

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

B184644707

FACILITY: Occidental Chemical Corporation		SRN / ID: B1846
LOCATION: 1600 S. Madison St., LUDINGTON		DISTRICT: Cadillac
CITY: LUDINGTON		COUNTY: MASON
CONTACT: Steve Jones , Environmental Manager		ACTIVITY DATE: 06/07/2018
STAFF: Rob Dickman	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection of this major source		
RESOLVED COMPLAINTS:		

The Occidental Chemical Corporation facility in Ludington, Michigan, manufactures calcium chloride pellet and flake products from calcium chloride rich brine piped to Ludington from Martin Marietta in Manistee.

Evaporation and drying are the major processes in the manufacturing sequence in Ludington. In the evaporation step, steam is used to boil water out of the intermediate strength solution and make strong calcium chloride solution for direct sale or for production of dry calcium chloride products. Dry calcium chloride manufacturing is the final process in the manufacturing sequence. Concentrated calcium chloride solution is converted into either flakes or pellets for consumer or industrial use by boiling off most of the remaining water.

EUFLAKEDRY creates flakes of calcium chloride on the Flaker drum and then dries them in Flake "D" dryer. The flakes are then cooled in a cooler and sized by a crusher and screen. The process is controlled by a venturi scrubber. EUPELLETCDRY creates pellets by spraying a super saturated solution of calcium chloride into "C" Dryer where hot air removes moisture. This process is controlled by a venturi scrubber. EUFLAKEDBULK and EUPELLETCBULK are portions of the plant that load rail cars or trucks with the dry calcium chloride. Emissions from these processes are controlled by venturi scrubbers. EUPELLETHNDL processes and sizes the pellets. These emissions are also controlled by a venturi scrubber. EUDGCCFIBC is the part of the plant that packages the dry calcium chloride into totes (super sacks) and produces tablets of calcium chloride.

The various spent-brine streams from the production plants are collected and re-injected into the Filer sandstone to re-pressurize the formation. Any solids that collect on the sandstone face of the well bore are dissolved by periodic injection of hydrochloric acid into the re-pressuring fluid stream at each injection well.

AQD staff visited the Occidental Chemical facility to perform an inspection. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) No. MI-ROP-B1846-2014. Mr. Steve Jones accompanied me during the inspection. Following are the findings of this inspection:

SOURCEWIDE CONDITIONS

This section contains an explanation of minimum data requirements for monitoring at the facility. Records review indicates this facility is meeting these requirements. There are no other source wide requirements listed.

EUDGCCFIBC – Dry calcium chloride process, super sack tote and drum packaging controlled by Spray Tower Scrubber S-300.

Particulate matter emissions from the process are limited to 2.3 pounds per hour and 0.10 pounds per 1,000 pounds of exhaust gases. Stack testing and continuously monitoring and recording the scrubbing liquid flow rate are the methods used to demonstrate compliance with the particulate matter limits. Stack testing, which was performed in 2015, indicates particulate matter emissions are 0.25 pounds per hour and 0.03 pounds per 1,000 pounds of exhaust gases while the scrubber was operating at an average flow rate of 85.3 gallons per minute.

The emission unit is not allowed to operate unless the scrubber is installed and operating properly. Proper operation consists of having a minimum scrubbing liquid flow rate of 80 gallons per minute. During the inspection, AQD staff observed a liquid flow rate of 120 gallons per minute.

Design/Equipment Parameters – The scrubber is required to be equipped with a continuous liquid flow rate monitor. This scrubber is so equipped.

Testing/Sampling – Stack testing was performed in 2015. This testing demonstrated compliance with emissions limits.

Monitoring/Recordkeeping – The scrubbing liquid flow rate is required to be continuously monitored and recorded. Records of the scrubbing liquid flow rate were made available for review. A review of the last 12 months of records indicates the control device operated above the minimum flow rate listed in the ROP.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – The stack appeared to be constructed in accordance with the parameters listed in the ROP.

Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

EUPELLETCBULK – Dry calcium chloride process C Bulk rail car and truck loading controlled by venturi scrubbing system (S-1307/S-1308)

Emission Limits – Particulate matter emissions are limited to 0.016 pounds per 1,000 pounds of exhaust gases. Stack testing and continuously monitoring and recording the scrubbing liquid flow rate and differential pressure when the emission unit is operating are the methods used to demonstrate compliance with the emission limit. Stack testing performed in 2016 indicates the particulate emissions from the emission unit are 0.001 pounds per 1,000 gallons of exhaust gases while the scrubber is operating at an average flow rate of 30 gallons per minute and an average differential pressure of 3.6 inches of water.

Material Limits – There are no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions - The emission unit is not allowed to operate unless the scrubber is installed and operating properly. Proper operation consists of having a minimum scrubbing liquid flow rate of 25 gallons per minute and a minimum differential pressure of 3 inches of water. During the inspection, AQD staff observed a liquid flow rate of 53 gallons per minute and a differential pressure of 7.2 inches of water.

Design/Equipment Parameters – Pursuant to the requirements of the ROP, the scrubber was equipped with a continuous liquid flow rate monitor and a continuous differential pressure monitor.

Testing/Sampling – Stack testing was performed in 2016. This testing demonstrated compliance with emissions limits.

Monitoring/Recordkeeping – The scrubbing liquid flow rate and differential pressure are required to be continuously monitored and recorded. Records of the scrubbing liquid flow rate and differential pressure were made available for review. A review of the last 12 months of records indicates the control device operated above the minimum flow rate and differential pressure listed in the ROP.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – The stack appeared to be constructed in accordance with the parameters listed in the ROP.

Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

EUPELLETHNDL – Dry calcium chloride process pellet material handling controlled by a venturi scrubber (S-1302).

Emission Limits – Particulate matter emissions are limited to 0.03 pounds per 1,000 pounds of exhaust gases. Stack testing and continuously monitoring and recording the scrubbing liquid flow rate and differential pressure when the emission unit is operating are the methods used to demonstrate compliance with the emission limit. Stack testing performed in 2015 indicates the particulate emissions from the emission unit are 0.02 pounds per 1,000 gallons of exhaust gases while the scrubber was operating at an average flow rate of 120 gallons per minute and an average differential pressure of 18.0 inches of water.

Material Limits – There are no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions - The emission unit is not allowed to operate unless the scrubber is installed and operating properly. Proper operation consists of having a minimum scrubbing liquid flow rate of 150 gallons per minute and a minimum differential pressure of 14 inches of water, or other values established during stack testing. Stack testing performed in 2015 established an AQD approved lower flow rate minimum of 120 gallons per minute. During the inspection, AQD staff observed a liquid flow rate of 173 gallons per minute and a differential pressure of 19.1 inches of water.

Design/Equipment Parameters – The scrubber is required to be equipped with a continuous liquid flow rate monitor and a continuous differential pressure monitor. This scrubber is so equipped.

Testing/Sampling – Stack testing was performed in 2015. This testing demonstrated compliance with emissions limits.

Monitoring/Recordkeeping – The scrubbing liquid flow rate and differential pressure are required to be continuously monitored and recorded. Records of the scrubbing liquid flow rate and differential pressure were made available for review. A review of the last 12 months of records indicates the control device operated above the minimum flow rate established by testing and the differential pressure listed in the ROP.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – The stack appeared to be constructed in accordance with the parameters listed in the ROP.

Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

EUPELLETCDRY – Dry calcium chloride process pellet C dryer controlled by a venturi scrubber and spray tower (S-501\S-701).

Emission Limits – Particulate matter emissions are limited to 0.03 pounds per 1,000 pounds of exhaust gases. Stack testing and continuously monitoring and recording the scrubbing liquid flow rate and differential pressure when the emission unit is operating are the methods used to demonstrate compliance with the emission limit. Stack testing performed in 2014 indicates the particulate emissions from the emission unit are 0.001 pounds per 1,000 gallons of exhaust gases while the scrubber was operating at an average flow rate of 30 gallons per minute and an average differential pressure of 3.6 inches of water.

Material Limits – There are no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions - The emission unit is not allowed to operate unless the scrubber is installed and operating properly. Proper operation consists of having a minimum scrubbing liquid flow

rate of 1,200 gallons per minute and a minimum differential pressure of 20 inches of water. During the inspection, AQD staff observed a liquid flow rate of 1757 gallons per minute and a differential pressure of 24 inches of water.

Design/Equipment Parameters – The scrubber is required to be equipped with a continuous liquid flow rate monitor and a continuous differential pressure monitor. This scrubber is so equipped.

Testing/Sampling – Stack testing was performed in 2014. This testing demonstrated compliance with emissions limits.

Monitoring/Recordkeeping – The scrubbing liquid flow rate and differential pressure are required to be continuously monitored and recorded. Records of the scrubbing liquid flow rate and differential pressure were made available for review. A review of the last 12 months of records indicates the control device operated above the minimum flow rate and differential pressure listed in the ROP.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – The stack appeared to be constructed in accordance with the parameters listed in the ROP.

Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

EUFLAKEDBULK – D bulk loading, dry calcium chloride material handling and truck and car rail loading process with pneumatic conveyor. The emission unit is controlled by a venturi scrubber (S-50).

Emission Limits – Particulate matter emissions are limited to 0.1 pounds per 1,000 pounds of exhaust gases. Stack testing and continuously monitoring and recording the scrubbing liquid flow rate and differential pressure when the emission unit is operating are the methods used to demonstrate compliance with the emission limit. Stack testing performed in 2013 indicates the particulate emissions from the emission unit are 0.002 pounds per 1,000 gallons of exhaust gases while the scrubber was operating at an average flow rate of 70 gallons per minute and an average differential pressure of 10.5 inches of water.

Material Limits – There are no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions - The emission unit is not allowed to operate unless the scrubber is installed and operating properly. Proper operation consists of having a minimum scrubbing liquid flow rate of 50 gallons per minute and a minimum differential pressure of 10 inches of water. During the inspection, AQD staff observed a liquid flow rate of 90 gallons per minute and a differential pressure of 11.1 inches of water.

Design/Equipment Parameters – The scrubber is required to be equipped with a continuous liquid flow rate monitor and a continuous differential pressure monitor. This scrubber is so equipped.

Testing/Sampling – Stack testing was performed in 2013. This testing demonstrated compliance with emissions limits.

Monitoring/Recordkeeping – The scrubbing liquid flow rate and differential pressure are required to be continuously monitored and recorded. Records of the scrubbing liquid flow rate and differential pressure were made available for review. A review of the last 12 months of records indicates the control device operated above the minimum flow rate and differential pressure listed in the ROP.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – The stack appeared to be constructed in accordance with the parameters listed in the ROP.

Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

EUFLAKEDRY – The dry calcium chloride process that consists of a 30MMBtu furnace, flaker drums, D-Dryer, cooler, crusher, and a screen. All process equipment except the flaker drums are controlled by S405 venturi scrubber.

Emission Limits – Particulate matter emissions from the flaker drum and flake D-Dryer are limited to 0.05 pounds per 1,000 pounds of exhaust gases and 0.03 pounds per 1,000 pounds of exhaust gases, respectively. Stack testing and continuously monitoring and recording the scrubbing liquid flow rate and differential pressure when the emission unit is operating are the methods used to demonstrate compliance with the flake D-Dryer emission limit. Stack testing performed in 2018 indicates the particulate emissions from the dryer are 0.02 pounds per 1,000 gallons of exhaust gases while the scrubber was operating at an average flow rate of 651 gallons per minute and an average differential pressure of 7.0 inches of water.

Material Limits – There are no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions - The emission unit is not allowed to operate unless the scrubber is installed and operating properly. Proper operation consists of having a minimum scrubbing liquid flow rate of 550 gallons per minute and a minimum differential pressure of 12 inches of water, or other values established during stack testing. Stack testing performed in 2018 established an AQD approved lower differential pressure of 7 inches of water. During the inspection, AQD staff observed a liquid flow rate of 742 gallons per minute and a differential pressure of 7.2 inches of water.

Design/Equipment Parameters – Pursuant to the requirements of the ROP, the scrubber was equipped with a continuous liquid flow rate monitor and a continuous differential pressure monitor.

Testing/Sampling – Stack testing was performed in 2018. This testing demonstrated compliance with emissions limits.

Monitoring/Recordkeeping – The scrubbing liquid flow rate and differential pressure are required to be continuously monitored and recorded. Records of the scrubbing liquid flow rate and differential pressure were made available to AQD staff for review. A review of the last 12 months of records indicates the control device operated above the minimum flow rate listed in the ROP and the minimum differential pressure established during stack testing.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – The stack appeared to be constructed in accordance with the parameters listed in the ROP.

Other Requirements – There are no other requirements associated with this emission unit; therefore, this section is not applicable.

EUGARAGE – The service garage which includes the site vehicle refueling station, one 5,000-gallon gasoline storage tank and one 5,000-gallon diesel fuel storage tank.

Emission Limits – There are no emission limits associated with this emission unit; therefore, this section is not applicable.

Material Limits – There are no material limits associated with this emission unit; therefore, this section is not applicable.

Process/Operational Restrictions – There are no process or operational restrictions associated with this emission unit; therefore, this section is not applicable.

Design/Equipment Parameters – As per the requirements of the ROP, the gasoline tank is equipped with a submerged fill pipe and constructed in a manner to allow the vessel to be retrofitted in accordance with Rule 703.

Testing/Sampling – There are no testing or sampling requirements associated with this emission unit; therefore, this section is not applicable.

Monitoring/Recordkeeping – There are no monitoring or recordkeeping requirements associated with this emission unit; therefore, this section is not applicable.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – There are no stack or vent restrictions associated with this emission unit; therefore, this section is not applicable.

Other Requirements – There are no other requirements associated with this emission unit; therefore; this section is not applicable.

FGCAM – Emission units that are subject to 40 CFR Part 64, Compliance Assurance Monitoring (CAM). The emission units contained in this flexible group are: EUDGDCCFIBC, EUPELLETHNDL, EUPELLETCDRY, EUFLAKEDBULK.

Emission Limits – There are no emission limits associated with this flexible group; therefore, this section is not applicable.

Material Limits – There are no material limits associated with this flexible group; therefore, this section is not applicable.

Process/Operational Restrictions – There are no specific restrictions associated with this flexible group. The only special condition contained in this section is one that defines an excursion consistent with the CAM regulation.

Design/Operational Parameters – There are no design or equipment parameters associated with this flexible group; therefore, this section is not applicable.

Testing/Sampling – There are no testing or sampling requirements associated with this flexible group; therefore, this section is not applicable.

Monitoring/Recordkeeping – The differential pressure and liquid flow rate of the scrubbers are monitored and recorded per the requirements of the ROP.

Reporting – In addition to annual certifications of compliance and semiannual deviation reports, CAM excursion/exceedance reports and CAM monitor downtime reports were previously reviewed and documented.

Stack/Vent Restrictions – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

Other Requirements – There were no periods in which the facility failed to comply with the monitoring requirement associated with CAM and the facility did not need to modify the existing monitoring.

FGMACTEMERGENCY – Two spark ignition emergency generators and one compression ignition emergency water pump. The three engines are subject to 40 CFR 63, Subpart ZZZZ as area sources of hazardous air pollutants. AQD has not been delegated authority to enforce the regulation and compliance with the federal regulation was not determined.

FGRULE287(c) – Two maintenance paint booths equipped with dry fabric filters.

Emission Limits – There are no emission limits associated with this flexible group; therefore, this section is not applicable.

Material Limits – Coatings used in each emission unit are limited to 200 gallons per month, minus water. Records maintained by the facility indicate coating usage is well below the 200-gallon limit. Usage is tracked by the gallon through inventory. For the month of March 2018, a total of 12 gallons were used.

Process/Operational Restrictions - There are no process or operational restrictions associated with this flexible group; therefore, this section is not applicable.

Design/Equipment Parameters – A properly installed and operating particulate control system is required for each paint booth. At the time of the inspection, AQD staff observed the paint booths as well as the control system which consisted of fabric panels. All panels were installed with no visible gaps between panels. Only one of the booths had been used in the last 12 months. Both are equipped with pressure drop gauges as indicators of when the filters need to be changed.

Testing/Sampling – There are no testing or sampling requirements associated with this flexible group; therefore; this section is not applicable.

Monitoring/Recordkeeping – Records of coating usage were available upon request. These records appeared complete and up to date. For the month of March 2018, a total of 12 gallons were used.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

Other Requirements – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

FGCOLDCLEANERS – Any cold cleaner that is grandfathered or exempt from Rule 336.1201 pursuant to Rule 336.1278 and Rule 336.1281(h) or Rule 336.1285(r)(iv). There is a total of five cold cleaners at this facility.

Emission Limits – There are no emission limits associated with this flexible group; therefore, this section is not applicable.

Material Limits – The cleaning solvent used in the emission units is limited to containing no more than five percent of halogenated solvents. The attached material safety data sheet indicates there are no halogenated compounds in the cleaning solvent.

Process/Operational Restrictions – Cleaned parts are to be drained no less than 15 seconds. None of the five cold cleaners were in operation at the time of the inspection therefore compliance with this requirement was not able to be directly determined. There were instructions on each cleaner stating how they are to be operated including this parameter.

Design/Equipment Parameters – The air/vapor interface of each cold cleaner is required to be less than ten square feet and emissions generated are required to be released to the general in-plant environment.

The cover of each cold cleaner was closed at the time as there were no parts being cleaned at the time of the inspection. Mechanically assisted covers are not necessary since the Reid vapor pressure of the solvent is less than 0.3 psia. However, each cleaner is equipped with a mechanically assisted cover.

Testing/Sampling – There are no testing or sampling requirements associated with this flexible group; therefore, this section is not applicable.

Monitoring/Recordkeeping – The solvent contained in each cold cleaner is not heated so the temperature of the solvent does not need to be monitored or recorded. Written operating instructions were posted near each cold cleaner as required by the ROP.

Reporting - Annual certifications of compliance and semiannual deviation reports were previously reviewed and documented.

Stack/Vent Restrictions – There are no stack or vent restrictions associated with this flexible group; therefore, this section is not applicable.

Other Requirements – There are no other requirements associated with this flexible group; therefore, this section is not applicable.

FGRULE290 – Any existing or future emission units that emit air contaminants which are exempt from the requirements of R 336.1201 pursuant to R 336.1290. There are no existing emission units subject to the requirements contained in this flexible group; therefore, this section is not applicable at this time.

Conclusion – Based upon the on-site inspection and records review, this facility appears to be in compliance with ROP No. MI-ROP-B1846-2014.

NAME



DATE

6/13/08

SUPERVISOR

