NO
II.1 Total EUHIGHTEMPAREA Production	73 million lb/yr	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	555,260 lb/yr	YES
II. 2 Total EUMAINAREA Production	134 million lb/yr	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	27 million lb/yr	YES
II.3 Total Facility Production	207 million lb/yr	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	28 million lb/yr	YES

Evaluation:

The facility keeps the production records electronically. The monthly and twelve-month rolling records from August 2016 to July 2017 were provided on the day of the inspection. According to the records, the facility production rate have declined when compared with the reported values for the previous year. A copy of the records is included in Appendix D.

Special conditions SC III., SC IV., SC V. are not applicable to FGFACILITY

S.C. VI. MONITORING/RECORKEEPING – In Compliance

Quaker keeps the following records on a monthly basis for FGFACILITY. All records were available for evaluation and are kept on file for a period of at least 5 years.

SC VI.1

Quaker have maintained all records and completed the calculations in a format acceptable to AQD in accordance with the permit requirements

SC VI. 2

The following records are kept in a satisfactory manner on a monthly basis for FGFACILITY.

- a) Number of batches of each product made

- b) Amount of each powder and other batch ingredients used
- c) Emission factors to be used to determine the amount of PM/PM10, VOC, and HAPs emitted per pound or gallon of product made
- d) The amount of EUHIGHTEMPAREA, EUMAINAREA, and FGFACILITY production throughput, in pounds per month and 12-month rolling time period
- e) Emission calculations determining the amount of PM/PM10, VOC, Individual HAP, and Aggregate HAPs monthly emission rate in tons per calendar month and annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month, and
- f) Other information needed to demonstrate how emissions from the process comply with the emission limits in FGFACILITY

Evaluation:

The records were provided on the day of the inspection on 9/13/2017.

Appendix D includes all the records supporting compliance with the conditions listed above in SC VI.2 a) to f)

8. FEDERAL REGULATIONS APPLICABILITY ASSESMENT

This section evaluates other federal regulations that could potentially be applicable to the operations at Quaker:

NSPS Subpart Dc

Not applicable - There are two (10 MMBTU/ hr) phase heater units, and one 10MMBTU/HR low pressure steam generator. All units were installed before the applicability date of 1989.

NSPS Kb

Not applicable - All storage tanks appear to be either below 75 cubic meters capacity, were installed before 1984, or are exempt per 60.110b (b): "This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m³ storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure less than 15.0 kPa."

NSPS RRR

Not applicable - Applicability is after June 29, 1990. Reactors were installed before applicability date and they are no longer in operation.

NSPS Subpart VV

Not applicable - Facility does not produce, as intermediate or final products, one or more of the chemicals listed in §60.489.

NSPS Subpart DDD

Not applicable - Facility does not manufacture products listed in 60.560(a): "polypropylene, polyethylene, polystyrene, or poly (ethylene terephthalate) as defined in §60.561 of this subpart."

NSPS Subpart NNN

Not applicable - Facilities does not produce any of the chemicals listed in §60.667 as a product, co-product, by-product, or intermediate.

Area Source NESHAPS

Unknown - In 2012, we notified Mr. Pelan via email about federal regulations for area sources of HAPs that could potentially apply to Quaker manufacturing operations. In particular, we mentioned the "National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources" [CFR 40, Part 63, Subpart VVVVVV] . At that time (in 2012), the EPA was the delegated authority to implement the cited regulation. However, since 2015, Michigan has accepted delegation to implement and evaluate compliance with the provisions of that regulation under AQD administrative rule R336.1960. The provisions of the federal regulation are adopted by reference in R336.1902.

Based on existing records this facility does not appear to be subject to the cited area source MACT; however, further information is needed to validate this assumption. AQD contacted Mr. Pelan, (Quaker) via email on 9/25/2017 and requested information to evaluate the applicability of the cited regulation. AQD will resolve this standing issue in a future visit.

9. APPLICABLE FUGITIVE DUST CONTROL PLAN

N / A. All lots are paved.

10. MAERS REPORT

The 2016 MAERS report was received by AQD on 2/16/2017. The report was reviewed and passed the audit with no errors. Refer to CA_B078541463 for audit comments.

11. COMPLIANCE DETERMINATION

Based on the result of the compliance evaluation inspection conducted on September 13, 2017, Quaker is considered to be in compliance with the special conditions of PTI 252-98A and the applicable AQD state administrative rules

NAME Alandora

DATE 9/26/2017 SUPERVISOR JK