

SBP Associates, Inc.

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January 15, 2015

Kristina Handt
Administrator, City of Scandia
14727 209th Street North
Scandia, MN 55073

Dear Ms. Handt:

Re: 2014 Zavoral Mine Noise Monitoring Results

SBP Associates, Inc (SBP) was contracted by the City of Scandia to conduct noise monitoring near the Zavoral mine to determine compliance with the Minnesota Noise Rules. This letter presents the results of this noise monitoring study.

Noise Descriptors and Minnesota Noise Rules

Minnesota has noise standards that are designed to be consistent with sleep, speech, annoyance, and hearing conservation requirements for receivers within areas grouped according to land use activities. The Minnesota standards are as follows:

	<u>7:00 AM to 10:00 PM</u>		<u>10:00 PM to 7:00 AM</u>	
	L ₁₀	L ₅₀	L ₁₀	L ₅₀
NAC-1 (Residential)	65	60	55	50
NAC-2 (Commercial)	70	65	70	65
NAC-3 (Industrial)	80	75	80	75

L₁₀ means the sound level which is exceeded for 10 percent of the time for a one-hour period. L₅₀ means the sound level which is exceeded 50 percent of the time for a one-hour period. Sound levels are expressed in dBA. A dBA is a unit of sound level expressed in decibels and weighted for the purpose of approximating the human response to sound.

The impact of the Zavoral mine noise on a residential area is limited by the NAC-1 values.

Noise Monitoring Locations

Monitoring locations were chosen to represent sensitive receptors around the mine site perimeter. The monitoring locations are shown in the figure in Attachment A. Sites 1 and 3 are north of the mine site, Site 2 is south of the mine site, Site 4 is southwest of the site entrance and Site 5 is Southeast of the mine site towards the St. Croix River. No testing was conducted at Site 1 because Site 3 is closer to the mine and is also north of the mine.

Results Summary

The following table presents a summary of the results of the monitoring. Monitoring was conducted on December 12 and December 18, 2014.

Zavoral Mine Operations

12/12/14 and 12/18/14 Noise Monitoring Results

Test Site	Test Start Date/Time	L10 (Limit is 65 dBA)	L50 (Limit is 60 dBA)
3	12/12/14 10:29 am	50.0	45.5
4	12/12/14 11:43 am	54.0	47.5
3	12/12/14 1:11 pm	45.5	41.5
5	12/18/14 10:15 am	35.0	31.5
2	12/18/14 11:40 am	44.0	37.0

Noise levels were within the State Standards at each of the monitored locations.

Test Equipment

Testing was conducted with a Type 1 CEL Model 593 analyzer. The analyzer was field calibrated prior to and after each test period. Testing was conducted according to MPCA rules.

Detailed Monitoring Results

Site 2

12/18/14 - 11:40 am – 12:40 pm

Test Result $L_{10} = 44.0$ dBA, $L_{50} = 37.0$ dBA

This site is along Quinell Road. Winds were calm during the test period. Mine noise was occasionally just audible during this test period. Traffic noise from Highway 95 was noted.

Site 3

Test 1 – 12/12/14 - 10:33 am – 11:33 am

Test Result $L_{10} = 50.0$ dBA, $L_{50} = 45.5$ dBA

This site is near a cabin/home just south of the mine property. Noise from the mine area was intermittently apparent throughout the test period, with levels generally in the 45-50 dBA range. Bird noise and traffic noise from highway 97 were other noise sources noted during the test period. Winds were light and southerly during the testing.

Test 2 – 12/12/14 – 1:11 pm – 2:11pm

Test Result $L_{10} = 45.5$ dBA, $L_{50} = 41.5$ dBA

This site is near a cabin/home just south of the mine property. Noise from the mine area was intermittently apparent throughout the first part of the test period with levels generally in the 45-50. dBA range. Highway noise was the dominant noise source after mine operations apparently ceased. Winds were light and southerly during the testing.

Site 4

12/12/14 – 11:43 am – 12:43 pm

Test Result $L_{10} = 54.0$ dBA, $L_{50} = 47.5$ dBA

This site is a home/farm west of Highway 95 and southwest of the mine entrance. South winds of 4-7 mph were noted. Traffic noise from Highway 95 was present and was the dominate noise source during the testing. Noise from the mine operations was intermittently noted when traffic noise was not present. 53 haul trucks were noted either entering or leaving the site during the test period. Noise from the trucks was audible (45 – 50 dBA) as they accelerated when leaving the site or when crossing Highway 95 to enter the site.

Site 5

12/18/14 – 10:15 am – 11:15 am

Test Result $L_{10} = 35.0$ dBA, $L_{50} = 31.5$ dBA

This site was near the northern termination of Quint Avenue, southeast of the mine site. Winds were calm during the testing. Noise from the direction of the mine was barely apparent at times during the testing. Some bird noise was noted.

All monitoring results are in compliance with the State of Minnesota noise rules.

Thank you for the opportunity to work with the City of Scandia on this project, and please feel free to contact me with any questions you may have regarding this noise monitoring study.

Sincerely,

Stephen B. Platisha, P.E.

Attachment A

Zavoral Mine

Noise Monitoring Locations

