

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

N791854539

FACILITY: GENE BROW AND SONS INC #369-07		SRN / ID: N7918
LOCATION: #369-07 PIONEER / HEWITT-ROBBINS PLANT, SAULT S MARIE		DISTRICT: Upper Peninsula
CITY: SAULT S MARIE		COUNTY: CHIPPEWA
CONTACT: Gene Brow, Owner		ACTIVITY DATE: 09/06/2020
STAFF: Michael Conklin	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Self initiated inspection to determine compliance with PTI No. 369-07.		
RESOLVED COMPLAINTS:		

Facility: Gene Brow & Sons (SRN: N7918)

Location: Northern Sand and Gravel Pit, South Mackinac Trail, Sault Ste. Marie, MI 49783

Contact: Gene Brow, Owner, 906-440-9012

Regulatory Authority

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

Facility Description

Gene Brow and Sons is a sand and gravel company based out of Sault Ste. Marie, MI. The company operates a portable nonmetallic crusher plant at the Northern Sand and Gravel pit off South Mackinac Trail in Sault Ste. Marie, MI. The crushing plant has not been relocated in many years and can be considered a stationary plant. The plant primarily crushes sandstone and granite for cement production.

Process Description

A crushing plant produces smaller size aggregate from larger size rock. The final product can be used for a variety of applications from infrastructure projects to residential landscape purposes. A crushing plant can consist of loaders, haul trucks, generators, crushers, screens, conveyors, and stockpiles. The plant is normally located within a quarry, crushing stone that was generated from blasting. The process begins with raw materials being fed into the primary crusher via loader, producing an initial size product. From the primary crusher, the product can be conveyed into a secondary crusher while sand or small particles are separated out onto another conveyor to a stockpile. A secondary crusher will break the aggregate down into smaller sizes before it enters the screen plant. The screen plant separates the crushed aggregate into various sized products and leaves on separate conveyors to either stockpiles or continues through the plant into a tertiary crusher and screen plant. A crushing plant may have several crushers, screens, and conveyors depending on how many sizes of aggregate are to be produced.

Emissions

Stone crushing and processing operations can cause point and fugitive emissions of PM, PM10, and PM2.5. Emissions from process operations should be considered fugitive unless the source of emissions is vented through an air pollution control device or contained and emitted through a force-air vent or stack. Fugitive sources of emissions are generated from machine movement and wind erosion. Emission sources can include hauling, crushing, screening, and transferring of material. The primary factors affecting PM emissions are wind and moisture content of the material. Spray bars on crushers and screens, along with the use of dust suppressants on roadways reduces fugitive dust emissions from activity by 60% to 86%. Moisture on the surface of the material can cause fine particles to adhere resulting in a dust suppression effect.

Emissions Reporting

The facility is subject to the federal New Source Performance Standards (NSPS) Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants and reports its annual emissions to Michigan Air Emissions Reporting System (MAERS). In 2019, the facility reported crushing 183,561 tons of material and emitting 1,835 pounds of filterable PM10.

Compliance History

The facility has not received any violation notices in the past five years and was last inspected in 2016.

Regulatory Analysis

Gene Brow and Sons is currently subject to Permit to Install (PTI) No. 369-07 for a portable non-metallic crushing plant. PTI No. 369-07 was issued as a result of a Rule 201 violation for not having an air permit. Since a letter of violation was issued, the facility was ineligible for the General PTI for non-metallic crushing facilities.

The facility is considered a true minor source because the potential-to-emit (PTE) of all regulated air pollutants is less than the major source thresholds. The facility is also considered an area source because the PTE of individual HAPs is less than 9 tpy and the PTE of aggregate HAP emissions is less than 25 tpy. The facility is subject to NSPS Subpart OOO by having portable crushing equipment with a capacity greater than 150 tons/hr and having been constructed after August 31, 1983.

Inspection

An unannounced inspection was performed on 08/06/2020 to determine Gene Brow and Sons compliance with PTI No. 369-07 and all other applicable air pollution control rules and federal regulations. I arrived at the Northern Sand and Gravel quarry at 1:00 PM, with weather conditions being clear and 85 degrees Fahrenheit. The plant has been stationary at the Northern Sand and Gravel quarry located on South Mackinac Trail, across from the Chippewa County Road Commission. The source has not relocated since it has been permitted in 2008.

Upon arrival to the quarry, it was observed the crushing plant was operating. Before proceeding further into quarry, visible emission observations were performed to see if there were fugitive dust emissions coming from crushing equipment, stockpiles, and roadways. Minimal dust was observed, and the material being processed appeared well saturated. It was observed a loader was dispensing water on the roadways around the plant in which the loaders operated. Minimal (<5% opacity) fugitive dust emissions were observed from loader traffic (Special Condition (SC) 2.1 and 2.2).

After proceeding into the pit, I met with Gene Brow, plant owner and operator. I explained to Mr. Brow that the purpose of the inspection was to ensure compliance with PTI No. 369-07 and all other applicable air pollution control rules and federal regulations. We next proceeded to inspect the plant while it was operating. At the time of the inspection, the plant was set up to produce 1" material. The primary crusher is a Pioneer 3042 jaw, with a capacity of 500 tph and a manufacture date of 1953, according to the EQP5756 form submitted as part of the permit application in 2007. Minimal visible emissions (<5% opacity) were observed from the primary crusher (SC 1.1).

From the primary crusher, material is dispensed onto the stacking conveyor. The stacking conveyor feeds material into the Allis-Chalmers portable crushing plant that is equipped with a double deck vibrating screen and cone crusher (secondary crusher). The capacity and manufactured year for the equipment is unknown. This equipment is different than the secondary crusher listed in the original EQP5756 form. In the permit application, a Hewitt Robbins Twin Apache is listed for the secondary crusher.

Minimal visible emissions (<5% opacity) were observed from the screen (SC 1.1). Material that is larger than 2" is fed into the secondary crusher. Water sprays were installed on the secondary crusher, with one at the outlet and one at the inlet. At the time of the inspection, only the outlet water spray was turned on. The nozzle was providing a flat, rectangular spray across the material coming out of the secondary crusher. At times, the visible dust emissions would be over 15% opacity from the discharge of the secondary crusher. When this occurred, Mr. Brow turned on the water spray at the inlet of the crusher to bring the fugitive dust emissions back down.

The plant is equipped with a well, pump, and tank to provide water as needed for the crushing equipment. At the time of the inspection, only water sprays were installed on the secondary crusher. SC 1.7 requires each piece of equipment in Appendix A to have a water spray installed. Mr. Brow stated he only places water sprays on equipment where there are fugitive dust emissions occurring. The General PTI for

crushing facilities requires spray bars be installed on each crusher and screen, but not on conveyors as required in PTI No. 369-07. Given the material being processed is harder rock and in saturated sand, and no fugitive dust emissions were observed from the transfer points and stockpiles, discretion is being used in the requiring of each conveyor having a water spray installed. I informed Mr. Brow, however, that each crusher and screen should have a water spray installed and be operated when needed. The crushers and screens are the primary dust producing points in the process. If the material is controlled for properly at these points, then further controls at conveyor transfer points may not be necessary. Mr. Brow stated that he would add a water spray to the primary crusher and screen.

Sand and 1" material exit the screen plant onto a conveyor and into the sand screen plant. Sand and fines (< 1/4") are separated from the final product and conveyed into a separate pile. Minimal fugitive dust emissions (<5% opacity) were observed from the transfer points into and out of the sand screen, along with the stockpiles (SC 1.2).

No asbestos tailing or asbestos containing waste materials are processed in the crushing facility (SC 1.3). A spreadsheet with the amount of material processed each week and a running yearly total was provided (SC 1.10). The YTD amount of material processed through the plant is 92,307 tons (SC 1.4). According to MAERS, the plant processed 192,086 tons in 2018 and 183,561 tons in 2019 (SC 1.4). Visible dust emissions from the drop points and transfer points of EU-Process were below 10% opacity, except for momentary periods from the outlet of the secondary crusher (SC 1.2). This was addressed with a water spray added to the inlet of the secondary crusher.

The plant yard and storage piles are being monitored and maintained for fugitive dust emissions (SC 1.5, 3.1, 3.2 and Appendix B). However, there were no records of watering kept on file. I discussed with Mr. Brow the requirement to keep watering records, as required in Appendix B of PTI No. 369-07, and to add in the logbook notes of water use during a day of operation. Mr. Brow agreed he would maintain water records in the same logbook used for recording daily amounts of material processed.

During the inspection, no labels were observed on equipment associated with EU-Process. Appendix A of PTI No. 369-07 outlines equipment ID numbers 1-8 that were included in the permit review. This is a violation of SC 1.8. Mr. Brow stated he would label the equipment accordingly to Appendix A.

The source is also not in compliance with SC 1.6 and SC 1.9 regarding the federal regulation, NSPS Subpart OOO. The source has not conducted the initial visible emission performance testing on applicable portions of EU-Process in accordance with 40 CFR Part 60 Subparts A and OOO. Mr. Brow stated the plant has not been tested and was told from a prior inspector that having water sprays fulfills the NSPS requirements. Unfortunately, that information is not correct, and the source needs to conduct the initial performance tests to come into compliance with NSPS Subpart OOO. From the EQP5756 form submitted as part of the PTI application, the Cone Feed A (ID No. 5), Cone Feed B (ID No. 6), Conveyor – 24" x 24' (ID No. 7), and Conveyor – 24" x 40' (ID No. 8) all have a maximum rated capacities of 200 tph, were manufactured after 1983, and are subject to NSPS Subpart OOO. The primary crusher (ID No. 1) and stacking conveyor (ID No. 3) were manufactured prior to 1983 and are not subject to NSPS Subpart OOO. The secondary crusher (ID No. 2) was replaced with an Allis-Chalmers portable crushing plant. The company provided information in a follow-up email on the manufacturer year and rated capacity. The new secondary crusher has a rated capacity of 275 tph and was manufactured in 1968. This piece of equipment is not subject to NSPS Subpart OOO.

Compliance

Based on this inspection, it appears that Gene Brow and Sons is not in compliance with PTI No. 369-07 and all applicable air pollution control rules and federal regulations. A letter of violation will be issued for non-compliance with SC 1.6, 1.7, 1.8, and 1.9 of PTI No. 369-07.

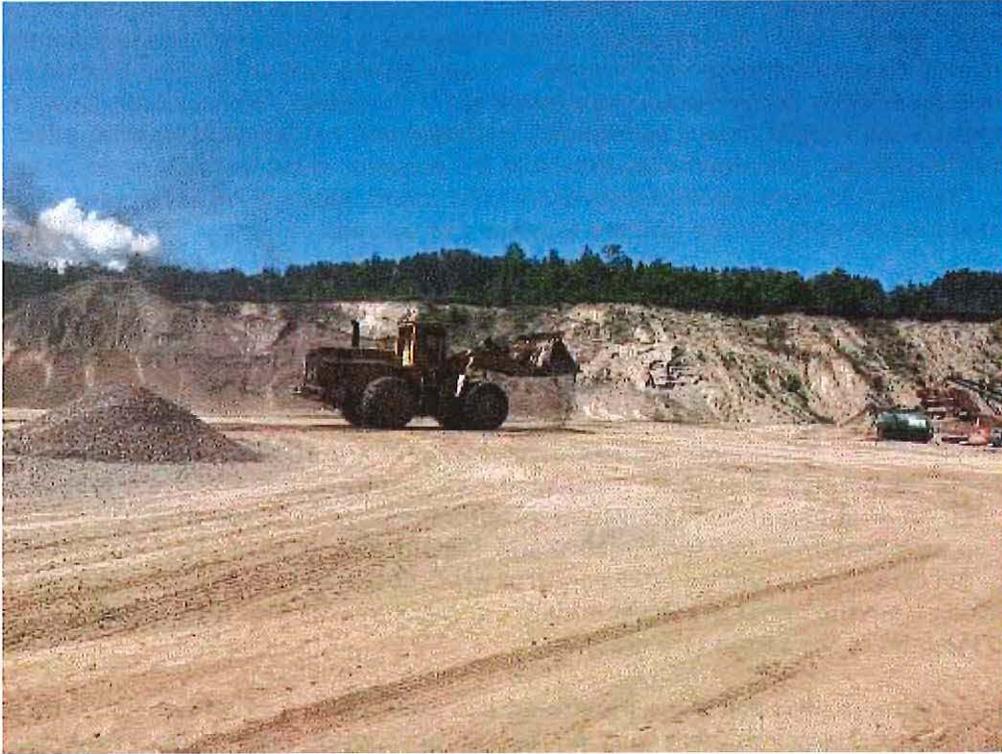


Image 1(Loader) : Loader pouring water on plant roadways.

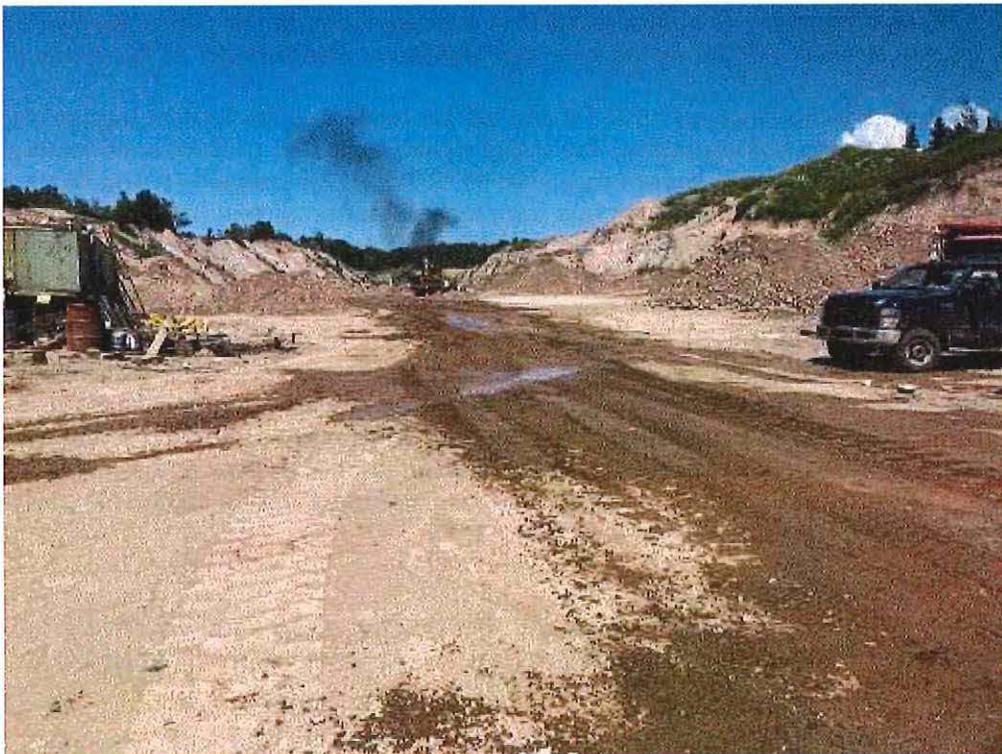


Image 2(Roadways) : Plant roadways are watered to keep fugitive dust down.



Image 3(Screen) : Stacking conveyor feeding material into screen plant.



Image 4(Secondary Crusher) : Allis-Chalmers portable crushing plant.

Image 6(Crushing Plant) : Gene Brow and Sons crushing plant at Northern Sand and Gravel pit off of South Mackinac Trail.



Image 7(Sand Screen) : Conveyor from screen plant to sand screen, and a conveyor from the sand screen to the sand stockpile.

NAME Michael White

DATE 8/12/20

SUPERVISOR ELH