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This letter is to inform the co-lead agencies of PolyMet's plan to adjust engineering controls for the stream augmentation system for the NorthMet Project. None of the adjustments detailed below are new controls for the Project; in other words, all of the impacts for these controls have been previously evaluated.

Included with this document are:

- A description of the adjustments to the stream augmentation engineering controls,
- One (1) map to show the location of features discussed in this document, and
- Recommended changes to Supplemental Draft Environmental Impact Statement (SDEIS) text to present the modified and improved engineering controls. Recommended changes are presented by including excerpts from the SDEIS where the containment system is described, then using Track Changes in MS WORD to present suggested edits.

Engineering Controls

The SDEIS described two sources of water that were to be used to augment streamflow in the Embarrass River tributaries (Trimble Creek, Unnamed Creek, and Mud Lake Creek) and Second Creek: discharge from the Flotation Tailings Basin Waste Water Treatment Plant (FTB WWTP) and water transferred from Colby Lake. PolyMet is simplifying the Project such that only FTB WWTP effluent will be used for stream augmentation. In order to accomplish this, the following minor changes will be made to the Project:

1) FTB WWTP: The FTB WWTP will operate at a higher average annual rate in order to provide the necessary volume of water for stream augmentation. This will not require a larger plant than was previously proposed.
2) Drainage Swale: The drainage swale previously proposed to be constructed concurrent with the East Dam will instead be constructed concurrent with the FTB Seepage Containment System. This is strictly a timing adjustment. This change will provide additional water to the tributaries downstream of the Tailings Basin at the beginning of operations, reducing the need for stream augmentation water from other sources. The design and function of the swale have not changed.
3) West Pit Flooding: The flow from the FTB WWTP discharge water used for filling the West Pit in reclamation will be reduced. The reclamation plan presented in the SDEIS

included directing FTB WWTP effluent to the West Pit to expedite flooding. However, with the details described above, the FTB WWTP discharge water will continue to discharge to the Embarrass River tributaries in reclamation for augmentation, reducing the available flow to the West Pit for filling. This loss of flow will not be offset by another source (i.e., Colby Lake) and instead, it is proposed that the West Pit will simply take longer to fill. Preliminary estimates of water quality in the West Pit do not appear to be significantly affected by this proposed change and Project impacts are not expected to change.

The main features of the adjstuments to these engineering controls have been previously been discussed with the Minnesota Department of Natural Resources (MDNR) and the Minnesota Pollution Control Agency (MPCA). The engineering control features discussed here are the drainage swale, the FTB WWTP, stream augmentation water, and water used for filling the West Pit in reclamation. All of these features are shown in the attached map.

Recommended Changes to SDEIS Text

The SDEIS includes descriptions of these engineering controls as proposed at the time of the SDEIS publication. With the modifications discussed above, edits will be necessary to ensure that the Final Environmental Impact Statement (FEIS) accurately describes the current proposal. For reference, locations where the system is described in the SDEIS and the recommended edits to the system description are provided below. In the excerpts below, specific values related to flow rates, specific years, concentrations of modeled constituents, or other will also need to be updated once the modeling for the FEIS is completed. Suggested edits are shown using the MS WORD Track Changes function.

Excerpt from SDEIS Page ES-35 and ES-36

Aluminum – Water quality model results predict that aluminum concentrations would increase the existing surface water exceedance at five evaluation locations north of the Tailings Basin in the Embarrass River watershed. This increase in natural background aluminum concentrations would be a side effect of the NorthMet Project Proposed Action due to the capture of Tailings Basin seepage with low aluminum concentrations by the groundwater containment system. Capture of the seepage would result in less dilution, increasing the proportion of non-contact surface water runoff with higher natural aluminum concentrations reaching the streams. ~~The greatest increases in aluminum concentration for all of these evaluation locations would occur during reclamation, when water from Colby Lake with higher aluminum concentrations would be used for flow augmentation. Therefore, the increase in the magnitude of the aluminum exceedance at these Plant Site evaluation locations is not attributable to process water from the NorthMet Project Proposed Action (i.e., is attributable to non-contact stormwater runoff and Colby Lake water)~~.

Excerpt from SDEIS Page ES-39

Water quality modeling predicts that the NorthMet Project Proposed Action would not cause an exceedance of the Class 2B (aquatic life) water quality standards, with the exception of aluminum and lead not attributable to process water from the NorthMet Project Proposed Action (i.e., attributable to non-contact stormwater runoff ~~and Colby Lake water~~). In a few cases where solute concentrations naturally exceed the Class 2B standards in NorthMet Project area waters (i.e., aluminum, iron, and manganese), the NorthMet Project Proposed Action would either reduce or not measurably increase concentrations of these solutes.

Excerpt from SDEIS Page ES-49

Plant Site WWTP effluent ~~and Colby Lake water~~ would be used to augment flows to tributary streams and wetlands downgradient from the Tailings Basin to offset groundwater seepage captured in the containment system for water quality reasons

Excerpt from SDEIS Page ES-51

Would not directly exceed or increase existing exceedances of Class 2B water quality standards, with the exception of aluminum and lead that is not attributable to process water from the NorthMet Project Proposed Action (i.e., is attributable to non-contact stormwater runoff ~~and Colby Lake water~~)

Excerpt from SDEIS Page ES-55

For withdrawal of water from Colby Lake for plant make-up water; for mine dewatering~~; for stream augmentation~~; Minnesota Rules, part 6115

Figure 3.2-12, Figure 3.2-13, Figure 3.2-17, Figure 3.2-18, Figure 3.2-23

Excerpt from SDEIS Page 3-65

> West Pit reclamation would commence when mining activity ceases, expected in year 20. Primary dewatering systems would no longer be operated, and the West Pit would begin to flood naturally with groundwater, precipitation, and surface runoff from the tributary watershed. ~~Flooding would also be accelerated with water from the Plant Site. With the addition of water pumped from the Plant Site to the West Pit, f~~Flooding of the West Pit is projected to be completed in approximately year 40. When the West Pit is full, the discharge would be controlled via a lift station and pumped to the WWTF for treatment. The WWTF would be upgraded to include RO treatment to achieve an effluent with a sulfate concentration of less than 10 mg/L; this effluent would be discharged into an existing wetland that flows toward Dunka Road south of the West Pit and eventually into the Partridge River through an existing tributary channel. The reject concentrate from the WWTF RO would be evaporated and the residual solids disposed of off-site (see Section 3.2.2.1.8).

Excerpt from SDEIS Page 3-72

> During the reclamation phase (while the West Pit is flooding), the water from the Category 1 Stockpile groundwater containment system would be pumped to the

WWTF and treated. Water from the combined East Central Pit would also be pumped to the WWTF and treated. The effluent from the WWTF would be sent to the combined East Central Pit and West Pit. Treatment of the combined East Central Pit water would include removing the flushing load of constituents added as waste rock is backfilled to the combined East Central Pit, and the pit walls would be inundated. ~~In addition, water from the Tailings Basin would be pumped to the West Pit to flood the pit faster and allow the Tailings Basin to be reclaimed.~~ In the final years of the reclamation phase, water from the West Pit would be pumped to the WWTF, treated, and returned to the West Pit. The objective of treating the West Pit water would be to manage water quality within the pit prior to groundwater outflow from the pit lake via the surficial aquifer. The WWTF could be expanded or treatment capabilities modified if required to meet water resource objectives during this time.

Excerpt from SDEIS Page 3-102

Water needed for the milling and flotation circuits would primarily be return water from the Tailings Basin, which would include treated Mine Site process water. As a contingency measure, any shortfall in water requirements would be made up by raw water from Colby Lake using an existing pump station and pipeline. Throughout operations, the average annual makeup water drawn from Colby Lake would vary between 20 and 810 gallons per minute (gpm), with an average annual demand of 275 gpm. This would be the total potential raw water demand from both the Beneficiation Plant and the Hydrometallurgical Plant.

Excerpt from SDEIS Page 3-123

Treated water from the WWTP would be discharged to four tributaries around the Tailings Basin to augment a reduction in flows as a result of the containment system that would be built around the Tailings Basin. The tributaries that would receive water augmentation are Unnamed Creek, Second Creek, Trimble Creek, and Mud Lake Creek. ~~If the volume of treated water from the WWTP does not provide adequate stream flow, water would be transferred from Colby Lake to augment the flow and meet the target annual average flow. The average annual flow augmentation transferred from Colby Lake would vary between 350 and 2,030 gpm throughout operations and reclamation, with an average annual demand of 1,170 gpm.~~

Excerpt from SDEIS Page 3-129

The WWTP and the groundwater containment system would continue to operate during reclamation, although seepage rates would be progressively reduced. Seepage would be treated at the WWTP ~~and pumped to the Mine Site to aid in West Pit flooding, or it would be~~ discharged as described in Sections 3.2.2.3.10 and 3.2.2.3.11. ~~Flow augmentation water transferred from Colby Lake would also be discharged to the tributaries surrounding the Tailings Basin to augment flows reduced by the~~

~~groundwater containment system.~~ The WWTP and the groundwater containment system would be periodically inspected to ensure continuing integrity.

Excerpt from SDEIS Page 3-135

During the reclamation phase, while the Tailings Basin is being reclaimed and the West Pit is being flooded (approximately years 21-30), the seepage from the Tailings Basin would continue to be collected. A portion of this water would be sent to the WWTP and treated, and a portion of the water would bypass the WWTP, where it would be blended back with the treated portion and pumped ~~both~~ to ~~the West Pit and~~ the Tailings Basin pond. Several years after the start of reclamation, the bottom of the Tailings Basin pond would be augmented with bentonite (see Section 3.2.2.3.12) and the pond water would be pumped to the WWTP, treated, and returned to the pond to the extent possible. The proposed water management for approximate years 31-40 is shown in Figure 3.2-18 in Section 3.2.2.1. Water in the Tailings Basin would be withdrawn, treated, and discharged as required to maintain pond levels.

Excerpt from SDEIS Page 3-137

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~~;

Excerpt from SDEIS Page 4-269

Aluminum could exceed the evaluation criteria in Unnamed Creek, Trimble Creek, and Mud Lake Creek due to an increase in the proportion of non-contact surface water runoff with higher aluminum concentrations ~~and due to flow augmentation during reclamation using water from Colby Lake with high concentrations of aluminum~~.

Excerpt from SDEIS Page 5-6

Additional water for flow augmentation in the nearby tributaries would be ~~pumped from Colby Lake~~discharged from the WWTP at periods during mine operations and reclamation.

Excerpt from SDEIS Page 5-7

In other words, the capture of the seepage would result in less dilution, which would increase the proportion of non-contact stormwater runoff with higher natural aluminum concentrations reaching the streams. ~~The greatest increases in aluminum concentrations for all of these evaluation locations would occur during reclamation when water from Colby Lake with high aluminum concentrations (approximately 70 to 160 µg/L) would be used for flow augmentation.~~ Therefore, the increase in the magnitude of the aluminum exceedance at these Plant Site evaluation locations is not

attributable to process water from the NorthMet Project Proposed Action (i.e., is attributable to non-contact stormwater runoff ~~and Colby Lake water~~).

Excerpt from SDEIS Page 5-79

- process plant makeup water withdrawn from Colby Lake; and
- ~~stream augmentation water withdrawn from Colby Lake; and~~

Excerpt from SDEIS Page 5-81

During most of this period, the WWTP effluent would be used to both flood the West Pit and augment flow in the tributaries to the Embarrass River~~, while Embarrass River augmentation water would come exclusively from Colby Lake~~ (Barr 2013a).

Excerpt from SDEIS Page 5-89

Some of the treated effluent would be used for flow augmentation to Unnamed Creek, ~~Mud Lake Creek,~~ Trimble Creek, and Second Creek. ~~It is predicted that Colby Lake water would no longer be needed for augmentation (Barr 2013a).~~

Excerpt from SDEIS Page 5-114

The NorthMet Project Proposed Action could affect flows in the Partridge River and its tributaries by changing drainage areas (e.g., alteration or reduction in watershed area), reducing groundwater baseflow contributions during the dewatering and flooding of the East Pit and West Pit (i.e., years 1 to 40), and withdrawing water from Colby Lake occasionally for use as makeup water at the processing plant during operations (i.e., years 1 to 20) ~~and for Embarrass River tributary streamflow augmentation during reclamation (i.e., years 20 to 40)~~. Each of these potential effects is discussed below.

Excerpt from SDEIS Page 5-119

The effect of the NorthMet Project Proposed Action on water levels in Colby Lake is related to any changes in Partridge River inflow, as well as water withdrawals to provide water for process water makeup ~~and Embarrass River tributary streamflow augmentation (see Section 5.2.2.3.3 for additional details regarding the proposed flow augmentation program)~~.

NorthMet Project Proposed Action makeup water demand from Colby Lake~~, including water pumped for augmentation to the Embarrass River tributary streams,~~ would be a maximum average annual demand of about 2,030 gpm (4.5 cfs) during operations for process makeup water ~~(for both process makeup water and stream augmentation)~~ and about 1,600 gpm (3.6 cfs) during reclamation to maintain the pond in the FTB as necessary ~~(all for stream augmentation)~~; no water would be needed from Colby Lake during closure.

Excerpt from SDEIS Page 5-120

Therefore, the maximum combined effect of Partridge River flow reduction, plus pumping from Colby Lake for makeup water ~~and flow augmentation~~, would be about 2,500 gpm (about 5.5 cfs). The NorthMet Project DEIS (October 2009) evaluated two potential Colby Lake withdrawal rates, 3,500 gpm and 5,000 gpm, for a previous NorthMet Project design.

Excerpt from SDEIS Page 5-121

Under the NorthMet Project Proposed Action, seepage collection would continue indefinitely, capturing approximately 180 gpm, which would be pumped to the WWTP. As part of its streamflow augmentation plan (PolyMet 2013j), PolyMet would discharge ~~a combination of~~ WWTP effluent ~~and/or Colby Lake~~ water to the headwaters of Second Creek at a rate equal to a minimum of 80 percent of the capture flow rate, or at least 145 gpm, to compensate for interception of the south-side seepage.

Excerpt from SDEIS Page 5-162

The groundwater containment system would continue to operate during reclamation and closure, although in those phases, the seepage could not be reused as process water, but would be treated at the WWTP and used to accelerate filling of the West Pit (during reclamation) and for streamflow augmentation ~~(during closure)~~.

The WWTP would discharge treated effluent to augment streamflow during operations (about 1,574 gpm at representative year 10) and closure (2,020 gpm). During reclamation, some of the WWTP effluent would also be pumped to the West Pit to accelerate flooding. The level of water treatment at the WWTP (including RO) would be designed to be sufficient to meet surface water evaluation criteria.

Excerpt from SDEIS Page 5-174

The Tailings Basin has a contributing watershed immediately to the east of Cell 1E that drains into the cell. In year 7 of mine operations, the East Dam would be constructed to enable tailings deposition into Cell 1E. A drainage swale is proposed near the East Dam to reroute this watershed north to Mud Lake Creek. The primary purpose of the drainage swale is to prevent water from pooling at the toe of the East Dam. However, it will be constructed at the start of the Project so that there will be ~~At that time, the watershed that currently drains into Cell 1E would be rerouted via a constructed drainage swale to drain to the headwaters of Mud Lake Creek. After year 7, there would be~~ no need for augmentation to Mud Lake Creek because of the additional runoff water resulting from the swale diversion.

Excerpt from SDEIS Page 5-177

PolyMet has proposed to augment flow by distributing treated effluent from the WWTP among these three tributary streams to maintain average annual flow to within 20 percent of existing conditions. ~~When necessary, augmentation water would also be supplied from Colby Lake using a separate dedicated pipeline.~~ Table 5.2.2-40 shows the minimum required and maximum allowable (plus or minus 20 percent of existing average annual tributary streamflow) augmentation that would be discharged on an average annual basis from the WWTP ~~and Colby Lake~~ to each of the three tributaries.

Headings, row titles, column titles, and footnotes of Table 5.2.2-40 and Table 5.2.2-41 will need to change to remove any reference to Colby Lake

Excerpt from SDEIS Page 5-178

The total flow required from the WWTP effluent ~~and/or Colby Lake prior to construction of the Mud Lake Creek drainage swale~~ would be between 1,684 and 3,378 gpm on an average annual basis (plus or minus 20 percent of the current total annual average surface flow, less the expected future watershed contribution, summed for all tributaries).

Table 5.2.2-41 shows the amount of water that is anticipated to be pumped from the WWTP for augmentation to each tributary~~, from the two sources,~~ for operations, reclamation, and long-term closure. ~~During operations, WWTP effluent would be the primary source of augmentation water. There would be times, however, when there would not be sufficient WWTP effluent available to meet the minimum flow requirement in the tributaries, and water would be transferred from Colby Lake on an as-needed basis. During reclamation, all WWTP effluent would be used to help flood the West Pit; therefore, during this phase, all augmentation water would come from Colby Lake (approximately 1,600 gpm). In closure, it is expected that effluent from the WWTP alone (estimated at approximately 2,000 gpm) would be sufficient to meet the minimum flow augmentation requirements of the tributaries without requiring additional water from Colby Lake.~~

Excerpt from SDEIS Page 5-180

Hydrologic fluctuations throughout operations and reclamation (first 40 years) would be due to ~~changes in the available amount of WWTP effluent, and changing the augmentation water source between the WWTP and Colby Lake. At no time, however, would flows change by more than the 20 percent threshold of Continuation of Existing Conditions Scenario.~~natural changes in the contributing watersheds and periods where the WWTP needs to discharge excess water from the overall system. Under normal circumstances the discharge from the WWTP will be nearly constant to meet the flow demand of the tributaries so that flows would not change by more than the 20 percent threshold of Continuation of Existing Conditions Scenario.

Excerpt from SDEIS Page 5-181

Then, augmentation water from the WWTP would be distributed to the tributaries to compensate for the collected (intercepted) seepage. Mud Lake Creek however will not need augmentation water from the WWTP because of the drainage swale that will be constructed at the beginning of the Project. ~~During operations, a blend of WWTP effluent and Colby Lake water would be used for augmentation. During most of reclamation, all the augmentation water would come from Colby Lake, and during closure, all the augmentation water would come from the WWTP. These augmentations generally apply to the three creeks; however, Mud Lake Creek would be realigned during year 7, whereby it would receive additional storm runoff, thus eliminating the need for subsequent augmentation.~~

Excerpt from SDEIS Page 5-182

This trend would be attributable to higher sulfate concentrations in the current Tailings Basin seepage (assumed to flow into the streams under Continuation of Existing Conditions Scenario) compared to lower concentrations in the WWTP effluent ~~and Colby Lake water,~~ which would be used for stream augmentation under the NorthMet Project Proposed Action (see Table 5.2.2-47).

The reason for increased PM-13 concentrations for these metals ~~during the operations and closure phases~~ is that ~~WWTF~~ WWTP effluent would ~~mostly~~ be used for augmentation ~~during operations and solely used for augmentation during closure~~. As shown in Table 5.2.2-47, the concentrations of these metals in the WWTP effluent would be significantly higher than concentrations in the current Tailings Basin seepage (assumed for Continuation of Existing Conditions Scenario). As a consequence, there would be a significant increase in solute loading to Embarrass River surface water ~~during operations and closure~~ when compared to Continuation of Existing Conditions Scenario.

~~During reclamation, Colby Lake water would be used exclusively for augmentation and Table 5.2.2-47 shows that the metal concentrations in this augmentation source would be lower than WWTP effluent concentrations and closer to concentrations in the current Tailings Basin seepage. Thus, during reclamation, the solute loading to the surface water would be more similar to Continuation of Existing Conditions Scenario loading associated with the Tailings Basin.~~

Excerpt from SDEIS Page 5-188

~~As Tables 5.2.2-44, 5.2.2-45, and 5.2.2-46 show, the metal concentrations at PM-13 are predicted to decrease, while sulfate concentrations are predicted to increase during reclamation relative to operations or closure. This is attributable to the fact that Colby Lake water (with higher sulfate and lower metal concentrations relative to the WWTP effluent) would comprise all of the flow augmentation during this phase, as the WWTP effluent would be used to help flood the West Pit during this phase.~~

Footnotes on Table 5.2.2-47 will change to remove any reference to Colby Lake used for augmentation water

Excerpt from SDEIS Page 5-190

~~At certain times during operations and reclamation, Colby Lake water would be used to augment flow in the tributary streams. The aluminum concentration in Colby Lake water ranges from about 70 to 160 µg/L, which is higher than the Tailings Basin seepage (5 to 20 µg/L). With regard to aluminum, the effect of using Colby Lake water for augmentation is to increase concentrations in surface water downstream of the Tailings Basin compared to Continuation of Existing Conditions Scenario. This is because the higher concentration Colby Lake water would replace some or all of the lower-concentration Tailings Basin seepage that currently releases to surface water. A mix of WWTP and Colby Lake water would be used during operations (first 20 years), all Colby Lake water would be used during filling of the West Pit (years 21 to 37), and all WWTP effluent would be used during long-term closure (after 37 years).~~

~~For different mining phases, the relative~~The effects of ~~these different sources of~~WWTP effluent water on the maximum P90 aluminum concentrations in the Embarrass River tributary streams and mainstem (PM-13) are shown in Table 5.2.2-48 during operations, reclamation, and closure. For the NorthMet Project Proposed Action, there would be little change in Embarrass River aluminum when compared to Continuation of Existing Conditions Scenario because the River concentration would be controlled by ambient water quality. ~~For operations and reclamation, the aluminum concentrations would be higher in TC-1 and PM-11 because some or all augmentation water would be derived from higher-concentration Colby Lake water. For closure, a~~Aluminum concentrations at TC-~~2~~ 1 and PM-11 would be similar to the Continuation of Existing Conditions Scenario concentrations because all augmentation water would come from the WWTP, which would have an effluent concentration similar to the Tailings Basin seepage. The higher concentrations at MLC-3 during operations, reclamation, and closure would results from construction of the Mud Lake Creek diversion (drainage swale) ~~in mine year 7~~at the beginning of the Project (see Figure 5.2.2-45), which would ~~greatly reduce~~eliminate the need for WWTP augmentation to Mud Lake Creek and replace it with stormwater runoff from the tailings embankment and undisturbed watershed, which is assumed to be have higher-concentration ambient water quality. Compared to Continuation of Existing Conditions Scenario, the loss of dilution from low-concentration Tailings Basin seepage would result in higher aluminum concentrations in Mud Lake Creek for the NorthMet Project Proposed Action.

Excerpt from SDEIS Page 5-191

~~After completion~~Due to ~~of~~ the Mud Lake Creek diversion (drainage swale) ~~in year 7~~at the beginning of the Project (see Figure 5.2.2-45), the aluminum concentration in Mud Lake Creek would not change appreciably for the NorthMet Project Proposed Action because there would be no augmentation and the stream water quality would be controlled by unaffected stormwater runoff from the tailings embankment and natural runoff from the undisturbed watershed. ~~Aluminum in the other two tributaries would reach maximum concentrations during reclamation when all WWTP effluent would be pumped to the Mine Site to help fill the West Pit. As a result, 100 percent of stream augmentation water would come from Colby Lake with relatively high aluminum concentrations.~~Because Trimble Creek and Unnamed Creek (and also Second Creek) will be augmented with effluent from the WWTP, ~~In the long term, when only WWTP effluent would be used for augmentation,~~ the maximum P90 values for Trimble Creek, Unnamed Creek, and the Embarrass River would all decrease. The reason the concentrations would not decrease even more~~, considering that Colby Lake water would no longer be used,~~ is that the seepage rate from the Tailings Basin would be decreasing once operations ceased, resulting in reduced WWTP flows, and therefore less water available to dilute ambient groundwater and surface water with higher aluminum concentrations. During closure for the NorthMet Project Proposed Action, aluminum concentrations at TC-1 would increase less than 1 percent over Continuation of Existing Conditions Scenario and the value at PM-11 would increase less than 5 percent. The net effect of these tributary changes on Embarrass River at PM-13 would be less than a 1 percent increase in aluminum concentration.

In summary, these predicted increases in aluminum would be the result of ~~diverting~~ reducing the flow of low-concentration Tailings Basin seepage, which would dilute the higher-concentration ambient groundwater and surface water under the Continuation of Existing Conditions Scenario~~, and replace it, at least partially, with higher-concentration Colby Lake water~~.

Excerpt from SDEIS Page 5-192

Therefore, these predicted exceedances of the evaluation criteria would be primarily attributable to surface runoff, especially during high flows when surface runoff would dominate flow at the surface water evaluation locations. In fact, the modeling indicates that by directing the WWTP discharge ~~and Colby Lake~~ water to these tributaries, as proposed by PolyMet, there would be a lower probability of an exceedance than if only natural runoff and unaffected groundwater were to reach these tributaries.

Excerpt from SDEIS Page 5-212

- Streamflow augmentation system for flow augmentation in streams downgradient of the Tailing Basin from WWTP effluent ~~and water transferred from Colby Lake~~ in order to maintain streamflows within 20 percent of existing conditions.

Modify the entries in the Monitoring Plan Table 5.2.2-54 on Page 5-221

Excerpt from SDEIS Page 5-297

The Tailings Basin containment system would collect approximately 90 percent of the seepage from the Tailings Basin to groundwater and 100 percent of the seepage from the Tailings Basin to surface water. All of the surface flow that currently upwells near the west, northwest, and north toes of the Tailings Basin would be captured and treated by the WWTP and then discharged to the tributaries to prevent significant hydrologic effects due to reduction in flow. ~~Additionally, during periods when there would be insufficient flow from the WWTP, water would be transferred from Colby Lake to augment the discharge to the tributaries in order to prevent significant hydrologic effects.~~ To the west, the discharge(s) would be directed to a location near the existing surface discharge SD006 (see Figure 5.2.3-21). To the northwest and north, the discharge(s) would be spigotted at multiple locations along the downstream side of the Tailings Basin containment system to add flow to the adjacent wetlands, similar to what occurs under existing conditions (PolyMet 2013b). Table 5.2.3-11 shows the expected amount of discharge needed on an average annual basis~~; discharge needs can be met by either water from the WWTP or from Colby Lake~~. For a detailed discussion of seepage from the Plant Site, refer to Section 5.2.2.

Modify the heading, entries, and footnotes in Table 5.2.3-11 on Page 5-298

Excerpt from SDEIS Page 5-307

The NorthMet Project Proposed Action is predicted to meet all water quality evaluation criteria, or not worsen conditions where contamination already exceeds the criteria. The collection of existing seepage by the containment system and augmentation with ~~Colby Lake and~~ WWTP effluent water would generally improve downstream water quality relative to current conditions.

Excerpt from SDEIS Page 5-311

Construction of the containment system, however, would reduce the amount of seepage flowing to four tributaries of the Embarrass River (PolyMet 2013c). Streamflow would be augmented using WWTP effluent ~~and water from Colby Lake~~ so that the target annual average flow that supports existing wetland hydrology would be met.

Excerpt from SDEIS Page 5-387

The NorthMet Project Proposed Action would continue pumping this seepage back to the Tailings Basin for water quality protection reasons, but would augment flows in Second Creek at approximately 80 percent of the current seepage volume (i.e., about

400 gpm) with ~~a combination of~~ WWTP effluent ~~and/or Colby Lake~~ water throughout NorthMet Project Proposed Action operations, reclamation, and long term closure.

Excerpt from SDEIS Page 5-391

As discussed in Section 5.2.2, PolyMet proposes to capture nearly all seepage from the Tailings Basin, and to mitigate this effect by augmenting flows to the three Embarrass River tributary streams (and Second Creek in the Partridge River) with WWTP effluent ~~and/or Colby Lake~~ water to maintain average annual flows in these tributaries within 20 percent of existing conditions (see Table 5.2.6-4).

Excerpt from SDEIS Page 5-392

As discussed in Section 5.2.2, however, the predicted increases in aluminum are not the result of increased aluminum loadings from the NorthMet Project Proposed Action, but rather the result of capturing Tailings Basin seepage (via the groundwater containment system) with low concentrations of aluminum, which tends to dilute higher aluminum concentrations in ambient groundwater and surface water, and replacing it~~, at least partially, with higher aluminum concentration Colby Lake water~~ with effluent from the WWTP at an overall reduced flow.

Excerpt from SDEIS Page 5-392

Although maximum solute P90 concentrations are expected to meet Class 2B water quality standards for solutes other than aluminum and lead, the NorthMet Project Proposed Action is projected to alter the existing water quality of the Embarrass River by increasing solute concentrations from 2 to almost 30 times the existing level. The addition of WWTP ~~and, when necessary, Colby Lake~~ water to Unnamed Creek and~~,~~ Trimble Creek~~, Mud Lake Creek~~ as part of the augmentation program is projected to contribute to these loading increases, as well as to reduce hardness by over 50 percent in these tributaries.

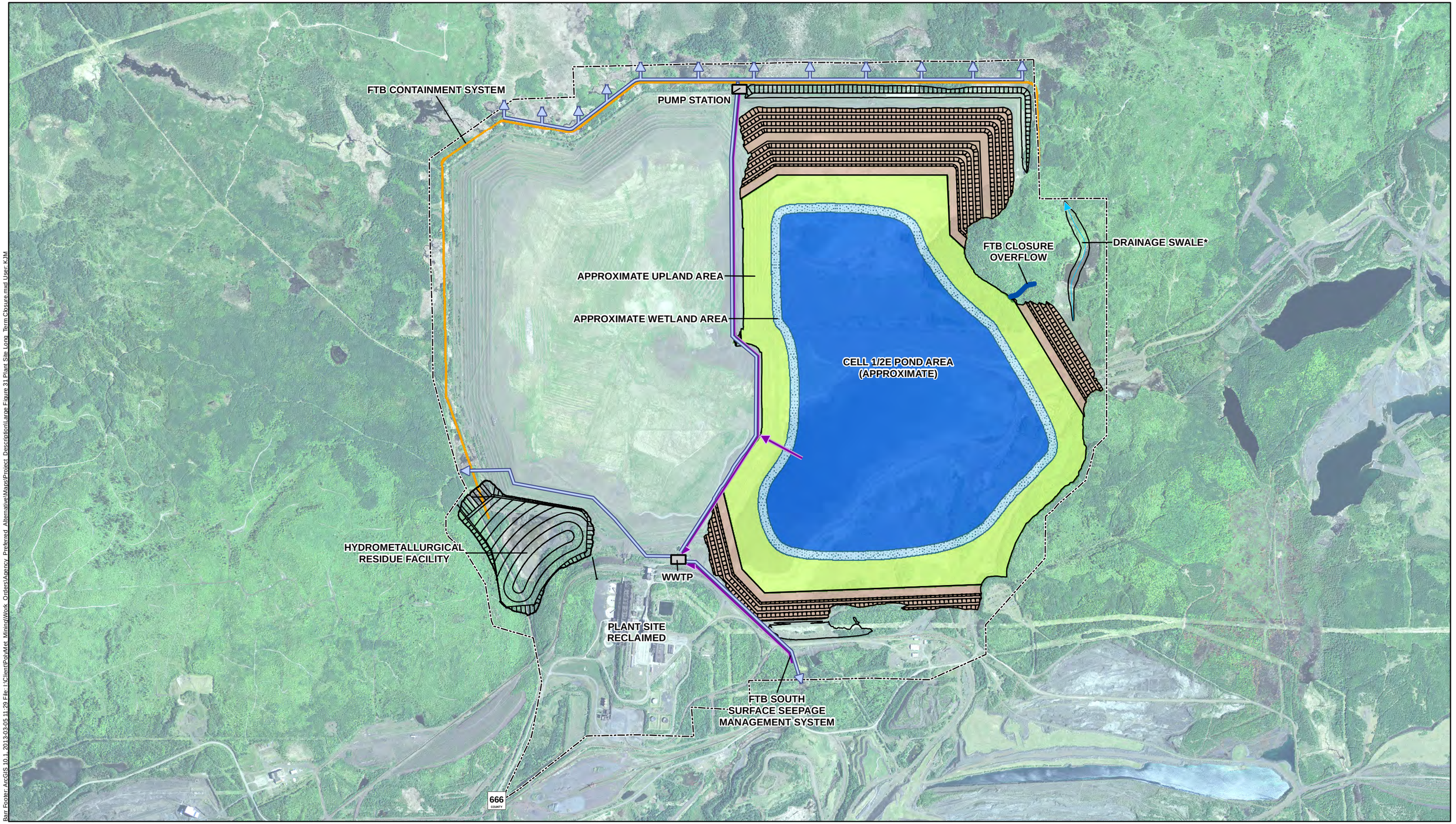
Table 7.2-1 needs to remove any reference to Colby Lake being used for stream augmentation (Pages 7-5 and 7-7)

As always, PolyMet is happy to answer any questions you have about the stream augmentation process, or any other aspect of the NorthMet project.

Sincerely,

Jennifer Saran

Jennifer Saran
Director of Environmental Permitting and Compliance



Project Area
Pond
Wetland Area
Upland Area
Embankment

Treated Water Discharge Pipe
Pipes to Treatment Plant
FTB Containment System
Drainage Flow Direction

*The drainage swale drains stormwater away from the toe of the dam.

N

0 2,000 4,000
Feet

Large Figure 31
PLANT SITE LONG-TERM CLOSURE
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, MN