

**FILE COPY**

Permit No. UT0000051

STATE OF UTAH  
DIVISION OF WATER QUALITY  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
SALT LAKE CITY, UTAH

AUTHORIZATION TO DISCHARGE UNDER THE  
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM  
(UPDES)

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

**KENNECOTT UTAH COPPER LLC**

is hereby authorized to discharge from its facility located near Magna and in western Salt Lake County, Utah, with the outfalls located at the following:

<u>Outfall</u>	<u>Latitude</u>	<u>Longitude</u>	<u>To receiving waters named</u>
002	40° 44'30"	112° 05'15"	C-7 Ditch
004	40° 44'06"	112° 11'49"	I-80 Culvert to Great Salt Lake
005	40° 36'30"	111° 55'20"	Jordan River
007	40° 46'15"	112° 07'00"	C-7 Ditch
008	40° 44'12"	112° 10'25"	Great Salt Lake
009	40° 32'07"	112° 11'39"	Pine Canyon Creek, Tooele County
010	40° 29'33"	112° 07'20"	Butterfield Creek
011	40° 42'52"	112° 06'57"	Ritter-Utah Salt Lake Canals
012	40° 45'20"	112° 10'02"	Great Salt Lake
SW3	40° 42' 02"	112° 06'38"	Little Valley Wash
SW4	40° 32'51"	112° 12'22"	Pine Canyon Creek, Tooele County

in accordance with discharge points, effluent limitations, monitoring requirements and other conditions set forth herein.

This modified permit shall become effective on November 12, 2009.

This modified permit and the authorization to discharge shall expire at midnight, January 31, 2012.

Signed this 12<sup>th</sup> day of November, 2009.



Walter L. Baker, P.E.  
Executive Secretary  
Utah Water Quality Board

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I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Definitions

1. The "30-day (and monthly) average" is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
2. The "7-day (and weekly) average" is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.
3. "Daily Maximum" ("Daily Max.") is the maximum value allowable in any single sample or instantaneous measurement.
4. "Composite samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the composite sample period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
  - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
  - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
  - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
  - d. Continuous collection of sample, with sample collection rate proportional

to flow rate.

5. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
6. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
7. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
8. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
9. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
10. "Executive Secretary" means Executive Secretary of the Utah Water Quality Board.
11. "EPA" means the United States Environmental Protection Agency.
12. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration.
13. "Act" means the "*Utah Water Quality Act*".
14. "Best Management Practices" ("*BMPs*") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. *BMPs* also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

15. "CWA" means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
16. "Flow-weighted composite sample" means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.
17. "Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a *UPDES* permit (other than the *UPDES* permit for discharges from the municipal separate storm sewer) and discharges from fire fighting activities, fire hydrant flushings, potable water sources including waterline flushings, uncontaminated ground water (including dewatering ground water infiltration), foundation or footing drains where flows are not contaminated with process materials such as solvents, springs, riparian habitats, wetlands, irrigation water, exterior building wash down where there are no chemical or abrasive additives, pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred and where detergents are not used, and air conditioning condensate.
18. "Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.
19. "Land application unit" means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.
20. "Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharges. This term does not include return flows from irrigated agriculture or agriculture storm water runoff.
21. "Runoff coefficient" means the fraction of total rainfall that will appear at a conveyance as runoff.
22. "Significant materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under *Section 101(14)* of *CERCLA*; any

chemical the facility is required to report pursuant to *EPCRA Section 313*; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

23. "Significant spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under *Section 311* of the *Clean Water Act* (see *40 CFR 110.10* and *40 CFR 117.21*) or *Section 102* of *CERCLA* (see *40 CFR 302.4*).
24. "Storm water" means storm water runoff, snow melt runoff, and surface runoff and drainage.
25. "Time-weighted composite" means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.
26. "Waste pile" means any noncontainerized accumulation of solid, nonflowing waste that is used for treatment or storage.
27. "10-year, 24-hour precipitation event" means the maximum 24-hour precipitation event with a probable reoccurrence interval of once in 10 years. This information is available in *Weather Bureau Technical Paper No. 40*, May 1961 and *NOAA Atlas 2*, 1973 for the 11 Western States, and may be obtained from the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.
28. "Section 313 water priority chemical" means a chemical or chemical categories that:
  - a. Are listed at *40 CFR 372.65* pursuant to *Section 313* of the *Emergency Planning and Community Right-to-Know Act (EPCRA)* (also known as *Title III of the Superfund Amendments and Reauthorization Act (SARA)* of 1986);
  - b. Are present at or above threshold levels at a facility subject to *EPCRA Section 313* reporting requirements; and
  - c. Meet at least one of the following criteria:
    - i. Are listed in *Appendix D* of *40 CFR Part 122* on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table V (certain toxic pollutants and hazardous substances);

- ii. Are listed as a hazardous substance pursuant to *Section 311(b)(2)(A)* of the *CWA* at *40 CFR 116.4*; or
- iii. Are pollutants for which EPA has published acute or chronic water quality criteria. See *Appendix III* of this permit. This appendix was revised based on final rulemaking EPA published in the *Federal Register* November 30, 1994.

B. Description of Discharge Points

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit is a violation of the *Act* and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

Discharge Points		
Outfall Number	Location of Discharge Points	Receiving Waters
002	Latitude 40° 44' 30" Longitude 112° 05' 15"	Tailings pond outfall to C-7 ditch
004	Latitude 40° 44' 06" Longitude 112° 11' 49"	I-80 Culvert to Great Salt Lake
005	Latitude 40° 36' 30" Longitude 111° 55' 20"	Alternate mine water discharge to the Jordan River
007	Latitude 40°46'15" Longitude 112°07'00"	Toe Ditch Pond to C-7 ditch
008	Latitude 40°44'12" Longitude 112°10'25"	Artesian well water, refinery storm water to the Great Salt Lake
009	Latitude 40°32'07" Longitude 112°11'39"	Pine Canyon Tunnel, Tooele County
010	Latitude 40°29'33" Longitude 112°07'20"	Butterfield Tunnel to Butterfield Creek
011	Latitude 40°42'52" Longitude 112°06'57"	Adamson Springs to the Ritter-Utah Salt Lake Canals
012	Latitude 40° 45' 20" Longitude 112° 10' 02"	Tailings discharge to the Great Salt Lake
104	Latitude 40°43'27" Longitude 112°11'50"	Internal discharge from Hydrometallurgical Plant
SW3	Latitude 40°42' 02" Longitude 112°06'38"	Little Valley Wash
SW4	Latitude 40°32'51" Longitude 112°12'22"	Pine Canyon Creek, Tooele County

C. Narrative Standard

It shall be unlawful, and a violation of this permit, for the permittee to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste, or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in

accordance with standard procedures.

D. Specific Limitations and Self-monitoring Requirements

1. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from **Outfalls 002 and 007**. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 002 and 007						
Parameter	Discharge Limitations a/			Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	
Flow	NA	NA	NA	Continuous	Recorder	MGD
TSS	20	30	NA	3 X Weekly	Composite	mg/L
Total As	0.25	0.50	NA	3 X Weekly	Composite	mg/L
Total Cd	0.05	0.10	NA	3 X Weekly	Composite	mg/L
Total Cu	0.15	0.30	NA	3 X Weekly	Composite	mg/L
Total Pb	0.30	0.60	NA	3 X Weekly	Composite	mg/L
Total Hg	0.001	0.002	NA	3 X Weekly	Composite	mg/L
Total Zn	0.224	0.50	NA	Monthly	Composite	mg/L
Total Se c/	0.012 b/	NA	NA	Monthly	Grab	mg/L
Total Cyanide	0.1	0.2	NA	Monthly	Composite	mg/L
Total Dissolved Solids (TDS)	NA	NA	NA	Monthly	Composite	mg/L
Oil and Grease	NA	10	NA	d/	Composite	mg/L
pH	NA	9.0	6.5	3X Weekly	Grab	SU

There shall be no untreated sanitary wastewater discharged into the tailings impoundment.

There shall be no or floating solids or visible foam in other than trace amounts.

N.A. - Not Applicable.

a/ See Definitions, *Part I.A* for definition of terms.

b/ 0.012 mg/L is consistent with the requirements of the U.S. Army Corps of Engineers 404 Permit #199450301 and shall not be exceeded at the Lower Lee Creek location north of Interstate 80 during a discharge from outfalls 002 and 007.

c/ Selenium will be analyzed by the "Kennecott modified selenium hydride procedure" as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.

d/ Oil and grease will be sampled when sheen is observed.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the outfall to the C-7 ditch prior to mixing with the receiving water.

2. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from **Outfall 004**. Such discharges shall be monitored quarterly by the permittee for the same parameters as specified in the permit for Outfall 008.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the outfall prior to mixing with the receiving water.

3. During the period beginning immediately and lasting through the duration of this permit, the permittee is authorized to discharge from **Outfall 005** (mine water). The discharge shall be limited and monitored by the permittee as specified:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 005						
Parameter	Discharge Limitations a/			Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	
Flow	NA	NA	NA	Daily or Continuous b/	Measured	MGD
TSS	20	30	NA	2 X Weekly	Grab	mg/L
Total As	NA	0.23	NA	2 X Weekly	Grab	mg/L
Total Cd	0.0028	0.0198	NA	2 X Weekly	Grab	mg/L
Total Cu	NA	0.12	NA	2 X Weekly	Grab	mg/L
Total Pb	0.063	0.510	NA	2 X Weekly	Grab	mg/L
Total Hg	0.00006 c/	0.00077	NA	2 X Weekly	Grab	mg/L
Total Zn	0.75	1.50	NA	2 X Weekly	Grab	mg/L
Total Fe	NA	3.06	NA	2 X Weekly	Grab	mg/L
Selenium d/	0.014	0.056	NA	2 X Weekly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	1200	NA	2 X Weekly	Grab	mg/L
Oil and Grease	NA	10	NA	e/	Grab	mg/L
pH	NA	9.0	6.5	2 X Weekly	Grab	SU

NA - Not Applicable.

a/ See definitions Part I.A. for definition of terms

b/ For intermittent discharges, the duration of the discharge shall be reported.

c/ Kennecott will voluntarily analyze mercury using a low level total mercury analysis.

d/ Selenium will be analyzed by the “Kennecott modified selenium hydride procedure” as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.

e/ Oil and grease will be sampled when sheen is observed.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge of sanitary wastes or leach water from this outfall.

During the first week of discharge, aluminum and silver shall also be sampled and the analyses submitted with the first discharge report.

4. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from **Outfall 008**. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 008						
Parameter	Discharge Limitations a/			Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	
Flow	NA	NA	NA	Quarterly	Measured	MGD
TSS	20	30	NA	Quarterly	Grab	mg/L
Total As	0.25	0.50	NA	Quarterly	Grab	mg/L
Total Cd	0.05	0.10	NA	Quarterly	Grab	mg/L
Total Cu	0.15	0.30	NA	Quarterly	Grab	mg/L
Total Pb	0.30	0.60	NA	Quarterly	Grab	mg/L
Total Hg	0.001	0.002	NA	Quarterly	Grab	mg/L
Total Zn	0.224	0.50	NA	Quarterly	Grab	mg/L
Selenium b/	NA	0.054	NA	Quarterly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	NA	NA	Quarterly	Grab	mg/L
Oil and Grease	NA	10	NA	c/	Grab	mg/L
pH	NA	9.0	6.5	Quarterly	Grab	SU

There shall be no floating solids or visible foam in other than trace amounts.

N.A. - Not Applicable.

a/ See Definitions, *Part I.A* for definition of terms

- b/ Selenium will be analyzed by the “Kennecott modified selenium hydride procedure” as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.
  - c/ Oil and grease will be sampled when sheen is observed.
5. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from **Outfall 009**. Such discharges shall be limited and monitored by the permittee as specified:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 009						
Parameter	Discharge Limitations a/			Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	
Flow	NA	NA	NA	2 X Yearly	Measured	MGD
TSS	20	30	NA	2 X Yearly	Grab	mg/L
Total As	0.25	0.50	NA	2 X Yearly	Grab	mg/L
Total Cd	0.05	0.10	NA	2 X Yearly	Grab	mg/L
Total Cu	0.15	0.30	NA	2 X Yearly	Grab	mg/L
Total Pb	0.30	0.60	NA	2 X Yearly	Grab	mg/L
Total Hg	0.001	0.002	NA	2 X Yearly	Grab	mg/L
Total Zn	0.224	0.50	NA	2 X Yearly	Grab	mg/L
Selenium c/	0.012	NA	NA	2 X Yearly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	NA	NA	2 X Yearly	Grab	mg/L
Oil and Grease	NA	10	NA	b/	Grab	mg/L
pH	NA	9.0	6.5	2 X Yearly	Grab	SU

There shall be no floating solids or visible foam in other than trace amounts.

NA - Not Applicable.

- a/ See Definitions, *Part I.A* for definition of terms.
- b/ Oil and grease will be sampled when sheen is observed.
- c/ Selenium will be analyzed by the “Kennecott modified selenium hydride procedure” as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.

6. During the period beginning immediately and lasting through the duration of this permit, the permittee is authorized to discharge from **Outfall 010 (Butterfield Tunnel)**. The discharge shall be limited and monitored by the permittee as specified:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 010						
Parameter	Discharge Limitations a/			Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	
Flow	NA	NA	NA	Quarterly	Measured	MGD
TSS	20	30	NA	Quarterly	Grab	mg/L
Total As	NA	0.10	NA	Quarterly	Grab	mg/L
Total Cd	0.0044	0.015	NA	Quarterly	Grab	mg/L
Total Cu	0.050	0.083	NA	Quarterly	Grab	mg/L
Total Fe	NA	1.52	NA	Quarterly	Grab	mg/L
Total Pb	0.023	0.100	NA	Quarterly	Grab	mg/L
Total Hg	0.00002 b/	0.00023	NA	Quarterly	Grab	mg/L
Total Zn	0.446	0.493	NA	Quarterly	Grab	mg/L
Selenium c/	0.007	0.029	NA	Quarterly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	1200	NA	Quarterly	Grab	mg/L
Oil and Grease	NA	10	NA	d/	Grab	mg/L
pH	NA	9.0	6.5	Quarterly	Grab	SU

- a/ See definitions Part I.A. for definition of terms.
- b/ Kennecott will voluntarily analyze mercury using a low level mercury analysis.
- c/ Selenium will be analyzed by the "Kennecott modified selenium hydride procedure" as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.
- d/ Oil and grease will be sampled when sheen is observed.
7. During the period beginning immediately and lasting through the duration of this permit, the permittee is authorized to discharge from **Outfall 011 (Adamson Spring)**. The discharge shall be limited and monitored by the permittee as specified:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 011						
Parameter	Discharge Limitations a/			Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	
Flow	NA	NA	NA	Quarterly b/	Measured	MGD
TSS	20	30	NA	Quarterly	Grab	mg/L
Total As	NA	0.013	NA	Quarterly	Grab	mg/L
Total Cd	NA	0.01	NA	Quarterly	Grab	mg/L
Total Cu	0.15	0.30	NA	Quarterly	Grab	mg/L
Total Pb	NA	0.01	NA	Quarterly	Grab	mg/L
Total Zn	0.224	0.50	NA	Quarterly	Grab	mg/L
Selenium c/	NA	0.013	NA	Quarterly	Grab	mg/L
Oil and Grease	NA	10	NA	d/	Grab	mg/L
pH	NA	9.0	6.5	Quarterly	Grab	SU

- a/ See definitions Part I.A. for definition of terms
- b/ For intermittent discharges, the duration of the discharge shall be reported.
- c/ Selenium will be analyzed by the "Kennecott modified selenium hydride procedure" as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742, EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.
- d/ Oil and grease will be sampled when sheen is observed.
8. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from **Outfall 012**. Such discharges shall be limited and monitored by the permittee as specified:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 012						
Parameter	Discharge Limitations <i>a/</i>			Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	
Flow	NA	NA	NA	Continuous	Recorder	MGD
TSS	20	30	NA	Daily <i>b/</i>	Composite	mg/L
Total As	0.25	0.50	NA	Daily <i>b/</i>	Composite	mg/L
Total Cd	0.05	0.10	NA	Daily <i>b/</i>	Composite	mg/L
Total Cu	0.15	0.30	NA	Daily <i>b/</i>	Composite	mg/L
Total Pb	0.30	0.60	NA	Daily <i>b/</i>	Composite	mg/L
Total Hg	0.001	0.002	NA	Monthly	Composite	mg/L
Total Zn	0.224	0.50	NA	Daily <i>b/</i>	Composite	mg/L
Selenium <i>c/</i>	NA	0.054	NA	Daily <i>b/</i>	Composite	mg/L
Total Cyanide	0.1	0.2	NA	Monthly	Composite	mg/L
TDS	NA	NA	NA	Monthly	Composite	mg/L
Oil and Grease	NA	10	NA	<i>d/</i>	Grab	mg/L
pH	NA	9.0	6.5	Daily	Grab	SU

There shall be no untreated sanitary wastewater discharged into the tailings impoundment.

There shall be no floating solids or visible foam in other than trace amounts.

N.A. - Not Applicable.

*a/* See Definitions, *Part I.A* for definition of terms.

*b/* The monitoring frequency is two times per week when the weekly average flow is between 1 MGD and 5 MGD, three times per week when the weekly average flow is between 5 MGD and 10 MGD, five times per week when the weekly average flow is between 10 MGD and 15 MGD, and daily when the weekly average flow is greater than 15 MGD. Measurement frequency is only required weekly when the Sunday through Thursday average flow is less than 1 MGD and the total flow for the week is less than 10 MGD for that discharge. The frequency of monitoring may be modified by the Executive Secretary after one year of monitoring demonstrates compliance with concentrations below permit limits.

*c/* Selenium will be analyzed by the "Kennecott modified selenium hydride procedure" as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742, EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory

Improvement.

- d/ Oil and grease will be sampled when sheen is observed.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the outfall to the Great Salt Lake prior to mixing with the receiving water.

9. Effective immediately the permittee is authorized to discharge from **Outfall 104 (Hydrometallurgical plant)**. The discharge lbs/day shall be limited and monitored by the permittee as specified below:

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 104					
Parameter	Discharge Limitations a/		Monitoring Requirements		Units
	Maximum Monthly Average	Daily Maximum	Frequency	Sample Type	
Flow	NA	NA	Continuous	Recorder	MGD
TSS	236	295	Weekly	Composite	lb/day
Total As	11.2	27.3	Weekly	Composite	lb/day
Total Cd	1.57	3.93	Weekly	Composite	lb/day
Total Cu	12.0	25.2	Weekly	Composite	lb/day
Total Pb	2.56	5.51	Weekly	Composite	lb/day
Total Zn	8.26	20.1	Weekly	Composite	lb/day

- a/ See definitions Part I.A. for definition of terms

10. Except as provided for in Part I.D.11.b of the permit, there shall be no discharge of process wastewater to navigable water from the active copper dump leach operations.

11. Storm Exemptions

- a. If, as a result of precipitation or snowmelt Outfalls 002, and/or 012 has an overflow or excess discharge of effluent which does not meet the limitations contained in Part I.D.1 and 8, pursuant to 40 CFR 440.131(b), Outfalls 002 and/or 012 may qualify for an exemption from such limitations if the permittee notifies the Executive Secretary of the event in writing within thirty days of the event and the following conditions are met:
- i. The facility is designed, constructed and maintained to contain 6053 acre feet at the North expansion impoundment. This is the volume which would be generated by the permittee in a 24-hour period without an increase in volume from precipitation plus the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event. The Facility must be capable of storing the above volumes or be capable of treating the

- maximum flow associated with these volumes.
- ii. The permittee takes all reasonable steps to maintain treatment of the waste water such as adding lime to maintain pH in the range of 6.5 to 9.0 in the effluent and minimizes the amount of overflow such as not discharging leach water to the tailings pond except for storm runoff at the mine exceeding the 10 year 24-hour storm volume and the conditions of Part I.D.11.b.
  - iii. The discharge is analyzed for the parameters listed in Part I.D.1.
  - iv. The discharge is reported pursuant to Part II.I.1-4 and Part II.D.
  - v. The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the permittee has the burden of demonstrating to the Executive Secretary that the above conditions have been met.
- b. If, as a result of precipitation or snowmelt, other areas of the mine operations have an overflow or discharge which does not meet the limitations established pursuant to 40 CFR 440.131(b), as deemed applicable, the permittee may qualify for an exemption from such limitations with respect to such discharge if the permittee notifies the Executive Secretary of the event in writing within thirty days of the event and the following conditions are met:
- i. The facility is designed, constructed, and maintained to contain the maximum volume of waste water stored by the facility during normal operating conditions (without an increase in volume from precipitation) plus the maximum volume of waste water resulting from a 10-year, 24-hour precipitation event. In computing the maximum volume of waste water which would result from a 10-year, 24-hour precipitation event, the permittee must include the volume which would result from all areas contributing runoff to the facility, i.e., all runoff that is not diverted from the area, or process subject to zero discharge, and other runoff that is allowed to commingle with the influent to the treatment system.
  - ii. The permittee takes all reasonable steps to minimize the overflow or excess discharge such as containment and reuse where practical.
  - iii. There is no discharge of leach water to Bingham Creek or the Jordan River.
  - iv. The permittee complies with the notification requirements of the permit. The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the operator has the burden of demonstrating to the appropriate authority that the above conditions have been met.

12. Whole Effluent Toxicity (WET) Testing - Acute Toxicity. Effective immediately, and lasting through the life of this permit, there shall be no acute toxicity for *Ceriodaphnia dubia* in outfall 002 or 005 discharges, and no acute toxicity for *Cryprinodon variegatus* (sheepshead minnow) in outfalls 007 or 012 discharge as defined in *Part I.A* and determined by test procedures described below.

Effective immediately, the permittee will sample monthly the calcium concentration of the 012 outfall. If the calcium concentration drops below 350 mg/L, a 96-hour acute toxicity test using *Mysidopsis bahia* (mysid shrimp) will be conducted to determine the appropriateness of this species for the 012 outfall.

Starting on the effective date of this permit, when the maximum individual weekly average flow for outfalls 002 and 005 is greater than 10 MGD, the permittee shall monthly, conduct acute static replacement toxicity tests on composite samples of the final effluent. The samples shall be collected at outfalls 002 and 005. Sampling is only required quarterly if the quarterly average flow is less than 10 MGD and not required if the quarterly average flow has not exceeded 1 MGD. The permittee will also conduct acute static replacement toxicity tests on composite samples of the final effluent on a quarterly basis for outfall 012. Sampling is not required if the quarterly average flow has not exceeded 1 MGD. A yearly spring time acute biomonitoring test using *Ceriodaphnia dubia* is also required for outfall 010. Acute biomonitoring testing using *Cryprinodon variegatus* (sheepshead minnow) will be required at outfall 007 if the quarterly average flow has exceeded 1 MGD. Sampling is not required if the quarterly average flow has not exceeded 1 MGD.

The monitoring frequency for acute tests shall be as specified in the previous paragraph unless a sample is found to be acutely toxic during a routine test. If that occurs, the monitoring frequency shall become weekly (See *Part I.D.12.a, Accelerated Testing*). Samples shall be collected on a two day progression; i.e., if the first sample is on a Monday, during the next sampling period, the sampling shall begin on a Wednesday, etc. In the event of an acute toxicity test failure, the Permittee shall still be in compliance with the permit, as long as the Permittee is complying with the requirements of Part I.12 of this permit.

The replacement static acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fourth Edition. August 1993, EPA/600/4-90/027F* as per 40 CFR 136.3(a) TABLE IA-LIST OF APPROVED BIOLOGICAL METHODS, and the *Region VIII EPA NPDES Acute Test Conditions - Static Renewal Whole Effluent Toxicity Test (August, 1997)*. In the case of conflicts, the Region VIII procedures will prevail. The permittee shall conduct the 96-hour static replacement toxicity test for outfall 012 using *Cyprinodon variegatus*, and for outfalls 002, 005 and 010 48-hour tests using *Ceriodaphnia dubia*.

Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the results to be considered valid. If more than 10 percent control mortality occurs, the test shall be repeated until satisfactory control mortality is achieved. A variance to this requirement may be granted by the Executive Secretary if a mortality of less than 10 percent was observed in higher effluent dilutions.

If the permit contains a total residual chlorine limitation greater than 0.20 mg/L, the permittee may request from the Executive Secretary approval to dechlorinate the sample, or collect the sample prior to chlorination.

Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the reporting quarter, e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28. Monthly test results shall be reported along with the DMR submitted for that month. The format for the report shall be consistent with the latest revision of the *Region VIII Guidance for Acute Whole Effluent Reporting (August, 1997)* and shall include all chemical and physical data as specified.

If the results for one year of testing indicate no acute toxicity, the permittee may request a reduction in testing frequency and/or reduction to one species. The Executive Secretary may approve, partially approve, or deny the request based on results and other available information. If approval is given, the modification will take place without a public notice.

- a. *Accelerated Testing.* When acute toxicity is indicated during routine biomonitoring as specified in this permit, the permittee shall notify the Executive Secretary in writing within 5 days after becoming aware of the test result. The permittee shall perform an accelerated schedule of biomonitoring to establish whether a pattern of toxicity exists. Accelerated testing will begin within seven days after the permittee becomes aware of the test result. Accelerated testing shall be conducted as specified under *Part I.D.12.b, Pattern of Toxicity*. If the accelerated testing demonstrates no pattern of toxicity, routine monitoring shall be resumed.
- b. *Pattern of Toxicity.* A pattern of toxicity is defined by the results of a series of up to five biomonitoring tests pursuant to the accelerated testing requirements using 100 percent effluent on the species being tested, once every week for up to five consecutive weeks.

If two (2) consecutive tests (not including the scheduled quarterly or monthly test which triggered the search for a pattern of toxicity) do not result in acute toxicity, no further accelerated testing will be required and no pattern of toxicity will be found to exist. The permittee will provide written verification to the Executive Secretary within 5 days, and resume routine monitoring.

A pattern of toxicity is established if one of the following occurs:

- i. If two (2) consecutive test results (not including the scheduled quarterly or monthly test which triggered the search for a pattern of toxicity) indicate acute toxicity, this constitutes an established pattern of toxicity.
- ii. If consecutive tests continue to yield differing results each time, the permittee will be required to conduct up to a maximum of five (5) acute tests (not including the scheduled quarterly or monthly test which triggered the search for a pattern of toxicity). If three out of five test results indicate acute toxicity, this will constitute an established pattern of toxicity.

c. *Preliminary Toxicity Investigation*

- i. When a pattern of toxicity is detected the permittee will notify the Executive Secretary in writing within 5 days and begin an evaluation of the possible causes of the toxicity. The permittee will have 15 working days from demonstration of the pattern of toxicity to complete a Preliminary Toxicity Investigation (PTI) and submit a written report of the results to the Executive Secretary. The PTI may include, but is not limited to, additional chemical and biological monitoring, examination of pretreatment program records, examination of discharge monitoring reports, a thorough review of the testing protocol, evaluation of treatment processes and chemical use, inspection of material storage and transfer areas to determine if a spill may have occurred, and similar procedures.
- ii. If the PTI identifies a probable toxicant and/or a probable source of toxicity, the permittee shall submit, as part of its final results, written notification of that effect to the Executive Secretary. Within thirty days of completing the PTI the permittee shall submit for approval a control program to control effluent toxicity and shall proceed to implement such plan within seven days following approval. The control program, as submitted to or revised by the Executive Secretary, may be incorporated into the permit.
- iii. If no probable explanation for toxicity is identified in the PTI, the permittee shall notify the Executive Secretary as part of its final report, along with a schedule for conducting a Phase I Toxicity Reduction Evaluation (TRE) (See *Part I.D.12.d, Toxicity Reduction Evaluation*).
- iv. If toxicity spontaneously disappears during the PTI, the permittee shall submit written notification to that effect to the Executive Secretary as part of the reporting requirements of paragraph i of this section.

- d. *Toxicity Reduction Evaluation (TRE)*. If toxicity is detected during the life of this permit and it is determined by the Executive Secretary that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. The purpose of the TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.

A TRE may include but is not limited to one, all, or a combination of the following:

Phase I - Toxicity Characterization

Phase II - Toxicity Identification Procedures

Phase III - Toxicity Control Procedures

Any other appropriate procedures for toxicity source elimination and control

If the TRE establishes that the toxicity cannot be immediately eliminated the permittee shall submit a proposed compliance plan to the Executive Secretary. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Executive Secretary, this permit may be reopened and modified.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations, the permittee may:

- i. Submit an alternative control program for compliance with the numerical requirements.
- ii. If necessary, provide a modified biomonitoring protocol which compensates for the pollutant(s) being controlled numerically.

If acceptable to the Executive Secretary, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the Executive Secretary, and/or a modified biomonitoring protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the Executive Secretary, shall be considered a violation of this permit.

- e. *Prohibition of Non-Storm Water Discharges*. Except for process water discharges identified in the permit, the Statement of Basis and the discharges identified later in this paragraph, additional discharges from this facility are limited to storm water only. The following non-storm discharges may be authorized by this permit to be discharged with storm water discharges provided the non-storm water component of the discharge is in compliance with *part I.E.5.h* (Measures and Controls for Non-storm Water Discharges): discharges from fire fighting activities; fire hydrant flushings; potable water sources including waterline flushings; irrigation drainage; lawn watering; routine external building wash down which does not use detergents

or other compounds; pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water; and foundations or footing drains where flows are not contaminated with process materials such as solvents.

- E. Storm Water Pollution Prevention Plan. It has been determined that the permittee has a regulated storm water discharge as per *UAC R317.8*. Therefore, the permittee shall develop a storm water pollution prevention plan. However, if the permittee has provided storm runoff containment for the 25 year, 24 hour storm for new facilities or containment for the 10 year, 24 hour storm for existing facilities, the storm water pollution prevention plan may be modified for that portion of the facility. The plan shall be prepared and retained according to the following conditions.
1. Deadlines for Plan Preparation and Compliance. The storm water pollution prevention plan from the previous permit, as required under *Part I.E.*, will remain in effect until the current plan is modified and implemented. The new plan shall be implemented within 90 days of issuance of this permit unless the Executive Secretary gives written approval extending the implementation time for parts of the plan.
  2. Signature and Plan Review.
    - a. The plan shall be signed in accordance with *Part IV.G.* (Signatory Requirements), and be retained on site at the facility which generates the storm water discharge.
    - b. The permittee shall make plans available upon request to the *Executive Secretary*, or authorized representative.
    - c. Required modifications. The *Executive Secretary* may notify the permittee at any time that the plan does not meet one or more of the minimum requirements of this part. Such notification shall identify those provisions of the permit that are not being met by the plan and identify which provisions of the plan require modifications in order to meet the minimum requirements of this part. Within 30 days of such notification from the *Executive Secretary* the permittee shall make the required changes to the plan and shall submit to the *Executive Secretary* a written certification that the requested changes have been made.
  3. Pollution Prevention Team. Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team that are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.
  4. Description of Potential Pollutant Sources. Each plan shall provide a description of

potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials which may potentially be significant pollutant sources. Each plan shall include, at a minimum:

- a. Drainage.
  - i. A site map indicating, an outline of the portions of the drainage area of each storm water outfall that are within the facility boundaries, each existing structural control measure to reduce pollutants in storm water runoff, surface water bodies, locations where significant materials are exposed to precipitation, locations where major spills or leaks have occurred, and the locations of the following activities where such activities are exposed to precipitation: fueling stations, vehicle and equipment maintenance and/or cleaning areas, loading/unloading areas, locations used for the treatment, storage or disposal of wastes, liquid storage tanks, processing areas and storage areas.
  - ii. For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants the permittee shall make a prediction of the direction of flow, and an identification of the types of pollutants which are likely to be present in storm water discharges associated with industrial activity. Factors to consider include the toxicity of chemicals; quantity of chemicals used, produced or discharged; the potential of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified.
- b. Inventory of Exposed Materials. An inventory of the types of materials handled at the site that potentially may be exposed to precipitation and discharged to surface or groundwater. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of three years prior to the date of the issuance of this permit and the present; method and location of on-site storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of three years prior to the date of the issuance of this permit and the present; the location and a description of existing structural and non-structural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives. This description should also include areas with the potential for deposition activities. The description shall be updated whenever there is a significant change in the type or quantity of exposed materials or material management practices, which may affect the exposure of materials to storm water. Those updates will include any new

exposures related to waste rock or overburden management.

- c. Spills and Leaks. A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of three years prior to the effective date of this permit. Such list shall be updated as appropriate during the term of the permit.
  - d. Sampling Data. A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.
  - e. Risk Identification and Summary of Potential Pollutant Sources. A narrative description of the potential pollutant sources from the following activities: loading and unloading operations; outdoor storage activities; outdoor manufacturing or processing activities; significant dust or particulate generating processes; and on-site waste disposal practices. The description shall specifically list any significant potential source of pollutants at the site and for each potential source, any pollutant or pollutant parameter (e.g. biochemical oxygen demand, etc.) of concerns shall be identified.
5. Measures and Controls. Each facility covered by this permit shall develop a description of storm water management controls appropriate for the facility and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:
- a. Good housekeeping. Good housekeeping requires the maintenance of areas which may contribute pollutants to storm water discharges in a clean, orderly manner. The pollution prevention plan should consider implementation of the following measures where applicable:
    - i. Establish a cleaning or maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate, particularly areas of material loading/unloading, material storage and handling, and processing.
    - ii. Paved areas of vehicle traffic or material storage where vegetative or other stabilization methods are not practical. Institute sweeping programs in these areas as well.
    - iii. For unstabilized areas of the facility where sweeping is not practical, storm water management devices such as sediment traps, vegetative buffer strips, filter fabric fence, sediment filtering boom, gravel outlet protection or other

equivalent measures, that effectively trap or remove sediment should be considered.

- b. Source Controls. The permittee shall consider preventive measures to minimize the potential exposure of all significant materials (as described in Part I.E.4 of this section) to precipitation and storm water runoff. The permittee should consider in a narrative description the implementation of the following measures to reduce the exposure of all materials to storm water:
- i. Relocate all materials, including raw materials, intermediate products, material handling equipment, obsolete equipment, and wastes currently stored outside to inside locations.
  - ii. Establishment of a schedule for removal of wastes and obsolete equipment to minimize the volume of these materials stored onsite that may be exposed to storm water.
  - iii. Substitution of less hazardous materials, or materials less likely to contaminate storm water, or substitution of recyclable materials for nonrecyclables whenever possible.
  - iv. Constructing permanent or semipermanent covers, or other similar forms of protection over stockpiled materials, material handling and processing equipment. Options include roofs, tarps, and covers. This may also include the use of containment bins or covered dumpsters for raw materials, waste materials and nonrecyclables waste materials.
  - v. Dikes, berms, curbs, trenches, or other equivalent measures to divert run on from material storage, processing, or waste disposal areas.
- c. Preventive Maintenance. A preventive maintenance program shall involve inspection and maintenance of storm water management devices (e.g. cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.
- d. Spill Prevention and Response Procedures. Areas where potential spills which can contribute pollutants to storm water discharges can occur, and their accompanying drainage points shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a clean up should be available to personnel.

- e. Inspections. In addition to or as part of the comprehensive site evaluation required under this permit, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility at appropriate intervals specified in the plan. A set of tracking or follow up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained.
- f. Employee Training. Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. A pollution prevention plan shall identify periodic dates for such training. In all cases training must be held at least annually.
- g. Record keeping and Internal Reporting Procedures. A description of incidents such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.
- h. Non-Storm Discharges.
- i. The permittee's current certification will be accepted and considered complete. However, the plan shall include a certification that any new discharges have been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the on-site drainage points that were directly observed during the test. The certification must be signed in accordance with signatory requirements in *Part IV.G Signatory Requirements* of this permit. A discharger that is unable to provide certification required by this paragraph must notify the *Executive Secretary*.
  - ii. Except for flows from fire fighting activities, sources of non-storm water that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.
  - iii. Failure to Certify. If the permittee is unable to provide the certification

required for new discharges (testing for non-storm water discharges), the facility must notify the Executive Secretary within 30 days of construction of the new discharge. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: The procedure of any test conducted for the presence on non-storm water discharges; the results of such tests or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate test from such storm sewers were not feasible. Non-storm water discharges to waters of the United States that are not authorized by an NPDES permit are unlawful and must be terminated.

- i. Sediment and Erosion Control. The plan shall identify areas which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to limit erosion. The plan shall also contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those that control the generation or sources of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity (see paragraph Part I.E.4 of this section (Description of Potential Pollutant Sources) shall be considered when determining reasonable and appropriate measures. Appropriate measures may include; vegetative swales and practices, reuse of collected water (such as for a process or irrigation source), inlet controls ( such as oil/water separators), snow management activities, infiltration deicers, and wet detention/retention devices.
- j. Management of Runoff. Facilities shall consider implementation of the following storm water management practices to address pollutants of concern:
  - i. Vegetative buffer strips, filter fabric fence, sediment filtering boom, or other equivalent measures, that effectively trap or remove sediment prior to discharge through an inlet or catch basin.
  - ii. Media filtration such as catch basin filters and sand filters.
  - iii. Oil/water separators or the equivalent
  - iv. Structural BMPs such as settling basins, sediment traps, retention or detention ponds, recycling ponds or other equivalent measures.

Appropriate measures may include: vegetative swales and practice, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration

deicers and wet detention/retention devices.

6. Comprehensive Site Compliance Evaluation. Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but, in no case less than once a year. Such evaluations shall provide:

- a. Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.
- b. Based on the results of the inspection, the description of potential pollutant sources identified in the plan and pollution prevention measures and controls identified in the plan shall be revised as appropriate within two weeks of such inspection and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than twelve weeks after the inspection. A longer time period may be approved by the Executive Secretary when justified by the permittee.
- c. A report summarizing the scope of the inspection, personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken shall be made and retained as part of the storm water pollution prevention plan for at least one year after coverage under this permit terminates. The report shall identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with *Part IV.G Signatory Requirements* of this permit.

Where significant settling or deposition from process emissions are observed during proper operation of existing equipment, the permittee shall consider ways to reduce these emissions including but not limited to: Upgrading or replacing existing equipment; collection runoff from areas of deposition for treatment or recycling; or changes in materials or processes to reduce the generation of particulate matter.

- d. Where compliance evaluation schedules overlap with inspections required under Part I.E.5.e, the compliance evaluation may be conducted in place of one such inspection.

7. Consistency with other plans. Storm water pollution prevention plans may reflect

requirements for *Spill Prevention Control and Countermeasure ("SPCC")* plans developed for the facility under *Section 311* of the *CWA* or *Best Management Practices ("BMP")* otherwise required by this permit for the facility as long as such requirement is incorporated into the storm water pollution prevention plan.

8. Additional Requirements for Salt Storage. Storage piles of salt used for deicing or other commercial or industrial purposes and which generate a storm water discharge associated with industrial activity which is discharged to waters of the State shall be enclosed or covered to prevent exposure to precipitation, except for exposure resulting from adding or removing materials from the pile.
9. Monitoring Requirements: During the period beginning on the effective date and lasting through the expiration date of this permit storm events greater than 0.1 inches and more than 72 hours after the previous measurable storm at sites SW3 and SW4 shall be monitored at least 2 times per year and sampled if discharge is present, for the same appropriate parameters as listed for the tailings impoundment outfall 012 in Part I.D.8. except for cyanide and biomonitoring. Where practical, samples must consist of a grab sample in the first 30 minutes of the observed discharge for pH, total metals and if a sheen is present oil & grease. In addition to the parameters listed, the permittee shall provide the date and duration (in hours) of the storm event(s) sampled; rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and an estimate of the total volume (in gallons) of the discharge sampled. Monitoring is not required after reclamation bond release or reclamation has reduced values to background levels.
10. Sampling Waiver. When unable to collect samples due to adverse climatic conditions, the discharger must submit in lieu of sampling data a description of why samples could not be collected, including available documentation of the event. Adverse weather conditions which may prohibit the collections samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, electrical storms, etc.) or otherwise make the collection of a sample impractical (drought, extended frozen conditions, etc).
11. Reporting. Monitoring results shall be reported with the monthly Discharge Monitoring Report within 60 days of sampling.
12. EPCRA Section 313 Requirements. In areas where Section 313 water priority chemicals are stored, processed or otherwise handled, appropriate containment, drainage control and/or diversionary structures shall be provided. At a minimum, one of the following preventive systems or its equivalent shall be used:
  - a. Curbing, culverting, gutters, sewers, or other forms of drainage control to prevent or minimize the potential for storm water run-on to come into contact with significant sources of pollutants; or

- b. Roofs, covers or other forms of appropriate protection to prevent storage piles from exposure to storm water and wind.
- c. No tank or container shall be used for the storage of a Section 313 water priority chemical unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.
- d. Liquid storage areas for Section 313 water priority chemicals shall be operated to minimize discharges of Section 313 chemicals. Appropriate measures to minimize discharges of Section 313 chemicals may include secondary containment provided for at least the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation, a strong spill contingency and integrity testing plan, and/or other equivalent measures.

Material storage areas for Section 313 water priority chemicals other than liquids that are subject to runoff, leaching, or wind shall incorporate drainage or other control features that will minimize the discharge of Section 313 water priority chemicals by reducing storm water contact with Section 313 water priority chemicals.

- e. Truck and rail car loading and unloading areas for liquid Section 313 water priority chemicals shall be operated to minimize discharges of Section 313 water priority chemicals. Protection such as overhangs or door skirts to enclose trailer ends at truck loading/unloading docks shall be provided as appropriate. Appropriate measures to minimize discharges of Section 313 chemicals may include: the placement and maintenance of drip pans (including the proper disposal of materials collected in the drip pans) where spillage may occur (such as hose connections, hose reels and filler nozzles) for use when making and breaking hose connections; a strong spill contingency and integrity testing plan; and/or other equivalent measures.
- f. Processing equipment and materials handling equipment shall be operated so as to minimize discharges of Section 313 water priority chemicals. Materials used in piping and equipment shall be compatible with the substances handled. Drainage from process and materials handling areas shall minimize storm water contact with Section 313 water priority chemicals. Additional protection such as covers or guards to prevent exposure to wind, spraying or releases from pressure relief vents from causing a discharge of Section 313 water priority chemicals to the drainage system shall be provided as appropriate. Visual inspections or leak tests shall be provided for overhead piping conveying Section 313 water priority chemicals without secondary containment.
- g. Drainage from areas covered by paragraphs *a.*, *b.*, *c.*, or *d.* (above) should be restrained by valves or other positive means to prevent the discharge of a spill or

other excessive leakage of Section 313 water priority chemicals. Where containment units are employed, such units may be emptied by pumps or ejectors; however, these shall be manually activated.

Flapper-type drain valves shall not be used to drain containment areas. Valves used for the drainage of containment areas should, as far as is practical, be of manual, open-and-closed design.

If facility drainage is not engineered as above, the final discharge of all in-facility storm sewers shall be equipped to be equivalent with a diversion system that could, in the event of an uncontrolled spill of Section 313 water priority chemicals, return the spilled material to the facility.

Records shall be kept of the frequency and estimated volume (in gallons) of discharges from containment areas.

- h. Other areas of the facility (those not addressed in paragraphs *a.*, *b.*, *c.*, or *d.*), from which runoff that may contain Section 313 water priority chemicals or spills of Section 313 water priority chemicals could cause a discharge shall incorporate the necessary drainage or other control features to prevent discharge of spilled or improperly disposed material and ensure the mitigation of pollutants in runoff or leachate.
- i. All areas of the facility shall be inspected at specific intervals identified in the plan for leaks or conditions that could lead to discharges of Section 313 water priority chemicals or direct contact of storm water with raw materials, intermediate materials, waste materials or products. In particular, facility piping, pumps, storage tanks and bins, pressure vessels, process and material handling equipment, and material bulk storage areas shall be examined for any conditions or failures that could cause a discharge. Inspection shall include examination for leaks, wind blowing, corrosion, support or foundation failure, or other forms of deterioration or noncontainment. Inspection intervals shall be specified in the plan and shall be based on design and operational experience. Different areas may require different inspection intervals. Where a leak or other condition is discovered that may result in significant releases of Section 313 water priority chemicals to waters of the State, action to stop the leak or otherwise prevent the significant release of Section 313 water priority chemicals to waters of the State shall be immediately taken or the unit or process shut down until such action can be taken. When a leak or noncontainment of a Section 313 water priority chemical has occurred, contaminated soil, debris, or other material must be promptly removed and disposed in accordance with Federal, State, and local requirements and as described in the plan.
- j. Facilities shall have the necessary security systems to prevent accidental or intentional entry that could cause a discharge. Security systems described in the

plan shall address fencing, lighting, vehicular traffic control, and securing of equipment and buildings.

- k. Facility employees and contractor personnel that work in areas where Section 313 water priority chemicals are used or stored shall be trained in and informed of preventive measures at the facility. Employee training shall be conducted at intervals specified in the plan, but not less than once per year. Training shall address: pollution control laws and regulations, the storm water pollution prevention plan and the particular features of the facility and its operation that are designed to minimize discharges of Section 313 water priority chemicals. The plan shall designate a person who is accountable for spill prevention at the facility and who will set up the necessary spill emergency procedures and reporting requirements so that spills and emergency releases of Section 313 water priority chemicals can be isolated and contained before a discharge of a Section 313 water priority chemical can occur. Contractor or temporary personnel shall be informed of facility operation and design features in order to prevent discharges or spills from occurring.

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS.

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Sludge samples shall be collected at a location representative of the quality of sludge immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10*, 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 during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), post-marked no later than the 28th day of the month following the completed reporting period. The first report is due on November 28, 2006. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part IV.G)*, and submitted to the Director, Division of Water Quality and to EPA at the following addresses:

original to: Department of Environmental Quality  
Division of Water Quality  
288 North 1460 West  
PO Box 144870  
Salt Lake City, Utah 84114-4870

copy to: Technical Enforcement Program (8ENF-T)  
Office of Enforcement, Compliance Assistance & Environmental Justice  
US EPA Region VIII  
999 18th Street, Suite 500  
Denver, CO 80202-2466

- 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 parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10*

or as otherwise specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.

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 all original strip chart recordings for continuous monitoring instrumentation, 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 Executive Secretary at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location.

I. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall (orally) report any noncompliance which may seriously endanger health or environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 538-6146, or 24 hour answering service (801) 536-4123.
2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4123 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
  - a. Any noncompliance which may endanger health or the environment;
  - b. Any unanticipated bypass which exceeds any effluent limitation in the permit (See *Part III.G, Bypass of Treatment Facilities.*);
  - c. Any upset which exceeds any effluent limitation in the permit (See *Part III.H, Upset Conditions.*); or,
  - d. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit.
3. A written submission shall also be provided within five days of the time that the

permittee becomes aware of the circumstances. 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 reoccurrence of the noncompliance.
  - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Executive Secretary may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 538-6146.
5. Reports shall be submitted to the addresses 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. The reports shall contain the information listed in *Part II.I.3*.
- K. Inspection and Entry. The permittee shall allow the Executive Secretary, 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 reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Executive Secretary 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 of the Act is subject to a fine not exceeding \$25,000 per day of violation; Any person convicted under *UCA 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part III.G, Bypass of Treatment Facilities* and *Part III.H, Upset Conditions*, and possibly *Part I.D.11, Storm Exemptions* 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.
- F. Removed Substances. Collected screening, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.
- G. Bypass of Treatment Facilities.
1. *Bypass not exceeding limitations*. The permittee may allow any bypass to occur

which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2 and 3 of this section. Return of removed substances, as described in *Part III.F*, to the discharge stream shall not be considered a bypass under the provisions of this paragraph.

2. *Notice:*

- a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass.
- b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under *Part II.I, Twenty-four Hour Reporting*.

3. *Prohibition of bypass.*

- a. Bypass is prohibited and the Executive Secretary may take enforcement action against a permittee for a bypass, unless:
  - i. The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage ;
  - ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,
  - iii. The permittee submitted notices as required under paragraph 2 of this section.
- b. The Executive Secretary may approve an anticipated bypass, after considering its adverse effects, if the Executive Secretary determines that it will meet the three conditions listed above in paragraph 3.a of this section.

H. Upset Conditions.

1. *Effect of an upset.* An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2. of this section are met. The Executive Secretary's administrative determination regarding a claim of upset cannot be judiciously challenged by the

permittee until such time as an action is initiated for noncompliance.

2. *Conditions necessary for a demonstration of upset.* A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
  - b. The permitted facility was at the time being properly operated;
  - c. The permittee submitted notice of the upset as required under *Part II.I, Twenty-four Hour Notice of Noncompliance Reporting*; and,
  - d. The permittee complied with any remedial measures required under *Part III.D, Duty to Mitigate*.
3. *Burden of proof.* In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

- I. Toxic Pollutants: The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of *The Water Quality Act of 1987* for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
- J. Changes in Discharge of Toxic Substances. Notification shall be provided to the Executive Secretary as soon as the permittee knows of, or has reason to believe:
  1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - a. One hundred micrograms per liter (100 ug/L);
    - b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(7)* or (10); or,
    - d. The level established by the Executive Secretary in accordance with *UAC R317-8-4.2(6)*.

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
  - a. Five hundred micrograms per liter (500 ug/L);
  - b. One milligram per liter (1 mg/L) for antimony;
  - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(9)*; or,
  - d. The level established by the Executive Secretary in accordance with *UAC R317-8-4.2(6)*.

K. Industrial Pretreatment. Any wastewaters discharged to the sanitary sewer, either as a direct discharge or as a hauled waste, are subject to Federal, State and local pretreatment regulations. Pursuant to Section 307 of *The Water Quality Act of 1987*, the permittee shall comply with all applicable federal General Pretreatment Regulations promulgated at *40 CFR 403*, the State Pretreatment Requirements at *UAC R317-8-8*, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the wastewaters.

In addition, in accordance with *40 CFR 403.12(p)(1)*, the permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities, in writing, if they discharge any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under *40 CFR 261*. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

#### IV. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Executive Secretary as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Executive Secretary of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Executive Secretary 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 reissuance, 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 shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Executive Secretary, within a reasonable time, any information which the Executive Secretary 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 Executive Secretary, 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 Executive Secretary, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Executive Secretary shall be signed and certified.
1. All permit applications shall be signed by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Executive Secretary 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 Executive Secretary, and,
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (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 paragraph *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 paragraph *IV.G.2* must be submitted to the Executive Secretary 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 \$10,000.00 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 under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Executive Secretary. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.
- K. 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.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, are held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Executive Secretary at least 20 days in advance of the proposed transfer date;
  2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
  3. The Executive Secretary 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.
- N. 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, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117*.
- O. Water Quality-Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in

this permit.

2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
3. A revision to the current Water Quality Management Plan is approved and adopted which calls for different effluent limitations than contained in this permit.

P. Toxicity Limitation -Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;

1. A pattern of toxicity is detected, as per Part I, D.4 14 of this permit, during the duration of this permit.
2. The TRE results indicate that compliance with the toxic limits will require an implementation schedule past the date for compliance and the Executive Secretary agrees with the conclusion.
3. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the Executive Secretary agrees that numerical controls are the most appropriate course of action.
4. Following the implementation of numerical control(s) of toxicant(s), the Executive Secretary agrees that a modified biomonitoring protocol is necessary to compensate for those toxicants that are controlled numerically.
5. The TRE reveals other unique conditions or characteristics which, in the opinion of the Executive Secretary, justify the incorporation of unanticipated special conditions in the permit.

**FILE COPY**

**STATEMENT OF BASIS  
KENNECOTT UTAH COPPER CORPORATION  
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER  
UPDES PERMIT NUMBER: UT0000051  
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000  
MAJOR INDUSTRIAL**

**FACILITY CONTACTS**

Contact Name:	Paula H. Doughty	Contact Name:	Scott Lawson
Position:	Environmental Affairs Director	Position:	Vice President
Number:	(801) 569-7120	Number:	Engineering & Technical Services (801) 569-7111
Contact Name:	Reed Bodell	Contact Name:	Hank Hanssen
Position:	Superintendent of Water Resources	Position:	Lab Director
Number:	(801) 569-7915	Number:	(801) 569-7900
Contact Name:	Steve Sands		
Position:	Permitting Manager		
Number:	(801) 569-6195		
Facility Name:	Kennecott Utah Copper Corporation		
Mailing Address:	PO BOX 6001 Magna, Utah 84044-6001		
Actual Address:	8315 West 3595 South		

**DESCRIPTION OF FACILITY**

The Kennecott Utah Copper Corporation (KUCC) is an integrated facility which includes an open pit copper mine, copper dump leach system that is in the process of being phased out, a concentrator, a power plant, a smelter, a refinery, a reverse osmosis (RO) plant, the North Expansion Tailings Impoundment, and a sewage treatment plant. In addition, KUCC also has post-closure responsibility for management of heap leach rinsing and drain down from Barneys Canyon, an open pit gold mine and processing facility.

The Copperton Concentrator typically processes approximately 170,000 tons of ore per day from the Bingham Canyon open pit mine by a froth flotation process to produce copper concentrate and by-product molybdenite concentrate. Approximately 170,000 tons per day of tailings from the concentrator is disposed in the tailings impoundment.

The smelter processes copper concentrate to produce anode copper and by-product sulfuric acid. In the refinery, the anode copper is electrolytically refined to cathode copper. The main co-products include gold, silver, selenium, platinum, lead carbonate, and palladium.

The North Tailings Impoundment is anticipated to meet operational needs for the next 25 to 30 years and is designed to store approximately 1.5 billion tons of tailings. The primary discharge from the North Impoundment reports directly to the Great Salt Lake via Outfall 012. The sediment pond and Outfall 002 will remain in place for the

discharge of tailings water to the C-7 ditch as needed. Outfall 007 for the discharge of seepage and dike runoff water from the tailings impoundment to the C7 Ditch will also remain in place.

The reliance on Outfall 012 as the primary discharge point triggers other water management improvements that were addressed in modifications to the 2001 permit. For example selenium contaminated soils were removed from the Garfield Wetlands and the artesian flows at Garfield Well No. 5 and Kessler Springs were recycled into the process water circuit. Other flows such as Garfield Wetlands drainage that report to Outfall 008 were evaluated for quality, quantity and potential for recycle to minimize the volume of water discharged through Outfall 008. These evaluations ultimately result in lower concentrations of selenium reporting to the west C-7 ditch and the Great Salt Lake through Outfall 008.

Prior to October 2000, parts of the waste rock were actively leached to recover copper by recycling water collected at the base of the dumps and placing it back on top of the waste rock. Impacted meteoric water and leach drain down continues to be collected in the leach collection system at the base of the waste rock. This impacted water is introduced into the tailings line at a rate of 500 to 2,000 gpm for treatment and is then discharged to the North Tailings Impoundment. KUCC will continue to collect and treat impacted waste rock flows throughout the term of this permit

Groundwater in the alluvial aquifer in the southwest portion of the Salt Lake Valley has been contaminated by historic leach-water management practices. Groundwater cleanup is being conducted under an Administrative Order pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. 9606 and 9607, and involves extraction of low pH groundwater from two wells at a rate of 1200 to 1800 gpm and introduction of this water to the tailings line via the Waste Water Disposal Pump Station. Excess neutralizing capacity in the tailings line resulting from lime added as a milling reagent and intrinsic neutralization capacity of the tailings provides adequate treatment of all acidic flows routed to the tailings line. KUCC will manage acidic groundwater in the tailings line throughout the term of this permit.

KUCC also extracts neutral water with elevated sulfate concentrations from the leading edge of the plume (Zone A) and treats this water using RO membrane methods to produce drinking water. The Zone A RO Plant system is discussed further in subsequent portions of this Statement of Basis. Drinking water is provided to the public through the Jordan Valley Water Conservancy District (JVWCD) in partial fulfillment of a settlement with the State of Utah under a Natural Resource Damage claim. RO treatment results in a concentrate wastewater from the RO process which reports to the tailings line. JVWCD is also constructing an RO treatment plant to treat historic mine contaminated water. Concentrate wastewater from the JVWCD treatment facility may potentially be introduced at the tailings impoundment during the term of this permit renewal.

KUCC has conducted a pilot scale Solvent Extraction/Electrowinning (SXEW) project on a lined and monitored area on the Dry Fork dump. Future plans may include additional SXEW operations on the Dry Fork dump. This process involves leaching of low grade ore in waste rock with water, collecting the pregnant solution and processing it through a recovery circuit, that would be managed consistent with the current permitted practice of collecting drain down from leached and non-leached waste rock.

Effluent from the sewage treatment plant (STP) adjacent to the Refinery is hard piped directly to Pump Station No. 4 and incorporated into the process water circuit. Pump Station No. 4 directs flow to the Magna Reservoir where it is mixed with approximately 25,000 to 40,000 gpm of recycle water from the tailings impoundment and smelter. Water from the Magna Reservoir is pumped to the Copperton Concentrator where it is used for mineral processing.

UPDES effluent limitations for the STP are not necessary since KUCC is not authorized to discharge the effluent other than back into the process system. KUCC will demonstrate that the sewage plant is operated as designed by submitting monthly operating reports to the Construction Assistance Section of the Division of Water Quality.

Outfall 011 was permitted through a modification to the permit effective April 7, 1999. Outfall 011 was constructed to allow discharge of spring water from Adamson Springs when it is not needed in the process water circuit. Historically, Adamson Springs water was incorporated into the process water system at Pump Station No. 1. During reconstruction of Pump Station No. 1, Adamson Springs was segregated from tailings return water in the clarification canal and can now be directed to Outfall 011. Discharge of Adamson Spring water will reduce the amount of new source water into the process water circuit and reduce the amount of water that is discharged from the tailings impoundment via Outfall 012, during the winter months.

### **FACILITY**

Copper Mine, Copperton Concentrator, Barneys Canyon, Power Plant, Leach Collection System, Magna Tailings Impoundment and North Expansion, RO plant, Sewage Treatment Plant, Smelter, Refinery and associated facilities.

### **FACILITY LOCATION**

The company's active facilities are located in western Salt Lake County. The Bingham Canyon Mine, Leach Collection System, RO Plant, Barneys Canyon and Copperton Concentrator are located near Copperton, Utah. The Magna Tailings Impoundment and North Expansion, Power Plant, Sewage Treatment Plant, Smelter and Refinery are located near Magna, Utah.

### **STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE**

The SIC codes are 1021 copper ore mining and milling and 3331 smelting and refining of copper.

### **DESCRIPTION OF THE PROCESS AND WASTEWATER SYSTEMS**

In 1986, KUCC initiated a surface water management plan at the mine to segregate impacted and non-impacted waters.

Impacted waters are collected and managed through a leach collection system, lined reservoirs for containment and storage, Small Bingham Reservoir and/or Large Bingham Reservoir, and various groundwater extraction wells from remediation activities.

The leach water collection system consists of a series of cutoff walls, collection basins, pipes, toe drains, French drains and lined canals that collect and transport flows from leach drain down, meteoric and storm water runoff from leached and non-leached waste rock. Flows from the leached sections of the waste rock are piped to the precipitation plant for treatment and copper recovery, while flows from the non-leached waste rock are diverted directly into the Small and/or Large Reservoirs.

The Small and Large Reservoirs are permitted to store water from waste rock drain down, storm water runoff from the mine and waste rock, certain mine tunnel flows and water from various extraction wells, including the Bingham Canyon Alluvial well, Bingham Creek cutoff wall, Curtis Spring, the Dry Fork extraction well, the acid plume wells and the Copperton channel well. This water can be stored in the Small and/or Large Reservoirs or pumped to the Waste Water Disposal Pump Station (WDPS) along with the RO treatment plant wastewater. The WDPS can pump up to 6,000 gpm to either the Copperton Concentrator thickeners for use in the process, or to the tailings pipeline.

Water is collected and used at the Copperton Concentrator and consists of water collected from tunnels, storm water runoff, extraction well water and meteoric flows from the mine. Sources of water collected and used at the Copperton Concentrator include:

- Bingham Canyon mine pit water
- Storm water from the Upper Bingham Canyon drainages surrounding the pit
- Water from the North Ore Shoot (NOS) Shaft
- Water pumped from the Carr Fork underground workings
- Bingham Tunnel water
- Water from deep wells 1193 and 1201 and the sulfate extraction well
- Water from the Lark Clean Water Well
- Water from the Lark Shaft
- Water from the Dry Fork clean water well and Mid-Valley clean water well
- Treated sewage effluent water
- Barneys Canyon mine pit drainage water and heap leach drain down water
- Permeate and/or concentrate streams from membrane treatment facilities, associated with the treatment of contaminated groundwater
- Meteoric water, including flows from dumps, leach water drain down or other sources of contaminated surface water or groundwater.

Water from the NOS, upper Dry Fork drainages, Mid-Valley clean water well, Bingham Tunnel, Lark Well and Lark Shaft can be routed into the process water reservoir or into the Moly filter water tank. Other waters that are routed into the process water reservoir include about 15,000 gpm of overflow from the tailings thickeners and about 6,100 gpm of overflow from the clarifier. When the mine water is commingled with Copperton concentrator tailings, the combined flow, which is piped 13 miles to the tailings impoundment, could be as much as 50,000 gpm.

Water from deep wells 1193 and 1201 and the sulfate extraction wells primarily provide feed water to the Zone A RO plant. As indicated, treated water from this plant is delivered to a municipal drinking water purveyor for distribution to the public; concentrate reports to the process water system. On occasion, treated or untreated water from these wells may be directed to the process water system.

The volume of water that may be discharged from the impoundment is consistent with the volume that could have been discharged prior to commingling with any zero discharge water and includes that volume of water incorporated into KUCC's process system that is not necessary for process and could have been discharged prior to its integrated management.

Additional flows to the tailings impoundment include approximately 1,500 gpm from the slag concentrator, 250 gpm from the hydrometallurgical plant, and 1,000 gpm of water contained in ash sluice and cooling tower blow down from the power plant. In addition, surface water drainage from wetlands can also be diverted into the Tailings water management system, and flows from Garfield wells, well #10 and the Riter-North Jordan Canal or the Utah-Salt Lake canal may be diverted into the Tailings water management system as needed to provide freshening or make-up water.

Under normal operating conditions, water is pumped from the tailings impoundment decant pond to a clarification canal where up to 65,000 gpm can be recycled back to the concentrator. KUCC occasionally manages make-up

water at the tailings impoundment transfer sump and the north impoundment decant pond. As needed, water from the C-7 ditch is imported to provide freshening and enhance treatment in the tailings system. Excess tailings decant water is discharged in accordance with UPDES conditions at the primary discharge point Outfall 012. Water reporting to Outfall 012 is pumped from the North Expansion via the floating decant barge pumps. The intake to these pumps has been designed to skim water from just below the surface in order to reduce the potential to suspend solids from the bottom of the decant pond.

A toe ditch has been constructed along the outer perimeter of the North Expansion embankment with a central toe ditch retention pond. Outfall 007 is used to discharge from the toe ditch retention pond to the C-7 ditch when KUCC does not recycle this water for reuse in the concentrators.

The modernized smelter has implemented a water management system that incorporates separate systems for smelter process water, acid plant blow down, slag mill effluent, hydrometallurgical plant effluent, sewage, storm water associated with industrial activity, and storm water not associated with industrial areas. Cooling water and plant wash down water from the Praxair oxygen plant is routed to the Smelter East Process Water Pond. As part of a site remediation plan approved by the Utah Division of Solid and Hazardous Waste, approximately 100 gpm of water from an interceptor trench is also pumped to this pond.

Smelter process water, such as granulation, slag pot cooling and casting contact cooling water, may be cooled in cooling towers prior to storage in the lined East and West Process Water Ponds prior to recycling. Operations at the modernized smelter are designed to reuse contact process water within the smelter, or to recycle the required blow down of contact process water to the ore concentrators via Pump Station No. 4, thereby meeting the zero discharge effluent limitation. Non-contact cooling water from the modernized smelter will be directed to the lined East and West Process Water Ponds and recycled in smelter operations or to the Copperton Concentrator via Pump Station No. 4.

A hydrometallurgical plant uses the acid plant blow down and related acidic water from the smelter gas cleaning area to process solids from the flash smelter furnace electrostatic precipitator to recover copper and precious metals. The flow of acidic water to the hydrometallurgical plant is approximately 250 gpm. In addition, an estimated 50 gpm of refinery bleed electrolyte, precious metals plant blow down, and miscellaneous bleed streams will be directed to the hydrometallurgical plant for use as a reagent. An average flow of 250 gpm of gypsum/water slurry from this plant is routed through internal Outfall 104 to the tailings impoundment via the slag concentrator tailings pump system. This flow, from the hydrometallurgical plant, is regulated under the effluent guidelines applicable to acid plant blow down and refinery spent electrolyte with appropriate mass based limitations. The volume of effluent from the hydrometallurgical plant is monitored using an inline flow meter. Flow data is used both to calculate the mass effluent limitations using concentration data from Outfalls 002, 007, and 012 to account for the discharge of an equivalent volume of treated tailings water through Outfalls 002, 007 and/or 012.

The STP was constructed to treat sewage from the north end facilities, which include the modernized smelter, refinery, Praxair, Power Plant, Railroad support and tailings impoundment support facilities as well as neutralized laboratory wastes from the process and environmental laboratories. The plant includes flow equalization, chlorination, and aerobic digestion of sludge. The STP is sized to treat 165,000 gallons per day and a peak hourly flow of 47,250 gallons of raw domestic sewage, based on a total work force of 1350. Discharges from the plant will consist of a clarified and chlorinated effluent, which reports directly to Pump Station No. 4 and from there to the concentrators for use as process water, and a waste sludge. The sludge is managed in accordance with applicable regulations. As described in the summary of previous permit changes, internal Outfall 105 was eliminated from the

UPDES permit, in 2001, because there was, and continues to be, no direct discharge of the effluent to waters of the State.

Water from the Tooele, Section 17, Japanese Springs, and noncontact storm water can be discharged at Outfall 004, Outfall 008 or Outfall 012 via the Hazelton Pump and Smelter Return Canal. Surface water flows from wetlands and artesian groundwater flows can be discharged directly through Outfall 008 consistent with applicable discharge limitations.

The mine pit and mine storm runoff (without leach water) can be treated near Copperton and discharged through Outfall 005. The cemetery pond portion of this system was approved April 13, 1984 for irrigation quality water on an emergency basis. The historic discharge location was to Bingham Creek near the Jordan River; this Outfall location was subsequently changed to the Jordan River. There has been no discharge at this location for years, nor is any anticipated; the Outfall is retained for operational flexibility.

### **SUMMARY OF CHANGES FROM PREVIOUS PERMIT**

The last major permit renewal was issued on May 21, 2001. After issuance of this permit renewal, a minor permit modification was issued on December 5, 2001, an update to the Statement of Basis was issued on March 27, 2002, major and minor permit modifications were issued on May 30, 2002, a major permit modification was issued on August 27, 2002, and a minor permit modification was issued on March 26, 2003. The following contains a summary of these permit changes:

#### **May 21, 2001 – Permit Renewal**

##### ***List of Substantive Permit Changes***

*New Outfalls 011 (Adamson Spring) and 012 (to the Great Salt Lake) were included and Outfall 001(C-7 Ditch) was deleted.*

*Outfall 105 from the sewage treatment plant was deleted in the permit since there is not a direct discharge to the environment.*

*An interim selenium limitation of 0.054 mg/L was included for discharges from the tailings impoundment to the Great Salt Lake. This was based upon studies performed by the permittee and is subject to change in the future if Great Salt Lake data suggest modification is needed.*

*Whole Effluent Toxicity (WET) testing for the tailings discharge to the Great Salt Lake in the 2001 permit included a different test species than that required for the tailings discharge to the freshwater C-7 ditch in the 1995 permit.*

*The zinc limitation for the tailings impoundment discharge was decreased to a daily maximum of 0.5 mg/L and 30-day average of 0.224 mg/L.*

*The monitoring frequency for high discharge flows from tailings impoundment outfalls was increased.*

*The tailings water storage volume needed to qualify for the storm exemption was increased.*

*Limitations for Outfall 005 were reduced based on lower flow and higher TDS in the Jordan River.*

*Lower limits were included for Outfall 010 (Butterfield Tunnel discharge).*

*Phenol, iron and nickel monitoring and recycle rate limitations were deleted for the tailings impoundment discharges based on the results of monitoring data indicating further monitoring was not necessary if recycling continues as prescribed.*

#### **December 5, 2001 – Minor Permit Modification**

##### **REASON FOR MINOR PERMIT MODIFICATION**

*The facility requested a minor modification of their UPDES permit to relocate Outfall 004.*

*As a result of CERCLA remediation activities, the Slag Lagoon and the I-80 Pond were reconfigured and the Hazelton Fresh Water Pond (HFWP) was constructed. The resulting changes to the water management system necessitated relocation of Outfall 004.*

*Water reporting to the new HFWP and reconfigured Slag Lagoon and I-80 Pond included flows that previously reported to the old Slag Lagoon that were permitted for discharge from Outfall 004. The water discharged from the relocated Outfall 004 also included storm water previously discharged from SW5, thereby discontinuing the need for a separate permitted storm water outfall.*

*The relocated Outfall 004 was permitted to discharge directly to the Great Salt Lake. Flow measurements and monitoring requirements for Outfall 004 remained the same but the sampling location description was updated.*

#### **March 27, 2002 – Statement of Basis Update**

*An update to the Statement of Basis was issued to make minor clarifications to process water flow descriptions. The minor clarifications did not constitute a modification to the permit.*

#### **May 30, 2002 – Major and Minor Permit Modifications**

##### **REASON FOR MAJOR PERMIT MODIFICATION**

*The 2001 Permit Renewal was issued without storm water provisions anticipating a separate storm water permit. The permit was modified to consolidate all UPDES permitting for KUCC by including storm water provisions for Outfalls SW1, SW2, SW3 and SW4.*

##### **REASONS FOR MINOR PERMIT MODIFICATIONS**

*During the period of January 2000 to June 2001, KUCC successfully conducted fifteen acute WET tests using 100% effluent concentrations at Outfall 012. The results demonstrated that there are no acute toxic effects to the test species *Cryprinodon variegatus* (Sheepshead minnow). Part I.D.12 of KUCC's UPDES permit stated that "if the results for one year of testing indicate no toxicity, the permittee may request a reduction in testing frequency and/or reduction to one species." Based upon this permit condition, the permit was modified to reduce the acute toxicity sampling frequency at Outfall 012 from monthly to quarterly when the flow is greater than 1 MGD.*

*On December 5, 2001, the DWQ issued a modified permit for KUCC that approved the relocation of Outfall 004. In the Statement of Basis for the modified permit, it was stated that, "samples shall be taken from a flume prior to*

*entering the culvert beneath I-80.” Due to unforeseen circumstances out of KUCC’s control, the flume could not be constructed. The modified permit reflected that compliance samples for Outfall 004 would be taken prior to mixing with the receiving water.*

*Additional clarifications were also made in the modified permit and included standardizing the units used for selenium, correcting the pH monitoring frequency to make it consistent with other monitoring requirements, clarifying the individual flow requirements for WET testing, correcting references to erroneous footnotes for Outfalls 005, 009, 010 and 012 and updating the pool volumes for the tailings impoundment storm exemption provisions.*

### **August 27, 2002 – Major Permit Modification**

#### **REASON FOR MAJOR PERMIT MODIFICATION**

*A permit compliance schedule was included in KUCC’s renewal permit effective May 23, 2001 for Outfall 008, i.e., the May 21, 2001 Permit renewal, to allow time to reroute the high selenium sources to the tailings impoundment and complete treatment and water management studies defining how best to meet the new permit limitations. Outfall 008 consists of artesian water from the Garfield Wells, Kessler Spring, Section 17, springs from the Tooele area, wetland discharges, and other natural springs.*

*As part of the permit compliance schedule obligations, KUCC implemented management practices to reduce the amount of selenium discharged at Outfall 008 including the removal of contaminated soils from the Garfield Wetlands which historically contributed to the amount of selenium that could report to Outfall 008. KUCC also contained the artesian ground water sources with elevated selenium levels that formerly reported to Outfall 008 and now routes them into the process water circuit for treatment and use at the Copperton Concentrator. The permit modification clarified that, on rare occasions, the artesian sources may not be able to be routed into the process circuit, and authorized as a contingency, routing of all flows previously discharged out Outfall 008 to the downstream side of the pipeline for Outfall 012 (through a piped connection). Outfall 008 will discharge directly to the Great Salt Lake under those circumstances rather than via the West C-7 Ditch. The permit modification establishes that the limitations for Outfall 012 are applied to Outfall 008 except for cyanide and biomonitoring.*

### **March 26, 2003 – Minor Permit Modification**

#### **REASON FOR MINOR PERMIT MODIFICATION**

*The renewal UPDES permit for KUCC issued in May 2001, specified that “Selenium will be analyzed by the “KUCC modified selenium hydride procedure” [Modified EPA Method 7742] as approved in the October 24, 1997 letter from Gilbert Lopez of the State of Utah Bureau of Laboratory Improvement”. This method was accepted by the Division of Water Quality (DWQ) at the time over a standard EPA method in order to avoid positive selenium interferences associated with elevated dissolved solids concentrations in the effluent. Recent advances in analytical instrumentation now enable the use of a standard EPA method, specifically EPA Method 200.8, for measuring low concentrations of selenium in elevated salt matrices.*

*On February 8, 2003, the DWQ received KUCC’s request to modify the permit to allow for the use of either Modified EPA Method 7742 or EPA Method 200.8. The permit was modified to allow KUCC the use of both methods for the measurement of selenium.*

### **WATER MANAGEMENT CHANGES**

*This permit renewal incorporates changes in water management related to facility operational changes as well as other water management system improvements. This section lists facility operational changes already completed*

during the term of the 2001 permit, ongoing water management activities that will continue to be implemented during the term of the renewal permit, and facility water management changes anticipated during the term of the renewal permit.

Facility operational changes already completed during the term of the 2001 permit included:

- The North Concentrator was permanently shut down
- The tailings disposal from South to the North Tailings Impoundment transition was completed
- The UPDES permit included coverage of storm water discharges
- Sewage treatment plant (STP) effluent was piped to Pump Station No. 4 for inclusion in KUCC's process water circuit
- Outfall 105 (STP) was eliminated from the UPDES permit
- Outfall 008 was connected to Outfall 012
- Outfall 004 was relocated to enable KUCC to monitor the entire drainage area subject to the CERCLA removal activities
- Selenium contaminated soils were removed from the Garfield Wetlands
- At the Garfield Wetlands, spring discharges, artesian ground water discharges, and wetlands drainages with elevated selenium levels were contained and routed to the process water circuit for treatment and use at the Copperton Concentrator

Water management activities that will continue during the term of the renewal permit include:

- Continued management of storm water runoff, meteoric drainage, and leach water drain down from waste rock
- Continued management of groundwater extracted from the acid plume downgradient of the former Bingham Reservoir, as part of a CERCLA remedial response action
- Continued management of remediation waters containing elevated concentrations of selenium and arsenic

Facility water management changes anticipated during the term of the renewal permit include:

- Smelter area storm water runoff management through process water system, including SW1 and SW2 overflow management via the Smelter Return Canal process water system (resulting in deletion of Outfalls SW1 and SW2 from UPDES permit)
- The pool volume range required for storm exemption on the North Impoundment was updated
- Commencement of Barneys Canyon heap leach system rinsing and drain down following closure of Barneys Canyon
- Full-scale operation of expanded Reverse Osmosis Plant
- Management of treated sewage effluent through the tailings line
- Utilization of Outfall 008 for direct discharge of wetlands drainage or artesian ground water flows consistent with applicable discharge limitations

## DISCHARGE

### **DESCRIPTION OF DISCHARGE**

The KUCC has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. A summary of the last 3 years of data is attached and there were no significant violations.

## RECEIVING WATERS AND STREAM CLASSIFICATION

The primary receiving water for the tailings impoundment discharge is the Great Salt Lake. Collected spring water, and occasional tailings impoundment discharges, flow into the C-7 ditch which flows into the former lower Lee Creek drainage and from there to the Great Salt Lake. Mine drainage and mine storm water can also be discharged to the Jordan River if necessary. Inactive mine tunnels discharge to Butterfield Creek, and an ephemeral stream in Tooele County, and Pine Canyon Creek.

The Great Salt Lake is classified a Class 5. The C-7 ditch is classified a Class 3E. Butterfield Creek is classified a Class 2B, 3D and 4. The Jordan River at 7800 South is classified a Class 2B, 3A and 4. Pine Canyon Creek is unclassified and presumptively classified as Class 2B and 3D.

Class 2B	-Protected for secondary contact recreation such as boating, wading, or similar uses.
Class 3A	-Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
Class 3D	-Protected for waterfowl, shore birds and other water oriented wildlife not included in Class 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
Class 3E	-Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.
Class 4	-Protected for agricultural uses including irrigation of crops and stock watering.
Class 5	-The Great Salt Lake. Protected for primary and secondary contact recreation, aquatic wildlife, and mineral extraction.

## BASIS FOR EFFLUENT LIMITATIONS

The Kennecott operations are covered by USEPA Effluent Guidelines for the Ore Mining and Dressing Point Source Category, the Nonferrous Metals Manufacturing Point Source Category, Utah Secondary Treatment Standards, and Utah Water Quality Standards.

## OUTFALL 002, 007, AND 012 TAILINGS IMPOUNDMENT

The flows from the mine and concentrators are usually greater than 90 percent of the flow to the tailings impoundment. Federal Ore Mining Guidelines for these categories of wastewaters have concentration based limitations. The State has concluded and EPA Region VIII has concurred that concentration limits are appropriate for the discharge of this water from the tailings impoundment. A small amount of discharge to the tailings impoundment is from the hydrometallurgical plant. The flow to the hydrometallurgical plant is from the smelter acid plant, refinery bleed electrolyte, precious metals plant blowdown, and related refinery minor bleed streams. Federal Nonferrous Metals Manufacturing Guidelines for these categories of wastewaters have mass based limitations. The effluent from the hydrometallurgical plant to the tailings impoundment is mass based and calculated using the flow of this stream to the tailings impoundment and the concentration of applicable constituents in the discharge from the tailings impoundment.

The appropriate Ore Mining Effluent Guideline limitations in 40 CFR 440.102, best practicable technology (BPT), and 40 CFR 440.103, best available technology (BAT), for copper, lead, gold, silver and molybdenum ores for copper or molybdenum froth flotation are listed in Table 1.

TABLE 1 – ORE MINING EFFLUENT GUIDELINES				
Parameter	Effluent Limitations			Units
	Monthly Average	Daily Minimum	Daily Maximum	
Total Suspended Solids (TSS)	20	NA	30	mg/L
Copper (Cu)	0.15	NA	0.30	mg/L
Zinc (Zn)	0.5	NA	1.0	mg/L
Lead (Pb)	0.3	NA	0.6	mg/L
Mercury (Hg)	0.001	NA	0.002	mg/L
Cadmium (Cd)	0.05	NA	0.10	mg/L
pH	NA	6.5	9.0	SU

NA – Not Applicable

The pH is limited by the Utah Secondary Standards, Utah Administrative Code (UAC) Section R317-1-3.2 to a range of 6.5 - 9.0 standard units.

The limit for arsenic and zinc are based on the previous permit. Total cyanide is limited to the former permit limit of 0.1 mg/L monthly average and 0.2 mg/L daily maximum.

Mercury is based on 40 CFR 440.

The oil and grease limitation of 10 mg/L maximum is based on Best Professional Judgment.

An interim effluent limitation of 54 ug/L for selenium for Outfall 012 is established based upon Kennecott consultant studies of selenium concentrations that are protective of algae and invertebrates that inhabit the Great Salt Lake and to ensure that the residues present in these species do not accumulate in the food chain and pose any risk to bird reproduction. A detailed report presenting the derivation of the selenium permit limit for Outfall 012 was submitted as an addendum to the 2001 permit renewal application. This permit limit is considered interim at this time because no numeric selenium standards have been established for waters of the Great Salt Lake. However, the permit will contain a reopener clause in the event additional data demonstrate the need to modify the selenium effluent limitations.

The US Army Corps of Engineers 404 Permit for the North Expansion contains a selenium limit of 12 ug/L in lower Lee Creek water north of I-80 that is protective of wildlife at the Inland Sea Shorebird Reserve (ISSR). Accordingly, Kennecott is required to manage discharge from Outfalls 002 and 007 consistent with meeting the 404 permit limit for selenium in this water.

The previous permit contained a recycle flow rate requirement. Since the permittee continues to recycle, a permit limitation is not considered necessary. The permittee is expected to be able to comply with all of the tailings impoundment effluent limitations.

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 002 and 007						
Parameter	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	Units
Flow	NA	NA	NA	Continuous	Recorder	MGD
TSS	20	30	NA	3 X Weekly	Composite	mg/L
Total As	0.25	0.50	NA	3 X Weekly	Composite	mg/L
Total Cd	0.05	0.10	NA	3 X Weekly	Composite	mg/L
Total Cu	0.15	0.30	NA	3 X Weekly	Composite	mg/L
Total Pb	0.30	0.60	NA	3 X Weekly	Composite	mg/L
Total Hg	0.001	0.002	NA	3 X Weekly	Composite	mg/L
Total Zn	0.224	0.50	NA	3 X Weekly	Composite	mg/L
Total Se a/	0.012	NA	NA	Monthly b/	Grab	mg/L
Total Cyanide	0.1	0.2	NA	Monthly	Composite	mg/L
Total Dissolved Solids (TDS)	NA	NA	NA	Monthly	Composite	mg/L
Oil and Grease	NA	10	NA	c/	Grab	mg/L
pH	NA	9.0	6.5	3 X Weekly	Grab	SU

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 012						
Parameter	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	Units
Flow	NA	NA	NA	Continuous	Recorder	MGD
TSS	20	30	NA	Daily d/	Composite	mg/L
Total As	0.25	0.50	NA	Daily d/	Composite	mg/L
Total Cd	0.05	0.10	NA	Daily d/	Composite	mg/L
Total Cu	0.15	0.30	NA	Daily d/	Composite	mg/L
Total Pb	0.30	0.60	NA	Daily d/	Composite	mg/L
Total Hg	0.001	0.002	NA	Monthly	Composite	mg/L
Total Zn	0.224	0.50	NA	Daily d/	Composite	mg/L
Total Se	NA	0.054	NA	Daily d/ b/	Composite	mg/L
Total Cyanide	0.1	0.2	NA	Monthly	Composite	mg/L
TDS	NA	NA	NA	Monthly	Composite	mg/L
Oil and Grease	NA	10	NA	c/	Grab	mg/L
pH	NA	9.0	6.5	Daily	Grab	SU

NA – Not Applicable

- a/ 0.012 mg/L is consistent with the requirements of the U.S. Army Corps of Engineers 404 Permit #199450301 and shall not be exceeded at the Lower Lee Creek location north of Interstate 80 during a discharge from outfalls 002 and 007.
- b/ Selenium will be analyzed by the “Kennecott modified selenium hydride procedure” as

approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.

- c/ Oil and grease will be sampled when sheen is observed.
- d/ The monitoring frequency is two times per week when the weekly average flow is between 1 MGD and 5 MGD, three times per week when the weekly average flow is between 5 MGD and 10 MGD, five times per week when the weekly average flow is between 10 MGD and 15 MGD, and daily when the weekly average flow is greater than 15 MGD. Measurement frequency is only required weekly when the Sunday through Thursday average flow is less than 1 MGD and the total flow for the week is less than 10 MGD for that discharge. The frequency of monitoring may be modified by the Executive Secretary after one year of monitoring demonstrates compliance with concentrations below permit limits.

### Tailings Pond Storm Exemption

The current permit allows a storm exemption for the tailings impoundment when there is a pool volume equal to the 10-year, 24-hour storm plus a volume equal to the 24-hour accumulation of process water. Recycle of tailings water to the concentrators, maintaining treatment, and minimizing the amount of overflow is required. For storm events, the USEPA storm exemption requirements of 40 CFR 440.131(b) for facilities allowed to discharge will apply. Since issuance of the 2001 permit renewal, Kennecott completed its active operational transition from the South to the North Tailings Impoundment. The updated pool volume required for storm exemption is calculated below:

### North Expansion

<u>Source</u>	<u>Acre Feet</u>
Normal Pool Volume	5500-9000
Mine Storm Water at 10,000 gpm	44
Mine Water at 2,000 gpm	9
Concentrator process water discharge at 45,000 gpm	133
Hydrometallurgical Plant, Slag Tailings water at 2,000 gpm	9
Power Plant Ash Sluice at 1,000 gpm	5
Direct precipitation (1017 acres) x (2 inches)x (1 foot/12 inches)	170
Tailings Impoundment/Embankment surface area 3294 acres	
Runoff from 10-year, 24-hour storm (2.0 inches),Runoff Coefficient (0.3)	
Runoff (3666 acres) x (2 inches) x (1 foot/12 inches)(.3)	<u>183</u>
Total Capacity in acre-feet to Qualify for Storm Exemption	6053-9553*

\*Dependent on Actual Pool Volume prior to storm event

Information which must be submitted as part of the storm exemption includes the appropriate tailings impoundment/embankment surface area and pool area, amount of precipitation or snowmelt at the tailings impoundment and/or mine, North Expansion decant pool volume prior to the discharge, effluent concentrations, concentrator flow rate to the tailings impoundment, return flow from the tailings impoundment to the concentrators via Pump Station No. 1, and other steps taken to maintain treatment and minimize the amount of overflow such as maintaining the pH in the range of 6.5 to 9.0 in the tailings impoundment to minimize metals in the discharge.

**OUTFALL 104 SMELTER AND REFINERY DISCHARGE**

The discharge from the refinery and smelter are regulated by USEPA Nonferrous Metals Manufacturing Metallurgical Acid Plant, and Spent Refinery Electrolyte point source categories. USEPA regulations require no direct discharge of smelter process wastewater but discharge is allowed from the acid plant. The acid plant is designed to produce  $7.7 \times 10^6$  lbs/day of  $H_2SO_4$ . The Refinery is designed to produce  $2.0 \times 10^6$  lbs/day average cathode production. The limitations for the smelter acid plant and refinery are mass limitations.

The gypsum/water slurry effluent from the hydrometallurgical plant is regulated by the mass limitations for metallurgical acid plants and spent refinery electrolyte. Refinery casting is not included in the determination of applicable effluent limits after completion of the new smelter, because the refinery casting has been moved to the smelter casting area and there is zero discharge from this area.

The modernized smelter is regulated under new source performance standards (NSPS). Table 2 contains NSPS for the smelter acid plant and hydrometallurgical plant effluents and Table 3 contains the smelter acid plant and hydrometallurgical plant mass discharge limits.

TABLE 2 Smelter Acid Plant and Hydrometallurgical Plant Mass Discharge Guidelines 40 CFR 421.94		
Parameter	Effluent Limitations	
	Monthly Maximum lbs/ $10^6$ lbs $H_2SO_4$	Daily Maximum lbs/ $10^6$ lbs $H_2SO_4$
TSS	30.650	38.310
As	1.456	3.550
Cd	0.204	0.511
Cu	1.558	3.269
Pb	0.332	0.715
Zn	1.073	2.605
pH	(1)	(1)

TABLE 3 Smelter Acid Plant and Hydrometallurgical Plant Mass Discharge Guidelines 40 CFR 421.94		
Parameter	Effluent Limitations (Based on $H_2SO_4$ production of $7.7 \times 10^6$ lbs/day)	
	Monthly Maximum lbs/day	Daily Maximum lbs/day
TSS	236	295
As	11.2	27.3
Cd	1.57	3.93
Cu	12.0	25.2
Pb	2.56	5.51
Zn	8.26	20.1
pH	(1)	(1)

(1) The pH is limited by the Utah Secondary Standards, Utah Administrative Code (UAC) Section R317-1-3.2 to a range of 6.5 - 9.0 standard units.

Small flows of spent refinery electrolyte are subject to the Spent Refinery Electrolyte effluent limitation guidelines. Table 4 contains the effluent limitation guidelines for the refinery spent electrolyte effluent and Table 5 contains the refinery mass discharge limits.

TABLE 4 Refinery Spent Electrolyte Guidelines 40 CFR 421.54		
Parameter	Effluent Limitations	
	Monthly Maximum lbs/10 <sup>6</sup> lbs Cu produced	Daily Maximum lbs/10 <sup>6</sup> lbs H <sub>2</sub> SO <sub>4</sub>
TSS	0.588	0.735
As	0.0281 (2)	0.068
Cu	0.030	0.063
Ni	0.018	0.027
pH	(1)	(1)

TABLE 5 Refinery spent Electrolyte Mass Discharge Limits		
Parameter	Effluent Limitations (Based on Cu cathode production of 2.0 X 10 <sup>6</sup> lbs/day)	
	Monthly Maximum lbs/day	Daily Maximum lbs/day
TSS	1.18	1.47
As	0.06	0.14
Cu	0.060	0.13
Ni	0.04	0.054
pH	(1)	(1)

(1) The pH is limited by the Utah Secondary Standards, Utah Administrative Code (UAC) Section R317-1-3.2 to a range of 6.5 - 9.0 standard units.

(2) The Arsenic number differs from the effluent limitation guidelines in that it is more stringent and is continued from a previous permit consistent with the anti-backsliding provision of the CWA.

In order to calculate the allowable discharge limits from Outfall 104, DWQ added the values in Tables 3 and 5 to produce total mass limits in Table 6 applicable to the smelter acid plant, hydrometallurgical plant, and refinery discharge. The discharge is directed to the tailings impoundment where further treatment through precipitation, sedimentation, and clarification occurs in the tailings impoundment decant pond to meet the mass limitations, especially for total suspended solids. Compliance with mass limitations is calculated by first multiplying the flow from the hydrometallurgical plant by the ratio of tailings impoundment wastewater discharge rate divided by the total wastewater inflow to the tailings impoundment to determine the portion attributable to the hydrometallurgical

plant. Finally, this discharge flow rate is multiplied times the tailings impoundment discharge concentrations to determine the mass discharged.

Parameter	Effluent Limitations	
	Monthly Maximum lbs/day	Daily Maximum lbs/day
TSS	237	296
As	11.3	27.5
Cd	1.57	3.93
Cu	12.1	25.3
Pb	2.56	5.51
Zn	8.26	20.1

#### OUTFALL 005 MINE WATER

The discharge was originally approved for storm water and mine drainage discharge from the mine in 1984. It has not been used recently because the water now normally flows to the tailings impoundment. In the event operational failure prevented usage of the mine water collection, diversion and treatment system, mine water and additional storm water could be neutralized with lime, treated and discharged to the Jordan River subject to the Ore Mining Limitations and Water Quality Standards. A wasteload analysis of 5 MGD discharge to a low flow of 32 cfs and TDS of 1175 mg/L in the Jordan River is attached. The sources of ore mining limitations 40 CFR 440.103, previous discharge quality, or water quality WLA are listed in the following table. Due to a new WLA: total cadmium, copper, lead, mercury, iron and selenium are more stringent than in the previous permit.

Parameter	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	Units
Flow	NA	NA	NA	Daily a/	Measured	MGD
TSS	20	30	NA	2 X Weekly	Grab	mg/L
Total As	NA	0.23	NA	2 X Weekly	Grab	mg/L
Total Cd	0.0028	0.0198	NA	2 X Weekly	Grab	mg/L
Total Cu	NA	0.12	NA	2 X Weekly	Grab	mg/L
Total Pb	0.063	0.510	NA	2 X Weekly	Grab	mg/L
Total Hg	0.00006 b/	0.00077	NA	2 X Weekly	Grab	mg/L
Total Zn	0.75	1.50	NA	2 X Weekly	Grab	mg/L
Total Fe	NA	3.06	NA	2 X Weekly	Grab	mg/L
Selenium c/	0.014	0.056	NA	2 X Weekly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	1200	NA	2 X Weekly	Grab	mg/L
Oil and Grease	NA	10	NA	d/	Grab	mg/L
pH	NA	9.0	6.5	Daily	Grab	SU

- a/ For intermittent discharges, the duration of the discharge shall be reported.
- b/ Kennecott will voluntarily analyze mercury using a low level total mercury analysis.
- c/ Selenium will be analyzed by the “Kennecott modified selenium hydride procedure” as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.
- d/ When sheen is observed

NA – Not Applicable

During the first week of discharge, aluminum, and silver shall also be sampled and analyses submitted with the first discharge report.

**OUTFALL 008**

Outfall 008 consists of artesian water from the Garfield Wells, Kessler Spring, Section 17, Tooele Spring, wetland discharges, and natural springs. Surface water and artesian groundwater with elevated selenium levels will continue to be contained and routed to the process water circuit for treatment and use at the Copperton Concentrator. However, surface water or artesian groundwater meeting discharge limitations can also be discharged through Outfall 008. The discharge is monitored quarterly for the same parameters as Outfall 012 except for cyanide and biomonitoring. Selenium limits are considered interim at this time until selenium standards can be established for waters of the Great Salt Lake.

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 008						
Parameter	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	Units
Flow	NA	NA	NA	Quarterly	Measured	MGD
TSS	20	30	NA	Quarterly	Grab	mg/L
Total As	0.25	0.50	NA	Quarterly	Grab	mg/L
Total Cd	0.05	0.10	NA	Quarterly	Grab	mg/L
Total Cu	0.15	0.30	NA	Quarterly	Grab	mg/L
Total Pb	0.30	0.60	NA	Quarterly	Grab	mg/L
Total Hg	0.001	0.002	NA	Quarterly	Grab	mg/L
Total Zn	0.224	0.50	NA	Quarterly	Grab	mg/L
Selenium	NA	0.054	NA	Quarterly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	NA	NA	Quarterly	Grab	mg/L
Oil and Grease	NA	10	NA	a/	Grab	mg/L
pH	NA	9.0	6.5	Quarterly	Grab	SU

a/ When sheen is observed

NA – Not Applicable.

**OUTFALL 004 RUNOFF AND ARTESIAN WATER**

Storm water runoff from the drainage behind the smelter through the Kessler drainage channel, the flow from Japanese Springs, excess water from Tooele Spring and Section 17 which has not been used for process can be discharged at relocated Outfall 004. The discharge will be sampled and reported for the same parameters as Outfall 008.

**OUTFALL 009 PINE CANYON TUNNEL**

Outfall 009 consists of less than 30 gpm of water from the Pine Canyon Tunnel, a former mine. The majority of this water seeps into the ground before it reaches the intermittent stream. The discharge will be limited to the same concentrations as Outfall 002 except for cyanide and biomonitoring. Company data indicates that dissolved solid concentrations after mixing with the stream (when flowing) are not likely to exceed the Class 3D standards and are characterized by lower constituent concentrations than documented in storm water in this drainage.

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 009						
Parameter	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	Units
Flow	NA	NA	NA	2 X Yearly	Measured	MGD
TSS	20	30	NA	2 X Yearly	Grab	mg/L
Total As	0.25	0.50	NA	2 X Yearly	Grab	mg/L
Total Cd	0.05	0.10	NA	2 X Yearly	Grab	mg/L
Total Cu	0.15	0.30	NA	2 X Yearly	Grab	mg/L
Total Pb	0.30	0.60	NA	2 X Yearly	Grab	mg/L
Total Hg	0.001	0.002	NA	2 X Yearly	Grab	mg/L
Total Zn	0.224	0.50	NA	2 X Yearly	Grab	mg/L
Selenium b/	0.012	NA	NA	2 X Yearly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	NA	NA	2 X Yearly	Grab	mg/L
Oil and Grease	NA	10	NA	a/	Grab	mg/L
pH	NA	9.0	6.5	2 X Yearly	Grab	SU

a/ When seen is observed

b/ Selenium will be analyzed by the "Kennecott modified selenium hydride procedure" as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.

NA – Not Applicable.

**OUTFALL 010 BUTTERFIELD TUNNEL**

Outfall 010 consists of water from the Butterfield Tunnel, a former mine. The discharge will be sampled and reported for the same parameters as the tailings impoundment except for cyanide. The discharge is to comply with

the most restrictive standard from Ore Mining guidelines 40 CFR 440.103, class 3D aquatic life or class 4 agricultural water quality standards listed in the following table. The agricultural standard is used as a maximum for total dissolved solids, arsenic, and lead because the existing quality is significantly better than the calculated effluent limitations.

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 010						
Parameter	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	Units
Flow	NA	NA	NA	Quarterly	Measured	MGD
TSS	20	30	NA	Quarterly	Grab	mg/L
Total As	NA	0.10	NA	Quarterly	Grab	mg/L
Total Cd	0.0044	0.015	NA	Quarterly	Grab	mg/L
Total Cu	0.050	0.083	NA	Quarterly	Grab	mg/L
Total Fe	NA	1.52	NA	Quarterly	Grab	mg/L
Total Pb	0.023	0.100	NA	Quarterly	Grab	mg/L
Total Hg	0.00002 a/	0.00023	NA	Quarterly	Grab	mg/L
Total Zn	0.446	0.493	NA	Quarterly	Grab	mg/L
Selenium b/	0.007	0.029	NA	Quarterly	Grab	mg/L
Total Dissolved Solids (TDS)	NA	1200	NA	Quarterly	Grab	mg/L
Oil and Grease	NA	10	NA	c/	Grab	mg/L
pH	NA	9.0	6.5	Quarterly	Grab	SU

a/ Kennecott will voluntarily analyze mercury using a low level total mercury analysis.

b/ Selenium will be analyzed by the "Kennecott modified selenium hydride procedure" as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.

c/ When sheen is observed

NA – Not Applicable.

### OUTFALL 011 ADAMSON SPRING

This discharge is a natural spring. However, there is the potential for relatively small amounts of process water to commingle with the spring water. The discharge will be limited for total suspended solids (TSS), copper and zinc as listed in the Ore Mining Effluent Guideline limitations in 40 CFR 440.102, best practicable technology (BPT), and 40 CFR 440.103, best available technology (BAT). These limitations are more restrictive than the ground water permit. The pH is limited by the Utah Secondary Standards, Utah Administrative Code (UAC) Section R317-1-3.2 to a range of 6.5-9.0 standard units. Oil and Grease is limited by Best Professional Judgment to 10 mg/L.

Maximum limitations for arsenic and selenium are based upon the ground water permit for this spring. Maximum limitations of 0.01 mg/L for cadmium and lead are Best Professional Judgment based upon Company sample data

for total metal concentrations of the proposed discharge from Outfall 011. These limitations are higher than the ground water permit because they are for total metals instead of dissolved and are maximums instead of average values.

Total dissolved solids (TDS) are to be monitored but not limited because of the proximity to the Great Salt Lake.

Effluent Limitations, Self-Monitoring and Reporting Requirements Outfall 011						
Parameter	Maximum Monthly Average	Daily Maximum	Daily Minimum	Frequency	Sample Type	Units
Flow	NA	NA	NA	Quarterly	Measured	MGD
TSS	20	30	NA	Quarterly	Grab	mg/L
Total As	NA	0.013	NA	Quarterly	Grab	mg/L
Total Cd	NA	0.01	NA	Quarterly	Grab	mg/L
Total Cu	0.15	0.30	NA	Quarterly	Grab	mg/L
Total Pb	NA	0.01	NA	Quarterly	Grab	mg/L
Total Zn	0.224	0.50	NA	Quarterly	Grab	mg/L
Selenium a/	NA	0.013	NA	Quarterly	Grab	mg/L
Oil and Grease	NA	10	NA	b/	Grab	mg/L
pH	NA	9.0	6.5	Quarterly	Grab	SU

a/ Selenium will be analyzed by the “Kennecott modified selenium hydride procedure” as approved in the October 24, 1997 letter from Gilberto Lopez of the State of Utah Bureau of Laboratory Improvement, Modified EPA Method 7742 or EPA Method 200.8 or alternative method approved by the State of Utah Bureau of Laboratory Improvement.

b/ When seen is observed

NA – Not Applicable

Leach System

The Ore Mining and Dressing Point Source Category, 40 CFR 440.103 (c), requires that there be no discharge of process wastewater to navigable waters from leach operations except under defined circumstances. The zero discharge provisions do not apply to drain down of water from the inactive waste rock leaching operations or other inactive facilities in the process of being closed. In that regard, Kennecott is treating drain down from inactive waste rock leaching operations with the neutralization capacity contained in copper tailings, and discharging the treated drain down to the tailings impoundment. No leach water or drain down water is authorized to discharge to Bingham Creek or the Jordan River.

Treatment of waste rock drain down is expected to continue during the term of this permit. Section 40 CFR 440.131(c) authorizes a discharge of process water if the facility is designed, constructed and maintained to contain the maximum volume from a 10-year 24-hour precipitation event. The capacity of the Small Bingham Reservoir is 79.3 acre-feet and the total combined capacity of the Zone 1 and 2 Large Bingham Reservoirs is 1770 acre-feet. No such flows are authorized to discharge to Bingham Creek or the Jordan River. The zero discharge design has been and will continue to be sufficient to prevent a discharge to Bingham Creek or Jordan River.

## **SELF-MONITORING AND REPORTING REQUIREMENTS**

The permit will require reports to be submitted monthly, quarterly and yearly as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR.

## **STORM WATER**

### **STORMWATER REQUIREMENTS**

Rather than having a separate storm water permit, the discharge of storm water shall be covered under this permit. The principal storm water requirement is the development of a Pollution Prevention Plan, as detailed in the permit. The plan may be modified to reduce but not eliminate the inspection frequency, training, etc. where there is containment of the 25-year, 24-hour storm runoff at new facilities. It may also be modified to reduce but not eliminate the frequency of these where there is containment of the 10-year, 24-hour storm runoff at existing facilities.

### **Smelter Area Storm Water Runoff Management in Process Water System**

KUCC has developed a comprehensive storm water management system for the modernized smelter, which includes containment of the 25-year 24-hour storm at the modernized smelter. The revised management system eliminates the need for storm water Outfalls SW1 and SW2. The following briefly describes the system.

Storm water discharges are collected and channeled through the smelter area utilizing a series of engineered channels and piping to convey storm water to a pair of storm water ponds not designed to discharge. Runoff from the operating facilities is routed to either the West Storm Water Pond, with a 3.5 million gallon storage capacity; or the East Storm Water Pond, with a 6.5 million-gallon storage capacity. A 40-acre area drains to the West Storm Water Pond. Of this, approximately 37 acres consists of impervious asphalt surfaces and building roofs. Facilities draining to this pond primarily consist of the west parking area, office areas and the asphalted area once occupied by the former Acid Plant 7 and 8. An area of 90 acres drains to the East Storm Water Pond. Of this, approximately 58 acres consists of impervious asphalt surfaces and building roofs. Primary facility areas draining to this pond include the repair and machine shop area, the modernized smelter and reclaimed areas.

When storm water collects in the HDPE-lined West and East Storm Water Ponds, up to 350 gpm and 600 gpm respectively are pumped to the smelter West and East Process Water Ponds. In response to a significant storm event, any overflow from the West or East Storm Water Ponds will flow to the process water system through the Smelter Return Canal. The West and East Storm Water Ponds accept overflow from the West Process Water and East Process Water Ponds, respectively, during plant upset conditions such as power failures. When normal operations are restored, the water in the Storm Water Ponds is pumped back to the Process Water Ponds.

Non-operational areas will have storm water runoff routed to three different locations. Approximately 127 acres of native and reclaimed areas on the west side of the facility will drain to Japanese Springs via diversion channels reporting to the newly reconfigured Hazleton Fresh Water Pond or used for process makeup water with eventual discharge to the tailings impoundment or Great Salt Lake. Approximately 79 acres of east side native and reclaimed areas will drain to operational wetlands northeast of Praxair via diversion channels. An additional 3500 acres of land including both native and reclaimed areas, the smelter landfill, and Kessler Canyon will drain to the Kessler

drainage channel which flows to the Smelter Return Canal for recycle back to the concentrator or to the Great Salt Lake via Outfall 008. The majority of this acreage is attributable to Kessler Canyon at 3450 acres.

### **Outfall SW3, Little Valley Storm Water**

Storm water runoff from the area southeast of the North Concentrator complex may flow to the Little Valley Wash in the event of a significant storm. Outfall SW3 will be the monitoring point for this flow. Discharge from Outfall SW3 will only occur in response to a storm larger than a 10-year 24-hour event. Best Management Practices required for this discharge are that the discharge will occur only in response to a storm event and the discharge will be sampled as soon as practicable after flow is observed by personnel in the area. Test results will be reported for the same parameters as the tailings impoundment except for cyanide and biomonitoring.

### **Outfall SW4, Pine Canyon Storm Water**

Outfall SW4 consists of storm water runoff from the Pine Canyon drainage to Pine Canyon creek. The discharge will be monitored and sampled, if present, as soon as practicable after a major storm event. This shall occur at least twice per year, if discharge is present. Test results will be reported for the same parameters as Outfall 009.

## **PRETREATMENT REQUIREMENTS**

There is currently no discharge of process wastewater to the community of Magna sanitary sewer system. Any process wastewater that the facility may want to discharge to the public sanitary sewer in the future, either as direct discharge or as a hauled waste, would be subject to federal, state and local pretreatment regulations. Pursuant to section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR section 403, the State Pretreatment Requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste.

## **BIOMONITORING REQUIREMENTS**

As part of a nationwide effort to control toxics, biomonitoring requirements are being included in all major permits and in minor permits for facilities where effluent toxicity is an existing or potential concern. Authorization for requiring effluent biomonitoring is provided for in UAC R317-8-4.2 and R317-8-5.3. *The Whole Effluent Toxicity (WET) Control Guidance Document*, February 15, 1991, outlines guidance to be used by Utah Division of Water Quality staff and by permittees for implementation of WET control through the UPDES discharge permit program.

Outfall 012, which discharges directly to the Great Salt Lake, requires WET testing using the species *Cryprinodon variegatus* (sheepshead minnow) on a quarterly basis when the flow is greater than 1 MGD. Testing of *Mysidopsis bahia* (mysid shrimp) indicated that calcium concentrations above 350 mg/L effected *Mysidopsis bahia*. Monitoring of the calcium concentration will be performed and if the concentration drops below 350 mg/L, additional testing of the mysid shrimp is required to determine the appropriateness of this species.

Additionally, if KUCC discharges from Outfall 002, it should conduct WET tests using *Ceriodaphnia dubia*. Those tests should be performed monthly if the monthly average flow exceeds 10 MGD. Monitoring is only required

quarterly when the monthly average flow is less than 10 MGD. Because Outfall 002 discharges to a class 3E stream, only acute toxicity testing has been required.

If KUCC discharges from Outfall 007, it must conduct WET tests quarterly using *Cryprinodon variegatus* if the quarterly average flow has exceeded one (1) MGD.

A limitation of no acute toxicity (LC 50) has been required to be effective since June 1, 1993 and will continue upon the re-issuance of the permit for Outfalls 002 and 005. No acute toxicity at 012 for sheepshead minnow is now required. Provisions are in the permit for additional testing in the event 50 percent toxicity occurs and for conducting a toxicity reduction evaluation (TRE) in the event it becomes necessary at Outfalls 002 or 005.

Only a yearly biomonitoring test using *Ceriodaphnia dubia* is required for Outfall 010 because it is not an active mine portal. Biomonitoring is also required quarterly of discharge 005 because there is normally no discharge and the flow is not to exceed 5 MGD.

#### **PERMIT DURATION**

It is recommended that this permit be effective for a duration of five (5) years.

Drafted by  
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Tom Rushing, Storm Water  
Utah Division of Water Quality