

APPENDIX A

RELATIONSHIP OF 10 CFR PART 40, APPENDIX A REQUIREMENTS TO STANDARD REVIEW PLAN SECTIONS

This appendix identifies the specific standard review plan sections where the criteria of 10 CFR Part 40, Appendix A are addressed.

10 CFR Part 40, Appendix A Criterion	Locations in NUREG-1620 Where the Criterion is Addressed
Criterion 1: Optimize site selection to achieve permanent isolation of tailings without maintenance.	2.1.4, 3.1.4, 3.2.4, 3.3.4, 3.4.4, 3.5.4
Criterion 2: Avoid proliferation of small waste disposal sites.	Not applicable to this standard review plan.
Criterion 3: Dispose of tailings below grade or provide equivalent isolation.	2.1.4
Criterion 4: Adhere to siting and design criteria. (a) Minimize upstream rainfall catchment areas. (b) Select topographic features that provide good wind protection. (c) Provide relatively flat embankment and cover slopes. (d) Establish a self-sustaining vegetative cover or rock cover considering stability, erosion potential, and geomorphology. (e) Locate away from faults capable of causing impoundment failure. (f) Design to promote deposition, where feasible.	3.2.4 3.5.4 2.2.4, 2.4.4, 2.5.4, 2.6.4, 2.7.4, 3.4.4, 3.5.4 2.2.4, 2.6.4, 3.4.4 1.1.4, 1.2.4, 1.4.4, 2.1.4, 2.2.4 3.4.4
Criterion 5A: Meet the primary ground-water protection standard. (1) Design, construct, and install an impoundment liner that prevents migration of wastes to subsurface soil, ground water, or surface water. (2) Construct liner of suitable materials, place it on an adequate base, and install it to cover surrounding earth likely to be in contact with wastes or leachate.	Not applicable to this standard review plan. Not applicable to this standard review plan.

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<p>(3) Apply alternate design or operating practices that will prevent migration of hazardous constituents into ground water or surface water.</p> <p>(4) Design, construct, maintain, and operate impoundments to prevent overtopping.</p> <p>(5) Design, construct, and maintain dikes to prevent massive failure.</p>	<p>Not applicable to this standard review plan.</p> <p>4.4.4</p> <p>2.2.4, 4.4.4</p>
<p>Criterion 5B: Conform to the secondary groundwater protection standards.</p> <p>(1) Prevent hazardous constituents from exceeding specified concentration limits in the uppermost aquifer beyond the point of compliance.</p> <p>(2) Define hazardous constituents as those expected to be in or derived from the byproduct material, those detected in the uppermost aquifer, and those listed in Criterion 13.</p> <p>(3) Exclude hazardous constituents if they are not capable of posing a substantial present or potential hazard to human health or the environment.</p> <p>(4) Consider identification of underground sources of drinking water and exempted aquifers.</p> <p>(5) Ensure hazardous constituents at the point of compliance do not exceed the background concentration, the value in Paragraph 5C, or an approved alternate concentration limit.</p> <p>(6) Establish alternate concentration limits, if necessary, after considering practical corrective actions, as low as is reasonably achievable requirements, and potential hazard to human health or the environment.</p>	<p>4.1.4, 4.2.4, 4.3.4, 4.4.4</p> <p>4.1.4, 4.2.4, 4.3.4, 4.4.4</p> <p>4.1.4, 4.2.4, 4.3.4, 4.4.4</p> <p>4.1.4, 4.2.4, 4.3.4, 4.4.4</p> <p>4.1.4, 4.2.4, 4.3.4, 4.4.4</p> <p>4.1.4, 4.2.4, 4.3.4, 4.4.4</p>
<p>Criterion 5C: Comply with maximum values for ground-water protection.</p>	<p>4.1.4, 4.2.4, 4.3.4, 4.4.4</p>

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Criterion 5D: Implement a ground-water corrective action program if secondary ground water protection standards are exceeded.	4.4.4
Criterion 5E: Consider appropriate measures when developing and conducting a ground-water protection program. (1) Incorporate leak detection systems for synthetic liners and conduct appropriate testing for clay/soil liners. (2) Use process designs that maximize solution recycling and water conservation. (3) Dewater tailings by process devices or properly designed and installed drainage systems. (4) Neutralize hazardous constituents to promote immobilization.	4.1.4, 4.4.4 4.1.4, 4.4.4 4.1.4, 4.4.4 4.1.4, 4.4.4
Criterion 5F: Alleviate seepage impacts where they are occurring and restore ground-water quality.	4.1.4, 4.3.4, 4.4.4
Criterion 5G: Provide appropriate information for a tailings disposal system. (1) Define the chemical and radioactive characteristics of waste solutions. (2) Describe the characteristics of the underlying soil and geologic formations. (3) Define the location, extent, quality, capacity, and current uses of ground water.	4.1.4, 4.3.4, 4.4.4 1.1.4, 2.1.4, 4.1.4, 4.3.4, 4.4.4 4.1.4, 4.3.4, 4.4.4
Criterion 5H: Minimize penetration of radionuclides into underlying soils when stockpiling.	4.1.4, 4.4.4
Criterion 6: Install an appropriate cover and close the waste disposal area. (1) Ensure the cover meets lifetime and radon flux	1.1.4, 1.2.4, 1.3.4, 1.4.4, 2.1.4,

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<p>release specifications.</p> <p>(2) Demonstrate the effectiveness of the final radon barrier prior to placement of erosion protection barriers or other features.</p> <p>(3) Demonstrate the effectiveness of phased emplacement of radon barriers as each section is completed, if applicable.</p> <p>(4) Document verification of radon barrier effectiveness to the U.S. Nuclear Regulatory Commission (NRC) and maintain records of this verification.</p> <p>(5) Ensure that radon exhalation is not significantly above background because of the cover material.</p> <p>(6) Clean up residual contamination from byproduct material consistent with the radium benchmark dose.</p> <p>(7) Prevent threats to human health and the environment from non-radiological hazards.</p>	<p>2.2.4, 2.3.4, 2.4.4, 2.5.4, 2.6.4, 2.7.4, 3.2.4, 3.3.4, 3.4.4, 3.5.4, 4.3.4, 5.1.4</p> <p>5.1.2.1(b)</p> <p>5.1.4</p> <p>2.7.4</p> <p>5.1.4</p> <p>5.2.4</p> <p>5.2.4</p>
<p>Criterion 6A: Ensure expeditious completion of the final radon barrier.</p> <p>(1) Complete the radon barrier as expeditiously as practical after ceasing operations in accordance with a written, Commission-approved reclamation plan.</p> <p>(2) Extend milestone completion dates if justified by radon release levels, cost considerations consistent with available technology.</p> <p>(3) Authorize disposal of byproduct materials or similar materials from other sources if appropriate criteria are met.</p>	<p>2.6.4, 5.2.4</p> <p>Requirement on Commission.</p> <p>Requirement on Commission.</p>

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Criterion 7: Conduct pre-operational and operational monitoring programs.	4.1.4
Criterion 7A: Establish a detection monitoring program to set site-specific ground-water protection standards, a compliance monitoring system once ground-water protection standards have been established, and a corrective action monitoring program in conjunction with a corrective action program.	4.1.4, 4.2.4, 4.3.4, 4.4.4
Criterion 8: Conduct milling operations, including ore storage, tailings placement, and yellowcake drying and packaging operations so that airborne releases are as low as is reasonably achievable .	Not applicable to this standard review plan.
Criterion 8A: Conduct and record daily inspections of tailings or waste retention systems and report failures or unusual conditions to NRC.	4.4.4
Criterion 9: Establish appropriate financial surety arrangements for decontamination, decommissioning, and reclamation.	4.4.4, 5.2.4
Criterion 10: Establish sufficient funds to cover the costs of long-term surveillance and control.	4.4.4
Criterion 11A: Comply with effective date for site and byproduct material ownership requirements.	Requirement on Commission.
Criterion 11B: Establish license conditions or terms to ensure that licensees comply with ownership requirements prior to license termination for sites used for tailings disposal.	Requirement on Commission.
Criterion 11C: Transfer title to byproduct material and land to the United States or the state in which the land is located.	Not applicable to this standard review plan.

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Criterion 11D: Permit use of surface and subsurface estates if the public health, safety, welfare, or environment will not be endangered.	Requirement on Commission.
Criterion 11E: Transfer material and land to the United States or a State without cost other than administrative legal costs.	Not applicable to this standard review plan.
Criterion 11F: Follow specific requirements for land held in trust for or owned by Indian Tribes.	Requirement on Commission.
Criterion 12: Minimize or avoid long-term active maintenance and conduct and report on annual inspections.	3.2.4, 3.3.4, 3.4.4, 3.5.4
Criterion 13: Establish standards for constituents reasonably expected to be in or derived from byproduct materials and detected in ground water.	4.1.4, 4.2.4, 4.4.4