

maintenance. PolyMet has committed to conduct demonstration projects during the Life of Mine and reclamation to establish non-mechanical water treatment systems to be used at the Plant Site. However, the WWTP would remain operational until water quality monitoring results meet permit requirements without the need for mechanical treatment.

PolyMet would be held accountable to maintenance and monitoring required under permit and would not be released until all conditions have been met.

3.2.2.4 Financial Assurance

Minnesota Rules, part 6132.1200, require that before a Permit to Mine can be issued, financial assurance instruments covering the estimated cost of reclamation, should the mine be required to close for any reason at any time, must be submitted and approved by the MDNR. There are no applicable federal financial assurance requirements that would be incorporated into the Permit to Mine. Financial assurance could be required indefinitely and could include self-sustaining instruments as discussed in the following sections.

Compensatory wetland mitigation for the proposed NorthMet project is expected to be approved and constructed in advance of any authorized wetland impacts and would therefore not require financial assurance. The USACE could consider financial assurance for potential indirect wetland effects and monitoring when additional detail has been provided.

The level of engineering design and planning required to calculate detailed financial assurance amounts is typically made available during the permitting process and was not available at the time that this SDEIS was prepared. The following sections have been prepared to outline the purpose and requirement of financial assurance, including the rules and criteria that would be used in determining financial assurance and the risk analysis involved, as well as how PolyMet would calculate financial assurance during the permitting process.

3.2.2.4.1 Cost Coverage and Estimation

Financial assurance must cover the reclamation and post-reclamation activities that would incur costs to execute required funding. These activities include (but are not limited to):

- implementation of corrective actions that may become necessary to address any permit non-compliance;
- demolition of all structures;
- remediation of any sites where petroleum products, reagents, additives, or other potential pollutants may have been released;
- implementation of reclamation such as:
 - fencing the perimeters;
 - sloping and seeding the overburden portion of the pit walls;
 - constructing the East Pit outlet structure;
 - shaping and covering the Category 1 Stockpile;
 - removing culverts, dikes, ditches, and ponds, followed by grading and seeding;

- constructing mitigation wetlands on the vacated stockpile locations;
 - closing and covering the Hydrometallurgical Residue Facility;
 - reseeded all areas; and
 - reclaiming the Tailings Basin.
- long-term post closure monitoring and maintenance including:
 - monitoring and maintenance of the covers, slopes and containment systems of the Category 1 Stockpile, Hydrometallurgical Residue Facility, and Tailings Basin;
 - treatment of East Pit water and West Pit water in the WWTF collecting and pumping water from the Tailings Basin to the WWTP for discharge or transfer to the Mine Site for pit flooding;
 - off-site disposal of pore water from Hydrometallurgical Residue Facility;
 - monitoring and reporting groundwater and surface water quality; and
 - developing and implementing non-mechanical water treatment systems.
 - project management and site security for the above.

Reclamation and post-reclamation costs are required, under the Permit to Mine, to be updated on an annual basis to account for the proceeding year's activities. This requires estimating the contingency funds required for closure and post-closure activities in the event of unplanned closure during the course of the year. Revisions would capture annual changes in contingency reclamation activities and costs such as:

- an annual increase in Mine Site provisions as mining proceeds and the amount of disturbance, size of permanent stockpile, and volume of temporary stockpiles to be backfilled increase.
- an increase in Tailings Basin provisions as the beach and pond areas increase.
- a potential decrease in Mine Site provisions as ongoing reclamation (e.g., backfilling of temporary stockpiles) is completed as contemplated in the Mining and Reclamation Plan. This is expected to occur as the facility nears reclamation.

The final Reclamation Plan (to be applied at the end of mining) and the Contingency Reclamation Cost Estimate (contingency for mine closure prior to the planned 20-year Life of Mine) would be developed by PolyMet and its consultants based on detailed engineering studies that would be finalized through permitting (pursuant to the EIS process). As required, PolyMet would ensure that the financial assurance amount is established as a function of (but not limited to) the following three main variables:

- extent of surface disturbance and potential releases from waste storage facilities,
- reclamation and long-term care standards (including mechanical water treatment), and
- reasonable assessment of the costs to execute the Contingency Reclamation Plan.

PolyMet has developed preliminary cost estimate ranges that address the above items for hypothetical closure at years 1, 11, and 20. These estimates are provided in Table 3.2-15 below.

In addition to the cost of physical closure and reclamation activities as shown in Table 3.2-15, annual post-closure monitoring and maintenance is estimated to be in the range of \$3.5m - \$6m per year.

The cost estimates would be finalized by the MDNR during the permitting processes.

Table 3.2-15 Preliminary Cost Estimate for Closure

	Year of Closure (end of year)			Annual Post-closure Monitoring and Maintenance
	Year 1	Year 11	Year 20	
Estimated Range	\$50m - \$90m	\$160m - \$200m	\$120m - \$170m	\$3.5m - \$6m

Source: Foth 2013.

3.2.2.4.2 Financial Assurance Instruments

The financial instruments must be robust enough to address a wide variety of contingencies such as (but not limited to):

- physical difficulties in implementing reclamation plans;
- escalating standards of closure, reclamation, and long-term monitoring;
- unanticipated liabilities;
- unplanned cessation of mining;
- failure of the mining company; and
- failure or limitations on the ability of third parties to pay reclamation costs.

The financial assurance instruments for the NorthMet Project Proposed Action must:

- be available and made payable to the MDNR when needed;
- be sufficient to cover the costs estimated;
- be fully valid, binding, and enforceable under state and federal law;
- not be dischargeable through bankruptcy; and
- be approved by the MDNR.

PolyMet intends to propose financial instruments based on appropriateness and compatibility with the specific activities for which assurance is being provided. It is likely that different instruments would be proposed to assure different components of the reclamation cost estimate and so would likely use more than one instrument at any point in time. For example, while insurance policies may not be appropriate for primary assurance, they could provide meaningful additional support over and above the expected costs or activities. Commonly accepted financial assurance instruments, such as the following, would be proposed:

- surety bonds,
- irrevocable letters of credit,
- cash and cash equivalents,

- trust funds,
- insurance policies, or
- a combination thereof.

3.2.2.4.3 Cessation of Financial Assurance

PolyMet may cancel financial assurance only upon approval by the MDNR after it is replaced by an alternative mechanism or after being released (in whole or in part) from financial assurance.

MDNR would release PolyMet from the responsibility to maintain financial assurance when the MDNR determines, through inspection of the mining area, that:

- all reclamation activities have been completed in accordance with the Permit to Mine,
- conditions necessitating post-reclamation monitoring and maintenance no longer exist and are not likely to recur, and
- corrective actions have been successfully completed and monitoring of those corrective action is no longer needed.

3.2.3 Alternatives

Both federal and state law require agencies to consider reasonable alternatives as part of their respective responsibilities. The purpose of the alternatives process is to allow for the identification and consideration of other reasonable alternative means to achieve the project Purpose and Need and that could also improve environmental and/or socioeconomic benefits. Alternatives offer decision makers and the public options to the proposal and include a no action alternative that considers the effects that would occur if the project is not approved.

This section describes the process by which the Co-lead Agencies identified, screened, and determined alternatives to the NorthMet Project Proposed Action that would be carried forward for analysis in the SDEIS.

3.2.3.1 Process Overview

NEPA and the CEQ regulations (40 CFR 1500-1508) require that a “range of alternatives” must be considered in the EIS. NEPA does not prescribe any minimum number of alternatives, other than that the no action alternative must be included (40 CFR 1502.14) (CEQ 1981).

Under MEPA, the MEQB statutes and rules (Minnesota Statutes, chapter 116D, sections 04 and 045; and Minnesota Rules, part 4410, subpart 0200 through 7500) require that an EIS consider at least one alternative from each of the following categories (State of Minnesota 2009):

- alternative sites,
- alternative technologies,
- modified designs or layouts,
- modified scale or magnitude, and
- alternatives incorporating reasonable mitigation measures.