



NOISE AND VIBRATION VOL 3 ENVIRONMENTAL EFFECTS

TWIN METALS MINNESOTA PROJECT Environmental Review Support Document

Prepared for Twin Metals Minnesota, LLC
Prepared by

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**TWIN METALS MINNESOTA PROJECT
NOISE AND VIBRATION VOL 3
ENVIRONMENTAL EFFECTS**

Environmental Review Support Document

REVISION RECORD

| Revision | Date | Description | EDMS Download Date | Project Configuration Version |
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REVISION NARRATIVE

DISCLAIMER

This document is a working document. This document may change over time because of new information, or further analysis or deliberation.



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LIST OF ABBREVIATIONS, ACRONYMS, AND SYMBOLS

TMM

Twin Metals Minnesota, LLC

1.0 INTRODUCTION

The Twin Metals Minnesota, LLC (TMM) Project (Project) is focused on designing, permitting, constructing, and operating an underground copper, nickel, cobalt, platinum, palladium, gold, and silver mining project. Located approximately nine miles (14 kilometers [km]) southeast of Ely, Minnesota, and 11 miles (18 km) northeast of Babbitt, Minnesota, the Project targets valuable state, federal, and private minerals within the Maturi deposit, which is a part of the Duluth Complex geologic formation.

All potential Project infrastructure locations presented herein are considered preliminary and are undergoing further design and engineering evaluations which will dictate final design and locations. Further information about TMM and the Project is located at <http://www.twin-metals.com/>.

The purpose of this document is to provide necessary information for the environmental review and permitting process. TMM retained [insert Consultant name] (insert abbreviated Consultant name) to complete [insert text].

2.0 SUMMARY

- Provide a high level summary of what is presented within this report.
- Description of the changes that will occur for proposed action, alternative, and no action.
- Description of impacts from noise and vibration.
- Describe how this report volume relates to the other volumes.
 - Indicate regulatory framework and proposed action and alternatives are defined in other volumes of the *Noise and Vibration Data Package*.
- Reference relevant sections of the FSDD, SEAW, and / or federal documents to remind the reader there is a defined scope that is being followed.

3.0 ENVIRONMENTAL CONSEQUENCES

3.1 Impact Assessment Indicators and Methods

- Describe the impact assessment indicators and methods at a high level using other volumes of the *Noise and Vibration Data Package* and indicate where additional details can be found within this document.
- Describe and show within figures the area of analysis. Describe at a high level using other volumes of the *Noise and Vibration Data Package* and indicate where additional details can be found within this document.

3.2 Impact Assessment

Utilizing the impact assessment methods and area of analysis summarized in other volumes of the *Noise and Vibration Data Package*, an assessment of direct and indirect impacts will be conducted and described within this section. The following items, in addition to the indicators summarized in other volumes of the *Noise and Vibration Data Package*, will be assessed and described for the proposed action, alternatives to the proposed action, and the no action alternative:

- Potential noise emissions associated with construction and operations.
- Potential vibrations associated with construction and operations.

Noise / vibration impacts to wildlife, recreational, and wilderness resources will be assessed in their respective volumes / reports. This should be indicated in this section and references to these reports, including the following, should be provided:

- *Biology Data Package* and
- *Wilderness, Recreation, and Tourism Resource Report*.

3.2.1 Proposed Action

Direct and indirect impacts associated with the proposed action will be described in this section. The analysis of impacts are characterized as follows:

- Timing.
- Extent.
- Regulatory oversight,

3.2.2 Alternatives to the Proposed Action

Direct and indirect impacts associated with the alternatives will be discussed in this section. This discussion will focus on differences in impacts between the alternatives and proposed action. Impacts that are the same between the proposed action and alternatives will be noted but not discussed in detail.

3.2.3 No Action Alternative

Direct and indirect impacts associated with the no action alternative will be described in this section.

4.0 AVOIDANCE, MINIMIZATION, MITIGATION, AND MONITORING MEASURES

4.1 Proposed Action

Avoidance, minimization, mitigation, and monitoring measures associated with the proposed action will be described in this section.

- Analysis completed including noise reduction technologies to be included in Project:
 - Construction materials with a higher sound transmission class rating
 - Acoustically treated ventilation openings
 - Silencers for ventilation raise exhausts
 - Transfer point barriers for conveyors
- Noise / vibration related avoidance, minimization, and mitigation measures for other resources, such as wildlife, that are documented in resource specific volumes / reports will also be documented.

4.2 Alternatives to the Proposed Action

Avoidance, minimization, mitigation, and monitoring measures associated with the alternatives to the proposed action will be described in this section.

- Noise / vibration related avoidance, minimization, and mitigation measures for other resources, such as wildlife, that are documented in resource specific volumes / reports will also be documented.

5.0 REFERENCES



TABLES



FIGURES



APPENDICES



APPENDIX [#A, B, C, D]

[APPENDIX TITLE]



APPENDIX [#A, B, C, D]

[APPENDIX TITLE]

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