

INTERAGENCY MEMORANDUM

**To: Cooperating and Participating Agencies in the NorthMet Project EIS
PolyMet Mining, Inc., and their Contractors**

**From: Co-lead Agencies Project Managers
Hingsberger (USACE); Hale (USFS); Johnson & Fay (MDNR)**

**RE: NorthMet Environmental Impact Statement
Co-lead Agencies' Consideration of a West Pit Backfill Alternative**

April 11, 2013

Backfilling the West Pit with reactive waste rock has been identified as a means of potentially avoiding or minimizing impacts associated with construction, operation, and closure of the Category 1 Waste Rock Stockpile. The option to utilize the West Pit for mining and processing waste disposal was considered but eliminated as alternative E20 in Table 3.2-4 of the NorthMet Project Draft Environmental Impact Statement (DEIS). It was eliminated from further consideration because it was determined that the action would not offer significant environmental or socioeconomic benefits compared to the proposed action; (Minnesota Department of Natural Resources and United States Army Corps of Engineers. 2009). Furthermore, it was noted that there are additional mineral resources in the West Pit that would effectively be lost if the pit was used for waste rock and/or tailings disposal.

Over the development of the Supplemental Draft EIS (SDEIS), the Cooperating Tribal Agencies have raised the issue of backfilling the West Pit as a means of reducing project-related impacts at the Mine Site. Potential impact reductions that have been noted include: smaller Category 1 stockpile footprint; simplification of non-mechanical treatment systems; elimination of managed West Pit overflow (in closure); improved groundwater quality (in closure); and reduced costs to the proposer. See GLIFWC correspondence of October 24, 2012.

In response to the Cooperating Tribal Agencies' request, and to ensure consideration of reasonable alternatives to the NorthMet Mining Project and Land Exchange, the option to backfill the West Pit with Category 1 Stockpile rock was rescreened using the same criteria applied in the Supplemental DEIS. The screening criteria are:



- Purpose and Need. Each alternative is assessed as to whether it would meet the respective proposer's and Co-lead Agency's Purpose and Need for the project.
- Technical Feasibility. Each alternative is assessed as to whether it could be implemented using currently available technology based on the current level of knowledge.
- Economic Feasibility. Each alternative is assessed as to whether it could meet economic and financial requirements to construct and operate the proposed project, including whether the cost of implementing the alternative would be economically feasible to meet the Purpose and Need.
- Availability. Each alternative is assessed as whether surface right, mineral rights, technologies, and other resources required are currently available.
- Environmental or Socioeconomic Benefits. Each alternative is assessed to determine if it offered significant environmental or socioeconomic benefits over the proposed project.

To support this screening, PolyMet, at the request of the Co-lead Agencies, provided its reasons outlining the practicability of the options in a memorandum entitled "Evaluation of Backfilling the NorthMet West Pit," (PolyMet Mining Inc., 2012). This document indicates that:

- The West Pit would have sufficient capacity to accept all of the rock in the Category 1 Stockpile and it would be technically possible to move that rock into the West Pit using earth movement machinery.
- If backfilled with a uniform distribution of material, the West Pit lake would be approximately 105-feet deep.
- For operational and safety reasons under the proposed mine plan, backfilling could not occur until after mining was complete in the West Pit, which is operating year 20. Therefore, the operational footprint of the Category 1 Waste Rock Stockpile is the same regardless of whether the backfill option is pursued or not.
- Backfilling the West Pit does not eliminate the need for long-term mechanical treatment of the West Pit overflow during closure, whose volume of discharge is projected to be 400 gallons per minute (gpm). Backfilling does however result in a marginal reduction in treatment volume by eliminating a projected 4 gpm contribution from the Category 1 Waste Rock Stockpile groundwater containment system to the West Pit during closure.
- Although backfilling the West Pit with the Category 1 Waste Rock Stockpile would reduce the volume of water contained therein and the amount of time for filling in closure, it would add a substantial load of constituents to the West Pit Lake compared to the Proposed Project. The increased load is derived from oxidation products on the surface of the backfilled waste rock, which in turn would be added to the seepage through the surficial aquifer that could increase constituent concentrations in the Partridge River.
- Compared to the Proposed Project, maintenance pumping from the West Pit Lake to the wastewater treatment facility would need to increase to 600 gpm over a course of 15 years to allow constituent loads to drop to a level that concentrations would not be increased in the Partridge River.
- Although no modeling has been done, PolyMet reports that a conceptual analysis has shown

that backfilling the West Pit with the Category 1 Waste Rock material would increase the concentrations of trace metals in the Pit Lake over the long term. Such an outcome undermines the Adaptive Water Management Plan's goal of transitioning from mechanical to non-mechanical treatment systems on the outflow from the West Pit.

- Regarding the potential to restore wetlands in the Category 1 Waste Rock Stockpile footprint, since existing wetland and vegetation types and hydrology data reported in the DEIS indicate the wetlands are surface water dependent, the surficial water balance "post-backfill" should be adequate for maintaining wetlands. As such, re-establishment of wetlands in the Category 1 Waste Rock Stockpile footprint may be possible with proper grading and replacement, or importing of appropriate soils and wetland vegetation.
- Backfilling the West Pit would encumber private mineral resources that are deeper than the proposed West Pit. Such an encumbrance is in conflict with the terms of PolyMet's private mineral leases.
- The cost of physically backfilling the West Pit would significantly decrease net return on the project. In addition, other associated costs, including those for additional mechanical water treatment (not calculated) and financial assurance requirements could affect the ability of the Project to secure financing. PolyMet also asserts that the project's economic feasibility did not consider the potential additional costs associated with compensating the owners of the mineral resources located beneath a backfilled West Pit.

Because this is a screening-level assessment relative to the proposed project, the Co-lead Agencies have not requested for PolyMet to provide:

- A modified mine plan that includes backfilling the West Pit as an operational feature of the project.
- Quantitative surface and groundwater quality projections from the Mine Site GoldSim model under a backfilled condition.
- Detailed cost/saving estimates for long-term water treatment and maintenance under a backfilled condition.
- Potential in-pit configurations of shallow-water wetlands that may be feasible under a backfilled condition.

These constitute data and/or analyses appropriate to evaluation of the project's impacts and potential mitigation beyond the purpose of a screening-level alternatives assessment.

ERM has applied the environmental screening criteria to the potential West Pit backfill option, which includes consideration of PolyMet's evaluation, and notes for the Co-lead Agencies that:

- Because the West Pit would not be available for backfilling until the end of mining under the proposed mine plan, there would be no immediate reduction of the surface impact (~500 acres) and environmental management requirements associated with the stockpile throughout operations. Furthermore:
 - water would be required to be managed through operations in a similar manner as the Proposed Action, and
 - the duration of temporal impact on wetlands (~260 acres) would still require offsite

mitigation.

- Removal of the stockpile at closure would allow for reclamation of the affected surface footprint, including potential to recreate wetland areas; however, credit would not be available to PolyMet, and as noted previously the prior impact would have been offset through offsite mitigation required for the temporal impact.
- PolyMet's assertion that backfilling would affect the water quality in the West Pit by increasing constituent loads is reasonable to expect. Regardless there would be no impact on surface water quality discharged to the environment because mechanical treatment of water from the West Pit would still be required in the long term. Potential long-term pit-water constituent loading to groundwater, and eventually the Partridge River, would likely be increased under the backfilled condition.
- Moving the waste rock from the stockpile into the West Pit would result in prolonged dust, air, and noise emissions beyond that projected for the Proposed Project, but would be unlikely to exceed the respective maximum years modeled during operations.
- While there may be potential for additional jobs required for backfilling, they would be unlikely to offer significant socioeconomic benefits relative to the Proposed Project.
- Removal of the stockpile may improve visual aesthetics during closure.
- A partial backfill is technically feasible but has not been assessed. Any benefits would stem from areas eventually reclaimed after the Category 1 Waste Rock Stockpile has been moved back into the West Pit.
- The PolyMet lease agreements are private and could be renegotiated, which might involve monetary compensation for the mineral owners if minerals are encumbered. How the surface of the land is used is the surface owner's decision, and conversely the mineral owner has the right to mine the minerals they control, but the mineral owner would be required to compensate the surface owner for any loss of surface use or improvements.
- Based on these points ERM concluded that:
 - The opportunity to reclaim wetlands and vegetation at the Category 1 Waste Rock Stockpile footprint area would be the only measurable environmental benefit offered by backfilling the Category 1 Stockpile into the West Pit. However, because of the temporal impact that the stockpile would have, these impacts would be required to be mitigated regardless of future backfilling or not.
 - The potential environmental benefit may be moot or outweighed because encumbrance is not currently allowed in the private mineral leases, and because the costs associated with backfilling may affect the ability of the Project Proposer to secure financing for the action, thus rendering it economically infeasible.

Based on the above considerations the Co-lead Agencies have concluded that the option of backfilling the West Pit with Category 1 Waste Rock does not provide significant environmental benefit compared to the project as proposed and is not a reasonable alternative requiring detailed analysis in the EIS.

References:

GLIFWC correspondence of October 24, 2012 on the September 28, 2012 NorthMet Project Adaptive Water Management Plan Version 3.

Minnesota Department of Natural Resources and United States Army Corps of Engineers. 2009. *NorthMet Project Draft Environmental Impact Statement*.

PolyMet Mining Inc. 2012. *Evaluation of Backfilling the NorthMet West Pit*.

ADDENDUM
NorthMet Environmental Impact Statement
Co-lead Agencies' Consideration of a West Pit Backfill Alternative

September 30, 2013

The April 11, 2013 "Co-lead Agencies' Consideration of a West Pit Backfill Alternative Interagency Memo" documents the Co-lead Agencies' screening of the option to backfill the West Pit with Category 1 Stockpile rock as a potential alternative to the proposed action requiring detailed analysis. The Co-leads determined that detailed analysis of the West Pit Backfill option was not warranted. The screening involved consideration of several potential environmental and social benefits, including:

"PolyMet's assertion that backfilling would affect the water quality in the West Pit by increasing constituent loads is reasonable to expect. Regardless there would be no impact on surface water quality discharged to the environment because mechanical treatment of water from the West Pit would still be required in the long term. *Potential long-term pit-water constituent loading to groundwater, and eventually the Partridge River, would likely be increased under the backfilled condition.*" [Page 4, Bullet 2; *emphasis added*]

Subsequent to the adoption of the Interagency Memo during development of the SDEIS, it was determined that the highlighted text does not accurately reflect information provided by the proposer, which is detailed earlier in the same memo. The proposer identified that potential impacts to the Partridge River from long-term pit-water constituent loading to groundwater can be avoided. Specifically:

"Compared to the Proposed Project, maintenance pumping from the West Pit Lake to the wastewater treatment facility would need to increase to 600 gpm over a course of 15 years to allow constituent loads to drop to a level that concentrations would not be increased in the Partridge River." [Page 2, Bullet 6 at page bottom]

Because potential groundwater quality impacts to the Partridge River can be avoided through the proposed project's design with a change in existing, planned water management, it was not an appropriate consideration under the screening criteria.

Through this addendum, *the Co-lead Agencies remove the "potential long-term pit-water constituent loading to groundwater, and eventually the Partridge River, would likely be increased under the backfilled condition" as a factor considered in the alternatives screening of the West Pit Backfill option. Even without this factor, the Co-lead Agencies reaffirm the conclusion that the option of backfilling the West Pit with Category 1 Waste Rock would not provide significant environmental benefit compared to the project as proposed and is not a reasonable alternative requiring detailed analysis in the EIS.*