



BIOLOGY VOL 3

ENVIRONMENTAL EFFECTS

TWIN METALS MINNESOTA PROJECT

Environmental Review Support Document

Prepared for Twin Metals Minnesota, LLC
Prepared by

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REVISION RECORD

Revision	Date	Description	EDMS Download Date	Project Configuration Version
0A	11-20-2020	Submitted for Agency Review – TOC		

REVISION NARRATIVE

DISCLAIMER

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

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

This report will describe the impacts of the proposed action and alternatives on the baseline conditions.

The results presented in this volume are defined by overlaying the impacts from the proposed action and alternatives on the baseline conditions, both described in the other volumes of the *Biology Data Package*.

References to relevant sections of the FSDD, SEAW, and / or federal documents will be provided to remind the reader there is a defined scope that is being followed.

3.0 ENVIRONMENTAL CONSEQUENCES

Provide a high level summary of what is presented in the environmental effects. Section summarizes what environmental effects are and the effects of the proposed action and alternatives.

3.1 Impact Assessment Indicators and Methods

- Describe the baseline conditions at a high level using the other volumes of the *Biology Data Package*.
- Describe the impact assessment indicators and methods at a high level using the other volumes of the *Biology Data Package* and indicate where additional details can be found within this document.

- Describe and show the areas of potential effect. Describe at a high level using the other volumes of the *Biology Data Package* and indicate where additional details can be found within this document.
- Describe time for analysis:
 - Timeline for analysis for direct effects would be during the construction and operations phase.
 - Timeline for analysis of the indirect effects would be construction, operations, and portions of the closure phase. Impacts to habitat / vegetation would be temporary and partially restored.

3.2 Discussion of Environmental Effects

Utilizing the impact assessment methods, areas of direct impacts, and areas of potential indirect impacts summarized in Section 3.1, an assessment of direct and indirect impacts will be conducted and described within this section. The following items will be assessed and described for the proposed action, alternatives to the proposed action, and the no action alternative:

Direct Impacts

Habitat

Terrestrial

- Habitat / land cover directly affected.
 - Publically available data:
 - USGS GAP / LANDFIRE
 - USGS NLCD
 - MDNR MBS
 - MDNR MBS Sites of Biodiversity Significance
 - Project specific data:
 - Plant community surveys

Aquatic

- Habitat / land cover directly affected.
 - Project specific data:
 - Stream and lake sampling

Vegetation

Sensitive Species

- Review occurrences of any sensitive species
 - publically available data:
 - MDNR NHIS Database

- project specific data:
 - Any occurrences of sensitive species observed in the plant community surveys

Wild Rice

The following items will be assessed and described for the proposed action, alternatives to the proposed action, and the no action alternative:

- Impacts on the presence of wild rice (location and density)

Wildlife

Sensitive Species

- Review occurrences of any sensitive species
 - publically available data:
 - MDNR NHIS Database and
 - USFWS Information for Planning and Consultation
 - project specific data:
 - Any occurrences of sensitive species observed in the wildlife surveys
 - High value habitats
- Discussion of any sensitive species that has potential to be affected
 - Life history, e.g.:
 - Moose
 - Wolf
 - Lynx

Terrestrial

- Review changes to any common habitats and potential impacts to endemic terrestrial species.

Aquatic

- Review changes to aquatic habitats and potential impacts to endemic aquatic species.

Indirect Impacts

Habitat

Terrestrial

- Discussion of potential changes to habitat and land cover from hydrology or water drawdown.
 - Informed by water modeling
- Discussion of potential changes to habitat and land cover from dust deposition.
 - Informed by air modeling

Aquatic

- Discussion of potential changes to habitat from hydrology or water quality changes.
 - Informed by water modeling

Vegetation

- Discussion of potential effects on invasive non-native plants.

Wild Rice

The following items will be assessed and described for the proposed action, alternatives to the proposed action, and the no action alternative:

- Impacts to hydrology;
- Impact on plant health (seed number and biomass of seeds, roots, and shoots); and
- Impact to wild rice resulting from changes in surface water, pore water, or sediment quality

Wildlife

Terrestrial

- Discussion on potential impact to species due to:
 - Habitat fragmentation
 - Noise effects
 - Vehicular effects
 - Changes in wildlife corridors

Aquatic

- Discussion on potential impact to species due to:
 - changes in hydrology, water drawdown, or water quality

3.2.1 Proposed Action

Direct and indirect impacts associated with the proposed action will be described in this section.

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.

- Discuss avoidance / minimization steps involved in siting and design of Project features.

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.

- Discuss avoidance / minimization steps involved in siting and design of alternative features.

5.0 REFERENCES



TABLES

FIGURES



APPENDICES



APPENDIX [#A, B, C, D]

[APPENDIX TITLE]

APPENDIX [#A, B, C, D]

[APPENDIX TITLE]

[Insert page break for each additional appendix.]