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west virginia department of environmental protection

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## ENGINEERING EVALUATION/FACT SHEET

### B BACKGROUND INFORMATION

Application No.:	R13-2145F
Plant ID No.:	065-00001
Applicant:	U.S. Silica Company
Facility Name:	Berkeley Springs Quarry
Location:	Berkeley Springs
NAICS Code:	212322
Application Type:	Modification
Received Date:	May 22, 2017
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	\$2000.00
Date Received:	June 05, 2017
Complete Date:	July 27, 2017
Applicant Ad Date:	May 17, 2017
Newspaper:	<i>The Morgan Messenger</i>
UTM's:	Easting: 739.64 km      Northing: 4,393.47 km      Zone: 17
Description:	U.S. Silica Company proposes to install a bucket elevator, mobile conveyor and storage silo at the Berkeley Springs Plant.

### DESCRIPTION OF PROCESS

U.S. Silica (USS) is proposing to install new equipment at their Berkeley Springs Plant in Morgan County, West Virginia. This equipment includes a mobile conveyor (MOB-CONV), bucket elevator (BE-03) and silo (C Silo).

The mobile conveyor will be used to unload material from railcars to other transfer operations. At this time, USS requests the flexibility to use the mobile conveyor for any material at the plant. The mobile conveyor utilizes a 50 HP diesel engine to propel itself into location and once in place, the diesel engine provides power to operate the conveyor.

The Applicant has cited the U.S. Environmental Protection Agency Applicability Determination Index (Control Number: M090038) which states that the diesel generator at the

Promoting a healthy environment.

Hibbing Taconite Company qualifies as a non-road, non-stationary engine based on the fact that it will not be in one location at the facility for a period of more than 12 months.

Additionally, USS is proposing the installation of a new bucket elevator and silo to support the processing of cristobalite. The material currently arrives at the Berkeley Springs Plant via bags, where it is unloaded into an existing (250 ton) silo (identified in the Title V Operating Permit R30-06500001-2014 as Pulverizer Tank #20), milled, and packaged in bags for shipment. The proposed project would unload the material from railcars using the mobile conveyor, transfer to the new bucket elevator and either drop into the new (150 ton) storage silo or the existing (250 ton) silo. From the silo, the cristobalite will be milled and bagged as currently operating.

The following table provides a listing of the new equipment to be added:

**Table 1: New Equipment**

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type and Date of Change	Control Device
MOB-CONV	NA	342D Mobile Conveyor	2017	300 tph	New	None
BE-03	NA	Cristobalite Bucket Elevator #3	2017	100 tph	New	None
C Silo	NA	Cristobalite Silo	2017	150 tons	New	None

SITE INSPECTION

On June 21, 2017, Mr. Joseph Kreger, an Environmental Resource Specialist assigned to the agency’s Eastern Panhandle Regional Office, conducted a targeted, full, on-site inspection of the facility. Mr. Kreger found the facility to be operating within compliance of their Title V Operating Permit. Inspection notes state: Paperwork was in order. No visible emissions observed.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Particulate matter emissions from the new equipment are related to the transporting of silica sand. The applicant used emission factors from U.S. EPA, AP-42 Section 11.19.2 – Crushed Stone Processing and Pulverized Mineral Processing (August 2004), Table 11.19.2-2 to estimate fugitive PM emissions from the new equipment.

The following table provides a summary of the estimated controlled emissions increase:

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**Table 2: Estimated Controlled Emissions Increase**

ID #	Source	Hourly Process Rate <sup>1</sup> tons/hr	Annual Process Rate <sup>2</sup> TPY	Hourly Emissions			Annual Emissions		
				PM lb/hr	PM <sup>10</sup> lb/hr	PM <sup>2.5</sup> lb/hr	PM TPY	PM <sup>10</sup> TPY	PM <sup>2.5</sup> TPY
MOB-CONV	342D Mobile Conveyor	300	2,628,000	1.80	0.66	0.66	7.88	2.89	2.89
BE-03	Bucket Elevator #3	100	18,000	0.60	0.22	0.22	0.05	0.02	0.02
C Silo	150 Ton Cristobalite Silo	100	18,000	0.60	0.22	0.22	0.05	0.02	0.02
<b>TOTAL</b>				<b>3.00</b>	<b>1.10</b>	<b>1.10</b>	<b>7.99</b>	<b>2.93</b>	<b>2.93</b>

<sup>1</sup> Maximum hourly capacity of equipment.

<sup>2</sup> Annual process rate based on manufacturer specified maximum capacity assuming full time operation (i.e. 300 tons at 8,760 hrs/yr) for Mobile Conveyor. Bucket Elevator assume 1,500 tons per month (120 hours of operation per year).

Vehicle traffic at the facility is not expected to change as a result of this proposed modification. Therefore, no emissions (road dust) due to vehicle traffic on the applicant’s haul roads were estimated.

REGULATORY APPLICABILITY

Berkeley Springs Plant processes Silica which is classified as a non-metallic mineral. Thus, these additions are affected sources under 40 CFR 60, Subpart OOO –Standard of Performance for Nonmetallic Mineral Processing Plants.

The proposed modification of their Berkeley Springs Plant is subject to the following state and federal rules:

*45CSR7 To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associate Operations*

The purpose of this rule is to prevent and control particulate matter air pollution from manufacturing processes and associated operations. The facility is subject to the requirements of this rule because it meets the definition of “Manufacturing Process” found in Section 2.20 of this rule; Subsection 3.7 – no visible emissions from any storage structure pursuant to subsection 5.1 which is required to have an enclosure; Subsection 4.1 – PM emissions shall not exceed those under Table 45-7A; Subsection 5.1 – manufacturing process and storage structures must be equipped with a system to minimize emissions; Subsection 5.2 – minimize PM emissions from haul roads and plant premises.

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Permit R13-2145B covers the five Rotex screens, which are subject to the pre-2008 emission standards of Subpart OOO. The emission point for the Rotex screens is Stack#36. The facility's Title V Operating Permit required USS to conduct weekly visible emission checks to confirm compliance with the Rule 7 limits, which uses Method 22 that identifies if visible emissions are present or not.

Permit R13-2145C covered the replacement of two existing loading spouts with two bucket elevators and one loading spout which are subject to 2008 emission standards of Subpart OOO. These more stringent standards are the visible emission limits that correspond to the PM concentration, which limit the opacity from stacks to 7% and fugitive emissions to 10%. Rule 7 would allow 20% opacity from a process source operating and only requires a source to reduce/control fugitive emissions to the lowest level reasonably achievable (45CSR§7-5.1.).

Under Permit R13-2145C, it was recommended that the 2008 visible emission and fugitive emission standards of Subpart OOO be incorporated into the permit, Rule 7 provisions be omitted and that it was not necessary to develop a monitoring plan for the existing Rotex Screens.

*45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation*

The proposed modification is subject to the requirements of 45CSR13 because it will result in the potential to discharge less than six (6) pounds per hour and ten (10) tons per year of a regulated air pollutant (PM and PM<sub>10</sub>), however, will involve the construction of equipment subject to NSPS Subpart OOO. The facility is subject to the following sections of this rule: reporting requirements, requirements for modifications of stationary sources, demonstrating compliance with stationary sources, public review procedures, and permit application fees. The facility will demonstrate compliance by following all the applicable rules and regulations that apply to the facility. They will also follow the terms and conditions set forth in permit R13-2145F. The permittee published a Class I legal advertisement in *The Morgan Messenger* on May 17, 2017 and submitted an application fee of \$1,000.00 and the \$1,000.00 NSPS fee.

*45CSR16 Standards of Performance for New Stationary Sources*

This rule establishes and adopts standards of performance for new stationary sources promulgated by the United States Environmental Protection Agency pursuant to section 111(b) of the federal Clean Air Act, as amended (CAA). The facility is subject to 40CFR60 Subpart OOO.

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*45CSR14 Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration of Air Quality*

This proposed modification is occurring at a major source as defined in Rule 14 (Prevention of Significant Deterioration). However, the new emissions from this project by itself do not exceed the 10 tons of PM<sub>2.5</sub>, 15 tons of PM<sub>10</sub>, or 25 tons of PM significance levels. By rule, no further review is required. Morgan County is classified as in attainment for all six criteria pollutants. Therefore, this modification does not require to be reviewed under Rule 19 (Nonattainment New Source Review Program).

*40CFR60 Subpart OOO: Standards of Performance for Nonmetallic Minerals Processing Plant*

The facility shall be in compliance with 60.672 (b) no greater than 7% opacity from any transfer point on belt conveyors or from any other affected facility (as defined in 60.670 and 60.671) when the particulate matter control methods and devices proposed within application R12-2145F are in operation.

Under Subpart OOO, USS will be required to conduct compliance demonstrations to satisfy the testing requirement of §60.672 within 180 days after initial start-up of the new sources.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This particular modification does not constitute the release of any other pollutant other than fine particulate matter (PM<sub>2.5</sub>). As a result, no information concerning the toxicity of non-criteria regulated pollutants was presented in this section.

AIR QUALITY IMPACT ANALYSIS

The writer deemed that an air dispersion modeling study or analysis was not necessary, because the proposed modification does not meet the definition as a major modification of a major source as defined in 45CSR14.

MONITORING OF OPERATIONS

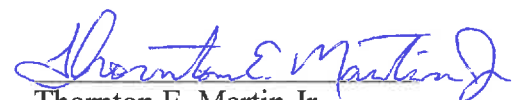
The actual PM limit is based on the PM concentration over flow rate at standard condition. Thus, it would be very difficult to link parameters such as loading rates or silica throughput to this limit. The applicant will conduct initial testing and repeat such testing once every five years for demonstrating compliance with the fugitive emission limit (7% opacity). In addition, regarding the diesel engine associated with the Mobile Conveyor, the applicant must

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document the movement/location of the mobile conveyor over the twelve-month period following start-up of mobile conveyor operations, annually thereafter, as evidence the diesel engine is a non-road engine exempt from 45CSR13, 40CFR60 Subpart IIII and 45CFR63 Subpart ZZZZ.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed modification of the facility will meet all the requirements of the application rules and regulations when operated in accordance to the permit application. Therefore, this writer recommends granting U.S. Silica Company a Rule 13 modification permit for their sand processing plant located near Berkeley Springs, WV.

  
Thornton E. Martin Jr.  
Permit Engineer

July 27, 2017  
Date

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