

State Registration Number
B3518

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-B3518-2021

United States Gypsum Company, #891 Detroit Plant

State Registration Number (SRN): B3518

Located at

10090 West Jefferson Avenue, River Rouge, Wayne County, Michigan 48218

Permit Number: MI-ROP-B3518-2021

Staff Report Date: April 12, 2021

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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APRIL 12, 2021 STAFF REPORT

Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan’s Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source’s applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

General Information

Stationary Source Mailing Address:	United States Gypsum Company, #891 Detroit Plant 10090 West Jefferson Avenue River Rouge, Michigan 48218
Source Registration Number (SRN):	B3518
North American Industry Classification System (NAICS) Code:	327420
Number of Stationary Source Sections:	2
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201600064
Responsible Official:	Mr. Matthew Craig, Plant Manager 313-624-4230
AQD Contact(s):	Mr. Jonathan Lamb, Senior Environmental Quality Analyst Inspector 313-348-2527 Ms. Julie Brunner, P.E., Environmental Quality Specialist ROP Writer 517-275-0415
Date Application Received:	March 25, 2016
Date Application Was Administratively Complete:	March 25, 2016
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	April 12, 2021
Deadline for Public Comment:	May 12, 2021

Source Description

United States Gypsum (US Gypsum), Detroit Plant is located on the west side of West Jefferson Avenue, in the city of River Rouge, Wayne County. It occupies 21 acres bordered by a railroad, Jefferson Ave, and the banks of the Rouge River. This area is mainly industrial, and the nearest residence is approximately 150 yards south of the main entrance.

US Gypsum is a Chicago-based company with nationwide facilities specializing in building materials. The Detroit Plant produces cement board, land plaster, stucco, and granular gypsum. The primary raw material used is gypsum (calcium sulfate) which forms airborne particulate during the manufacturing process. The plant has a large number of baghouse-type dust collectors to control emissions.

There are currently two operations at the facility: the Mill Plant (Section 1) and the Cement Board Plant (Section 2). A third operation, the Board Plant used to produce gypsum wallboard but was idled in October 2007. The requirements for the Board Plant which were assessed on Permit to Install (PTI) Nos. C-3188, 185-02, 187-03, and 58-11 are being removed from the ROP. The equipment for the Board Plant is still on-site but is non-operational.

Mill Plant (Section 1):

The Mill Plant currently produces stucco, land plaster, and granular gypsum. Aggregate (gypsum rock) from a company owned gypsum mine in Alabaster, Michigan is delivered via truck and stored outside in piles. It is moved inside using front-end loaders where it is stored in covered "silos" (which are basically segregated bins within a three-sided enclosure) prior to crushing. Within the silos, the aggregate is moved by crane loaders to the rock crusher. The crushed aggregate is then dried in a natural gas-fired rotary rock dryer.

After drying, the crushed aggregate is converted into either granular gypsum or land plaster. Land plaster is also sent to either the calcining kettles to produce stucco or for use in the Cement Board Plant. Land plaster, stucco, and granular gypsum products are shipped by both pneumatic trucks, super sacks, or 30-pound bags to customers.

The requirements for the Mill Plant were assessed on PTI Nos. 256-03 and 58-11.

The following is a list of emission units in the Mill Plant (Section 1):

EU-5 - Land Plaster System (Land Plaster Bin, Raymond Mill Feed Bin, Air Cyclone Separator, Screen). This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 256-03)

EU-6 - Rock Dryer (including a Rock Crusher and Rock Storage Bin). This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 256-03)

EU-9 - Granular System. This emission unit is controlled by a baghouse which operates as a closed system. There is no exhaust stack or vent. All particulate collected is screw-conveyed back into the Granular System and reused. (PTI No. 256-03)

EU-10 - No. 1 and No. 2 Warehouse Bins. This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 256-03)

EU-23 - Raymond Mill. This emission unit is controlled by a baghouse which operates as a closed system. There is no exhaust stack or vent. All particulate collected is screw-conveyed back into the Raymond Mill and reused. (PTI No. 256-03)

EU-35 - HRA Land Plaster Bin. This emission unit is controlled by a baghouse which operates as a closed system. There is no exhaust stack or vent. All particulate collected is screw-conveyed back into the bin and reused. (PTI No. 256-03 and 58-11)

EU-36 - No. 1 Calcining Kettle. This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 256-03 and 58-11)

EU-38 - No. 3 Calcining Kettle. This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 256-03 and 58-11)

Cement Board Plant (Section 2):

The Cement Board Plant produces a cement board sold under the “Durock” brand. Raw materials used in the cement board process include Portland cement, fly ash, perlite, haydite, and land plaster. Portland cement and fly ash are delivered via tanker truck, while perlite is delivered via rail. Upon delivery, the Portland cement, fly ash, and perlite are off-loaded into silos for storage and then conveyed to bulk storage bins inside the cement board plant. Haydite is delivered either via truck or rail. Haydite received from trucks or rail is dumped directly into an enclosed building.

To produce cement board, the dry materials are fed from the indoor storage bins into the mixer. Wet additives are also added to the mixer creating a cement slurry. To form the cement board, the cement slurry is applied to a backing paper on a conveyor and another layer of paper then laid over the top of the slurry mix. The uncured board on the conveyor then goes through a spreader/roller to flatten it before passing through a natural gas-fired oven to start the curing process. After the cement is set, the board is cut to length. A printer marks the back of each board with the logo and specs, and then the boards are loaded off the conveyor, stacked, shrink-wrapped, and stored in the loading area. Any boards that do not meet specifications are sent to the Cement Board Waste Recycler, where they are ground up, and reused in the cement board process.

The requirements for the Cement Board Plant were assessed on PTI Nos. 383-07 and 58-11.

The following is a list of emission units in the Cement Board Plant:

EU-33 - Bulk Portland Cement Bin. This emission unit is controlled by a baghouse which operates as a closed system. There is no exhaust stack or vent. All particulate collected is screw-conveyed back into the bin and reused. (PTI No. 383-07 and 58-11)

EU-42 - Bulk Perlite bin. This emission unit is controlled by a baghouse which operates as a closed system. There is no exhaust stack or vent. All particulate collected is screw-conveyed back into the bin and reused. (PTI No. 383-07)

EU-43 - Bulk Fly Ash Bin. This emission unit is controlled by a baghouse which operates as a closed system. There is no exhaust stack or vent. All particulate collected is screw-conveyed back into the bin and reused. (PTI No. 383-07)

EU-44 - Cement Board Ink Jet Printer. This emission unit sprays water-based black ink on the Durock cement panels to convey logo, specs, and panel production information. The printer uses about 70 gallons of ink per month and exhausts within the building, and is exempt per Rule 287(2)(c).

EU-55 - Cement Board Process (Process Bin, Haydite/Aggregate storage, elevator/conveyor taking haydite to mixer, conveyor taking Portland cement, fly ash, perlite, and land plaster from HRA bin to mixer). This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. An additional baghouse has been added to this process per Rule 285(2)(d) which vents internally (no external exhaust stack or vent to the ambient air). (PTI No. 383-07)

EU-70 - Portland Cement Silo. This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 383-07)

EU-71 - Perlite Silo. This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 383-07)

EU-72 - Fly Ash Silo. This emission unit is controlled by a baghouse which is exhausted through a stack to ambient air. (PTI No. 383-07)

EU-73 - Cement Board Waste Recycling. This emission unit is controlled by a baghouse which operates as a closed system. There is no exhaust stack or vent. All particulate collected is screw-conveyed back into the bin and reused. This emission unit is exempt per Rule 285(2)(l)(vi)(B).

The following emission units have been removed from the facility or permanently idled:

EU-34 - North and South Stucco Bins.

EU-37: No. 2 Calcining Kettle.

EU-48 - Wallboard Waste System.

EU-60 - No. 4 Warehouse Bin and Airveyor.

EU-69: Cement Board Saw has been removed from the facility. This unit was uncontrolled and was exempt per Rule 285(l)(vi)(B).

The facility operates under a Consent Order through State Implementation Plan (SIP) No. 33-1993, revised and reissued on October 12, 1994, which includes conditions for the control of fugitive dust. The conditions of SIP No. 33-1993 are included in Sections 1 and 2 in the Source-Wide Conditions. The freighter rock unloader collapsed in June 2017 and conditions for it have been removed.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2019**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Nitrogen Oxides (NO _x)	0.019
PM10*	4.2
Sulfur Dioxide (SO ₂)	0.000080
Volatile Organic Compounds (VOCs)	0.00038

* Particulate matter (PM) that has an aerodynamic diameter less than or equal to a nominal 10 micrometers.

US Gypsum is a true minor source of Hazardous Air Pollutant (HAP) emissions as listed pursuant to Section 112(b) of the federal Clean Air Act, thus no HAP emissions data is listed.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

The stationary source is in Wayne County, which is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the 8-hour ozone standard.

A portion of Wayne County is currently designated by the USEPA as a non-attainment area with respect to the SO₂ standard.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of particulate matter exceeds 100 tons per year.

The stationary source is a minor source of HAP emissions because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year.

Emission units at the stationary source have not been subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451 or 40 CFR 52.21, because at the time of New Source Review (NSR) permitting the potential to emit of each criteria pollutant was less than 250 tons per year. Emission units at US Gypsum have been subject to minor NSR.

EU-5, EU-9, EU-10, EU-23, EU-35, and EU-55 at the stationary source are subject to the Standards of Performance for Nonmetallic Mineral Processing Plants promulgated in 40 CFR Part 60, Subparts A and

OOO. Particulate and visible emissions testing were completed for EU-5 in December 2012, and for EU-10 and EU-55 in October 2013. Initial performance testing for visible emissions were completed January 2018 for EU-9, EU-23, and EU-35. EU-35 is exempt from the particulate concentration limit and associated performance testing per 40 CFR 60.672(f).

EU-6, EU-36, and EU-38 at the stationary source are subject to the Standards of Performance for Calciners and Dryers in Mineral Industries promulgated in 40 CFR, Part 60, Subparts A and UUU. Particulate and visible emissions testing was last completed for EU-6, EU-36, and EU-38 in December 2012.

The AQD's Rules 287 and 290 were revised on December 20, 2016. FGRULE287(2)(c) and FGRULE290 are flexible group tables created for emission units subject to these rules. Emission units installed before December 20, 2016, can comply with the requirements of Rule 287 and Rule 290 in effect at the time of installation or modification as identified in the tables. However, emission units installed or modified on or after December 20, 2016, must comply with the requirements of the current rules as outlined in the tables.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

No emission units have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the emission units at the stationary source either do not have a control device and those with a control device (baghouse-type dust collector) do not have potential pre-control emissions over the major source thresholds.

Please refer to Parts B, C and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

Source-Wide Permit to Install (PTI)

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-B3518-2011 are identified in Appendix 6 of the ROP.

PTI Number			
C-7164	C-7212	C-7297	C-7734
C-7735	C-7759	C-7806	C-7879
C-7880	C-7881	C-8559	C-8560
C-8698	C-8733	C-8734	C-8735
C-8736	C-8736	C-9072	C-9374
C-2207	C-2208	183-98	C-5029
C-7035	C-9904	C-9905	251-99
C-10713	C-6516	C-7027	C-2212
C-4812	C-4913	C-4914	C-6410
C-6696	C-10194	C-3188	185-02
187-03	256-03	383-07	58-11

Streamlined/Subsumed Requirements

The following table lists explanations of any streamlined/subsumed requirements included in the ROP pursuant to Rules 213(2) and 213(6). All subsumed requirements are enforceable under the streamlined requirement that subsumes them.

Emission Unit/Flexible Group ID	Condition Number	Streamlined Limit/ Requirement	Subsumed Limit/ Requirement	Stringency Analysis
EU-5, EU-10, EU-23	Section 1, FG-MILL2, SC I.1	0.029 lbs per 1,000 lbs of exhaust gas (R 336.1331(1)(c))	0.05 gram per dry standard cubic meter (40 CFR 60.672(a))	0.029 lbs/1000 lbs is equivalent to 0.035 gm/dscm; therefore, the current permitted emission rate is more stringent than the NSPS standard.
EU-5, EU-10, EU-23	Section 1, FG-MILL2, SC I.5	7% opacity (40 CFR 60.672(a))	10% opacity (R 336.1301, R 336.1303)	The NSPS standard of 7% opacity is more stringent than the permit limit of 10% opacity.
EU-6	Section 1, FG-MILL1, SC I.1	0.042 lbs per 1,000 lbs of exhaust gas (R 336.1331(1)(c))	0.05 gram per dry standard cubic meter (40 CFR 60.732(a))	0.042 lbs/1000 lbs is equivalent to 0.05 gm/dscm; therefore, the current permitted emission rate is as stringent as the NSPS standard.
EU-9	Section 1, FG-MILL2, SC I.4	0.05 grams per dry standard cubic meter (40 CFR 60.672(a))	0.1 lbs per 1000 lbs of exhaust gas (R 336.1331(1)(c))	The NSPS standard of 0.05 gm/dscm is equivalent to 0.042 lbs/1000 lbs, which is more stringent than the current permitted limit. Since the emission unit is subject to NSPS Subpart OOO, the more stringent limit was added to the permit.
FG-KETTLES	Section 1, SC I.1	0.05 gram per dry standard cubic meter for each calcining kettle (R 336.1331(1)(c))	0.092 gram per dry standard cubic meter for each calcining kettle (40 CFR 60.732(a))	The current permitted emission rate of 0.05 gm/dscm is more stringent than the NSPS standard of 0.092 gm/dscm.
FG-KETTLES	Section 1, SC I.4	7% opacity for each calcining kettle (R 336.1301, R 336.1303)	10% opacity for each calcining kettle (40 CFR 60.732(b))	The current permitted opacity limit of 7% opacity is more stringent than the NSPS standard of 10% opacity for calcining kettles.

Emission Unit/Flexible Group ID	Condition Number	Streamlined Limit/ Requirement	Subsumed Limit/ Requirement	Stringency Analysis
EU-55	Section 2, SC I.2	0.015 grains per dry standard cubic foot (R 336.1331(1)(c))	0.022 grains per dry standard cubic foot (40 CFR 60.672(a))	0.015 gr/dscf is more stringent than the NSPS standard of 0.022 gr/dscf.

Non-applicable Requirements

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

Processes in Application Not Identified in Draft ROP

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
01 - CB Process Water Heaters	Two (2) - Each 2 MMBtu/hr, natural gas-fired process water heaters located in the Cement Board Plant (Section 2)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
02 - Main Office Furnace	0.160 MMBtu/hr natural gas-fired furnace located in the main office	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
03 - CB Oven	0.080 MMBtu/hr natural gas-fired production heating system located in the Cement Board Plant (Section 2)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
04 - CB Space Heaters	Eight (8) - 0.150 MMBtu/hr each natural gas-fired space heaters located in the Cement Board Plant (Section 2)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
05 - CB Aggregate Heater	1 MMBtu/hr natural gas-fired aggregate heating system located in the Cement Board Plant (Section 2)	R 336.1212(4)(c)	R 336.1282(2)(b)(i)

Draft ROP Terms/Conditions Not Agreed to by Applicant

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

Action taken by EGLE, AQD

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Dr. April Wendling, Detroit District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.

State Registration Number
B3518

RENEWABLE OPERATING PERMIT
MAY 18, 2021 STAFF REPORT ADDENDUM

ROP Number
MI-ROP-B3518-2021

Purpose

A Staff Report dated April 12, 2021, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Mr. Matthew Craig, Plant Manager 313-624-4230
AQD Contact:	Ms. Julie Brunner, P.E., Environmental Quality Specialist 517-275-0415

Summary of Pertinent Comments

No pertinent comments were received during the 30-day public comment period.

Changes to the April 12, 2021 Draft ROP

No changes were made to the draft ROP.