



**AIR EMISSION TEST REPORT**

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Title                   RESULTS OF VISIBLE EMISSION COMPLIANCE  
TESTING FOR A NON-METALLIC MINERAL  
PROCESSING FACILITY

Report Date   July 14, 2017

Test Date       June 29, 2017

<b>Facility Information</b>	
Name	Great Lakes Mineral Works, LLC
Location	2636 US-41 North
City, County	Houghton, Houghton County

<b>Facility Permit Information</b>	
State Registration No.:	N7801
PTI No.	160-07

<b>Testing Contractor</b>	
Company	Derenzo Environmental Services
Mailing Address	39395 Schoolcraft Road Livonia, MI 48150
Phone	(734) 464-3880
Project No.	1706008

RESULTS OF  
VISIBLE EMISSION COMPLIANCE TESTING  
FOR  
NON-METALLIC MINERAL PROCESSING FACILITY

AWH GRADING, LLC  
MILFORD, MI

**1.0 INTRODUCTION**

GREAT LAKES MINERAL WORKS, LLC (GLMW) operates a portable non-metallic mineral crushing operation located at 2636 US-41 North in Mohawk, Keweenaw County. The crushing operation is within the Mohawk Sand & Gravel Quarry (Mohawk Quarry), which is a producer of aggregate. A General Permit to Install (PTI) No. 160-07 has been issued to GLMW for operation of the processes and equipment that consist of a feeder, crushers, and conveyers (FGCRUSHING).

GLMW contracted Derenzo Environmental Services to perform the visible emission compliance testing for FGCRUSHING as specified in the general permit for the equipment and any associated transfer points. The new and modified non-metallic mineral processing equipment was incorporated with existing processing equipment. The transfer points of all equipment were tested for opacity.

The visible emissions (VE) testing was performed in accordance with federal reference test methods as required by New Source Performance Standards (NSPS), 40 CFR, Part 60, Subparts A and OOO (visible emissions standards)..

Tom Andrews and Blake Beddow performed the VE testing for the processing equipment at operated by GLMW on June 29, 2017. Mrs. Amy Moyle of GLMW coordinated the project.

A protocol for the VE testing was submitted to the MDEQ-AQD on June 16, 2017 prior to the performance test.

Questions regarding this emission test report should be directed to:

Blake Beddow  
Environmental Consultant  
Derenzo Environmental Services  
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Livonia, MI 48150  
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Houghton, Michigan 49931-0393  
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**Report Certification**

This test report was prepared by Derenzo Environmental Services based on field observations collected by Derenzo Environmental Services. This test report has been reviewed by GLMW representatives and approved for submittal to the MDEQ.

I certify that the testing was conducted in accordance with the specified test methods and submitted test plan unless otherwise specified in this report. I believe the information provided in this report and its attachments are true, accurate, and complete.

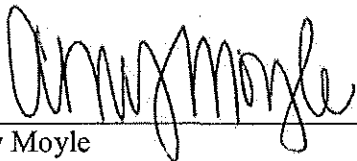
Report Prepared By:



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Blake Beddow  
Environmental Consultant  
Derenzo Environmental Services

I certify that the facility and emission units were operated at maximum routine operating conditions for the test event. Based on information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate and complete.



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Amy Moyle  
Great Lakes Mineral Works, LLC

## **2.0 SOURCE AND SAMPLING LOCATION DESCRIPTION**

### **2.1 General Process Description**

GLMW operates non-metallic mineral processing facilities that are used to crush and process the extracted material produced from the Mohawk Quarry. The GLMW processing plant uses crushers, screens, and conveyors to crush and segregate the material. The compliance testing will be performed on equipment used to process the quarried material (FGCRUSHING).

Appendix 1 identifies the visible emissions observation points (equipment and associated transfer points) that will be included in the compliance testing. The processing equipment that is highlighted in red is the newly installed equipment that had not been tested prior to this test event.

### **2.2 Rated Capacities and Air Emission Controls**

General PTI No. 160-07 issued to GLMW facility specifies a maximum annual natural stone throughput rate of 2,000,000 tons.

The equipment is equipped with water sprays that are used to control potential fugitive dust (particulate matter) when needed. Residual moisture is adequate to control fugitive emissions on the conveyors and downstream transfer points.

### **2.3 Sampling Locations**

All VE observations were conducted at points in accordance with USEPA Method 9 requirements.

Appendix 3 provides field data sheets with appropriate VE observation point diagrams.

**3.0 SUMMARY OF TEST RESULTS AND OPERATING CONDITIONS**

**3.1 Purpose and Objective of the Tests**

MDEQ-AQD PTI No. 160-07 and NSPS 40CFR Part 60 Subpart OOO require GLMW to perform initial testing of new nonmetallic processing equipment. In this case, GLMW incorporated new equipment with pre-existing equipment.

**3.2 Operating Conditions During the Compliance Tests**

The facility operated normally during the test event. Water suppression was applied to the material after the secondary crusher.

**3.3 Summary of Air Pollutant Sampling Results**

VE observations were performed on June 29, 2017. A total of ten (10) transfer points were observed for visible emissions by a certified observer of visible emissions. All visible emission observations were zero percent opacity. The 15-second observation data were reduced to six-minute averages.

A summary of the maximum observed opacities is presented in Table 3.1. Visible emission data for each process are presented in Section 6.0 of this report.

Table 3.1 Average opacity conditions during the observation periods

Parameter	FGCRUSHING
Highest individual opacity reading (%)	0
Highest 6 minute average (%)	0

**4.0 SAMPLING AND ANALYTICAL PROCEDURES**

This section provides a summary of the procedures that were used during the GLMW facility observation periods.

Opacity observations were conducted by a certified observer of visible emissions in accordance with USEPA Method 9 criteria.

40 CFR Part 60, Subpart OOO, Section 60.675(c)(3) specifies that Method 9 observations for fugitive emissions from affected sources under Section 60.672(b) must be 30 minutes (five 6-minute averages) and compliance with the applicable fugitive emission limits must be based on the average of the five 6-minute averages.

40 CFR Part 60, Subpart OOO, Section 60.675(c)(3) specifies that three sources may be read concurrently if all three emission points are within a 70° viewing sector or angle in front of the observer, such that proper sun position can be maintained for all three points, and if an opacity reading for any one of the three emission points is within 5 percent opacity of the applicable standard, then the observer must stop taking readings for the other two points and continue reading just the single point. Three emission points were observed concurrently and, at no time, was the observed opacity within 5% of the applicable limit.

## **5.0 RESULTS**

### **5.1 Test Results and Allowable Emission Limits**

Fugitive visible emission data for each process are presented in Table 6.1 along with the applicable opacity limit. The average of the six-minute averages for each process is well below the applicable opacity standard. Therefore, the facility is operating in compliance with the PTI and NSPS emission standards.

All observation periods were conducted at points which meet USEPA Method 9 and Subpart OOO criteria.

Appendix 2 provides the qualified observer's certificates.

Appendix 3 provides field data sheets and individual observation point diagrams.

### **5.2 Variations From Normal Sampling Procedures or Operating Conditions**

The testing for all pollutants was performed in accordance with USEPA Method 9, Subpart OOO and the test protocol dated June 14, 2017. The facility was operated under normal process conditions.

Table 5.1 Average opacity at each transfer point

<b>Visible Emission Observation Point</b>	<b>Observed Opacity (%) (6 min. avg.)</b>	<b>Permit Limit (%) (6 min. avg.)</b>
Chute to Primary Crusher (#606)	0	15
(#606) to Screen Deck (#583)	0	10
(#583) to Conveyor (#602)	0	10
(#602) to Secondary Crusher (#600)	0	15
(#600) to Conveyor (#603)	0	10
(#603) to (#583)	0	10
(#583) to Conveyor (#604)	0	10
(#604) to Conveyor (#607)	0	10
(#607) to Conveyor (#608)	0	10
(#608) to Stockpile/Loading	0	5