

August 1, 2022
Project No. 220251

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Air Quality Division
Michigan Department of Environment, Great Lakes, and Energy
350 Ottawa Avenue NW, Unit 10
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Response to Violation Notice, dated July 13, 2022
Stateline Crushing (SRN: P0622)
Dexter, Michigan

Dear Ms. Lazzaro:

On behalf of Stateline Crushing, Fishbeck has prepared this letter in response to the EGLE Violation Notice dated July 13, 2022, (VN) for their 500 ton per hour KPI-JCI portable crusher. The VN indicates that Stateline violated the following Rule:

Process Description	Rule/Permit Condition Violated	Comments
500 Ton Per Hour KPI-JCI nonmetallic mineral crushing plant	Rule 201	Failure to obtain a Permit to Install

As requested, this letter provides information regarding the referenced citations, including:

- The date the alleged violations occurred
- An explanation of the causes and duration of the alleged violations
- Whether the violations are ongoing
- A summary of the actions that have been taken, and/or are proposed to be taken, to correct the violation, if any
- The date(s) by which these actions will take place
- What steps are being taken to prevent a reoccurrence

Fishbeck respectfully disagrees with the cited Rule 201 violation and the Activity Report indicating that operation under Rule 290 is not acceptable. The following information is being provided as background for Stateline Crushing.

- May 2015, Fishbeck provided exemption documentation to the Jackson District regarding a new crusher being delivered in June 2015.
- June 2015, Jackson District Supervisor responded that the exemption documentation was received, however, staff would not review the calculations.
- July 2015, AQD issued an SRN for the portable crusher.

- July 2015, Crusher delivered.
- August 2015, NSPS notification submitted.
- September 2015, NSPS VE testing completed.
- March 2016 and March 2017, MAERS submitted indicating emission unit was exempt pursuant to Rule 290.
- July 2017, Following an inspection, Ms. April Lazzaro requested 2017 material throughputs and emissions, which were provided on July 10, 2017, along with the emission calculation binder. An email exchange occurred regarding the portable engine and material throughput.
- March 2018, MAERS submitted indicating emission unit was exempt pursuant to Rule 290.
- June 2018, Mr. Zach Durham notified Fishbeck that a violation notice would be sent for observation of dust during a site visit. Mr. Durham acknowledged that the crusher was operating under Rule 290 in the email exchange.
- June 2018, Fishbeck responded on behalf of Stateline to the violation notice. The dust was the result of a trash pump running out of fuel that was pumping water to the crushing facility while the operator was away from the equipment and escorting AQD personnel.
- March 2019, March 2020, March 2021, March 2022, MAERS submitted indicating emission unit was exempt pursuant to Rule 290
- July 2022, AQD Inspection and violation notice

This plant has operated under Rule 290(a)(ii) since 2015 when it was constructed; we provided information to the District and obtained an SRN prior to operation; we have submitted MAERS reports that have been reviewed and accepted by the AQD since the plant operated. All of the MAERS reports submitted indicated that the facility was operating pursuant to the Rule 290 exemption. The indication from EGLE that use of the Rule 290 exemption has only recently been reviewed for this source and determined unacceptable after seven years of providing emission calculations when requested by the District, and providing MAERS emissions reports, appears to be subjective. We understand that the AQD prefers that portable crushers not operate under Rule 290; however, neither the exclusions to exemption in Rule 278 or Rule 290 specifically excludes use of the exemption for this type of source. We disagree with the AQDs determination that Rule 290 emissions have not been met based on AQDs recalculation of emissions as follows:

AQD Activity Report: The emission factors (EF) used in the Rule 290 demonstration are from AP-42 (<https://www3.epa.gov/ttnchie1/ap42/ch11/final/c11s1902.pdf>) and are for tertiary crushing (with an E rating) and Stateline Crushing conducts primary crushing which has no AP-42 EF in that document. The emission factors used in the exemption demonstration do not align with the activity and are not acceptable for use. ...

AQD staff considered that they chose the EF for tertiary crushing for the recycled asphalt paving (RAP) because some of the material is already reduced in size before they crush it. However, the AP-42 goes into detail how the crushing process works, and it specifies that tertiary crushing is to further reduce materials that come out of a secondary crusher at a size of 1-4". Photos of the stockpile they were pulling from to feed the crusher were taken, and while some of the material is certainly in the 1-4" size, there is also larger pieces of RAP which are a foot or more in diameter, and as such is not considered tertiary crushing.

AQD is correct that the emission factor used from the crusher was from AP-42 Table 11.19.2-2. The specific emission factor chosen was for tertiary crusher, because an emission factor for primary crushing is not available. The table below provides the available AP-42 factors for crushing provided in Table 11.19.2-2:

Source ^b	Total Particulate Matter ^{r,s}	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND ⁿ		ND ⁿ	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND ⁿ		ND ⁿ	
Secondary Crushing (SCC 3-05-020-02)	ND		ND ⁿ		ND ⁿ	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND ⁿ		ND ⁿ	
Tertiary Crushing (SCC 3-050030-03)	0.0054 ^d	E	0.0024 ^o	C	ND ⁿ	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012 ^d	E	0.00054 ^p	C	0.00010 ^q	E
Fines Crushing (SCC 3-05-020-05)	0.0390 ^e	E	0.0150 ^e	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0030 ^f	E	0.0012 ^f	E	0.000070 ^d	E

As highlighted above, AP-42 indicates that emissions factors for primary crushing have not been determined. However, footnote n, which is in reference to the primary and secondary crushing factors, of Table 11.19_2-2 states the following:

n. No data available, but emission factors for PM-10 for tertiary crushers can be used as an upper limit for primary or secondary crushing.

The second highlight in the table above shows that fines crushing, which follow tertiary crushing, has a higher emission factor than tertiary crushing. This infers that primary and secondary crushing would likely have lower emissions, and use of the tertiary factor would be a worst case estimate.

See Attachment 1 for a copy of pages 8 and 9 of AP-42 Chapter 11.19.

Furthermore, AQDs 2005 Emission Calculation Fact Sheet for the Mineral Products Processes (See Attachment 2) uses the AP-42 uncontrolled PM10 tertiary crushing factor (SCC 3-05-020-03) of 0.0024 lb/ton for primary and secondary crushing operations related to sand and gravel operations and stone quarrying operations. It appears that the AP-42 uncontrolled PM10 fines crushing factor (SCC 3-05-020-05) was also used for secondary (SCC 3-05-020-02) and tertiary (SCC 3-05-020-03) crushing for stone quarrying, although AP-42 specifically identifies the tertiary factor.

If crushing was the only activity required to be reported for the portable crusher, Stateline would have utilized SCC Codes for the activities associated with crushing instead of the sitewide SCC Code. This may have made it more clear to AQD that the emission factors used by Stateline are appropriate for the crushing operations. Review of current MAERS emissions factors for crushing operations identifies the following emission factors, which further supports the justification that the controlled tertiary crushing factor of 1.2 E -3 lb/ton can be used for a portable crusher:

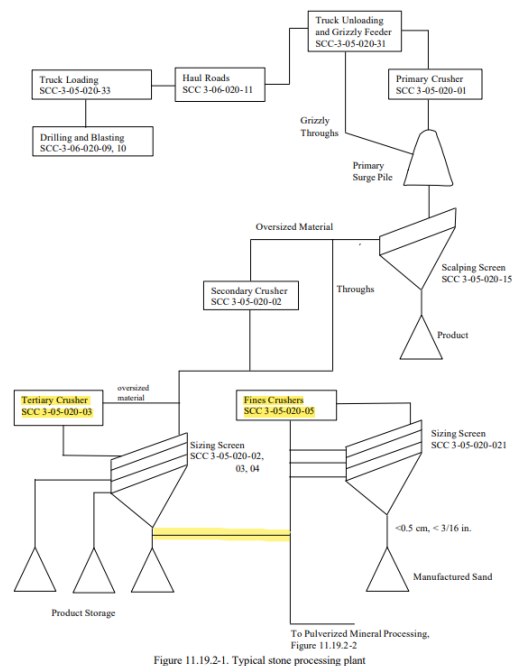


Figure 11.19.2-1. Typical stone processing plant

Factor Type	Pollutant Name	SCC Code ⬆	SCC Description	Factor Value (lb/ton)	Control Device 1	Notes (Stateline Crushing Factor used is 1.2 E-3 lb/ton)
State Specific Factors	PM10,PRIMARY	30502510	Primary Crushing	2.4 E-3		Applying the AQD default 80% control to this factor results 4.8 E -4; which is less than the factor used for the Rule 290 evaluation
State Specific Factors	PM10,PRIMARY	30502001	Primary Crushing	2.4 E-3		Applying the AQD default 80% control to this factor results 4.8 E -4; which is less than the factor used for the Rule 290 evaluation
Generic	PM10,PRIMARY	30502002	Secondary Crushing/Screening	7.4 E-4	DUST SUP	This factor is less than the factor used for the Rule 290 evaluation
Generic	PM10,PRIMARY	30502002		8.7 E-3		Uncontrolled factor
Generic	PM10,PRIMARY	30502003	Tertiary Crushing/Screening	7.4 E-4	DUST SUP	This factor is less than the factor used for the Rule 290 evaluation
Generic	PM10,PRIMARY	30502003		8.7 E-3		Uncontrolled factor
State Specific Factors	PM10,FLTRBLE	30502004	Recrushing/ Screening	8.4 E-4	SUPPRESSION,WET	This factor is less than the factor used for the Rule 290 evaluation
State Specific Factors	PM10,FLTRBLE	30502004		1.5 E-2		Uncontrolled factor
Generic	PM10,PRIMARY	30502005	Fines Mill	1.2 E-3	DUST SUP	This factor is the same as than the factor used for the Rule 290 evaluation
Generic	PM10,PRIMARY	30502005		1.5 E-2		Uncontrolled factor

We should note that AP-42 indicates “The uncontrolled PM emission factors have been calculated from the controlled PM emission factors.” For tertiary crushing the control efficiency used was 77.7%; which is reasonable, considering AQDs default emission factor of 80%.

Based on the above and the use of the tertiary factor for primary and secondary crushing in AQD emission factor sheets and as MAERS factors, AQD’s premise that the “emission factors used in the exemption demonstration do not align with the activity and are not acceptable for use” because some of the material being crushed was larger than 1 – 4 inches is not justified. AQD’s emission factors for crushing larger materials are less than or equal to the AP-42 factor for tertiary crushing.

AQD Activity Report: Furthermore, the exemption demonstration utilized the use of water as a form of particulate control, and no water was in use at the time of the inspection. ...

The specific EF Stateline is using per the Rule 290 demonstration is 0.0012 lb PM/ton processed, which per the AP-42 is a controlled EF. In the Michigan Air Emission Reporting System (MAERS) they then add 60% control factor for water (see attached MAERS supplement)- which is not appropriate as it is already a controlled EF. This is less important as the EF is invalid however it is noted that the MAERS reports are incorrect.

We do not agree that the MAERS reports are incorrect. Use of water for particulate control is only required as needed. The AP-42 emission factors used for the Rule 290 evaluation are controlled emission factors; AP-42 indicates in footnote b of Table 11.19_2-2 the following:

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. **The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent.** Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

Based on the above, a controlled source is one where the material has a moisture content of only 0.55 to 2.88 percent and one that meets the visible emission requirements. On the day of the inspection (July 6, 2022), there was a light rain that occurred between 6:00 a.m. and 11:00 a.m., with a total daily precipitation of 0.03 inches. The previous day (July 5, 2022), there were heavy rains, with precipitation totaling 0.83 inches. This rain would have saturated the materials being crushed and use of the water sprays would not be necessary. The moisture from rain would have provided the wet suppression necessary for the use of the controlled emission factor. As also indicated in AP-42, compliance with the visible emission observations also indicates compliance with the control requirements.

“The general permit for nonmetallic mineral crushing facilities requires water spray or baghouse dust collectors as control, to be operated when necessary to meet applicable emission limits.” [Page 2 of General Permit] Additionally, the general permit background document describes “an 80% control efficiency has been applied for a well maintained fugitive dust plan which is part of the general permit, emissions controlled by water sprays and/or compliance with all opacity limits” [Page 4 of General Permit] The general permit opacity limit for crushers is 15%.

The AQD staff report indicates that visible emissions were in the range of 10-20%, however the short operation did not allow AQD staff to complete a 6-minute average. There is no indication based on AQD observations that visible emissions would not have been in compliance with the general permit limit of 15% opacity. As it was not demonstrated that (1) the crusher was in noncompliance with the general permit opacity limits; (2) it had rained a significant amount in the previous two days; and (3) it was overcast on July 6; the use of the controlled emission factor continues to be warranted.

AQD is correct that the Rule 290 calculations include a second factor of 60% to reduce emissions. This additional reduction was described in the notes on the Excel worksheet provided to AQD, as well as in the Binder historically provided to AQD. The additional 60% reduction is due to processing RAP coated with asphalt cement which is inherently less dusty than crushing stone. The additional 60% reduction was not due to use of water. If AQD disagrees with the use of this 60% reduction, removing it from the calculations does not affect compliance with the Rule 290 monthly emissions limits. For informational purposes, we are providing the recalculated monthly 2021 emissions in Attachment 3.

AQD Activity Report: The accepted EF for crushing is 0.05 lb PM10/ton processed with an 80% control factor. Using the data submitted to the MAERS system for the calendar year 2021, the following corrected emission rates were calculated.

Assuming water use 100% of the time:

464,040 tons processed x 0.05 x 80%= 4,640 lbs PM10

4,640/(230 days) 7.7 months =602 lbs/month

Assuming water use 0% of the time (the condition the crusher was operating at the time of the inspection):

464,040 tons processed x 0.05= 23,202 lbs PM10

23,202/7.7 months= 3,013 lbs/month

Again, we respectfully disagree with AQDs assertion that we cannot take into account control if the water sprays are not used continuously. As described previously, the material being processed on the day of the inspection was wet; and AQD's emission calculation methodology provided in the General Permit indicates water sprays are used as needed.

We also disagree with the AQDs recalculation of emissions based on the Plant-wide Emission Factor of 0.05 lb PM10/ton. The AQD's emission factor of 0.05 lb/ton is outlined in the third paragraph of Attachment 2, which is shown to the right. The emission factor calculation fact sheet makes it clear that the AQD developed a plant-wide factor that does not have to be used by a source. AQD's plant-wide factor includes other fugitive sources, such as the Yard emissions, including roads and piles. The AQD guidance document states that specific emission factors for individual processes may be used to calculate emissions, which is how Rule 290 and annual MAERS calculations are being completed. Additionally, while we have noted the background documents for the emission calculations, we have not been provided the AQD calculation methodology for the Plant-wide Emission Factor to be able to understand how this factor was developed.

As provided in the Stateline Binder, which was submitted to AQD on July 6, and included as Attachment 4, Mr. Michael McClellan of the AQD confirmed with Mr. Jerry Avery and permit staff that a portable crushing site has two emission units, the crushing operation and the yard, and when applying the Rule 290 exemption, the Rule 290 emission limits apply separately.

In accounting for the emissions from the 2 emission units, the RAP crusher operator may apply Rule 290 to each emission unit. That is, demonstrate that the emissions associated with the yard, as described above, comply with the requirements of Rule 290 and all the emissions associated with the RAP crusher, as described above, comply with Rule 290, separately.

AQD staff's current recalculation using the plant-wide factor and comparing the plant-wide factor to the Rule 290 emission limits is inconsistent with historic AQD communication. As part of the MAERS report, and for monthly Rule 290 emission calculations, Stateline Crushing does account for both the crushing operation and Yard emissions separately (See Binder provided on July 6, and Attachment 3).

It is not required that facilities use these listed factors to quantify their emissions. If a facility disagrees with any emission factor in this document, it may use other emission factors or another method of calculating emissions providing the emission factor or method correctly characterizes the processes and the resulting emissions at the facility. A facility doing so must submit calculations and documentation showing the source of the factors or method used and justification for their use.

In addition to the specific individual component emission factors, this document also contains a combination plant-wide general emission factor for use by sand and gravel, concrete recycling, limestone, asphalt pavement recycling, gypsum, and stone quarrying operations with an annual production of 2,000,000 tons or less. The combination general factor was developed by the Air Quality Division to aid these smaller sources in making calculations. A facility is not required to use the plant-wide general emission factor – it may use the more specific emission factors for each individual process or it may calculate emissions by some other method.

AQD Activity Report: A 2015 meeting report found in the AQD database details that a conversation between the facility consultant and AQD was conducted, and it is specifically noted that the consultant was informed that “AQD does not conduct a full review and approval of exemptions. We did not conduct a detailed review and approval for this submittal.” A full review has now been conducted, and the submittal has been determined to be unacceptable, and the crushing plant is not eligible to utilize an exemption.

Additionally, it is noted that in 2018, Stateline Crushing was cited in violation of Rule 201 for operating the crushing plant without water as required by Rule 290. This current inspection and the lack of water use is further evidence that Stateline Crushing has failed to maintain an exempt status.

It has always been our intent to provide the AQD with as much information as needed to conduct a thorough review of the crushing plant operations under Rule 290. While in 2015 AQD staff may have been unable to review the emission calculation methodology, we did provide documentation that AQD staff historically reviewed and accepted a similar methodology for another crushing operation. Today’s portable crushing operations are not different than historic portable crushing operations. We have provided a letter in the binder, and included as Attachment 5, from Ms. Teresa Walker, with carbon copy to Mr. Jerry Avery and Mr. Robert Byrnes, which did indicate that the AQD reviewed very similar calculations and emission factors and agreed with the Rule 290 exemption. As shown in the below figure, the emission factors previously reviewed and found acceptable are even lower than the factor we used in the current analysis. The crusher factor that was accepted was 7.0E-4 lb/ton; while the factor we are currently using is 1.2E-3 lb/ton.

Source Description	Emission Type	Production tons/hr	Thru-put Fraction	Controlled Emission Factor	Hourly Emissions lbs/hr
Front-end Loader surface fugitives	unpaved	500	100.00%	0.000710	0.35518
Front-end Loader drop into Hopper	drop	500	100.00%	0.000236	0.11770
Crusher	crusher*	500	100.00%	0.000700	0.35000
Drop from Crusher to Conveyor	transfer	500	100.00%	0.000048	0.02400
Drop from Conveyor to Screen & Screened	screening	500	100.00%	0.000840	0.42000
Drop from Screen to Screen Cross Conveyor	drop	75	15.00%	0.000048	0.00360
Transfer from SCC to Return Conveyor	transfer	75	15.00%	0.000048	0.00360
Drop from RC to Crusher Hopper	transfer	75	15.00%	0.000048	0.00360
Drop from Screen to Screen Fines Conveyor	drop	500	85.00%	0.000048	0.02400
Transfer from SFC to Field Conveyor 1	transfer	500	85.00%	0.000048	0.02400
Transfer from FC-1 to Field Conveyor 2	transfer	500	85.00%	0.000048	0.02400
Transfer from FC-2 to Radial Stacker	transfer	500	85.00%	0.000048	0.02400
Drop from RS to Stockpile	drop	500	85.00%	0.000048	0.02400
Total Hourly Emissions					1.39768
Average Emission Factor				0.002795	

In May 2009, the above factors were revisited by AQD when determining the appropriate emission units for a portable crusher. In lieu of the above factors, the same factors which we are using for Stateline Crushing were provided to Mr. Michael McClellan of the AQD for review, to which Mr. McClellan responded with confirmation that emissions from the Yard and Crushing operations should be accounted for separately under Rule 290. Emissions from Stateline have also been provided to AQD through MAERS, which do require review by AQD staff.

The violation notice that was received in June 2018 was a result of a trash pump running out of fuel that was pumping water to the crushing facility while the operator was away from the equipment and escorting AQD personnel. As part of that VN response, the emission calculation methodology was also described to the AQD, and a calculation was provided and added to the Rule 290 records for the short period of time that the trash pump was not operating. We would have to believe that the emissions information that we provided to the AQD as part of the 2018 VN response was reviewed and found to be adequate, as the AQD did not pursue any further investigation.

Based on all the information that we have provided to AQD over the past seven years, the idea that AQD has not historically done a full review on these calculations, especially as part of the 2018 response to a violation notice, does not seem probable.

Stateline Crushing is committed to compliance with all environmental regulatory requirements. We understand that over the last ten years AQD has indicated that they do not want crushers to operate under Rule 290. Although Stateline is compliant with Rule 290 and is not in violation of Rule 201, Stateline personnel have indicated that they are willing to obtain a general permit for the crushing operation.

If you have any questions or require additional information, please contact John Thompson at 269.207.2948 or johnt@thompsonrecycle.com, or Stephanie Jarrett, of Fishbeck, at 248.324.2146 or sjarrett@fishbeck.com.

Sincerely,



Stephanie A. Jarrett, PE

Vice President/Senior Environmental Engineer

Attachments

By email and USPS

Copy: Jenine Camilleri – EGLE
Scott Miller – EGLE

Attachment 1

Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (lb/Ton)^a

Source ^b	Total Particulate Matter ^{r,s}	EMISSION FACTOR RATING	Total PM-10	EMISSION FACTOR RATING	Total PM-2.5	EMISSION FACTOR RATING
Primary Crushing (SCC 3-05-020-01)	ND		ND ⁿ		ND ⁿ	
Primary Crushing (controlled) (SCC 3-05-020-01)	ND		ND ⁿ		ND ⁿ	
Secondary Crushing (SCC 3-05-020-02)	ND		ND ⁿ		ND ⁿ	
Secondary Crushing (controlled) (SCC 3-05-020-02)	ND		ND ⁿ		ND ⁿ	
Tertiary Crushing (SCC 3-050030-03)	0.0054 ^d	E	0.0024 ^o	C	ND ⁿ	
Tertiary Crushing (controlled) (SCC 3-05-020-03)	0.0012 ^d	E	0.00054 ^p	C	0.00010 ^q	E
Fines Crushing (SCC 3-05-020-05)	0.0390 ^c	E	0.0150 ^c	E	ND	
Fines Crushing (controlled) (SCC 3-05-020-05)	0.0030 ^f	E	0.0012 ^f	E	0.000070 ^q	E
Screening (SCC 3-05-020-02, 03)	0.025 ^c	E	0.0087 ^l	C	ND	
Screening (controlled) (SCC 3-05-020-02, 03)	0.0022 ^d	E	0.00074 ^m	C	0.000050 ^q	E
Fines Screening (SCC 3-05-020-21)	0.30 ^e	E	0.072 ^g	E	ND	
Fines Screening (controlled) (SCC 3-05-020-21)	0.0036 ^e	E	0.0022 ^g	E	ND	
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030 ^h	E	0.00110 ^h	D	ND	
Conveyor Transfer Point (controlled) (SCC 3-05-020-06)	0.00014 ⁱ	E	4.6 x 10 ^{-5j}	D	1.3 x 10 ^{-5q}	E
Wet Drilling - Unfragmented Stone (SCC 3-05-020-10)	ND		8.0 x 10 ^{-5j}	E	ND	
Truck Unloading -Fragmented Stone (SCC 3-05-020-31)	ND		1.6 x 10 ^{-5j}	E	ND	
Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32)	ND		0.00010 ^k	E	ND	

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in lb/Ton of material of throughput. SCC = Source Classification Code. ND = No data.

b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed.

c. References 1, 3, 7, and 8

d. References 3, 7, and 8

- e. Reference 4
- f. References 4 and 15
- g. Reference 4
- h. References 5 and 6
- i. References 5, 6, and 15
- j. Reference 11
- k. Reference 12
- l. References 1, 3, 7, and 8
- m. References 1, 3, 7, 8, and 15
- n. No data available, but emission factors for PM-10 for tertiary crushers can be used as an upper limit for primary or secondary crushing
- o. References 2, 3, 7, 8
- p. References 2, 3, 7, 8, and 15
- q. Reference 15
- r. PM emission factors are presented based on PM-100 data in the Background Support Document for Section 11.19.2
- s. Emission factors for PM-30 and PM-50 are available in Figures 11.19.2-3 through 11.19.2-6.

Note: Truck Unloading - Conveyor, crushed stone (SCC 3-05-020-32) was corrected to Truck Loading - Conveyor, crushed stone (SCC 3-05-020-32). October 1, 2010.

.

Attachment 2



Emission Calculation Fact Sheet

Michigan Department Of Environmental Quality • Environmental Science And Services Division • (800) 662-9278

MINERAL PRODUCT PROCESSES

The purpose of this document is to provide guidance for calculating emissions from mineral product processes at lime manufacturing, limestone, gypsum, stone quarrying, concrete recycling, asphalt pavement recycling, and sand and gravel facilities. These processes include, but are not limited to, Standard Industrial Classifications (SIC) 1422, 1423, 1429, 1442, 1446, and 1499. This document lists Source Classification Codes (SCC) and emission factors for mineral product processes. The emission factors were obtained from the Factor Information Retrieval (FIRE) Data System, Versions 6.23 & 6.24 or the Environmental Protection Agency's (EPA) Compilation of Air Pollutant Emission Factors (AP-42). Both are available on the Internet at www.epa.gov/ttn/chief/index.html.

It is not required that facilities use these listed factors to quantify their emissions. If a facility disagrees with any emission factor in this document, it may use other emission factors or another method of calculating emissions providing the emission factor or method correctly characterizes the processes and the resulting emissions at the facility. A facility doing so must submit calculations and documentation showing the source of the factors or method used and justification for their use.

In addition to the specific individual component emission factors, this document also contains a combination plant-wide general emission factor for use by sand and gravel, concrete recycling, limestone, asphalt pavement recycling, gypsum, and stone quarrying operations with an annual production of 2,000,000 tons or less. The combination general factor was developed by the Air Quality Division to aid these smaller sources in making calculations. A facility is not required to use the plant-wide general emission factor – it may use the more specific emission factors for each individual process or it may calculate emissions by some other method.

Portable Sources

Portable sources must submit a Supplemental Portable Form (SP-101) when reporting their emissions. For information about the SP-101 form and other portable source requirements, refer to the MAERS General Instructions.

Control Factors

If a facility has control equipment, the emissions can be multiplied by a control factor. Calculate the control factor by subtracting the percent control efficiency from 100 and then divide that number by 100. For example, if the control efficiency is 87%, the control factor would be $(100 - 87)/100 = 0.13$. Control efficiencies may be listed on the equipment or in the equipment documentation. Alternatively, equipment suppliers can provide control efficiency values. Facilities with a DEQ, Air Quality Division approved Fugitive Dust Plan are allowed to use an 80% control efficiency for fugitive dust emissions. However, the use of this value is not mandated and derived control factors may be used if information and documentation showing the source of the control factor and justification for its use are submitted.

Scientific Notation

The emission factors are expressed in scientific notation, which means that the decimal point has been moved. If the exponent is negative, move the decimal point to the left. If the exponent is positive, move the decimal point to the right. If the exponent is zero, the decimal point does not move. For example, if a number is expressed as 2.0E-1, move the decimal point one place to the left to get 0.20. If a number is expressed as 2.0E2, move the decimal point 2 places to the right to get 200. If a number is expressed as 2.0E0, the decimal point does not move – the number is 2.0. A number expressed as E3 is 1,000.

TOTAL PLANT-WIDE emission factors are permissible, instead of reporting emissions for individual processes, provided less than 2,000,000 tons of product is produced annually at the site. Facilities may use 80% as the control efficiency for a combined wet suppression and comprehensive fugitive dust control program. Emissions from generators and compressors must also be calculated (see Fuel Combustion Sources).

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
3-05-025-01	Plant-wide particulate processes – uncontrolled	PM10,FLTRBLE PM,FLTRBLE*	5.0E-2 LB/TON SAND & GRAVL 1.0E-1 LB/TON SAND & GRAVL

*You do not have to report PM,FLTRBLE emission in MAERS. This factor is provided for other emission calculation purposes (e.g., demonstrating compliance with R 336.1290(a)(iii)).

SAND AND GRAVEL OPERATIONS include wash plants, crushers, screens, etc. Sand and gravel is defined as unconsolidated granular materials resulting from the natural disintegration of rock or stone. They are products of the weathering of rocks and unconsolidated or poorly consolidated materials. Facilities may use the uncontrolled emission factors with 80% control efficiency if using a wet suppression system and a comprehensive fugitive dust control program or an alternate control factor with justification.

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
3-05-025-02	Aggregate storage - uncontrolled	PM10,FLTRBLE	1.2E-1 LB/TON PRODUCT
3-05-025-03	Material transfer points and conveying – uncontrolled	PM10,FLTRBLE PM,FLTRBLE*	6.4E-3 LB/TON SAND & GRAVL 2.9E-2 LB/TON SAND & GRAVL
3-05-025-04	Hauling – uncontrolled	PM10,FLTRBLE	6.2E0 LB/MILE DEVICE
3-05-025-05	Pile forming – stacker – uncontrolled	PM10,FLTRBLE	6.0E-2 LB/TON SAND & GRAVL
3-05-025-06	Bulk (truck) loading – uncontrolled	PM10,FLTRBLE PM,FLTRBLE*	2.4E-3 LB/TON SAND & GRAVL 2.0E-2 LB/TON SAND & GRAVL
3-05-025-10	Primary crushing – uncontrolled	PM10,FLTRBLE	2.4E-3 LB/TON SAND & GRAVL
3-05-025-10	Secondary crushing – uncontrolled	PM10,FLTRBLE	2.4E-3 LB/TON SAND & GRAVL
3-05-025-10	Tertiary crushing – uncontrolled	PM10,FLTRBLE	2.4E-3 LB/TON SAND & GRAVL
3-05-025-11	Screening – uncontrolled	PM10,FLTRBLE	1.2E-1 LB/TON SAND & GRAVL

*You do not have to report PM,FLTRBLE emission in MAERS. This factor is provided for other emission calculation purposes (e.g., demonstrating compliance with R 336.1290(a)(iii)).

STONE QUARRYING OPERATIONS, LIME MANUFACTURING, LIMESTONE OPERATIONS, CONCRETE RECYCLING, AND ASPHALT PAVEMENT RECYCLING OPERATIONS are facilities primarily engaged in mining, quarrying, and crushing granite and associated rock (such as gneiss, gyenite and diorite). This category can also be used for limestone and lime processing because alternative emission factors are not readily available at this time. Facilities may use the uncontrolled emission factors with 80% control efficiency if using a wet suppression system and a comprehensive fugitive dust control program or other alternate control efficiency with justification.

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
3-05-020-01	Primary crushing – uncontrolled	PM10,PRIMARY	2.4E-3 LB/TON STONE
3-05-020-02	Secondary crushing – uncontrolled	PM10,PRIMARY	1.5E-2 LB/TON STONE
3-05-020-03	Tertiary crushing – uncontrolled	PM10,PRIMARY	1.5E-2 LB/TON STONE
3-05-020-04	Screening – uncontrolled	PM10,FLTRBLE	1.5E-2 LB/TON STONE
3-05-020-05	Fines crushing – uncontrolled	PM10,PRIMARY	1.5E-2 LB/TON STONE
3-05-020-06	Material transfer points and conveying – uncontrolled	PM10,PRIMARY	1.4E-3 LB/TON STONE
3-05-020-07	Open storage – uncontrolled	PM10,FLTRBLE	1.2E-1 LB/TON-YR PRODUCT

GYPSUM OPERATIONS are facilities primarily engaged in mining, quarrying, and crushing gypsum. Facilities may use the uncontrolled emission factors with 80% control efficiency if using a wet suppression system and a comprehensive fugitive dust control program or other alternate control efficiency with justification.

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
3-05-015-01	Rotary Ore Drier	PM10,FLTRBLE PM,FLTRBLE*	1.0E-2 LB/TON GYPSUM 4.0E-2 LB/TON GYPSUM
3-05-015-02	Primary Grinder/Roller Mills	PM10,FLTRBLE PM,FLTRBLE*	2.2E0 LB/TON GYPSUM 2.6E0 LB/TON GYPSUM
3-05-015-04	Conveying	PM10,FLTRBLE	1.5E-1 LB/TON GYPSUM
3-05-015-05	Primary Crushing	PM10,FLTRBLE	2.6E-1 LB/TON GYPSUM CRUDE
3-05-015-06	Secondary Crushing	PM10,FLTRBLE	1.13E0 LB/TON GYPSUM CRUDE
3-05-015-07	Screening	PM10,FLTRBLE	1.2E-1 LB/TON GYPSUM CRUDE
3-05-015-08	Open Storage – uncontrolled	PM10,FLTRBLE	1.2E-1 LB/TON GYPSUM CRUDE

*You do not have to report PM,FLTRBLE emission in MAERS. This factor is provided for other emission calculation purposes (e.g., demonstrating compliance with R 336.1290(a)(iii)).

STONE QUARRYING OPERATIONS, LIME MANUFACTURING, LIMESTONE OPERATIONS, GYPSUM OPERATIONS, CONCRETE RECYCLING, AND ASPHALT PAVEMENT RECYCLING OPERATIONS (continued)

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
3-05-020-09	Blasting – uncontrolled	PM10,FLTRBLE	7.6E-2 LB/TON STONE**
3-05-020-10	Wet drilling- uncontrolled	PM10,PRIMARY	8.0E-5 LB/TON STONE
3-05-020-11	Hauling - uncontrolled	PM10,FLTRBLE	6.2E0 LB/MILE DEVICE
3-05-020-31	Truck unloading - uncontrolled	PM10,PRIMARY	1.6E-5 LB/TON STONE
3-05-020-32	Truck loading – Conveyor - uncontrolled	PM10,PRIMARY	1.0E-4 LB/TON STONE
3-05-020-33	Truck loading – Front end loader - uncontrolled	PM10,FLTRBLE	1.0E-4 LB/TON STONE

** The following equation can be used instead of the emission factor: $PM_{10,FLTRBLE} \text{ emissions} = 1.4E-5 \times A^{1.5}$ where A is the horizontal area of the blast in square feet.

OVERBURDEN REMOVAL calculations should be performed in conjunction with the Limestone, Lime Manufacturing, Gypsum, and Stone Quarrying Operation calculations. Sand and gravel, concrete recycling, and asphalt pavement recycling operations are not required to perform the following calculations.

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
3-05-010-30	Topsoil removal - uncontrolled	PM10,FLTRBLE PM,FLTRBLE*	5.8E-2 LB/TON TOPSOIL 6.0E-2 LB/TON TOPSOIL
3-05-010-32	Topsoil unloading - uncontrolled	PM10,FLTRBLE PM,FLTRBLE*	4.0E-2 LB/TON TOPSOIL 4.0E-2 LB/TON TOPSOIL

OVERBURDEN REMOVAL (continued)

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
3-05-010-37	Truck loading overburden - uncontrolled	PM10,FLTRBLE	1.5E-2 LB/TON OVERBURDEN
3-05-010-42	Truck loading – bottom dumping, overburden - uncontrolled	PM10,FLTRBLE PM,FLTRBLE*	1.0E-3 LB/TON OVERBURDEN 2.0E-3 LB/TON OVERBURDEN

*You do not have to report PM,FLTRBLE emission in MAERS. This factor is provided for other emission calculation purposes (e.g., demonstrating compliance with R 336.1290(a)(iii)).

FUEL COMBUSTION SOURCES include emissions from generators and compressors. Emissions from front-end loaders and trucks do not have to be calculated.

SCC	DESCRIPTION	POLLUTANT	EMISSION FACTORS
2-02-001-02	Distillate oil (Diesel)	CO NOX PM10,FLTRBLE PM2.5,FLTRBL SOX TOC	1.30E2 LB/E3 GAL DIESEL FUEL 6.04E2 LB/E3 GAL DIESEL FUEL 4.25E1 LB/E3 GAL DIESEL FUEL 4.25E1 LB/E3 GAL DIESEL FUEL 3.97E1 LB/E3 GAL DIESEL FUEL 4.93E1 LB/E3 GAL DIESEL FUEL
2-02-002-02	Natural gas	CO NOX PM10,PRIMARY PM2.5,PRIMARY SOX VOC	3.99E2 LB/MMCF NATURAL GAS 2.84E3 LB/MMCF NATURAL GAS 2.01E1 LB/MMCF NATURAL GAS 2.01E1 LB/MMCF NATURAL GAS 6.0E-1 LB/MMCF NATURAL GAS 1.16E2 LB/MMCF NATURAL GAS
2-02-005-01	Residual/Crude oil	CO NOX PM10,FLTRBLE SOX TOC	1.3E2 LB/E3 GAL RESIDUAL OIL 6.04E2 LB/E3 GAL RESIDUAL OIL 4.25E1 LB/E3 GAL RESIDUAL OIL 1.55E2 LB/ KGAL-S% RESIDUAL OIL* 4.93E1 LB/E3 GAL RESIDUAL OIL
2-02-010-01	Liquefied petroleum gas (LPG) – Butane	CO NOX PM10 VOC	3.57E1 LB/E3 GAL LPG 2.54E2 LB/E3 GAL LPG 8.95E-1 LB/E3 GAL LPG 1.04E1 LB/E3 GAL LPG
2-02-010-02	Liquefied petroleum gas (LPG) – Propane	CO NOX PM10 VOC	3.57E1 LB/E3 GAL LPG 2.54E2 LB/E3 GAL LPG 8.95E-1 LB/E3 GAL LPG 1.04E1 LB/E3 GAL LPG

* KGAL-S% = (E3 GAL) X (S%) S% = WT% SULFUR IN OIL

SAMPLE CALCULATIONS

- For a facility using the plant-wide emission factor that processes 600,000 tons of product per year, the emissions would be as follow (the facility is not controlled):

PM10: 600,000 ton product x 0.05 lb PM10/ton product x 0.0005 ton PM10/lb PM10 = 15 tons of PM10

- If the facility was controlled by a wet suppression system and a comprehensive fugitive dust control program, the controlled emissions (using 80% control) would be the following:

PM10: 15 tons PM10 x (100 - 80) / 100 = 3 tons of PM10

The Michigan Department of Environmental Quality (MDEQ) will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. Questions or concerns should be directed to the MDEQ Office of Personnel Services, PO Box 30473, Lansing, MI 48909.

Attachment 3

Tons of Material Processed - Monthly
Stateline Crushing

2021

YEAR 2021

EUCRUSHER

Month/Year	Tons of RAP Processed	Tons of Concrete Processed	Emissions (lb/mo)	In compliance (<500 lb/mo)	RAP emission Factor w/o additional inherent reduction from RAP binder (lb/ton) ¹	Concrete emission Factor (lb/ton)
Jan-21	-	-	-	YES	0.00501	0.00635
Feb-21	-	-	-	YES	0.00501	0.00635
Mar-21	-	-	-	YES	0.00501	0.00635
Apr-21	36,127.00	-	181.03	YES	0.00501	0.00635
May-21	83,528.00	-	418.56	YES	0.00501	0.00635
Jun-21	61,605.00	-	308.70	YES	0.00501	0.00635
Jul-21	46,940.00	-	235.22	YES	0.00501	0.00635
Aug-21	84,910.00	-	425.48	YES	0.00501	0.00635
Sep-21	79,195.00	-	396.85	YES	0.00501	0.00635
Oct-21	71,735.00	-	359.46	YES	0.00501	0.00635
Nov-21	-	-	-	YES	0.00501	0.00635
Dec-21	-	-	-	YES	0.00501	0.00635

¹Emission factor is combined emission factor for all activities associated with EUCRUSHER (see emissions for crusher).

EUYARD

Month/Year	Tons of RAP Processed	Tons of Concrete Processed	Emissions (lb/mo)	In compliance (<500 lb/mo)	EUYARD RAP Processing Emission Factor (lb/ton)	EUYARD Concrete Processing Emission Factor (lb/ton)
Jan-21	-	-	-	YES	0.00137	0.00410
Feb-21	-	-	-	YES	0.00137	0.00410
Mar-21	-	-	-	YES	0.00137	0.00410
Apr-21	36,127.00	-	49.36	YES	0.00137	0.00410
May-21	83,528.00	-	114.12	YES	0.00137	0.00410
Jun-21	61,605.00	-	84.16	YES	0.00137	0.00410
Jul-21	46,940.00	-	64.13	YES	0.00137	0.00410
Aug-21	84,910.00	-	116.00	YES	0.00137	0.00410
Sep-21	79,195.00	-	108.20	YES	0.00137	0.00410
Oct-21	71,735.00	-	98.00	YES	0.00137	0.00410
Nov-21	-	-	-	YES	0.00137	0.00410
Dec-21	-	-	-	YES	0.00137	0.00410



EMISSIONS FOR EUCrusher Stateline Crushing

MDEQ Emission Unit Number: **EUCrusher** SCC Code: **3-05-020-01**
 Emission Unit Description: **RAP Crushing, Screening and Conveying Operations**
 Emission Unit Stack ID Number(s): **NA**

TYPE OF EMISSION
Fugitive Particulate Emissions

Emission Calculations

Total Throughput (tons/mo)	Activity	Control	PM Emission Factor (lb/ton)	Throughput Fraction	Activity Throughput (tons/mo)	Control Efficiency	Activity PM Emission Rates (lb/mo)
84,910	Front end loader to weigh hopper (material loading)	None	1.60E-05	100%	84,910		1.4
	Crusher	Water Spray	0.0012	115%	97,647		117.2
	Drop from Crusher to Conveyor	Water Spray	1.40E-04	115%	97,647		13.7
	Drop from Conveyor to Screen	Water Spray	1.40E-04	115%	97,647		13.7
	Screen	Water Spray	0.0022	115%	97,647		214.8
	Drop from Screen to Screen Cross Conveyor (SCC)	Wet Material	1.40E-04	15%	12,737		1.8
	Transfer from SCC to Return Conveyor (RC)	Wet Material	1.40E-04	15%	12,737		1.8
	Drop from RC to Crusher Hopper	Wet Material	1.40E-04	15%	12,737		1.8
	Drop from Screen to Screen Fines Conveyor (SFC)	Wet Material	1.40E-04	100%	84,910		11.9
	Transfer from SFC to Field Conveyor 1 (FC1)	Wet Material	1.40E-04	100%	84,910		11.9
	Transfer from FC1 to Field Conveyor 2 (FC2)	Wet Material	1.40E-04	100%	84,910		11.9
	Transfer from FC2 to Radial Stacker	Wet Material	1.40E-04	100%	84,910		11.9
	Stacker to RAP Storage Pile	Wet Material	1.40E-04	100%	84,910		11.9

Note - Monthly throughput is the maximum from 2021.

Crusher and Screen PM Emissions **425.5 lb/mo**
 Combined Operations Emission Factor **0.0050 lb/ton**

EMISSION ESTIMATION FACTORS & EQUATIONS

Emission Factors for crushing, screening and conveying obtained from AP-42 Section 11.19 Table 11.19.2.2 (08/04)
 Emission Factor for front end loader drops is for PM10. No total PM Factor available for this activity.

DATA SOURCES

NOTES

Crusher and screen control efficiency based on processing RAP coated with asphalt cement and inherently less dusty than virgin stone upon which the AP-42 factor is based.

APPLICABLE RULES



Attachment 4

Jarrett, Stephanie A.

From: Yanochko, David M.
Sent: Friday, June 12, 2009 4:39 PM
To: Bohn, Dorothy (DEQ)
Cc: Davis, Mike; Jarrett, Stephanie A.
Subject: FW: Thompson Recycle Permit No. 615-94A vs Rule 290 Exemption

Dorothy – I thought that you should see this email that I received from Michael McClellan in the Lansing District. It relates to the Recycling & Processing Equipment NOV in a couple of ways.

1. It confirms that portable crushing/grinding equipment can indeed operate under the Rule 290 exemption without having to worry about the notification requirement in Section 5505 of the Act.
2. It realigns the calculations that I submitted to you for R&PE from one emission unit into 2 emission units. In the determination, the process equipment is one emission unit and the plant yard including the loader and storage pile is a second emission unit. Each emission unit is subject to the 500 lb/month exemption threshold in Rule 290.

We are in the process of preparing revised emission calculations for Recycling & Process Equipment based on the Lansing District's determination. I will get those calculations to you ASAP, but I do not expect that it will change the bottom line regarding my original email of May 20, 2009.

Please let me know if you have any questions.

Dave Yanochko
FTC&H

From: McClellan, Michael (DEQ) [mailto:MCCELLANM1@michigan.gov]
Sent: Monday, June 08, 2009 1:31 PM
To: Yanochko, David M.
Cc: McGeen, Dan (DEQ); Hall, Matthew (DEQ); John Thompson; Avery, Gerald (DEQ)
Subject: RE: Thompson Recycle Permit No. 615-94A vs Rule 290 Exemption

Dave,

In discussions with permit staff and Jerry Avery we concluded the following about Recycled Asphalt Pavement (RAP) portable crushing operations.

There are 2 emission units at the portable crushing site: one emission unit for the yard and one for the crusher itself. The yard emission unit consists of fugitive dust sources including roadways, yard, storage piles and material handling associated with the front end loader. The crusher emission unit consists of all activities associated with the crusher, including the crusher, screen, hopper, conveyors and material handling associated with the RAP crusher.

If the RAP crusher is located at an asphalt plant, the asphalt plant's permit accounts for the emissions from the yard emission unit. Therefore, the RAP crusher operator only has to account for the emissions associated with the RAP crusher emission unit, as described above.

If the RAP crusher is located at any other location where the yard emissions are not already accounted for through a permit or exemption, the RAP crusher operator must account for emissions from both the yard and RAP crusher.

In accounting for the emissions from the 2 emission units, the RAP crusher operator may apply Rule 290 to each emission unit. That is, demonstrate that the emissions associated with the yard, as described above, comply with the requirements of Rule 290 and all the emissions associated with the RAP crusher, as described above, comply with Rule 290, separately.

Furthermore, we agree that exempt, portable sources do not need to provide the 10 day relocation notice.

Please contact me if you have any questions.

Michael F. McClellan
DEQ, Air Quality Division
Lansing District Office
P.O. Box 30242
Lansing, MI 48909
(517) 335-6346
mcclellanm1@michigan.gov

From: Yanochko, David M. [mailto:dmyanochko@ftch.com]
Sent: Friday, May 15, 2009 10:38 AM
To: McClellan, Michael (DEQ)
Cc: McGeen, Dan (DEQ); Hall, Matthew (DEQ); John Thompson
Subject: Thompson Recycle Permit No. 615-94A vs Rule 290 Exemption

Michael – When we met regarding Thompson Recycle on March 27, we discussed a number of issues related to the need to notify the MDEQ prior to relocation of a portable or temporary source. At the time we met, it was the AQD’s position that since the requirement was written in Section 5505(5) of Act 451 of 1994, the requirement was applicable regardless whether the portable source was operating under a permit or an exemption. I have reviewed Section 5505(5) of the Act. It specifically refers to requirements that the Department must include in permits that are issued for a source process or process equipment to locate in “numerous temporary locations”. Specifically Section 5505(5) states:

“The department may issue a permit to install, a general permit, or a permit to operate authorized under rules promulgated under subsection (6) if applicable, that authorizes installation, operation, or trial operation, as applicable, of a source, process, or process equipment at numerous temporary locations. Such a permit shall include terms and conditions necessary to assure compliance with all applicable requirements of this part, the rules promulgated under this part, and the clean air act, including those necessary to assure compliance with all applicable ambient air standards, emission limits, and increment and visibility requirements pursuant to part C of title I of the clean air act, 42 USC 7470 to 7492, at each location, and shall require the owner or operator of the process, source, or process equipment to notify the department at least 10 days in advance of each change in location.” (Emphasis Added)

It appears clear from the language of the Act that sources holding a permit for a portable source must provide 10 days notice in advance of a change in location. There does not appear to be any leeway within the language of the Act to vary that prior notice based on whether the location is new or the process is re-locating to a site where the source has previously been located. More importantly, there does not appear to be any basis that the language of the Act extends the requirement for notification to sources that are exempt from the permit requirement.

As you know Thompson Recycle has a number of legitimate business reasons that make an accurate 10 day notification difficult to impossible. These include, short duration stays at each operating site and frequent schedule changes due to weather conditions and customer demands. In addition, Thompson Recycle’s business of crushing recycled asphalt products (RAP) routinely takes place on established industrial sites with existing air permits as opposed to the new “greenfield” gravel pits or new portable asphalt/concrete plant sites that were contemplated when the issue of “temporary” locations was addressed in the Act. In September 1998 the AQD made a determination that the RAP crusher, then operated by Thompson McCully, was exempt from the air permit requirements

pursuant to Rule 290. We continue to believe that determination was correct and that based on the language in Section 5505(5) Thompson Recycle no longer had an obligation to notify the AQD prior to relocating the RAP crushing process under the exemption.

Since 1998 Thompson Recycle's business has grown. In order to maintain total controlled PM emissions below the 500 pound per month level allowed by Rule 290 it is necessary to re-visit the emission calculations provided in 1998. Specifically, Rule 290 applies to "emission units" with limited emissions. An "emission unit" is defined in Rule 105(b) as:

"Emission unit" means any **part of a stationary source** that emits or has the potential to emit an air contaminant. Examples of emission units include the following:

- (i) A fossil fuel-fired, steam-generating unit.
- (ii) A topcoat painting line.
- (iii) A solid waste incinerator.
- (iv) A clinker cooler at a Portland cement plant.
- (v) A process unit at a chemical plant.

Since the definition of "emission unit" is dependent upon the definition of "stationary source" it is import to also look at that definition. A "stationary source" is defined in Rule 119(r) as:

"Stationary source" means **all buildings, structures, facilities, or installations which emit or have the potential to emit 1 or more air contaminants**, which are located at 1 or more contiguous or adjacent properties, which are under the control of the same person, and which have the same 2-digit major group code associated with their primary activity. In addition, a stationary source includes any other buildings, structures, facilities, or installations which emit or have the potential to emit 1 or more air contaminants, which are located at 1 or more contiguous or adjacent properties, which are under the control of the same person, and which have a different 2-digit major group code, but which support the primary activity. Buildings, structures, facilities, or installations, are considered to support the primary activity if 50% or more of their output is dedicated to the primary activity. Major group codes and primary activities are described in the standard industrial classification manual, 1987. Notwithstanding the provisions of this subdivision, research and development activities, as described in R 336.1118, may be treated as a separate stationary source, unless the research and development activities support the primary activity of the stationary source. (Emphasis Added)

In the past, Thompson Recycle has included the fugitive PM emissions caused by the wheels of the front end loader moving raw material from the storage pile to the feed hopper in the Rule 290 calculations. The front end loader is a mobile source. However, because the front end loader is not a "building, structure, facility, or installation it by definition should not be considered as "part" of the stationary source. Because it is not part of the stationary source, it can not be an emission unit and its emissions should not be considered when determining the Rule 290 exemption. Literally every source that qualifies for a Rule 290 exemption has its raw material delivered to and/or its products shipped from the stationary source by a mobile source. However, I am not aware of any other source category where these mobile source emissions have been included in the Rule 290 exemption calculations. Thompson Recycle should not be penalized in its calculations because its mobile raw material delivery happens to be relatively close to the stationary emission unit.

Attached are revised calculations showing that Thompson Recycle's monthly throughput can grow to 249,000 tons per month without exceeding 500 lbs/month of total PM emissions. We have previously provided the AQD with monthly operating records for Thompson Recycle's operations showing they have never exceeded 200,000 tons in any single month. With this email Thompson Recycle is requesting a concurrence with the determination that it is appropriate to exclude the mobile source from the Rule 290 exemption calculations and agreement with the attached exemption calculations. Based on this assessment, Thompson Recycle renews its request that Permit to Install No. 615-94A be voided and the operations continue to be allowed to operate under the Rule 290 exemption.

Thank you for your patience and for your attention to this matter.

David M. Yanochko ♦ Senior Environmental Engineer ♦ 248.324.2121 ♦ www.ftch.com
Fishbeck, Thompson, Carr & Huber, Inc. ♦ Engineers, Scientists, Architects, Constructors

Attachment 5

10/14/98

STATE OF MICHIGAN



JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

"Better Service for a Better Environment"

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48200-7973

INTERNET: www.deq.state.mi.us

RUSSELL J. HARDING, Director

REPLY TO:

GRAND RAPIDS DISTRICT OFFICE
STATE OFFICE BLDG 6TH FLOOR
350 OTTAWA HWY
GRAND RAPIDS MI 49503-2341

September 29, 1998

Mr. Byron Thomas
Thompson Recycle Company
PO Box 787
Belleville, MI 48111

Dear Mr. Thomas:

SUBJECT: Permit to Install Exemption Request for the Recycled Asphalt Pavement (RAP) Crusher's Particulate Emissions pursuant to Rule 290.

After reviewing the information provided in a letter from Kathryn Gunkel dated June 19, 1998 and numerous telephone conversations, I agree that the installation and operation of the RAP Crusher and the resultant particulate emissions are exempt from the permitting requirements under Rule 201 (pursuant to Rule 290), providing the company meets the following conditions:

- the equipment will only process RAP,
- does not exceed 165,000 tons of material processed per month,
- the owner/operator shall implement measures to reduce fugitive dust emissions, and
- maintain the records as required under Rule 290 (b, c and d).

Rule 290-states (in part): The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the emission units listed in (a) if the conditions listed in (b), (c), and (d) are met. Notwithstanding the definition in R 336.1121(a), for the purpose of this rule, uncontrolled emissions are the emissions from an emission unit based on actual operation, not taking into account any emission control equipment. Controlled emissions are the emissions from an emission unit based on actual operation, taking into account the control equipment.

- (a) An emission unit which meets any of the following criteria:
- (ii) Any emission unit that the total uncontrolled or controlled emissions of air contaminants are not more than 1,000 or 500 pounds per month, respectively, and all of the following criteria are met:
 - (iii) Any emission unit that emits only noncarcinogenic particulate air contaminants and other air contaminants that are exempted under paragraphs (i) or (ii) of this subdivision if all of the following provisions are met:
 - (A) The particulate emissions are controlled by an appropriately designed and operated fabric filter collector or an equivalent control system which is designed to control particulate matter to a concentration of less than or equal to 0.01 pounds of particulate per 1,000 pounds of exhaust gases and which do not have an exhaust gas flow rate more than 30,000 actual cubic feet per minute.

Mr. Byron Thomas
Thompson Recycle Company
September 29, 1998
Page 2

- (B) The visible emissions from the emission unit are not more than 5% opacity in accordance with the methods contained in R 336.1303.
- (C) The initial threshold screening level for each particulate air contaminant, excluding nuisance particulate, is more than 2.0 micrograms per cubic meter.
- (b) A description of the emission unit is maintained throughout the life of the unit.
- (c) Records of material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions are maintained in sufficient detail to demonstrate that the emissions meet the emission limits outlined in this rule.
- (d) The records are maintained on file for the most recent 2-year period and are made available to the Air Quality Division upon request.

If you have any further questions regarding this matter, please call me at 616-356-0240.

Sincerely,



Teresa R. Walker
Environmental Quality Analyst
Air Quality Division

TRW:sjm

cc: Kathym Gunkel P.E., Wildwood Environmental Engineering Consultants, Inc.
Gerald Avery, Field Operations Supervisor, AQD
Robert Byrnes, Permits Division, AQD

WILDWOOD
ENVIRONMENTAL
ENGINEERING
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Fax Transmittal

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DATE: 19 JUN 98	Code: TMC/TRC/015
	PAGES: 5

Fax Transmittal

VOICE PHONE: 616-356-0240	FAX PHONE: 616-456-1283
DATE: 19 JUN 98	Code: TMC/TRC/015
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June 19, 1998

Robert Burns

and

Teresa Walker

Michigan Dept. of Environmental Quality
Air Quality Division

Hollister Building
Post Office Box 30260
Lansing, MI 48909

Grand Rapids District Office
350 Ottawa, NW
Grand Rapids, MI 49503

**RE: THOMPSON RECYCLE CO. RAP CRUSHER EMISSION
CALCULATIONS.**

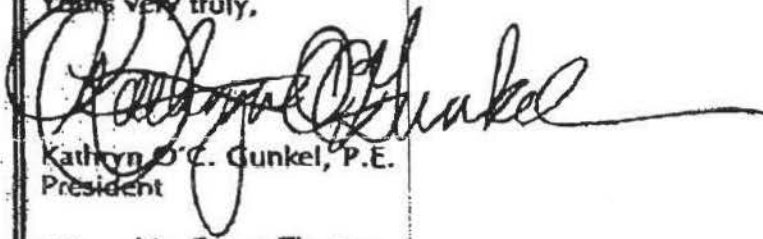
Dear Mr. Burns and Ms. Walker:

Please find attached calculations for the above referenced process equipment, in response to the conversation I had with you two by telephone on June 17, 1998.

Mr. Byron Thomas with Thompson Recycle Co. would appreciate it if you would provide him written notification that the attached revised calculations have met with your approval so that he may proceed with his discussions with Mr. Avery. Mr. Thomas's mailing address is P. O. Box 787, Belleville, MI, 48111. His facsimile telephone number is 734-397-1290.

If you have any questions about the attached calculations, please do not hesitate to telephone me.

Yours very truly,



Kathryn O.C. Gunkel, P.E.
President

cc: Mr. Byron Thomas
Mr. Charles H. VanDeusen, P.E.

Source Description	Emission Type	Production tons/hr	Thru-put Fraction	Controlled Emission Factor	Hourly Emissions lbs/hr
Front-end Loader surface fugitives	unpaved	500	100.00%	0.000710	0.35518
Front-end Loader drop into Hopper	drop	500	100.00%	0.000236	0.11770
Crusher	crusher ^a	500	100.00%	0.000700	0.35000
Drop from Crusher to Conveyor	transfer	500	100.00%	0.000048	0.02400
Drop from Conveyor to Screen & Screened	screening	500	100.00%	0.000840	0.42000
Drop from Screen to Screen Cross Conveyor	drop	75	15.00%	0.000048	0.00360
Transfer from SCC to Return Conveyor	transfer	75	15.00%	0.000048	0.00360
Drop from RC to Crusher Hopper	transfer	75	15.00%	0.000048	0.00360
Drop from Screen to Screen Fines Conveyor	drop	500	85.00%	0.000048	0.02400
Transfer from SFC to Field Conveyor 1	transfer	500	85.00%	0.000048	0.02400
Transfer from FC-1 to Field Conveyor 2	transfer	500	85.00%	0.000048	0.02400
Transfer from FC-2 to Radial Stack	transfer	500	85.00%	0.000048	0.02400
Drop from RS to Stockpile	drop	500	85.00%	0.000048	0.02400
Total Hourly Emissions					1.39768
Average Emission Factor				0.002795	

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Max.	units
Crusher Thru-put	19,900	67,500	87,100	118,800	159,300	149,700	133,200	164,900	132,300	11,700	164,900	tons/month
Emissions	55.62	188.68	243.44	332.05	445.24	418.41	372.29	460.90	369.78	32.70	460.90	lb/month

178,900 tons of throughput is the maximum that could be processed and still be below the threshold of 500 lb/month.



STEP 1.

FELD 0.0379 Front-end loader travel distance

STEP 2.

NOD 185 Number of days plant IS NOT operated
 WD 150 Number of operating days that water is sprayed over travel surfaces
 This number represents watering on 75% of operating days.

STEP 3.

TP 1 Front End Loader drop into Feed hopper

STEP 4.

FEIEF 0.1369 Initial emission factor for Front-end Loader (obtained from chart)
 TEF 0.09886 Initial emission factor for Tandem haul vehicles (calculated)
 FBIEF 0.13336 Initial emission factor for Flow-Boy haul vehicles (calculated)

STEP 5.

FRONT-END LOADER PM-10 EMISSION FACTOR

$$\frac{0.1369}{FEIEF} \times \frac{0.0379}{FELD} = \frac{\text{[Redacted]}}{FEIEF}$$

STEP 6.

MISCELLANEOUS ADJUSTMENT FRACTIONS

FRACTION OF DAYS PER YEAR ON WHICH EMISSIONS OCCURRED

$$\frac{185}{NOD} + \frac{150}{WD} = \frac{315}{NED}$$

$$\frac{365}{\text{[Redacted]}} - \frac{315}{NED} = \frac{50}{\text{[Redacted]}} + \frac{365}{EDF}$$

STEP 7.

FRONT-END LOADER DROPS INTO FEED HOPPER

MATERIAL DROPS EMISSION FACTOR

$$\frac{\text{[Redacted]}}{ADEF}$$

UNPAVED SURFACE EMISSIONS

FRONT-END LOADER	FELEF	
Adjustment for days during year on which emissions occurred	EDF	
TOTAL UNPAVED SURFACE EMISSIONS (lb/ton HMA)		0.0002

SUMMARY OF FUGITIVE PM-10 EMISSIONS

Unpaved Surface Emissions		0.0002
Aggregate Drops		0.0002

FUGITIVE EMISSIONS FROM ROAD SURFACES

The formula for calculating an emission factor for a vehicle traveling on UNPAVED roads is:

$$EF = k \cdot 5.9^s \cdot (S/12)^2 \cdot (S/30)^2 \cdot (W/3)^{0.7} \cdot (w/4)^{0.5} \cdot ((365-p1-p2)/365)$$

FRONT-END LOADER FUGITIVE EMISSIONS

Where:	EF =	lb/VMT
	k-PM10 =	0.36 particle size multiplier
	s =	4.8 silt content of road surface material (%), used sand and gravel processing value
	S =	10 mean vehicle speed, (mph)
	W =	23.5 mean vehicle weight, (ton), 21 wt. of loader unloaded 26 wt. of loader with load
	w =	4 mean number of wheels
	p1 =	165 no production days, therefore no vehicular traffic
		75% fraction of operating days on which watering will occur
	p2 =	150 number of days of watering on production days, where a minimum of 0.01 inch of water will be applied to the travel surface

Note: there appears to be a typo in AP-42's section on Fugitive Dust Sources, Eqn 1 on page 13.2.1-1. The two S's and W's are both typed as lower case in the formula, but the explanation of the variables has one of each typed as upper case and lower case. It is assumed here that the first time the letter appears in the formula corresponds with its order in the explanation list.

EF-PM10 =	0.1639 lb/VMT, unpaved surface
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