

State Registration Number

B1846

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number

MI-ROP-B1846-2021

**Occidental Chemical Corporation  
Calcium Chloride Manufacturing Facility**

State Registration Number (SRN): B1846

Located at

1600 South Madison Street, Ludington, Mason County, Michigan 49461

Permit Number: MI-ROP-B1846-2021

Staff Report Date: July 5, 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).

## TABLE OF CONTENTS

|   |          |
|---|----------|
| <b>JULY 5, 2021 - STAFF REPORT</b>            | <b>3</b> |
| <b>AUGUST 9, 2021 - STAFF REPORT ADDENDUM</b> | <b>9</b> |

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**JULY 5, 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:                          | Occidental Chemical Corporation<br>1600 South Madison Street<br>Ludington, Michigan 49461-2597 |
| Source Registration Number (SRN):                           | B1846  |
| North American Industry Classification System (NAICS) Code: | 325180   |
| Number of Stationary Source Sections:                       | 1  |
| Is Application for a Renewal or Initial Issuance?           | Renewal  |
| Application Number:   | 201800159  |
| Responsible Official:                                       | Mr. Brett VanderLinden,<br>Plant Manager<br>231-845-4385                                       |
| AQD Contact:  | Mr. Robert Dickman,<br>Senior Environmental Quality Analyst<br>231-878-4697                    |
| Date Application Received:                                  | December 11, 2018  |
| Date Application Was Administratively Complete:             | December 11, 2018  |
| Is Application Shield in Effect?                            | Yes  |
| Date Public Comment Begins:                                 | July 5, 2021   |
| Deadline for Public Comment:                                | August 4, 2021   |

**Source Description**

The Occidental Chemical Corporation facility inside the city of Ludington, Michigan with the shoreline of Pere Marquette Lake on the south and west sides of the facility. Immediately to the north is residential neighborhoods and to the east is an industrial park with several industrial and commercial facilities including an electric utility and an office furniture manufacturer.

The facility manufactures calcium chloride pellet and flake products from calcium chloride rich brine piped to Ludington from a facility in Manistee. Evaporation and drying are the major processes in the manufacturing sequence in Ludington. In the evaporation step, steam is used to boil water out of the intermediate strength solution and make strong calcium chloride solution for direct sale or for production of dry calcium chloride products. Steam for this process is provided by the electric utility near the facility. Dry calcium chloride manufacturing is the final process in the manufacturing sequence. Concentrated calcium chloride solution is converted into either flakes or pellets for consumer or industrial use by boiling off most of the remaining water.

EUFLAKEDDRY creates flakes of calcium chloride on the Flaker drum and then dries them in Flake “D” dryer. The flakes are then cooled in a cooler and sized by a crusher and screen. The process is controlled by a venturi scrubber. EUPELLETCDRY creates pellets or prill by spraying a super saturated solution of calcium chloride into “C” Dryer where hot air removes moisture. This process is controlled by a venturi scrubber. EUFLAKEDBULK and EUPELLETCBULK are portions of the plant that load rail cars or trucks with the dry calcium chloride. Emissions from these processes are controlled by venturi scrubbers. EUPELLETHNDL processes and sizes the pellets. These emissions are also controlled by a venturi scrubber. EUDGDCCFIBC is the part of the plant that packages the dry calcium chloride into totes (super sacks) and also produces tablets of calcium chloride. Here also, emissions are controlled by a venturi scrubber.

The various spent-brine streams from the production plants are collected and re-injected into the Filer sandstone to re-pressurize the formation. Any solids that collect on the sandstone face of the well bore are dissolved by periodic injection of hydrochloric acid into the re-pressuring fluid stream at each injection well.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year 2020

**TOTAL STATIONARY SOURCE EMISSIONS**

| <b>Pollutant</b>                   | <b>Tons per Year</b> |
|------------------------------------|----------------------|
| Carbon Monoxide (CO)               | 6.0                  |
| Nitrogen Oxides (NO <sub>x</sub> ) | 35.0                 |
| Particulate Matter (PM)            | 34.1                 |
| Sulfur Dioxide (SO <sub>2</sub> )  | 0.2                  |
| Volatile Organic Compounds (VOCs)  | 1.6                  |

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2020 by Occidental Chemical:

| <b>Individual Hazardous Air Pollutants (HAPs) **</b> | <b>Tons per Year</b> |
|--|----------------------|
| Hydrogen Chloride                                    | 4.1                  |
| <b>Total Hazardous Air Pollutants (HAPs)</b>         | <b>4.1</b>           |

\*\*As listed pursuant to Section 112(b) of the federal Clean Air Act.

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 Mason County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of nitrogen oxides 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.

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration (PSD) regulations of The Michigan Air Pollution Control Rules Part 18, Prevention of Significant Deterioration of Air Quality or 40 CFR 52.21 because the process equipment was constructed/installed prior to June 19, 1978, the promulgation date of the PSD regulations.

FGEMERGENCYPUMP and FGEMERGENCYGEN at the stationary source are subject to the National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

EUGARAGE at the stationary source is subject to the National Emissions Standards for Hazardous Air Pollutants for Gasoline Dispensing Facilities promulgated in 40 CFR Part 63, Subparts A and CCCCC. The ROP contains special conditions provided by Occidental Chemical Corporation in their application for applicable requirements from 40 CFR Part 63, Subparts A and CCCCC. The AQD is not delegated the regulatory authority for this area source MACT.

The AQD's Rule 287 was revised on December 20, 2016. FGRULE287(2)(c) is a flexible group table created for emission units subject to these rules. Emission units installed before December 20, 2016, can comply with the requirements of Rule 287 is 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.

A Rule 290 Table was included in the previous ROP and in the ROP Renewal Application. However, the facility currently has no emission units installed that are subject to this rule, therefore, the table has been removed from the ROP. Should the facility choose to install a Rule 290 subject emission unit, they would be allowed to operate it under the rule and the Rule 290 ROP table would be added at the next renewal.

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."

EUPELLETCBULK does not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the unit does not have potential pre-control emissions over the major source thresholds. Calculations provided by the facility indicate uncontrolled potential emissions from this unit to be 51.42 tons per year.

EUJDGCCFIBC, EUPELLETHNDL, EUPELLETCDRY, EUFLAKEDBULK, EUFLAKEDDRY do have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the units do have potential pre-control emissions over the major source thresholds and use control devices to achieve emission standards.

The following Emission Units/Flexible Groups are subject to CAM:

| Emission Unit/<br>Flexible group<br>ID | Pollutant/<br>Emission<br>Limit                                       | UAR(s)                          | Control<br>Equipment | Monitoring<br>(Include<br>Monitoring<br>Range)  | Emission<br>Unit/<br>Flexible<br>Group<br>for CAM | PAM? * |
|--|---|---------------------------------|----------------------|---|---|--------|
| EUJDGCCFIBC                            | Particulate/<br>2.3 lbs/hr;<br>0.10lbs/<br>1000 lbs<br>exhaust<br>gas | R 336.1331(1)(c);<br>R 336.1910 | Scrubber<br>(S-300)  | Flow, less than<br>80 gallons per<br>minute (gpm)   | FGCAM   | No     |
| EUPELLETHNDL                           | Particulate/<br>0.03 lbs/<br>1000 lbs<br>exhaust<br>gas               | R 336.1331(1)(c);<br>R336.1910  | Scrubber<br>(S-1302) | Flow, less than<br>120 gpm;<br>Pressure Drop,<br>less than 14<br>inches of water,<br>gauge  | FGCAM   | No     |
| EUPELLETCDRY                           | Particulate/<br>0.03 lbs/<br>1000 lbs<br>exhaust<br>gas               | R 336.1331(1)(c);<br>R336.1910  | Scrubber<br>(S-501)  | Flow, less than<br>1200 gpm;<br>Pressure Drop,<br>less than 20<br>inches of water,<br>gauge | FGCAM   | No     |
| EUFLAKEDBULK                           | Particulate/<br>0.1 lbs/<br>1000 lbs<br>exhaust<br>gas                | R 336.1331(1)(c);<br>R336.1910  | Scrubber<br>(S-50)   | Flow, less than<br>25 gpm;<br>Pressure Drop,<br>less than 3<br>inches of water,<br>gauge    | FGCAM   | No     |
| EUFLAKEDDRY                            | Particulate/<br>0.03 lbs/<br>1000 lbs<br>exhaust<br>gas               | R 336.1331(1)(c);<br>R336.1910  | Scrubber<br>(S-405)  | Flow, less than<br>550 gpm;<br>Pressure Drop,<br>less than 7<br>inches of water,<br>gauge   | FGCAM   | No     |

\*Presumptively Acceptable Monitoring (PAM)

Each Emission Unit that is subject to CAM, as listed in the above table, is controlled by a corresponding tower or venturi scrubber. Scrubber liquid (water) flow to each scrubber and differential pressure drop across the scrubber were selected as indicators of device performance. These parameters were selected as they indicate the rate at which there is adequate water contact to capture and remove particulate matter from the exhaust stream. Indicator ranges for these were selected and proven to be adequate through performance testing of each scrubber.

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-B1846-2014 are identified in Appendix 6 of the ROP.

| PTI Number |         |         |         |
|------------|---------|---------|---------|
| 132-72B    | 341-74  | 382-79  | 909-87A |
| 251-73     | 149-75B | 382-79A | 790-88  |
| 252-73     | 256-76C | 382-79B | 362-95  |
| 416-73B    | 362-76A | 450-85  | 156-05  |
| 170-06     | 243-10  | 281-06  | 216-10  |
| 66-13      |         |         |         |

**Streamlined/Subsumed Requirements**

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

**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 |
|-----------------------------|---|----------------------|-----------------------------|
| EUSPACEHTRS                 | 11 Natural gas, propane and fuel oil fired space heaters each less than 1 MMBTU/hr. | Rule 212(4)(b)       | Rule 282(2)(b)(i) and (ii)  |

**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 Shane Nixon, Cadillac 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  
B1846

**RENEWABLE OPERATING PERMIT**  
**AUGUST 9, 2021 - STAFF REPORT ADDENDUM**

ROP Number  
MI-ROP-B1846-2021

**Purpose**

A Staff Report dated July 5, 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. Brett VanderLinden,<br>Plant Manager<br>231-845-4385                    |
| AQD Contact:          | Mr. Robert Dickman,<br>Senior Environmental Quality Analyst<br>231-878-4697 |

**Summary of Pertinent Comments**

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

**Changes to the July 5, 2021 Draft ROP**

No changes were made to the draft ROP.