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# **Eagle Mine, a subsidiary of Lundin Mining**

## **RESPONSE TO COMMENTS DOCUMENT**

**May 29, 2020**

**PERMIT Nos. 50-06D and 405-08B**

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**Gretchen Whitmer, Governor**

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## **I. PUBLIC PARTICIPATION PROCESS**

Permit to Install (PTI) application No. 50-06D is for proposed changes to the surface operations and the timeframe of the ore truck throughput limit at the underground nickel and copper mine located at 6510 AAA Road, Michigamme Township, Michigan (the Eagle Mine). PTI application No. 405-08B is for a proposed change to the timeframe of the ore truck throughput limit at the nickel and copper processing mill located at 4547 County Road 601, Champion, Michigan (the Humboldt Mill). The public participation process involved providing information for public review including a Technical Fact Sheet, a Proposed Project Summary, and proposed permit terms and conditions. The process also involved a public comment period, a virtual informational session, a virtual public hearing, and the receipt of written and verbal public comments on staff's analysis of the applications and the proposed permits.

On February 14, 2020, copies of the Notice of Air Pollution Comment Period and Public Hearing, the Technical Fact Sheet, the Proposed Project Summary, and the draft terms and conditions were placed on the Michigan Department of Environment, Great Lakes, and Energy (EGLE or Department), Air Quality Division (AQD) Public Comment Webpage ([https://www.michigan.gov/egle/0,9429,7-135-3310\\_70487\\_97578---,00.html](https://www.michigan.gov/egle/0,9429,7-135-3310_70487_97578---,00.html)). Also, on that date, the AQD sent approximately 320 letters and e-mails to persons who had previously expressed interest in the facility. Additionally, a notice announcing the Public Comment Period, Public Informational Meeting, and Public Hearing was placed in The Mining Journal. The notice provided pertinent information regarding the proposed action; the locations of available information; a telephone number to request additional information; the date, time, and location of the Public Informational Meeting and Public Hearing; the closing date of the Public Comment Period; and the address where written comments were being received.

The informational session and public hearing originally scheduled for Wednesday, March 18, 2020, at the Westwood High School Auditorium, 200 Westwood Drive, Ishpeming, were postponed in accordance with Governor Gretchen Whitmer and the Michigan Department of Health and Human Services' recommendations designed to help prevent the spread of Coronavirus Disease 2019 (COVID-19).

The Informational Meeting and Public Hearing were rescheduled as a Virtual Public Meeting. Notice of the Virtual Public Meeting was given through an EGLE GovDelivery Communications email, an email to interested parties notified of the original public hearing, and on the AQD website. The Virtual Public Meeting format was selected as a way to provide the public a source of information about the proposed projects and receive comments on the proposed projects while taking proactive steps to mitigate the spread of COVID-19 in Michigan.

The Virtual Public Meeting consisted of an Informational Session and a Question and Answer Session followed by a Public Hearing, where testimony was taken on the record. During the Informational and Question and Answer Sessions, a presentation about the proposed projects was given and a panel of representatives from the AQD were available to answer questions regarding the proposed projects.

The Virtual Public Meeting was held on March 30, 2020, at 6:00 p.m. Jenifer Dixon served as the moderator for the Informational and Question and Answer Sessions and as the Hearings Officer for the Public Hearing. Mary Ann Dolehanty served as the decision maker. Only comments on

the proposed permit action were received. Approximately 40 people attended the Virtual Public Meeting with two providing verbal comments. The Public Hearing concluded at 6:50 p.m. The Public Comment Period closed on April 3, 2020.

Four written comments were received during the Public Comment Period.

The remainder of this document is a summary of the significant comments received regarding the proposed permits and the Department's responses. The first section discusses the comments received that resulted in changes to the final permit terms and conditions and the basis for each change. The last section discusses the Department's response to all other significant comments that did not result in changes to the final permits. Note all comments, except those regarding the change to the ore truck throughput limit, refer to PTI application No. 50-06D.

## **II. SUMMARY OF COMMENTS RESULTING IN CHANGES TO THE PERMIT**

### Comment

One commenter noted that, as written, the proposed permit for the Eagle Mine could be interpreted to allow development rock to be stored in the new aggregate and sand storage area.

### AQD Response

Nonferrous Metallic Mineral Mining Permit MP 01 2007 for the Eagle Mine does not allow development rock to be stored outside anywhere but in the Temporary Development Rock Storage Area (TDRSA). Nevertheless, Special Condition IV.1 of EUFUGITVES has been modified to be more specific, as follows:

### Condition Change

1. The permittee shall only store development rock in the designated TDRSA, in the underground mine, and in enclosed buildings. The maximum area of uncovered development rock storage piles that the permittee may maintain at any one time is 8.6 acres. **(R 336.1224, R 336.1225, R 336.1371, R 336.1372, 40 CFR 52.21 (c) & (d))**

### Comment

It was noted that the ore truck throughput limits include 40 CFR 52.21 (c) & (d) as an underlying applicable requirement. Citing this federal regulation implies the limits are intended to be federally enforceable. However, calendar year limits are not enforceable as a practical matter.

### AQD Response

The truck throughput limits are not used to limit either facility's "potential to emit," so changing the time period of the truck throughput limit to a calendar year time period does not conflict with U.S. Environmental Protection Agency (USEPA) guidance on practical enforceability, as described in the Technical Fact Sheet. Special Conditions III.2 of EUFUGITVES in PTI No. 50-06D and III.3 of FGCONPLANT in PTI No. 405-08B have been modified to remove 40 CFR 52.21(c) & (d).

### III. SUMMARY OF SIGNIFICANT COMMENTS

#### A. Public Health and Environment Concerns

##### Comment

The change to the ore truck throughput limit, allowing more truck traffic on certain days, has the potential to increase levels of particulate matter (PM) to unsafe levels.

##### AQD Response

This change will not increase the ore truck emissions beyond the level evaluated in the permit review. Particulate emissions were evaluated through dispersion modeling based on the hourly emission rates and were determined to comply with the applicable health protective standards.

Note, emissions occurring on roadways outside the facility fence are not part of the permitted activity and cannot be included in the application review.

#### B. Air Toxics and Risk Assessment

##### Comment

The deposition analysis should be updated to account for Eagle East emissions. The addition of five acres to the rock storage process increases the deposition of contaminated PM into the environment, not only from the rock dust but from the emissions of additional equipment use.

##### AQD Response

As discussed elsewhere in this document, there is no increase in emissions expected due to mining Eagle East development rock and emissions from mining Eagle East ore are expected to meet the current permit limits. The additional five acres of storage is for aggregate and sand only; there is no additional storage of ore or development rock allowed.

The increase in development rock PM emissions due to the screening plant is small at one ton per year. Given the results of the previous deposition analysis showed impacts well below health-based thresholds, the small increase in emissions is not expected to cause adverse deposition impacts and the previous deposition analysis remains valid.

##### Comment

Potential toxic air contaminant (TAC) emissions associated with the aggregate storage, handling, transport operations, and screening plant are summarized in Attachment C of the application. As shown in the attachment, 9 of the 16 TACs meet the Rule 226(a) conditions and are not subject to the screening level requirement. For the remaining seven TACs, compliance with the screening level requirement was demonstrated using the Rule 227(1)(a) allowable emission rate methodology.

We are concerned that all TAC emission rates are estimated – based on a single long-ago stack test, which was conducted prior to the full operation of Eagle Mine. The applicant's optimistic modeling must be verified by real data.

AQD Response

All TACs from the proposed changes were evaluated. Rule 226(a) and Rule 227(1)(a) are acceptable to use in evaluating TAC emissions. Note, that dispersion modeling was conducted for cobalt, nickel, and arsenic. These TACs did not meet the Rule 226(a) or Rule 227(1)(a) criteria, but the modeling found the impacts to be below the screening levels. This indicates that all TAC emissions would be below the screening levels if they were included in the modeling.

The emission estimates in the application are based on the various emitting activities (screening plant, TDRSA, aggregate and sand storage and handling, truck traffic, etc.), USEPA emission factors, and the composition of the materials. They are not based on computer modeling. Note, the stack test conducted in 2014 was for the Main Ventilation Air Raise (MVAR) emissions, not the TDRSA or any other emission source at the facility, and the test results were not used to estimate emissions from any emission sources.

Comment

There are new emissions coming from new ore and development rock from Eagle East that need to be evaluated. The Eagle East development rock composition is based on only twenty samples. We request that 100 samples be taken from the TDRSA.

AQD Response

As discussed elsewhere in this document, the mining of development rock and ore from the Eagle East deposit is exempt from the requirement to obtain an air permit and cannot be evaluated for this application, except for PM equal to or less than 10 microns in diameter (PM10), PM equal to or less than 2.5 microns in diameter (PM2.5), and cobalt. All emissions of PM10 and PM2.5, including those from the underground activities, must comply with the National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) increments. Cobalt emissions from the underground activities, including activities associated with the Eagle East ore body, were included in the permit application review because cobalt emissions were evaluated using the Secondary Risk Screening Level, which considers all emissions from the facility. The cobalt content of the Eagle East ore is discussed elsewhere in this document.

In response to comments received during the public comment period, Eagle Mine updated the development rock composition information used in the application review. Eagle Mine provided the following information:

Eagle's emissions inventory included two data sets for development rock – one specific to Eagle and one specific to Eagle East. Eagle's geology team collects samples of development rock at regular intervals during the development mining process. The data that was provided with the permit application was based on sampling done through early 2019. Since then additional samples have been collected so the data analysis was updated based on your request. The results of 108 samples collected between July 2016 and early 2020 were included in the analysis. For most metals, the recalculated concentration (and percentage) based value was less than the value that was used in the permit application with the exception of chromium, cobalt, magnesium, and nickel. However, the revised values for those four metals are not significantly greater than what was used for the recent permit application, and none of them exceed values that were used for the dispersion modeling for Eagle's development rock. A table of updates is provided below.

<b>Metal</b>	<b>Eagle Main 95%ile</b>	<b>Eagle East 95%ile, 2019</b>	<b>Eagle East 95%ile, April 2020</b>
Chromium (Cr), ppm	203	136	140.7
Cobalt (Co), ppm	36.1	15.1	18.3
Magnesium (Mg) %	2.15	1.57	1.70
Nickel, ppm	264	94.3	100.8
ppm = parts per million			

In comparison to the updated composition information provided by Eagle Mine, the metal compositions used in the emission calculations and the dispersion modeling for the application review are the same or higher, as follows:

<b>Metal</b>	<b>Concentration Evaluated in Application 50-06D</b>	<b>Maximum Eagle Mine Concentration</b>	<b>Difference Between Evaluated and Actual Metal Concentration</b>
Chromium (Cr), ppm	250	203	-47
Cobalt (Co), ppm	36.1	36.1	0
Magnesium (Mg) %	2.15	2.15	0
Nickel, ppm	264	264	0

Therefore, the application review properly evaluated the development rock emissions from the facility, including development rock associated with the Eagle East or body.

Comment

We are concerned about lack of geochemical analysis of Eagle East development rock. Uranium, antimony, cadmium, chromium, manganese, sulfur, and vanadium need to be evaluated as emissions will increase with the operation of the screening plant.

AQD Response

As discussed elsewhere in this document, Eagle Mine provided updated development rock composition data.

In response to this comment, Eagle Mine also provided vanadium and uranium composition data for the Eagle East development rock as these metals had not been previously evaluated. The concentration of vanadium in development rock is 193.5 ppm and the maximum concentration of uranium in development rock is 18.7 ppm.

The AQD has not developed a screening level for vanadium or uranium.

For vanadium, emissions are often compared to the established screening level for vanadium pentoxide. The vanadium emissions from the TDRSA and screening plant, assuming all development rock has the composition of Eagle East development rock, meet the vanadium pentoxide screening level using the Rule 227(1)(a) Allowable Emission Rate methodology.

For uranium, the annual emissions from the TDRSA and screening plant, assuming all development rock has the composition of Eagle East development rock, would be only 0.15 pounds per year. At this very low emission rate, no further analysis is warranted, especially considering the worker exposure monitoring results discussed elsewhere in this document.

#### Comment

We ask that total cobalt emissions be reconsidered, in terms of cumulative air impacts from Eagle Mine, Eagle East, the MVAR, etc. Are the proposed cobalt emissions based on accurate, updated, cumulative emissions from all sources (Ore, Native Soil, Tailings, Mine Vent Emissions from Underground Source)?

#### AQD Response

Cobalt emissions from all emission sources at the Eagle Mine were included in the application review, including in the dispersion modeling. Emission calculations were conducted based on updated material compositions.

In response to comments received during the public comment period, Eagle Mine provided updated Eagle East development rock data, as discussed elsewhere in this document. Eagle Mine also provided updated data on the cobalt composition of the ore, as follows:

Eagle reviewed available geology assay records and found 11,773 samples for cobalt in Eagle ore. The 95<sup>th</sup> Percentile concentration of cobalt in Eagle ore based on that data set is 510 ppm. Based on 6,046 cobalt samples in Eagle East ore, the 95<sup>th</sup> Percentile concentration of cobalt of Eagle East is 399 ppm.

The cobalt concentration in the ore used in the emission calculations was 740 ppm, which is higher than the Eagle or Eagle East ore. Therefore, the application review evaluated the worst-case cobalt emissions.

#### Comment

Uranium and other heavy metals have been confirmed by the Community Environmental Monitoring Program's (CEMP) Berry and Plant Tissue Monitoring. In 2017, uranium was detected in wintergreen. In addition, antimony, cadmium, chromium, manganese, selenium sulfur, and vanadium (in one or more sampling events) were sufficient to surpass Tolerable Daily Intake (TDI) values by ingesting less than one cup of blueberries, raspberries, and/or blackberries per day over a lifetime.

#### AQD Response

The CEMP report indicates that 44.1 pounds of wintergreen would have to be consumed per day to exceed the TDI; this appears to be an excessive amount of wintergreen consumption. This uranium result does not indicate a potential health concern due to the Eagle Mine.

The CEMP report states, "Many of the parameters listed occur naturally and in some cases are considered essential to plant and/or animal health and function." The CEMP monitoring study did not attempt to evaluate if the levels of the indicated metals are due to naturally occurring metals in the soil.

The CEMP report also states, "With a small sample size and insufficient length of study, it is difficult to determine whether any parameter values are trending at any of the sample sites."



The CEMP report conclusion states “Due to a small sample size and various other potential confounding factors including regional variation, species specific differences, insufficient length of study, and potential alternate sources of pollution, any differences noted between control and test samples cannot be reliably attributed to mining activities at this time.”

As the CEMP report conclusion states, the monitoring study did not demonstrate elevated levels of metals in berry and plant tissue due to the operation of the Eagle Mine.

### **C. Emergencies and Safety Concerns**

#### Comment

The double haul rigs are extremely unsafe. Increased traffic will increase the negative impacts on people who are out to enjoy the woods, rivers, and plains, including intimidating bikers, hikers, berry pickers, and sightseers, and will add to the possibility of serious accidents.

#### AQD Response

Vehicle traffic outside of the facility boundary is not addressed by federal or state air permitting laws and regulations. Any concerns regarding truck traffic should be directed to local governments.

### **D. Dispersion Modeling**

#### Comment

The emissions modeling is concerning. The modeling being re-run for this permit is based on the modeling that was done for the previous permit. The only confirmation of that was the stack test done in 2014.

#### AQD Response

The dispersion modeling was updated to reflect the new emissions sources and the updated material compositions as appropriate. The dispersion modeling is not based on the 2014 MVAR stack test.

#### Comment

The TDRSA should be re-reviewed as a point source, due to the greatly increased quantity of material stored in the TDRSA, the presence of Eagle East development rock, and the screening plant.

#### AQD Response

When dispersion modeling is conducted the designation of a point source is used when there is a stack present. The TDRSA was included in the dispersion modeling analysis as an area source, like the aggregate storage pile, since it is a fugitive source, not a point source (i.e., stack). The screening plant was also included in the dispersion modeling as a fugitive source because it does not have a stack. The TDRSA was evaluated at the maximum size the development rock pile can attain. The TDRSA and screening plant dispersion modeling accounted for the presence of Eagle East development rock.

## **E. Best Available Control Technology Review**

### Comment

The waste rock stockpiled on the TDRSA is now higher than the earthen berms surrounding the mine site. We request the applicant be required to build concrete wind barriers on the west, north, and east sides of the TDRSA that are higher than the stockpiled material, ensuring that all waste rock is “enclosed within at least a 3-sided structure”.

### AQD Response

The emissions from the TDRSA were calculated and evaluated at the maximum height the stockpile can attain without any enclosure. The emissions were determined to comply with the state and federal air quality rules and regulations. Therefore, there is no regulatory authority to require Eagle Mine to enclose or partially enclose the TDRSA. The TDRSA is currently in compliance with the five percent visible emission limit, indicating the dust control measures are effective and that there are no excess emissions from the TDRSA.

### Comment

Walls should be constructed on at least three sides around the portable screen crusher and the screening area to mitigate the impacts from it.

### AQD Response

Eagle Mine is not proposing to install any crushing equipment. The application is for a portable screening plant that will sort development rock by size but will not have the capability of changing the size of the development rock by crushing it.

The emissions from the development rock screening plant were calculated and evaluated at the maximum allowed throughput without any enclosure. The emissions were determined to comply with the state and federal air quality rules and regulations. Therefore, there is no regulatory authority to require Eagle Mine to enclose or partially enclose the screening plant.

If the screening plant operates in compliance with the five percent visible emission limit, that will indicate the dust control measures are effective and there are no excess emissions from the screening plant. If the screening plant does not comply with the visible emission limit, the AQD will take action to ensure the Eagle Mine complies with the limit.

### Comment

Emissions from the new aggregate and sand storage area north of the TDRSA would be harder to control in winter due to the inability to use water spray to control fugitive dust.

### AQD Response

Eagle Mine must comply with the five percent visible emission limit on the aggregate and sand storage area at all times, even during the winter.

## **F. Permit Requirements**

### **General**

#### Comment

How will compliance with the MVAR emission limits be verified?

#### AQD Response

The primary compliance method is the visible emission observations. The AQD District staff can require a stack test if there is an indication that the emissions may be exceeding the emission limits, such as visible emissions that exceed the opacity limit.

### **Emissions**

#### Comment

The AQD cannot change conditions set forth in a Nonferrous Metallic Mining Permit through the air permit. The TDRSA covering plan is a condition of the mining permit and should be a condition that is kept in the air permit.

#### AQD Response

Removing the TDRSA covering plan from the air permit does not remove the requirement from the mining permit (MP 01 2007). All conditions of MP 01 2007 must be complied with regardless of the conditions of the air permit.

The TDRSA covering plan in MP 01 2007 requires the TDRSA to be covered if “practicable.” It is not practicable to cover the TDRSA during operations due to material being added and/or removed daily.

The emission estimates and dispersion modeling for the TDRSA do not account for any control due to covering of the TDRSA. Covering of the TDRSA is not required in order to meet the air quality rules and regulations as long as the fugitive dust plan provisions related to the TDRSA are implemented.

### **Testing**

#### Comment

The composition of waste rock and ore from Eagle East is different than the ore from Eagle, so additional stack testing should be required. It is critical that updated, actual PM and TAC data be provided, rather than models based on estimates, or on outdated and inadequate data. Testing for all TACs as well as PM10 and PM2.5 should be conducted.

#### AQD Response

Eagle Mine provided updated development rock data that includes Eagle East development rock as well as cobalt data for the Eagle East ore.

The permit application only addresses surface activities at the Eagle Mine related to the aggregate and sand storage area and the development rock screening plant. As discussed elsewhere in this document, the mining of development rock and ore from the Eagle East deposit is exempt from the requirement to obtain an air permit. Therefore, the AQD cannot require a new stack test

of the MVAR as a result of this application. The aggregate and sand storage area and the development rock screening plant cannot reasonably be tested because they are fugitive sources; there is no stack to test.

#### Comment

A new stack test is needed for EUMVAR. The stack test conducted in 2014 was inadequate for several reasons, as follows:

1. The test was conducted prematurely. The company told local media that ore production started on September 24, 2014. However, the test took place on September 16, 2014, before production started. Commercial production did not start until November 2014.
2. The nickel and copper content of the ore during the third quarter of 2014 was low (1.3 percent and 1.0 percent, respectively) and was likely lower during the stack test. In the first quarter of 2015, the nickel content was 4.7 percent and the copper content was 3.6 percent. Therefore, the test would have underestimated emissions due to the low metal content.
3. The duration of the stack test was too short. Three new stack tests of at least two hours duration each should be conducted while the mine is conducting normal drilling, blasting, and rock removal and development operations of both Eagle and Eagle East materials.
4. Ore production was low when the test was conducted.
5. The amount of waste rock produced during the test was not reported.

#### AQD Response

As discussed elsewhere in this document, the underground activities in EUMVAR are not subject to review in this permit application and, therefore, this PTI cannot require another test of EUMVAR.

The AQD finds the 2014 stack test adequate. The AQD response to each of the reasons stated above is as follows:

1. Eagle Mine provided the following regarding the beginning of ore production:  
Commercial production of concentrates commenced on September 24, 2014. Commercial production is the above-ground preparation of the ore into a salable product. This operation is conducted at the separate Humboldt Mill facility. There is no question that mining of ore to develop inventory sufficient to commission the Humboldt Mill crushing and grinding circuits had commenced well before the September 2014 stack testing and initiation of concentrate production.

The AQD originally proposed stack testing within 120 days after first achieving an ore production rate of 1660 tons per day but not later than 12 months after ore production commenced. However, comments received during the public comment period requested that stack testing be conducted earlier. Therefore, the stack testing was required within 60 days after commencement of ore production.

2. The variation in ore metal content would not be expected to result in emissions above the permitted limits. The stack test results were well below the emission limits and the test focused on emissions from ore mining, rather than development rock mining, to evaluate

the worst-case emissions since the development rock has much lower metal content than the ore. Eagle Mine provided the following information:

Stack testing of the mine in 2014 was conducted when underground activities, including blasting, were occurring at distances much closer to the MVAR inlet than what are currently occurring and will be for the remainder of the mine life (with the exception of haul traffic). Particulate potentially generated from activities occurring at greater distances from the MVAR would typically be lower from the MVAR due to gravitational settling in the mine.

3. The test duration was acceptable. Each of the three test runs lasted more than two hours. The testing covered drilling, blasting, and rock removal.
4. While the overall ore production was low, the drilling, blasting, and material handling activities during the test were representative of typical daily operations and, therefore, the test results are acceptable.
5. Since waste rock has lower metal content than ore, no waste rock drilling, blasting, or handling was conducted during the test. Including waste rock in the test would not represent the worst-case metal emissions.

AQD staff were on site during the 2014 stack test. The test protocol was approved by AQD staff before the test was conducted and the test results were reviewed by AQD staff. No deficiencies with the testing were reported to Eagle Mine and the results were determined to be acceptable.

#### Comment

We ask that the development rock in the TDRSA be independently analyzed before proceeding.

#### AQD Response

At this time, there is no reason to believe the information provided by Eagle Mine is not accurate. Eagle Mine is required to provide accurate information in the PTI application. Knowingly providing false, misleading, or inaccurate information in the application can result in enforcement action. In addition, Eagle Mine is required to provide all development rock composition data to the EGLE Oil Gas and Minerals Division (OGMD).

#### **Monitoring**

##### Comment

It is unclear whether the limit on the number of ore trucks is currently being enforced or how truck traffic from the mine is monitored.

##### AQD Response

Eagle Mine is required to keep records of the ore truck traffic at the Eagle Mine and the Humboldt Mill. These records are reviewed by the AQD staff during inspections. Failure to keep accurate records would be a permit violation and could subject Eagle Mine to enforcement action.

Comment

We request continuous air quality monitoring (portable unit or other) for PM, copper, and nickel. Monitoring points are needed at the mine site, at the nearby MVAR site, and the adjacent Salmon Trout River headwaters in order to confirm whether the applicant's early depositional modeling was accurate. The nearest monitoring site has been Big Bay, 9.5 miles northeast of the mine site. We request that additional monitoring sites be set up between Big Bay and the mine.

AQD Response

The dispersion model analysis demonstrated the emissions of criteria pollutants and TACs will be below the applicable standards. There is no indication that operation of the Eagle Mine will lead to exceedances of the NAAQS or PSD increments or the TAC health-based screening levels. Therefore, there is no compelling reason to require Eagle Mine to conduct ambient air monitoring nor is there any air quality rule or regulation that would require Eagle Mine to conduct ambient air monitoring for this minor source of air emissions. Ambient air monitors are not used as compliance tools for individual sources.

Comment

There needs to be independent verification of the visible emissions.

AQD Response

AQD staff will verify compliance with the visible emission limits during periodic inspections. In addition, staff from other EGLE divisions and the Mine Safety and Health Administration (MSHA), will conduct periodic inspections of the facility. AQD staff will respond to complaints to provide independent oversight of the facility.

Comment

Due to the presence of uranium in the development rock, we request that dosimeter testing be performed to confirm any radiological impacts of rock crushing in the TDRSA.

AQD Response

The permit application does not address rock crushing; rather it includes the request to use a screening plant in the TDRSA.

The AQD has not included dosimeter testing in the permit conditions. MSHA requires Eagle Mine to monitor worker exposure to radon, a breakdown product of uranium. Based on the following information provided by Eagle Mine, worker exposure levels underground are very low, indicating potential public exposure outside the facility fence would also be low.

In accordance with MSHA requirements (30 CFR § 57.5037) radon sampling is required to be conducted at least annually in all active working areas and miners shall not be exposed to air having a radon daughter concentration exceeding 1.0 working level (WL). Dependent on the results increased sampling frequency may be required. Active working areas in Eagle and Eagle East have been sampled by a third party contractor on an annual basis since operations began and results have consistently been well below the maximum permissible concentration of 1.0 WL. In 2019, results ranged from non-detect to a maximum of 0.026 WL.

### **Process/Operational Limits**

#### **Comment**

The unpaved roadway for aggregate transport should be paved like the rest of the facility roads.

#### **AQD Response**

There is no air quality rule or regulation that would require Eagle Mine to pave the small portion of aggregate roadway that is proposed to be unpaved. The emission estimates and modeling analysis account for that unpaved roadway. Since the emissions meet the applicable air quality rules and regulations, allowing a small portion of unpaved roadway is acceptable.

#### **Comment**

I do not think it is in the mine's interest to mist or spray with water on the screening plant on the TDRSA because the sprayed water has to be treated after being collected.

#### **AQD Response**

The permit requires Eagle Mine to use the water spray on the portable screening plant as necessary to comply with the visible emission limit. The amount of water expected to be used on the screening plant is small compared to the total amount of water that has to be treated in the onsite treatment plant. The requirement to treat the water should not influence Eagle Mine's use of the required water spray.

### **G. Permit Review Process**

#### **Comment**

In 2017 the Eagle East expansion was included under PTI 50-06B with no modifications, even though it meant that the amount of aggregate material processed and transported during the life of the mine, as well as the amount of development rock produced, would increase substantially and increase emissions from the MVAR. The higher nickel and copper content of Eagle East ore will increase emissions.

#### **AQD Response**

Eagle Mine has determined that mining of development rock and ore associated with the Eagle East ore body is exempt from the Rule 201 requirement to obtain a PTI through Rule 285(2)(c)(iii) of Michigan's Administrative Rules for Air Pollution Control because the emissions will continue to meet the EUMVAR emission limits in PTI No. 50-06B.

No increase in underground emissions are expected as a result of Eagle East due in large part to the long distance from the Eagle East ore body to the MVAR because much of the metal laden particulate will settle out before reaching the MVAR and being emitted to the air.

Therefore, for PTI Application No. 50-06D, the underground activities (EUMVAR) are not subject to New Source Review because Eagle Mine has not proposed any changes that are subject to Rule 201.

The allowed emissions from EUMVAR were included in the dispersion modeling analysis for PTI Application No. 50-06D.

Comment

Some sort of permit ought to be required for Eagle East. It appears untruthful that a mine that was forecasted to operate for six years is causing additional impact—when it was well known from the start that more ore existed than was originally reported.

AQD Response

The mining of the Eagle East ore body was addressed in an amendment to the facility's Part 632 Nonferrous Metallic Mineral Mining Permit MP 01 2007. The air permit is not for a limited amount of time; it allows the facility to operate indefinitely, unless modifications are made that require additional permitting. The ambient air impacts have been evaluated accordingly.

Comment

The proposed permit does not address track-out. Fugitive emissions from track-out are taking place outside the mine site, including track-out onto Triple A Road from the Eagle Mine gate, from an unpaved parking area across the road from the Eagle Mine where semi-trucks frequently park, from activity in the Eagle East area on unpaved roads adjacent to the mine site, and from the nearby VanDamme ore truck maintenance facility. The VanDamme site is run by the mine's trucking contractor and effectively expands the industrial footprint of the mine by several miles. Track-out fugitive emissions and a track-out management plan should be included in Eagle Mine's modified air permit.

AQD Response

Track-out from the Eagle Mine gate has not been observed by AQD staff and the AQD has not received any complaints related to track-out.

Potential track-out from other nearby operations cannot be included in the Eagle Mine air permit as the operations are not part of the Eagle Mine stationary source even if they are related to the Eagle Mine.

Comment

The portable screening plant is a new and sort of difficult source of emissions to assess, especially because it will be higher up due to the height of the TDRSA. It will process development rock from both Eagle and Eagle East, so greater testing should be required.

AQD Response

The portable screening plant emissions were estimated based on the maximum allowed throughput and the USEPA emissions factors for screening operations. There are many rock screening plants operating in Michigan, so this is not a unique process.

Emissions from the screening plant were included in the air dispersion modeling assuming it operates at ground level; the dispersion modeling determined the screening plant emissions comply with the state and federal air quality rules and regulations. In response to this comment, the AQD ran the PM10 dispersion model with the screening plant on top of the TDRSA again. This model resulted in significantly lower predicted ambient impacts from the screening plant, indicating the assumption that the screening plant operates at ground level is a worst-case assumption. The 24-hour screening plant impacts were approximately 60-70 percent lower and the annual impacts were approximately 50 percent lower.



Metal emissions from the screening plant were estimated using the highest metal content of the Eagle and Eagle East development rock. As discussed elsewhere in this document, Eagle Mine provided updated development rock composition data in response to comments received during the public comment period.

Comment

Eagle Mine has not demonstrated that the proposed changes to the Eagle Mine operation will "not pollute, impair, or destroy the air, water, or other natural resources or the public trust in those resources" as required under NREPA.

AQD Response

The AQD has determined, based on Eagle Mine's PTI application, that air emissions from the Eagle Mine are expected to meet the applicable state and federal air quality rules and regulations and, therefore, are not expected to have a negative impact on air quality in the area.

**H. Public Participation Process**

Comment

The GoToWebinar tool is disconcerting; there is no way to see who else is in the hearing.

AQD Response

The AQD understands there are challenges with a virtual meeting, both for the public and for AQD staff. In response to this comment, during the hearing, the attendee list was made available to everyone participating in the hearing.

The virtual meeting was held to provide information to the public, to allow the public to ask questions of AQD staff, and to allow the public to provide comments on the proposed permits while taking proactive steps to mitigate the spread of COVID-19 in Michigan. Comments made at a public hearing do not carry more weight than comments submitted in writing during the comment period.

**I. Miscellaneous**

Comment

The noise from the mine can be heard eight miles away and the light halo impacts the night sky. Adding an outdoor stone and gravel storage area and portable screening plant are out of the question. The increased truck traffic will also result in increased noise pollution.

AQD Response

Neither federal nor state air pollution control laws and regulations address noise or light pollution. Any concerns regarding noise or light pollution should be directed to local governments.

Comment

The company is dishonest, and its operations are deleterious for our citizens and their environment. No further action ought to be allowed and the applications should be denied.

AQD Response

The AQD evaluated the potential air emissions from operation of the facility and determined the emissions comply with the applicable state and federal air quality rules and regulations. The AQD

must issue a permit if the permit contains all of the applicable air quality regulatory requirements with which the facility must comply. There is not a state or federal law that allows the AQD or USEPA to deny a permit based on a company's reputation. Eagle Mine must comply with the conditions of the approved air permit.

Comment

Financial assurances for this project must be substantially increased.

AQD Response

There are no provisions for "financial assurances" in either the federal or state air quality laws, rules, or regulations. Part 632 Nonferrous Metallic Mineral Mining rules and regulations include financial assurance requirements for this mining operation.

Comment

The PTI includes a contingency plan addressing mine ventilation, the safety of underground mine workings, fire, escape routes, etc. How has the contingency plan been revised to reflect the changes due to mining the Eagle East orebody?

Eagle Mine claims the MVAR can safely handle the emission from mine workings located more than two miles from the vent stack. What data supports this claim?

AQD Response

The PTI does not include a contingency plan as stated by the commenter. The AQD has the authority to address air quality issues. The issues raised by the commenter are regulated by other agencies, such as the MSHA and EGLE OGMD.

Comment

The capacity of the TDRSA and the strength of the TDRSA liner were described as "sufficient" in the Part 632 mining permit, given the "short life of mine." Has this been reconsidered in light of the increased amount of development rock due to Eagle East?

AQD Response

The air emissions from the TDRSA were evaluated at the maximum allowed size of the development rock storage pile. The AQD evaluated the potential air emissions from operation of the facility and determined the emissions comply with the applicable state and federal air quality rules and regulations. There are no provisions in federal or state air quality laws, rules, or regulations that address the capacity of the TDRSA or the strength of the liner. These issues are addressed by Part 632 Nonferrous Metallic Mineral Mining Permit MP 01 2007.

Comment

How will the different Eagle East waste rock composition affect the water treatment processes?

AQD Response

Water treatment and water discharge are regulated by the EGLE Water Resources Division and are outside the scope of the air permit review process.