

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

B287632346

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: 10/28/2015
STAFF: Sharon LeBlanc	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: compliance inspection for fiscal year 2016. Note facility has upcoming stack testing for recently installed boiler to also be conducted in the 2016 fiscal year. sgl		
RESOLVED COMPLAINTS:		

Wednesday, November 28, 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 fuel for the Lime Kiln at the facility was collected and shipped to Merit Laboratories Inc. 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 (2014) 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.

On June 24, 2015, AQD issued Permit to Install (PTI) No. 21-15A for the replacement of two coal fired, wickes boilers with a relocated natural gas fired boiler and a proposed increase in sugar production at the referenced site. Emission Units identified as part of the referenced permit include EU-RILEYBLR, FGSUGAR, FG63-5D-EXNGBLR and FGNETTING (EU-RILEYBLR, EU-WICKESBLRWEST and EU-WICKESBLREAST). FGSUGAR consists of EUSUGARDRYER, EUSUGARCOOLER and EUSUGARTRANSPORT. At the time of report preparation, a request to incorporate the referenced permit into the ROP has not yet been received by District Staff.

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
- One relocated, Natural Gas fired boiler (EU-RILEYBLR)
- 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).

Changes since the November 13, 2013, compliance inspection include replacement of the previous Hi-Raw machines with one new unit. In addition, the wickes boilers were removed in summer 2015, and replaced by one relocated, Natural Gas (NG) fired boiler (EU-RILEYBLR) referenced above. EURILEYBLR is monitored by a Continuous Emission Monitoring system (CEMS) for both NOx and O2.

The removal of the wickes and installation of EU-RILEYBLR were conducted under Permit No. 21-15A (approved June 24, 2015). It should also be noted that the referenced permit also included conditions associated with a proposed increase in sugar production (FGSUGAR). However, at the time of the inspection, equipment required for the proposed increase had not been acquired by the company.

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 and have in

recent history ranged from 179 days (2010-2011) to 216 days (2012-2013). The 2014-2015 campaign was reported to have lasted 210 days. The facility reports the beet slice rate to be 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.

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.

Evaluation of conditions that apply to FG63-5D-EXNGBLR were not evaluated at the time of the October 28, 2015 site inspection as compliance with conditions to 40 CFR Part 63, Subpart DDDDD is not required until January 31, 2016.

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

FGWICKESBOILERS – The two coal fired wickes boilers were removed Summer 2015 and replaced by a NG fired boiler relocated from the Carrolton, Michigan Facility. Removal of the two boilers was part of a netting exercise and was required by permit No. 21-15A under conditions for FG2015NETTING.

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 2011.

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. Operational data is reported hourly on hand written logs were found to be in compliance with steam load restrictions.

EURILEYBLR – The referenced NG fired boiler was relocated to the site in Summer 2015. The unit was started up on August 28, 2015. At the time of the inspection, the unit was being operated well below full load and in conjunction with EUMURRAYBOILER. Permit conditions require submittal of a Malfunction Abatement Plan (MAP) within 90 days of permit issuance, and prior to operation of the referenced boiler. The referenced document was submitted on September 3, 2015, for district approval.

Other operational or design conditions include:

- a maximum heat input capacity of a not to exceed 175.5 MMBTU per hour,
- installation and maintenance of low NOx burners, and
- installation, calibration and operation of devices to continuously monitor and record NOx and oxygen or carbon dioxide content of the exhaust gas.

The maximum heat input capacity referenced reflects the rating of the respective boiler which has been equipped with low NOx burners. Continuous monitoring and recording of NOx and O2 emissions is being conducted by Continuous Emission Monitors (CEMs). Of note is that the installed devices initially failed after the first 24 hour operation, and after a delay by the manufacturer only were up and operational on October 26, 2015.

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 referenced boilers were removed in summer 2015 and replaced by one NG fired boiler (EU-RILEYBLR). Permanent shutdown of the referenced units are required are required under FGNETTING prior to start-up of EU-RILEYBLR or increases in production associated with FGSUGAR.

FGSUGAR -- As previously indicated permit 21-15A incorporated requirements for emission units EUSUGARDRYER, EUSUGARCOOLER and EUSUGARTRANSPORT which comprise the flexible group. Under the referenced permit, a preparation and submittal of a MAP was required and completed by the company (10/15/2015). The approval letter for the MAP was issued by the District office on November 9, 2015.

In addition, the referenced emission units were to not to operate unless the specified pollution control device had been installed, maintained and operated in a satisfactory manner. At the time of the inspection, no new units had been installed, and the existing units were in compliance with permit conditions.

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.

EU-RILEYBLR -- The referenced boiler is limited to use of NG for fuel, and is operated in compliance with the permit. No volumetric restrictions of materials are included in the permit. The facility is required to

keep per calendar day, month and 12-month rolling total the amount of natural gas used, and the monthly and 12-month rolling annual capacity factor. A quality control report from the NG provider was available to certify that the NG provided met the definition of NG in 40 CFR 60.41b. Based on information provided at the time of the inspection it appears that these records are being kept in compliance with permit requirements.

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 28, 2015, 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.

Emission Points –

Daily Visible Emission (VE) surveys are required for: EUMURRAYBLR, EUPULPDRYER 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. An attempt to observe VEs was made following completion of the inspection. However, formal observations were unable to be completed due to the heavily overcast skies.

EU-RILEYBLR is required by permit to conduct continuous monitoring using CEMS. The required NOx and O2 monitors have been installed, and were operating at the time of the November 28, 2015, compliance inspection. The facility reported that some initial monitor issues had occurred, and that the vendor/manufacture was delayed in correcting the issue.

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.

EU-RILEYBLR – Under PTI 21-15A, the referenced emission unit is required to verify NOx emission units within 180 days of initial startup (February 28, 2016). At the time of report preparation, the test plan and notification of a February 16, 2016 test date has been received by District Staff.

Per Permit the CEMS is required to meet timelines, requirements and reporting detailed in Appendix A of the referenced permit for the CEMS. The CEMS is also to be used to determine compliance with NOx limits specified by permit. The CEMS plan was submitted on September 25, 2015.

As previously indicated, the facility is maintaining the required NG usage, annual capacity factors and certification records as outlined in conditions VI.3,4 &6. The permittee is also required to maintain records of all information necessary for all notifications and reports, as well as information necessary to demonstrate compliance with the emission limits of the permit as outlined in condition VI.7. The referenced records include but are not limited to:

- Compliance tests and any testing required under the special conditions of the permit
- Monitoring data
- Verification of heat input capacity required to show compliance with the maximum design heat input capacity limits for the emission unit.
- Identification, type and amounts of fuel combusted on a daily basis,
- All records required by 40 CFR 60.7 and 40 CFR 60.49b.
- All calculations necessary to show compliance with the limits contained in Permit 21-15A.

At the time of the inspection, the unit had only been operating approximately 3 months, records provided indicated general compliance with required recordkeeping and monitoring requirements.

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 testing was conducted on December 13, 2013 to meet requirements of MI-ROP-B2876-2008. Verification PM stack testing is required under the ROP to be completed by December 31, 2018. Testing under the 2013 ROP (MI-ROP-B2876-2013) 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 most recent site inspection indicated that the anthracite samples were within the 0.8% sulfur by weight limits, and in general compliance with permit requirements.

FGSUGAR - Testing requirements associated with the referenced flexible group are upon request by the AQD District Supervisor, and no written request has been made to date.

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.

Specifically associated with EU-RILEYBLR, District files include copies of both the written notification of the date of construction as well as the written notification for the actual date of initial startup. Both documents were received in a timely manner, in compliance with permit conditions. In addition, District Files contain copies of written notification of shutdown of EU-WICKESBLRWEST and EU-WICKESBLREAST, which were submitted in compliance with permit conditions (FGNETTING).

Record Keeping requirements associated with FGSUGAR consist of calculating and recording PM and PM10 emissions associated with EUs that make up FGSUGAR. In addition, the facility is required to keep record of all service, maintenance and equipment inspections for control technology associated with FGSUGAR.

SUMMARY

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

NAME Sharon A. Blaine DATE 12/21/15 SUPERVISOR C. Hae