

A7757
MANILA

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

A775734997

FACILITY: U S SILICA CO		SRN / ID: A7757
LOCATION: 20837 N HURON RIVER DR, ROCKWOOD		DISTRICT: Detroit
CITY: ROCKWOOD		COUNTY: WAYNE
CONTACT: John Robinson , Environmental Health & Safety Coordinator		ACTIVITY DATE: 06/02/2016
STAFF: Todd Zynda	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

REASON FOR INSPECTION: Scheduled Inspection

INSPECTED BY: Todd Zynda, AQD; Jerry Krawiec, AQD

PERSONNEL PRESENT: John Robinson, EHS Coordinator; Chris Coppens, Plant Manager

FACILITY PHONE NUMBER: 734-379-9672, Ext 20

FACILITY FAX NUMBER: 734-379-4990

FACILITY WEBSITE: www.ussilica.com

FACILITY BACKGROUND

U.S. Silica (USS) produces whole grain silica that is used in end markets for glass production or building products. The site has been in operation under various company names, since 1904. USS property encompasses approximately 750 acres, of which only 5 to 10 acres are operating for silica production. The facility currently has 23 employees and operates 24 hours a day, 5 days a week. Weekends are added as needed.

USS receives raw material from the Sylvania Mine located in Monroe County. USS's quarry last produced raw material in the late 1990's.

Facility operations are permitted under Permit to Install (PTI) 150-08E. The sand dryer at the facility is subject to 40 Code of Federal Regulations (CFR) Part 60, Subpart UUU – Standards or Performance for Calciners and Dryers in Mineral Industries.

OUTSTANDING CONSENT ORDERS

None

OUTSTANDING VNs

None

INSPECTION NARRATIVE

On June 2, 2016, AQD staff, Todd Zynda and Jerry Krawiec, conducted an unannounced inspection of USS located at 20837 North Huron River Drive in Rockwood, Michigan. The purpose of the inspection was to determine 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; and the conditions of PTI 150-08E.

During the inspection, Mr. John Robinson, EHS Coordinator, and Mr. Chris Coppens, Plant Manager, provided information and a tour of facility operations.

During the opening meeting, the current status of PTI subject equipment and record keeping requirements were discussed. Mr. Robinson demonstrated that records are maintained. It was agreed that the facility would email records within 5 business days. Required records were received via email on June 9, 2016.

During the opening meeting it was discussed that the two additional modules to cartridge dust collector (DC-01) permitted under PTI 150-08E have not been installed. An extension on the installation was granted by the AQD in a letter dated July 15, 2015. The extension is set to expire on March 24, 2017. Under PTI 150-08E,

EUSANDPROCESS, SC IV. 3, an alarm is to sound if the pressure drop exceeds 10 inches water. The previous PTI 150-08B (150-08C and 150-08D were never issued) requires an alarm to sound if the pressure drop exceeds 5 inches water. According to the facility, they are still operating with dust collector using the 5 inches pressure drop alarm. The facility has not made a determination if they will be completing the installation of the two additional modules to the cartridge dust collector.

In addition to PTI 150-08E and PTI 150-08B discussion, Wayne County Installation Permits listed below were discussed.

Permit ID	Description	Comment
C-8403	#5 Rotary Sand Dryer Wet Scrubber	Not approved, Permit never issued
C-10576 through C-10578, and C-10619	Portable Limestone Crushing Plant	Portable plant no longer at 20837 N. Huron River Drive. Portable equipment permitted to Angelo's Crushed Concrete.

At the time of inspection, it was thought that C-8403 was an issued permit, and a void permit letter would be issued. After further review of the permit file, it appears that C-8403 was never issued. C-10575 through C-10578, and C-10619 were for a portable limestone crushing plant. It was confirmed that limestone crushing does not occur at the 20837 North Huron River Drive. The AQD Detroit District files indicate this equipment is permitted to 20837 North Huron River Drive (SRN A7757). In actuality, C-10575 through C-10578, and C-10619 are portable permits and issued to Angelo's Crushed Concrete (SRN B6447). The portable permits will be removed from the address 20837 North Huron River Drive (SRN A7757) in Detroit District and AQD data bases.

Prior to a tour of the facility, a facility process flow diagram was discussed (see attached).

The tour began with observation of the wash plant ("wet plant"). The wash plant consists of equipment used for washing, screening, flotation, desliming, classification and dewatering of sand. The wash plant is a completely wet process and is in an enclosed building up to the 30.0 million British thermal units (MMBTU) fluidized bed sand dryer (EUSANDDRYER). The sand dryer blows heated air upward through the sand to dry it. Exhaust from the sand dryer is fed to a wet scrubber which controls PM emissions. During the inspection, the wet scrubber flow rate (132.09 gallons per minute [gpm]) and the pressure drop (10.32 inches water) was recorded in the wet plant control room. During the inspection visible emissions from the wet scrubber (SVWETSCRUBBER) were zero opacity. Other equipment listed in Appendix A of PTI 150-08E (sand scrubbers, hydrosizer, flotation tanks, etc.) located in the enclosed portion of the wash plant had no visible emissions.

Following observation of the wet plant and associated sand dryer and wet scrubber, the "dry plant" was observed. The dry plant houses final product and equipment consists of hoppers, truck and rail loading, conveyors, elevators, screens, storage bins used for material handling, sorting/blending of the silica into various product types. A dust collector controls emissions from screens and associated transfer points. During the inspection, the dust collector magnehelic read approximately 3.3 inches water. The facility also operates a "HiVac" industrial vacuum cleaning system used to clean up spilled sand in the screen house. During the inspection, the dry plant had no visible emissions. Duct work controlling emissions from screens and transfer points appeared to be in good operating condition and were ducted to the dust collector as appropriate. According to Mr. Robinson, USS plans to have a consultant conduct an engineering evaluation of the duct work, to assess duct work velocity in the near future.

During the inspection, a solvent based cold cleaner was observed in the facility garage/maintenance building. At the time of inspection, the cold cleaner lid was closed and appeared to meet Rule 707 requirements. Cold cleaner instructions were posted in a conspicuous location. A copy of the safety data sheet (SDS) for the material used was provided.

APPLICABLE RULES/PERMIT CONDITIONS

PTI 150-08E

Permit conditions have been paraphrased for brevity. Please see PTI 150-08E for conditions in their entirety.

EUSANDDRYER

SC I. 1 and 2. **COMPLIANCE.** PM emissions shall not exceed 0.025 grains per dry standard cubic foot (gr/dscf) and PM10 emissions shall not exceed 7.01 pounds per hour (pph). The 0.025 gr/dscf limit is established by 40 CFR 60.732(a). On November 10, 2010, a stack test was conducted to demonstrate compliance with the permitted emission limits and 40 CFR Part 60, Subpart UUU. Test results indicate a PM emission rate of 0.0019 gr/dscf and 0.40 pph (see file for stack test report). According to the December 9, 2010 test report, the sampling time and volume for each test run was at least 120 minutes and had a minimum sample volume of 60 dscf (1.7 dry standard cubic meter [dscm]) meeting the requirements of §60.736(b)(1).

SC I. 3 and SC V. 1. **COMPLIANCE.** Visible emission not to exceed 10 percent opacity. On November 10, 2010, visible emission measurements were conducted in conjunction with a stack test. While visible emission testing is not required, per §60.732(b), during the November 10, 2010 stack test, visible emissions were reported as zero. During the inspection visible emissions from the wet scrubber were zero opacity.

SC II. 1, SC IV. 4, and SC VI. 2. **COMPLIANCE.** Shall not process more than 2,800 tons of material per day nor 1,000,000 tons of material per 12-month rolling time period. Belt scale shall be installed and maintained. Records are to be maintained. The facility records material processed as required. The highest daily throughput May 1, 2014 through May 31, 2016 occurred on November 5, 2014 at 2,464 tons. The highest 12-month rolling throughput occurred during March 2015 at 411,410 tons.

SC II. 2 and 3. **COMPLIANCE.** Shall only burn natural gas or propane. Shall not process asbestos tailings or asbestos containing material (ACM). EUSANDDRYER operates exclusively on natural gas. ACM is not processed at the facility. Raw material is received from the Sylvania Mine located in Monroe County.

SC III. 1. **COMPLIANCE.** Shall not operate EUSANDDRYER unless the nuisance minimization plan for fugitive dust is implemented and maintained. Please see fugitive dust discussion below.

SC IV. 1, 2, 3, and SC VI. 1. **COMPLIANCE.** Wet scrubber to be installed, maintained, and operated in a satisfactory manner. Pressure drop and liquid flowrate to be recorded and measuring device to be calibrated. Shall record an arithmetic average over a 2-hour period of both pressure drop and liquid flowrate once on a daily basis. According to §60.735(c)(2), the pressure drop is considered in compliance if the average value is not less than 90 % of the pressure drop measured during the November 10, 2010 stack test (measured pressure drop 7.7 inches water). This would equate to a minimum pressure drop of approximately 6.93 inches water. According to §60.735(c)(3), the daily scrubber flow rate should be ± 20 % of the measured flow rate from the stack test. This equates to approximately 105 gpm to 157.2 gpm. During the inspection, the wet scrubber flow rate (132.09 gallons per minute [gpm]) and the pressure drop (10.32 inches water) was recorded in the wet plant control room. The facility monitors flow rate and pressure drop on a continuous basis and maintains records as appropriate. According to Mr. Robinson, a computer program is set up to randomly choose readings from two operating hours to calculate a 2 hour arithmetic average. The facility provided daily 2 hour average records of both flowrate and pressure drop for June 2015 through May 2016. Records indicate that pressure drop has not been less than 6.93 inches water during the reporting period. Records indicate that indicate that the flowrate is maintained between 105 gpm to 157.2 gpm, with values typically in the "130's". According to Mr. Robinson, the monitoring devices are calibrated annually, usually in October each year. An example of calibration records was provided. While 40 CFR Part 60, Subpart UUU is not clear on how the 2 hour average is calculated, it is recommended that the facility calculate the 2 hour average using 2 consecutive hours going forward.

SC VIII. 1. **COMPLIANCE.** Exhaust diameter not to exceed 42 inches. Stack height to be a minimum of 60 feet above ground surface. During the inspection stack dimensions appeared to meet permit conditions. Measurements of the stack were not collected.

SC IX. 1. **COMPLIANCE.** Shall comply with 40 CFR Part 60, Subparts A and UUU as applicable. The facility appears to be in compliance with applicable portions of Subpart A and Subpart UUU, as noted above.

EUSANDPROCESS

EUSANDPROCESS consists of both the wash plant process up to the EUSANDDRYER, and the dry plant

operations. Dry plant operations are in an enclosed building with transfer points being controlled by a dust collector (SVCOLLECTOR).

SC I. 1, 2, and 3. **NOT EVALUATED.** PM, PM10, and PM2.5 emission limits were not evaluated. The emission limits reference General Condition 13, where the Department may require the permittee to conduct performance tests. At this time, the AQD has not required that tests be performed to evaluate PM, PM10, and PM2.5 emission limit compliance. The facility is likely in compliance with the emission limits through proper operation of the dust collector as described below under SC IV. 1, 2, 3, and SC VI. 1. However, PTI 150-08E does not specifically cite those special conditions as testing/monitoring methods for SC I. 1, 2, and 3.

SC I. 4. **COMPLIANCE.** Visible emissions from drop points and transfer points not to exceed 10 percent opacity. During the inspection visible emissions from drop points and transfer point were zero opacity.

SC II. 1. **COMPLIANCE.** Shall not process asbestos tailings or asbestos containing material (ACM). ACM is not processed at the facility. Raw material is received from the Sylvania Mine located in Monroe County.

SC III. 1. **COMPLIANCE.** Shall not operate any portion of EUSANDPROCESS unless opacity limit listed in Appendix A is met. During the inspection visible emissions from observed equipment was zero opacity.

SC III. 2. **COMPLIANCE.** Shall not operate EUSANDPROCESS unless the nuisance minimization plan for fugitive dust is implemented and maintained. Please see fugitive dust discussion below.

SC IV. 1, 2, 3, and SC VI. 1. **COMPLIANCE.** Equipment control device shall be installed and maintained. Dust collector (fabric filter) shall be installed and maintained. Pressure drop monitored with an alarm sounding when pressure drop exceeds 10 inches water. Pressure drop monitored and recorded on a daily basis. During the inspection the dust collector and other controls (enclosure, partial enclosure, saturated material, etc.) appear to be installed and operating as required. As described above, the facility has not installed the two additional modules to the dust collector permitted under PTI 150-08E. Therefore, the facility is operating with the alarm set at 5 inches water per PTI 150-08B. The facility provided pressure drop records for May 2016. The highest pressure drop reading was 3.9 inches water and occurred on May 4 and 5, 2016.

SC VIII. 1. **COMPLIANCE.** Exhaust diameter not to exceed 36 inches. Stack height to be a minimum of 56 feet above ground surface. During the inspection stack dimensions appeared to meet permit conditions. Measurements of the stack were not collected.

SC IX 1. **COMPLIANCE.** Shall label all equipment using the company ID Numbers in Appendix A. During the inspection, equipment ID numbers appeared to be in place.

EUTRUCKTRAFFIC & EUSTORAGE

Conditions for the EUTRUCKTRAFFIC and EUSTORAGE are combined as conditions are similar for both emission units.

SC I. 1. **COMPLIANCE.** Visible emissions from EUTRUCKTRAFFIC (wheel loaders and all truck traffic) and EUSTORAGE (material storage piles) shall not exceed 5 percent opacity. During the inspection visible emissions from EUTRUCKTRAFFIC equipment and storage piles were zero opacity.

SC III. 1. **COMPLIANCE.** Shall not operate EUTRUCKTRAFFIC or EUSTORAGE unless the nuisance minimization plan for fugitive dust is implemented and maintained. Please see fugitive dust discussion below.

NUISANCE MINIMIZATION PLAN: FUGITIVE DUST

Site Roadways/Plant Yard

SC I. A.B. and C. **COMPLIANCE.** Dust shall be controlled by applications of water, calcium chloride or other approved compound. All paved roadways and plant yards shall be swept as appropriate. Material spillage shall be cleaned up immediately. A record of dust suppressant applications shall be kept on file. The facility maintains fugitive dust at the plant through watering and road sweeping. Records were provided (see attached).

Plant

SC II. **COMPLIANCE.** Drop distance at each transfer point shall be reduced to minimum that equipment can achieve. During the inspection this requirement appeared to be met.

Storage Piles

SC III. A and B. **COMPLIANCE.** Shall minimize drop distance and water on as needed basis. During the inspection the water truck was observed onsite. The facility maintains records of water application.

Truck Traffic

SC IV. **NOT EVALUATED.** Vehicles to be loaded to prevent their contents from dropping, leaking, blowing, etc. This condition was not evaluated during the inspection.

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SC V. **COMPLIANCE.** Plan is subject to adjustment if fugitive dust requirements are not being met and/or permitted emission limits are not being met. At the time of inspection, USS appeared to be meeting fugitive dust requirements.

NEW SOURCE PERFORMANCE STANDARDS (NSPS)

40 CFR Part 60, Subpart UUU – Standards of Performance for Calciners and Dryers in Mineral Industries

The fluidized bed and dryer is subject to 40 CFR Part 60, Subpart UUU. Applicable portions of Subpart UUU were included in the special conditions under EUSANDDRYER. The facility demonstrated compliance with the PM standard for dryers (§60.732(a)) during stack testing conducted on November 10, 2010. The facility maintains a monitoring device to that continuously measures pressure drop and liquid flow rate per §60.734 (d). In addition the facility maintains the appropriate records demonstrating compliance with §60.735(b).

NESHAP/MACT

40 CFR Part 63, Subpart T – National Emission Standards for Halogenated Solvent Cleaning

According to 40 CFR 63.460(a), this standard applies to units that use solvents with concentrations of 5% or more by weight of halogenated compounds (methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform). The SDS provided indicates that material used does not contain the above listed halogenated compounds. Therefore, this standard does not apply.

EXEMPT EQUIPMENT

Cold Cleaner

The cold cleaners at the facility are exempt from PTI requirements under the following rule.

R336.1281(h): "The requirement to obtain a PTI does not apply to cold cleaners that have an air/vapor interface of not more than 10 square feet."

The facility provided the SDS for the cold cleaner. The cold cleaner is not heated during use and has a vapor pressure of less than 1 millimeters mercury (mmHg) or 0.019 pounds per square inch [psi]). During the inspection the cold cleaner appeared to be in compliance with the applicable requirements of R336.1707.

POTENTIAL TO EMIT EVALUATION

On July 24, 2014, USS provided a letter in regards to the action on rescinding Rule 208a. Within the correspondence the facility chose to demonstrate that the potential to emit (PTE) does not exceed any major source emission threshold. Facility calculations indicate a PTE of 77.77 tons per year. Within the PTE calculations, the facility included fugitive emissions, which are not required per Rule 116. Facility operations are not considered to meet one of the categories listed in Rule 116(i) through (xxxiv) and therefore fugitive emissions do not need to be included in PTE.

According to the July 24, 2014 letter, the primary sources of PM10 emissions are from the wash plant sand dryer (EUSANDDRYER) controlled by a wet scrubber and the dry plant dust collector (SVCOLLECTOR). PM10

emissions for the sand dryer are calculated using the permitted emission limit of 7.01 pph (EUSANDDRYER, SC I.2) times 8760 hours divided by 2000 pounds/ton ($7.01 \text{ pph} \times 8760 \text{ hrs} / 2000 \text{ pound/ton} = 30.70 \text{ tpy}$). PM10 emissions from the dry plant dust collector are calculated using the permitted emission limit of 4.61 pph (EUSANDPROCESS, SC I.2) times 8760 hours divided by 2000 pounds/ton ($4.61 \text{ pph} \times 8760 \text{ hrs} / 2000 \text{ pound/ton} = 20.19 \text{ tpy}$). It is important to note that EUSANDPROCESS includes conditions for both the wash plant (minus the sand dry and wet scrubber) and the dry plant. The permitted emission limits under EUSANDPROCESS SC I apply only to the dust collector at the dry plant.

At the time PTI 150-08 was issued (March 24, 2009), the allowable PM10 emissions were 11 pph and 45.3 tpy (see PTI 150-08 permit evaluation form). Assuming PTI 150-08E is similar, the allowable PM10 emissions would be 50.89 tpy ($30.70 + 20.19 = 50.89 \text{ tpy}$), essentially acting as a Title V opt-out permit. In addition, several conditions within PTI 150-08E have a Rule 205 underlying applicable requirement (UAR), indicating that the permit is an opt-out permit.

During the PTE evaluation, the AQD reviewed the flow diagram IDs included in the July 24, 2014 and estimated PTE calculations. Based on review of current facility operations, permitted emission limits, and facility PTE calculations, the AQD believes the facility is not a major source with current permitted controls in place. However, it is recommended that the facility obtain a standard Title V opt-out permit limiting PM10/PM2.5 emissions to less than 100 tons per year (i.e. 90 tpy).


MAERS REPORT REVIEW

Reporting year 2015 MAERS was submitted in a timely manner and was reviewed by AQD staff. The emissions were revised to include emissions from both paved and unpaved roads. See facility file.

FINAL COMPLIANCE DETERMINATION

At this time, USS appears to be in compliance with applicable permit conditions as well as state and federal rules. It is recommended that the facility obtain a true Title V opt-out permit limiting PM10/PM2.5 emissions to less than 100 tons per year (i.e. 90 tpy). It is also recommended that the facility calculate the two hour arithmetic average of the liquid flow rate and pressure drop for the sand dryer wet scrubber using two consecutive hours.

NAME



DATE

6/16/16

SUPERVISOR

JK