Figure 4.1-1
Watersheds, Streams and Historical Data Collection Sites
NorthMet Project
PolyMet Mining, Inc.
St. Louis County, Minnesota
October 2009
Figure 4.1-2
Geologic Cross-Section and Stratigraphic Column at Mine Site
NorthMet Project
PolyMet Mining, Inc.
St. Louis County, Minnesota
October 2009
Figure 4.1-5
Depth to Bedrock at Tailings Basin Area
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*Depth represents thickness of native unconsolidated material encountered in boring drilled near the well location

Residential Wells from County Well Index with Depth to Bedrock
- 0 - 25
- 25' - 50'
- 50' - 75'
- 75' - 100'
- 100' - 125'
- >125'

Monitoring Wells

Groundwater Well - Existing

Soil Borings

Map/Data Source: Barr Engineering

Tailings Basin

Embarrass River

Spring Mine Creek

Barr Engineering
Groundwater contours based on modeling results presented in RS13, elevation data for surface water features, and data presented in Siegel and Ericson, 1990. Elevations are in feet MSL.

Figure 4.1-6
Generalized Groundwater Elevations at Plant Site
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Figure 4.1-7
Monitoring Locations Near Existing Tailings Basins
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Sample Designations:
SD = Surface Discharge Sample
S = Seep
WS = Waste Stream
GW = Groundwater Sample
Figure 4.1-8
Groundwater Sampling Locations at the Mine Site

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Figure 4.1-9
Residential Well Locations Between the Tailings Basin and the Embarrass River
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Figure 4.1-10
Plant Site Areas of Concern
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Base map source: Barr Engineering

Not to Scale
Figure 4.1-12
Past and Current NPDES Discharges into the Partridge and Embarrass Rivers
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Figure 4.1-13
Map of Colby Lake and Whitewater Reservoir Area
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Map Source: Barr Engineering

- Water Withdrawals from Colby Lake
- MPCA Water Quality Stations 2006
- Discharges to Surface Waters
- NPDES Discharges
Figure 4.1-15
Wild Rice Field Survey Results
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PolyMet Mining, Inc.
St. Louis County, Minnesota
October 2009

Map/Data Source: Barr Engineering
Figure 4.1-16
Wild Rice and Sulfate Sampling Locations
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St. Louis County, Minnesota
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Map/Data Source: Barr Engineering

- Surface Water Monitoring Stations
- 2009 Sulfate Sampling Locations with Sulfate Listed in mg/L
- Mesabi Nugget Surface Water Monitoring Data - Aug. 19, 2009
- Rivers and Streams
- City Boundaries
Figure 4.1-17
Process Water Produced at Mine Site
(Proposed Action)
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Figure 4.1-19
Estimated Project Water Balance
Years 12-20 (Proposed Action)
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PolyMet Mining, Inc.
St. Louis County, Minnesota
October 2009

Information Source: Barr Engineering
No Scale Applicable
Figure 4.1-20
Estimated Project Water Balance
Years 21- Approx. 65 (Proposed Action)
NorthMet Project
PolyMet Mining, Inc.
St. Louis County, Minnesota
October 2009
Figure 4.1-21
Estimated Project Water Balance
After Approx. Year 65 (Proposed Action)
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PolyMet Mining, Inc.
St. Louis County, Minnesota
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Information Source: Barr Engineering

No Scale Applicable
Figure 4.1-22
West Pit Overflow to Partridge River
(Proposed Action)
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Figure 4.1-24
Composition of the Final Pit Walls Predicted by Block Modeling (Provided by PolyMet)
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Figure 4.1-27
Water Level Drawdown for 50 Year Low Flow Conditions in Whitewater Reservoir (Proposed Action)
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Activities included in the Cumulative Effects Assessment
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Figure 4.1-29
70 Year Cumulative Effects on Partridge River Hydrology
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