

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. **UT0023680**

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

CANYON FUEL COMPANY, LLC – SOLDIER CANYON MINE

is hereby authorized to discharge from its facility to receiving waters named

Soldier Creek (tributary to the Price River and Colorado River System),

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

This permit shall become effective on **January 1, 2022**.

This permit expires at midnight on **December 31, 2026**.

Signed this 29th day of October, 2021.



Erica Brown Gaddis, PhD
Director

DWQ-2021-013824

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Minor Industrial Facility

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

A. Description of Discharge Points. The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit 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 Numbers</u>	<u>Location of Discharge Outfalls</u>
001	Located at Latitude 39° 42' 02" north, Longitude 110° 36' 39" west. Mine water discharge to Soldier Creek.
002	Located at Latitude 39° 41' 52" north, Longitude 110° 36' 42" west. Spillway of surface sedimentation pond to Soldier Creek.
003	Located at Latitude 39° 42' 09" north, Longitude 110° 36' 38" west. Mine water discharge to Soldier 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, there shall be no acute or chronic toxicity, as defined in *Part VII*, in the mine water discharge Outfalls 001 and 003 and as determined by the provisions described in *Part I.D.3* of this permit.
2. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfalls 001, 002, and 003. Such discharges shall be limited and monitored by the permittee as specified below:

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Parameter	Effluent Limitations *a			
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily
Flow, MGD	1.3	--	--	Report
pH, standard units	--	--	6.5	9.0
Total Suspended Solids (TSS), mg/L	--	--	--	70
Total Iron, mg/L	--	--	--	1.0
Oil & Grease, mg/L, *b	--	--	--	10
Total Dissolved Solids (TDS) mg/L *c	Report	--	--	2400
Total Dissolved Solids (TDS) tons/day*c	--	--	--	5
Turbidity *d	--	--	--	Report

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Flow	Monthly	Measured	MGD
Total Suspended Solids (TSS)	Monthly	Grab	mg/L
Total Iron	Monthly	Grab	mg/L
Oil & Grease, mg/L, *b	Monthly	Visual/Grab	mg/L
Total Dissolved Solids (TDS) *c	Monthly	Grab	mg/L
pH, standard units	Monthly	Grab	SU
Turbidity *d	Monthly	Grab	NTU

*a See Permit *Part VII.A*, for definition of terms.

*b There shall be no visible sheen, floating solids, or visible foam in other than trace amounts upon any discharges and there shall be no discharge of any sanitary wastes at any time. If a sheen is observed, a sample of that effluent shall be collected immediately thereafter and oil and grease shall not exceed 10 mg/L in concentration.

*c The TDS concentration from each of the outfalls shall not exceed 2400 mg/L as a daily maximum limit. No tons per day loading limit will be applied 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 30-day average concentration exceeds 500 mg/L, then the permittee cannot discharge more than 5 tons per day as a sum from all discharge points. Any amount over the 5 tons per day limit will require the permittee to participate in and/or fund a salinity offset project to include TDS offset credits as appropriate.

The salinity-offset project shall include TDS credits on a ton-for-ton basis for which the permittee is over the 5 tons per day loading limit. The tonnage reduction from the offset project must be calculated by a method similar to one used by the Natural Resources Conservation Service, Colorado River Basin Salinity Control Forum, or other applicable agency.

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If the permittee will be participating in the construction and implementation of a new salinity-offset project, then a project description and implementation schedule shall be submitted to the Director at least six (6) months prior to the implementation date of the project, which will then be reviewed for approval. The salinity offset project description and implementation schedule must be approved by the Director and shall be appended to this permit.

If the permittee will be funding any additional salinity-offset projects through third parties, the permittee shall provide satisfactory evidence to the Director that the required funds have been deposited to the third party within six (6) months of project approval by the Director. A monitoring and adjustment plan to track the TDS credits shall be submitted to the Director for each monthly monitoring period during the life of this permit. Any changes to the monitoring and adjustment plan must be approved by the Director and upon approval shall be appended to this permit.

- *d Turbidity monitoring shall be conducted monthly whenever possible from all discharging Outfalls to ensure that there is not an increase of more than 10 NTU over the receiving waters, if applicable or if possible.
3. Samples collected in compliance with the monitoring requirements specified above shall be collected at Outfalls 001, 002 and 003 prior to mixing with the receiving water.
 4. Should any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period that is less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) may, at Outfall 002 only, substitute the following limitations for the limitations contained in *Part I.C.2*. All other limitations and monitoring not listed below remain the same.

Parameter	Alternative Effluent Limitations			
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily
Flow, MGD	Report			Report
pH, standard units			6.5	9.0
Settleable solids (SS), milliliter/liter				0.5
Total Suspended Solids (TSS), mg/L	Report	Report		Report
Total Iron, mg/L				Report
Total Dissolved Solids (TDS) mg/L b/	Report			Report

In order to substitute the above limitations, the sample collected during the storm event must be analyzed for all permitted parameters specified under *Part I.C.2*. Such analyses shall be conducted on either grab or composite samples. All manual pond dewatering must meet all limitations of *Part I.C.2*.

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5. Should any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period that is greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) may, at Outfall 002 only, substitute the following limitations for the limitations contained in *Part I.C.2*. All other limitations and monitoring not listed below remain the same.

Parameter	Alternative Effluent Limitations			
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily
Flow, MGD	Report			Report
pH, standard units			6.5	9.0
Settleable solids (SS), milliliter/liter				Report
Total Suspended Solids (TSS), mg/L	Report	Report		Report
Total Iron, mg/L				Report
Total Dissolved Solids (TDS) mg/L b/	Report			Report

In order to substitute the above limitation, the sample collected during the storm event must be analyzed for all permitted parameters specified under *Part I.C.2*. Such analyses shall be conducted on either grab or composite samples. All manual pond dewatering must meet all limitations of *Part I.C.21*.

6. The operator shall have the burden of proof that the increase in discharge was caused by the applicable precipitation event described in *Part I.C.4* and *I.C.5*. The alternate limitations in *Part I.C.4* and *I.C.5* shall not apply to treatment systems that treat exclusively underground mine water (i.e. Outfalls 001 and 003). The alternate limitations apply to Outfall 002 only.

For rainfall, to waive TSS and total iron limitations, the permittee must prove that the discharge occurred during the precipitation event, or within 48 hours after measurable precipitation has stopped. In addition, to waive settleable solids limitations, the permittee must prove that the discharge occurred during the precipitation event, or within 48 hours after precipitation greater than the 10-year, 24-hour event has stopped.

For snowmelt, to waive TSS and total iron limitations, the permittee must prove that the discharge occurred during pond inflow from the snow melt event, or within 48 hours after pond inflow has stopped. In addition, to waive settleable solids limitations, the permittee must prove that the discharge occurred during pond inflow from the snow melt event, or within 48 hours after pond inflow volume greater than the 10-year, 24-hour event has stopped.

The permittee must submit documentation that the treatment facilities were properly operated and maintained prior to and during the storm event with any request for relief from primary limitations. The division shall determine the adequacy of proof. As part of this determination, the division shall evaluate whether the permittee could have controlled the discharge in such a manner that primary

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limitations could have been met, whether proper sediment storage levels were maintained and the ponds had sufficient water and sediment capacity for the storm event, plus other relevant factors. All manual pond dewatering must meet all limitations of *Part I.C.2.*

All data/documentation required by the permittee which cannot be reported on applicable discharge monitoring report forms (DMRs) through NetDMR, shall be submitted to the Director. Submittal of documentation of containment, maintenance and precipitation records above does not exempt the permittee from the notification requirements of this permit.

D. Additional Requirements if Seals are Removed and Mine Becomes Active. If the mine becomes active and the seals are removed, the permittee is required comply with the following requirements:

1. As soon as feasible following seal removal and prior to conducting significant dewatering activities the permittee shall collect at least 2 samples for the metals listed below. Samples may be collected from flooded areas of the mine or mine water discharge (Outfall 001 and/or 003). Results of this sampling shall be provided to the Director of the Division of Water Quality (DWQ) **ninety (90) calendar days** prior to planned dewatering activities. These samples will be collected to evaluate what metals will be present in discharge. RP will be conducted on the results for potential to exceed the water quality allocations based on the wasteload analysis. If reasonable potential is found for any of these metals the permit effluent limitations table will be modified as necessary.

Metals Monitoring			
Parameter	Sample Type	Frequency	Units
Total Arsenic	Grab	Minimum of two samples prior to dewatering activities, weekly for 10 weeks during dewatering, and monthly there after	mg/L
Total Cadmium			
Total Chromium			
Total Copper			
Total Lead			
Total Mercury			
Total Molybdenum			
Total Nickel			
Total Selenium			
Total Silver			
Total Zinc			
Total Cyanide			

2. Starting after the first week of discharge following seal removal, those metals identified in the RP process shall be monitored **weekly** for 10 weeks beginning after the first week of discharge. After which, these pollutants shall be analyzed **monthly**. The permittee is required to obtain the lowest detection limit possible using standard methods and certified laboratories. Depending on the results of the initial expedited analysis, DWQ may reassess permit limits and monitoring frequencies for these metals.

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3. If the seals are removed and the mine is reactivated, the permittee shall complete one Chronic Whole Effluent Toxicity (WET) test on the initial discharge from Outfall 001 or 003 (mine water). The results shall be reported with the Discharge Monitoring Report (DMR) or NetDMR submittal for the month in which the test was completed and the complete WET laboratory report shall be submitted to DWQ.
 4. An intercepted groundwater study must be completed within one year of mine activation with the seals being removed and discharging mine water. This study will determine if the 5 tons per day TDS loading limit is appropriate or if the quantity needs to be changed. If the 5 tons per day TDS loading limit needs to be changed, this permit will be reopened and modified following proper administrative procedures.
- E. 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 including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VI.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. INDUSTRIAL PRETREATMENT PROGRAM

This section of the permit is only applicable if the permittee discharges wastewater to a publicly owned treatment works (POTW).

A. Discharge to POTW.

1. 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.
2. To discharge into a POTW, the permittee must:
 - a. Contact the Director immediately regarding the discharge to a POTW,
 - b. Meet any local discharge requirements per the POTW accepting the waste, and
 - c. Receive written approval from the POTW accepting the waste.

B. Hazardous Waste Notification. 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).

III. STORM WATER REQUIREMENTS

- A. Industrial Storm Water Permit. Based on the type of industrial activities at the facility, the permittee is required to maintain separate coverage or an appropriate exclusion under the UPDES Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility is not already covered, or obtained the appropriate exclusion, the permittee has 30 days from when the effective date of this permit to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

- B. Construction Storm Water Permit. Any construction at the facility that is not part of active mining activities and disturbs an acre or more of land, including less than an acre if it is part of a common plan of development or sale, is required to obtain coverage under the UPDES Construction General Storm Water Permit (UTRC000000). Permit coverage must be obtained prior to land disturbance. If the site qualifies, a Low Erosivity Waiver (LEW) Certification may be submitted instead of permit coverage.

IV. 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.
- 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. 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.
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 V.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part V.H, Upset Conditions.*);
 - d. Violation of a maximum 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.E, Reporting of Monitoring Results.*

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- 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.E* are submitted. The reports shall contain the information listed in *Part IV.H*.
- 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;
 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.

V. 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:
 - (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 *Part V.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 *Part V.G.2.a (1), (2) and (3)*.

3. Notice.

- a. *Anticipated bypass.* Except as provided above in *Part V.G.2* and below in *Part V.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.

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- 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 *Part V.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 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 V.H, Twenty-four Hour Notice of Noncompliance Reporting;* and,
 - d. The permittee complied with any remedial measures required under *Part V.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.

VI. 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:

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- 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 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 *Part VI.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *Part VI.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*.

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- 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;
 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 areawide 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.

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- P. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include additional 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.

VII. DEFINITIONS

A. Wastewater.

1. “7-day and weekly average” is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week whichever is applicable. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, beginning on Sunday and ending on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.
2. “10-year, 24-hour precipitation event” means the maximum 24-hour precipitation event with a probable recurrence interval of once in 10 years. This information is available in *Weather Bureau Technical Paper No. 40*, May 1961 and *National Oceanographic and Atmospheric Administration Atlas 2*, 1973 for the 11 Western States, and may be obtained from the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.
3. “30-day and monthly average” is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
4. “Act,” means the *Utah Water Quality Act*.
5. “Bypass,” means the diversion of waste streams from any portion of a treatment facility.
6. “Chronic toxicity” occurs when the survival, growth, or reproduction for either test species exposed to a specific percent effluent dilution is significantly less (at the 95 percent confidence level) than the survival, growth, or reproduction of the control specimens. A five dilution test will be used.
7. “Coal pile runoff” means the rainfall runoff from or through any coal storage pile.
8. “Composite Samples” shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

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- a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every “X” gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
9. “CWA,” means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
10. “Daily Maximum” (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
11. “EPA,” means the United States Environmental Protection Agency.
12. “Director,” means Director of the Division of the Utah Division of Water Quality.
13. A “grab” sample, for monitoring requirements, is defined as a single “dip and take” sample collected at a representative point in the discharge stream.
14. An “instantaneous” measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
15. “IC₂₅” is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female or a 25% reduction in overall growth for the test population.
16. “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.
17. “Storm water” means storm water runoff, snowmelt runoff, and surface runoff and drainage.
18. “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.

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- B. Industrial Pretreatment Definitions. The following definitions shall apply only if the permittee discharges wastewater to a POTW:
1. *Indirect Discharge* means the introduction of pollutants into a POTW from any non-domestic source regulated under section 307(b), (c), or (d) of the CWA.
 2. *Interference* means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:
 - a. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
 - b. Therefore is a cause of a violation of any requirement of the POTW's UPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of SWDA, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Act.
 3. *Pass Through means* a Discharge which exits the POTW into waters of the U.S. in quantities or concentrations which, alone or in conjunction with discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit, including an increase in the magnitude or duration of a violation.
 4. *Publicly Owned Treatment Works or POTW* means a treatment works as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the CWA). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the CWA, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.
 5. *Significant industrial user (SIU)* is defined as an industrial user discharging to a POTW that satisfies any of the following:
 - a. Has a process wastewater flow of 25,000 gallons or more per average work day;
 - b. Has a flow greater than five percent of the flow carried by the municipal system receiving the waste;
 - c. Is subject to Categorical Pretreatment Standards, or
 - d. Has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.
 6. *User or Industrial User (IU)* means a source of Indirect Discharge.

**FACT SHEET AND STATEMENT OF BASIS
CANYON FUEL COMPANY, LLC – SOLDIER CANYON MINE
DISCHARGE RENEWAL PERMIT
UPDES PERMIT NUMBER: UT0023680
MINOR INDUSTRIAL FACILITY**

FACILITY CONTACT INFORMATION

Contact Name: Kirt Tatton
Position: General Manager

Contact Name: Vicky Miller
Position: Environmental Engineer

Phone Number: (435) 775-2062

Mailing Address: PO Box 1029
Wellington, Utah 84542

DESCRIPTION OF FACILITY

The Canyon Fuel Company's Soldier Canyon Mine (Mine) is an inactive underground coal mine facility with *Standard Industrial Classification Code 1222, for bituminous underground coal mining operations*. The Mine facility is located approximately 12 miles northeast of Wellington, Utah in Soldier Canyon off Nine Mile Canyon Road. The Mine has been idled with temporarily sealed portals for approximately 20 years and with no in-mine water treatment units (sumps w/pump stations) currently active as well. The surface facilities have been used on a limited basis in support of the nearby Canyon Fuel Company's Dugout Canyon Mine. Currently, the only potential for a discharge is from Outfall 002 at the surface sedimentation pond, which could discharge if there was enough runoff from precipitation events. The last discharge of any kind from the Mine resulted from large storm events discharging via Outfall 002 in September of 2013. Otherwise there has been no discharges from any Outfall over the last 5-year permit period or since 2013. It is not known if and when the mine will be re-activated, but Mine officials desire continuation of the UPDES permit so that if the Mine is re-activated in the next five years it can discharge without delay.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

There are only two changes as compared to the previous permit. First, the Storm Water permit provisions have been removed as part of a programmatic separation of the previously combined UPDES industrial permits. The Mine will now be required to apply for and obtain separate UPDES Industrial Storm Water Permit coverage under the UPDES MSGP No. UTR000000, or an applicable exemption as described further in the Storm Water section of this Fact Sheet. Second, turbidity monitoring has been included in lieu of Total Suspended Solids (TSS) secondary treatment standards to reflect rule changes in *Utah Administrative Code (UAC) R317-1-3*, which clarifies that secondary standards for both TSS and biochemical oxygen demand are not required for Non-POTW facilities. Publicly Owned Treatment Works (POTWs) are facilities that receive and process domestic waste water. The Mine is an industrial and Non-POTW type facility and therefore, secondary treatment standards do not apply. However, the Federal effluent limit guideline found in *40 Code of Federal Regulations (CFR) Part 434.45* for the TSS Daily Maximum limitation still applies and remains in the permit as appropriate and as described further in the Basis for Effluent Limitations section of this Fact Sheet. All other permit provisions remain unchanged.

DISCHARGE INFORMATION

DESCRIPTION OF DISCHARGE OUTFALLS

The permitted discharging outfalls are as follows:

<u>Outfall Numbers</u>	<u>Location of Discharge Outfalls</u>
001	Located at Latitude 39° 42' 02" north, Longitude 110° 36' 39" west. Mine water discharge to Soldier Creek.
002	Located at Latitude 39° 41' 52" north, Longitude 110° 36' 42" west. Spillway of surface sedimentation pond to Soldier Creek.
003	Located at Latitude 39° 42' 09" north, Longitude 110° 36' 38" west. Mine water discharge to Soldier Creek.

RECEIVING WATERS AND STREAM CLASSIFICATION

Any discharges from the Mine flows into Soldier Creek, a tributary of the Price River which is within the Colorado River Basin. The receiving waters are designated according to *UAC R317-2-13* as follows:

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 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.

Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

According to Utah's Combined 2018/2020 Integrated Report and 303(d) Water Quality Assessment for prioritizing impaired waters, which was finalized as approved by EPA in August 2021, Soldier Creek and tributaries from confluence with Price River to headwaters (Assessment Unit ID: UT14060007-009_00) reported no evidence of impairment. A TMDL was previously completed however, for the West Colorado Watershed and approved by EPA in 2004 (*Price River, San Rafael River and Muddy Creek TMDLs for Dissolved Solids – West Colorado Watershed Management Unit, Utah, April 2004*), which established a TDS site specific standard of 3000 mg/L for the Price River and associated tributaries in the area where Soldier Creek enters the Price River. For more information, the TMDL can be found at <https://documents.deq.utah.gov/water-quality/watershed-protection/total-maximum-daily-loads/DWQ-2015-006611.pdf>.

BASIS FOR EFFLUENT LIMITATIONS

In accordance with regulations promulgated in *40 Code of Federal Regulations (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 apply. In cases where no limits or multiple limits have been developed, Best Professional Judgment (BPJ) of the permitting authority may be used where applicable. “Best Professional Judgment” refers to a discretionary, best professional decision made by the permit writer based on precedent, prevailing regulatory standards or other relevant information.

Permit limits can also be derived from the Wasteload Analysis (WLA), which incorporates Secondary Treatment Standards, Water Quality Standards, including TMDL impairments as appropriate, Antidegradation Reviews (ADR) 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 completed as appropriate. An ADR Level I review was performed and concluded that an ADR Level II review was not required at this time since there are 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.

The following list is the basis of the effluent limitations for the permit parameters:

- 1) Since the Mine discharge meets the EPA definition of “alkaline mine drainage,” the permittee is subject to the technology based effluent limitations found in *40 CFR Part 434.45*. Applicable technology-based limits included in the permit are as follows:
 - a. Total suspended solids (TSS) daily maximum limit of 70 mg/L.
 - b. For discharges composed of surface water, or mine water commingled with surface water, *40 CFR Part 434.63* allows alternate effluent limits to be applied when discharges result from specific runoff events, detailed below and in the permit (Outfall 002 only). The Mine has the burden of proof that the described runoff event occurred as described further in the permit.
 - i. For runoff events (rainfall or snowmelt) less than or equal to a 10-year 24-hour precipitation event, settleable solids may be substituted for TSS and shall be limited to 0.5 milliliters per liter (ml/L). All other effluent limitations must be achieved concurrently, as described in the permit.
- 2) Daily minimum and daily maximum limitations on pH are derived from Utah Secondary Treatment Standards and Water Quality Standards.
- 3) Total dissolved solids (TDS) are limited according to Water Quality Standards and policies established by the Colorado River Basin Salinity Control Forum. TDS are limited by both mass loading and concentration requirements as described below:
 - a. Since discharges from the Mine may eventually reach the Colorado River, TDS mass loading is limited according to policies established by the Colorado River Basin Salinity Control Forum (Forum), as authorized in *UAC R317-2-4* to further control salinity in the Utah portion of the Colorado River Basin. On February 28, 1977 the Forum produced the “*Policy For Implementation of Colorado River Salinity Standards Through the NPDES Permit Program*” (Policy), with the most current subsequent triennial revision dated October 2020. Based on Forum Policy, provisions can be made for salinity-offset projects to account for any TDS loading in excess of the permit requirement.

On October 20, 1982 the Forum produced the “*Policy for Implementation of Colorado River Salinity Standards through the NPDES Permit Program for Intercepted Ground Water*”. The permit issued to the Mine in 1991 increased the TDS loading limit from 1-ton/day to 5-tons/day, as a sum from all outfalls. This increase in TDS loading was based on mining activities resulting in increased mine water flows that were determined to be from intercepted ground water based on the Forum’s aforementioned ground water policy. This permit will once again retain the 5-tons/day effluent TDS loading limit, however, if the Mine is reactivated then a new intercepted groundwater study must be completed within the first year of the mine being reactivated and discharging again. This new study will determine if the 5-tons/day of TDS is appropriate or if the quantity needs to be changed.

- b. The permit limit for TDS concentration is based on a the previously mentioned TMDL (*Price River, San Rafael River and Muddy Creek TMDLs for Dissolved Solids – West Colorado Watershed Management Unit, Utah April 2004*), which established a TDS site specific standard of 3000 mg/L for the Price River and associated tributaries in the area where Soldier Creek enters the Price River. Since the Mine has been idled and sealed for the last 20 years, sampling of the water in the mine has been unavailable and the current quality of the water is unknown. The Dugout Canyon Mine, which is owned and operated by the same company and in the next canyon to the east of Soldier Canyon, has, under normal operating conditions, averaged <2000 mg/L TDS from their discharge points (inclusive of mine water and sedimentation ponds). The Dugout Canyon Mine has a TDS limit of 2400 mg/L as a daily maximum and since the quality of the water in the Soldier Mine is currently unknown, a TDS limit of 2400 mg/L as a daily maximum concentration will once again be included in the renewal permit based on BPJ of the permitting authority to be consistent and more protective of the downstream receiving waters. This is the same limitation as the previous permit cycle.
- 4) The iron limitation is water quality based as derived in the WLA. The iron limitation is based on the State Water Quality Standard of 1.0 mg/L for dissolved iron (*UAC R317-2 Table 2.14.2*) and the WLA limitation of 1.0 for total recoverable iron. Total recoverable iron is a more stringent limitation than dissolved iron since it includes the dissolved fraction as part of the total component. Therefore, a permit limit of 1.0 mg/L for total recoverable iron will once again be included in the renewal permit and shall apply to each of the discharge points.
 - 5) Oil and Grease concentrations are limited to 10 mg/L by BPJ of the permitting authority to be consistent with other industrial facilities statewide.
 - 6) The effluent flow limitation is based off the maximum historic discharge rate during March 1991 from Outfall 001 at 200 gallons per minute (gpm) and Outfall 003 at 720 gpm for a combined flow of 1.3 million gallons per day (MGD) and is the same flow limit as in the previous permit.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal permit applications received after that date. RP is 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, as detailed further in the attached RP Analysis, provide a frame work for what routine monitoring or effluent limitations are required.

Since there have been no discharges of mine water in decades, none of the parameters of concern, including metals could be evaluated for reasonable potential to exceed water quality standards. Therefore, this renewal permit will once again require that the permittee obtain metals discharge data by monitoring the

Mine water upon future start up and discharges for total recoverable concentrations of arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, silver, selenium and zinc so that a more thorough RP analyses can be performed as appropriate.

By default, the result of this limited RP analysis was Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit. A copy of the RP summary is included as an attachment at the end of this Fact Sheet.

The permittee is expected to be able to comply with the permit limitations for all Outfalls as follows:

Parameter	Effluent Limitations *a			
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily
Flow, MGD	1.3	--	--	Report
pH, standard units	--	--	6.5	9.0
Total Suspended Solids (TSS), mg/L	--	--	--	70
Total Iron, mg/L	--	--	--	1.0
Oil & Grease, mg/L, *b	--	--	--	10
Total Dissolved Solids (TDS) mg/L *c	Report	--	--	2400
Total Dissolved Solids (TDS) tons/day*c	--	--	--	5
Turbidity *d	--	--	--	Report

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the similar as in the previous permit, with the addition of turbidity monitoring as previously mentioned. Monthly sampling is based on the mine being a minor industrial permit with a flow limitation of 1.3 MGD. The permit requires reports to be submitted monthly via NetDMR as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Lab reports for biomonitoring, as well as lab reports for metals and toxic organics, if required in the future must be submitted with the applicable DMRs.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Flow	Monthly	Measured	MGD
Total Suspended Solids (TSS)	Monthly	Grab	mg/L
Total Iron	Monthly	Grab	mg/L
Oil & Grease, mg/L, *b	Monthly	Visual/Grab	mg/L
Total Dissolved Solids (TDS) *c	Monthly	Grab	mg/L
pH, standard units	Monthly	Grab	SU
Turbidity *d	Monthly	Grab	NTU

*a See Permit Definitions, for definition of terms.

- *b There shall be no visible sheen, floating solids, or visible foam in other than trace amounts upon any discharges and there shall be no discharge of any sanitary wastes at any time. If a sheen is observed, a sample of that effluent shall be collected immediately thereafter and the oil & grease shall not exceed 10 mg/L in concentration.
- *c The TDS concentration from each of the outfalls shall not exceed 2400 mg/L as a daily maximum limit. No tons per day loading limit will be applied 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 30-day average concentration exceeds 500 mg/L, then the permittee cannot discharge more than 5 tons per day as a sum from all discharge points. Any amount over the 5 tons per day limit will require the permittee to participate in and/or fund a salinity offset project to include TDS offset credits as appropriate.

The salinity-offset project shall include TDS credits on a ton-for-ton basis for which the permittee is over the 5 tons per day loading limit. The tonnage reduction from the offset project must be calculated by a method similar to one used by the Natural Resources Conservation Service, Colorado River Basin Salinity Control Forum, or other applicable agency.

If the permittee will be participating in the construction and implementation of a new salinity-offset project, then a project description and implementation schedule shall be submitted to the Director at least six (6) months prior to the implementation date of the project, which will then be reviewed for approval. The salinity offset project description and implementation schedule must be approved by the Director and shall be appended to this permit.

If the permittee will be funding any additional salinity-offset projects through third parties, the permittee shall provide satisfactory evidence to the Director that the required funds have been deposited to the third party within six (6) months of project approval by the Director. A monitoring and adjustment plan to track the TDS credits shall be submitted to the Director for each monthly monitoring period during the life of this permit. Any changes to the monitoring and adjustment plan must be approved by the Director and upon approval shall be appended to this permit.

- *d Turbidity monitoring shall be conducted monthly whenever possible from all discharging Outfalls to ensure that there is not an increase of more than 10 NTU over the receiving waters, if applicable or if possible.

SPECIAL CONDITIONS IF THE SEALS ARE REMOVED AND MINE BECOMES ACTIVE

Current conditions at the Mine are in a state of temporary cessation; as such this permit is being reviewed without the availability of assessing typical water quality discharge effluent quality. If the Mine becomes active and the seals are removed during this permit cycle, the permittee will be required to conduct analyses to establish what the typical effluent quality will be.

As soon as feasible following seal removal and prior to conducting significant dewatering activities, the permittee shall collect at least 2 samples for the metals listed below. Samples may be collected from flooded areas of the mine or mine water discharges (Outfall 001 and/or 003). Results of this sampling shall be provided to the Division of Water Quality (DWQ) **ninety (90) calendar days** prior to planned continuous dewatering activities. These samples will be collected to evaluate metals present in the discharge. RP will

be conducted on the results to determine the potential to exceed the water quality allocations based on the wasteload analysis. If reasonable potential is found for any of these metals the permit effluent limitations table will be modified as necessary.

Metals Monitoring			
Parameter	Sample Type	Frequency	Units
Total Arsenic	Grab	Minimum of two samples prior to dewatering activities, weekly for 10 weeks during dewatering, and monthly thereafter	mg/L
Total Cadmium			
Total Chromium			
Total Copper			
Total Lead			
Total Mercury			
Total Molybdenum			
Total Nickel			
Total Selenium			
Total Silver			
Total Zinc			
Total Cyanide			

Starting after the first week of discharge following seal removal, those metals identified in the RP process shall be monitored **weekly** for 10 weeks beginning after the first week of discharge. After which, these pollutants shall be analyzed **monthly**. The permittee is required to obtain the lowest detection limit possible using standard methods and certified laboratories. Depending on the results of the initial expedited analysis, DWQ may reassess permit limits and monitoring frequencies for these metals.

If the seals are removed and the Mine is reactivated, the permittee shall complete one Chronic Whole Effluent Toxicity (WET) test on the initial discharge from Outfall 001 or 003 (mine water). The results and WET laboratory report shall be reported with the Discharge Monitoring Report (DMR) via the NetDMR submittal for the month in which the test was completed and the complete WET laboratory report shall be submitted to DWQ.

As mentioned previously, an intercepted groundwater study must be completed within one year of Mine activation with the seals being removed and discharging mine water. This study will determine if the 5 tons per day TDS loading limit is appropriate or if the quantity needs to be changed. If the 5 tons per day TDS loading limit needs to be changed, this permit will be reopened and modified following proper administrative procedures.

STORM WATER REQUIREMENTS

As mentioned previously, the Storm Water provisions have been omitted from this UPDES permit. However, based on the type of industrial activities at the facility, the permittee is required to maintain separate permit coverage, or an appropriate exclusion, under the UPDES Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility has not already done so, it has 30 days from the effective date of this permit to submit the appropriate Notice of Intent (NOI) for the MSGP, or exclusion documentation. Previously, storm water discharge requirements and coverage were combined in this individual permit. These have been separated to provide consistency among permittees, electronic reporting for storm water discharge monitoring reports, and increase flexibility to changing site conditions.

Permit coverage under the UPDES Construction General Storm Water Permit (CGP) is required for any construction at the facility that is not part of active mining activities and which disturb an acre or more of land, or is part of a common plan of development or sale that is an acre or greater. A Notice of Intent (NOI) is required to obtain a construction storm water permit prior to the period of construction.

Information on storm water permit requirements can be found at <http://stormwater.utah.gov>.

PRETREATMENT REQUIREMENTS

This facility does not discharge process wastewater to a sanitary sewer system. If wastewater is discharged to a sanitary sewer system the permittee must also notify the DWQ Pretreatment Coordinator regarding the discharge. Also, 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 is regulated in accordance with the Utah Pollutant Discharge Elimination System Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring), dated February 2018. 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 UAC R317-2-7.2.*

The permittee is not classified as a major facility or a significant minor facility and historical discharges from the Mine are from intercepted ground water and/or storm water only, in which toxicity has not been an existing or a potential concern. Any discharges are to an ephemeral drainage and do not normally reach downstream waters except during extreme precipitation events. Based on these considerations, there is no reasonable potential for toxicity in the facility's discharge. As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, as mentioned previously, if the Mine seals are removed and the Mine becomes active again, the Mine will be required to conduct at least one Chronic Biomonitoring WET test to confirm that these historic conditions have not changed. In addition, the permit will once more contain a toxicity limitation re-opener provision. This provision allows for modification of the permit at any time in the future to include WET limitations and/or WET monitoring, should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

It is recommended that this permit be effective for a duration of five (5) years, as authorized in *UAC R317-8-5.1(1)*.

Drafted and reviewed by:

Jeff Studenka, Discharge & Colorado River Basin Salinity Control
Lucy Parham, Colorado River Basin Salinity Control
Lonnie Shull, Biomonitoring
Carl Adams, Storm Water
Jen Robinson, Pretreatment
Amy Dickey, Watershed/TMDL
Suzan Tahir, Wasteload Analysis & ADR

Utah Division of Water Quality
(801) 536-4300
August 30, 2021

PUBLIC NOTICE INFORMATION (updated October 22, 2021)

Began: September 9, 2021
Ended: October 12, 2021

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

The Public Notice of the draft renewal permit was published on DWQ's website for at least 30 days as per *Utah Administrative Code (UAC) R317-8-6.5*.

During the public comment period provided under *UAC 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 *UAC R317-8-6.12*.

No comments or requests were received during the public notice period. Staff recommends reissuance of the UPDES permit as drafted.

ADDENDUM TO FSSOB

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

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ATTACHMENT 1

Wasteload Analysis and Antidegradation Review

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

Date: July 8, 2021

Prepared by: Suzan Tahir
Standards and Technical Services

Facility: Canyon Fuel Company, LLC, Soldier Canyon Mine
UPDES No. UT0023680

Receiving water: Soldier Creek => Price River (2B, 3C, 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

This facility is an underground Coal Mine.

Outfall 001: Mine Water Discharge

Outfall 002: Sedimentation Pond

Outfall 003: Mine Water Discharge

The maximum daily flow is 1.3 MGD as calculated by the permittee.

Receiving Water

The receiving water of Outfalls 001, 002 and 003 is Soldier Creek, an intermittent stream that is a tributary to the Price River.

Per UAC R317-2-13.1(b), the designated beneficial uses for the Price River and tributaries, from confluence with Green River to Carbon Canal Diversion at the Price City Golf Course are 2B, 3C, and 4.

- *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*

Utah Division of Water Quality
Wasteload Analysis
Canyon Fuel Company, LLC, Soldier Canyon Mine
UPDES No. UT0023680

degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

- *Class 3C - Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

As per R317-2, Table 2.14.1, footnote (4), the segment of the Price River which receives flows from Soldier Creek (Price River and tributaries from confluence with Green River to confluence with Soldier Creek) has a site specific standard for total dissolved solids (TDS) of 3,000 mg/l.

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). Because the discharge is to an Intermittent stream, the critical low flow condition (7Q10) of the receiving water would be zero. As a result, effluent limits revert to the water quality standards. Water Quality Standards are presented in the WLA Addendum.

TMDL

According to the Utah's 2016 303(d) Water Quality Assessment, Soldier Creek and tributaries from confluence with Price River to headwaters (UT14060007-009_00) could not be assessed because of insufficient data. A TMDL was completed for the West Colorado Watershed and approved by EPA in 2004. It can be found at <https://documents.deq.utah.gov/water-quality/watershed-protection/total-maximum-daily-loads/DWQ-2015-006611.pdf>.

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.

No mixing zone was considered as the annual critical flow for Outfalls 001, 002 and 003 was determined to be 0.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water are total dissolved solids (TDS) and iron as determined from the existing permit and in consultation with the UPDES Permit Writer.

Utah Division of Water Quality
Wasteload Analysis
Canyon Fuel Company, LLC, Soldier Canyon Mine
UPDES No. UT0023680

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. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

IC₂₅ WET limits for Outfalls 001,002, and 003 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 Addendum.

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 existing permit is being requested.

Documents:

WLA Document : *SoldierCanyon_WLADoc_6-23-21.docx*

Wasteload Analysis and Addendum: *SoldierCanyon_WLA_6-23-21.xlsm*

References:

Utah Division of Water Quality. 2012. *Utah Wasteload Analysis Procedures Version 1.0.*

**Utah Division of Water Quality
Salt Lake City, Utah**

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

3-Jun-21
4:00 PM

Facilities: Soldier Canyon Mine
Discharging to: Soldier Creek => Price River

UPDES No: UT-0023680

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

Soldier Creek => Price River:	2B, 3C, 4
Antidegradation Review:	Level I review completed. 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)	5.00 mg/l (30 Day Average) N/A mg/l (7Day Average) 3.00 mg/l (1 Day Average)	
Maximum Total Dissolved Solids	3000.0 mg/l	background

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Salt Lake City, Utah**

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**	0.945 lbs/day	750.00	ug/l	8.146 lbs/day
Arsenic	190.00 ug/l	2.064 lbs/day	340.00	ug/l	3.693 lbs/day
Cadmium	0.67 ug/l	0.007 lbs/day	7.41	ug/l	0.080 lbs/day
Chromium III	234.91 ug/l	2.551 lbs/day	4914.68	ug/l	53.378 lbs/day
ChromiumVI	11.00 ug/l	0.119 lbs/day	16.00	ug/l	0.174 lbs/day
Copper	26.56 ug/l	0.288 lbs/day	44.37	ug/l	0.482 lbs/day
Iron			1000.00	ug/l	10.861 lbs/day
Lead	15.12 ug/l	0.164 lbs/day	387.99	ug/l	4.214 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.026 lbs/day
Nickel	146.96 ug/l	1.596 lbs/day	1321.84	ug/l	14.356 lbs/day
Selenium	4.60 ug/l	0.050 lbs/day	20.00	ug/l	0.217 lbs/day
Silver	N/A ug/l	N/A lbs/day	31.09	ug/l	0.338 lbs/day
Zinc	338.11 ug/l	3.672 lbs/day	338.11	ug/l	3.672 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 340.2 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	0.016 lbs/day
Chlordane	0.004 ug/l	0.047 lbs/day	1.200	ug/l	0.013 lbs/day
DDT, DDE	0.001 ug/l	0.011 lbs/day	0.550	ug/l	0.006 lbs/day
Dieldrin	0.002 ug/l	0.021 lbs/day	1.250	ug/l	0.014 lbs/day
Endosulfan	0.056 ug/l	0.607 lbs/day	0.110	ug/l	0.001 lbs/day
Endrin	0.002 ug/l	0.025 lbs/day	0.090	ug/l	0.001 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.041 lbs/day	0.260	ug/l	0.003 lbs/day
Lindane	0.080 ug/l	0.867 lbs/day	1.000	ug/l	0.011 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	0.152 lbs/day	2.000	ug/l	0.022 lbs/day
Pentachlorophenol	13.00 ug/l	140.918 lbs/day	20.000	ug/l	0.217 lbs/day
Toxephene	0.0002 ug/l	0.002 lbs/day	0.7300	ug/l	0.008 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	lbs/day
Cadmium			10.0 ug/l	0.05 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			3000.0 mg/l	16.29 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			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day

Chlorophenoxy Herbicides

2,4-D			ug/l	lbs/day
2,4,5-TP			ug/l	lbs/day
Endrin			ug/l	lbs/day
cyclohexane (Lindane)			ug/l	lbs/day
Methoxychlor			ug/l	lbs/day
Toxaphene			ug/l	lbs/day

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

Maximum Conc., ug/l - Acute Standards

Toxic Organics	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.]	
	ug/l	lbs/day	ug/l	lbs/day
Acenaphthene	ug/l	lbs/day	2700.0 ug/l	29.27 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	8.46 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.01 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	0.77 lbs/day
Benzidine	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	ug/l	lbs/day	4.4 ug/l	0.05 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	227.64 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	ug/l	lbs/day	99.0 ug/l	1.07 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.10 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	0.46 lbs/day
1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.12 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day

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Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.02 lbs/day
2-Chloroethyl vinyl ethe	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	ug/l	lbs/day	4300.0 ug/l	46.61 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.07 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	5.09 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	4.34 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	184.28 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	28.18 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	28.18 lbs/day
3,3'-Dichlorobenzidine	ug/l	lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	ug/l	lbs/day	3.2 ug/l	0.03 lbs/day
1,2-trans-Dichloroethyle	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0 ug/l	8.56 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	0.42 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	18.43 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	24.93 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.10 lbs/day
2,6-Dinitrotoluene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	ug/l	lbs/day	0.5 ug/l	0.01 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0 ug/l	314.36 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	4.01 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) e	ug/l	lbs/day	170000.0 ug/l	1842.78 lbs/day
Bis(2-chloroethoxy) met	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	ug/l	lbs/day	1600.0 ug/l	17.34 lbs/day
Methyl chloride (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	ug/l	lbs/day	360.0 ug/l	3.90 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	0.24 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	0.37 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0 ug/l	0.54 lbs/day
Hexachlorocyclopentadi	ug/l	lbs/day	17000.0 ug/l	184.28 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	6.50 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	20.60 lbs/day
2-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	ug/l	lbs/day	14000.0 ug/l	151.76 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	8.29 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.09 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	0.17 lbs/day
N-Nitrosodi-n-propylami	ug/l	lbs/day	1.4 ug/l	0.02 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.09 lbs/day
Phenol	ug/l	lbs/day	4.6E+06 ug/l	4.99E+04 lbs/day
Bis(2-ethylhexyl)phthala	ug/l	lbs/day	5.9 ug/l	0.06 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	56.37 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	130.08 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	1300.79 lbs/day
Dimethyl phthlate	ug/l	lbs/day	2.9E+06 ug/l	3.14E+04 lbs/day
Benzo(a)anthracene (P)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (f	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (f	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day

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Salt Lake City, Utah**

Chrysene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	ug/l	lbs/day	11000.0 ug/l	119.24 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.10 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	2167.98 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	0.88 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	5.69 lbs/day
				lbs/day
Pesticides				lbs/day
Aldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.02 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.02 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.02 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.01 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.01 lbs/day
Heptachlor	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 1242)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 1254)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 1221)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 1232)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 1248)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 1260)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 1016)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	ug/l		0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day		
Metals				
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	46.61 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	2384.77 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	49.86 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.07 lbs/day
Zinc				

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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.
- (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.

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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)	0.0	20.0	8.1	0.01	0.50	10.30	0.00	464.0
Fall	0.0	12.0	8.1	0.01	0.50	---	0.00	464.0
Winter	0.0	5.0	8.1	0.01	0.50	---	0.00	464.0
Spring	0.0	12.0	8.1	0.01	0.50	---	0.00	464.0
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	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron		
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
All Seasons	0.0000	0.53*	1.06*	0.1*	0.053*	10.0		* 1/2 MDL

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Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	1.30000	13.9	421.67	2.28540
Fall	1.30000	3.6		
Winter	1.30000	0.8		
Spring	1.30000	14.9		

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	1.300 MGD	2.011 cfs
Fall	1.300 MGD	2.011 cfs
Winter	1.300 MGD	2.011 cfs
Spring	1.300 MGD	2.011 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 1.3 MGD. If the discharger is allowed to have a flow greater than 1.3 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	271.0 lbs/day
Fall	25.0 mg/l as BOD5	271.0 lbs/day
Winter	25.0 mg/l as BOD5	271.0 lbs/day
Spring	25.0 mg/l as BOD5	271.0 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	5.50
Fall	5.50
Winter	5.50
Spring	5.50

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	2.6 mg/l as N	27.9 lbs/day
	1 Hour Avg. - Acute	8.4 mg/l as N	91.5 lbs/day
Fall	4 Day Avg. - Chronic	2.2 mg/l as N	24.3 lbs/day
	1 Hour Avg. - Acute	7.4 mg/l as N	80.0 lbs/day
Winter	4 Day Avg. - Chronic	0.6 mg/l as N	6.6 lbs/day
	1 Hour Avg. - Acute	1.7 mg/l as N	18.0 lbs/day
Spring	4 Day Avg. - Chronic	2.2 mg/l as N	24.3 lbs/day
	1 Hour Avg. - Acute	7.4 mg/l as N	80.0 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	0.12 lbs/day
	1 Hour Avg. - Acute	0.019 mg/l	0.21 lbs/day
Fall	4 Day Avg. - Chronic	0.011 mg/l	0.12 lbs/day
	1 Hour Avg. - Acute	0.019 mg/l	0.21 lbs/day
Winter	4 Day Avg. - Chronic	0.011 mg/l	0.12 lbs/day
	1 Hour Avg. - Acute	0.019 mg/l	0.21 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	3000.0 mg/l	16.26 tons/day
Fall	Maximum, Acute	3000.0 mg/l	16.26 tons/day
Winter	Maximum, Acute	3000.0 mg/l	16.26 tons/day
Spring	4 Day Avg. - Chronic	3000.0 mg/l	16.26 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 340.2 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum*	N/A	N/A	750.0 ug/l	8.1 lbs/day	
Arsenic*	190.00 ug/l	1.3 lbs/day	340.0 ug/l	3.7 lbs/day	
Cadmium	0.67 ug/l	0.0 lbs/day	7.4 ug/l	0.1 lbs/day	
Chromium III	234.91 ug/l	1.6 lbs/day	4,914.7 ug/l	53.4 lbs/day	
Chromium VI*	11.00 ug/l	0.1 lbs/day	16.0 ug/l	0.2 lbs/day	
Copper	26.56 ug/l	0.2 lbs/day	44.4 ug/l	0.5 lbs/day	
Iron*	N/A	N/A	1,000.0 ug/l	10.9 lbs/day	
Lead	15.12 ug/l	0.1 lbs/day	388.0 ug/l	4.2 lbs/day	
Mercury*	0.01 ug/l	0.0 lbs/day	2.4 ug/l	0.0 lbs/day	
Nickel	146.96 ug/l	1.0 lbs/day	1,321.8 ug/l	14.4 lbs/day	
Selenium*	4.60 ug/l	0.0 lbs/day	20.0 ug/l	0.2 lbs/day	
Silver	N/A ug/l	N/A lbs/day	31.1 ug/l	0.3 lbs/day	
Zinc	338.11 ug/l	2.4 lbs/day	338.1 ug/l	3.7 lbs/day	
Cyanide*	5.20 ug/l	0.0 lbs/day	22.0 ug/l	0.2 lbs/day	

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

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

Summer	22.0 Deg. C.	71.6 Deg. F
Fall	14.0 Deg. C.	57.2 Deg. F
Winter	7.0 Deg. C.	44.6 Deg. F
Spring	14.0 Deg. C.	57.2 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		
	Concentration	Load	Concentration		Load
Aldrin			1.5E+00	ug/l	2.52E-02 lbs/day
Chlordane	4.30E-03 ug/l	4.66E-02 lbs/day	1.2E+00	ug/l	2.02E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	1.08E-02 lbs/day	5.5E-01	ug/l	9.24E-03 lbs/day
Dieldrin	1.90E-03 ug/l	2.06E-02 lbs/day	1.3E+00	ug/l	2.10E-02 lbs/day
Endosulfan	5.60E-02 ug/l	6.07E-01 lbs/day	1.1E-01	ug/l	1.85E-03 lbs/day
Endrin	2.30E-03 ug/l	2.49E-02 lbs/day	9.0E-02	ug/l	1.51E-03 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	1.68E-04 lbs/day
Heptachlor	3.80E-03 ug/l	4.12E-02 lbs/day	2.6E-01	ug/l	4.37E-03 lbs/day
Lindane	8.00E-02 ug/l	8.67E-01 lbs/day	1.0E+00	ug/l	1.68E-02 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	5.04E-04 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	1.68E-04 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	6.72E-04 lbs/day
PCB's	1.40E-02 ug/l	1.52E-01 lbs/day	2.0E+00	ug/l	3.36E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	1.41E+02 lbs/day	2.0E+01	ug/l	3.36E-01 lbs/day
Toxephene	2.00E-04 ug/l	2.17E-03 lbs/day	7.3E-01	ug/l	1.23E-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	54.3 lbs/day
Nitrates as N	4.0 mg/l	43.4 lbs/day
Total Phosphorus as P	0.05 mg/l	0.5 lbs/day
Total Suspended Solids	90.0 mg/l	977.5 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:

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	2.70E+03 ug/l	2.93E+01 lbs/day
Acrolein	7.80E+02 ug/l	8.46E+00 lbs/day
Acrylonitrile	6.60E-01 ug/l	7.15E-03 lbs/day
Benzene	7.10E+01 ug/l	7.70E-01 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	4.40E+00 ug/l	4.77E-02 lbs/day
Chlorobenzene	2.10E+04 ug/l	2.28E+02 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	7.70E-04 ug/l	8.35E-06 lbs/day
1,2-Dichloroethane	9.90E+01 ug/l	1.07E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	8.90E+00 ug/l	9.65E-02 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	4.20E+01 ug/l	4.55E-01 lbs/day
1,1,2,2-Tetrachloroethane	1.10E+01 ug/l	1.19E-01 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	1.40E+00 ug/l	1.52E-02 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	4.30E+03 ug/l	4.66E+01 lbs/day
2,4,6-Trichlorophenol	6.50E+00 ug/l	7.05E-02 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	4.70E+02 ug/l	5.09E+00 lbs/day
2-Chlorophenol	4.00E+02 ug/l	4.34E+00 lbs/day
1,2-Dichlorobenzene	1.70E+04 ug/l	1.84E+02 lbs/day
1,3-Dichlorobenzene	2.60E+03 ug/l	2.82E+01 lbs/day
1,4-Dichlorobenzene	2.60E+03 ug/l	2.82E+01 lbs/day
3,3'-Dichlorobenzidine	7.70E-02 ug/l	8.35E-04 lbs/day
1,1-Dichloroethylene	3.20E+00 ug/l	3.47E-02 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	7.90E+02 ug/l	8.56E+00 lbs/day
1,2-Dichloropropane	3.90E+01 ug/l	4.23E-01 lbs/day
1,3-Dichloropropylene	1.70E+03 ug/l	1.84E+01 lbs/day

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2,4-Dimethylphenol	2.30E+03 ug/l	2.49E+01 lbs/day
2,4-Dinitrotoluene	9.10E+00 ug/l	9.86E-02 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	5.40E-01 ug/l	5.85E-03 lbs/day
Ethylbenzene	2.90E+04 ug/l	3.14E+02 lbs/day
Fluoranthene	3.70E+02 ug/l	4.01E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	1.70E+05 ug/l	1.84E+03 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	1.60E+03 ug/l	1.73E+01 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	3.60E+02 ug/l	3.90E+00 lbs/day
Dichlorobromomethane(HM)	2.20E+01 ug/l	2.38E-01 lbs/day
Chlorodibromomethane (HM)	3.40E+01 ug/l	3.69E-01 lbs/day
Hexachlorocyclopentadiene	1.70E+04 ug/l	1.84E+02 lbs/day
Isophorone	6.00E+02 ug/l	6.50E+00 lbs/day
Naphthalene		
Nitrobenzene	1.90E+03 ug/l	2.06E+01 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	1.40E+04 ug/l	1.52E+02 lbs/day
4,6-Dinitro-o-cresol	7.65E+02 ug/l	8.29E+00 lbs/day
N-Nitrosodimethylamine	8.10E+00 ug/l	8.78E-02 lbs/day
N-Nitrosodiphenylamine	1.60E+01 ug/l	1.73E-01 lbs/day
N-Nitrosodi-n-propylamine	1.40E+00 ug/l	1.52E-02 lbs/day
Pentachlorophenol	8.20E+00 ug/l	8.89E-02 lbs/day
Phenol	4.60E+06 ug/l	4.99E+04 lbs/day
Bis(2-ethylhexyl)phthalate	5.90E+00 ug/l	6.40E-02 lbs/day
Butyl benzyl phthalate	5.20E+03 ug/l	5.64E+01 lbs/day
Di-n-butyl phthalate	1.20E+04 ug/l	1.30E+02 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	1.20E+05 ug/l	1.30E+03 lbs/day
Dimethyl phthlate	2.90E+06 ug/l	3.14E+04 lbs/day
Benzo(a)anthracene (PAH)	3.10E-02 ug/l	3.36E-04 lbs/day
Benzo(a)pyrene (PAH)	3.10E-02 ug/l	3.36E-04 lbs/day
Benzo(b)fluoranthene (PAH)	3.10E-02 ug/l	3.36E-04 lbs/day
Benzo(k)fluoranthene (PAH)	3.10E-02 ug/l	3.36E-04 lbs/day
Chrysene (PAH)	3.10E-02 ug/l	3.36E-04 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	3.10E-02 ug/l	3.36E-04 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	3.10E-02 ug/l	3.36E-04 lbs/day
Pyrene (PAH)	1.10E+04 ug/l	1.19E+02 lbs/day
Tetrachloroethylene	8.90E+00 ug/l	9.65E-02 lbs/day
Toluene	2.00E+05 ug/l	2.17E+03 lbs/day
Trichloroethylene	8.10E+01 ug/l	8.78E-01 lbs/day
Vinyl chloride	5.25E+02 ug/l	5.69E+00 lbs/day
Pesticides		
Aldrin	1.40E-04 ug/l	1.52E-06 lbs/day
Dieldrin	1.40E-04 ug/l	1.52E-06 lbs/day
Chlordane	5.90E-04 ug/l	6.40E-06 lbs/day
4,4'-DDT	5.90E-04 ug/l	6.40E-06 lbs/day
4,4'-DDE	5.90E-04 ug/l	6.40E-06 lbs/day
4,4'-DDD	8.40E-04 ug/l	9.11E-06 lbs/day
alpha-Endosulfan	2.00E+00 ug/l	2.17E-02 lbs/day
beta-Endosulfan	2.00E+00 ug/l	2.17E-02 lbs/day

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Endosulfan sulfate	2.00E+00 ug/l	2.17E-02 lbs/day
Endrin	8.10E-01 ug/l	8.78E-03 lbs/day
Endrin aldehyde	8.10E-01 ug/l	8.78E-03 lbs/day
Heptachlor	2.10E-04 ug/l	2.28E-06 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	4.50E-05 ug/l	4.88E-07 lbs/day
PCB-1254 (Arochlor 1254)	4.50E-05 ug/l	4.88E-07 lbs/day
PCB-1221 (Arochlor 1221)	4.50E-05 ug/l	4.88E-07 lbs/day
PCB-1232 (Arochlor 1232)	4.50E-05 ug/l	4.88E-07 lbs/day
PCB-1248 (Arochlor 1248)	4.50E-05 ug/l	4.88E-07 lbs/day
PCB-1260 (Arochlor 1260)	4.50E-05 ug/l	4.88E-07 lbs/day
PCB-1016 (Arochlor 1016)	4.50E-05 ug/l	4.88E-07 lbs/day

Pesticide

Toxaphene	7.50E-04 ug/l	8.13E-06 lbs/day
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Metals

Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

Dioxin

Dioxin (2,3,7,8-TCDD)	1.40E-08 ug/l	1.52E-10 lbs/day
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**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				4300.0		4300.0	
Arsenic	100.0	340.0			0.0	100.0	190.0
Barium						0.0	
Beryllium						0.0	
Cadmium	10.0	7.4			0.0	7.4	0.7
Chromium (III)		4914.7			0.0	4914.7	234.9

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Chromium (VI)	100.0	16.0		0.0	16.00	11.00
Copper	200.0	44.4			44.4	26.6
Cyanide		22.0	220001.1		22.0	5.2
Iron		1000.0			1000.0	
Lead	100.0	388.0		0.0	100.0	15.1
Mercury		2.40	0.15	0.0	0.15	0.012
Nickel		1321.8	4600.0		1321.8	147.0
Selenium	50.0	20.0		0.0	20.0	4.6
Silver		31.1		0.0	31.1	
Thallium			6.3		6.3	
Zinc		338.1			338.1	338.1
Boron	750.0				750.0	

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	4300.02		
Arsenic	100.0	190.0	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	7.4	0.7	
Chromium (III)	4914.7	235	
Chromium (VI)	16.0	11.0	
Copper	44.4	26.6	
Cyanide	22.0	5.2	
Iron	1000.0		
Lead	100.0	15.1	
Mercury	0.150	0.012	
Nickel	1321.8	147	
Selenium	20.0	4.6	
Silver	31.1	N/A	
Thallium	6.3		
Zinc	338.1	338.1	
Boron	750.00		

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.

**Utah Division of Water Quality
Salt Lake City, Utah**

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 not required. Basic renewal, no increase in effluent flow or concentration.

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.

This doesn't apply to facilities that do not discharge to the Colorado River Basin.

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
Salt Lake City, Utah**

XIII. Notice of UPDES Requirement

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information. Permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations provided that the values in this wasteload analysis [TMDL] are not compromised. See special provisions in Utah Water Quality Standards for adjustments in the Total Dissolved Solids values based upon background concentration.

XIV. TMDL Requirements

Soldier Creek Mine discharges to Soldier Creek, which is a tributary of the Price River. This segment of the Price River is 303(d) listed for total dissolved solids (TDS). A TMDL was completed for this portion of the Price River and approved by EPA on August 4, 2004. No load allocation was included for Soldier Creek Mine. This segment of the Price River has a site specific TDS standard of 3000 mg/l.

*Calculation based on limited flow and concentration data

1/day	1/day	1/day	1/day	1/day	1/day	1/day	1/day
0.000	0.000	4.000	1.596	0.000	0.000	32.000	9.979
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 0.284						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(Cl) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that the proposed discharge will not require a Level II Antidegradation Review. The Proposed permit is a simple renewal. No increase in effluent flow or concentration.

ATTACHMENT 2

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

DWQ has worked to improve our reasonable potential (RP) analysis for the inclusion of limits for parameters in the permit by utilizing an EPA approved method and RP guidance document. As a result, more parameters and/or limits may be included in renewal permits. There are four resulting outcomes for the RP Analyses¹ as listed below;

- Outcome A: A new effluent limitation will be placed in the permit.
- Outcome B: No new effluent limitation. Routine monitoring requirements will be placed or increased from what they are in the permit,
- Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit,
- Outcome D: No limitation or routine monitoring requirements are in the permit.

The Initial Screening and RP Outcomes Table for the existing parameters of concern is included for reference.

Initial Screening and RP Outcomes Table for the Soldier Mine Water Discharges
2016-2021 DMR Data Summary Results for Reasonable Potential Analysis

Parameters of Concern	No. of Samples	MEC* mg/L	Water Quality Standards MAC**			Outcome/Result
			WLA mg/L	Acute mg/L	Chronic mg/L	
TSS	0	NA	NA	70	NA	NA
TDS	0	NA	3000	3000	2400	NA
Total Iron	0	NA	1.0	1.0	NA	NA
Other Metals	0	NA	See WLA	NA	NA	NA

NA = not applicable or not available.

*MEC – Maximum expected effluent concentration as determined from existing data set.

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

Summary: 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 effluent limits in this 2021 renewal permit. This is because there has been no mine water discharge data to evaluate. Therefore, a more qualitative and quantitative RP analysis was not possible at this time. Monitoring for all parameters of concern, including metals, is included however, as detailed in the permit for any future mine water discharges. RP will be re-evaluated during the next permit cycle as appropriate.

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

¹ See Reasonable Potential Analysis Guidance for further definitions of terms