



west virginia department of environmental protection

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ENGINEERING EVALUATION/FACT SHEET

B BACKGROUND INFORMATION

Application No.:	R13-2145D
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:	June 29, 2015
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	\$2000.00
Date Received:	June 30, 2015
Complete Date:	July 22, 2015
Applicant Ad Date:	June 24, 2015
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 new equipment including a new air classifier as well as supporting equipment as part of the Mill 5 and Mill 6 circuit. The new classifier provides a more efficient separation and classification based on size and the new equipment in the Mill 5 & 6 circuit will support the processing of a new material (cristobalite).

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 new air classifier (AIRSE25) and supporting equipment as part of the Mill 5 circuit. This new classifier provides a more efficient separation and classification of U.S. Silica's product based on size. The supporting equipment includes a new screen (SCREN25), hand-fed feed hopper (HOPPR25) and pneumatic transporter (PNEU25). Particulate matter emission from the new air classifier will be controlled using a new baghouse (CF#45). In addition, U.S. Silica is proposing the installation of a new feed bin

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(TANK25), bucket elevator (ELEV25), feed bin (BIN25) and two (2) new feed conveying belts (FEEDB25 and FEEDB26) as part of the Mill 5 and Mill 6 circuit. This new equipment will support the processing of Cristobalite, a new material at the Berkeley Springs Plant. The hand-fed feed hopper will be controlled using a dedicated, self-contained baghouse (CF#46). The two (2) new enclosed feed bins (TANK25 and BIN25) provides in-process storage and dispensing of silica sand. TANK25 will vent to a dedicated baghouse filter system, CF#47. BIN25 will vent to baghouse CF#15. All new conveyance equipment (FEEDB25, FEEDB26, ELEV25 and PNEU25) will be controlled via baghouse CF#15.

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
HOPPR25	Stack #46	Cristobalite Feed Hopper	2015	10 tph	New	CF#46
ELEV25	Stack #15	Cristobalite Feed Bin Bucket Elevator	2015	25 tph	New	CF#15
TANK25	Stack #47	Cristobalite Feed Bin	2015	25 tph	New	CF#47
FEEDB25	Stack #15	Cristobalite Feed Conveyor Belt	2015	25 tph	New	CF#15
FEEDB26	Stack #15	Cristobalite Feed Conveyor Belt	2015	10 tph	New	CF#15
SCREN25	Stack #15	Scalping Screen	2015	10 tph	New	CF#15
BIN25	Stack #15	Feed Bin	2015	10 tph	New	CF#15
AIRSE25	Stack #45	Air Classifier	2015	10 tph	New	CF#45
PNEU25	Stack #15	Pneumatic Conveyor	2015	10 tph	New	CF#15

SITE INSPECTION

On May 14, 2015, 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: Opacity in compliance at the time of inspection. Paperwork was in order.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Particulate matter emissions from the new equipment to be installed will vent to one of four, new, dedicated or shared dust collectors. The applicant used emission factors from U.S. EPA, AP-42 Section 11.19.2, Table 11.19.2-2 to estimate fugitive PM emissions from the feed conveyor belts (FEEDB25 and FEEDB26). Uncontrolled emissions were estimated using baghouse collection efficiencies and inherent control efficiencies of design emission units from enclosures.

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

Table 2: Estimated Controlled Emissions Increase

Unit ID	Description	Release Point	PM ₁₀ lb/hr	PM ₁₀ TPY	PM _{2.5} lb/hr	PM _{2.5} TPY
ELEV25	Cristobalite Feed Bin Bucket Elevator	CF#15	0.43	1.88	0.34	1.51
FEEDB25	Cristobalite Feed Conveyor Belt					
FEEDB26	Cristobalite Feed Conveyor Belt					
SCREN25	Scalping Screen					
BIN25	Feed Bin					
PNEU25	Pneumatic Conveyor					
HOPPR25	Cristobalite Feed Hopper	CF#46	0.32	1.41	0.26	1.13
TANK25	Cristobalite Feed Bin	CF#47	0.13	0.56	0.10	0.45
AIRSE25	Air Classifier	CF#45	0.34	1.51	0.28	1.20
FEEDB25	Cristobalite Feed Conveyor Belt	Fugitive	0.0006	0.0024	0.00008	0.0004
FEEDB26	Cristobalite Feed Conveyor Belt	Fugitive	0.0002	0.0010	0.00003	0.0001
Total			1.22	5.36	0.98	4.29

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 PM₁₀), 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 R13-2145D. The permittee published a Class I legal advertisement in *The Morgan Messenger* on June 24, 2015 and submitted an application fee of \$1,000.00 and the \$1,000.00 NSPS fees.

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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45CSR30 *Requirements for Operating Permits*

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_{2.5}, 15 tons of PM₁₀, 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*

40CFR§60.672 and Table 2 of Subpart OOO establishes a PM limit of 0.014 grains per dry standard cubic foot of exhaust from the vent and a visible emission limitation of 7 percent opacity from Stacks #15, #45, #46 and #47, which is the discharge point of the dust collectors controlling the new equipment. 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 R12-2145D 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.

According to §60.672(c), USS will be required to conduct quarterly visible emission checks of the dust collectors as the monitoring requirements of Subpart OOO.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This particular modification does not constitute the release of any other pollutant other than fine particulate matter (PM_{2.5}). 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

Subpart OOO requires monitoring of visible emission from the fabric fiber bag house (dust collector) be conducted quarterly (§60.674(c)) as an indicator of satisfactory operation of the control device. 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 be required to conduct initial performance testing to demonstrate compliance with the PM concentration limit. In addition, the applicant will conduct initial testing and repeat such testing once every five years for demonstrating compliance with the fugitive emission limit (7% opacity).

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 22, 2015

Date

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