APPENDIX C

PROCESS WATER PIPELINE INSPECTION AND PREVENTATIVE MAINTENANCE PLAN
KENNECOTT TAILINGS IMPOUNDMENT
UGW350011

Kennecott Utah Copper LLC

April 2013

1.0 Introduction

The Process Water Pipeline Inspection and Preventative Maintenance Plan was developed in conjunction with the renewal of Permit No. UGW350011 (2011) and is captured here in Appendix C of this groundwater discharge permit. This plan describes inspections, maintenance, replacement, spill avoidance measures, and reporting requirements.

1.1 Facilities Description

The Tailing Impoundment is located on the northern end of the Kennecott Utah Copper LLC (KUC) mining operation, immediately north of Magna, Utah and immediately south of the Great Salt Lake. The impoundment consists of the 3,300 acre north impoundment and the 5,700 acre south impoundment as well as several adjacent pumping stations, wells, canals and other facilities associated with mine tailings and water management.

1.2 General Guidance

The various aspects of managing process water at the Tailings Impoundment are detailed in the Spill Prevention Management Standard Operating Procedure (Document #TASOP300.0206). The SOP outlines KUC responsibilities, Health, Safety and Environmental aspects, reference documents, facility description, and procedures related to activities, Monitoring Procedures and record keeping, and reporting requirements. KUC Tailings also maintains a critical pipeline inventory and an emergency response plan. The critical pipeline inventory details pipe type, location length, substance conveyed, type of leak detection system and potential environmental risk if a spill occurred.

2.0 Inspection and Maintenance

2.1 Inspection

Facilities that are in operation are monitored on a continuous basis electronically from the Tailings control room. All operating Tailings facilities described in this plan are operated and monitored 24 hours per day, 365 days per year. Process water pipelines, associated pumps, valves and sumps are visually inspected once per shift (twice per day) while areas of critical concern are inspected twice per shift. The assigned operators or inspectors are responsible for correcting any problems discovered in a timely manner. Maintenance and repairs are initiated in response to inspection results or according to preventive maintenance (PM) schedules.

2.1.1 Protocol

A standard inspection protocol is followed for each inspection conducted. An inspection report form is completed and signed by the inspector as well as reviewed and signed by the supervisor. The operational status of each structure is noted along with any needed corrective actions or maintenance items. Any necessary repairs or corrections will be completed within 45 days of the date inspected. A maintenance notification will be submitted and repairs will be tracked and executed through maintenance work orders. KUC uses an electronic system (SAP) to manage maintenance work. See section 2.2 of this Appendix for more detail regarding maintenance protocol.

2.1.2 Record Keeping

Copies of each inspection performed will be maintained on file to document compliance with this program as specified in Part II Section H of the permit for a period of three years. Inspection reports will be available for review by UDWQ representatives during compliance visits. A discussion of inspections, maintenance, replacements and spill avoidance measures should be included in the semi-annual monitoring report required by the permit.

2.2 Maintenance

PM schedules at Tailings are tracked with a computerized maintenance program. Based upon operator inspections and preset maintenance intervals, this program assists in scheduling and planning PMs. Standard Operating Procedures (SOP) are used by the employee or group of employees assigned the responsibility for completing the PM. After the PM is completed, a signed PM checklist is returned to the maintenance scheduler. The maintenance planner notes any items identified during the inspection that require additional repair. A work order is then written and the additional work scheduled. The work-order tracking system is intended to ensure that proper and complete implementation of required repairs occurs in a timely fashion. The system continues to remind maintenance planners periodically until the work-order job is completed and closed out.

2.2.1 Spill Avoidance Measures

Spill avoidance is achieved through systematic monitoring, timely reporting and repair of deficiencies and a preventative maintenance program. The monitoring program is comprised of frequent visual inspections, electronic monitoring from the Tailing control room as well as subsequent documentation. In addition, the following measures are employed to minimize the likelihood of process water spills:

1. Substances conveyed in the pipeline are compatible with piping material;
2. Buried pipeline is non-metallic or is provided with appropriate protective wrapping;
3. Buried pipeline is provided with appropriate cathodic protection as appropriate;
4. Cathodic protection is checked and documented every 2 years;
5. Periodic pressure testing or wall thickness measurements are warranted for piping in areas where facility drainage is such that failure could lead to a major spill;
6. Pipelines carrying extremely hazardous substances are double walled and have leak detection;
7. Pipeline exposed to potential traffic damage are adequately protected;
8. Pipe supports will be designed to minimize abrasion and corrosion and to allow for expansion and contraction;
9. Pipelines subject to excessive settlement are surveyed twice per year to ensure pipelines are not subject to excessive stress; and
10. Operational areas are fenced and gated with the goal of eliminating public access.

3.0 Spills and Overflows

Spills as a result of pipeline releases will be identified by one or more of the following measures:

1. Visual observation by roving operators
2. Tailings control room monitoring of pump status, flows, sump levels and pipeline pressures.

Upon identification of a leak, compromised process water piping is de-energized, shutoff and isolated for repair. In addition, the following plans will direct Tailings operations regarding spill protocol:

1. KUC Storm Water Pollution Prevention Plan (SWPPP)
2. Tailings Emergency Response Plan

Depending upon the specific circumstances of a particular pipeline release, KUC will refer to the following guidance:

1. Kennecott Tailings Impoundment Groundwater Discharge Permit No. UGW350011
2. Other various Utah Department of Environmental Quality reporting requirements
3. Other various U.S Environmental Protection Agency reporting requirements
4. Rio Tinto/Kennecott Utah Copper internal reporting requirements

4.0 Training

Each employee receives task specific training and mentoring related to job specific duties. In addition, employees receive Standard Operating Procedure (SOP) Training on an annual basis. The training includes the following areas:

1. Air Emissions Control (300.201)
2. Culinary Water Management (300.202)
3. Surface Water Management (300.203)
4. Groundwater Management (300.204)
5. Waste Management (300.205)
6. Spill Prevention Management (300.206)
7. Dam Failure Prevention (300.207)
8. Reclamation (300.208)

5.0 Reporting Requirements

5.1 Semi-annual Reporting

KUC will refer to Part I Section H with respect to reporting frequency and Part I Section I regarding content included in the semi-annual reports.

5.2 Release Reporting

KUC will follow guidance outlined under Part II section I of this permit with respect to Spill Reporting and Part I Section G of this permit with respect to Non-Compliance of Best Available Technology.