

The MSHA regulations and guidelines for emergency response incorporated into the Applicant's Emergency Response Plan are the health and safety standards for the protection of life and prevention of injuries in US mines.

## **A-4 SUMMARY OF BEST AVAILABLE, PRACTICABLE, AND NECESSARY TECHNOLOGIES**

The identified technologies were reviewed to determine if they achieved the objectives of being available, practicable, and necessary for the specific site at Grassy Mountain (Table A-3). The analysis considered site-specific conditions including climate, mineralization, geological, geotechnical, hydrogeological, and morphological conditions when determining whether a technology is necessary and practicable. All technologies are available, with the exception of gold roasting and mercury amalgamation, which are no longer practiced in North America because newer technologies have been developed that are less environmentally damaging.

The BAPNT review process first requires the TRT to determine the necessary technologies to achieve the objectives of the Project. If a technology is considered to be unnecessary, it is not considered further. For the technologies that are needed, the TRT must determine if these are available and technically feasible.<sup>1</sup> If a technology is considered not to be technically feasible, it is not considered further. The technologies that are deemed necessary, available, and technically feasible were then ranked according to their environmental benefits, as follows:

- 0 = the technology has a negative implication for the resource;
- 1 = the technology has a neutral implication for the resource, or is approximately equal to another technology that would achieve the same purpose;
- 2 = the technology has some environmental benefit when compared with an alternative technology.

Those technologies that are deemed to be necessary, available and practicable are also assessed for economic feasibility. Those that are not economically feasible are not considered to be the best option. The BAPNTs that are technically and economically feasible have the highest scores. Table A-3 provides this information. The Applicant's proposed technologies are identified in bold.

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<sup>1</sup> A technology is technically feasible if it would meet the Project purpose and environmental standards.

**Table A-3 Ranking of Best Available, Practicable, Necessary Technology for Project Components**

| Project Component                | EE Section                                | Name of Technology  | Necessary | Available | Technically Feasible | Practicable / Environmental Benefit<br>(Score 0 to 2) |                 |       |        |          | Economically Feasible | Total Score |
|----------------------------------|---|---|-----------|-----------|----------------------|---|-----------------|-------|--------|----------|-----------------------|-------------|
|                                  |   |   |           |           |                      | Air Quality   | Water Resources | Waste | Energy | Wildlife |                       |             |
| <i>Mine Construction Methods</i> |   |   |           |           |                      |   |                 |       |        |          |                       |             |
| Extracting Ore                   | 2.1.3, 2.2.3.2, A-3.1                     | <b>Underground Mining</b>   | Yes       | Yes       | Yes                  | 2   | 2               | 1     | 2      | 2        | Yes                   | 9           |
|                                  | 2.2.3.2, A-3.1                            | Open-Pit Mining   | Yes       | Yes       | No                   | -   | -               | -     | -      | -        | -                     | -           |
|                                  | 2.1.3, A-3.1                              | <b>Mechanized Cut-and-Fill with CRF</b>   | Yes       | Yes       | Yes                  | 1   | 2               | 2     | 2      | 2        | Yes                   | 9           |
|                                  | A-3.1                                     | Longhole Open Stoping   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                                  | A-3.1                                     | Blind Bench Stoping   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
| Backfilling                      | A-3.1                                     | Dry Fill  | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                                  | A-3.1                                     | Hydraulic Fill  | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                                  | 2.1.3, A-3.1                              | <b>Cemented Fill</b>  | Yes       | Yes       | Yes                  | 1   | 2               | 2     | 2      | 2        | Yes                   | 9           |
|                                  | 2.2.3.5, A-3.3                            | Paste Fill  | Yes       | Yes       | No                   | -   | -               | -     | -      | -        | -                     | -           |
| Transporting Mined Materials     | 2.1.15, A-3.1                             | <b>Diesel Fuel (Trucks and Loaders)</b>   | Yes       | Yes       | Yes                  | 1   | 1               | 1     | 1      | 1        | Yes                   | 5           |
|                                  | 2.2.3.13, 2.2.5, 5.4, A-3.1               | Biodiesel Fuel (Trucks and Loaders)   | Yes       | Yes       | Yes                  | 2   | 1               | 1     | 2      | 1        | Yes                   | 7           |
|                                  | 2.2.3.10, 2.2.5, 5.4, A-3.1               | Operational Improvement Technologies (e.g., Short Interval Control)   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
| <i>Mill Operations</i>           |   |   |           |           |                      |   |                 |       |        |          |                       |             |
| Chemical Ore Processing          | 2.1.6.2, 2.1.6.3, 2.1.6.4, 2.2.3.6, A-3.2 | <b>CIL Cyanide Circuit, Elution, and Electrowinning Recovery</b>  | Yes       | Yes       | Yes                  |   | 1               | 1     | 1      | 1        | Yes                   | 5           |
|                                  | 2.2.3.6, A-3.2                            | Gold Roasting   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                                  | A-3.2                                     | Mercury Amalgamation  | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                                  | 2.2.3.9, 2.2.5, 2.2.6.3, A-3.2            | Thiosulfate Leach   | Yes       | Yes       | No                   | -   | -               | -     | -      | -        | -                     | -           |
|                                  | 2.2.3.6, A-3.2                            | Alternative Mill Processing (gravity concentration, hydrometallurgical, pyrometallurgical, flotation, pressure oxidation) | Yes       | Yes       | No                   | -   | -               | -     | -      | -        | -                     | -           |
|                                  | 2.2.3.6, A-3.2                            | Heap Leaching   | Yes       | Yes       | Yes                  | 2   | 0               | 1     | 0      | 0        | No <sup>2</sup>       | -           |
|                                  | 2.2.3.6, A-3.2                            | Offsite Ore Processing  | Yes       | Yes       | Yes <sup>1</sup>     | 0   | 2               | 1     | 0      | 1        | No <sup>2</sup>       | -           |
|                                  | 2.2.3.9, A-3.2                            | Non-cyanide Gold Extraction Processes (gravity separation, microbial leaching, biological, leaching agents)               | Yes       | Yes       | No                   | -   | -               | -     | -      | -        | -                     | -           |
| Cyanide Management               | 2.1.7, 2.2.3.7, A-3.2                     | <b>Detoxification and Neutralization of Cyanide</b>   | Yes       | Yes       | Yes                  | 1   | 2               | 1     | 1      | 2        | Yes                   | 7           |
|                                  | 2.2.3.8, A-3.2                            | Cyanide Reduction   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                                  | 2.1.6, A-3.2                              | <b>Cyanide Destruction Circuit</b>  | Yes       | Yes       | Yes                  | 1   | 1               | 2     | 1      | 2        | Yes                   | 7           |
| Cyanide Monitoring               | 2.2.3.8, A-3.2                            | <b>Certified Laboratory Testing</b>   | Yes       | Yes       | Yes                  | 1   | 2               | 2     | 1      | 2        | Yes                   | 8           |
|                                  | 2.1.7, 2.2.3.8, A-3.2                     | <b>In-Line Device (e.g., Cynoprobe)</b>   | Yes       | Yes       | Yes                  | 1   | 2               | 1     | 1      | 2        | Yes                   | 7           |

| Project Component             | EE Section                              | Name of Technology  | Necessary | Available | Technically Feasible | Practicable / Environmental Benefit<br>(Score 0 to 2) |                 |       |        |          | Economically Feasible | Total Score |
|-------------------------------|---|---|-----------|-----------|----------------------|---|-----------------|-------|--------|----------|-----------------------|-------------|
|                               |   |   |           |           |                      | Air Quality   | Water Resources | Waste | Energy | Wildlife |                       |             |
| Air Quality Controls          | 2.1.6.4, A-3.2                          | <b>Mercury Retort Oven</b>  | Yes       | Yes       | Yes                  | 2   | 1               | 0     | 0      | 1        | Yes                   | 4           |
|                               | A-3.2                                   | <b>Wet Scrubber</b>   | Yes       | Yes       | Yes                  | 2   | 1               | 1     | 1      | 1        | Yes                   | 6           |
|                               | A-3.2                                   | Electrostatic Precipitator  | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                               | A-3.2                                   | Baghouse Filter   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
| Process Solution Containments | A-3.2                                   | <b>Concrete Secondary Containments</b>  | Yes       | Yes       | Yes                  | 1   | 1               | 1     | 1      | 1        | Yes                   | 5           |
|                               | A-3.2                                   | Water Stops and Concrete Coatings   | Yes       | Yes       | Yes                  | 1   | 2               | 1     | 1      | 1        | Yes                   | 6           |
| Wildlife Exclusion from Mill  | 3.5.4.2, 5.3, A-3.2                     | <b>Perimeter Fencing and Monitoring</b>   | Yes       | Yes       | Yes                  | 1   | 1               | 1     | 1      | 2        | Yes                   | 6           |
|                               | 3.5.4.2, 5.3, A-3.2                     | <b>Covers, Mesh, or Netting to Reduce Bird and Bat Nesting</b>  | Yes       | Yes       | Yes <sup>1</sup>     | 1   | 1               | 1     | 1      | 2        | Yes                   | 6           |
|                               | 5.3, A-3.2                              | <b>Covering Waste Bins</b>  | Yes       | Yes       | Yes                  | 1   | 1               | 2     | 1      | 2        | Yes                   | 7           |
| Closure of the Mill           | 2.1.17, 2.2.3.14, A-3.2                 | <b>Dismantling, Salvaging, Selling, or Authorized Disposal of Mill Infrastructure</b>                 | Yes       | Yes       | Yes                  | 1   | 2               | 2     | 1      | 1        | Yes                   | 7           |
|                               | 2.1.17, 2.2.3.14, A-3.2                 | <b>Breaking, Burying, and Recontouring Foundations</b>  | Yes       | Yes       | Yes                  | 1   | 1               | 2     | 2      | 1        | Yes                   | 7           |
|                               | A-3.2                                   | Removal of Foundation Materials   | Yes       | Yes       | Yes                  | 0   | 2               | 0     | 0      | 1        | Yes                   | 3           |
|                               | A-3.2                                   | Retaining Power Lines Post-Closure  | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                               | 2.1.17, 2.2.3.14, 5.3, 5.4, A-3.2       | Planting Sagebrush Plugs/Seedlings and Perennial Grasses and Forbs with a Monitoring Program          | Yes       | Yes       | Yes                  | 1   | 1               | 1     | 1      | 2        | Yes                   | 6           |
| 2.1.17, A-3.2                 | Closure-Period Inspections              | Yes   | Yes       | Yes       | 2                    | 2   | 2               | 1     | 2      | Yes      | 9                     |             |
| <i>Tailings Management</i>    |   |   |           |           |                      |   |                 |       |        |          |                       |             |
| Tailings Disposal             | 2.1.8, A-3.3                            | <b>Permanent Storage of Tailings in Lined TSF</b>   | Yes       | Yes       | Yes                  | 1   | 1               | 1     | 1      | 1        | Yes                   | 5           |
|                               | 2.1, 2.1.5.2, 2.1.6, A-3.2              | <b>TSF Lime Addition</b>  | Yes       | Yes       | Yes                  | 0   | 2               | 2     | 1      | 2        | Yes                   | 7           |
|                               | 2.2.3.5, A-3.3                          | Mix with Cement and Use as Backfill in Underground Mine   | Yes       | Yes       | No                   | -   | -               | -     | -      | -        | -                     | -           |
|                               | A-3.3                                   | <b>TSF pH Monitoring</b>  | Yes       | Yes       | Yes                  | 1   | 2               | 1     | 1      | 2        | Yes                   | 7           |
| Tailings Water Content        | 2.2.2.2, A-3.3                          | <b>Conventional Tailings Slurry</b>   | Yes       | Yes       | Yes                  | 1   | 1               | 1     | 1      | 1        | Yes                   | 5           |
|                               | 2.2.2.2, A-3.3                          | Filtered Tailings   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                               | 2.2.2.2, A-3.3                          | High-density Thickened Tailings   | No        | -         | -                    | -   | -               | -     | -      | -        | -                     | -           |
|                               | A-3.3                                   | Water Balance Accounting (including probabilistic and deterministic meteorological water projections) | Yes       | Yes       | Yes                  | 1   | 2               | 1     | 1      | 2        | Yes                   | 7           |
| TSF Design                    | 2.1.8, 2.2.2.4, 2.2.3.3, 2.2.3.4, A-3.3 | <b>Zero-discharge with Synthetic Double Lining</b>  | Yes       | Yes       | Yes                  | 1   | 2               | 1     | 1      | 1        | Yes                   | 6           |
|                               | 2.2.3.4, A-3.3                          | Alternative Liners  | Yes       | Yes       | Yes                  | 1   | 2               | 1     | 1      | 1        | No <sup>2</sup>       | -           |
|                               | A-3.3                                   | Reparable Liner   | Yes       | No        | -                    | -   | -               | -     | -      | -        | -                     | -           |

| Project Component                                      | EE Section                        | Name of Technology  | Necessary | Available | Technically Feasible | Practicable / Environmental Benefit (Score 0 to 2) |                 |       |        |          | Economically Feasible | Total Score |
|--|-----------------------------------|---|-----------|-----------|----------------------|--|-----------------|-------|--------|----------|-----------------------|-------------|
|  |                                   |   |           |           |                      | Air Quality  | Water Resources | Waste | Energy | Wildlife |                       |             |
|  | A-3.3                             | Alternative Embankment Designs (using different materials)              | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|  | A-3.3                             | LIDAR Slope Monitoring  | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
| Leak Detection   | 2.1.4, 2.1.8, 2.2.3.4, 5.3, A-3.3 | <b>Liner Leak Detection and Collection</b>                              | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |
|  | 2.1.19.1, A-3.3                   | <b>Groundwater Monitoring for Leaks</b>                                 | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |
|  | 2.2.3.4, A-3.3                    | Electromagnetic Leak Detection  | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|  | A-3.3                             | Geophysical Leak Detection  | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
| Long-Term Pollution Prevention Controls and Monitoring | 2.1.19.3, A-3.3                   | <b>Backfilling using CRF</b>  | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |
|  | 2.1.17, A-3.3                     | <b>Plugging the Mine Portal</b>   | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
|  | 2.1.17, A-3.3                     | <b>Retaining Liners in Perpetuity</b>                                   | Yes       | Yes       | Yes                  | 1  | 2               | 2     | 1      | 1        | Yes                   | 7           |
|  | 2.1.17, A-3.3                     | <b>Reclaiming Mine Areas</b>  | Yes       | Yes       | Yes                  | 2  | 2               | 2     | 1      | 2        | Yes                   | 9           |
|  | 2.1.17, A-3.3                     | <b>Converting the Reclaim Pond to an Evaporation Cell</b>               | Yes       | Yes       | Yes                  | 1  | 2               | 2     | 2      | 1        | Yes                   | 8           |
|  | 2.1.17, A-3.3                     | <b>Retaining Stormwater Infrastructure</b>                              | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 2      | 2        | Yes                   | 8           |
|  | D-5.1, A-3.3                      | Monitoring Mined Materials Quarterly During Operations                  | Yes       | Yes       | Yes                  | 1  | 2               | 2     | 2      | 2        | Yes                   | 9           |
| Long-Term Monitoring                                   | 2.1.19.2, A-3.3                   | <b>Monitoring Groundwater</b>   | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 2        | Yes                   | 7           |
|  | 2.1.19.2, A-3.3                   | <b>Monitoring Noxious Weeds</b>   | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 2        | Yes                   | 7           |
|  | A-3.3                             | Noxious Weed Mapping via UAV or Satellite Imagery                       | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|  | 2.1.19.2, A-3.3                   | <b>Facility Inspections, Maintenance, and Repairs</b>                   | Yes       | Yes       | Yes                  | 1  | 2               | 2     | 1      | 2        | Yes                   | 8           |
|  | 2.1.19.2, A-3.3                   | <b>Inspections and Sampling of Stormwater Facilities and Discharges</b> | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 2        | Yes                   | 7           |
|  | A-3.3                             | Spring and Seep Monitoring  | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 2        | Yes                   | 7           |
|  | 2.1.19.2, A-3.3                   | Biomonitoring   | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
| 2.1.19.2, A-3.3  | Vegetation Cover Indexes          | No  | -         | -         | -                    | -  | -               | -     | -      | -        | -                     |             |
| TSF Wildlife Exclusion                                 | 3.5.4.2, 5.3, A-3.3               | <b>Perimeter Fence and TSF Fences and Barriers</b>                      | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
|  | 3.5.4.2, 5.3, A-3.3               | <b>Bird Deterrent Balls on TSF Pond</b>                                 | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
|  | 3.5.4.2, 5.4, A-3.3               | Visual Deterrents: Effigies, Predator Models                            | Yes       | Yes       | Yes1                 | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
|  | 3.5.4.2, A-3.3                    | Radar-activated Propane Cannons   | Yes       | Yes       | Yes1                 | 1  | 1               | 1     | 0      | 2        | Yes                   | 5           |
|  | 3.5.4.2, 5.4, A-3.3               | Laser Bird Deterrents   | Yes       | Yes       | Yes1                 | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
|  | 3.5.4.2, A-3.3                    | Emergency Hazing  | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
|  | 3.5.4.2, 5.4, A-3.3               | Bio-exclusion Zones   | Yes       | Yes       | Yes1                 | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |

| Project Component                    | EE Section              | Name of Technology  | Necessary | Available | Technically Feasible | Practicable / Environmental Benefit (Score 0 to 2) |                 |       |        |          | Economically Feasible | Total Score |
|--------------------------------------|-------------------------|---|-----------|-----------|----------------------|--|-----------------|-------|--------|----------|-----------------------|-------------|
|                                      |                         |   |           |           |                      | Air Quality  | Water Resources | Waste | Energy | Wildlife |                       |             |
|                                      | 3.5.4.2, A-3.3          | Decoy Ponds   | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|                                      | 3.5.4.2, A-3.3          | Hyper-salinization  | Yes       | Yes       | Yes                  | 0  | 0               | 1     | 0      | 1        | No2                   | -           |
|                                      | 3.5.4.2, 5.3, A-3.3     | <b>Monitoring Perimeter for Signs of Wildlife</b>                               | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
|                                      | 3.5.4.2, 5.3, A-3.3     | Netting and Wires on TSF  | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|                                      | 5.3, A-3.3              | <b>Monitoring and Removal of Aquatic Species in TSF Pond</b>                    | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 2        | Yes                   | 6           |
| Closure of the TSF                   | A-3.3                   | <b>Dry Closure</b>  | Yes       | Yes       | Yes                  | 1  | 2               | 2     | 1      | 2        | Yes                   | 7           |
|                                      | 2.1.16, A-3.3           | <b>Conversion of Process Pond to Evapotranspiration Cell</b>                    | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 2      | 2        | Yes                   | 8           |
|                                      | A-3.3                   | Wet Closure   | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|                                      | A-3.3                   | Wetland Establishment Closure   | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|                                      | A-3.3                   | Alternative TSF Cover Design  | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|                                      | A-3.3                   | Hydroseeding  | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 1        | Yes                   | 5           |
| <i>Operations Management</i>         |                         |   |           |           |                      |  |                 |       |        |          |                       |             |
| Water Management                     | 2.1.9.1, 2.1.9.2, A-3.4 | <b>Site Groundwater Production Wells and Water Level and Quality Monitoring</b> | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 1        | Yes                   | 5           |
|                                      | 2.2.2.5, A-3.4          | Pipeline from Municipal Supply  | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
|                                      | A-3.4                   | Perimeter Well Dewatering   | Yes       | Yes       | No                   | -  | -               | -     | -      | -        | -                     | -           |
|                                      | A-3.4                   | Groundwater Production Sumps for Dewatering                                     | Yes       | Yes       | Yes <sup>1</sup>     | 1  | 0               | 0     | 1      | 1        | Yes                   | 3           |
|                                      | A-3.4                   | Closure Reclamation of Water Supply Piping                                      | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 1        | Yes                   | 5           |
| Air Quality Control Measures         | A-3.4                   | Monitor TSF for Dust after Operations Cease and Prior to Cover                  | Yes       | Yes       | Yes                  | 2  | 1               | 1     | 1      | 1        | Yes                   | 6           |
|                                      | 5.3, A-3.4              | <b>Dust Suppression Water Spray</b>   | Yes       | Yes       | Yes                  | 2  | 0               | 1     | 0      | 1        | Yes                   | 4           |
|                                      | 5.3, A-3.4              | <b>Equipment Hoods, Curtains, Chutes</b>  | Yes       | Yes       | Yes                  | 2  | 1               | 1     | 1      | 1        | Yes                   | 6           |
|                                      | A-3.4                   | <b>Cover/Enclose Material Piles</b>   | Yes       | Yes       | Yes                  | 2  | 1               | 1     | 0      | 1        | Yes                   | 5           |
|                                      | 5.3, A-3.4              | <b>Air Permit BMPs</b>  | Yes       | Yes       | Yes                  | 2  | 0               | 1     | 1      | 1        | Yes                   | 5           |
|                                      | A-3.4                   | <b>Dust Control Staff Training</b>  | Yes       | Yes       | Yes                  | 2  | 1               | 1     | 1      | 1        | Yes                   | 6           |
| Equipment Maintenance                | A-3.4                   | Reactive Maintenance  | Yes       | Yes       | Yes                  | 0  | 0               | 1     | 1      | 1        | Yes                   | 3           |
|                                      | A-3.4                   | <b>Preventative Maintenance</b>   | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 1        | Yes                   | 5           |
|                                      | A-3.4                   | Predictive Maintenance  | No        | -         | -                    | -  | -               | -     | -      | -        | -                     | -           |
| Operations Monitoring                | 2.1.19.1, 5.3, A-3.4    | <b>Resource-Specific Monitoring Plans</b>                                       | Yes       | Yes       | Yes                  | 2  | 2               | 2     | 1      | 2        | Yes                   | 9           |
|                                      | A-3.4                   | <b>Permit Monitoring Requirements</b>   | Yes       | Yes       | Yes                  | 2  | 2               | 2     | 2      | 2        | Yes                   | 10          |
| <i>Acid Rock Drainage Management</i> | D-3, D-4.6, A-3.5       | <b>CRF</b>  | Yes       | Yes       | Yes                  | 0  | 2               | 1     | 1      | 1        | Yes                   | 5           |
|                                      | A-3.5                   | Additional Monitoring and Testing (by mine level)                               | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |
|                                      | A-3.5                   | Additional Water Quality Monitoring   | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |

| Project Component  | EE Section                | Name of Technology  | Necessary | Available | Technically Feasible | Practicable / Environmental Benefit (Score 0 to 2) |                 |       |        |          | Economically Feasible | Total Score |
|--|---------------------------|---|-----------|-----------|----------------------|--|-----------------|-------|--------|----------|-----------------------|-------------|
|  |                           |   |           |           |                      | Air Quality  | Water Resources | Waste | Energy | Wildlife |                       |             |
|  | A-3.5, D-6.1              | <b>Groundwater Monitoring for Acid Rock Drainage</b>  | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |
|  | A-3.5                     | Passive or Active Treatment of Acid Rock Drainage   | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |
| <i>Hazardous Materials Handling, Storage, and Management</i> | 5.3, A-3.6, B-3.2         | <b>Toxic and Hazardous Substances Transportation and Storage Plan</b>                           | Yes       | Yes       | Yes                  | 2  | 2               | 2     | 1      | 2        | Yes                   | 9           |
|  | 5.3, A-3.6, B-3.2         | <b>Waste Management Plan</b>  | Yes       | Yes       | Yes                  | 2  | 2               | 2     | 1      | 2        | Yes                   | 9           |
|  | 2.1.5, 2.1.10.3, A-3.6    | <b>Offsite Hazardous Materials Disposal</b>   | Yes       | Yes       | Yes                  | 1  | 2               | 2     | 1      | 2        | Yes                   | 8           |
|  | A-3.6                     | Toxic and Hazardous Substances Transportation and Storage Plan                                  | Yes       | Yes       | Yes                  | 1  | 2               | 2     | 1      | 2        | Yes                   | 8           |
|  | 3.1.4, 5.3, A-3.6         | <b>Stormwater Pollution Control Plan</b>  | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 2        | Yes                   | 7           |
|  | A-3.6                     | <b>Regular Inspections of Hazardous Materials Storage Areas and Updates to Management Plans</b> | Yes       | Yes       | Yes                  | 2  | 2               | 2     | 1      | 2        | Yes                   | 9           |
| <i>Spill and Emergency Response</i>                          | A-3.7, B-3.2              | <b>Spill Prevention, Control, and Countermeasures Plan</b>                                      | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 2        | Yes                   | 7           |
|  | A-3.2                     | Water Stops and Concrete Coatings   | Yes       | Yes       | Yes                  | 1  | 2               | 1     | 1      | 1        | Yes                   | 6           |
|  | A-3.7, B-3.2              | <b>Emergency Response Plan</b>  | Yes       | Yes       | Yes                  | 2  | 2               | 2     | 1      | 2        | Yes                   | 9           |
|  | A-3.7, B-4.3, B-5.1       | <b>Mobile Emergency Refuge Stations</b>   | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 1        | Yes                   | 5           |
|  | A-3.7, B-3.2              | Strobe Lights, Light Vests, Laser Pointers, Lifelines, Cones, and Reflective Strips             | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 1        | Yes                   | 5           |
|  | A-3.7, B-4.2              | <b>Fire Alarm System</b>  | Yes       | Yes       | Yes                  | 1  | 1               | 1     | 1      | 1        | Yes                   | 5           |
| A-3.7, B-3.2   | Wireless Signaling System | No  | -         | -         | -                    | -  | -               | -     | -      | -        | -                     |             |

Notes:

<sup>1</sup> Technically feasible for many but not all applications.

<sup>2</sup> Alternative performance does not merit cost difference.

Necessary Technology: A technology that is required or can substituted for an alternative technology to ensure compliance with environmental standards.

Available Technology: A technology that is obtainable and has been demonstrated to meet environmental standards.

Practicable Technology: A technology that is technically feasible (i.e., has been demonstrated to meet project purpose and environmental standards), has assessable implications for environmental resources (i.e., air, water, waste, energy, and wildlife scored as 0 = negative implication, 1 = neutral implication, 2 = positive implication), and is economically feasible (i.e., has costs that do not render the project uneconomic and do not exceed the expected environmental benefit of the alternative).