



State of Minnesota / Office Memorandum

Division of Ecological & Water Resources

Date: 03/16/17

To: Randall Doneen, Supervisor, Environmental Policy & Review Unit

From: Bill Johnson, Planning Director

RE: Northshore Mine

Mile Post 7 Railroad Realignment & Tailings Basin Progression

Assessment of EIS Supplement Requirement

Minnesota Rules part 4410.3000, subpart 3B directs that whenever an EIS has been prepared for an ongoing governmental action, and either condition of Minnesota Rules part 4410.3000, subpart 3A, subitems 1 or 2 applies, then the RGU must prepare a supplement to the EIS. The conditions to be considered are whether:

1. substantial changes have been made in the proposed project that affect the potential significant adverse environmental effects of the project; or
2. there is substantial new information or new circumstances that significantly affect the potential environmental effects from the proposed project that have not been considered in the final EIS or that significantly affect the availability of prudent and feasible alternatives with lesser environmental effects.

On August 18, 2016 Northshore Mining Company notified MNDNR that it proposed to relocate the West Ridge railway, and progress the originally planned tailings basin to the west, at the Mile Post 7 tailings facility located approximately six (6) miles west of Silver Bay. The project summary indicated the proposed progression covers approximately 1,200 acres that involves: 1) relocating the existing railroad embankment approximately 4,000 feet to the west-northwest of its current location, which would become the dam defining the westernmost final limit of the tailings basin; and 2) progressing tailings deposition westward with the method of deposition being consistent with the original tailings basin design but with a modified footprint. Tailings would continue to be deposited over the life of the Northshore Mine, ultimately reaching the proposed, new railroad embankment. See Northshore Mining Company, "Railroad Realignment and Tailings Basin Progress," Environmental Review and Permitting Summary; August 18, 2016.

Three dams are operated at the tailings basin. They are designated Dams 1, 2 and 5 and currently exhibit elevations of 1234 feet, 1243 feet, and 1235 feet MSL, respectively. These dams are constructed using coarse tailings delivered to the site via rail. To ensure the necessary grade for this activity, the dams and railroad are periodically raised over the course of operations as the tailings basin also rises from tailings deposition. To avoid future small-scale, incremental raises the proposed project moves the railroad/dam to a location and elevation

that can serve as the final dam construction and progression of tailings deposition. The relocated railway will be inside the existing diversion ditches that were designed and constructed at the western limit of the tailings basin boundary. A 50-foot increase to the final dam crest design is required, as well as potential extension of the final Dam 1 alignment, to maintain separation of the tailings storage and ash landfill space. This would bring the dam heights to an elevation of 1365 feet MSL from the currently permitted maximum height of 1315 feet.

No other changes to the facility are proposed. Relocating the railway and progressing the tailings deposition will not alter tailings production and deposition rates from current operations. The Permit to Mine boundary will require alterations to accommodate curvature of the railroad.

Considerations

1. Are operations at Northshore Mining Company's Mile Post 7 tailings basin an ongoing governmental action?

Answer: Yes, the tailings basin operates under a number of active permits. Some of the physical changes can be accommodated under current permits, while others will require permit amendments or new permits.

2. Was an EIS prepared and deemed adequate for the project at the specified location?

Answer: Yes, Reserve Mining Company's Proposed On Land Tailings Disposal Plan underwent a state EIS from 1975-76, with the Determination of EIS Adequacy rendered on June 2, 1976.

3. Are the proposed actions exempt from environmental review pursuant to Minnesota Rules part 4410.4600?

Answer: No, the proposed actions are not exempt under the provisions of Minnesota Rules part 4410.4600.

4. Have substantial changes been made in the proposed project that affect the potential significant adverse environmental effects of the project?

Answer: The following items represent topics evaluated in the EIS where the proposed change in the project could affect the potential for significant environmental effects.

- *Water Quality.* The potential for water quality impacts was assessed in the 1977 EIS, where the impacts of basin operation could be divided into effects on groundwater and effects on surface waters due to seepage of impounded waters. For the Mile Post 7 site, collection and recycling of impounded process and runoff waters was proposed and later implemented with the basin construction and operation. The recycling was expected to result in dissolution of many ore-bound substances, including calcium, magnesium, sodium, manganese, and silica. This would be expected to reach an equilibrium state with no more significant accumulation of these substances. It was also noted that seepage cannot be totally collected, and some amount of seepage would continue to leave the tailings basin area during operations.

Specific impacts attributable to the Mile Post 7 site included potential for: turbidity impact from stream diversion; water quality degradation by introduction of chlorides; water quality degradation from pipeline breakage; and water quality degradation from coarse tailings storage area.

The 50-foot increase in basin crest height requires consideration of whether the additional localized head pressure onto the basin footprint results in significant additional quantities of uncollected seepage leaving the site beyond amounts evaluated in the 1977 EIS. Controlling factors include the degree compacted subsurface layers limit downward seepage and the ability of the existing seepage collection system to sufficiently limit the head pressure delivered to the localized aquifer. MPCA evaluated additional information supplied by Northshore Mining; see “Support for November 14, 2016 description of potential to affect groundwater resources with responses to the following additional aspects”; February 14, 2017. Based upon MPCA’s understanding of the seepage collection system, and that there is unused pumping capacity available, the agency does not expect seepage-related impacts to deviate significantly from that assessed in the 1977 EIS. Any seepage impacts to the water quality of the Beaver River are projected to remain negligible, again within consideration of the issues in the 1977 EIS.

Tailings deposition enabled by the project’s 50 foot rise in basin lift does not materially affect the assessment of potentially significant water quality impacts evaluated in the 1977 EIS. The seepage pond system, along with the seepage relief wells and trenches, can control head pressures at the aquifer thus limiting the amount of seepage leaving the site. The facility remains subject to NPDES/SDS permit provisions, thus any impacts are subject to ongoing regulatory control.

- *Wetlands.* The 1977 EIS was scoped to consider how construction of a tailings basin would change the surface character of the Mile Post 7 site, including marshes. Tailings deposition was projected to cover existing wetlands, while new wet areas would be created from ponds forming over certain areas that were previously wet. Fill-related wetland impacts ranged from 800 acres to 2,740 across the Draft EIS alternatives. The total area of marshes that would be covered by tailings at the Mile Post 7 site was estimated to be 800 acres. See Draft EIS Table 86.

Northshore Mining Company’s pending wetland permit application for the new action identifies a total of 277.87 acres of additional wetland impacts to date, of which 52.15 acres are associated with relocating the railroad and 225.73 acres from progressive tailings deposition. All but 15.8 acres of these impacts are within the 1977 EIS project boundary; approximately 8.0 acres of impact is projected southwest of the landfill with the balance of 7.8 acres occurring along the north edge of the facility.

Although future project-related wetland impacts within the 1977 EIS boundary are due to both the railroad relocation and tailings deposition, and not just tailings deposition, these can be considered the same impacts identified in the 1977 Draft EIS resulting from “filling of marsh.” While the 15.8 acres of wetland impacts outside the 1977 EIS project boundary were not expressly evaluated in the EIS, the types of impacted wetlands are similar to those within the boundary. It is unlikely that these impacts would differ substantially from the environmental consequences already anticipated in the Final EIS from 1977.

The proposed railroad relocation and tailings progression do not affect the potentially significant adverse effects to wetland resources evaluated in the Final EIS for the tailings basin facility. In addition, all of these impacts are subject to ongoing regulatory control under the Permit to Mine, where mitigation would be applied consistent with applicable law. No new analyses, other than what would normally be required for permitting once environmental review is complete, will be needed.

- *Dam Safety.* The 1977 EIS included detail on dam construction to understand how the topography of the “natural valley” could be modified in a way to “close off” the down-gradient end of the valley while bridging the ridges forming the valley, all constructed to impound waste tails from the beneficiation process. Four dams were proposed, three of which were to be built during the first 10 years of operation. The dams were to primarily consist of “coarse,” or cobbled and filtered, tailings. Dikes were also constructed of coarse tailings, where the dikes served as railway spurs for the transport of coarse tailings. The 1977 EIS also specified crest heights for all four main dams at 1280 feet MSL. This was increased to 1315 feet MSL in subsequent facility permitting.

The impacts of raising the current permitted final elevation of Dams 1, 2, and 5 by an additional 50 feet (from 1315 feet to 1365 feet MSL) are essentially the same as examined in the 1977 EIS. Similarly, extending the west end of Dam 1 around the landfill is not a significant departure from operations to date. Coarse tailings will continue to be used and construction methods are not expected to change, thus avoiding the potential for new impacts.

The proposed adjustments to the final crests for Dams 1, 2, and 5 are not unusual for tailings basins, and as long as the design meets current dam safety standards, the progression should not result in impacts different from what was examined in the 1977 EIS. The Dam Safety Permit will likely have to be amended, but no new analyses beyond those normally required for the permit application are anticipated. The potentially significant adverse impacts associated with dam safety are not affected by the proposed action.

- *Aesthetics.* The 1977 EIS included an aesthetic impact analysis whose basic concern was the visibility of the tailings basin alternatives from surrounding roads and natural and cultural features. For the Mile Post 7 Site, the Fine Tailings Site and Coarse Tailings Site were treated separately with both summer and winter views evaluated to account for seasonal variations in vegetative cover. The analysis determined that the Mile Post 7 site would have the highest frequency of visual impact of the alternatives. For the Fine Tailings Site, the 1977 EIS reported “noticeable visual impacts...occurred primarily at Cedar Creek and the East Branch of Beaver River near Lake County Road 3.” Similarly, visual impacts for the Coarse Tailings Site were to the west of the future basin along Little Thirtynine Creek and on Lake County Road 3.

The proposed raising of Dams 1, 2, and 5 by an additional 50 feet will likely add to the impacts identified in the 1977 EIS, and may create new impacts at locations not previously identified. It is also likely the pattern of any seasonal differences would likely mirror the 1977 EIS findings, where the visibility of these project features is marginally greater at the assessment sites when

vegetation is absent. Although some impact is projected, it is expected to be minor and not affect the potential significant adverse environmental effects of the project.

- *Air Quality.* The 1977 EIS assessed potential project-related air impacts in terms of air pollutants that were judged to represent the predominant impacts, which were total suspended particulates (TSP) and airborne asbestos. These factors were the focus because although pollutants were thought to be generated from a wide variety of sources over the life of the facility, particulate emissions from unconfined (fugitive) sources were predicted to substantially exceed total particulate emissions from other sources. During operations, these fugitive emissions were expected to be sourced primarily from wind erosion of dry tailings and vehicular traffic on unpaved roads in the disposal area.

The proposed railroad relocation and tailings progression are not expected to materially affect the air emissions profile from current operations, and thus any future impacts would reflect the findings of the 1977 EIS. MPCA's review of the project indicated it was unlikely the proposed changes would significantly alter the 1977 EIS assessment, nor result in new issues, from an air quality perspective. No new air permit(s) or permit amendment(s) are required for the project to proceed.

- *Terrestrial Habitat and Biota.* The 1977 EIS considered how on-land tailings disposal would eliminate habitat for higher animal life over the life of the project, and existing habitat would probably not be replicated for 100 years or more. Habitat loss equates to individual animal displacement very likely to result in winter kill, starvation, stress, and increased predation, with similar pressures on surrounding local habitat by short-term surplus populations. Post-rehabilitation, species diversity would reflect the effort to restore a mix of vegetation types suited to a variety of animals. Both mammals and birds were considered, including moose, wolf, snowshoe hare, ruffed grouse, and spruce grouse.

Upland vegetation is mainly woodland, with aspen, birch, Jack pine, spruce, and Black ash well represented. Sugar maple is noted as well. All plant life would be eliminated in the footprint of the basin due to tailings deposition and dam construction with the project. The 1977 EIS notes that site reclamation could include restoring the site to timber production if mitigating measures are incorporated into the rehabilitation plans.

The proposed railroad relocation and tailings progression will not substantially alter the impacts of the project as examined in the 1977 EIS. While the type and extent of the impacts won't change, the temporal component is longer than originally projected. Although exactly when tailings deposition will cease is not specified, full site reclamation will not occur for many years, which is longer than the 40-year horizon originally envisioned in the EIS. The Permit to Mine continues to include reclamation requirements, including re-establishing vegetation, that would provide future habitat benefits. Whether the same assemblage of species would be re-established is speculative, but habitat value can return to the site post-project as originally envisioned.

- *State-listed Species.* The 1977 EIS identified that the State of Minnesota listed 64 animal species which merit special consideration, where 21 (excluding fish) may be found in northeastern Minnesota. These included birds (13), mammals (5), reptiles (1), and amphibians (2). Plant species are not addressed in the 1977 EIS. Impacts to listed species are not identified.

The 1977 EIS assessment was updated for this environmental review need determination via a Natural Heritage Information System query to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. One state-listed threatened plant, and three state-listed plants of special concern, have been documented in the project vicinity. An August 2015 site survey did not find these species, but it did document twig rush (*Cladium mariscoides*) and neat spikerush (*Eleocharis nitida*), both of which are state-listed species of special concern. Special concern species are not protected under Minnesota's endangered species law and rules, and a takings permit is not needed to proceed with the project.

The proposed railroad relocation and tailings progression are not expected to materially affect habitat and related animal and plant species, and impacts to state-listed species, beyond the analysis of potentially significant adverse project-related impacts considered in the 1977 EIS.

5. Is there substantial new information or new circumstances that significantly affect the potential environmental effects from the proposed project that have not been considered in the final EIS or that significantly affect the availability of prudent and feasible alternatives with lesser environmental effects?

Answer: No substantial new information or new circumstances have been identified for the proposed project.

Determination

Consistent with the provisions of Minnesota Rules part 4410.3000, subpart 3B, the westward relocation of the railroad and progression of tailings deposition at the Northshore Mining Mile Post 7 tailings basin does not appear to result in substantial changes that affect the potential significant environmental effects of tailings management at the site. The project also does not appear to generate significant environmental effects that were not considered in the 1977 Final EIS nor does it appear to affect the availability of prudent and feasible alternatives with lesser environmental effects. Preparation of an EIS Supplement is not supported.

This determination does not address any other procedural requirements under the Minnesota Environmental Review Program Rules (Chapter 4410). The project must also secure necessary governmental permits and approvals where applicable.

Please contact me with any questions.