



Water Modeling

Are models used in the Final Environmental Impact Statement (Final EIS) to assess water impacts?

Yes. The Final EIS relies on publicly available water quantity and water quality models.

What's the purpose of these models?

The purpose of the models is to predict the proposed NorthMet project's impacts to surface water and groundwater resources. Under guidance provided by the Co-lead Agencies, PolyMet collected data from the proposed NorthMet project area for the modeling. The Co-lead Agencies determined what methods and assumptions would be used in the analysis.

What models were used?

Several models were used in the EIS. MODFLOW assessed groundwater movement and flow, in particular for estimating both mine pit water inflows and tailings basin seepage. XP-SWMM estimated surface water flows in the Partridge River watershed, including stormwater runoff, streamflow, and groundwater baseflow for streams. GoldSim was used to simulate surface water and groundwater quality over time. GoldSim also estimated the release of contaminants from mine facilities and their transport to surface water and groundwater evaluation locations.

How are the modeling results used in the Final EIS?

The modeling results are compared to impact thresholds established for the EIS. These thresholds or evaluation criteria typically mirror regulatory requirements, such as the applicable surface or ground water quality standards, but may also reflect best available science or professional judgment. The impact assessment occurs at specific evaluation locations that also reflect regulatory requirements.

What's done with the comparison of the model results to the evaluation criteria?

Comparing the model results to the evaluation criteria identifies where the predicted impacts of the proposed NorthMet project may need to be avoided or reduced to satisfy regulatory requirements. This can be accomplished for example by changing the proposed NorthMet project, modifying or adding environmental controls, or eliminating a project component altogether. Many changes made to the proposed NorthMet project since the 2009 Draft Environmental Impact Statement are due to the water modeling results.

How would the modeling results inform operations, if the proposed NorthMet project is built?

The water modeling has identified where monitoring the proposed NorthMet project's actual performance is critical if it goes forward. Regulatory agencies would require monitoring of surface water and groundwater resources to ensure the proposed NorthMet project's impacts are controlled

appropriately. If the real world performance of the proposed NorthMet project design or environmental controls is determined to be insufficient, then additional measures would be applied adaptively to address the issue. Both monitoring and mitigation would be a part of the permitting and be financially assured.

For more information about the cumulative effects of the NorthMet Mining Project and Land Exchange, see the Executive Summary and Chapter 6.0 (Cumulative Effects) of the Final EIS. Also, refer to additional Fact Sheets about the NorthMet Mining Project and Land Exchange Final EIS:

- 1. Project and Land Exchange Overview**
- 2. What is the Environmental Review Process?**
- 3. What's Changed since the Draft EIS?**
- 4. What's Changed since the Supplemental Draft EIS?**
- 5. Supplemental Draft EIS Comment Response Process**
- 6. Effective Commenting on the Final EIS**
- 7. A Guide to the Final EIS Document**
- 8. Air Quality**
- 9. Water Quantity**
- 10. Wetlands**
- 11. Water Quality**
- 12. Wild Rice**
- 13. Mercury**
- 14. Threatened & Endangered Species**
- 15. Cultural Resources**
- 16. Land Exchange**
- 17. Reclamation & Financial Assurance**
- 18. Cumulative Effects**
- 19. Tailings Basin Stability**
- 20. Water Modeling**
- 21. Northward Flowpath**
- 22. Duration of Treatment & Financial Assurance**
- 23. Human Health**