

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

B182429467

FACILITY: Morton Salt, Inc.		SRN / ID: B1824
LOCATION: 180 Sixth St., MANISTEE		DISTRICT: Cadillac
CITY: MANISTEE		COUNTY: MANISTEE
CONTACT: Don Kuk , EHS & Security Manager		ACTIVITY DATE: 04/29/2015
STAFF: Caryn Owens	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Inspection and Records Review		
RESOLVED COMPLAINTS:		

On Thursday April 29, 2015 Shane Nixon and Caryn Owens of the DEQ-AQD completed a scheduled site inspection of Morton Salt located at 180 Sixth Street in Manistee, Michigan. The purpose of this inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) MI-ROP-B1824-2008b and permit to install (PTI) 54-14, which will be rolled into Morton Salt's ROP Renewal once the ROP becomes issued in 2015. Morton Salt is currently considered a major source for the following criteria pollutants: Nitrogen Oxides (NOx); Carbon Monoxide (CO); Particulate Matter (PM); and Sulfur Oxides (SOx). Additionally, Morton Salt is considered a major source of hazardous air pollutants (HAPs) for hydrogen chloride (HCl). Morton Salt is subject to Prevention of Significant Deterioration (PSD) regulations of 40 CFR Part 52.21, Compliance Assurance Monitoring (CAM) regulations of 40 CFR Part 64, and New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants in 40 CFR Part 60 Subpart 000.

DEQ was accompanied by Mr. Don Kuk, EHS & Security Manager for Morton Salt, during the field inspection, and an inspection brochure was given to Mr. Kuk at the time of the inspection. The facility uses a coal crusher (when applicable) with a wet venturi scrubber for an 180,000 pounds (216 MMBtu) steam per hour Wickes spreader stoker coal and natural gas co-fired boiler and associated four module baghouse system. The boiler is used to generate electricity, steam, and heat for facility production of salt. A natural gas-fired boiler is also used at the facility as a back-up system for building heat. Brine saturated with salt is extracted from wells and is processed through a series of temperature and pressure controlled evaporators, wash tanks, and filters. The salt produced from this process is refined for packaging or is pressed into pellets or blocks. The process systems consist of: a pan house with evaporators to extract the salt; mills; conveyors; bucket elevators; pellet presses; vibratory screens; and an enclosed crusher to recycle salt pellets. The facility produces various grades of sodium chloride salt products, such as, granular salt, water softener pellets, pretzel salt, and salt blocks. During the inspection, the weather conditions were cloudy with rain, approximately 50°F, calm winds from the east-southeast direction.

ROP Records Review:

Source-wide Conditions

There are no Source-wide Conditions applicable for this facility.

EUCOALCRUSHER: This emission unit covers a coal crusher and associated equipment. The coal crusher is enclosed in a small building located on the northwest portion of the site. Coal is crushed on an "as needed" basis depending on the condition of the coal received. The coal crusher operated a total of 26 days for the year 2014. At the time of the inspection, the coal crusher was not operating, and has not operated in 2015 as of the date of the inspection. Daily monitoring activity logs are recorded by the boiler department, and provided to Mike Cichy, Engineer for Morton Salt, for data entry and filing purposes. DEQ observed the visual emissions operating logs at the time of the inspection which indicated no emissions were observed.

EU#6BOILER: This emission unit covers a Wickes spreader stoker coal and natural gas co-fired boiler capable of producing 180,000 pounds of steam per hour which is used for generating process steam and electricity for the facility. The boiler operates a steam generator capable of generating 5 megawatts of electricity, but typical output of the boiler is approximately 3 megawatts, all which is consumed onsite. The boiler has a four module baghouse system for control, and Morton is allowed to operate the baghouse with only three modules in operation, while one module is serviced.

Emission Limits:

- I.1: EU#6BOILER is limited to 0.30 pounds of particulate matter (PM) per 1000 pounds of exhaust gases corrected to 50% excess air. Compliance with this emission limit is determined through stack testing. The most recent stack test for EU#6BOILER was completed August 7, 2013. Based on the stack test results, PM emissions were 0.024 pounds per 1000 pounds of exhaust gases corrected to 50% excess air.
- I.2: EU#6BOILER is limited to 2.5 pounds of sulfur dioxide (SO₂) per MMBTU. During the field inspection, DEQ and Morton Salt grabbed a composite coal sample, and based on the analytical result the SO₂ content was 0.5%. Additionally, Morton Salt analyzed SO₂ during stack testing, which indicated 1.38 pounds of SO₂ per MMBTU. Morton Salt was within the permitted limits for PM and SO₂. The coal analysis results are attached.

Materials/Fuels:

- II.1: EU#6BOILER is limited to 80,000 cubic feet of natural gas per hour. Based on the natural gas usage reported from January 2014 through December 2014, Morton Salt used 0.98 mmcf of natural gas for the year, which is approximately 112 cubic feet per hour, which is within the permitted limits. During the field inspection, Morton Salt was not using natural gas for EU#6BOILER.

Process/Operational Parameters:

- III.1: During the field inspection, the four module baghouse for EU#6BOILER was installed and operating properly.
- III.2: During the review period, Morton Salt has not observed visual emissions or a PM limit exceedance from the baghouse to EU #6BOILER.
- III.3: During stack testing a differential pressure operating range of 0.1 inches of water column (wc) to 9.5 inches wc was established for each module of the baghouse. During the field inspection DEQ observed the differential pressures of the modules of the baghouse as 1.8, 1.8, 2.1 and 2.1 which are within the established range.

Design/Equipment Parameters:

- IV.1: The baghouse is equipped with properly functioning differential systems.

Testing/Sampling:

- V.1: Morton Salt has a coal composite analysis of each shipment of coal that is delivered to determine the sulfur and BTU content of the shipment. The last two coal deliveries were November 22, 2014 and January 20, 2015. Additionally, as previously stated, DEQ collected a composite sample of the coal from the north and south feed hoppers prior to entering the boiler at the time of the field inspection.
- V.2: As previously stated, Morton Salt completed performance testing August 7, 2013. Performance testing showed compliance with the PM and SO₂ emission limits.

Monitoring/Recordkeeping:

- VI.1: Natural gas usage is being monitored and recorded. Current records were available on their facility spreadsheet.
- VI.2: The Baghouse differential pressures are monitored continuously and are recorded once every 2 hours which is more frequent than required.
- VI.3-5: The COM system on EU#6BOILER stack was in operation at the time of the inspection and appeared to be working properly, and indicated compliance with visible emission limits. During the field inspection DEQ observed the COM at 2.6% opacity.
- VI.6: As mentioned above, Morton Salt maintains current records of coal analysis.
- VI.7: Review of excess emission reporting and CAM reporting indicate that visible emissions readings have not exceeded 15%.
- VI.8: Morton Salt has not had an excursion occur with the COM during the reporting period.
- VI.9-11: Morton Salt has complied with CAM requirements for the facility.

VI.12: Records of SO₂ emissions are maintained on the facility spreadsheet and are updated with new coal analysis.

Reporting:

VII.1-3: ROP certification and deviation reporting for this source has been performed in a correct and timely manner.

VII.4-5: The most recent stack testing took place August 7, 2013. Stack testing protocols and reporting were submitted and approved in a timely manner.

VII.6: Installation and operation of the COMS and quarterly reporting associated with it were performed in a correct and timely manner.

VII.7: The semi-annual CAM excursion reports were submitted in a timely manner. There have been no excursions or exceedances during the reporting period.

VII.8: The annual COMS audit was observed by the AQD Technical Programs Unit on October 28, 2014 and met all performance specification criteria.

Stack/Vent Restrictions:

VIII There are no stack restrictions for this source. The stack height was identified as 160 feet above ground surface.

Other Requirements:

IX.1: There have been no known compliance issues with respect to the CAM requirements.

EUGASBOILER: Morton Salt has a small (16,000,000 BTU per hour) natural gas fired boiler that is used as a back-up system for building heat. According to Mr. Kuk, this boiler does not have enough power to operate the processes at the facility, and is rarely operated.

Emission Limits, Material Limits, Design/Equipment Parameters, Testing/Sampling, Monitoring/Recordkeeping, Stack/Vent Restrictions, and Other Requirements :

No Emission Limits, Material Limits, Design/Equipment Parameters, Testing/Sampling, Monitoring/Recordkeeping, Stack/Vent Restrictions, and Other Requirements are applicable for EUGASBOILER.

Process/Operational Parameters:

III.1: Morton Salt only uses pipeline quality natural gas for EUGASBOILER.

Reporting:

VII.1-3: ROP certification and deviation reporting for this source has been performed in a correct and timely manner.

EUMILLTRANSFER: This emission unit covers the material handling processes throughout the mill which consist of mills, conveyors, bucket elevators, screens, feed tanks, table salt bagging equipment, and table salt bulk loading equipment. EUMILLTRANSFER is controlled by the northeast and northwest venturi wet scrubbers located on the roof of the mill building.

Emission Limits, Material Limits, Testing/Sampling, Stack Vent Restrictions, and Other Requirements:

No Emission Limits, Material Limits, Testing/Sampling, Stack/Vent Restrictions, and Other Requirements are applicable for EUMILLTRANSFER.

Process/Operational Parameters:

III.1: The compliant differential pressure range across the two scrubbers is 1-8 inches wc. At the time of the inspection, the differential pressures were 4.5 inches wc at the East Scrubber and 5.0 inches wc at the West Scrubber.

III.2: The compliant flow rate through the scrubbers is greater than 5 gallons per minute (gpm). At the time of the inspection, the flow rate observed through the scrubbers was 8.2 gpm for the East Scrubber and 8.3 gpm for the West Scrubber.

Design/Equipment Parameters:

IV.1: The venturi scrubbers are each equipped with a differential pressure gauge that appear to be functioning properly.

IV.2: The venturi scrubbers are each equipped with two flow rate indicators that appear to be functioning properly.

Monitoring/Recordkeeping:

VI.1: Monitoring of the differential pressure across the scrubber is recorded daily.

VI.2: Monitoring of the flow rate through the scrubber is recorded daily.

Reporting:

VII.1-3: ROP certification and deviation reporting for this source has been performed in a correct and timely manner.

EUPELLPROD: This emission unit covers the water softener production which includes pellet briquetting, a vibratory screen, belt conveyors and bucket elevators. EUPELLPROD is controlled by a baghouse, identified at Morton Salt as the MAC baghouse, which is located on the third floor of the mill building.

Emission Limits:

I.1: The limit on PM emissions from this source is 0.03 pounds per 1000 pounds of exhaust gases corrected to 50% excess air. Compliance with this limit is determined through performance testing. The last stack test for EUPELLPROD was August 6, 2013. Based on the results of performance testing, PM emissions were 0.0093 pounds per 1000 pounds of exhaust gases corrected to 50% excess air.

I.2: The opacity limit on the briquetting machines is 7% opacity. At the time of the inspection DEQ observed no opacity from the EUPELLPROD equipment.

I.3: The opacity limit from conveyors, buckets, and vibratory screens is 10%. As stated above, at the time of the inspection DEQ observed no opacity from the EUPELLPROD equipment.

Materials/Fuels:

II Material limits are not applicable for EUPELLPROD.

Process/Operational Parameters:

III.1: The "MAC" baghouse controlling this source was in operation at the time of the inspection and appeared to be operating properly.

III.2: The specified differential pressure range across the baghouse is 1-5 inches wc. At the time of the inspection, the differential pressure was 3.0 inches wc.

Design/Equipment Parameters:

IV The baghouse is equipped with a differential pressure gauge that appears to be functioning properly.

Testing/Sampling:

V A successful stack test was conducted on August 6, 2013. Performance testing showed compliance with the PM emission limits.

Monitoring/Recordkeeping:

VI Monitoring and recording of the differential pressure across the baghouse is performed daily.

Reporting:

VII.1-3: ROP certification and deviation reporting for this source has been performed in a correct and timely manner.

VII.4 -5: The most recent stack testing took place August 6, 2013. Stack testing protocols and reporting were submitted and approved in a timely manner.

Stack/Vent Restrictions:

VIII The stack appears to meet the permit specifications.

Other Requirements:

IX There were no other requirements for EUPELLPROD.

EUPELLETCOOLING: This emission unit covers the water softener cooling storage vessel. EUPELLETCOOLING is controlled by a Ducon venturi wet scrubber, which is located on the fifth floor of the mill building.

Emission Limits:

- I.1: The limit on PM emissions from this source is 0.032 pounds per 1000 pounds of exhaust gases corrected to 50% excess air. Compliance with this limit is determined through performance testing. The last stack test for EUPELLPROD was August 6, 2013. Based on the results of performance testing, PM emissions were 0.0.0041 pounds per 1000 pounds of exhaust gases corrected to 50% excess air
- I.2: The opacity limit for EUPELLETCOOLING is 10% opacity. At the time of the inspection DEQ observed no opacity from EUPELLETCOOLING.

Materials/Fuels:

II Material limits are not applicable for EUPELLETCOOLING.

Process/Operational Parameters:

- III.1: The Ducon venturi scrubber appeared to be installed and operating properly.
- III.2: The specified flow rate range through the scrubber is 42 - 77 gpm. At the time of the inspection, the flow rate through the scrubber was 61 gpm.
- III.3: The specified differential pressure range across the scrubber is 2.7-5.0 inches wc. At the time of the inspection, the differential pressure was 3.82 inches wc.

Design/Equipment Parameters:

- IV.1: During the field inspection, the Ducon venturi scrubber was equipped with a differential pressure gauge that appeared to be functioning properly.
- IV.2: During the field inspection, the Ducon venturi scrubber was equipped with a flow rate indicator that appeared to be functioning properly.

Testing/Sampling:

- V.1: A successful stack test was conducted on August 6, 2013. Performance testing showed compliance with the PM emission limits.

Monitoring/Recordkeeping:

- V.1-4: Monitoring instruments are maintained in accordance with manufacturer's recommendations.
- VI.5: Monitoring and recording of the differential pressure across the Ducon venturi scrubber is performed daily.
- VI.6: Monitoring and recording of the flow rate through the Ducon venturi scrubber is performed daily.

Reporting:

- VII.1-3: ROP certification and deviation reporting for this source has been performed in a correct and timely manner.
- VII.4: No reports have been received by the DEQ indicating the liquid flow rate of the Ducon venturi scrubber varied by $\pm 30\%$ from the average established during performance testing. Semi-annual reports were submitted in a timely manner.
- VII.5 -6: The most recent stack testing took place August 6, 2013. Stack testing protocols and reporting were submitted and approved in a timely manner.

Stack/Vent Restrictions:

VIII The stack appears to meet the permit specifications.

Other Requirements:

IX There were no other requirements for EUPELLETCOOLING.

EUTM/BLOCK: This emission unit includes the salt block production and handling, and controlled by a baghouse, also known as the Sly baghouse, which is located inside the pelletizing area of North Warehouse.

Emission Limits:

I.1: The limit on PM emissions from this source is 0.10 pounds per 1000 pounds of exhaust gases. Compliance with this limit is determined through non-certified Visible Emissions and monitoring of the differential pressure. These are discussed in VI.1.

Materials/Fuels:

II Material limits are not applicable for EUTM/BLOCK.

Process/Operational Parameters:

III.1: The compliant differential pressure range across the baghouse from the MAP is 0.5-10 inches wc. During the field inspection, the differential pressure was 1.0 inches wc.

Design/Equipment Parameters:

IV.1: The baghouse is equipped with a differential pressure gauge that appears to be functioning properly.

Testing/Sampling:

V There are no applicable Testing/Sampling Parameters applicable for EUTM/BLOCK.

Monitoring/Recordkeeping:

VI.1: Monitoring and recording of the differential pressure across the baghouse is performed daily. During the field inspection, no visible emissions were observed from EUTM/BLOCK processes.

Reporting:

VII.1-3: ROP certification and deviation reporting for this source has been performed in a correct and timely manner.

Stack/Vent Restrictions and Other Requirements:

VIII and IX There were no applicable stack/vent Restrictions or Other Requirements for EUTM/BLOCK.

FGHANDLING: This flexible group contains salt transfer handling operations controlled by EUFILTERTRANSFER and EUBINTRANSFER. This flexible group is controlled by two venturi scrubbers in the panhouse building.

Emission Limits:

I.1: The limit on PM emissions from this source is 0.027 pounds per 1000 pounds of exhaust gases. Compliance with this limit is determined through non-certified Visible Emissions, monitoring of the differential pressures and flow rates through the scrubbers. These are discussed in VI.1 and VI.2.

Materials/Fuels:

II Material limits are not applicable for FGHANDLING.

Process/Operational Parameters:

III.1: The EUBINTRANSFER and EUFILTERTRANSFER scrubbers were operating during the field inspection, and appeared to be operating properly.

III.2: The specified differential pressure range across the two scrubbers is 3-10 inches wc. During the field inspection, the differential pressure for the bin transfer scrubber was 7.5 inches wc and the differential pressure for the filter transfer scrubber was 8.5 inches wc.

III.3: The specified flow rate through the scrubbers is greater than 5 gpm. At the time of the inspection, the flow rate through the bin transfer scrubber had a top spray flow rate of 9.5 gpm and a bottom spray flow rate of 13.8 gpm. The flow rate through the filter transfer scrubber was 10.1 gpm for the top spray flow rate and 7.0 gpm for the bottom flow rate.

• **Design/Equipment Parameters:**

IV.1: The impingement scrubbers are equipped with differential pressure gauges that appear to be functioning properly.

IV.2: The impingement scrubbers are equipped with flow rate indicators that appear to be functioning properly.

• **Testing/Sampling:**

V There are no applicable Testing/Sampling Parameters applicable for FGHANDLING.

• **Monitoring/Recordkeeping:**

VI.1: Monitoring of the differential pressures across the scrubbers is recorded daily.

VI.2: Monitoring of the flow rates through the scrubbers is recorded daily.

• **Reporting:**

VII.1-3: ROP certification and deviation reporting for this source has been performed in a correct and timely manner.

• **Stack/Vent Restrictions and Other Requirements:**

VIII & IX There were no applicable stack/vent Restrictions or Other Requirements for FGHANDLING.

FGRULE287(c): This flexible group covers the coatings used to put on packages and paint at the facility. The coatings are generally used in the maintenance area. DEQ did not review this Flexible Group during this field inspection.

FGCOLDCLEANERS: Morton Salt has two coldcleaners at the facility. The coldcleaners were not reviewed during this field inspection.

Review of PTI 54-14:

FGPELLPRETZEL:

• **Emission Limits:**

I.1: The limit on PM emissions from this source is 0.014 grains per dry standard cubic foot (dscf). Compliance with this limit is determined through performance testing. The last stack test for FGPELLPRETZEL was October 28, 2014. Based on the results of performance testing, PM emissions were 0.0019 grains per dscf.

I.2 & I.3: Additionally, there is a PM 10 and PM 2.5 particulate limits of 3.96 pounds per hour for both constituents. Compliance with the PM 10 and 2.5 limits is determined through performance testing. The last stack test for FGPELLPRETZEL was October 28, 2014. Based on the results of performance testing, Total PM was 0.49 pounds per hour, so therefore PM 10 and PM 2.5 are also below the permitted limit.

I.4: The opacity limit from openings in the building enclosing FGPELLPRETZEL is 10%. Morton Salt completed an initial Method 9 evaluation of visible emissions on September 29, 2014 and no visible emissions were present from the openings in the building enclosing FGPELLPRETZEL.

• **Materials/Fuels:**

II Material limits are not applicable for FGPELLPRETZEL.

• **Process/Operational Parameters:**

- III.1: Morton Salt submitted an updated MAP that includes FGPELLPRETZEL on June 26, 2014, and the MAP was approved by the DEQ on August 13, 2014.
- III.2: The salt recovered from the baghouse is properly removed and disposed of.
- III.3: The specified differential pressure range across the baghouse is 1-5 inches wc. At the time of the inspection, the differential pressure was 3.0 inches wc. It should be noted that EUPRETZELSALT operates on an "as needed" basis when the demand for it is there. EUPRETZELSALT was not operating at the time of the field inspection.

Design/Equipment Parameters:

- IV The baghouse is equipped with a differential pressure gauge that appears to be functioning properly.

Testing/Sampling:

- V.1: A successful stack test was conducted on October 28, 2014. Performance testing showed compliance with the PM emission limits.
- V.2: As previously stated, Morton Salt completed a successful initial Method 9 evaluation of visible emissions was conducted on September 29, 2014. The initial Method 9 evaluation of visible emissions involved completing a 3-hour evaluation of each side (north, south, east and west) of the building housing FGPELLPRETZEL and the roof of the building. No visible emissions were reported from the openings of FGPELLPRETZEL.

Monitoring/Recordkeeping:

- VI.1: Monitoring and recording of the differential pressure across the baghouse is performed daily.
- VI.2 & 3: Monitoring and recordkeeping of 30-minute, non-certified, visible emissions inspections are kept on a quarterly basis. To the date of this report, no visible emissions have been observed in connection with FGPELLPRETZEL.

Reporting:

- VII.1: Morton Salt provided written notice to inform DEQ that FGPELLPRETZEL initial start-up began June 20, 2014.

Stack/Vent Restrictions:

- VIII The stack appears to meet permit specifications.

Other Requirements:

- IX Morton Salt appears to be in compliance with the provisions of NSPS for Nonmetallic Mineral Processing Plants, as specified in 40 CFR, Part 60, Subpart A and Subpart OOO, as they apply to FGPELLPRETZEL.

Summary: As a result of the field inspection and records review, Morton Salt appears to be in compliance with MI-ROP-B1824-2008b and PTI 54-14, and no additional information is necessary at this time.

NAME

Caryn Owens

DATE

4/29/15

SUPERVISOR

[Signature]