

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

N524136986

FACILITY: GREAT LAKES AGGREGATES, L.L.C. - SYLVANIA MINERALS		SRN / ID: N5241
LOCATION: 5699 READY ROAD, S ROCKWOOD		DISTRICT: Jackson
CITY: S ROCKWOOD		COUNTY: MONROE
CONTACT: William Begley, Plant Manager		ACTIVITY DATE: 10/04/2016
STAFF: Diane Kavanaugh-Vetort	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Conducted unannounced compliance inspection related to complaint investigation. NSPS Subpart OOO facility; limestone and sandstone quarry with PTI.		
RESOLVED COMPLAINTS:		

**GREAT LAKES AGGREGATES LLC - SYLVANIA CONTACTS:**William Begley, Superintendent, 810-459-5765, [bbegley@greatlakesagg.com](mailto:bbegley@greatlakesagg.com)Chris Kinney, President, 734-365-3402; Email: [ckinney@greatlakesagg.com](mailto:ckinney@greatlakesagg.com)**AQD PRESENT:**Diane Kavanaugh Vetort, Jackson D.O. [kavanaugh@mi.gov](mailto:kavanaugh@mi.gov) (DKV)Scott Miller, Jackson District Supervisor, [millers@mi.gov](mailto:millers@mi.gov) (SM)

**SAFETY REQUIREMENTS:** Hard hat, safety glasses, and steel toe boots. Review and signing of a site specific Safety Sheet was required.

**Air Use Permit to Install No. 248-05C**

EUSANDSTONE, EULIMESTONE, EUROCKDRILLS, EUBLASTING, EUTRUCKTRAFFIC, EUSTORAGE, EUOVERBURDEN. Permit contains Appendix A - equipment description, ID number, Opacity limit and Control Device. Appendix B - Nuisance Minimization Plan Fugitive Dust

**COMPLAINT ISSUE**

The AQD logged four fugitive dust complaints received or referred during the month of September 2016. See MACES Complaint Reports C-17-00025; C-17-00023; C-17-00024; C-17-00026. This inspection also constitutes a Complaint Investigation in order to verify and follow up on the complaints received. Complainants are area residents and the complaints were referred to AQD from both EPA Region V. and Senator Dale Zorn's office.

On October 4, 2016, AQD staff, DKV and SM, conducted a self-initiated, unannounced inspection of a non-metallic mineral crushing plant owned and operated by Great Lakes Aggregates, L.L.C. The crushing operation is located at the Sylvania Quarry where limestone and sandstone is mined and at the expanded Armstrong Road Quarry where currently sandstone is mined. The limestone and sandstone mined at the quarries serves as the raw material crushed by Great Lakes Aggregates. The purpose of the inspection was to determine the facility's compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control of Natural Resources and Environmental Protection Act, 1994 Public Act 451; Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) Rules; federal New Source Performance Standard (NSPS), Part 60, Subpart OOO for Nonmetallic Mineral Processing Plants; and Air Use Permit-to-Install (PTI) No. 248-05C for non-metallic mineral crushing operations at the existing Sylvania Quarry and the expanded sandstone Armstrong Road Quarry.

It is noted that this is one contiguous site combining the existing Sylvania quarry (entrance off Ready Road) and the new quarry (entrance off Armstrong Road). Great Lakes owns the section of Armstrong Road, now closed to through traffic, between Ready Road and Huron River Drive. An aerial photo is attached to this report to file for reference.

The previous inspection was conducted on May 3, 2013, and at that time only the Sylvania Quarry was determined to be operating, and was found to be in compliance and the processed material was used predominantly for road aggregate and road base and ranged in size from a fine sand to material which is 24" in diameter. During today's inspection AQD was informed, and we observed, a wide variety of processed stone sizes in storage on site. Great Lakes contact Bill said for example there is a special specification for aviation which is used for the Detroit Metro Airport.

Upon our arrival at the site, I observed some dry dust track out on Ready Road near the entrance and I observed some fugitive dust due to truck traffic entering and leaving the site. We drove into the site and parked at the office. We introduced ourselves to Mr. Bill Begley, Plant Manager who approached us in the parking lot. We were informed that Mr. Chris Kinney, President had been there but recently left the site. Mr. Begley accompanied AQD staff during the inspection. The crushing facility operates from 6:00 AM until 6:00 PM Monday through Friday and from 6:00 AM until 4:00 PM on Saturday. 24 people are currently employed by the facility. The facility crushes limestone and sandstone mined and sells the processed materials to road and building contractors and others.

Scott and I discussed the most recent complaint situation with Bill. He was generally aware that their neighbors have complained, especially to the local township officials. It was decided that we would travel to Armstrong with him and conduct an inspection there first and then return to Sylvania. We also informed him of our observations of dry dusty conditions on Ready Road. He said they have a sweeper truck operating daily and it will be addressed/monitored. He said they also have a dedicated water truck on site for both quarries (Sylvania & Armstrong).

Crushing equipment at the entire location includes the following: EULIMESTONE 1 Nordberg gyratory crusher (G001); 2 jaw crusher (J001, CR-101); 4 cone crushers (C001, C002, C003, CR-102). EUSANDSTONE 1 jaw crusher (CR-1) and 1 cone crusher (CR-2).

The gyratory and jaw crushers are the primary crushers at the facility. The cone crushers are used for secondary and/or tertiary processing. Secondary and tertiary crushing takes place on material which needs to be further refined after being crushed in the primary crushers. All Crushers in PTI 248-05C are required to be controlled with Water Spray or enclosed within a building (C001, C002, C003). The Opacity limit for Water Spray limestone crushers is 15 % and for sandstone crushers 12 %. Crushers enclosed within a building have a "No Visible Emissions (VE)" limit.

Other associated equipment includes feeders, conveyors, screens, and stackers that have various control requirements and opacity limits all listed in the PTI Appendix A. For some equipment moisture applied at the crusher carries over as residual moisture in the material as it moves through the process. Dust (VE) needs to be monitored by Great Lakes and additional water spray must be used or added if necessary to meet the specified limits.

EUSANDSTONE (Requested records):

PTI limit: process not more than 715,000 tons of silica sand (sandstone) per 12 month rolling time period as determined at the end of each calendar month. May also process limestone in accordance with limits under EULIMESTONE. Records of the amount of material processed are required both daily and monthly.

Great Lakes records indicate they have processed 214,671 tons of sandstone for the period April through mid-October 2016. (There was no production at Armstrong in 2015 or 2016 until April.) This is **Compliant** with their permit limit.

Great Lakes is required to perform monthly periodic inspections to check that water is flowing to discharge spray nozzels in EUSANDSTONE wet suppression systems in accordance with the revised (2008) NSPS Subpart OOO. It requires they initiate corrective action within 24 hours and correct as expediently as practical if water is found to not be flowing properly. Records of inspection date and corrective action are required. Bill indicated that they have not been keeping this record but will start immediately. Great Lakes is **Non-Compliant** with this requirement.

Great Lakes is required to comply with the federal NSPS Subpart OOO as applicable to EUSANDSTONE. This includes VE testing. AQD has received this testing and Great Lakes is **in Compliance** with this requirement.

Great Lakes was required to notify AQD after completion of installation of EUSANDSTONE and this was done by hard copy letter dated May 7, 2015. They were required to label all equipment with the

ID numbers in Appendix A. DKV verified that all labeling has been done. Great Lakes is **Compliant** with both permit requirements.

EUSANDSTONE is primarily located and operating at Armstrong Road. There is limited sandstone remaining in Sylvania. The jaw crusher and cone crusher which process sandstone mined at the Armstrong Road Quarry were not in operation at the time of the inspection. No mining was occurring. DKV and SM observed finished material storage piles on site however no hauling was occurring. No visible emissions were observed.

Bill explained the EUSANDSTONE process start to finish. First they remove overburden material and are storing it in another area on the property. The next steps are drilling, blasting, hauling materials from quarry bottom to the crushing process, crushing/transfer of materials to sizing/storage and finally transport off-site.

SM and DKV verified there is a water source on site, specifically a 12-14 feet deep pond (estimate several 1000 gallons of water) was observed to be connected to a truck wheel wash system at the scale. We also observed a 2000 gallon water tank on site that is hooked to the water sprays at the crushers. Great Lakes also owns and operates a water truck equipped with a canon sprayer. Bill explained that they use the truck to water the quarry wall area before blasting (EUBLASTING in permit) occurs. The drilling operation (EUROCKDRILLS in permit) uses water; Bill said it is a wet process. He acknowledged there is dust released with blasting but said it is not extensive and settles in the immediate area. He said they do pay close attention to wind/weather conditions.

SM and DKV expressed our concerns with the neighbors being located very close to the current mining area and advised Great Lakes must be diligent in monitoring dry conditions and implementing whatever dust control measures they can, potentially above what is required currently by permit and Nuisance Minimization Plan Fugitive Dust (FDP). AQD advised Great Lakes they need to be responsive to their neighbors concerns and avoid excess or off-site fugitive dust. It appears Great Lakes is following the FDP in Appendix B of its permit at this time. However, AQD requested to be notified of the next blasting event at Armstrong in order to observe the FDP in action for drilling, blasting and sandstone crushing.

#### EULIMESTONE (Requested records)

PTI limit: process not more than **16,500 tons** of limestone per day nor **3,000,000 tons** of limestone per 12 month rolling time period as determined at the end of each calendar month. May also process sandstone in accordance with limits under EUSANDSTONE. Records of the amount of material processed are required both daily and monthly.

The facility is maintaining daily and monthly production records to demonstrate compliance with its 12-month rolling time period processing (throughput) limit. Great Lakes records indicate **1,850,072 tons** of material was processed through Sylvania for the 12 month rolling time period ending September 2016. This is **Compliant** with their permit limit.

For 2015 Great Lakes throughput was 1,754,053 tons for the 12 month rolling time period ending December 2015. This is **Compliant** with their permit limit.

For 2016 Great Lakes records received indicate there were four dates when they exceeded the daily processing (throughput) limit:

June 30, 2016 = 18,000 tons processed > limit 16,500 tons;

August 24, 2016 = 16,909 tons processed > limit 16,500 tons.

September 21, 2016 = 18,716 tons processed > limit 16,500 tons

September 28, 2016 = 20,824 tons processed > limit 16,500 tons

Great Lakes is **non-Compliant** with this requirement for these dates.

Great Lakes is required to install and maintain a belt scale on the transfer conveyor TC 024, which continuously shows the daily throughput rate for the conveyor. They are **Compliant** with this permit

requirement.

The crushers which process limestone mined at the Sylvania Quarry were operating at the time of the inspection. No visible emissions were observed from these crushers or any other process associated with EULIMESTONE during the inspection. This site also has a larger pond to hold water generated in the quarry from mining operations. They have pumps and water holding tanks as back-up for the water truck. Great Lakes has an National Pollutant Discharge Elimination System permit from DEQ-Water Resources Division at this site. The primary water source and truck filling location is at the scale house. There is also a truck wheel wash. The facility appears to be in **Compliance** with the opacity limits for the equipment listed in Appendix A of its permit.

DKV and SM observed the main EULIMESTONE plant is a wet process and is enclosed in two buildings, due to noise according to Bill. I observed a wet screw conveyor just outside the building. We did not observe any dust exiting building openings during the inspection.

At another location on site we observed front end loading and crushing operation (operating) near the Trommel screen (not operating). No visible emissions were observed. While we were on site we observed the Water Truck applying water to the area and haul roads.

Bill explained the Water Truck is filled at the water tree near the scales; DKV and SM observed this. He said there is a second back up water source with separate pumps and water weirs near the pond when the plant is down (still need to water). See earlier comment DKV/SM observed pond, tanks, pumps. There are two submersible 200 horsepower pumps in the pond. Pond holds the effluent from the quarry. There is a sump pump at the quarry bottom.

Per Bill there is approximately 4-5 years of limestone before Sylvania will be mined out. They have one more blast for sandstone to be mined out in this quarry. DKV and SM rode with Bill around the entire site including the base of the quarry. The farthest West wall is currently being mined and the wall was @100 feet the deepest part of the quarry is about 220 feet. Bill indicated piles we saw are @40,000 tons of material and takes about 4-5 days to process. He explained they drill holes in a pattern and that takes 1-2 days, then they shoot /blast.

Overall, Great Lakes appears to be abiding by the Fugitive Dust Control Plan in Appendix B of its permit at this time. The equipment used by EULIMESTONE is labeled with the ID number listed in Appendix A of its permit. They are therefore **Compliant** with both of these permit conditions.

#### EUROCKDRILLS (Requested records)

This EU is required to have wet suppression or mechanical collection as dust control. Per Bill the drill uses wet suppression. This could not be verified today as there was no drilling taking place. AQD will observe drilling and blasting in the future.

PTI Limit: shall not operate for more than 2500 hours per 12 month rolling time period as determined at the end of the calendar month.

EUROCKDRILLS consists of drill rigs which are used to drill into the sandstone and limestone. Explosives are then inserted into the drill holes to break up the sandstone and limestone at depth. The drill rigs were not in operation at the time of the inspection but were seen on top of the West quarry wall in Sylvania. Therefore, the 5% opacity limit established for the operation of the rigs could not be evaluated during the inspection.

Records of Drill hours for the rolling 12 months ending September 2016 indicate the drill rigs operated for 812.2 hours. This is **Compliant** with the operational time limit of the permit.

DKV inquired whether Great Lakes is drilling with cyclonic (dry dust collection) versus wet suppression as a prior AQD inspection report referred to their drill using a dust collector. According to Bill, there are different makes/models of drills and the current one they use is a Cubex 920 that has wet

suppression. They have used DM45 Ingersol-Rand in the past and this may have been the one with cyclonic collector.

#### EUBLASTING (Requested records)

PTI Limit: once per day Monday through Friday, during hours of 8:00 AM to 2:00 PM.

Bill informed us that Great Lakes installed 4 fixed seismographs in the area. Low limit is set at 0.05 inches/sec due to vibrations from truck traffic (so that they will not record). EUBLASTING is the process by which explosives are used to fracture sandstone and limestone so that it can be mined. The facility is permitted to conduct one blast per calendar day. All blasts shall occur at less than 100 feet in depth and be less than 11,000 square feet in area.

Bill stated they blast @ once or twice per week or 10 days. Great Lakes records for October 2015 to September 2016 indicate blasting is more frequent than that, however they appear to be in **Compliance** with this limit. One date, October 5, indicates a blast occurred at 3:00 PM which is outside of the time limit. Great Lakes is advised to adhere to their permit limit.

According to the prior AQD inspection report both Chris Kinney and Bill, said limestone blasting takes place at 53 feet in depth. Sandstone blasting occurs at a depth of 24 to 33 feet. The area extent of each blast does not exceed 11,000 square feet. Blasting records were reviewed at that time. Great Lakes was advised to update their records to continue to demonstrate compliance with the current blast limits of maximum depth 100 feet per blast and maximum area 11,000 square feet per blast.

#### EUTRUCKTRAFFIC

An opacity limit of 5% is established for truck traffic occurring at the site in this emission unit. No visible emissions were observed from truck traffic on site roads during the inspection. See earlier note of dust track out onto Ready Road. Great Lakes was advised to take action to correct this, and be diligent in monitoring road conditions. DKV and SM observed the sweeper truck on Ready Road upon our leaving the facility. Overall, the facility appears to be abiding by the FDP in Appendix B of its permit with respect to EUTRUCKTRAFFIC. Records for the amount of material shipped off site during 2016 were provided to AQD staff during the inspection.

#### EUSTORAGE

An opacity limit of 5% is established for the material storage piles at the site in this emission unit. No visible emissions were observed to be emanating from the storage piles during the inspection. The facility appears to be abiding by the FDP in Appendix B of its permit with respect to EUSTORAGE.

AQD requested the amount of material stored on site on the day of inspection. Great Lakes provided that 199,022 tons of inventory was being stored on site. This is far less than the 1,000,000 ton at any given time storage limit established in the permit.

#### EUOVERBURDEN

This represents the activity performed on the 30 foot thick clay layer overlaying the sandstone. The permit states that no visible emissions should emanate from the EUOVERBURDEN processing activity. DKV and SM did not observe this activity taking place during the inspection. The facility appears to be abiding by the FDP in Appendix B of its permit with respect to EUOVERBURDEN. DKV observed this material storage area from the north end of Armstrong Road at the cul-de-sac. No VE or dust was observed.

#### NUISANCE MINIMIZATION PLAN FUGITIVE DUST (FDP)

During the inspection DKV and SM had numerous opportunities to discuss the issues and areas of fugitive dust, and the most recent complaint situation with Bill. AQD stressed that Great Lakes closely monitor all operations for dust potential and take appropriate preventative measures. As stated earlier in this report, AQD advised that in some cases Great Lakes may need to do more than is currently indicated by their permit and NMP.

There were several actions Bill described that appeared to be above what is required. One of these was spraying the quarry wall with water prior to blasting (discussed above - water cannon on water truck). Another action Bill explained is that a polymer material called "Soil-cement" is being piloted that coats the sand

storage piles effectively creating a crusted layer and reducing the wind blown dust potential. SM and DKV physically inspected the large fine sand pile and verified there was a hard crust layer over the majority of the pile. Bill explained it is sprayed on so they are able to reach almost to the top. During the inspection we did not observe any blowing dust issues from or around the piles.

I reminded Bill that we have historically had periodic complaints due to track out of material onto Ready Road resulting in dust from passing vehicles. Bill explained that they maintain a Wet sweeper and it is operating all day. We observed it operating on Ready Road during the inspection.

Records of Calcium chloride applications to the site working areas and haul roads are being kept by Great Lakes. This is another control activity that can be used more frequently if necessary and based on conditions, i.e. dry versus wet weather conditions. For 2016, applications of CaCl have been applied according to their records in April (10,000 gallons), May (15,000 gal), June (25,000 gal), July (0), August (20,000), September (5000), October (20,000).

#### REQUESTED RECORDS

During the inspection I discussed all the records required by Great Lakes PTI 248-05C with Bill. The required records are necessary for AQD to make a compliance determination. Great Lakes had both hard copy and electronic records. Therefore AQD allowed Great Lakes to compile and submitted the requested records. On October 14, 2016 AQD received the requested records by email from Bill, Great Lakes.

Several Great Lakes' spreadsheets incorporated more than the requested 2015 / 2016 12-month rolling time period ending September 2016. AQD printed the records in whole or in part and attached them to this report to the plant file. Included are their production and shipping records, VE test results at Armstrong Road (note: not printed because AQD verified we already had received it), startup notification for Armstrong Road, drilling and blasting record, and fugitive dust control and watering logs for the last two (2) years.

During the inspection Bill indicated in the drilling and blasting log, square footage of the blast was not a parameter Great Lakes recorded. Per Bill they started since the October 4, 2016 inspection, and will continue to do so in the future.

The watering logs for 2015 and 2016 are complete regarding calcium chloride (CaCl) applications and sweeper truck use. Bill stated however, their records of the water truck use is not well documented. Per Bill, after the inspection, he had a meeting with his staff and they implemented a system to record water truck use. AQD will review this during follow up inspections.

#### CLOSING CONFERENCE

Bill, Scott and I returned to the main office conference room and went over the PTI 248-05C and the required records. A final compliance determination is pending review of their records. Furthermore AQD will need to observe the Armstrong Road quarry in operation. The record submittal deadline was agreed to and Bill said he would contact me prior to the next drilling/blasting event. Bill indicated they do take dust control seriously and are aware of the residents concerns. He was agreeable to trying additional dust control measures if needed.

#### COMPLIANCE SUMMARY

As a result of this inspection, Great Lakes Aggregate, L.L.C.- Sylvania appears to be in compliance with its permit and all other applicable air pollution control regulations with the exception of those non-compliant items discussed in the report and listed below. The records referenced in this report are attached to this report to file.

**NON-Compliant items:** AQD determined Great Lakes has not been conducting nozzle checks, repairs, with required records; there were daily production exceedances on four dates; and they are not keeping records of square footage of blast area. A Violation Notice will be issued to Great Lakes citing these permit special conditions.

Derenzo and Associates' October 6, 2015, visible emission (VE) evaluation of all of the new/revised facility's processes and process equipment covered by PTI 248-05C is in AQD files. Test report indicates all equipment currently located at the Armstrong Road quarry was determined to be Compliant with the permitted Opacity limit

(%).

AQD requested notification when the next drilling and blasting event is scheduled for the Armstrong Road sandstone quarry. Bill agreed to notify AQD. Additional inspections will be documented under separate reports.

AQD will continue to respond to and investigate complaints. AQD will conduct fugitive dust observations of the facility and area when traveling through the area as time allows.

NAME *William Vektor*

DATE *11/3/16*

SUPERVISOR *[Signature]*

