MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

TECHNICAL FACT SHEET

December 10, 2024

Purpose and Summary

The Michigan Department of Environment, Great Lakes, and Energy, Air Quality Division (AQD), is proposing to act on Permit to Install (PTI) application No. APP-2024-0182 from Michigan Potash Operating, LLC (Michigan Potash). The permit application is for the proposed installation and operation of a salt and potash processing facility. The proposed project is subject to permitting requirements of the department's Rules for Air Pollution Control. Before acting on this application, a public comment period and a virtual hearing, if requested, are being held to allow all interested parties an opportunity to comment on the proposed PTI. All relevant information received during the comment period and hearing, if held, will be considered by the decision maker before taking final action on the application.

Figure 1: Proposed location of Michigan Potash

Background Information

Michigan Potash first applied for an air permit (or PTI) for the project in 2015. PTI 165-15 was issued on March 8, 2016. However, construction of the project did not start, so the permit was voided on June 25, 2021.

Michigan Potash applied for another air permit for the project in 2021 and PTI 165-15A was issued on November 18, 2021. This PTI remains in effect. Note: The AQD held a virtual public hearing for the proposed facility in 2021. The current application is the same, except for a minor update to the thermal oxidizer and adjustments to particulate matter emission limits. We encourage you to view the recording of the 2021 hearing to learn more about the proposed project and the permit application review.

The most recent application (PTI Application No. APP-2024-0182) was submitted on August 2, 2024, to update the thermal oxidizer heat input and the facility particulate matter equal to or less than 10 microns in diameter (PM10) and particulate matter equal to or less than 2.5 microns in diameter (PM2.5) emission limits. No other changes are proposed to the project.

Proposed Project

The project is proposed to be located near Schofield Road and 120th Avenue in Evart Township in Osceola County, Michigan (Figure 1).

The proposed salt and potash processing facility would extract salt (sodium chloride) and potash (potassium chloride) from a deep geologic formation known as the A1 Evaporite, using a process known as solution mining shown in Figure 2.

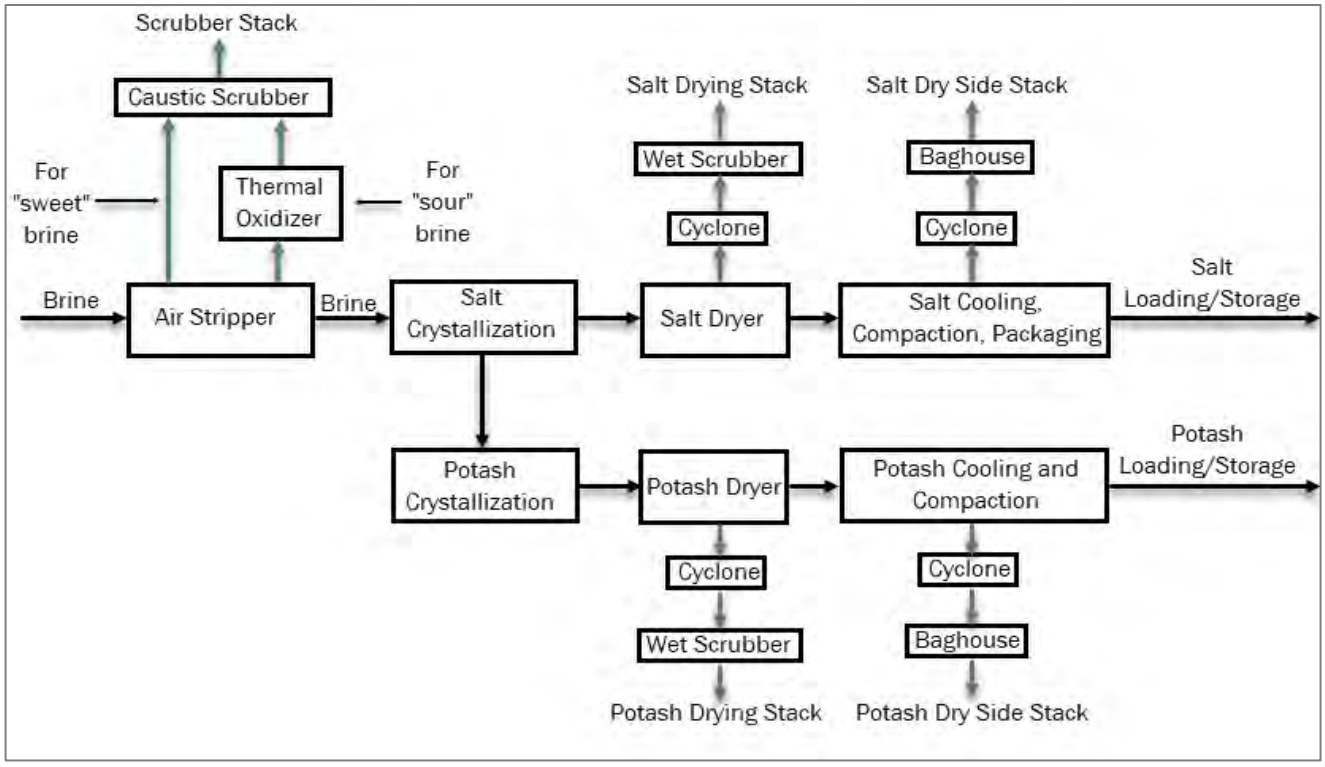

Figure 2 - Simplified Process Flow Diagram - Salt and Potash Processing

Michigan Potash would pump heated water and brine (concentrated salt water) into the formation to dissolve salt and potash. The extraction wells would pump the mining solution containing the dissolved salt and potash to the facility.

The mining solution may contain hydrogen sulfide (H_2S), so the sweetening process at the facility would be used to remove the H_2S. The mining solution would be pumped through a stripping column in the sweetening process. Air would be blown through the stripping column and most of the H_2S would be transferred from the solution to the air. The air and H_2S from the stripping column would go through a caustic scrubber to remove the H_2S before being released into the atmosphere. If the H_2S concentration in the mining solution is 60 parts per million or more, a thermal oxidizer would destroy the H_2S before the air would go through the scrubber.

From the sweetening process, the mining solution would go to the evaporation and crystallization building where the solution would be boiled to reduce the water content, producing a salt and potash slurry. The slurry would be further processed to extract the salt and potash, which would be separated from each other using centrifuges.

The salt stream from the centrifuges would be transferred to the salt dryer and the potash stream would be transferred to the potash dryer. Both dryers would be heated using natural gas burners and have a cyclone to recover the salt or potash product and a wet scrubber to control potential particulate air emissions.

Dried salt would go to the “dry side” processing area where it would be cooled, compacted, screened, and separated into different sizes for different products, such as road salt, water softener salt, extra coarse salt, and food-grade salt. Salt would be packaged in bagging systems and loaded on trucks or

sent for bulk storage and loadout in a separate enclosed building. The dry side processing area would have a cyclone to recover salt and a baghouse to control potential particulate air emissions.

Dried potash would go to the "dry side" processing area where it would be cooled, compacted, and screened for production of bulk granular potash and industrial grade potash. Smaller-size potash would be further cooled in a fluid bed cooler. Potash product would be transferred to the bulk storage building before being loaded onto trucks in a separate enclosed building. The dry side processing area would have a cyclone to recover potash and a baghouse to control potential particulate air emissions.

The facility would have two boilers to provide heat for the processes (including boiling the brine), a diesel fuel-fired emergency generator engine, a diesel fuel-fired emergency fire pump engine, a cooling tower, space heaters, and storage tanks. The proposed production capacity is up to 975,000 tons per year (tpy) of potash and 1,350,000 tpy of salt.

Present Air Quality

Michigan Potash's proposed facility would be located in Osceola County, Michigan, an area classified as in attainment with all of the National Ambient Air Quality Standards (NAAQS) set by the United States Environmental Protection Agency (USEPA). These air quality standards are for PM10, PM2.5, ozone, sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), and lead. These standards are set at levels designed to protect public health.

The AQD does not operate air monitoring stations in Osceola County, however, there is a nearby air monitoring station near Houghton Lake in Missaukee County, that measures PM2.5, ozone, and NO_2.

Pollutant Emissions

The proposed project will be a minor source for Prevention of Significant Deterioration (PSD). The following table provides the estimated emissions for each regulated pollutant:

Table 1: Criteria Pollutant Emissions Summary

Pollutant	Potential Emissions Tons Per Year (tpy)	PSD Major Source Threshold* (tpy)	Subject to PSD?
Oxides of Nitrogen (NO_x)	83	250	No
Volatile Organic Compounds (VOC)	9	250	No
Particulate Matter (PM)	101	250	No
PM10	93	250	No
PM2.5	93	250	No
SO_2	12	250	No
CO	73	250	No

Pollutant	Potential Emissions Tons Per Year (tpy)	PSD Major Source Threshold* (tpy)	Subject to PSD?
Lead	7.2×10^{-4}	250	No
H_2S	7.7	250	No
Sulfuric Acid Mist	1.1	250	No
* The threshold is 250 tpy because the project is not one of the 28 source categories listed in the regulations as having a major source threshold of 100 tpy.			

How to evaluate this table: To help with understanding the contents of this table, look at whether the potential emissions are greater than the PSD major source threshold. If it is not, then that pollutant is not subject to specific types of permit reviews called PSD. As shown in Table 1, the potential emissions are all less than the major source thresholds, so the project is not subject to PSD.

The proposed project will be an area source of Hazardous Air Pollutants (HAP). The following table provides the total estimated emissions of all HAPs combined and the estimated emissions of hexane, the single highest HAP:

Table 2: Hazardous Air Pollutant (HAP) Emissions Summary

Pollutant	Potential Emissions Tons Per Year (tpy)	Major Source Threshold (tpy)	Major Source of HAPs?
Total HAPs	2.7	25	No
Single Highest HAP	2.6	10	No

How to evaluate this table: To help with understanding the contents of this table, look at whether the potential emissions are greater than the major source threshold. If not, then the HAPs are not subject to federal rules called National Emission Standards for Hazardous Air Pollutants. As shown in Table 2, the potential emissions are all less than the major source thresholds, so the project is not a major source of HAPs.

Key Permit Review Issues

Staff evaluated the proposed project to identify all state rules and federal regulations which are, or may be, applicable to the proposed project. The tables in Appendix 1 summarize these rules and regulations.

- **Prevention of Significant Deterioration (PSD) Regulations**

  For the project to be subject to the PSD regulations, the criteria pollutant emissions would have to be at or above the 250 tpy major source threshold. As shown in Table 1, the project is not subject to PSD review.

- **Federal NSPS Regulations**

  New Source Performance Standards (NSPS) were established under Title 40 of the Code of Federal Regulations (40 CFR) Part 60.

  The proposed boilers are subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60 Subpart Dc. Michigan Potash will comply with this NSPS by using natural gas as fuel in the boilers.

  Equipment proposed for the compaction side of the salt processing is subject to the NSPS for Nonmetallic Mineral Processing Plants, 40 CFR Part 60 Subpart OOO. Michigan Potash will comply with this NSPS by using enclosed buildings and a dust collector to control the emissions.

  The proposed emergency generator and fire pump engines are subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR Part 60 Subpart IIII. Michigan Potash will comply with the emission limits and other requirements of this NSPS.

- **Federal NESHAP Regulations**

  National Emission Standards for Hazardous Air Pollutants (NESHAP) were established under 40 CFR Part 63.

  The proposed emergency generator and fire pump engines are subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63 Subpart ZZZZ. For the engines proposed by Michigan Potash, NESHAP ZZZZ says that by complying with NSPS IIII, Michigan Potash will comply with NESHAP ZZZZ.

  The proposed boilers are regulated under 40 CFR Part 63 Subpart JJJJJJ. Since the facility is an area source, as shown in Table 2, and the boilers are natural gas fired, the boilers are not subject to the requirements of this standard.

- **Rule 224 TBACT Analysis**

  Michigan Air Pollution Control Rule 224 requires that emissions of toxic air contaminants or TACs do not exceed the maximum allowable emission rate that results from the application of Best Available Control Technology (BACT) called T-BACT.

  The AQD reviewed and concurred with the proposed T-BACT analysis as follows:

  - For the H_2S emissions from the brine sweetening process, the caustic scrubber and thermal oxidizer provide T-BACT,
  - For the salt and potash wet side processes, the scrubbers provide T-BACT.
  - For the salt and potash dry side processes, the baghouses provide T-BACT,
  - For the space heaters, use of natural gas provides T-BACT.

  The requirements of Rule 224 do not apply to:

  - Any emission units that emit VOCs and that are in compliance with Rule 702 VOC BACT,

- TACs from natural gas combustion from the thermal oxidizer because it is air pollution control equipment,
- TACs from natural gas combustion from the dryers because the gas usage rate is 50,000 cubic feet per hour or less, the stack discharges unobstructed vertically upwards, and the stack heigh is at least 1.5 time the height of the influential building, and
- The boilers and emergency engines because they are subject to 40 CFR Part 63 Subpart JJJJJJ and 40 CFR Part 63 Subpart ZZZZ, respectively.

- **Rule 225 Toxics Analysis**

  The Michigan Air Pollution Control Rules require the ambient air concentration of TACs from the proposed project to be compared against health-based screening levels.

  The first step in the TAC evaluation showed the proposed emission rates of most TACs are less than their Allowable Emission Rates (AER) determined according to Rule 227(1)(a) and, therefore, these TACs comply with the requirements of Rule 225.

  Several other TAC emission rates were not less than the AERs, so Michigan Potash conducted air dispersion modeling to determine the predicted ambient impacts. AQD staff reviewed Michigan Potash's air quality modeling. The modeling analysis found that the impacts of these TACs are less than the applicable health-based screening levels and will comply with the requirements of Rule 225 through Rule 227(1)(c). See Table 3 for the TAC modeling results.

Table 3: TAC Modeling Results

TAC	Averaging Time	Screening Level Type*	Screening Level ($\mu g/m^3$)	Predicted Impact ($\mu g/m^3$)	Percent of Screening Level
Benzene	Annual	ITSL	30	0.00067	<0.01
	24 hour	ITSL	30	0.0058	0.02
	Annual	IRSL	0.1	0.00067	0.67
Benzo(a)pyrene	24 hour	ITSL	0.002	2.6×10^{-6}	0.13
	Annual	IRSL	0.001	3.16×10^{-7}	0.03
Formaldehyde	24 hour	ITSL	30	0.15	0.48
	Annual	IRSL	0.08	0.017	21.4
Naphthalene	Annual	ITSL	3	0.00016	0.01
	8 hour	ITSL	520	0.002	<0.01
	Annual	IRSL	0.08	0.00016	0.19
Arsenic	Annual	IRSL	0.0002	4.5×10^{-5}	22.5
Cadmium	Annual	IRSL	0.0006	0.00025	41.3

TAC	Averaging Time	Screening Level Type*	Screening Level ($\mu g/m^3$)	Predicted Impact ($\mu g/m^3$)	Percent of Screening Level
Chromium, hexavalent particulate	Annual	ITSL	0.1	1.3×10^{-5}	0.01
	Annual	IRSL	8×10^{-5}	1.3×10^{-5}	15.2
Cobalt and cobalt compounds that release cobalt ions	8 hour	ITSL	0.2	0.00023	0.12
	Annual	IRSL	0.00013	1.9×10^{-5}	14.6
Molybdenum	8 hour	ITSL	30	0.003	0.01
Nickel	Annual	IRSL	0.006	0.00047	7.89
Vanadium pentoxide	1 hour	ITSL	0.5	0.00024	2.17
Total PAH	Annual	IRSL	0.001	0.00024	23.8
Hydrogen sulfide	Annual	ITSL	10	2.97	29.7
	24 hour	ITSL	100	22.0	22.0
Sulfuric acid	Annual	ITSL	1	0.15	15.5
	1 hour	ITSL	120	23.7	19.8

$\mu g/m^3$ = Microgram per Cubic Meter

*ITSL = Initial Threshold Screening Level, IRSL = Initial Risk Screening Level

How to evaluate this table: To help understand the contents of this table, look at whether the predicted impact is above the screening level. If it is not, then that pollutant complies with Rule 225.

The AQD does not have screening levels for salt or potash, which are emitted from the facility in particulate form. AQD Toxicologists determined salt and potash should be evaluated as particulate matter against the NAAQS. Therefore, they were included in the sitewide PM10 and PM2.5 modeling. Since this modeling demonstrates compliance with the PM10 and PM2.5 NAAQS, the salt and potash emissions meet Rule 225.

Note: the following TAC emissions are exempt from the Rule 225 screening level requirement:

- TACs from natural gas combustion from the thermal oxidizer because it is air pollution control equipment,
- TACs from natural gas combustion from the dryers because the gas usage rate is 50,000 cubic feet per hour or less, the stack discharges unobstructed vertically upwards, and the stack heigh is at least 1.5 time the height of the influential building, and
- Yellow prussiate of soda because it is not a carcinogen or high concern TAC and the emission rate is less than 10 pounds per month and 0.14 pounds per hour.

- **Rule 702 VOC Emissions**

  This rule requires an evaluation of the following four items to determine what will result in the lowest maximum allowable emission rate of VOCs:

  a. BACT or a limit listed by the department on its own initiative
  b. New Source Performance Standards
  c. VOC emission rate specified in another permit
  d. VOC emission rate specified in the Part 6 rules for existing sources

  An evaluation of these four items determined that a VOC BACT (Rule 702(a)) analysis would dictate the lowest maximum allowable emission rate of VOC from the proposed facility.

  Michigan Potash proposed that BACT for VOC emissions from combustion equipment (the boilers, dryers, space heaters, and emergency engines) is limiting the equipment sizes and specifying the fuels allowed to be used. Michigan Potash also proposed that requiring breather vents with submerged fill for the diesel fuel tanks is BACT for VOC emissions. The AQD reviewed and concurs with Michigan Potash's proposed BACT.

- **Criteria Pollutants Modeling Analysis**

  Michigan Potash conducted, and the AQD verified, computer dispersion modeling to predict the impacts of air emissions from PM2.5, PM10, SO_2, and NO_x. NO_x refers specifically to nitrogen oxide and NO_2, with the larger portion being NO_2. NO_2 is a highly reactive gas and is the pollutant for which the USEPA established a NAAQS.

  Emissions from the proposed facility were evaluated against the NAAQS and the PSD increments. The NAAQS are intended to protect human health and the environment. The PSD increments are intended to allow industrial growth in an area while ensuring that the area will continue to meet the NAAQS.

  The first step in this evaluation is to determine the predicted pollutant impacts from the proposed project. After the impacts are determined, they are compared to the applicable Significant Impact Levels (SIL). For pollutants with impacts less than the SIL, the emissions are presumed to comply with the NAAQS and the PSD Increments, and no further review is required.

  As shown in Table 4, the predicted impacts exceed the SILs so additional modeling is required.

Table 4: Preliminary Modeled Impacts

Pollutant	Averaging Time	SIL (µg/m^3)	Predicted Impact (µg/m^3)	Additional Modeling Required?
PM2.5	Annual	0.13	1.49	Yes
PM2.5	24-hr	1.2	8.24	Yes
PM10	Annual	1	1.54	Yes
PM10	24-hr	5	8.77	Yes

Pollutant	Averaging Time	SIL (µg/m^3)	Predicted Impact (µg/m^3)	Additional Modeling Required?
SO_2	Annual	1	1.83	Yes
SO_2	24-hr	5	15.1	Yes
SO_2	3-hr	25	32.37	Yes
SO_2	1-hr	7.8	40.26	Yes
NO_2	Annual	1	9.28	Yes
NO_2	1-hr	7.5	105.2	Yes

The second step in this analysis is to compare the predicted pollutant impacts from the proposed project plus the predicted pollutant impacts from nearby emission sources to the PSD Increments. Note, no emission sources were identified near the proposed facility. As shown in Table 5, the predicted impacts of PM2.5, PM10, SO_2, and NO_2 are less than the PSD Increments.

Table 5: PSD Increment Analysis

Pollutant	Averaging Time	PSD Increment (µg/m^3)	Predicted Impact (µg/m^3)	Percent of Increment
PM2.5	Annual	4	1.54	38.5
PM2.5	24-hr	9	8.86	98.4
PM10	Annual	17	1.54	9.1
PM10	24-hr	30	8.86	29.5
SO_2	Annual	20	2.04	10.2
SO_2	24-hr	91	11.9	13.1
SO_2	3-hr	512	29.26	5.7
NO_2	Annual	25	9.28	37.1

The third step in this analysis is to compare the predicted pollutant impacts from the proposed project, plus the predicted pollutant impacts from nearby emission sources, plus the background concentrations to the NAAQS. Note, no emission sources were identified near the proposed facility. As shown in Table 6, the predicted impacts of PM2.5, PM10, SO_2, and NO_2 are less than the NAAQS.

Table 6: NAAQS Analysis

Pollutant	Averaging Time	NAAQS (µg/m^3)	Predicted Impact + Background(µg/m^3)	Percent of NAAQS
PM2.5	Annual	9	6.29	69.9
PM2.5	24-hr	35	21.73	62.1
PM10	24-hr	150	43.76	29.2
SO_2	3-hr	1,300	45.26	3.5
SO_2	1-hr	196	50.2	25.6
NO_2	Annual	100	11.72	11.7
NO_2	1-hr	188	111.16	59.1

The dispersion modeling analysis demonstrates the criteria pollutant emissions from the proposed facility are below the PSD Increments and the NAAQS.

Key Aspects of Draft Permit Conditions

- **Emission Limits (By Pollutant)**

  The proposed permit includes H_2S and SO_2 emission limits for the sweetening process, PM, PM10, and PM2.5 emission limits for the dryers and compaction processes, PM10 and PM2.5 emission limits for the facility, criteria pollutant emission limits for the engines, and visible emission limits for salt compaction and loading.

- **Usage Limits**

  The proposed permit limits the following:

  – H_2S concentration of the brine feed.
  – Only natural gas may be burned in the thermal oxidizer, dryers, boilers, and space heaters.
  – Only diesel fuel may be burned in the emergency engines.
  – Sulfur content is limited to 0.0015 percent in diesel fuel.

- **Process/Operational Restrictions**

  The proposed permit requires the following:

  – A malfunction abatement plan (MAP) for the emission control equipment.
  – For the sweetening process, the liquid flow rate and pH of the caustic scrubber, and the temperature and retention time of the thermal oxidizer, must be maintained as specified in the MAP.
  – The thermal oxidizer must be used when processing brine with 60 parts per million or more H_2S, except for up to 120 hours per year.
  – The liquid flow rate in the dryer wet scrubbers must be maintained as specified in the MAP.

- The pressure drop across the cooling and compaction equipment baghouse dust collectors must be maintained as specified in the MAP.

The proposed permit also limits the hours of operation of the emergency engines.

- **Design/Equipment Parameters**

  The sizes of the thermal oxidizer, dryers, space heaters, boilers, and emergency engines are limited.

- **Federal Regulations**

  Some of the proposed salt processing and handling equipment and the salt loading process are subject to the NSPS for Nonmetallic Mineral Processing Plants, 40 CFR Part 60 Subpart OOO. Michigan Potash will comply with this NSPS by using enclosed buildings and a dust collector to control emissions and by doing the required testing.

  The proposed boilers are subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60 Subpart Dc. Michigan Potash will comply with this NSPS by using natural gas as fuel in the boilers.

  The proposed emergency generator and fire pump engines are subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR Part 60 Subpart IIII. Michigan Potash will comply with this NSPS by purchasing certified engines or doing the required testing.

- **Emission Control Device Requirements**

  The proposed permit requires the following air pollution control requirements:

  - A caustic scrubber and thermal oxidizer to control H_2S emissions from the sweetening process.
  - Cyclones and wet scrubbers to control PM, PM10, and PM2.5 emissions from the salt and potash dryers.
  - Cyclones and baghouse dust collectors to control PM, PM10, and PM2.5 emissions from the salt and potash cooling and compaction processes.
  - The salt and potash loading has to be done in enclosed buildings.
  - Drift eliminators to control emissions from the cooling tower.
  - Ultra-low NO_x burners on the boilers to control NO_x emissions.
  - Breather vents and submerged fill on acid and VOC storage tanks.

- **Testing, Monitoring Requirements, and Recordkeeping Requirements**

  The proposed permit includes the following requirements:

  - Testing of:
    - the H_2S and SO_2 emissions from the sweetening process.
    - the PM, PM10, and PM2.5 emissions from the dryers and the cooling and compaction processes.

  - emissions from the emergency engines if not certified to meet the NSPS limits or if the AQD determines testing is needed.
- Monitoring and recordkeeping of:
  - the H_2S concentration in the brine feed.
  - the H_2S emissions from the sweetening process.
  - emission control device operating parameters.
  - the natural gas usage in the boilers.
  - the hours of operation of the emergency engines.

- **Notification Requirements**

  The proposed permit requires Michigan Potash to notify the AQD of the start of operation of the following:

  - The sweetening process,
  - When sour brine is first processed in the sweetening process,
  - When the sweetening process thermal oxidizer is first used when processing sour brine,
  - The start of operation of each dryer,
  - Each cooling and compaction process,
  - Salt loading,
  - Each boiler, and
  - Each emergency engine.

Conclusion

Based on the analyses conducted, AQD staff concludes that the proposed project would comply with all applicable state and federal air quality requirements. We conclude that this project, as proposed, would not violate the federal NAAQS or the state and federal PSD Increments.

AQD staff have developed proposed permit terms and conditions to ensure that the facility's process design and operation are enforceable. Additionally, Michigan Potash would perform sufficient monitoring and recordkeeping to determine compliance with these terms and conditions. If the permit application is deemed approvable, the delegated decision maker may determine a need for additional or revised conditions to address issues raised during the public participation process.

If you would like additional information about this proposal, contact Andrew Drury, AQD, at DruryA@Michigan.gov or 517-648-6663.

Appendix 1
STATE AIR REGULATIONS

State Rule	Description of State Air Regulations
R 336.1201	Requires an Air Use Permit for new or modified equipment that emits, or could emit, an air pollutant or contaminant. However, there are other rules that allow smaller emission sources to be installed without a permit (see Rules 336.1279 through 336.1290 below). Rule 336.1201 also states that the Department can add conditions to a permit to assure the air laws are met.
R 336.1205	Outlines the permit conditions that are required by the federal Prevention of Significant Deterioration (PSD) Regulations and/or Section 112 of the Clean Air Act. Also, the same types of conditions are added to their permit when a plant is limiting their air emissions to legally avoid these federal requirements. (See the Federal Regulations table for more details on PSD.)
R 336.1224	New or modified equipment that emits toxic air contaminants must use the Best Available Control Technology for Toxics (T-BACT). The T-BACT review determines what control technology must be applied to the equipment. A T-BACT review considers energy needs, environmental and economic impacts, and other costs. T-BACT may include a change in the raw materials used, the design of the process, or add-on air pollution control equipment. This rule also includes a list of instances where other regulations apply and T-BACT is not required.
R 336.1225 to R 336.1232	The ambient air concentration of each toxic air contaminant emitted from the project must not exceed health-based screening levels. Initial Risk Screening Levels (IRSL) apply to cancer-causing effects of air contaminants and Initial Threshold Screening Levels (ITSL) apply to non-cancer effects of air contaminants. These screening levels, designed to protect public health and the environment, are developed by Air Quality Division toxicologists following methods in the rules and U.S. EPA risk assessment guidance.
R 336.1279 to R 336.1291	These rules list equipment to processes that have very low emissions and do not need to get an Air Use permit. However, these sources must meet all requirements identified in the specific rule and other rules that apply.
R 336.1301	Limits how air emissions are allowed to look at the end of a stack. The color and intensity of the color of the emissions is called opacity.
R 336.1331	The particulate emission limits for certain sources are listed. These limits apply to both new and existing equipment.
R 336.1370	Material collected by air pollution control equipment, such as dust, must be disposed of in a manner, which does not cause more air emissions.
R 336.1401 and R 336.1402	Limit the sulfur dioxide emissions from power plants and other fuel burning equipment.
R 336.1601 to R 336.1651	Volatile organic compounds (VOCs) are a group of chemicals found in such things as paint solvents, degreasing materials, and gasoline. VOCs contribute to the formation of smog. The rules set VOC limits or work practice standards for existing equipment. The limits are based upon Reasonably Available Control Technology (RACT). RACT is required for all equipment listed in Rules 336.1601 through 336.1651.
R 336.1702	New equipment that emits VOCs is required to install the Best Available Control Technology (BACT). The technology is reviewed on a case-by-case basis. The VOC limits and/or work practice standards set for a particular piece of new equipment cannot be less restrictive than the Reasonably Available Control Technology limits for existing equipment outlined in Rules 336.1601 through 336.1651.
R 336.1801	Nitrogen oxide emission limits for larger boilers and stationary internal combustion engines are listed.
R 336.1910	Air pollution control equipment must be installed, maintained, and operated properly.
R 336.1911	When requested by the Department, a facility must develop and submit a malfunction abatement plan (MAP). This plan is to prevent, detect, and correct malfunctions and equipment failures.
R 336.1912	A facility is required to notify the Department if a condition arises which causes emissions that exceed the allowable emission rate in a rule and/or permit.

State Rule	Description of State Air Regulations
R 336.2001 to R 336.2060	Allow the Department to request that a facility test its emissions and to approve the protocol used for these tests.
R 336.2801 to R 336.2804 Prevention of Significant Deterioration (PSD) Regulations **Best Available Control Technology (BACT)**	The PSD rules allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the National Ambient Air Quality Standards (NAAQS). The regulations define what is considered a large or significant source, or modification. In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing the BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities. In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.
R 336.2901 to R 336.2903 and R 336.2908	Applies to new "major stationary sources" and "major modifications" as defined in R 336.2901. These rules contain the permitting requirements for sources located in nonattainment areas that have the potential to emit large amounts of air pollutants. To help the area meet the NAAQS, the applicant must install equipment that achieves the Lowest Achievable Emission Rate (LAER). LAER is the lowest emission rate required by a federal rule, state rule, or by a previously issued construction permit. The applicant must also provide emission offsets, which means the applicant must remove more pollutants from the air than the proposed equipment will emit. This can be done by reducing emissions at other existing facilities. As part of its evaluation, the AQD verifies that no other similar equipment throughout the nation is required to meet a lower emission rate and verifies that proposed emission offsets are permanent and enforceable.

FEDERAL AIR REGULATIONS

Citation	Description of Federal Air Regulations or Requirements)
Section 109 of the Clean Air Act – National Ambient Air Quality Standards (NAAQS)	The United States Environmental Protection Agency has set maximum permissible levels for seven pollutants. These NAAQS are designed to protect the public health of everyone, including the most susceptible individuals, children, the elderly, and those with chronic respiratory ailments. The seven pollutants, called the criteria pollutants, are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter less than 10 microns (PM10), particulate matter less than 2.5 microns (PM2.5), and sulfur dioxide (SO_2). Portions of Michigan are currently non-attainment for either ozone or SO_2. Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.
40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations **Best Available Control Technology (BACT)**	The PSD regulations allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the NAAQS. The regulations define what is considered a large or significant source, or modification. In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities. In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.

Citation	Description of Federal Air Regulations or Requirements)
40 CFR 60 – New Source Performance Standards (NSPS)	The United States Environmental Protection Agency has set national standards for specific sources of pollutants. These New Source Performance Standards (NSPS) apply to new or modified equipment in a particular industrial category. These NSPS set emission limits or work practice standards for over 60 categories of sources.
Section 112 of the Clean Air Act **Maximum Achievable Control Technology (MACT)** **Section 112g**	In the Clean Air Act, Congress listed 189 compounds as Hazardous Air Pollutants (HAPS). For facilities which emit, or could emit, HAPS above a certain level, one of the following two requirements must be met: 1) The United States Environmental Protection Agency has established standards for specific types of sources. These Maximum Achievable Control Technology (MACT) standards are based upon the best-demonstrated control technology or practices found in similar sources. 2) For sources where a MACT standard has not been established, the level of control technology required is determined on a case-by-case basis.

Notes: An "Air Use Permit," sometimes called a "Permit to Install," provides permission to emit air contaminants up to certain specified levels. These levels are set by state and federal law, and are set to protect health and welfare. By staying within the levels set by the permit, a facility is operating lawfully, and public health and air quality are protected.

The Air Quality Division does not have the authority to regulate noise, local zoning, property values, off-site truck traffic, or lighting.

These tables list the most frequently applied state and federal regulations. Not all regulations listed may be applicable in each case. Please refer to the draft permit conditions provided to determine which regulations apply.