

**STATE OF UTAH
DIVISION OF WATER QUALITY
UTAH WATER QUALITY BOARD
SALT LAKE CITY, UTAH 84114-4870**

**GROUND WATER DISCHARGE PERMIT
UGW350006**

In compliance with the provisions of the Utah Water Quality Act, Title 19, Chapter 5, Utah Code Annotated 1953, as amended, the Act,

**KENNECOTT UTAH COPPER, LLC
4700 DAYBREAK PARKWAY
SOUTH JORDAN, UTAH 84095**

is granted a ground water discharge permit for the operation of the **Large Bingham Reservoir System** in Salt Lake County, Utah.

The Reservoir system is located on a tract of land within the northeast quarter of Section 17, Township 3 South, Range 2 West, Salt Lake Base and Meridian.

The permit is based on representations made by the permittee and other information contained in the administrative record. It is the responsibility of the permittee to read and understand all provisions of this permit.

The facility shall be maintained and operated in accordance with conditions set forth in the permit and the Utah Ground Water Quality Protection Regulations.

This Ground Water Quality Discharge Permit renewal for the Large Bingham Reservoirs amends and supersedes all other Ground Water Discharge permits previously issued for these facilities.

This permit shall become effective on April 15, 2021.

This permit and the authorization to operate shall expire at midnight, April 14, 2026.



Erica Brown Gaddis, PhD
Director
Utah Division of Water Quality

DWQ-2021-006024

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I. SPECIFIC PERMIT CONDITIONS

A. Ground Water Classification and Protection Levels

This permit will not classify the ground water in the vicinity of the reservoirs due to the inability to determine background concentrations of ground water in the uppermost aquifer from prior contamination of ground water. Ground water compliance limits will not be established for monitoring wells adjacent to the facility for these same reasons.

B. Best Available Technology (BAT)

1. LARGE RESERVOIR

The facilities included in the Large Reservoir and authorized under this permit include:

- a. Desilting Basin at the upstream entrance to the Zone 1 portion of the Large Reservoir.
- b. Zone 1 portion of the Large Reservoir
- c. Zone 2 portion of the Large Reservoir

The Desilting Basin operates for flood control and removal of related sediments and debris, de-watering of sludge from the Large Reservoir or de-watering of sludge generated from ground water remediation activities conducted by Kennecott Utah Copper, LLC (Kennecott).

Zones 1 and 2 of the Large Reservoir will be utilized for containment of storm water runoff water and from the various mine facilities, storm water runoff and ground water seepage from the waste rock dumps, water from Bingham Canyon alluvial material, ground water pumped from remediation activities, and other meteoric waters. The combination of these waters has a relatively low pH (3.0 to 4.0) and elevated TDS (>20,000). The Large Reservoirs may be managed interchangeably.

BAT Design

a. Zones 1 and 2 are constructed as follows:

i. Discharge Control Technology

The liner for the Zone 1 and Zone 2 portions of the Large Reservoir consists of the following from bottom to top:

1. Twelve inches of clay with a hydraulic conductivity no greater than 1×10^{-6} cm/sec;
2. A layer of geotextile material;
3. A 60-mil HDPE liner.

ii. Performance Monitoring Technology

In addition to the liner components noted in the previous section, the following components operate as an early warning system to identify leaks:

1. A layer of drainage net material with a transmissivity of no less than 10 gallons per minute per foot
2. An 80-mil HDPE liner
3. A system of ten sump areas collects fluid from between the two HDPE liners to serve as a leakage collection system (five sumps for Zone 1 and five sumps for Zone 2).

b. Desilting Basin - This three-chamber basin is constructed as follows:

Chamber 1 - (from bottom to top) a 95% compacted fill soil sub-base, four-inch thick road base, 16 oz. geotextile felt layer, 80 mil HDPE synthetic liner, 16 oz geotextile felt layer, 12-inch-thick road base, and 8-inch thick concrete. This bottom lining system is secured to a reinforced concrete curb ring. The sloping sides of the chamber are lined with compacted soil sub-base, twelve-inch thick compacted low permeability clay layer, 8 oz geotextile felt, and 80 mil HDPE synthetic liner.

Chamber 2 & 3 - The liner systems are the same as Chamber No. 1 except that no HDPE liner underlies the 8-inch thick concrete bottom.

c. Kennecott shall maintain the specified BAT design for the reservoir for the duration of its operation or until approved otherwise by the Director through a permit modification. Kennecott shall inspect the liner system for each component of the Large Reservoir system at least annually including an evaluation of any deposition of sludge. Should sludge levels impair reservoir capacity, sludge will be removed. Prior to removal, Kennecott shall provide a plan for approval by the Director that details characterization, removal and disposal of sludge from Zone 1 or Zone 2 of the reservoir.

d. When substantive evidence exists that the BAT design for this

reservoir does not conform to the following items, Kennecott shall be in noncompliance with this permit:

- i. The performance criteria included in Part I Section E.

2. SMALL RESERVOIR

The Small Reservoir is located to the north of the Large Reservoir. When active leaching was occurring at the mine the Small Reservoir was used interchangeably with the Large Reservoirs to manage leachate and was a permitted facility within this permit. Active leaching was ceased at the mine in 2000 and piping connecting the Small Reservoir to potential acid rock drainage leachate was removed in 2009. The Small Reservoir is now used to store fresh water sourced from canals fed from the Jordan River, Clean Water Well LTG1139, or the Bingham Tunnel. The water is used as a surplus and/or makeup water for the Concentrator when there is a need for additional process water. The water quality of the surplus/makeup water is consistent with the TDS requirements for Class II Drinking Water with concentrations less than 3,000 mg/L. Given that the water stored in the Small Reservoir is higher quality than background ground water (refer to Part I.A), permitting this facility is no longer necessary. The Small Reservoir has been removed as a permitted facility from this permit effective with the April 2021 permit renewal. Should Kennecott seek to change the source, quality, or purpose of water stored in the Small Reservoir in the future, a written request shall first be submitted to the Director for review and approval.

C. Compliance Monitoring

LARGE RESERVOIR

MONITORING

1. Leak Collection System (Zones 1 and 2)

Unless approved by the Director, each of the ten sumps (Part I.B.1(a)ii) shall be a compliance monitoring point for demonstration of compliance with the BAT performance criteria.

The leak collection system sumps shall be checked weekly to determine water levels. The leak detection sump levels are also remotely monitored in the South Area Water Services (SAWS) control room. As necessary, the sumps shall be evacuated in accordance with the approved method in the Leak Detection and Repair Program (Appendix B) to determine leakage rate of the upper liner; and if liquid levels exceed the maximum allowable head (MAH) of 5,000 gallons per day (gpd).

The total volume of liquid removed from each sump in the leak collection system, the duration of the pumping event and the water levels shall be recorded on a per event basis and recorded in the sump evacuation logs and included in the semi-annual Ground Water Discharge Permit reports.

2. Reservoir Water

Kennecott shall perform water quality sampling and analysis of the reservoir's water on a semi-annual basis and in accordance with the Sampling Plan in Appendix A.

3. Deconstructive HDPE Liner Testing

At least once during the five-year permit term, Kennecott shall conduct deconstructive testing of the HDPE liner in accordance with industry standards. Given the age of the liner, the purpose of this testing is to verify that the useful life of the liner has not been exceeded. Testing results shall be reported to DWQ in the semi-annual reporting period during which the testing is conducted. Testing results shall be used by Kennecott to project the useful life of the liner so a replacement plan and schedule can be prepared when necessary. Failure to conduct and report this testing at least once every 5 years shall be considered a violation of this permit.

4. Desilting Basin

Kennecott shall sample water in the Desilting Basin (in accordance with the Monitoring Plan in Appendix C) to characterize the fluids routed through this basin as well as monitoring wells LRG910 and LRG911.

5. Water quality samples shall be collected, handled and analyzed in conformance with Appendix A (Water Quality Sampling Plan) and the currently approved version of the Kennecott Ground Water Characterization and Monitoring Plan.

6. The following analysis shall be performed on all compliance monitoring samples collected.

a) Field Measurements: pH, specific conductance and temperature.

b) Laboratory Analysis (see Table 1 in Appendix A):

Major Ions: (Chloride, Sulfate, Alkalinity, Sodium, Potassium, Magnesium, and Calcium)

TDS

Metals: (Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Selenium and Zinc)¹.

1. Analysis will be for dissolved forms for all constituents.

7. Laboratory Approval

The Kennecott Environmental Laboratory (KEL) will perform the water quality analysis. KEL is a State certified laboratory.

D. Reporting Requirements

1. Monitoring Reports

Water quality sampling results and flow data from each leak collection/detection layer and Desilting Basin shall be submitted semi-annually for review and approval by the Director as follows:

<u>Monitoring Period</u>	<u>Report Due On</u>
January through June	August 15
July through December	February 15

Failure to submit reports within the timeframe due shall be deemed as noncompliance and may result in enforcement action.

2. Electronic Filing Requirements - In addition to submittal of the hard copy data above, the permittee shall electronically submit the required data in the electronic format specified by the Director. The data may be submitted by e-mail, compact disc, or other approved transmittal mechanism.

E. Determination of Compliance

LARGE RESERVOIR

Kennecott is required to operate and maintain BAT as specified by the approved design or as otherwise authorized by the Director and comply with the following performance monitoring criteria for the duration of the permit.

1. Leak Collection Sumps

- a. The Allowable Leakage Rate (ALR) for leakage into any one sump will be 5,000 gallons per day.

b. The Maximum Allowable Head (MAH) as measured in any one leak collection sump will be as follows:

i. Zone 1 Reservoir - Four feet above the base of the sump.

ii. Zone 2 Reservoir - Two feet above the flange of the sump where the HDPE liners attach to the sump.

c. Upon the determination that the water level in any sump exceeds the MAH for that sump, Kennecott shall assess the rate of discharge to that sump (as calculated by pumping the sump for sufficient time to establish the leakage rate).

d. If the leakage rate is less than the ALR into any one sump, Kennecott shall remove water from the affected sump to below the MAH on a continuous basis (water removed from the sump system shall either be placed back into the reservoir from which it was removed or into another impoundment permitted for such use) or make appropriate repairs to the liner to rectify the leak.

e. If the leakage rate is in excess of the ALR, Kennecott shall immediately:

i. Sample the effluent from the sump for water quality field and lab constituents noted in Part I.C.6 and report analytical results in the corresponding semi-annual report.

ii. Notify the Director within 24 hours of the discovery that the leak detection system has exceeded the ALR. This notification shall be followed up with a written statement confirming the oral report within five working days of the failure along with a proposed schedule for implementing the Leak Detection and Repair Program.

iii. Submit for Director's approval, a schedule to implement the approved Leak Detection and Repair Program (approved under Part I.G) or proceed otherwise as required by the Director.

iv. Remove water from the sump on a continuous basis to maintain less than the MAH in the sump (water removed from the sump system shall either be placed back into the reservoir it was removed from or into another impoundment permitted for such use). Or if the leakage rate is substantial enough that water levels in the sump cannot be maintained below the MAH, Kennecott shall lower the water level in the sump or reservoir to the maximum extent possible until the Leak Detection and Repair Program is

implemented.

2. Desilting Basin

Out of compliance status exists as described in Appendix C (Desilting Basin Monitoring Plan).

F. **Out of Compliance**

Failure to maintain BAT or maintain the approved design shall be a violation of this permit unless Kennecott makes the following affirmative defense (R317-6-6.16 C):

1. Kennecott submitted notification in accordance with R317-6-6.13;
2. The failure was not intentional or caused by Kennecott's negligence, either in action or in failure to act;
3. Kennecott has taken adequate measures to meet permit conditions in a timely manner or has submitted for the Director's approval, an adequate plan and schedule for meeting permit conditions; and
4. The provisions of UCA 19-5-107 have not been violated.

G. **Corrective Action**

If seepage of Large Reservoir water is detected, pursuant to the procedures outlined in this permit, the permittee shall submit a plan and time schedule for complete assessment of the source and extent of contaminant release, and the measures that will be undertaken to comply with BAT. The plan and schedule will be submitted within 30 days of the date reservoir seepage is confirmed in the lower leak detection layer and implemented upon approval by the Director.

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples collected in compliance with the monitoring requirements established under Part I shall be representative of the monitored activity.
- B. Analytical Procedures. Water sample analysis must be conducted according to test procedures specified under UAC R317-6-6.3L, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Reporting of Monitoring Results. Monitoring results obtained for each monitoring period specified in the permit, shall be submitted to the Director, Utah Division of Water Quality at the following address no later than 45 days after the end of the monitoring period:

State of Utah
Division of Water Quality
P.O. Box 144870
Salt Lake City, Utah 84114-4870
Attention: Ground Water Protection Section

Electronic reporting: <https://deq.utah.gov/water-quality/water-quality-electronic-submissions>

- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using approved test procedures as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted. Such increased frequency shall also be indicated.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,

6. The results of such analyses.
- H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.
- I. Twenty-four Hour Notice of Noncompliance and Spill Reporting.
1. The permittee shall verbally report any noncompliance, or spills subject to the provisions of UCA 19-5-114, which may endanger public health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Utah Department of Environmental Quality 24-hour number, (801) 536-4123, or to the Division of Water Quality, Ground Water Protection Section at (801) 536-4300, during normal business hours (8:00 am - 5:00 pm Mountain Time).
 2. A written submission shall also be provided to the Director within five working days of the time that the permittee becomes aware of the circumstances if requested by the Utah Department of Water Quality. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and,
 - d. Steps taken or planned to reduce, eliminate, and prevent re-occurrence of the noncompliance.
 3. Reports shall be submitted to the address in Part II.D, Reporting of Monitoring Results.
- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours, shall be reported at the time that monitoring reports for Part II.D are submitted.
- K. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions

of the permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing provisions of the Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under Section 19-5-115(2) of the Act a second time shall be punished by a fine not exceeding \$50,000 per day. Nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

IV. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required when the alteration or addition could significantly change the nature of the facility or increase the quantity of pollutants discharged.
- B. Anticipated Noncompliance. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a permit renewal or extension. The application should be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
 1. All permit applications shall be signed as follows:
 - a. For a corporation: by a responsible corporate officer;
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.
 - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
 2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized

representative only if:

- a. The authorization is made in writing by a person described above and submitted to the Director, and,
- b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. **Changes to Authorization.** If an authorization under Part IV.G.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part Part IV.G.2 must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. **Certification.** Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. **Penalties for Falsification of Reports.** The Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

I. **Availability of Reports.** Except for data determined to be confidential by the permittee, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Director. As required by the Act, permit applications, permits, effluent data, and ground water quality data shall not be considered confidential.

- J. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- K. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- L. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 30 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- M. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, penalties established pursuant to any applicable state law or regulation under authority preserved by Section 19-5-117 of the Act.
- N. Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. If new ground water standards are adopted by the Division of Water Quality, the permit may be reopened and modified to extend the terms of the permit or to include pollutants covered by new standards. The permittee may apply for a variance under the conditions outlined in R317-6-6.4(D)
 2. If alternative compliance mechanisms are required and technically defensible background ground water quality values can be determined.