

## **Brittney Rourke**

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**From:** Camie Anderson  
**Sent:** Monday, August 15, 2011 11:07 AM  
**To:** Reid Shockey  
**Cc:** Brittney Rourke  
**Subject:** Iron Mountain - Noise and Air Quality Peer Review  
**Attachments:** Air Analysis Review.pdf; Noise Analysis Review.pdf \*See Air Tab

Reid,

Attached are two memorandums from Michael Minor & Associates, Inc. They reviewed the studies associated with noise and air quality and have some comments that need to be addressed prior to the issuance of SEPA.

*Camie Anderson*  
*Senior Associate*  
*Shockey Planning Group*  
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Prepared for:       Brittney Rourke  
Prepared by:       Michael A. Minor  
Date:                Thursday, August 12, 2011  
Subject:             Review of Iron Mountain Quarry Noise Study  
Project:             Iron Mountain Quarry

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## Introduction

At the request of the Shockey Planning Group, we have performed a review of the Technical Noise Study of the proposed Iron Mountain Quarry. Two separate noise studies were provided, one dated December, 2009 and a second study dated March 2011. Both studies were performed by AMEC Geomatrix, Inc. of Seattle Washington. Because the March 2011 report is the most current and is an update to the December report, the review only covers the March 2011 report. For the purpose of performing the review, we have divided the analysis into four distinct sections, including Regulatory Information, Analysis Approach, Results, and Final Conclusions. We also provide a summary of our review at the end of this report.

## Regulatory Information

The criteria selected for the noise analysis is correct, however the interpretation of the criteria and compliance methods are incorrect. The report claims that the “WAC defines allowable continuous equivalent noise level ( $L_{eq}$ ) for any one hour, and the  $L_{25}$ ,  $L_{8.3}$ , and  $L_{1.7}$  values, which are the level that cannot be exceeded for a total of 25%, 8.3% and 1.7% of any hour, Respectively.”

We disagree with this description for the following reasons:

1. The WAC does not use, or even reference, the  $L_{eq}$ , the criteria calls for the maximum sound pressure level in dBA. This is the instantaneous 1-second sound pressure level in dBA. The  $L_{eq}$  is an energy average sound level, and an  $L_{eq}$  of 60 dBA could, and usually does, mean that there were several times during the hour that noise levels exceeded 60 dBA. Any exceedance of the maximum allowable sound level of 60 dBA must be evaluated using the 15, 5 and 1.5 minute allowable exceedance criteria. Therefore an  $L_{eq}$  of 60 dBA does not mean that the facility is in compliance with the regulations. In fact, for construction equipment, an  $L_{eq}$  of 60 dBA would typically mean that the facility is not in compliance.
2. We are not sure where the  $L_{1.7}$  comes from, but the WAC uses 15, 5 and 1.5 minute exceedances, and  $1.5\text{minutes}/60\text{minutes} = 2.5\%$ , not 1.7%. Therefore it should be  $L_{25}$ ,  $L_{8.3}$  and  $L_{2.5}$  (not  $L_{1.7}$ ). An  $L_{1.7}$  would be for 1 minute per hour, not 1.5 as stated in the regulations.

3. Using the  $L_{25}$ ,  $L_{8.3}$  and  $L_{2.5}$  values for compliance with the allowable exceedance is in our experience an incorrect method of verification. For example, our interpretation of the criteria is that the total duration that the sound levels are greater than 60 dBA in any one daytime hour may not exceed 15 minutes. Therefore, the  $L_{25}$  must be equal to, or less than 60 dBA, not 65 dBA. An hourly  $L_{25}$  of 65 dBA means that the noise levels were equal to, or greater than, 65 dBA for 15 minutes of that hour, which by definition is an exceedance of the criteria.

The code verification criteria, which is required for compliance with the WAC are as follows:

1.  $L_{25}$  must be less than 60 dBA;
2.  $L_{8.3}$  must be less than 65 dBA;
3.  $L_{2.5}$  must be less than 70 dBA; and
4.  $L_{\max}$  must be less than 75 dBA.

## Analysis Approach

We have identified several areas of concern in the analysis section of the report:

First, the figures attached to the report fail to identify many nearby developed properties. For example, there is a single family residence along SR 104, approximately 1.1 miles from the site, which was identified using the Jefferson County jmap parcel viewer (parcel #821324007, mobile home). Although this parcel does not have a clear line-of-sight view to the quarry, the quarry elevations is sufficiently high when compared to that of the residence, that the site should, at the very least, been identified and included in the analysis.

Furthermore, this site is closer to the quarry than locations 2 or 3 on Figure 1 of the report. There are also several other residences to the southeast of S Point Road that were not mentioned in the report. Recommend an additional review of properties surrounding the facility. This would be beneficial not only to the quarry owner and the County, but would also provide information to these residences and show that the analysis covered all noise sensitive properties near the site, not just the three in the report.

Second, although having the existing noise environment is useful information, it has no bearing on the noise impact analysis. The WAC is only concerned with the noise from the quarry at other property boundary lines. That is to say, regardless of the existing noise levels in an area, the quarry would not be in compliance if any of the code verification criteria are exceeded by noise coming from the quarry. This is the case even if the existing noise levels are higher than the noise from quarry operations. This fact should be called out in the report.

Finally, a complete, detailed project description needs to be included in the report. Although the report specifies that the operational hours for the quarry are limited to one shift of 7:00 am to 4:30 pm, it failed to identify if operation would only occur during weekdays, or if operations could occur on weekends. It also fails to identify the typical number of workers at the facility, their mode of transportation to and from the site. Most importantly, the report fails to specify that equipment operated before 7:00 am, even for the purpose of pre-work warm-up, would be subject the 10 dB nighttime penalty. Given that the hour  $L_{eq}$  is near 50 dBA at one location, and the analysis used maximum shielding (discussed below), work

before 7:00 am would be expected to exceed the WAC by several dB. The report should also reference the blasting analysis report.

### **Reference Noise Measurements**

Recommend revising the sentence “AMEC assembled and calibrated the following noise measurement equipment” – as AMEC did not “calibrate” the LD calibrator included in this list.

### **Results**

This section provides a review of the results of the noise study, again there are several areas of concern:

- The ground absorption in the noise model was set to 1.0, which indicates maximum absorption. The analyst could evaluate the operations using a more conservative factor of 0.8, which could be beneficial if some of the foliage between the quarry and receivers are deciduous plants, which completely lose their foliage during the winter or dry season. Without detailed verification on the ground cover, foliage and trees from a botanist, using the maximum absorption is not recommended.
- The analyst used appropriate temperature and humidity factors for the modeling
- We typically place the ambient noise reading in the affected environment section with the land use identification as they have no bearing on the quarry’s compliance with noise regulations.
- The operational noise modeling results are stated in  $L_{eq}$ , which is not correct under the WAC, and cannot be used for compliance verification. See comments on regulatory information.
- Table 5 fails to identify the noise metric. We assume that these are hourly  $L_{eq}$  noise levels, which, as previously described, cannot be used to verify compliance. In fact, for the type of equipment used at the , the  $L_{eq}$  noise levels presented indicate that there is a good potential for exceedances of the 60 dBA sound pressure level at the Gateway Park parcel, as construction equipment can easily vary by 10 to 15 dBA depending on load and activity. The  $L_{eq}$  would fail to identify these exceedances.
- Figures 4 through 6 fail to identify the noise metric. Again, we assume that these are hourly  $L_{eq}$ , and therefore we have the same comment as provided above. The report should identify the hourly  $L_{max}$  at each site in addition to predicting the  $L_{25}$ ,  $L_{8.3}$  and  $L_{2.5}$  in order to verify true compliance.

### **Traffic Noise Analysis**

Again, the tables and text fail to identify the noise metric used for this analysis or identify any criteria by which the numbers are to be compared. Given that we think that these are  $L_{eq}$ , we don’t foresee any traffic related impacts or issues, however, the report must specify the metric used in all calculation, otherwise the numbers presented cannot be properly reviewed.

### **Final Conclusions**

The final conclusions of the report do not identify any exceedance of the WAC code. However, given that the entire analysis is based on the hourly  $L_{eq}$ , the conclusion is not valid.

The analysis must be performed using the instantaneous 1-second sound pressure level, the  $L_{25}$ ,  $L_{8.3}$ ,  $L_{2.5}$  and  $L_{\max}$  in order to verify compliance with the WAC.

## Review Conclusion

We have identified several items in this report that would need to be revised before the facility noise compliance can be verified. The most major of the issues is the use of the  $L_{eq}$  for compliance with the WAC. There will likely be several times per hour where noise levels will be 10 dB, or more, higher than an energy average  $L_{eq}$ . Also, because the analysis assumes dense evergreen foliage, which may not be the case during winter months, the combination of reduced ground attenuation and using the correct noise metrics could result in an exceedance at the Gateway Park.

The report also fails to identify, or even mention, several nearby residential land uses. These areas need to be included in the analysis to provide the residences and the county with verification of compliance.

In addition a detailed project description that includes operational information (hours and days), number of typical employees, and blasting schedule and information should be included in the report. Limitations on the hours of operation need to be clearly identified, as we have had previous experience with similar facilities performing warm-up of vehicles and vehicle maintenance during early morning hours, or after hours into the nighttime, which would be subject to the more stringent 10 dB penalty and more stringent allowable exceedance levels.

## Reid Shockey

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**From:** Brent Carson <bcarson@GordonDerr.com>  
**Sent:** Wednesday, August 31, 2011 2:44 PM  
**To:** Reid Shockey; Harper, Kenneth W.; Johnson, David Wayne  
**Cc:** Burnett, James E.; Dale N. Johnson  
**Subject:** RE: Iron Mountain - Updated Noise Study

My email below bounced by from at least one of you because of the size of the Noise Study attachment. If you did not receive the attachment or my prior email, I am resending the email along with a link to download the study. Let me know if you have any problem with this download.

<http://www.box.net/shared/c3kl2h0yau1nachvqm7n>

**Brent Carson**  
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**From:** Brent Carson  
**Sent:** Wednesday, August 31, 2011 2:11 PM  
**To:** Shockey, Reid H.; Harper, Kenneth W.; Johnson, David Wayne  
**Cc:** Burnett, James E.; Dale N. Johnson  
**Subject:** Iron Mountain - Updated Noise Study


Enclosed please find an updated Noise report from AMEC, responding to Michael Minor's August 12, 2011 review comments on AMEC's March 2001 report.

As you will see, AMEC addressed every issue raised by Mr. Minor and produced an updated report. There are no changes to the conclusions. With the clarifications made per Mr. Minor's comments, AMEC continues to conclude that all receptors are expected to be in compliance with the WAC criteria. There are no significant noise impacts identified from this proposal.

### Brent Carson

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## Reid Shockey

---

**From:** Brittney Rourke  
**Sent:** Wednesday, August 31, 2011 3:00 PM  
**To:** Michael Minor  
**Cc:** Reid Shockey; Camie Anderson  
**Subject:** FW: Iron Mountain - Updated Noise Study  
**Attachments:** Revised Noise Study in Response to Peer Review Comments.8-31-11.pdf

Michael, attached are the responses to your noise study comments.  
Thanks!

### **Brittney Rourke | Planner**

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**From:** Reid Shockey  
**Sent:** Wednesday, August 31, 2011 2:28 PM  
**To:** Brittney Rourke  
**Subject:** FW: Iron Mountain - Updated Noise Study

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**From:** Brent Carson [<mailto:bcarson@GordonDerr.com>]  
**Sent:** Wednesday, August 31, 2011 2:11 PM  
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### **Brent Carson**

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## **Camie Anderson**

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**From:** Michael Minor <mminor@drnoise.com>  
**Sent:** Thursday, September 01, 2011 5:02 PM  
**To:** Brittney Rourke  
**Cc:** Reid Shockey; Camie Anderson  
**Subject:** RE: Iron Mountain - Updated Noise Study

Hi Brittney. We have reviewed the revised noise report and all our concerns have been addressed. We have no more comments. Thanks

Michael Minor  
[mminor@drnoise.com](mailto:mminor@drnoise.com)  
**Michael Minor & Associates, Inc.**  
4923 SE 36th Avenue  
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ph. 503.220.0495 (Portland)  
ph. 206.220.0495 (Seattle)  
e-fax. 866.847-0495

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**From:** Brittney Rourke [<mailto:brouke@shockeyplanning.com>]  
**Sent:** Wednesday, August 31, 2011 3:00 PM  
**To:** Michael Minor  
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Thanks!

### **Brittney Rourke | Planner**

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## Reid Shockey

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**From:** Brent Carson <bcarson@GordonDerr.com>  
**Sent:** Friday, September 02, 2011 11:36 AM  
**To:** Reid Shockey; Harper, Kenneth W.; Johnson, David Wayne  
**Cc:** Burnett, James E.; Dale N. Johnson  
**Subject:** RE: Iron Mountain - Updated Noise Study

I just discovered that the Noise Study I sent you on 8/31 did not contain the appendix. Here is a link to download the Noise Study with the appendix attached. There are no other changes from the version previously sent.

<http://www.box.net/shared/hqmrvmvrzu362t6scr694>

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<http://www.box.net/shared/c3kl2h0yau1nachvqm7n>

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*2 copies to Planning Dept. copy to Pub. Works. & Attorney Chuck Henry 9/23/85 9-26-85*

RESOLUTION NO. 67-85  
ESTABLISHMENT OF ENVIRONMENTAL DESIGNATION (EDNA)  
FOR NOISE ABATEMENT AREAS  
FOR JEFFERSON COUNTY

WHEREAS, it is recognized that inadequately controlled noise may adversely affect the health, safety, and welfare of the people, the value of property, and the quality of the environment; and

WHEREAS, actions and or projects on specific properties in Jefferson County may create higher noise levels than normally experienced within surrounding properties; and

WHEREAS, Chapter 70.107, Revised Code of Washington, and Chapter 173-60, Washington Administrative Code, establishes maximum permissible noise levels for various environments or classes of use; and

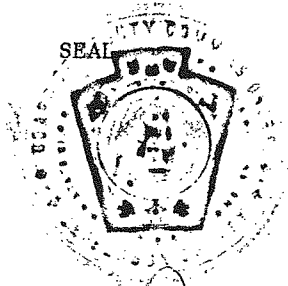
WHEREAS, said noise levels may be applied to various areas as needed or as necessary.

NOW, THEREFORE, BE IT RESOLVED that Chapter 173-60 WAC is hereby adopted in its entirety by reference.

NOW, THEREFORE, BE IT FURTHER RESOLVED that EDNA areas shall be designated to conform with the land use designation by the Jefferson County Comprehensive Plan as per Chapter 173-60-030(3) WAC unless otherwise classified by local resolution.

NOW, THEREFORE, BE IT FURTHER RESOLVED that this resolution rescinds and replaces Resolution No. 23-84.

APPROVED and ADOPTED this 16<sup>th</sup> day of September, 1985.



BOARD OF COMMISSIONERS OF  
JEFFERSON COUNTY, WASHINGTON

*John L. Pitts*

John L. Pitts, Chairman

*B.G. Brown*

B.G. Brown, Member

ATTEST: *Jerdine C. Bragg*  
Jerdine C. Bragg  
Clerk of the Board

\_\_\_\_\_  
Larry W. Dennison, Member