

State Registration Number  
B1824

**RENEWABLE OPERATING PERMIT  
STAFF REPORT**

ROP Number  
MI-ROP-B1824-2023

**Morton Salt Incorporated**

State Registration Number (SRN): B1824

Located at

180 6<sup>th</sup> Street, Manistee, Manistee County, Michigan 49660

Permit Number: MI-ROP-B1824-2023

Staff Report Date: JUNE 12, 2023

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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**RENEWABLE OPERATING PERMIT**

**JUNE 12, 2023 - STAFF REPORT**

ROP Number

MI-ROP-B1824-2023

**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:	Morton Salt Incorporated 180 6 <sup>th</sup> Street Manistee, Michigan 49660
Source Registration Number (SRN):	B1824
North American Industry Classification System (NAICS) Code:	311942
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201900099
Responsible Official:	Jeremy Logan, General Manager 231-723-2561
AQD Contact:	Robert Dickman, Senior Environmental Quality Analyst 231-878-4697
Date Application Received:	June 3, 2019
Date Application Was Administratively Complete:	June 3, 2019
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	June 12, 2023
Deadline for Public Comment:	July 12, 2023

## Source Description

Morton Salt, Inc. is located on the west shore of Manistee Lake in Manistee. The facility produces various grades of sodium chloride salt products, such as, granular salt, water softener pellets, pretzel salt, and salt blocks. Brine saturated with salt is extracted from wells and is processed through a series of temperature and pressure-controlled evaporators, wash tanks, and filters. The salt produced from this process is refined for packaging or is pressed into pellets or blocks.

The facility uses crushed coal to fuel a 180,000 pounds of steam (216 MMBTU) per hour Wickes spreader-stoker coal and natural gas co-fired boiler to extract the salt from the brine solution and associated four module baghouse system. The boiler is used to generate electricity, steam, and heat for facility production of salt. A natural gas-fired boiler is also used at the facility as a back-up system for building heat. The process systems consist of mills, conveyors, bucket elevators, pellet presses, vibratory screens, and an enclosed crusher to recycle pellets.

The area around the facility is essentially residential immediately to the west and south. The north and east borders of the facility are Manistee Lake. On the north side of the facility is a large coal pile on the lake shore. Coal is brought in by freighter from Lake Michigan. Also on the north side of the facility is a small rail yard. The only industrial source in the immediate vicinity of the facility is a waste water treatment plant to the south. There is other heavy industry on the lake including a paper company and a chemical company.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2022**.

### TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	68.9
Lead (Pb)	0.3
Nitrogen Oxides (NO <sub>x</sub> )	164.3
PM10*	55.7
Sulfur Dioxide (SO <sub>2</sub> )	346.7
Volatile Organic Compounds (VOCs)	0.0
Non-Methane Organic Compounds (NMOC)	1.0

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

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2021 by MAERS and Morton\*:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Hydrogen Chloride	1.5*
Hydrogen Fluoride	0.3
Hexane	0.3
Nitrous Oxide	1.2
<b>Total Hazardous Air Pollutants (HAPs)</b>	<b>3.3</b>

\*Hydrogen Chloride emissions based on actual stack testing.

\*\*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 Manistee 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 carbon monoxide, nitrogen oxides, and sulfur dioxide exceeds 100 tons per year

The stationary source is a "synthetic minor" source regarding HAP emissions because the stationary source accepted a legally enforceable permit condition limiting the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, to less than 10 tons per year and the potential to emit of all HAPs combined to less than 25 tons per year.

EU#6BOILER at the stationary source was subject to review under the Prevention of Significant Deterioration regulations of 40 CFR Part 52.21 because at the time of New Source Review (NSR) permitting the potential to emit carbon monoxide, nitrogen oxides, and sulfur dioxide was greater than 250 tons per year.

EUELLPROD, EUPRETZELSALT, and EUELLETCOOLING at the stationary source are subject to the New Source Performance Standards for Nonmetallic Mineral Processing Plants promulgated in 40 CFR Part 60, Subparts A and OOO.

EU#6BOILER at the stationary source is subject to the National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers Area Sources promulgated in 40 CFR Part 63, Subparts A and JJJJJ (Boiler Area Source MACT).

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."

EUCOALCRUSHER 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. This unit is controlled by a venturi scrubber for particulate matter emissions. Pre-control potential emissions were estimated by the facility to be 14.4 tons per year based on emission factors.

EUELLPROD and EUPRETZELSALT (FGPRETZELSALT) do not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64 because the units combined do not have potential pre-control emissions over the major source thresholds. These units are controlled by the MAC dust collector (baghouse) for particulate matter emissions. Combined pre-control potential emissions from both units were estimated by the facility to be 60.0 tons per year based on stack testing and control efficiency values.

EUMILLTRANSFER 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. This unit is controlled by two wet scrubbers for particulate matter emissions. Pre-control potential emissions were estimated by the facility to be 12.7 tons per year based on emission factors.

EUTM/BLOCK 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. This unit is controlled by a baghouse for particulate matter emissions. Pre-control potential emissions were estimated by the facility to be 32.0 tons per year based on emission factors.

EUBINTRANSFER 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. This unit is controlled by a wet impingement scrubber for particulate matter emissions. Pre-control potential emissions were estimated by the facility to be 11.3 tons per year based on emission factors.

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

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
EU#6BOILER	Particulate Matter/ 0.30 lb / 1000 lbs of exhaust gases, corrected to 50% excess air	R336.1331(1)(a)	Four Module Baghouse System	Opacity, 0-10%, Differential Pressure across the dust collector 0.1 to 9.0 inches of water column, gauge	EU#6BOILER	No
EUPELLET-COOLING	Particulate Matter/ 0.032 lb/ 1000 lb exhaust gases  Particulate Matter/0.05 g/dscm@ 7% oxygen	R336.1331(1)(c)  40 CFR 60.672(a)	Impingement Scrubber	Differential Pressure across scrubber 3.6 to 6.8 inches of water column, gauge  Scrubber liquid flow rate; 20 to 45 GPM	EUPELLET-COOLING	No

\*Presumptively Acceptable Monitoring (PAM)

EU#6BOILER is a coal fired boiler with a capacity of 180,000 pounds steam per hour or 240,000 BTU/hr. Particulate matter emissions from this boiler exhaust is controlled by a 4-module compressed air pulse jet (bag cleaning) baghouse. The potential pre-control emissions of particulate matter is greater than the major source threshold level. The monitoring for the control device is a continuous opacity monitoring system (COMS). The opacity limit for the facility is 10% per 40 CFR Part 63, Subpart JJJJJJ-Area source Boiler MACT. An opacity reading of two one-hour block averages of greater than 8.5% opacity in any of the module would trigger corrective actions to identify and correct the cause of the excursion.

Opacity of the visible emissions was selected as a performance indicator because it is indicative of good operation and maintenance of the baghouse. When baghouse is operating properly, there will not be any visible emissions from the exhaust. Any increase in visible emissions indicates reduced performance of the baghouse and therefore used the presence of visible emissions (opacity).

Less than 10% opacity provides assurance of proper operation of the baghouse and thereby a reasonable assurance of compliance with the PM limit. The facility has conducted stack test for PM emissions that are correlated with the opacity readings.

Baghouses are generally designed to operate at a constant differential pressure. Monitoring the differential pressure provides a means of detecting change in operation that could lead to an increase in emissions. An increase in differential pressure can indicate a series of issues (bags are inefficient, cleaning equipment is damaged, etc.). A decrease in differential pressure may indicate a broken or loose bag. A normal differential pressure indicates adequate airflow through the baghouse.

The particulate matter emission from EUPELLETCOOLING is controlled by a single stage impingement type scrubber using unique perforated plates with impingement baffles strips to collect fine particulates. Differential pressure (DP) across the scrubber was selected as an indicator of device performance. This parameter was selected as it indicates the rate at which there is adequate water and air flow contact to capture and remove particulate matter from the exhaust stream.

For this scrubber, the DP range is 3.6 to 6.8 inches of H<sub>2</sub>O. If the pressure exceeds 6.5 inches of H<sub>2</sub>O the system will alarm and this discrepancy is immediately investigated. Corrective action is undertaken to eliminate the issues and to return to compliance. The water flow going to this scrubber ranges from 20 to 45 GPM. When the flow drops to less than 25 GPM the system will alarm and the discrepancy is immediately investigated.

Maintaining the DP and water flow provides continuous assurance of the proper operation of the scrubber. The facility has conducted stack tests that are correlated to particulate matter emissions.

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-B1824-2015a are identified in Appendix 6 of the ROP.

PTI Number			
394-99	112-99	264-94A	555-89A
249-86A	292-94	744-85	362-83
460-82	296-81A	296-81	46-77
222-76	77-76	24-74	225-73
264-94B	46-06	360-08	32-14
54-14			

**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.

<b>PTI Exempt Emission Unit ID</b>	<b>Description of PTI Exempt Emission Unit</b>	<b>Rule 212(4) Citation</b>	<b>PTI Exemption Rule Citation</b>
EUGASBOILER	16 MMBTU/hr natural gas fired boiler used as a back-up system for building heat.	R 336.1212(4)(b)	R 336.1282(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 the 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  
B1824

**RENEWABLE OPERATING PERMIT**  
**JULY 17, 2023 - STAFF REPORT ADDENDUM**

ROP Number  
MI-ROP-B1824-2023

**Purpose**

A Staff Report dated June 12, 2023, 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:	Jeremy Logan, General Manager 231-723-2561
AQD Contact:	Robert Dickman, Senior Environmental Quality Analyst 231-878-4697

**Summary of Pertinent Comments**

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

**Changes to the JUNE 12, 2023, Draft ROP**

No changes were made to the draft ROP.