

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

B287623896

FACILITY: Michigan Sugar Company, Croswell Factory		SRN / ID: B2876
LOCATION: 159 S Howard Ave, CROSWELL		DISTRICT: Saginaw Bay
CITY: CROSWELL		COUNTY: SANILAC
CONTACT: Steve Smock, Environmental Engineer		ACTIVITY DATE: 11/13/2013
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled site inspection. 2013-2014 Campaign. sgl		
RESOLVED COMPLAINTS:		

Wednesday, November 13, 2013, AQD District Staff conducted a scheduled site inspection at the Michigan Sugar Company Facility (MSC) (SRN B2876) 159 South Howell, Croswell, Michigan. One Renewable Operating Permit (ROP) (MI-ROP-B2876-2013) is associated with the referenced facility and was issued on May 31, 2013.

The facility was operating upon arrival, David Tate (Factory Chemist) and Steve Smock (Environmental Engineer) provided the facility tour, and answered questions regarding facility operation.

Split composite samples of anthracitic and bituminous coal used for fuel at the facility was collected and shipped to Fibertec Laboratories for confirmatory analysis. Copies of any supplemental information provided by MSC Staff may be found in the file.

FACILITY DESCRIPTION

The MSC facility is a sugar processing plant located in a mixed commercial/industrial and residential area in Croswell, Sanilac County, Michigan. Located on South Howard Avenue, the MSC facility treatment pond system extends south of South Howard Avenue and along both sides of the Black River.

Immediately adjacent to the facility is a school located to the north of the MSC facility across state street; a McDonalds located at the northwest corner of South Howard Avenue and Peck Road; a discount store is located at the northeast corner of the intersection of South Howard Avenue and Peck Road; and a small residential area and small commercial/industrial area south of the facility across Peck Road.. The Black River is located west of South Howard Avenue.

The principal product for the facility is reported to be granulated sugar products from sugar beets. MSC personnel report that this facility is principally a bulk sugar facility. With an extra 1.5 to 2 days from the end of campaign until completion of the sugar processing.

Other MSC process products include molasses, which is primarily used as livestock feed supplement and feed stock for fermentation; beet pulp (pressed and pelletized) which is sold in bulk as animal feed; and spent sugar beet lime sold/used as a soil enhancement/supplement.

Operations at the MSC Facility are seasonal, with sugar beet processing conducted during "campaigns". The "beet campaign" for the facility is reported to normally run from mid-late September through February-March. It is during this period that the raw sugar beets and any resulting pressed, dried or pelleted pulp are processed. Operations during a beet campaign are reported to 24/7 until both onsite and off-site stored sugar beets have been processed. Granulated sugar packaging operations are conducted independent of the beet processing and can/may be conducted throughout the year. No molasses desugarization activities are conducted at this facility.

Compliance History –

Records indicate that annual emission reports (MAERS) are being submitted on a timely basis for the facility. A review of the District Files and MACES at the time of report preparation indicates that two odor complaints (one each in 2012 and 2013) were received since the last Full Compliance Evaluation (FCE)/inspection of the site.

The facility was under Consent Order No.199600145#2, and requested termination of the document on August 19, 2011. The District did not contest the request.

Processing Activities and Equipment - The sugar beet processing operations are comprised of several steps, including washing, slicing, diffusion, juice purification using milk of lime, evaporation, crystallization, dried-pulp pelletization. Process equipment of record onsite includes:

- Two (2) Wickes coal-fired, spreader, stoker boilers (Boilers #1 and #2, respectively) (FGWICKESBOILERS, EUWICKESEASTBOILER and EUWICKESWESTBOILER)
- One Murray boiler (EUMURRAYBLR, AKA Boiler #3- the swing boiler) natural gas or fuel oil fired
- Summer Boiler (Boiler #4) (exempt)
- Two (2) Belgium style vertical lime kilns (EULIMEKILN1 and EULIMEKILN2)
- One slaker (EUSLAKER) (exempt)
- One natural gas or fuel oil fired, rotary pulp dryer (EUPULPDRYER)
- Pellet Mills (EUPELLETMILLDUST) (exempt)
- Pellet Cooler (EUPELLETCOOLER) (exempt)
- Sugar Cooler, (EUSUGARCOOLER)(exempt)
- Sugar Drier (EUSUGARDRYER)(exempt), and
- Sugar Conveyors (EUSUGARTRANSPORT) (exempt).

No reported changes to the facility since modifications were made to the Wickes Boiler piping (steam pipes) during summer 2011.

Campaigns -- Total volumes of beets processed per year vary based on yields in the fields for any given season. The amount of sugar produced per ton of beets vary based on the sugar content and beet quality, which vary based on time of harvest as well as length of storage and storage conditions prior to processing.

Campaign lengths are a function of the amount of beets to be processed and slice rate. The 2012-2013 campaign was reported to have lasted 216 days. In comparison, the 2010-2011 campaign was reported to have lasted for 179 days. The facility reports that the beet slice rate is approximately 4,000 - 4,100 tons/day. However, slice rate in a given year will vary due to factors such as sugar content, beet quality, harvest volumes and operational decisions.

Odor Sources –

In addition to the general process odors associated with sugar production, two odor sources have previously been identified for the site. These include the waste water receiving/treatment ponds, condensate ponds, settling ponds and the lime pile. The waste water treatment pond system includes a number of ponds located on both sides of the Black River. When the wastewater meets the appropriate water quality characteristics it will be discharged under a National Pollutant Discharge Elimination System permit to the Black River. MSC staff have historically reported that the facility uses sulfex®, hydrogen peroxide and a caustic to control odors in the pond system.

Lime Pile- Lime slurry is piped to the lime pond, and the lime settles. The liquid is then pumped to the flume system providing additional buffering capacity. Any run-off is captured by the storm water

controls and is drained to the flume ponds. Based on aerials and information provided by MSC staff, it appears that at one time there was a lime pond at the south east corner of the property, but that the pond is no longer in use and the lime was removed for agricultural use.

COMPLIANCE EVALUATION

District confirmed that the facility was completing and maintaining required operational log sheets, and that the required 5 years was maintained onsite. For purposes of compliance determination copies of handwritten logs were reviewed onsite. Monthly totals required under the permit were requested for review and were submitted electronically by the facility. Copies of the information provided may be found in the District Files.

Operational Status – During the onsite inspection, the facility was operating.

EUMURRAYBOILER – Operating at the time of inspection. The Murray Boiler (aka boiler No. 3) is approved to operate on either No. 6 fuel oil or natural gas. The emission unit was reported by MSC Staff during the site inspection to have been firing on natural gas since before the last FCE.

When firing Natural Gas, operational limits under the existing ROP included steam load restrictions of no greater than 67,500 pounds steam/per hour. Discussions with facility staff indicated that the measured steam flow is dependent in part on the steam pressure. The facility records reviewed indicated that the facility was operating at approximately 215 PSI, steam gauge was reported to have been calibrated at 300 PSI. The facility reported that should the steam load exceed permit restrictions that the data would be evaluated to determine what the steam flow would be after steam pressure correction. District Staff reviewed random daily logs from 2012 and 2013 for the referenced emission. Operational data is reported hourly on hand written logs were found to be in compliance with steam load restrictions.

EUPULPDRYER -- The pulp dryer was not operating at the time of the inspection, though it had been operated during the 2012-2013 and 2013-2014 campaigns. Operation of the unit is based on customer demand for pressed pulp, 100% of the pulp dried is reported to be made into pellets.

In compliance with the operational permit conditions, EUPULPDRYER is not operated unless the multi clone and flue gas recirculation are operating in a satisfactory manner. The Malfunction and Abatement Plan (MAP) in appendix 10 of the ROP indicates that the appropriate pressure drop for the multicclone associated with EUPULPDRYER (as well as the pellet mills and pellet cooler). Random review of handwritten logs recording the differential pressure for the multiclones associated with the pulpdryer, pellet mill and pellet cooler indicated that they were all reported within the appropriate range.

With respect to the flue gas recirculation system associated with EUPULPDRYER, the MAP a random review of the handwritten logs indicated that the data reported was within acceptable ranges and in compliance with permit conditions.

Collected pulp is routed back into the process equipment. Finer materials are reported to be recirculated back into the furnace in general compliance with process /operational requirements III.1 and 2.

FGLIMEKILNS were operating at the time of the inspection, and are normally reported to be started up 3 days prior to initiating campaign. Once the campaign is initiated the units operate 24 hours/day, 7 days/week. Process/operational requirements under the present ROP (other than startup, shutdown or malfunction) are limited to proper operation of the carbonation system and receipt of combustion gases from the lime kilns by the carbonation system.

FGWICKESBOILERS (EUWICKESBLREAST and EUWICKESBLRWEST) consists of two coal fired wickes boilers. The boilers are operated as needed by the facility. At the time of the site inspection Boiler #2 (EUWICKESBLRWEST) was operating. Operation of the two wickes boilers is subject to the multicclone collectors being installed an operating correctly.

In addition, per the Malfunction Abatement Plan, the facility reports all routine maintenance is conducted after completion of the campaign. The only work conducted on process equipment and their associated pollution control devices is done should the equipment malfunction or fails.

Material Usage Rates – A wide variety of materials are associated with MSC facility operation and production processes.

EUMURRAYBLR – Is reported to be fired on natural gas in compliance with the ROP. Natural Gas usage is limited to 372 MMCF/year. 12-Month rolling totals reported for the calendar years 2012 and 2013 were reported well below permit limits.

EUPULPDRYER is permitted to run on either fuel oil or Natural Gas. The unit is reported to be running on Natural Gas. No limits associated with fuel usage are contained within the ROP.

FGLIMEKILN (EGLIMEKILN1 and EGLIMEKILN2) were reported to operate on anthracite coal, as are other MSC facilities in the district. Under the present ROP has a limit of 5,000 tons of coke or anthracite coal per 12-month rolling time period. MSC staff report that the fuel is measured with a metered feed system and monthly reconciles by plant personnel. MSC staff reported total material use of approximately half the permit limit for FGLIMEKILNS.

In addition, under the ROP the units have fuel limit of 0.8% Sulfur by weight. A review of laboratory analytical results provided by MSC and analytical results for grab samples collected during the November 13, 2013, site inspection confirmed sulfur content in compliance with the permit restrictions.

Limestone usage records are not required under the existing ROP and MSC staff has indicated that the information is business confidential.

FGWICKESBOILERS are reported to be fired on coal trucked in on a weekly-plus basis during the campaign. No material limits are specified with respect to the fuel usage under the flexible groups ROP conditions, however, Appendix 7 provides calculations for determining if coal used is compliant with emission limits for the flexible group. Based on the analytical data provided, and confirmatory analysis, it appears that the fuel is in compliance with ROP conditions. Total coal usage for this flexible group was reported to be confidential, and is not incorporated into this report.

Emission Points –

Daily Visible Emission (VE) surveys are required for: EUMURRAYBLR, EUPULPDRYER, FGWICKESBOILERS and FGLIMEKILNS. VE surveys are conducted once per shift for all of the referenced units and are reported on daily log sheets kept on file at site. In addition, no “high” level VE were noted in a random review of the log sheets that would have required more formal VE Observations by method 9.

VEs were observed for EUWICKESBLRWEST (Boiler #2) following completion of site inspection activities. VEs observed for the continuous steam plume from the shared stack of FGWICKESBOILERS. VEs were noted to be in general compliance with the permit limits.

Monitoring and Testing –

With the exception of the emission units addressed below, monitoring and testing requirements in the ROP were limited to records of fuel analysis and usage. Fuel analyticals are reported to be provided by the vendor, which is consistent with the other MSC facilities. Materials used by MSC at the Crowell Facility as well as other facilities located in the thumb are transported to a central location and shipped to each facility to meet needs.

EUMURRAYBLR in addition to the above referenced data is required by permit to monitor all boiler steam generation on a continuous basis, and recorded hourly on a log kept on file. The ROP limits steam flow to no greater than 67,500 lbs/hour. Operators are aware that they are to stay below 67,000

lbs/hour, and logs reviewed indicated that the emission unit was operated below the limits. In addition, the permittee is required to monitor the NG usage on a monthly basis, record and kept the information on file. MSC has provided the information, but has indicated that the values are business confidential. Steam flow values reported were in compliance to with the limits set in the ROP .

In addition to the boiler operational records required for EUMURRAYBLR the ROP requires sulfur content analysis to be maintained on file with the permittee or supplied by the vendor at the time of fuel oil delivery. It also requires that at least once per campaign the permittee will conduct an independent analysis in accordance with the fuel sampling plan in Appendix 9. MSC reports not having operated EUMURRAYBLR with fuel oil since before the 2012 site inspection, therefore these requirements are not applicable until the company switches back to fuel oil operation.

EUPULPDRYER is required to continuously monitor air flow through the flue gas recirculation system and the pressure drop across the multi-cyclones. The data is required under the permit to be recorded at least three times per shift with at least one hour between each reading (special condition VI.3). Logs maintained by the facility indicated that the required data is recorded hourly during periods of operation.

As the emission unit has not run on fuel oil since before 2012. No recent fuel oil confirmatory analysis or vendor analytical data was required for review.

Verification PM stack testing is required under the ROP to be completed by December 31, 2018. Verification PM testing was conducted on December 13, 2013 to meet requirements of MI-ROP-B2876-2008. Testing under the 2013 ROP renewal has yet to be completed.

FGLIMEKILNS are required to maintain monthly records of coke and/or anthracite use in the limekilns, In addition the facility is required to monitor the sulfur content by weight of the coke/coal based on vendor data for fuel received and conduct confirmatory sampling and analysis once per campaign according to the ROP Fuel Sampling Plan.

Confirmatory analytical samples collected by District Staff in conjunction with the November 13, 2013 site inspection indicated that the anthracite samples were within the 0.8% sulfur by weight limits, and in general compliance with permit requirements.

FGWICKESBOILERS are required to conduct PM testing on or before December 31, 2018. District files indicate that the required testing under MI-ROP-B2876-2008 was conducted in December 2007, with the testing results reporting levels in compliance with the ROP limits.

In addition, MSC is required to continuously monitor the pressure drop and liquid flow across the wet scrubber, as well as the pressure drop across the multi-cyclone. Data with respect to the wet scrubber is required to be collected hourly; where as data associated with the multi-cyclone is required to be recorded once per shift. With the exception of VE data which is collected once per shift, the remaining operational data for the boilers and their pollution control devices is recorded hourly on handwritten log sheets maintained onsite.

Record Keeping and Reporting -

A review of records maintained indicated that records and monitoring were in general compliance with ROP requirements. A review of district files and MACES indicated that semiannual reporting of monitoring and deviations as well as annual certification of compliance have been submitted in general compliance with the ROP.

SUMMARY

No compliance issues with respect to the facilities ROP were noted as part of the site inspection activities.

NAME Sharon Webster DATE 12/17/2013 SUPERVISOR C. Kane