

## **Bureau of Mining Regulation and Reclamation**

### **Guidance for Preparing Tentative Plans for Permanent Closure**

Nevada Administrative Code (NAC) 445A.394 requires that an application for a Water Pollution Control Permit (WPCP) to construct, operate and close a Nevada mining facility must include proposed operating plans for the facility. A Tentative Plan for Permanent Closure (TPPC) is one of the required WPCP operating plans described in NAC 445A.398. Once the Nevada Division of Environmental Protection – Bureau of Mining Regulation and Reclamation (Division) reviews and approves a TPPC as part of a new WPCP, the Permittee must update the TPPC periodically as the facility is modified or new information becomes available. Specific situations where the TPPC may need to be updated include but are not limited to:

1. WPCP applications to modify the facility (NAC 445A.392);
2. WPCP renewal applications (NAC 445A.420);
3. Process component as-built reports (NAC 445A.427);
4. Specific WPCP requirements (e.g., schedule of compliance requirements); and
5. Following modification of the Reclamation Plan, when the modification affects the conceptual closure plan.

The purpose of a TPPC is to provide conceptual closure plans for all potential pollutant sources at the mine facility before they are constructed and as they are modified, with sufficient detail to support the Reclamation Cost Estimate (RCE). Over the operating life of the facility, the Division may require additional studies to refine the TPPC and remove uncertainties regarding the design and cost of closure and reclamation. For example, the Division may require a study to determine the appropriate thickness for a soil cover on a waste rock facility or leach pad, or an updated pit lake study may be required to determine whether remedial action will be necessary to prevent a pit lake from degrading waters of the State or adversely affecting human health and the environment. Also, during the operating life of the facility, a portion of the TPPC may need to be replaced by a Final Plan for Permanent Closure (FPPC) for an individual component that will be permanently closed while the rest of the facility continues to operate. Ultimately, per NAC 445A.447, within two years of the anticipated end of the operating life of the facility, the entire TPPC will be replaced by FPPC(s) for all remaining components of the facility. See NAC 445A.446 and other Division guidance ([Bureau of Mining Regulation and Reclamation Guidance Documents](#)) for more detail regarding permanent closure and FPPCs.

The following excerpt from NAC 445A.398 outlines the content requirements for a TPPC:

***NAC 445A.398 Contents of application: Proposed operating plans.*** (reference NRS 445A.425 and 445A.465) *The proposed operating plans for a facility must include:*

7. *A tentative plan for the permanent closure of the facility which describes the procedures, methods and schedule for stabilizing spent process materials and all other sources at the facility. The plan must include:*
  - a) *Procedures for characterizing spent process materials as they are generated;*

- b) *The procedures to stabilize all process components and all other sources at the facility with an emphasis on stabilizing spent process materials and the estimated cost for the procedures; and*
- c) *Conceptual closure plans for all sources at the facility with sufficient detail to support an initial estimate of the cost of executing the plan for reclamation determined pursuant to NAC 519A.360.*

*(Added to NAC by Environmental Commission, effective 1 September 1989; substituted in revision for NAC 445.24296, and by R046-18, 30 August 2018)*

The TPPC must identify all of the anticipated spent process materials and sources at the facility. Per NAC 445A.378, a “Source” is defined as “any building, structure, facility or installation from which there is or may be the discharge of pollutants.” Sources typically found at mining facilities include but are not limited to heap leach pads, tailings impoundments, waste rock facilities, process ponds, open pits, underground workings, equipment fueling and washing facilities, laboratories, petroleum-contaminated soil and hazardous materials/waste storage areas, and processing facilities.

For each permitted or proposed source, the TPPC must identify the proposed closure method. The method must consider the engineering design, known site and material characterization, and be described in enough detail to support the RCE for the facility. For example, the proposed footprint, surface area, solution application rate, and material characterization of a heap leach facility are known at the time of WPCP application or modification. These details are used to inform the requirements for stabilization of the heap leach facility and associated draindown, as described in the TPPC. Closure parameters such as appropriate cover material, thickness, and sizing of evaporation cell(s) for draindown management must be addressed within the TPPC. These conceptual plans must be in agreement with the assumptions in the Reclamation Plan and associated RCE. Site-specific data should be the basis for these parameters, whenever available. However, the Division recognizes that sufficient site-specific data may not be available for all parameters, and assumptions must be made. Accordingly, based on site-specific data, the Division may require additional characterization and plans for the stabilization and final closure of the site facilities (reference NAC 445A.379, 445A.429, 445A.430, 445A.431, 445A.446, 519A.075, 519A.245, 519A.330, and 519A.345).

To provide sufficient data to support the RCE, the following general methodology may be employed:

1. Identify all anticipated spent process materials and sources, as defined per NAC 445A.378;
2. Consider site-specific conditions and material characterization;
3. Identify the conceptual closure method, and
4. Describe the parameters for the closure method.

Table 1 provides examples of sources and site-specific conditions that apply to TPPCs, as well as conceptual closure methods and parameters; it does not describe all possible sources or closure configurations, nor are all listed sources and methods applicable to all facilities.

**Table 1: Examples of Potential Sources and Closure Options**

<b>Source</b>	<b>Site-Specific Conditions</b>	<b>Closure Method</b>	<b>Closure Parameter</b>
Heap Leach Pad Tailings Impoundment Waste Rock Dump	Solution Application Rate Draindown Curve Liner Type/Condition Height and Footprint Material and Leachate Characterization Spillway Design Stormwater Controls Amount of Precipitation	Soil or Engineered Cover	Cover Type
			Cover Borrow Source
			Cover Thickness
			Area
		Water Treatment and/or Discharge	Water Treatment Plan
			Long-Term Trust
		Evaporation Cell (E-cell) or Evapo-Transpiration Cell (ET-Cell)	New Cell or Conversion from Pond
			Liner Type/Condition
			Design Capacity/Sizing
			Long-Term Trust (E-cell Replacement)
Process Pond	Solids Characterization  Dimensions Liner Type/Condition	Convert to E-cell or ET-cell	See E/ET-cell Above
		Fill and Cover	Remove or Bury Solids
			Cover Type
			Cover Thickness
			Area Liner Repair/Replacement
Open Pit	Dry or Pit Lake	Backfill, Berm, and/or Diversion Channels	Backfill/Berm Material Source
		Pit Lake	Water Treatment Plan
	Water Quality Flow-Through or Sink		Long-Term Trust
Underground Workings	Above or Below Water Table  Water Quality		Cover Borrow Source
			Cover Thickness
			Area
			Plug/Seal Material and Volume
		Isolate Water	Bulkhead(s)
		Water Treatment and/or Discharge	Water Treatment Plan
			Long-Term Trust

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