



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

December 5, 2019

Mr. Ken Fleck, Manager
Geology and Environmental Affairs
PacifiCorp - Interwest Mining Company
PO Box 310
15 North Main Street
Huntington, UT 84528
Via Email

Subject: Public Notice of UPDES Renewal Permit No. **UT0023604**
Deer Creek Mine

Dear Mr. Fleck:

Enclosed is a draft copy of UPDES Permit No. UT0023604, the Fact Sheet Statement of Basis, Waste Load Analysis, and the Public Notice information for your facility referenced above. This information will also be made available on-line at <https://deq.utah.gov/water-quality/water-quality-public-notice> during the 30-day public comment period as appropriate. Thank you for your comments and assistance with the permit renewal efforts. If there are no significant comments received during the public notice period, then the permit will be re-issued as drafted.

Thank you for your continued efforts regarding your permit and in helping to protect Utah's Water Quality. If you have any questions with regards to this matter, please contact Jeff Studenka at jstudenka@utah.gov or at (801) 536-4395.

Sincerely,


Matthew Garn, P.E., Manager
UPDES Surface Water Section

MG/JAS/blj

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Public Notice of UPDES Renewal Permit No. UT0023604
Deer Creek Mine

Enclosures (5):

1. Draft Renewal Permit (DWQ-2019-013389)
2. Fact Sheet Statement of Basis (DWQ-2019-013387)
3. Waste Load Analysis (DWQ-2019-013816)
4. Public Notice (DWQ-2019-014587)
5. Letter to Newspaper (DWQ-2019-014589)

Cc: Via Email w/Enclosures
Amy Clark, US EPA Region VIII
Orion Rogers, Southeast Utah Health Department
Scott Hacking, DEQ District Engineer
Steve Christensen, DOGM
Chris Cline, US Fish & Wildlife Services

Via Email w/out Enclosures
Mike Fowlks, Utah Division of Wildlife Resources
Jason Gipson, Chief, Utah Regulatory Office, US Corps of Engineers

DWQ-2019-014585
FILE: UPDES Section 2

Official Draft Public Notice Version **December 10, 2019**

The findings, determinations, and assertions contained in this document are not final and subject to change following the public comment period.

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

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Minor Industrial Permit No. **UT0023604**

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

PACIFICORP INTERWEST MINING COMPANY – DEER CREEK MINE

is hereby authorized to discharge from its facility to receiving waters named **Deer Creek and Huntington Creek** (within the Colorado River Basin),

in accordance with specific limitations, outfalls, and other conditions set forth herein.

This permit shall become effective on **February 1, 2020**

This permit expires at midnight on **January 31, 2025**.

Signed this **XX day of MONTH, 20xx**.

Erica Brown Gaddis, PhD
Director

DWQ-2019-013389

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

A. Description of Discharge Points. The authorization to discharge wastewater provided under this part is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are violations 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*.

<u>Outfall Number</u>	<u>Location of Discharge Outfall</u>
002	Located at latitude 39° 21' 29" N and longitude 111° 6' 57" W. Mine water discharge to Deer Creek.
003	Located at latitude 39° 23' 23" N and longitude 111° 5' 23" W. Mine water discharge to Huntington Creek.

B. 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 a bioassay or other tests performed in accordance with standard procedures.

C. 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 003. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics*	002 Effluent Limitations*				Monitoring Requirements*	
	30-Day Average	7-Day Average	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD a/	5.0	--	--	--	Monthly	Measured
TSS, mg/L	15	25	--	--	Monthly	Grab
Total Iron, mg/L	1.0	--	--	--	Monthly	Grab
Dissolved oxygen mg/L b/	6.5	--	4.0	--	Monthly	Grab
Oil & Grease, mg/L c/	--	--	--	10	Monthly	Grab
TDS, mg/L	--	--	--	1200	Monthly	Grab
TDS, lbs/day d/	--	--	--	2000	Monthly	Grab
pH, standard units	--	--	6.5	9.0	Monthly	Grab
Sanitary Waste e/	--	--	--	None	Monthly	Visual
Oil and Grease, floating solids, visible foam, c/	--	--	--	None	Monthly	Visual

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Effluent Characteristics*	003 Effluent Limitations*				Monitoring Requirements*	
	30-Day Average	7-Day Average	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD a/	0.72	--	--	--	Monthly	Measured
TSS, mg/L	25	35	--	--	Monthly	Grab
Total Iron, mg/L	3.5	--	--	7.0	Monthly	Grab
Dissolved oxygen mg/L b/	6.5	--	4.0	--	Monthly	Grab
Oil & Grease, mg/L c/	--	--	--	10	Monthly	Grab
TDS, mg/L	--	--	--	1200	Monthly	Grab
TDS lbs/day d/	--	--	--	2000	Monthly	Grab
pH, standard units	--	--	6.5	9.0	Monthly	Grab
Sanitary Waste e/	--	--	--	None	Monthly	Visual
Oil and Grease, floating solids, visible foam, c/	--	--	--	None	Monthly	Visual
Total Arsenic, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Cadmium, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Chromium, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Copper, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Lead, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Mercury, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Nickel, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Selenium, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Silver, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Zinc, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Boron, mg/L f/	--	--	--	Report	Quarterly	Grab

*See Definitions, *Part VI*, for definition of terms.

- a/ For intermittent discharges, the duration of the discharge shall also be reported.
- b/ Dissolved oxygen is a thirty-day **minimum** average and/or a daily **minimum** value.
- c/ In addition to monthly sampling for oil and grease, a visual inspection for oil and grease, floating solids, and visible foam shall be performed at least monthly. There shall be no sheen, floating solids, or visible foam in other than trace amounts. If sheen is observed, a sample of the effluent shall be collected immediately thereafter and oil and grease shall not exceed 10 mg/L in concentration.
- d/ No lbs/tons per day loading limit will be applied at a specific Outfall if the concentration of TDS in the discharge is equal to or less than 500 mg/L as a thirty-day average. However, if the thirty-day average TDS concentration exceeds 500 mg/L at any Outfall, then the permittee cannot discharge more than 2000 lbs, or one-ton per day (or 366 tons per year) as a sum from all discharge points exceeding 500 mg/L as a thirty-day average. If the permittee cannot achieve one-ton per day (or 366 tons per year) as a sum from all applicable Outfalls, the permittee will be required to account for the excess salinity/TDS tonnage by developing a treatment process, participating in a salinity off-set program, or other type of mechanism to remove or offset the excess salinity/TDS. The selection of a salinity control program, or other type of treatment process, must be approved by the Director of the Division of Water Quality.
- e/ There shall be no discharge of sanitary waste. A visual inspection shall be performed at least

monthly.

- f/ The permittee is required to get the lowest detection limit possible using standard methods and certified laboratories.
2. The permittee is required to sample for and submit to DWQ results for at least one acute whole effluent toxicity (WET) test of discharge water from Outfall 003 (utilizing full dilution and both test species). The sample, which can be either a grab or composite sample, shall be collected prior to discharge into Huntington Creek and within 30 days upon initially discharging. This UPDES permit may be re-opened and modified (See Permit *Part V.P.*) based on the results of this sample. It is recommended that the permittee contact a State certified WET laboratory for direction on sampling requirements as necessary.
 3. Samples collected in compliance with the monitoring requirements specified above shall be collected at Outfalls 002 and 003 prior to mixing with the receiving water.

D. Reporting of Monitoring Results.

1. Reporting of Wastewater 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) * or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (Part V.G)*, and submitted by NetDMR, or to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

* Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception.

II. MONITORING, RECORDING & GENERAL 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. Samples of biosolids shall be collected at a location representative of the quality of biosolids 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 and 40CFR Part 503*, 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. 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.
- E. 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 and 40 CFR 503* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- F. 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.
- G. 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 five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location
- H. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites 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) 536-4300, or 24-hour answering service (801) 536-4123.

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2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 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 IV.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part IV.H, Upset Conditions.*);
 - d. Violation of a daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
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;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director 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) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. 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 I.D* are submitted. The reports shall contain the information listed in *Part III.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

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3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;
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, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,
5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

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 Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing provisions of the Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or 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 IV.G, *Bypass of Treatment Facilities* and Part IV.H, *Upset Conditions*, 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. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- 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, sludge, or other pollutants removed in the course of treatment shall be 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 paragraph 2 and 3 of this section.
 2. Prohibition of Bypass.
 - a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

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- (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to 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 backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *section IV.G.3*.
- b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *sections IV.G.2.a (1), (2) and (3)*.
3. Notice.
- a. *Anticipated bypass*. Except as provided above in *section IV.G.2* and below in *section IV.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
 - (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;
 - (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,
 - (6) Any additional information requested by the Director.
 - b. *Emergency Bypass*. Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *section IV.G.3.a.(1) through (6)* to the extent practicable.
 - c. *Unanticipated bypass*. The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part IV.H, Twenty Four Hour Reporting*. The permittee shall also immediately notify the Director of the Department of Natural

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Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

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. Director'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 III.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,
 - d. The permittee complied with any remedial measures required under *Part IV.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 Director 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 Director in accordance with *UAC R317-8-4.2(6)*.

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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 Director 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 Director 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 parameters discharged or pollutant sold or given away. 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 Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- 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 Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
1. All permit applications shall be signed by either a principal executive officer or ranking elected official.
 2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization 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

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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 V.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 V.G.2.* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

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

- H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000.00 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 Director. 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, is 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 Director at least 20 days in advance of the proposed transfer date;

PART IV
DISCHARGE PERMIT NO. UT0023604

2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal 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* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- 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. Revisions to the current CWA § 208 area wide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ 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 WET testing, a WET limitation, a compliance schedule, a compliance date, additional or modified numerical limitations, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit.
- Q. Storm Water-Reopener Provision. At any time during the duration (life) of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "waters-of-State".

V. DEFINITIONS

A. Wastewater.

1. The “7-day (and weekly) average”, other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. 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 Saturday.
2. The “30-day (and monthly) average,” other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. “Act,” means the *Utah Water Quality Act*.
4. “Bypass,” means the diversion of waste streams from any portion of a treatment facility.
5. “CWA,” means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
6. “Daily Maximum” (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
7. “EPA,” means the United States Environmental Protection Agency.
8. “Director,” means Director of the Division of Water Quality.
9. A “grab” sample, for monitoring requirements, is defined as a single “dip and take” sample collected at a representative point in the discharge stream.
10. An “instantaneous” measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
11. “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.

PART V
DISCHARGE PERMIT NO. UT0023604

12. "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 preventative maintenance, or careless or improper operation.

PN DRAFT

**FACT SHEET AND STATEMENT OF BASIS
PACIFICORP INTERWEST MINING DEER CREEK MINE
DISCHARGE RENEWAL PERMIT
UPDES PERMIT NUMBER: UT0023604
MINOR INDUSTRIAL FACILITY**

FACILITY CONTACTS

Name: Ken Fleck
Position: Manager of Geology & Environmental Affairs
Phone Number: 435-687-4712
Name: Dennis Oakley
Position: Senior Engineer
Phone Number: 435-687-4825

Facility Name: Interwest Mining Co., Deer Creek Mine
Mailing Address: PO Box 310
15 North Main Street
Huntington, Utah 84528
Facility Location: ~8 miles northwest of Huntington, Utah on Highway 31

DESCRIPTION OF FACILITY

The Interwest Mining Company, a subsidiary of PacifiCorp, Deer Creek Mine (mine) is a former underground coal mine with standard industrial classification code 1222 for bituminous coal underground mining, which ceased operations in January 2015. The mine portals have since been sealed and there has been no mining activity since that time other than reclamation of the former mining areas in both Deer Creek and Rilda Canyons. There are two remaining active discharge points located approximately 8 miles northwest of Huntington, Utah in Emery County. This renewal permit will once again authorize the discharge of mine water from Outfalls 002 and 003 during the next five years.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

The only significant changes from the current permit are the removal of Outfall 001 and the applicable permit limitations as appropriate, as well as the removal of the storm water permit provisions. Outfall 001, which was the discharge point from the former sedimentation pond structure, was taken out of service as part of final reclamation work completed in September 2019. Since final reclamation has been completed at the former mine site, the potential to discharge industrial storm water does not exist. Therefore the applicable storm water permit provisions have been removed as well. All other permit provisions remain unchanged.

DISCHARGE

DESCRIPTION OF DISCHARGE

The mine has been reporting self-monitoring results on Discharge Monitoring Reports through NetDMR on a monthly basis as appropriate. There have been no discharges from Outfall 002 since 2015 and no discharges to date from Outfall 003 since installation in late 2017. The permitted outfalls are as follows:

<u>Outfall</u>	<u>Description of Discharge Point</u>
002	Located at latitude 39° 21' 29" N and longitude 111° 6' 57" W. Mine water discharge to Deer Creek.
003	Located at latitude 39° 23' 23" N and longitude 111° 5' 23" W. Mine water discharge to Huntington Creek.

RECEIVING WATERS AND STREAM CLASSIFICATION

Discharges from Outfall 002 are to Deer Creek, which then flows into Huntington Creek. Discharges from Outfall 003 would be directly to Huntington Creek, which is classified as follows according to *Utah Administrative Code (UAC) R317-2-13*:

Class 1C --	Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water
Class 2B --	Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
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 4 --	Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

In accordance with regulations promulgated in the Code of Federal Regulations (CFR), 40 CFR Part 122.44 and in Utah Administrative Code (UAC) R317-8-4.2, effluent limitations are derived from technology-based effluent limitations guidelines, Utah Secondary Treatment Standards (UAC R317-1-3.2) or Utah Water Quality Standards (UAC R317-2). In cases where multiple limits have been developed, those that are more stringent shall apply. In cases where no limits are applicable, Best Professional Judgment (BPJ) is utilized and refers to a discretionary, best professional decision made by the permitting authority based upon precedent, prevailing regulatory standards, or other relevant information as appropriate.

Permit limits can also be derived from the Wasteload Analysis (WLA) as is the case with the Dissolved Oxygen minimum concentrations, as well as the flow limitations, which are based upon the maximum design flow of each outfall as provided by the mine facility. The WLA incorporates Secondary Treatment Standards, Water Quality Standards, including Total Maximum Daily Load (TMDL) impairments as appropriate, Antidegradation Reviews and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet State water quality standards in the receiving waters. During this UPDES renewal permit development, a WLA and ADR were performed. An ADR Level I review was performed and concluded that an ADR Level II review was not required this time since this is a

simple permit renewal with no proposed increases in flow or concentrations from the previous permit. The WLA indicates that the effluent limitations will be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. The WLA and ADR are attached as an addendum to this Fact Sheet.

Limitations on pH are based on current Utah Secondary Treatment Standards, found in UAC R317-1-3.2. Limitations on total suspended solids (TSS) are typically based on Utah Secondary Treatment Standards, also found in UAC R317-1-3.2 and are the applicable standard once again for Outfall 003. Regarding Outfall 002, TSS limitations are carried over from the previous permit requirements based upon a Level II ADR that was completed by the mine and approved by DWQ in 2013. Although a Level II ADR is not required for this permit renewal, the more stringent TSS limitations as a result of the previous ADR will apply once again to avoid Anti-backsliding as per U.S. EPA policy.

The total iron limitations for both outfalls remain the same as in the previous permit. For Outfall 002 it is based upon the State Water Quality Standard of 1.0 mg/L for dissolved iron (UAC R317-2 Table 2.14.2) and will once again be included in this renewal permit as 1.0 mg/L for total iron. Total iron includes the dissolved iron component and is therefore considered a more protective permit provision. Although the WLA indicates a higher total iron limitation of 7 mg/L may be allowed for Outfall 002, the more stringent limitation as a result of the previous permit will apply once again to avoid Anti-backsliding as per U.S. EPA policy. Previous discharge data indicates that the mine should be able to continue complying with the more stringent limitation. The iron limitation for Outfall 003 remains in place from the previous permit as well and is derived from both the WLA and from 40 CFR 434 Subpart E, *Post-Mining Areas and Alkaline Mine Drainage*. The limitations are 7.0 mg/L as a daily maximum and 3.5 mg/L for a monthly average for total iron as appropriate. The oil and grease limitation is based on BPJ of the permitting authority and is consistent with other industrial facilities statewide.

Total dissolved solids (TDS) limitations are based upon the state water quality standard for concentration at 1200 mg/L, as found in UAC R317-2-14 Table 2.14.1, and the Colorado River Basin Salinity Control Forum (CRBSCF) for mass loading as authorized in UAC R317-2-4. Regarding TDS loading, the CRBSCF Policy entitled "*NPDES Permit Program Policy for Implementation of Colorado River Salinity Standards*" (Policy), with the most current version dated October 2017, requires the TDS loading limitation of one-ton per day (or 366 tons per year) as a sum from all discharge points, unless the average concentration of TDS is 500 mg/L or less. If the concentration of TDS at any Outfall is less than or equal to 500 mg/L as a thirty day average, then no loading limit applies for that Outfall. The one-ton per day (or 366 tons per year) loading limit applies only to those Outfalls exceeding 500 mg/L as a thirty day average. Those Outfalls exceeding 500 mg/L as a thirty day average, collectively, need to meet the one-ton per day (or 366 tons per year) limit. If one-ton per day (or 366 tons per year) TDS cannot be achieved, then the permittee will be required to remove salinity/TDS in excess of one-ton per day (or 366 tons per year) by developing a treatment process, participating in a salinity off-set program, or developing some type of mechanism to remove the salinity/TDS. The selection of a salinity control program must be approved by the Director of the Division of Water Quality (DWQ). In April 2018, DWQ approved the mine's salinity control program plan as submitted to account for any future TDS credit tons if needed as appropriate.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this permit renewal was conducted following DWQ's September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance). There are four outcomes defined in the RP Guidance: Outcome A, B, C, or D. These Outcomes provide a frame work for what routine monitoring or effluent limitations are required

A qualitative RP analysis was performed on the applicable metals constituents from mine water data as previously discharged through Outfall 002. Initial screening for metals values that were submitted through both the discharge monitoring reports and the permit renewal application information showed that a closer look at any of the metals is not needed since all of the metals, excepting for total iron which already has specific effluent limitations as derived from previous permit development, were either below the appropriate method detection limits and/or below the applicable water quality standards, or simply believed to be absent based upon historical use and existing data. Therefore, no RP currently exists, except for total iron, and a more quantitative RP analysis was not necessary at this time for Outfall 002. Regarding Outfall 003, since there have not been any discharges to evaluate, the provisions to monitor for metals as derived from the 2017 RP analysis will remain in the permit for any future discharges and subsequent RP analysis as appropriate. The results of the RP analysis was; Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit. The RP summary is included as an addendum to this Fact Sheet.

Regarding TMDLs, a study was completed in August 2004 as part of the West Colorado River Watershed evaluation efforts and according to the Utah's 2016 303(d) Water Quality Assessment, the assessment unit for this section of Huntington Creek, which is Huntington Creek and tributaries from Highway 10 crossing to USFS boundary, is listed as impaired for pH, dissolved oxygen, temperature and TDS. This permit renewal will once again address each of these impairments by including the applicable effluent limitations for pH, dissolved oxygen and TDS. Temperature was evaluated through the RP process and determined that a limit was not required for this parameter (see attached RP summary). Also according to the Utah's 2016 303(d) Water Quality Assessment, the assessment unit for the section of Huntington Creek immediately downstream, which is Huntington Creek from the confluence with Cottonwood Creek to Highway 10 crossing, is also listed as impaired for selenium. This additional parameter of concern has been addressed through the RP process as well and determined that a limitation on selenium was not required, but monitoring will be required however. The RP analysis is attached for reference.

The permittee is expected to be able to continue complying with the effluent limitations as follows:

Effluent Characteristics*	002 Effluent Limitations*				Monitoring Requirements*	
	30-Day Average	7-Day Average	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD a/	5.0	--	--	--	Monthly	Measured
TSS, mg/L	15	25	--	--	Monthly	Grab
Total Iron, mg/L	1.0	--	--	--	Monthly	Grab
Dissolved oxygen mg/L b/	6.5	--	4.0	--	Monthly	Grab
Oil & Grease, mg/L c/	--	--	--	10	Monthly	Grab
TDS, mg/L	--	--	--	1200	Monthly	Grab
TDS, lbs/day d/	--	--	--	2000	Monthly	Grab
pH, standard units	--	--	6.5	9.0	Monthly	Grab
Sanitary Waste e/	--	--	--	None	Monthly	Visual
Oil and Grease, floating solids, visible foam, c/	--	--	--	None	Monthly	Visual

Effluent Characteristics*	003 Effluent Limitations*				Monitoring Requirements*	
	30-Day Average	7-Day Average	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD a/	0.72	--	--	--	Monthly	Measured
TSS, mg/L	25	35	--	--	Monthly	Grab
Total Iron, mg/L	3.5	--	--	7.0	Monthly	Grab
Dissolved oxygen mg/L b/	6.5	--	4.0	--	Monthly	Grab
Oil & Grease, mg/L c/	--	--	--	10	Monthly	Grab
TDS, mg/L	--	--	--	1200	Monthly	Grab
TDS lbs/day d/	--	--	--	2000	Monthly	Grab
pH, standard units	--	--	6.5	9.0	Monthly	Grab
Sanitary Waste e/	--	--	--	None	Monthly	Visual
Oil and Grease, floating solids, visible foam, c/	--	--	--	None	Monthly	Visual
Total Arsenic, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Cadmium, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Chromium, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Copper, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Lead, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Mercury, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Nickel, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Selenium, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Silver, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Zinc, mg/L f/	--	--	--	Report	Quarterly	Grab
Total Boron, mg/L f/	--	--	--	Report	Quarterly	Grab

*See Definitions, *Part VI*, for definition of terms.

- a/ For intermittent discharges, the duration of the discharge shall also be reported.
- b/ Dissolved oxygen is a thirty-day **minimum** average and/or a daily **minimum** value.
- c/ In addition to monthly sampling for oil and grease, a visual inspection for oil and grease, floating solids, and visible foam shall be performed at least monthly. There shall be no sheen, floating solids, or visible foam in other than trace amounts. If sheen is observed, a sample of the effluent shall be collected immediately thereafter and oil and grease shall not exceed 10 mg/L in concentration.
- d/ No lbs/tons per day loading limit will be applied at a specific Outfall if the concentration of TDS in the discharge is equal to or less than 500 mg/L as a thirty-day average. However, if the thirty-day average TDS concentration exceeds 500 mg/L at any Outfall, then the permittee cannot discharge more than 2000 lbs, or one-ton per day (or 366 tons per year) as a sum from all discharge points exceeding 500 mg/L as a thirty-day average. If the permittee cannot achieve one-ton per day (or 366 tons per year) as a sum from all applicable Outfalls, the permittee will be required to account for the excess salinity/TDS tonnage by developing a treatment process, participating in a salinity off-set program, or other type of mechanism to remove or offset the excess salinity/TDS. The selection of a salinity control program, or other type of treatment process, must be approved by the Director of the Division of Water Quality.
- e/ There shall be no discharge of sanitary waste. A visual inspection shall be performed at least monthly.

- f/ The permittee is required to get the lowest detection limit possible using standard methods and certified laboratories.

STORM WATER

Storm water provisions have not been included in this UPDES renewal permit because the potential to discharge industrial storm water has been obviated upon final reclamation of the former mine site, which was completed on November 1, 2019. All former mine related equipment, facilities and storage areas have been removed and the disturbed areas have been restored to a natural topography as part of the final reclamation activity. The permit will however contain a storm water re-opener provision that allows for modification of the permit at any time in the future should site conditions change that would require storm water monitoring and evaluation as appropriate.

PRETREATMENT REQUIREMENTS

This facility does not discharge process wastewater to a sanitary sewer system. Any process wastewater that the facility may discharge to the sanitary sewer, either as a direct discharge or as a hauled waste, is 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 403, the state's 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. 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).

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern (biomonitoring) is regulated in accordance with the Utah Pollutant Discharge Elimination System Permit and Enforcement Guidance Document for Whole Effluent Toxicity (WET) Control dated February 2018 (policy). Authority to require effluent biomonitoring is provided in Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317-2-7.2.

The permittee is categorized as a minor industrial facility that discharges an infrequent amount of effluent since mine closure in early 2015, in which toxicity is neither an existing concern, nor likely to be present based on past monitoring data from Outfall 002, including successfully passed WET tests in 2014. Based on these considerations and following the WET policy, there is no reasonable potential for toxicity in the permittee's discharge. As such, there will be no numerical WET limitations or WET monitoring requirements in this permit.

However, since there has not been a discharge to date from Outfall 003, the permittee will still be required to sample for and submit to DWQ results for at least one acute whole effluent toxicity (WET) test of discharge water from Outfall 003 (utilizing full dilution and both test species). The sample, which can be either a grab or composite sample, shall be collected prior to discharge into Huntington Creek and obtained within 30 days upon initially discharging. The permit may then be re-opened and modified based on the results of the future WET testing, as the permit contains a toxicity limitation re-opener

provision that allows for modification of the permit at any time in the future should additional information indicate the presence of toxicity in the discharge. These provisions remain in place from the current permit and are consistent with other similar outfalls and permits in Utah based upon BPJ of the permitting authority.

PERMIT DURATION

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

Drafted by
Jeff Studenka, Discharge
Lonnie Shull, Biomonitoring
Lisa Stevens and Mike George, Storm Water
Jen Robinson, Pretreatment
Amy Dickey, Watershed/TMDL
Matt Garn, Colorado River Basin Salinity Control
Dave Wham, Wasteload Analysis & ADR

Utah Division of Water Quality, (801) 536-4300
November 7, 2019

PUBLIC NOTICE INFORMATION (to be updated after)

Began:
Ended:

Comments will be received at: 195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870

The Public Notice of the draft permit will be published in the Emery County Progress, as well as on DWQ's website.

During the public comment period provided under R317-8-6.5, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in R317-8-6.12.

ADDENDUM TO FSSOB

ATTACHMENTS (2): I. Wasteload Analysis and Antidegradation Review
II. Reasonable Potential Analysis Summary

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PND DRAFT

ATTACHMENT 1

*Wasteload Analysis and
Antidegradation Reviews*

PV DRAFT

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**Utah Division of Water Quality
Statement of Basis
ADDENDUM
Wasteload Analysis and Antidegradation Level I Review**

Date: October 3, 2019
Prepared by: Dave Wham 
Standards and Technical Services
Facility: Pacificorp Deer Creek Mine; Discharge 003
UPDES No. UT0023604
Receiving water: Huntington Creek (1C, 2B, 3A, 4)

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

Discharge

UPDES Discharge Point 003, Mine water discharge with an estimated mean monthly discharge of 0.72 MGD (1.12 cfs).

Receiving Water

Huntington Creek. Per UAC R317-2-13.1(b), the designated beneficial uses of Huntington Creek and tributaries from Highway 10 crossing to USFS boundary are 1C, 2B, 3A, 4.

- *Class 1C – Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.*
- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *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 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Utah Division of Water Quality
Wasteload Analysis
PacifiCorp Deer Creek Mine
UPDES No. UT0023604

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). Due to a lack of flow records, the 20th percentile of available flow measurements was calculated for the period of record to approximate the 7Q10 low flow condition. Flow data for the receiving water was obtained from Emery Water Conservancy District for their site *Huntington River below Power Plant* from the period 2012-2017. This station is below the Power Plant diversion but above other significant diversions like Huntington North Reservoir. Ambient water quality was characterized using data from DWQ station #4930530, Huntington Creek above UP&L Diversion from the period 2007-2013.

The critical low flow condition for discharges 003 is 12.1 cfs.

TMDL

According to the Utah's 2016 303(d) Water Quality Assessment, the assessment unit for this section of Huntington Creek, Huntington Creek and tributaries from Highway 10 crossing to USFS boundary (UT14060009-004) was listed as impaired for pH (Classes 1C, 2B, 3A, 4), dissolved oxygen (Class 3A), temperature (Class 3A) and total dissolved solids (Class 4).

Review of the listing data show that the temperature impairment was based on results from stations located in Bear Creek, a tributary to Huntington Creek located upstream from the proposed discharge. As a result, the proposed discharge cannot cause or contribute to that impairment.

Data from two monitoring stations above and below Deer Creek on Huntington Creek show impairments for pH and dissolved oxygen (DO). As a result, the proposed discharge must meet applicable Water Quality Standards (WQS) at end of pipe for these constituents (6.5 mg/l DO, and pH 6.5-9.0 pH).

Review of the listing data show that the total dissolved solids (TDS) impairment was based on results from the Huntington Creek at U10 crossing monitoring station. In order to protect downstream uses, and to avoid causing or contributing to that impairment, effluent limits for TDS should be set at the WQS of 1200 mg/l TDS.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone.

Mixing zone modeling showed 100 % mixing within 15 minutes travel time, and acute limits defaulted to 50% of the seasonal critical low flow.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were temperature, pH, dissolved oxygen, TDS, and iron, as determined in consultation with the

**Utah Division of Water Quality
Wasteload Analysis
PacifiCorp Deer Creek Mine
UPDES No. UT0023604**

UPDES Permit Writer.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA.

LC50 WET Limits for Outfall 003 should be based on 100% effluent.
IC25 WET limits for Outfalls 003 should be based on 8.4% effluent.

Wasteload Allocation Methods

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ 2012). The mass balance analysis is summarized in the Wasteload Addendums.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. The AMMTOX Model developed by University of Colorado and adapted by Utah DWQ and EPA Region VIII was used to determine ammonia effluent limits (Lewis et al. 2002). The analysis is summarized in the Wasteload Addendum.

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

A Level II Antidegradation Review (ADR) is not required for this facility. The proposed permit is a simple renewal of an existing UPDES permit. No increase in flow or concentration of pollutants over those authorized in the the existing permit is being requested.

Documents:

WLA Document: *DeerCk_003_WLADoc_10-3-19.docx*

Wasteload Analysis and Addendums: *DeerCk_003_WLA_10-03-19.xlsm*

References:

Emery County Water Conservancy District. <http://www.ewcd.org/canals/huntington-drainage/>
Utah Division of Water Quality. 2012. *Utah Wasteload Analysis Procedures Version 1.0.*

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**WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis**

3-Oct-19

Facilities: Deer Creek 003 Discharge **UPDES No: UT-0023604**
Discharging to: Huntington Creek **0.72 MGD**

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Huntington Creek :	1C, 2B, 3A, 4
Antidegradation Review:	Level I review completed. Amended Level II review not required

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH ₃)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	6.50 mg/l (30 Day Average) 5.00 mg/l (7Day Average) 4.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

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Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	0.523 lbs/day	750.00	ug/l	4.511 lbs/day
Arsenic	190.00 ug/l	1.143 lbs/day	340.00	ug/l	2.045 lbs/day
Cadmium	0.52 ug/l	0.003 lbs/day	5.25	ug/l	0.032 lbs/day
Chromium III	178.07 ug/l	1.071 lbs/day	3725.58	ug/l	22.410 lbs/day
ChromiumVI	11.00 ug/l	0.066 lbs/day	16.00	ug/l	0.096 lbs/day
Copper	19.89 ug/l	0.120 lbs/day	32.26	ug/l	0.194 lbs/day
Iron			1000.00	ug/l	6.015 lbs/day
Lead	9.83 ug/l	0.059 lbs/day	252.25	ug/l	1.517 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.014 lbs/day
Nickel	110.39 ug/l	0.664 lbs/day	992.91	ug/l	5.973 lbs/day
Selenium	4.60 ug/l	0.028 lbs/day	20.00	ug/l	0.120 lbs/day
Silver	N/A ug/l	N/A lbs/day	17.38	ug/l	0.105 lbs/day
Zinc	253.86 ug/l	1.527 lbs/day	253.86	ug/l	1.527 lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO3

Metals Standards Based upon a Hardness of 242.57 mg/l as CaCO3

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.009 lbs/day
Chlordane	0.004 ug/l	0.306 lbs/day	1.200	ug/l	0.007 lbs/day
DDT, DDE	0.001 ug/l	0.071 lbs/day	0.550	ug/l	0.003 lbs/day
Dieldrin	0.002 ug/l	0.135 lbs/day	1.250	ug/l	0.008 lbs/day
Endosulfan	0.056 ug/l	3.988 lbs/day	0.110	ug/l	0.001 lbs/day
Endrin	0.002 ug/l	0.164 lbs/day	0.090	ug/l	0.001 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.271 lbs/day	0.260	ug/l	0.002 lbs/day
Lindane	0.080 ug/l	5.698 lbs/day	1.000	ug/l	0.006 lbs/day
Methoxychlor			0.030	ug/l	0.000 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.000 lbs/day
PCB's	0.014 ug/l	0.997 lbs/day	2.000	ug/l	0.012 lbs/day
Pentachlorophenol	13.00 ug/l	925.894 lbs/day	20.000	ug/l	0.120 lbs/day
Toxephene	0.0002 ug/l	0.014 lbs/day	0.7300	ug/l	0.004 lbs/day

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IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	2.26 lbs/day
Cadmium			10.0 ug/l	0.03 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	3.61 tons/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			50.0 ug/l	3.561 lbs/day
Barium			1000.0 ug/l	71.223 lbs/day
Cadmium			10.0 ug/l	0.712 lbs/day
Chromium			50.0 ug/l	3.561 lbs/day
Lead			50.0 ug/l	3.561 lbs/day
Mercury			2.0 ug/l	0.142 lbs/day
Selenium			10.0 ug/l	0.712 lbs/day
Silver			50.0 ug/l	3.561 lbs/day
Fluoride (3)			1.4 ug/l	0.100 lbs/day
to			2.4 ug/l	0.171 lbs/day
Nitrates as N			10.0 ug/l	0.712 lbs/day

Chlorophenoxy Herbicides

2,4-D			100.0 ug/l	7.122 lbs/day
2,4,5-TP			10.0 ug/l	0.712 lbs/day
Endrin			0.2 ug/l	0.014 lbs/day
cyclohexane (Lindane)			4.0 ug/l	0.285 lbs/day
Methoxychlor			100.0 ug/l	7.122 lbs/day
Toxaphene			5.0 ug/l	0.356 lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

Toxic Organics	Maximum Conc., ug/l - Acute Standards			
	Class 1C [2 Liters/Day for 70 Kg Person over 70 Yr.]		Class 3A, 3B [6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	1200.00 ug/l	85.47 lbs/day	2700.0 ug/l	192.30 lbs/day
Acrolein	320.00 ug/l	22.79 lbs/day	780.0 ug/l	55.55 lbs/day
Acrylonitrile	0.06 ug/l	0.00 lbs/day	0.7 ug/l	0.05 lbs/day
Benzene	1.20 ug/l	0.09 lbs/day	71.0 ug/l	5.06 lbs/day
Benzidine	0.00012 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	0.25 ug/l	0.02 lbs/day	4.4 ug/l	0.31 lbs/day
Chlorobenzene	680.00 ug/l	48.43 lbs/day	21000.0 ug/l	1495.67 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	0.00075 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	0.38 ug/l	0.03 lbs/day	99.0 ug/l	7.05 lbs/day

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1,1,1-Trichloroethane				
Hexachloroethane	1.90 ug/l	0.14 lbs/day	8.9 ug/l	0.63 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	0.61 ug/l	0.04 lbs/day	42.0 ug/l	2.99 lbs/day
1,1,2,2-Tetrachloroethane	0.17 ug/l	0.01 lbs/day	11.0 ug/l	0.78 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	0.03 ug/l	0.00 lbs/day	1.4 ug/l	0.10 lbs/day
2-Chloroethyl vinyl ether	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	1700.00 ug/l	121.08 lbs/day	4300.0 ug/l	306.26 lbs/day
2,4,6-Trichlorophenol	2.10 ug/l	0.15 lbs/day	6.5 ug/l	0.46 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	5.70 ug/l	0.41 lbs/day	470.0 ug/l	33.47 lbs/day
2-Chlorophenol	120.00 ug/l	8.55 lbs/day	400.0 ug/l	28.49 lbs/day
1,2-Dichlorobenzene	2700.00 ug/l	192.30 lbs/day	17000.0 ug/l	1210.78 lbs/day
1,3-Dichlorobenzene	400.00 ug/l	28.49 lbs/day	2600.0 ug/l	185.18 lbs/day
1,4-Dichlorobenzene	400.00 ug/l	28.49 lbs/day	2600.0 ug/l	185.18 lbs/day
3,3'-Dichlorobenzidine	0.04 ug/l	0.00 lbs/day	0.1 ug/l	0.01 lbs/day
1,1-Dichloroethylene	0.06 ug/l	0.00 lbs/day	3.2 ug/l	0.23 lbs/day
1,2-trans-Dichloroethylene	700.00 ug/l	49.86 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	93.00 ug/l	6.62 lbs/day	790.0 ug/l	56.27 lbs/day
1,2-Dichloropropane	0.52 ug/l	0.04 lbs/day	39.0 ug/l	2.78 lbs/day
1,3-Dichloropropylene	10.00 ug/l	0.71 lbs/day	1700.0 ug/l	121.08 lbs/day
2,4-Dimethylphenol	540.00 ug/l	38.46 lbs/day	2300.0 ug/l	163.81 lbs/day
2,4-Dinitrotoluene	0.11 ug/l	0.01 lbs/day	9.1 ug/l	0.65 lbs/day
2,6-Dinitrotoluene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	0.04 ug/l	0.00 lbs/day	0.5 ug/l	0.04 lbs/day
Ethylbenzene	3100.00 ug/l	220.79 lbs/day	29000.0 ug/l	2065.46 lbs/day
Fluoranthene	300.00 ug/l	21.37 lbs/day	370.0 ug/l	26.35 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	1400.00 ug/l	99.71 lbs/day	170000.0 ug/l	12107.84 lbs/day
Bis(2-chloroethoxy) methane	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	4.70 ug/l	0.33 lbs/day	1600.0 ug/l	113.96 lbs/day
Methyl chloride (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	4.30 ug/l	0.31 lbs/day	360.0 ug/l	25.64 lbs/day
Dichlorobromomethane	0.27 ug/l	0.02 lbs/day	22.0 ug/l	1.57 lbs/day
Chlorodibromomethane	0.41 ug/l	0.03 lbs/day	34.0 ug/l	2.42 lbs/day
Hexachlorobutadiene(c)	0.44 ug/l	0.03 lbs/day	50.0 ug/l	3.56 lbs/day
Hexachlorocyclopentadiene	240.00 ug/l	17.09 lbs/day	17000.0 ug/l	1210.78 lbs/day
Isophorone	8.40 ug/l	0.60 lbs/day	600.0 ug/l	42.73 lbs/day
Naphthalene				
Nitrobenzene	17.00 ug/l	1.21 lbs/day	1900.0 ug/l	135.32 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	70.00 ug/l	4.99 lbs/day	14000.0 ug/l	997.12 lbs/day
4,6-Dinitro-o-cresol	13.00 ug/l	0.93 lbs/day	765.0 ug/l	54.49 lbs/day
N-Nitrosodimethylamine	0.00069 ug/l	0.00 lbs/day	8.1 ug/l	0.58 lbs/day
N-Nitrosodiphenylamine	5.00 ug/l	0.36 lbs/day	16.0 ug/l	1.14 lbs/day
N-Nitrosodi-n-propylamine	0.01 ug/l	0.00 lbs/day	1.4 ug/l	0.10 lbs/day
Pentachlorophenol	0.28 ug/l	0.02 lbs/day	8.2 ug/l	0.58 lbs/day

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Phenol	2.10E+04 ug/l	1.50E+03 lbs/day	4.6E+06 ug/l	3.28E+05 lbs/day
Bis(2-ethylhexyl)phthala	1.80 ug/l	0.13 lbs/day	5.9 ug/l	0.42 lbs/day
Butyl benzyl phthalate	3000.00 ug/l	213.67 lbs/day	5200.0 ug/l	370.36 lbs/day
Di-n-butyl phthalate	2700.00 ug/l	192.30 lbs/day	12000.0 ug/l	854.67 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	23000.00 ug/l	1638.12 lbs/day	120000.0 ug/l	8546.71 lbs/day
Dimethyl phthlate	3.13E+05 ug/l	2.23E+04 lbs/day	2.9E+06 ug/l	2.07E+05 lbs/day
Benzo(a)anthracene (P/	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (F	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (F	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	9600.00 ug/l	683.74 lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	960.00 ug/l	68.37 lbs/day	11000.0 ug/l	783.45 lbs/day
Tetrachloroethylene	0.80 ug/l	0.06 lbs/day	8.9 ug/l	0.63 lbs/day
Toluene	6800.00 ug/l	484.31 lbs/day	200000 ug/l	14244.52 lbs/day
Trichloroethylene	2.70 ug/l	0.19 lbs/day	81.0 ug/l	5.77 lbs/day
Vinyl chloride	2.00 ug/l	0.14 lbs/day	525.0 ug/l	37.39 lbs/day
			0.0	0.00 lbs/day
			0.0	0.00 lbs/day
Pesticides				
Aldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	0.0008 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	0.9300 ug/l	0.07 lbs/day	2.0 ug/l	0.14 lbs/day
beta-Endosulfan	0.9300 ug/l	0.07 lbs/day	2.0 ug/l	0.14 lbs/day
Endosulfan sulfate	0.9300 ug/l	0.07 lbs/day	2.0 ug/l	0.14 lbs/day
Endrin	0.7600 ug/l	0.05 lbs/day	0.8 ug/l	0.06 lbs/day
Endrin aldehyde	0.7600 ug/l	0.05 lbs/day	0.8 ug/l	0.06 lbs/day
Heptachlor	0.0002 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 124	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 124	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 122	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 123	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 124	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 126	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 101	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	0.000750 ug/l	0.00	0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	1.30E-08 ug/l	0.00 lbs/day	1.40E-08	0.00

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Metals

Antimony	14.0 ug/l	1.00 lbs/day		
Arsenic	50.0 ug/l	3.56 lbs/day	4300.00 ug/l	306.26 lbs/day
Asbestos	7.00E+06 ug/l	4.99E+05 lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	1.30E+03 ug/l	92.59 lbs/day	2.2E+05 ug/l	15668.97 lbs/day
Lead	700.0 ug/l	49.86 lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	327.62 lbs/day
Selenium	0.1 ug/l	0.01 lbs/day		
Silver	610.0 ug/l	43.45 lbs/day		
Thallium			6.30 ug/l	0.45 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

The modeling approach used in this analysis included one or a combination of the following models.

- (1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).
- (2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.
- (3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8
- (4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

- (1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

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(2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al.
Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low-flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Current Upstream Information

	Stream									
	Critical Low									
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS		
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l		
Summer (Irrig. Season)	12.10	12.0	8.5	0.01	0.05	7.64	0.00	213.0		
Fall	12.10	2.1	8.4	0.01	0.05	---	0.00	265.0		
Winter	12.10	1.0	8.3	0.01	0.05	---	0.00	307.0		
Spring	12.10	7.3	8.4	0.01	0.05	---	0.00	230.0		
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb		
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
All Seasons	13.67	0.50	0.06	1.77	3.975*	0.95	15.2	0.35		
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron				
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l				
All Seasons	0.0000	2.50	0.92	0.25	7.12	20.1		* ~80% MDL		

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Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	0.72000	13.9	542.00	1.62697
Fall	0.72000	13.9		
Winter	0.72000	13.9		
Spring	0.72000	13.9		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	0.720 MGD	1.114 cfs
Fall	0.720 MGD	1.114 cfs
Winter	0.720 MGD	1.114 cfs
Spring	0.720 MGD	1.114 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.72 MGD. If the discharger is allowed to have a flow greater than 0.72 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

WET Requirements	LC50 >	61.4% Effluent	[Acute]
	IC25 >	8.4% Effluent	[Chronic]

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Effluent Limitation for Biological Oxygen Demand (BOD) based upon Water Quality Standards or Regulations

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD limitation as follows:

Season	Concentration	
Summer	25.0 mg/l as BOD5	150.1 lbs/day
Fall	25.0 mg/l as BOD5	150.1 lbs/day
Winter	25.0 mg/l as BOD5	150.1 lbs/day
Spring	25.0 mg/l as BOD5	150.1 lbs/day

Effluent Limitation for Dissolved Oxygen (DO) based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent D.O. limitation as follows:

Season	Concentration
Summer	6.50
Fall	6.50
Winter	6.50
Spring	6.50

Effluent Limitation for Total Ammonia based upon Water Quality Standards

In-stream criteria of downstream segments for Total Ammonia will be met with an effluent limitation (expressed as Total Ammonia as N) as follows:

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	16.2 mg/l as N	97.1 lbs/day
	1 Hour Avg. - Acute	25.5 mg/l as N	153.2 lbs/day
Fall	4 Day Avg. - Chronic	18.2 mg/l as N	109.0 lbs/day
	1 Hour Avg. - Acute	25.0 mg/l as N	150.3 lbs/day
Winter	4 Day Avg. - Chronic	19.9 mg/l as N	119.2 lbs/day
	1 Hour Avg. - Acute	28.7 mg/l as N	172.2 lbs/day
Spring	4 Day Avg. - Chronic	17.2 mg/l as N	103.2 lbs/day
	1 Hour Avg. - Acute	25.0 mg/l as N	150.3 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 50.0%.

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Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

In-stream criteria of downstream segments for Total Residual Chlorine will be met with an effluent limitation as follows:

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	0.119 mg/l	0.72 lbs/day
	1 Hour Avg. - Acute	0.117 mg/l	0.70 lbs/day
Fall	4 Day Avg. - Chronic	0.119 mg/l	0.72 lbs/day
	1 Hour Avg. - Acute	0.117 mg/l	0.70 lbs/day
Winter	4 Day Avg. - Chronic	0.119 mg/l	0.72 lbs/day
	1 Hour Avg. - Acute	0.117 mg/l	0.70 lbs/day
Spring	4 Day Avg. - Chronic	0.119 mg/l	0.00 lbs/day
	1 Hour Avg. - Acute	0.117 mg/l	0.00 lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration	Load
Summer	Maximum, Acute	11922.1 mg/l	35.79 tons/day
Fall	Maximum, Acute	11357.2 mg/l	34.09 tons/day
Winter	Maximum, Acute	10900.9 mg/l	32.72 tons/day
Spring	4 Day Avg. - Chronic	11737.4 mg/l	35.23 tons/day

Colorado Salinity Forum Limits Determined by Permitting Section

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 242.57 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum*	N/A	N/A	4,749.5 ug/l		28.6 lbs/day
Arsenic*	2,248.60 ug/l	8.7 lbs/day	2,184.0 ug/l		13.1 lbs/day
Cadmium	5.55 ug/l	0.0 lbs/day	33.5 ug/l		0.2 lbs/day
Chromium III	2,093.33 ug/l	8.1 lbs/day	23,952.1 ug/l		144.1 lbs/day
Chromium VI*	87.31 ug/l	0.3 lbs/day	81.3 ug/l		0.5 lbs/day
Copper	225.72 ug/l	0.9 lbs/day	202.4 ug/l		1.2 lbs/day
Iron*	N/A	N/A	7,072.1 ug/l		42.5 lbs/day
Lead	112.87 ug/l	0.4 lbs/day	1,620.5 ug/l		9.7 lbs/day
Mercury*	0.14 ug/l	0.0 lbs/day	15.4 ug/l		0.1 lbs/day
Nickel	1,282.47 ug/l	5.0 lbs/day	6,372.5 ug/l		38.3 lbs/day
Selenium*	44.61 ug/l	0.2 lbs/day	123.7 ug/l		0.7 lbs/day
Silver	N/A ug/l	N/A lbs/day	110.4 ug/l		0.7 lbs/day

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Zinc	2,934.28 ug/l	11.4 lbs/day	1,594.1	ug/l	9.6 lbs/day
Cyanide*	61.69 ug/l	0.2 lbs/day	141.5	ug/l	0.9 lbs/day

*Limits for these metals are based on the dissolved standard.

**Effluent Limitations for Heat/Temperature based upon
Water Quality Standards**

Summer	35.7 Deg. C.	96.3 Deg. F
Fall	25.8 Deg. C.	78.5 Deg. F
Winter	24.7 Deg. C.	76.5 Deg. F
Spring	31.0 Deg. C.	87.8 Deg. F

**Effluent Limitations for Organics [Pesticides]
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Organics [Pesticides] will be met with an effluent limit as follows:

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aldrin			1.5E+00	ug/l	1.40E-02 lbs/day
Chlordane	4.30E-03 ug/l	2.58E-02 lbs/day	1.2E+00	ug/l	1.12E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	6.00E-03 lbs/day	5.5E-01	ug/l	5.12E-03 lbs/day
Dieldrin	1.90E-03 ug/l	1.14E-02 lbs/day	1.3E+00	ug/l	1.16E-02 lbs/day
Endosulfan	5.60E-02 ug/l	3.36E-01 lbs/day	1.1E-01	ug/l	1.02E-03 lbs/day
Endrin	2.30E-03 ug/l	1.38E-02 lbs/day	9.0E-02	ug/l	8.38E-04 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	9.31E-05 lbs/day
Heptachlor	3.80E-03 ug/l	2.28E-02 lbs/day	2.6E-01	ug/l	2.42E-03 lbs/day
Lindane	8.00E-02 ug/l	4.80E-01 lbs/day	1.0E+00	ug/l	9.31E-03 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	2.79E-04 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	9.31E-05 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	3.72E-04 lbs/day
PCB's	1.40E-02 ug/l	8.41E-02 lbs/day	2.0E+00	ug/l	1.86E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	7.80E+01 lbs/day	2.0E+01	ug/l	1.86E-01 lbs/day
Toxephene	2.00E-04 ug/l	1.20E-03 lbs/day	7.3E-01	ug/l	6.79E-03 lbs/day

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**Effluent Targets for Pollution Indicators
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Pollution Indicators will be met with an effluent limit as follows:

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	30.1 lbs/day
Nitrates as N	4.0 mg/l	24.1 lbs/day
Total Phosphorus as P	0.05 mg/l	0.3 lbs/day
Total Suspended Solids	90.0 mg/l	541.4 lbs/day

Note: Pollution indicator targets are for information purposes only.

**Effluent Limitations for Protection of Human Health [Toxics Rule]
Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)**

In-stream criteria of downstream segments for Protection of Human Health [Toxics] will be met with an effluent limit as follows:

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	1.42E+04 ug/l	8.55E+01 lbs/day
Acrolein	3.80E+03 ug/l	2.28E+01 lbs/day
Acrylonitrile	7.00E-01 ug/l	4.20E-03 lbs/day
Benzene	1.42E+01 ug/l	8.55E-02 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	2.97E+00 ug/l	1.78E-02 lbs/day
Chlorobenzene	8.07E+03 ug/l	4.84E+01 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	8.90E-03 ug/l	5.34E-05 lbs/day
1,2-Dichloroethane	4.51E+00 ug/l	2.71E-02 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	2.25E+01 ug/l	1.35E-01 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	7.24E+00 ug/l	4.34E-02 lbs/day
1,1,2,2-Tetrachloroethane	2.02E+00 ug/l	1.21E-02 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	3.68E-01 ug/l	2.21E-03 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	2.02E+04 ug/l	1.21E+02 lbs/day
2,4,6-Trichlorophenol	2.49E+01 ug/l	1.50E-01 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	6.76E+01 ug/l	4.06E-01 lbs/day
2-Chlorophenol	1.42E+03 ug/l	8.55E+00 lbs/day
1,2-Dichlorobenzene	3.20E+04 ug/l	1.92E+02 lbs/day
1,3-Dichlorobenzene	4.75E+03 ug/l	2.85E+01 lbs/day

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1,4-Dichlorobenzene	4.75E+03 ug/l	2.85E+01 lbs/day
3,3'-Dichlorobenzidine	4.75E-01 ug/l	2.85E-03 lbs/day
1,1-Dichloroethylene	6.76E-01 ug/l	4.06E-03 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	1.10E+03 ug/l	6.62E+00 lbs/day
1,2-Dichloropropane	6.17E+00 ug/l	3.70E-02 lbs/day
1,3-Dichloropropylene	1.19E+02 ug/l	7.12E-01 lbs/day
2,4-Dimethylphenol	6.41E+03 ug/l	3.85E+01 lbs/day
2,4-Dinitrotoluene	1.30E+00 ug/l	7.83E-03 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	4.75E-01 ug/l	2.85E-03 lbs/day
Ethylbenzene	3.68E+04 ug/l	2.21E+02 lbs/day
Fluoranthene	3.56E+03 ug/l	2.14E+01 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	1.66E+04 ug/l	9.97E+01 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	5.58E+01 ug/l	3.35E-01 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	5.10E+01 ug/l	3.06E-01 lbs/day
Dichlorobromomethane(HM)	3.20E+00 ug/l	1.92E-02 lbs/day
Chlorodibromomethane (HM)	4.86E+00 ug/l	2.92E-02 lbs/day
Hexachlorocyclopentadiene	2.85E+03 ug/l	1.71E+01 lbs/day
Isophorone	9.97E+01 ug/l	5.98E-01 lbs/day
Naphthalene		
Nitrobenzene	2.02E+02 ug/l	1.21E+00 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	8.30E+02 ug/l	4.99E+00 lbs/day
4,6-Dinitro-o-cresol	1.54E+02 ug/l	9.26E-01 lbs/day
N-Nitrosodimethylamine	8.19E-03 ug/l	4.91E-05 lbs/day
N-Nitrosodiphenylamine	5.93E+01 ug/l	3.56E-01 lbs/day
N-Nitrosodi-n-propylamine	5.93E-02 ug/l	3.56E-04 lbs/day
Pentachlorophenol	3.32E+00 ug/l	1.99E-02 lbs/day
Phenol	2.49E+05 ug/l	1.50E+03 lbs/day
Bis(2-ethylhexyl)phthalate	2.14E+01 ug/l	1.28E-01 lbs/day
Butyl benzyl phthalate	3.56E+04 ug/l	2.14E+02 lbs/day
Di-n-butyl phthalate	3.20E+04 ug/l	1.92E+02 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	2.73E+05 ug/l	1.64E+03 lbs/day
Dimethyl phthlate	3.71E+06 ug/l	2.23E+04 lbs/day
Benzo(a)anthracene (PAH)	3.32E-02 ug/l	1.99E-04 lbs/day
Benzo(a)pyrene (PAH)	3.32E-02 ug/l	1.99E-04 lbs/day
Benzo(b)fluoranthene (PAH)	3.32E-02 ug/l	1.99E-04 lbs/day
Benzo(k)fluoranthene (PAH)	3.32E-02 ug/l	1.99E-04 lbs/day
Chrysene (PAH)	3.32E-02 ug/l	1.99E-04 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	3.32E-02 ug/l	1.99E-04 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	3.32E-02 ug/l	1.99E-04 lbs/day

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Pyrene (PAH)	1.14E+04 ug/l	6.84E+01 lbs/day
Tetrachloroethylene	9.49E+00 ug/l	5.70E-02 lbs/day
Toluene	8.07E+04 ug/l	4.84E+02 lbs/day
Trichloroethylene	3.20E+01 ug/l	1.92E-01 lbs/day
Vinyl chloride	2.37E+01 ug/l	1.42E-01 lbs/day

Pesticides

Aldrin	1.54E-03 ug/l	9.26E-06 lbs/day
Dieldrin	1.66E-03 ug/l	9.97E-06 lbs/day
Chlordane	6.76E-03 ug/l	4.06E-05 lbs/day
4,4'-DDT	7.00E-03 ug/l	4.20E-05 lbs/day
4,4'-DDE	7.00E-03 ug/l	4.20E-05 lbs/day
4,4'-DDD	9.85E-03 ug/l	5.91E-05 lbs/day
alpha-Endosulfan	1.10E+01 ug/l	6.62E-02 lbs/day
beta-Endosulfan	1.10E+01 ug/l	6.62E-02 lbs/day
Endosulfan sulfate	1.10E+01 ug/l	6.62E-02 lbs/day
Endrin	9.02E+00 ug/l	5.41E-02 lbs/day
Endrin aldehyde	9.02E+00 ug/l	5.41E-02 lbs/day
Heptachlor	2.49E-03 ug/l	1.50E-05 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	5.22E-04 ug/l	3.13E-06 lbs/day
PCB-1254 (Arochlor 1254)	5.22E-04 ug/l	3.13E-06 lbs/day
PCB-1221 (Arochlor 1221)	5.22E-04 ug/l	3.13E-06 lbs/day
PCB-1232 (Arochlor 1232)	5.22E-04 ug/l	3.13E-06 lbs/day
PCB-1248 (Arochlor 1248)	5.22E-04 ug/l	3.13E-06 lbs/day
PCB-1260 (Arochlor 1260)	5.22E-04 ug/l	3.13E-06 lbs/day
PCB-1016 (Arochlor 1016)	5.22E-04 ug/l	3.13E-06 lbs/day

Pesticide

Toxaphene	8.66E-03 ug/l	5.20E-05 lbs/day
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Metals

Antimony	166.09 ug/l	1.00 lbs/day
Arsenic	587.73 ug/l	3.53 lbs/day
Asbestos	8.30E+07 ug/l	4.99E+05 lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	15422.32 ug/l	92.59 lbs/day
Cyanide	8304.32 ug/l	49.86 lbs/day
Lead	0.00	0.00
Mercury	1.66 ug/l	0.01 lbs/day
Nickel	7236.63 ug/l	43.45 lbs/day
Selenium	0.00	0.00
Silver	0.00	0.00
Thallium	20.17 ug/l	0.12 lbs/day
Zinc		

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Dioxin

Dioxin (2,3,7,8-TCDD) 1.54E-07 ug/l 9.26E-10 lbs/day

**Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		4749.5				4749.5	N/A
Antimony			166.1	51012.3		166.1	
Arsenic	1186.3	2184.0	587.7		0.0	587.7	2248.6
Barium					11863.3	11863.3	
Beryllium						0.0	
Cadmium	118.0	33.5			0.0	33.5	5.5
Chromium (III)		23952.1			0.0	23952.1	2093.3
Chromium (VI)	1167.2	81.3			0.0	81.32	87.31
Copper	2362.4	202.4	15422.3			202.4	225.7
Cyanide		141.5	2609930.3			141.5	61.7
Iron		7072.1				7072.1	
Lead	1182.6	1620.5			0.0	1182.6	112.9
Mercury		15.44	1.7	1.78	0.0	1.66	0.142
Nickel		6372.5	7236.6	54571.3		6372.5	1282.5
Selenium	583.2	123.7			0.0	123.7	44.6
Silver		110.4			0.0	110.4	
Thallium			20.2	74.7		20.2	
Zinc		1594.1				1594.1	2934.3
Boron	8679.1					8679.1	
Sulfate	23726.6					23726.6	

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	4749.5	N/A	
Antimony	166.09		
Arsenic	587.7	2248.6	Acute Controls
Asbestos	8.30E+07		
Barium			
Beryllium			
Cadmium	33.5	5.5	
Chromium (III)	23952.1	2093	
Chromium (VI)	81.3	87.3	Acute Controls
Copper	202.4	225.7	Acute Controls

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Cyanide	141.5	61.7	
Iron	7072.1		
Lead	1182.6	112.9	
Mercury	1.661	0.142	
Nickel	6372.5	1282	
Selenium	123.7	44.6	
Silver	110.4	N/A	
Thallium	20.2		
Zinc	1594.1	2934.3	Acute Controls
Boron	8679.14		
Sulfate	23726.6		N/A at this Waterbody

Other Effluent Limitations are based upon R317-1.

E. coli 126.0 organisms per 100 ml

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is required because the receiving water for the discharge is a Class 1C Drinking Water Source.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

**Utah Division of Water Quality
Statement of Basis
ADDENDUM
Wasteload Analysis and Antidegradation Level I Review**

Date: October 3, 2019

Prepared by: Dave Wham 
Standards and Technical Services

Facility: Pacificorp Deer Creek Mine; Discharge 002
UPDES No. UT0023604

Receiving water: Deer Creek => Huntington Creek (1C, 2B, 3A, 4)

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

Discharge

UPDES Discharge Point 002, Mine water discharge with an estimated mean monthly discharge of 5.0 MGD (7.74 cfs).

Receiving Water

Deer Creek thence to Huntington Creek. Per UAC R317-2-13.1(b), the designated beneficial uses of Huntington Creek and tributaries from Highway 10 crossing to USFS boundary are 1C, 2B, 3A, 4.

- *Class 1C – Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.*
- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *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..*

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Wasteload Analysis
PacifiCorp Deer Creek Mine
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- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10).). Deer Creek is an intermittent stream that has no flow for large parts of the year. As a result, the annual critical low flow was determined to be zero. As a result, water quality based effluent limits revert to end-of-pipe water quality standards. Ambient water quality was characterized using data from DWQ station #4930530, Huntington Creek above UP&L Diversion from the period 2007-2013.

TMDL

According to the Utah's 2016 303(d) Water Quality Assessment, the assessment unit for this section of Huntington Creek, Huntington Creek and tributaries from Highway 10 crossing to USFS boundary (UT14060009-004) was listed as impaired for pH (Classes 1C, 2B, 3A, 4), dissolved oxygen (Class 3A), temperature (Class 3A) and total dissolved solids (Class 4).

Review of the listing data show that the temperature impairment was based on results from stations located in Bear Creek, a tributary to Huntington Creek located upstream from the proposed discharge. As a result, the proposed discharge cannot cause or contribute to that impairment.

Data from two monitoring stations above and below Deer Creek on Huntington Creek show impairments for pH and dissolved oxygen (DO). As a result, the proposed discharge must meet applicable Water Quality Standards (WQS) at end of pipe for these constituents (6.5 mg/l DO, and pH 6.5-9.0 pH).

Review of the listing data show that the total dissolved solids (TDS) impairment was based on results from the Huntington Creek at U10 crossing monitoring station. In order to protect downstream uses, and to avoid causing or contributing to that impairment, effluent limits for TDS should be set at the WQS of 1200 mg/l TDS.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone.

Because the critical low flow for the receiving water is zero, no mixing zone was considered.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were temperature, pH, dissolved oxygen, TDS, and iron, as determined in consultation with the UPDES Permit Writer.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET

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Wasteload Analysis
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limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA.

LC50 WET Limits for Outfall 002 should be based on 100% effluent.
IC25 WET limits for Outfalls 002 should be based on 100% effluent.

Wasteload Allocation Methods

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ 2012). The mass balance analysis is summarized in the Wasteload Addendums.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. The AMMTOX Model developed by University of Colorado and adapted by Utah DWQ and EPA Region VIII was used to determine ammonia effluent limits (Lewis et al. 2002). The analysis is summarized in the Wasteload Addendum.

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

A Level II Antidegradation Review (ADR) is not required for this facility. The proposed permit is a simple renewal of an existing UPDES permit. No increase in flow or concentration of pollutants over those authorized in the the existing permit is being requested.

Documents:

WLA Document: *DeerCk_002_WLADoc_10-3-19.docx*
Wasteload Analysis and Addendums: *DeerCk_002_WLA_10-3-19.xlsm*

References:

Emery County Water Conservancy District. <http://www.ewcd.org/canals/huntington-drainage/>
Utah Division of Water Quality. 2012. *Utah Wasteload Analysis Procedures Version 1.0.*

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WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

3-Oct-19

Facilities: Deer Creek 002 Discharge
Discharging to: Deer Creek=>Huntington 5.00 MGD

UPDES No: UT-0023604

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Deer Creek=>Huntington Creek : 1C, 2B, 3A, 4
Antidegradation Review: Level I review completed. Amended Level II review not required

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	6.50 mg/l (30 Day Average) 5.00 mg/l (7Day Average) 4.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

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Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	3.634 lbs/day	750.00	ug/l	31.329 lbs/day
Arsenic	190.00 ug/l	7.937 lbs/day	340.00	ug/l	14.203 lbs/day
Cadmium	0.63 ug/l	0.026 lbs/day	6.83	ug/l	0.285 lbs/day
Chromium III	219.98 ug/l	9.189 lbs/day	4602.34	ug/l	192.251 lbs/day
ChromiumVI	11.00 ug/l	0.459 lbs/day	16.00	ug/l	0.668 lbs/day
Copper	24.80 ug/l	1.036 lbs/day	41.14	ug/l	1.719 lbs/day
Iron			1000.00	ug/l	41.773 lbs/day
Lead	13.65 ug/l	0.570 lbs/day	350.35	ug/l	14.635 lbs/day
Mercury	0.0120 ug/l	0.001 lbs/day	2.40	ug/l	0.100 lbs/day
Nickel	137.33 ug/l	5.736 lbs/day	1235.16	ug/l	51.596 lbs/day
Selenium	4.60 ug/l	0.192 lbs/day	20.00	ug/l	0.835 lbs/day
Silver	N/A ug/l	N/A lbs/day	27.08	ug/l	1.131 lbs/day
Zinc	315.90 ug/l	13.196 lbs/day	315.90	ug/l	13.196 lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO3

Metals Standards Based upon a Hardness of 313.99 mg/l as CaCO3

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.063 lbs/day
Chlordane	0.004 ug/l	0.179 lbs/day	1.200	ug/l	0.050 lbs/day
DDT, DDE	0.001 ug/l	0.042 lbs/day	0.550	ug/l	0.023 lbs/day
Dieldrin	0.002 ug/l	0.079 lbs/day	1.250	ug/l	0.052 lbs/day
Endosulfan	0.056 ug/l	2.335 lbs/day	0.110	ug/l	0.005 lbs/day
Endrin	0.002 ug/l	0.096 lbs/day	0.090	ug/l	0.004 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.158 lbs/day	0.260	ug/l	0.011 lbs/day
Lindane	0.080 ug/l	3.336 lbs/day	1.000	ug/l	0.042 lbs/day
Methoxychlor			0.030	ug/l	0.001 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.002 lbs/day
PCB's	0.014 ug/l	0.584 lbs/day	2.000	ug/l	0.084 lbs/day
Pentachlorophenol	13.00 ug/l	542.062 lbs/day	20.000	ug/l	0.835 lbs/day
Toxephene	0.0002 ug/l	0.008 lbs/day	0.7300	ug/l	0.030 lbs/day

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IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	15.66 lbs/day
Cadmium			10.0 ug/l	0.21 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	25.06 tons/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			50.0 ug/l	2.085 lbs/day
Barium			1000.0 ug/l	41.697 lbs/day
Cadmium			10.0 ug/l	0.417 lbs/day
Chromium			50.0 ug/l	2.085 lbs/day
Lead			50.0 ug/l	2.085 lbs/day
Mercury			2.0 ug/l	0.083 lbs/day
Selenium			10.0 ug/l	0.417 lbs/day
Silver			50.0 ug/l	2.085 lbs/day
Fluoride (3)			1.4 ug/l	0.058 lbs/day
to			2.4 ug/l	0.100 lbs/day
Nitrates as N			10.0 ug/l	0.417 lbs/day

Chlorophenoxy Herbicides

2,4-D	100.0 ug/l	4.170 lbs/day
2,4,5-TP	10.0 ug/l	0.417 lbs/day
Endrin	0.2 ug/l	0.008 lbs/day
ocyclohexane (Lindane)	4.0 ug/l	0.167 lbs/day
Methoxychlor	100.0 ug/l	4.170 lbs/day
Toxaphene	5.0 ug/l	0.208 lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

Toxic Organics	Maximum Conc., ug/l - Acute Standards			
	Class 1C [2 Liters/Day for 70 Kg Person over 70 Yr.]		Class 3A, 3B [6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	1200.00 ug/l	50.04 lbs/day	2700.0 ug/l	112.58 lbs/day
Acrolein	320.00 ug/l	13.34 lbs/day	780.0 ug/l	32.52 lbs/day
Acrylonitrile	0.06 ug/l	0.00 lbs/day	0.7 ug/l	0.03 lbs/day
Benzene	1.20 ug/l	0.05 lbs/day	71.0 ug/l	2.96 lbs/day
Benzidine	0.00012 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	0.25 ug/l	0.01 lbs/day	4.4 ug/l	0.18 lbs/day
Chlorobenzene	680.00 ug/l	28.35 lbs/day	21000.0 ug/l	875.64 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	0.00075 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	0.38 ug/l	0.02 lbs/day	99.0 ug/l	4.13 lbs/day

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1,1,1-Trichloroethane				
Hexachloroethane	1.90 ug/l	0.08 lbs/day	8.9 ug/l	0.37 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	0.61 ug/l	0.03 lbs/day	42.0 ug/l	1.75 lbs/day
1,1,2,2-Tetrachloroethane	0.17 ug/l	0.01 lbs/day	11.0 ug/l	0.46 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	0.03 ug/l	0.00 lbs/day	1.4 ug/l	0.06 lbs/day
2-Chloroethyl vinyl ether	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	1700.00 ug/l	70.88 lbs/day	4300.0 ug/l	179.30 lbs/day
2,4,6-Trichlorophenol	2.10 ug/l	0.09 lbs/day	6.5 ug/l	0.27 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	5.70 ug/l	0.24 lbs/day	470.0 ug/l	19.60 lbs/day
2-Chlorophenol	120.00 ug/l	5.00 lbs/day	400.0 ug/l	16.68 lbs/day
1,2-Dichlorobenzene	2700.00 ug/l	112.58 lbs/day	17000.0 ug/l	708.85 lbs/day
1,3-Dichlorobenzene	400.00 ug/l	16.68 lbs/day	2600.0 ug/l	108.41 lbs/day
1,4-Dichlorobenzene	400.00 ug/l	16.68 lbs/day	2600.0 ug/l	108.41 lbs/day
3,3'-Dichlorobenzidine	0.04 ug/l	0.00 lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	0.06 ug/l	0.00 lbs/day	3.2 ug/l	0.13 lbs/day
1,2-trans-Dichloroethylene	700.00 ug/l	29.19 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	93.00 ug/l	3.88 lbs/day	790.0 ug/l	32.94 lbs/day
1,2-Dichloropropane	0.52 ug/l	0.02 lbs/day	39.0 ug/l	1.63 lbs/day
1,3-Dichloropropylene	10.00 ug/l	0.42 lbs/day	1700.0 ug/l	70.88 lbs/day
2,4-Dimethylphenol	540.00 ug/l	22.52 lbs/day	2300.0 ug/l	95.90 lbs/day
2,4-Dinitrotoluene	0.11 ug/l	0.00 lbs/day	9.1 ug/l	0.38 lbs/day
2,6-Dinitrotoluene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	0.04 ug/l	0.00 lbs/day	0.5 ug/l	0.02 lbs/day
Ethylbenzene	3100.00 ug/l	129.26 lbs/day	29000.0 ug/l	1209.21 lbs/day
Fluoranthene	300.00 ug/l	12.51 lbs/day	370.0 ug/l	15.43 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	1400.00 ug/l	58.38 lbs/day	17000.0 ug/l	708.85 lbs/day
Bis(2-chloroethoxy) methane	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	4.70 ug/l	0.20 lbs/day	1600.0 ug/l	66.72 lbs/day
Methyl chloride (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	4.30 ug/l	0.18 lbs/day	360.0 ug/l	15.01 lbs/day
Dichlorobromomethane	0.27 ug/l	0.01 lbs/day	22.0 ug/l	0.92 lbs/day
Chlorodibromomethane	0.41 ug/l	0.02 lbs/day	34.0 ug/l	1.42 lbs/day
Hexachlorobutadiene(c)	0.44 ug/l	0.02 lbs/day	50.0 ug/l	2.08 lbs/day
Hexachlorocyclopentadiene	240.00 ug/l	10.01 lbs/day	17000.0 ug/l	708.85 lbs/day
Isophorone	8.40 ug/l	0.35 lbs/day	600.0 ug/l	25.02 lbs/day
Naphthalene				
Nitrobenzene	17.00 ug/l	0.71 lbs/day	1900.0 ug/l	79.22 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	70.00 ug/l	2.92 lbs/day	14000.0 ug/l	583.76 lbs/day
4,6-Dinitro-o-cresol	13.00 ug/l	0.54 lbs/day	765.0 ug/l	31.90 lbs/day
N-Nitrosodimethylamine	0.00069 ug/l	0.00 lbs/day	8.1 ug/l	0.34 lbs/day
N-Nitrosodiphenylamine	5.00 ug/l	0.21 lbs/day	16.0 ug/l	0.67 lbs/day
N-Nitrosodi-n-propylamine	0.01 ug/l	0.00 lbs/day	1.4 ug/l	0.06 lbs/day
Pentachlorophenol	0.28 ug/l	0.01 lbs/day	8.2 ug/l	0.34 lbs/day

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Phenol	2.10E+04 ug/l	8.76E+02 lbs/day	4.6E+06 ug/l	1.92E+05 lbs/day
Bis(2-ethylhexyl)phthala	1.80 ug/l	0.08 lbs/day	5.9 ug/l	0.25 lbs/day
Butyl benzyl phthalate	3000.00 ug/l	125.09 lbs/day	5200.0 ug/l	216.82 lbs/day
Di-n-butyl phthalate	2700.00 ug/l	112.58 lbs/day	12000.0 ug/l	500.36 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	23000.00 ug/l	959.03 lbs/day	120000.0 ug/l	5003.64 lbs/day
Dimethyl phthlate	3.13E+05 ug/l	1.31E+04 lbs/day	2.9E+06 ug/l	1.21E+05 lbs/day
Benzo(a)anthracene (P/	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (F	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (F	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	9600.00 ug/l	400.29 lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	960.00 ug/l	40.03 lbs/day	11000.0 ug/l	458.67 lbs/day
Tetrachloroethylene	0.80 ug/l	0.03 lbs/day	8.9 ug/l	0.37 lbs/day
Toluene	6800.00 ug/l	283.54 lbs/day	200000 ug/l	8339.41 lbs/day
Trichloroethylene	2.70 ug/l	0.11 lbs/day	81.0 ug/l	3.38 lbs/day
Vinyl chloride	2.00 ug/l	0.08 lbs/day	525.0 ug/l	21.89 lbs/day
			0.0	0.00 lbs/day
			0.0	0.00 lbs/day
Pesticides				
Aldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	0.0008 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	0.9300 ug/l	0.04 lbs/day	2.0 ug/l	0.08 lbs/day
beta-Endosulfan	0.9300 ug/l	0.04 lbs/day	2.0 ug/l	0.08 lbs/day
Endosulfan sulfate	0.9300 ug/l	0.04 lbs/day	2.0 ug/l	0.08 lbs/day
Endrin	0.7600 ug/l	0.03 lbs/day	0.8 ug/l	0.03 lbs/day
Endrin aldehyde	0.7600 ug/l	0.03 lbs/day	0.8 ug/l	0.03 lbs/day
Heptachlor	0.0002 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 124	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 124	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 122	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 123	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 124	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 126	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 101	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	0.000750 ug/l	0.00	0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	1.30E-08 ug/l	0.00 lbs/day	1.40E-08	0.00

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Metals

Antimony	14.0 ug/l	0.58 lbs/day		
Arsenic	50.0 ug/l	2.08 lbs/day	4300.00 ug/l	179.30 lbs/day
Asbestos	7.00E+06 ug/l	2.92E+05 lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	1.30E+03 ug/l	54.21 lbs/day	2.2E+05 ug/l	9173.35 lbs/day
Lead	700.0 ug/l	29.19 lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	191.81 lbs/day
Selenium	0.1 ug/l	0.01 lbs/day		
Silver	610.0 ug/l	25.44 lbs/day		
Thallium			6.30 ug/l	0.26 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

The modeling approach used in this analysis included one or a combination of the following models.

(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8

(4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

(1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

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(2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al.
Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Current Upstream Information

	Stream								
	Critical Low								
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	
Summer (Irrig. Season)	0.00	12.0	8.5	0.01	0.05	10.38	0.00	213.0	
Fall	0.00	2.1	8.4	0.01	0.05	---	0.00	265.0	
Winter	0.00	1.0	8.3	0.01	0.05	---	0.00	307.0	
Spring	0.00	7.3	8.4	0.01	0.05	---	0.00	230.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
All Seasons	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
	13.67	0.50	0.06	1.77	3.975*	0.95	15.2	0.35	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
All Seasons	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
	0.0000	2.50	0.92	0.25	7.12	20.1	* ~80% MDL		

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Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	5.00000	13.9	542.00	11.29844
Fall	5.00000	13.9		
Winter	5.00000	13.9		
Spring	5.00000	13.9		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	5.000 MGD	7.735 cfs
Fall	5.000 MGD	7.735 cfs
Winter	5.000 MGD	7.735 cfs
Spring	5.000 MGD	7.735 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 5 MGD. If the discharger is allowed to have a flow greater than 5 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	100.0% Effluent	[Chronic]

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Effluent Limitation for Biological Oxygen Demand (BOD) based upon Water Quality Standards or Regulations

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD limitation as follows:

Season	Concentration	
Summer	25.0 mg/l as BOD5	1042.3 lbs/day
Fall	25.0 mg/l as BOD5	1042.3 lbs/day
Winter	25.0 mg/l as BOD5	1042.3 lbs/day
Spring	25.0 mg/l as BOD5	1042.3 lbs/day

Effluent Limitation for Dissolved Oxygen (DO) based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent D.O. limitation as follows:

Season	Concentration
Summer	6.50
Fall	6.50
Winter	6.50
Spring	6.50

Effluent Limitation for Total Ammonia based upon Water Quality Standards

In-stream criteria of downstream segments for Total Ammonia will be met with an effluent limitation (expressed as Total Ammonia as N) as follows:

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	4.0 mg/l as N	166.0 lbs/day
	1 Hour Avg. - Acute	10.3 mg/l as N	430.4 lbs/day
Fall	4 Day Avg. - Chronic	4.1 mg/l as N	169.0 lbs/day
	1 Hour Avg. - Acute	9.8 mg/l as N	409.5 lbs/day
Winter	4 Day Avg. - Chronic	4.4 mg/l as N	182.5 lbs/day
	1 Hour Avg. - Acute	10.8 mg/l as N	451.8 lbs/day
Spring	4 Day Avg. - Chronic	4.1 mg/l as N	169.0 lbs/day
	1 Hour Avg. - Acute	9.8 mg/l as N	409.5 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.0%.

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Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

In-stream criteria of downstream segments for Total Residual Chlorine will be met with an effluent limitation as follows:

Season		Concentration		Load	
Summer	4 Day Avg. - Chronic	0.011	mg/l	0.46	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.79	lbs/day
Fall	4 Day Avg. - Chronic	0.011	mg/l	0.46	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.79	lbs/day
Winter	4 Day Avg. - Chronic	0.011	mg/l	0.46	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.79	lbs/day
Spring	4 Day Avg. - Chronic	0.011	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.00	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	1200.1	mg/l	25.02	tons/day
Fall	Maximum, Acute	1200.1	mg/l	25.02	tons/day
Winter	Maximum, Acute	1200.1	mg/l	25.02	tons/day
Spring	4 Day Avg. - Chronic	1200.1	mg/l	25.02	tons/day

Colorado Salinity Forum Limits Determined by Permitting Section

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 313.99 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum*	N/A	N/A	750.0	ug/l	31.3 lbs/day
Arsenic*	190.02 ug/l	5.1 lbs/day	340.0	ug/l	14.2 lbs/day
Cadmium	0.63 ug/l	0.0 lbs/day	6.8	ug/l	0.3 lbs/day
Chromium III	220.01 ug/l	5.9 lbs/day	4,602.3	ug/l	192.3 lbs/day
Chromium VI*	11.00 ug/l	0.3 lbs/day	16.0	ug/l	0.7 lbs/day
Copper	24.80 ug/l	0.7 lbs/day	41.1	ug/l	1.7 lbs/day
Iron*	N/A	N/A	7,735.0	ug/l	323.1 lbs/day
Lead	13.65 ug/l	0.4 lbs/day	350.3	ug/l	14.6 lbs/day
Mercury*	0.01 ug/l	0.0 lbs/day	2.4	ug/l	0.1 lbs/day
Nickel	137.34 ug/l	3.7 lbs/day	1,235.2	ug/l	51.6 lbs/day
Selenium*	4.60 ug/l	0.1 lbs/day	20.0	ug/l	0.8 lbs/day
Silver	N/A ug/l	N/A lbs/day	27.1	ug/l	1.1 lbs/day

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Zinc	315.94 ug/l	8.5 lbs/day	315.9	ug/l	13.2 lbs/day
Cyanide*	5.20 ug/l	0.1 lbs/day	22.0	ug/l	0.9 lbs/day

*Limits for these metals are based on the dissolved standard.

**Effluent Limitations for Heat/Temperature based upon
Water Quality Standards**

Summer	14.0 Deg. C.	57.2 Deg. F
Fall	4.1 Deg. C.	39.4 Deg. F
Winter	3.0 Deg. C.	37.4 Deg. F
Spring	9.3 Deg. C.	48.7 Deg. F

**Effluent Limitations for Organics [Pesticides]
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Organics [Pesticides] will be met with an effluent limit as follows:

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aldrin			1.5E+00	ug/l	9.69E-02 lbs/day
Chlordane	4.30E-03 ug/l	1.79E-01 lbs/day	1.2E+00	ug/l	7.75E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	4.17E-02 lbs/day	5.5E-01	ug/l	3.55E-02 lbs/day
Dieldrin	1.90E-03 ug/l	7.92E-02 lbs/day	1.3E+00	ug/l	8.08E-02 lbs/day
Endosulfan	5.60E-02 ug/l	2.33E+00 lbs/day	1.1E-01	ug/l	7.11E-03 lbs/day
Endrin	2.30E-03 ug/l	9.59E-02 lbs/day	9.0E-02	ug/l	5.82E-03 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.46E-04 lbs/day
Heptachlor	3.80E-03 ug/l	1.58E-01 lbs/day	2.6E-01	ug/l	1.68E-02 lbs/day
Lindane	8.00E-02 ug/l	3.34E+00 lbs/day	1.0E+00	ug/l	6.46E-02 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	1.94E-03 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.46E-04 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	2.58E-03 lbs/day
PCB's	1.40E-02 ug/l	5.84E-01 lbs/day	2.0E+00	ug/l	1.29E-01 lbs/day
Pentachlorophenol	1.30E+01 ug/l	5.42E+02 lbs/day	2.0E+01	ug/l	1.29E+00 lbs/day
Toxephene	2.00E-04 ug/l	8.34E-03 lbs/day	7.3E-01	ug/l	4.72E-02 lbs/day

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**Effluent Targets for Pollution Indicators
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Pollution Indicators will be met with an effluent limit as follows:

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	208.9 lbs/day
Nitrates as N	4.0 mg/l	167.1 lbs/day
Total Phosphorus as P	0.05 mg/l	2.1 lbs/day
Total Suspended Solids	90.0 mg/l	3759.5 lbs/day

Note: Pollution indicator targets are for information purposes only.

**Effluent Limitations for Protection of Human Health [Toxics Rule]
Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)**

In-stream criteria of downstream segments for Protection of Human Health [Toxics] will be met with an effluent limit as follows:

Toxic Organics	Maximum Concentration	
	Concentration	Load
Acenaphthene	1.20E+03 ug/l	5.00E+01 lbs/day
Acrolein	3.20E+02 ug/l	1.33E+01 lbs/day
Acrylonitrile	5.90E-02 ug/l	2.46E-03 lbs/day
Benzene	1.20E+00 ug/l	5.00E-02 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	2.50E-01 ug/l	1.04E-02 lbs/day
Chlorobenzene	6.80E+02 ug/l	2.84E+01 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	7.50E-04 ug/l	3.13E-05 lbs/day
1,2-Dichloroethane	3.80E-01 ug/l	1.58E-02 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	1.90E+00 ug/l	7.92E-02 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	6.10E-01 ug/l	2.54E-02 lbs/day
1,1,2,2-Tetrachloroethane	1.70E-01 ug/l	7.09E-03 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	3.10E-02 ug/l	1.29E-03 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	1.70E+03 ug/l	7.09E+01 lbs/day
2,4,6-Trichlorophenol	2.10E+00 ug/l	8.76E-02 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	5.70E+00 ug/l	2.38E-01 lbs/day
2-Chlorophenol	1.20E+02 ug/l	5.00E+00 lbs/day
1,2-Dichlorobenzene	2.70E+03 ug/l	1.13E+02 lbs/day
1,3-Dichlorobenzene	4.00E+02 ug/l	1.67E+01 lbs/day

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1,4-Dichlorobenzene	4.00E+02 ug/l	1.67E+01 lbs/day
3,3'-Dichlorobenzidine	4.00E-02 ug/l	1.67E-03 lbs/day
1,1-Dichloroethylene	5.70E-02 ug/l	2.38E-03 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	9.30E+01 ug/l	3.88E+00 lbs/day
1,2-Dichloropropane	5.20E-01 ug/l	2.17E-02 lbs/day
1,3-Dichloropropylene	1.00E+01 ug/l	4.17E-01 lbs/day
2,4-Dimethylphenol	5.40E+02 ug/l	2.25E+01 lbs/day
2,4-Dinitrotoluene	1.10E-01 ug/l	4.59E-03 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	4.00E-02 ug/l	1.67E-03 lbs/day
Ethylbenzene	3.10E+03 ug/l	1.29E+02 lbs/day
Fluoranthene	3.00E+02 ug/l	1.25E+01 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	1.40E+03 ug/l	5.84E+01 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	4.70E+00 ug/l	1.96E-01 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	4.30E+00 ug/l	1.79E-01 lbs/day
Dichlorobromomethane(HM)	2.70E-01 ug/l	1.13E-02 lbs/day
Chlorodibromomethane (HM)	4.10E-01 ug/l	1.71E-02 lbs/day
Hexachlorocyclopentadiene	2.40E+02 ug/l	1.00E+01 lbs/day
Isophorone	8.40E+00 ug/l	3.50E-01 lbs/day
Naphthalene		
Nitrobenzene	1.70E+01 ug/l	7.09E-01 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	7.00E+01 ug/l	2.92E+00 lbs/day
4,6-Dinitro-o-cresol	1.30E+01 ug/l	5.42E-01 lbs/day
N-Nitrosodimethylamine	6.90E-04 ug/l	2.88E-05 lbs/day
N-Nitrosodiphenylamine	5.00E+00 ug/l	2.08E-01 lbs/day
N-Nitrosodi-n-propylamine	5.00E-03 ug/l	2.08E-04 lbs/day
Pentachlorophenol	2.80E-01 ug/l	1.17E-02 lbs/day
Phenol	2.10E+04 ug/l	8.76E+02 lbs/day
Bis(2-ethylhexyl)phthalate	1.80E+00 ug/l	7.51E-02 lbs/day
Butyl benzyl phthalate	3.00E+03 ug/l	1.25E+02 lbs/day
Di-n-butyl phthalate	2.70E+03 ug/l	1.13E+02 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	2.30E+04 ug/l	9.59E+02 lbs/day
Dimethyl phthlate	3.13E+05 ug/l	1.31E+04 lbs/day
Benzo(a)anthracene (PAH)	2.80E-03 ug/l	1.17E-04 lbs/day
Benzo(a)pyrene (PAH)	2.80E-03 ug/l	1.17E-04 lbs/day
Benzo(b)fluoranthene (PAH)	2.80E-03 ug/l	1.17E-04 lbs/day
Benzo(k)fluoranthene (PAH)	2.80E-03 ug/l	1.17E-04 lbs/day
Chrysene (PAH)	2.80E-03 ug/l	1.17E-04 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	2.80E-03 ug/l	1.17E-04 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	2.80E-03 ug/l	1.17E-04 lbs/day

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Pyrene (PAH)	9.60E+02 ug/l	4.00E+01 lbs/day
Tetrachloroethylene	8.00E-01 ug/l	3.34E-02 lbs/day
Toluene	6.80E+03 ug/l	2.84E+02 lbs/day
Trichloroethylene	2.70E+00 ug/l	1.13E-01 lbs/day
Vinyl chloride	2.00E+00 ug/l	8.34E-02 lbs/day

Pesticides

Aldrin	1.30E-04 ug/l	5.42E-06 lbs/day
Dieldrin	1.40E-04 ug/l	5.84E-06 lbs/day
Chlordane	5.70E-04 ug/l	2.38E-05 lbs/day
4,4'-DDT	5.90E-04 ug/l	2.46E-05 lbs/day
4,4'-DDE	5.90E-04 ug/l	2.46E-05 lbs/day
4,4'-DDD	8.30E-04 ug/l	3.46E-05 lbs/day
alpha-Endosulfan	9.30E-01 ug/l	3.88E-02 lbs/day
beta-Endosulfan	9.30E-01 ug/l	3.88E-02 lbs/day
Endosulfan sulfate	9.30E-01 ug/l	3.88E-02 lbs/day
Endrin	7.60E-01 ug/l	3.17E-02 lbs/day
Endrin aldehyde	7.60E-01 ug/l	3.17E-02 lbs/day
Heptachlor	2.10E-04 ug/l	8.76E-06 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	4.40E-05 ug/l	1.83E-06 lbs/day
PCB-1254 (Arochlor 1254)	4.40E-05 ug/l	1.83E-06 lbs/day
PCB-1221 (Arochlor 1221)	4.40E-05 ug/l	1.83E-06 lbs/day
PCB-1232 (Arochlor 1232)	4.40E-05 ug/l	1.83E-06 lbs/day
PCB-1248 (Arochlor 1248)	4.40E-05 ug/l	1.83E-06 lbs/day
PCB-1260 (Arochlor 1260)	4.40E-05 ug/l	1.83E-06 lbs/day
PCB-1016 (Arochlor 1016)	4.40E-05 ug/l	1.83E-06 lbs/day

Pesticide

Toxaphene	7.30E-04 ug/l	3.04E-05 lbs/day
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Metals

Antimony	14.00 ug/l	0.58 lbs/day
Arsenic	50.01 ug/l	2.08 lbs/day
Asbestos	7.00E+06 ug/l	2.92E+05 lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	1300.17 ug/l	54.21 lbs/day
Cyanide	700.09 ug/l	29.19 lbs/day
Lead	0.00	0.00
Mercury	0.14 ug/l	0.01 lbs/day
Nickel	610.08 ug/l	25.44 lbs/day
Selenium	0.00	0.00
Silver	0.00	0.00
Thallium	1.70 ug/l	0.07 lbs/day
Zinc		

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Dioxin

Dioxin (2,3,7,8-TCDD) 1.30E-08 ug/l 5.42E-10 lbs/day

**Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		750.0				750.0	N/A
Antimony			14.0	4300.6		14.0	
Arsenic	100.0	340.0	50.0		0.0	50.0	190.0
Barium					1000.1	1000.1	
Beryllium						0.0	
Cadmium	10.0	6.8			0.0	6.8	0.6
Chromium (III)		4602.3			0.0	4602.3	220.0
Chromium (VI)	100.0	16.0			0.0	16.00	11.00
Copper	200.0	41.1	1300.2			41.1	24.8
Cyanide		22.0	220028.4			22.0	5.2
Iron		7735.0				7735.0	
Lead	100.0	350.3			0.0	100.0	13.7
Mercury		2.40	0.1	0.15	0.0	0.14	0.012
Nickel		1235.2	610.1	4600.6		610.1	137.3
Selenium	50.0	20.0			0.0	20.0	4.6
Silver		27.1			0.0	27.1	
Thallium			1.7	6.3		1.7	
Zinc		315.9				315.9	315.9
Boron	750.1					750.1	
Sulfate	2000.3					2000.3	

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	750.0	N/A	
Antimony	14.00		
Arsenic	50.0	190.0	Acute Controls
Asbestos	7.00E+06		
Barium			
Beryllium			
Cadmium	6.8	0.6	
Chromium (III)	4602.3	220	
Chromium (VI)	16.0	11.0	
Copper	41.1	24.8	

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Cyanide	22.0	5.2	
Iron	7735.0		
Lead	100.0	13.7	
Mercury	0.140	0.012	
Nickel	610.1	137	
Selenium	20.0	4.6	
Silver	27.1	N/A	
Thallium	1.7		
Zinc	315.9	315.9	Acute Controls
Boron	750.09		
Sulfate	2000.3		N/A at this Waterbody

Other Effluent Limitations are based upon R317-1.

E. coli 126.0 organisms per 100 ml

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is required because the receiving water for the discharge is a Class 1C Drinking Water Source.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

ATTACHMENT 2

Reasonable Potential Analysis

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2019 Summary Results of Reasonable Potential Analysis for Deer Creek Mine (UT0023604)

Parameter	No. of Samples	MEC* mg/L	Water Quality Standards MAC**			Outcome/Result
			WLA mg/L	Acute mg/L	Chronic mg/L	
Total Arsenic	14	0.005	0.05	0.05	0.05	MEC < MAC***
Total Cadmium	15	<0.001	0.006	0.0068	0.006	MEC < MAC***
Total Chromium	3	<0.005	0.011	0.016	0.011	MEC < MAC***
Total Copper	7	<0.02	0.0248	0.0411	0.0248	MEC < MAC***
Total Lead	15	<0.01	0.0137	0.1	0.0137	MEC < MAC***
Total Mercury	3	<0.0002	0.00012	0.0014	0.00012	MEC < MAC***
Total Nickel	3	0.037	0.137	0.6101	0.137	MEC < MAC***
Total Selenium	14	<0.0035	0.0046	0.02	0.0046	MEC < MAC***
Total Silver	4	<0.002	0.0271	0.0271	NA	MEC < MAC***
Total Zinc	16	0.07	0.3159	0.3159	0.3159	MEC < MAC***
Total Aluminum	6	0.5	0.75	0.75	NA	MEC < MAC***
Total Boron	10	0.021	0.75	0.75	NA	MEC < MAC***
Total Iron	>100	7.53	7.0721	7.0	3.5/1.0	MEC > MAC = RP
Temperature °C	>100	16.3	24.7	35.7 (max)	24.7 (min)	MEC < MAC***

NA = not applicable

*MEC – Maximum expected effluent concentration as determined from existing data set and Reasonable Potential analysis.

**MAC – Maximum allowable concentration from Water Quality Standards and/or Wasteload Analysis.

***MEC less than MAC. No Acute or Chronic limit required.

Based upon the policy “Reasonable Potential Analysis Guidance” developed by the Utah Division of Water Quality on September 10, 2015 and subsequently implemented beginning January 1, 2016 for all new and renewal permits; it was determined not to include any new total metal effluent limits in the 2019 renewal permit. This is because all the data points reviewed were below the applicable Water Standards and/or method detection limits, excepting for total iron which already has specific effluent limitations as derived from previous permit development and the 2017 RP analysis (see table above). Therefore, no RP currently exists at the mine for metals except total iron and a more quantitative RP analysis was not necessary at this time. Monitoring for the remaining metals will remain in place however, as detailed in the permit. This will be re-evaluated during the next permit cycle as appropriate.

The results of the RP analysis was; Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit.



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

L. Scott Baird
Executive Director

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
Director

December 10, 2019

DIVISION OF WATER QUALITY
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
PUBLIC NOTICE OF RENEWAL OF UPDES PERMIT

PURPOSE OF PUBLIC NOTICE

The purpose of this public notice is to declare the state of Utah's intention to renew a Utah Pollutant Discharge Elimination System (UDPES) Permit under authority of the Utah Water Quality Act, Section 19-5-104 and 107, Utah Code Annotated 1953, as amended. Said "permit" refers to UPDES Permit and the Fact Sheet and Statement of Basis (including the total maximum daily loads (TMDL's)) if applicable, as per Section 303 (d) of the Federal Clean Water Act (CWA).

PERMIT INFORMATION

PERMITTEE NAME: PacifiCorp Interwest Mining Company - Deer Creek Mine
MAILING ADDRESS: PO Box 310, Huntington, UT 84528
TELEPHONE NUMBER: 435-687-4712
FACILITY LOCATION: ~8 miles northwest of Huntington, Utah
UPDES PERMIT #: UT0023604
PERMITTED OUTFALLS: 002 & 003
RECEIVING WATERS: Huntington Creek

BACKGROUND

The Interwest Mining Company, a subsidiary of PacifiCorp, Deer Creek Mine (mine) is a former underground coal mine with standard industrial classification code 1222 for bituminous coal underground mining, which ceased operations in January 2015. The mine portals have since been sealed and there has been no mining activity since that time other than reclamation of the former mining areas in both Deer Creek and Rilda Canyons. There are two remaining active discharge points located approximately 8 miles northwest of Huntington, Utah in Emery County. This renewal permit will once again authorize the discharge of mine water from Outfalls 002 and 003 during the next five years.

PUBLIC COMMENTS

Public comments are invited any time prior to the deadline of the close of business on **January 10, 2020**. Written public comments can be submitted to: Jeff Studenka, UPDES Surface Water Section, Utah Division of Water Quality, PO Box 144870, Salt Lake City, Utah 84114-4870 or by email at: jstudenka@utah.gov. After considering public comment the Director may execute the permit issuance, revise it or abandon it. The permit is available for public review at <https://deq.utah.gov/public-notices-archive/water-quality-public-notices>. If internet access is not available, a copy may be obtained by calling Jeff Studenka at 801-536-4395.

DWQ-2019-014587



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December 5, 2019

Emery County Progress
PO Box 589
Castle Dale, UT 84513

Email: ETV10news@gmail.com

ATTN: Legal Advertising Department

This letter will confirm authorization to publish the attached NOTICE in The Emery County Progress in the first available edition. Please mail the invoice and affidavit of publication to:

Department of Environmental Quality
Division of Water Quality
Attn: Susan Woeppel
PO Box 144870
Salt Lake City, Utah 84114-4870

If there are any questions, please contact Brenda Johnson at 801-536-4329. Thank you for your assistance.

Sincerely,

Matthew Garn, P.E., Manager
UPDES Surface Water Section

MG/JAS/blj

Enclosures (1): 1. Public Notice (DWQ-2019-014587)

DWQ-2019-014589