**Supplemental Table 1. Summary of assumptions and model inputs specified in MIKE SHE Scenario Simulations**

| **Mine Component** | **Component Feature** | **20-yr**  **Managed Water** | **20-yr**  **Abandonment** | **78-yr**  **Managed Water** | **78-yr**  **Abandonment** |
| --- | --- | --- | --- | --- | --- |
| ***Climate Sequence*** |  | 7/2002 to 7/2008 | 7/2002 to 7/2008 | 7/2002 to 7/2008 | 7/2002 to 7/2008 |
| ***Main WMP*** |  | assumed returned to baseline | baseline | baseline | baseline |
| ***Bulk TSF North*** | Surface Grade | Sloped to pond east side. Assumed | Sloped to pond east side. Assumed | Sloped to pond east side. Assumed | Sloped to pond east side. Assumed |
|  | Pump to NFK (freshwater) | Pump at 3 m3/s when above 527.1 m, stop when below 527 m. | same | same | same |
|  | Hydraulic Properties of Tailings | Assume 5e-7 m/s. Promote runoff vs. infiltration. | same | same | same |
|  | Underdrain | Drain entire TSF footprint to downstream SCP. Elevation just below base of overburden. Assume efficient drain in saturated zone in MSHE. | same | same | same |
|  | Vegetation | Re-vegetated | same | same | same |
| ***Bulk TSF South*** | Surface Grade | Sloped to pond north side. Assumed | Sloped to pond east side. Assumed | Sloped to pond east side. Assumed | Sloped to pond east side. Assumed |
|  | Pump to SFK (freshwater) | not considered | not considered | Pump at 3 m3/s when above 572 m, stop when below 571.5 m. | Pump at 3 m3/s when above 572 m, stop when below 571.5 m. |
|  | Hydraulic Properties of Tailings | Assume 5e-7 m/s. Lower permeability, to promote runoff vs. infiltration. | same | same | same |
|  | Underdrain | Drain south TSF to South TSF SCP | same | same | same |
|  | Vegetation | Re-vegetated | same | same | same |
| ***Bulk TSF Main SCP*** | Dam | Assumed dam elevation from Closure Map Fig 4.16-6. | Assumed dam elevation from Closure Map Fig 4.16-6. | Assume dam elevation (Fig 1, RFI 062) | Assume dam elevation (Fig 1, RFI 062) |
|  | Pump to Pit | Discharge at 3 m3/s, when level reaches 350 m, stops at 349 m | Turned off. | Discharge at 3 m3/s, when level reaches 350 m, stops at 349 m | Turned off. |
|  | Grout Curtains | All curtains assumed 1e-7 m/s (similar to PLP assumptions). |  |  |  |
| ***South TSF SCP*** | Dam | Small SCP/recycle pond. Dam/spillway assumed from Fig 4.16-6. | same | Larger, further south than 20-yr configuration. Determined from Fig. | Larger, further south than 20-yr configuration. Determined from Fig. |
|  | Pump to Pit | Discharge at 3 m3/s, when level reaches 350 m, stops at 349 m | Turned off. | Discharge at 2 m3/s, when level reaches 305 m, stops at 304 m | Turned off. |
| ***PAG Tailings North*** | Surface Grade | not considered | not considered | no data provided in DEIS. Assumed flat. | no data provided in DEIS. Assumed flat. |
|  | Underdrain |  |  | no data provided in DEIS. Assumed no drain. | no data provided in DEIS. Assumed no drain. |
|  | Hydraulic Property of Waste |  |  | Assume 5e-7 m/s. Lower permeability, to promote runoff vs. infiltration. | Assume 5e-7 m/s. Lower permeability, to promote runoff vs. infiltration. |
|  | Pump to Pit |  |  | Discharge at 2 m3/s, when level reaches 305 m, stops at 304 m | Turned off. |
| ***PAG Tailings South*** | Surface Grade | not considered | not considered | same as north | same as north |
|  | Underdrain |  |  | same as north | same as north |
|  | Hydraulic Properties of Tailings |  |  | same as north | same as north |
|  | Pump to Pit |  |  | Discharge at 2 m3/s, when level reaches 305 m, stops at 304 m | Turned off. |
| ***Quarries (A, B, C)*** | Surface Grade | No data provided in DEIS. Assumed flat. | same | same | same |
|  | Soil/Revegetated | Revegetated (original) | same | same | same |
| ***Mine Pit Area*** |  | Defined based on DEIS figures. | same | same | same |
| ***Pit Depth*** |  | 2,200 ft (ref Sec 4.17 DEIS). Variable depths calculated based on 39-degree bench slope. | 2,200 ft (ref Sec 4.17 DEIS). Variable depths calculated based on 39-degree bench slope. | 3,500 ft (ref Sec 4.17 DEIS). Variable depths calculated based on 39-degree bench slope | 3,500 ft (ref Sec 4.17 DEIS). Variable depths calculated based on 39-degree bench slope |
| ***Pit Lake Level*** |  | 890 ft (271 m amsl) referenced, Sec 4.17 DEIS) | calculated | 787.2 ft (maintains inward flow) - determined by MSHE model iterations. | calculated |
| ***Pumps – Pit lake to SFK, NFK and UT release points.*** |  | Pumped at 3 m3/s to each drainage, when level reaches 890 ft, stops at 888.9 ft. | Turned off. | Pumped at 10 m3/s to each drainage, when level reaches 787.2 ft, stops at 783.9 ft. | Turned off. |
| ***PAG/Pyritic Waste in Pit*** | New Pit Surface | Calculated new surface based on PAG/Pyritic Waste Volumes (5.7e9 ft3) | Calculated new surface based on PAG/Pyritic Waste Volumes (5.7e9 ft3) | Assumed no waste rock in pit (as per Dave Chambers) | Assumed no waste rock in pit (as per Dave Chambers) |
| ***WRF North and South*** | Surface Grade | not considered | not considered | No surface in DEIS. Assumed increase in elevation based on North and South Volume (7.7e9 m3), and surface area of WRFs | No surface in DEIS. Assumed increase in elevation based on North and South Volume (7.7e9 m3), and surface area of WRFs |
|  | Soil/Revegetated |  |  | Same as baseline | Same as baseline |
|  | Hydraulic Property of Waste | K = 0.005 m/s (high permeability) | K = 0.005 m/s (high permeability) | High Permeability (0.001 m/s) to promote infiltration, not infiltration | High Permeability (0.001 m/s) to promote infiltration, not infiltration |
|  | Surface Drainage Features |  |  | no channels | no channels |
| ***WRF - North Collection Pond*** | Dam | not considered | not considered | Assume dam elevation (Fig 1, RFI 062) | same |
|  | Pump to Pit | not considered | not considered | Discharge at 5 m3/s, when level reaches 240 m, stops at 239 m | Turned off. |
| ***WRF - South Collection Pond*** | Dam | not considered | not considered | Assume dam elevation (Fig 1, RFI 062) | same |
|  | Pump to Pit | not considered | not considered | Discharge at 5 m3/s, when level reaches 308 m, stops at 307 m | Turned off. |