

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. **UT0023728**

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

FOSSIL ROCK RESOURCES, LLC

is hereby authorized to discharge from

FOSSIL ROCK MINE

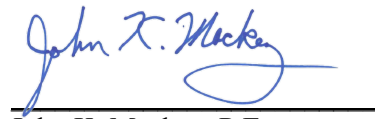
to receiving waters named **Cottonwood Canyon Creek and Grimes Wash,**

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

This permit shall become effective on May 1, 2024.

This permit expires at midnight on April 30, 2029.

Signed this third day of April, 2024.



John K. Mackey, P.E.
Director

DWQ-2023-200100

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

<u>Outfall Number</u>	<u>Location of Discharge Outfall</u>
001	Located at latitude 39° 19' 00" and longitude 111° 11' 20". Outfall from sedimentation pond for surface water runoff from the mine site into Cottonwood Canyon Creek drainage.
002	Located at latitude 39° 19' 03" and longitude 111° 11' 25". Outfall for mine water discharges from mine portals into Cottonwood Canyon Creek drainage.
003	Located at latitude 39° 17' 43" and longitude 111° 07' 18". Outfall from sedimentation pond for surface water runoff from nearby waste rock pile site into Grimes Wash drainage.

- 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 through the life of this permit, there shall be no acute or chronic toxicity in the above Outfalls as defined in *Part VII*, and determined by test procedures described in this permit.
2. Effective immediately and lasting through the life of this permit, the Permittee is authorized to discharge from the above Outfalls. Such discharges shall be limited and monitored by the Permittee as specified below:

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Parameter, Units	Effluent Limitations *a			
	Maximum Monthly Avg	Maximum Weekly Avg	Daily Minimum	Daily Maximum
Total Flow, MGD *b, *c	0.5	--	--	--
TSS, mg/L (Outfalls 001 & 003)	25	35	--	70
TSS, mg/L (Outfall 002)	20	30	--	70
Total Iron, mg/L	--	--	--	1.0
TDS, mg/L	1136	--	--	Report
TDS, lbs/day *d	--	--	--	2000
pH, Standard Units	--	--	6.5	9.0
Oil & Grease, mg/L *e	--	--	--	10.0
Temperature, °F	--	--	--	Report
Total Metals, mg/L *f	--	--	--	Report

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Monthly	Measured	MGD
TSS	Monthly	Grab	mg/L
Total Iron	Monthly	Grab	mg/L
TDS	Monthly	Grab	mg/L
TDS *d	Monthly	Grab	lbs/day
pH	Monthly	Grab	SU
Oil & Grease *e	Monthly	Visual/Grab	mg/L
Temperature	Monthly	Grab	°F
Total Metals *f	Quarterly	Grab	mg/L

- *a See Permit Definitions, *Part VII*, for definition of terms.
- *b Flow measurements of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained.
- *c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- *d No lbs/tons per day loading limit will be applied at a specific Outfall if the concentration of TDS in the discharge is equal to or less than 500 mg/L as a thirty-day average. However, if the thirty-day average TDS concentration exceeds 500 mg/L at any Outfall, then the permittee cannot discharge more than 1 ton per day (or 366 tons per year) as a sum from all discharge points exceeding 500 mg/L as a thirty-day average. If the permittee cannot achieve one ton per day (or 366 tons per year) as a sum from all applicable Outfalls, the permittee will be required to account for the excess salinity/TDS tonnage by developing a treatment process, participating in a salinity off-set program, or other type of mechanism to remove or offset the excess salinity/TDS. The selection of a salinity control program, or other type of treatment process, must be approved by the Director of the Division of Water Quality.

- *e Oil & Grease shall be sampled when sheen is present or observed. If no sheen is present or visible, then report NA. In addition to monthly monitoring for oil and grease, a visual inspection for floating solids, sanitary waste, and visible foam shall be performed monthly at all Outfalls. There shall be no sheen, floating solids, sanitary waste, or visible foam in other than trace amounts.
 - *f Starting on the effective date of this permit, the following total metals analyses shall be monitored quarterly from all discharging outfalls; Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc. The permittee is required to utilize the lowest detection limit possible using sufficiently sensitive standard test methods and certified laboratories.
3. Samples collected in compliance with the monitoring requirements specified above shall be collected at the permitted Outfalls prior to mixing with the receiving water.
 4. 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 Outfalls 001 and 003, substitute the following limitation for the TSS limitation contained in *Part I.C.*:

Effluent Characteristics	Daily Minimum	Daily Maximum
Settleable solids (SS), ml/L	NA	0.5

In addition to the monitoring requirements specified under *Part I.C.*, all effluent samples collected during storm water discharge events shall also be analyzed for settleable solids. Such analyses shall be conducted on either grab or composite samples. All other effluent limitations must be achieved concurrently as indicated in *Part I.C.*

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 outfalls 001 and 003, comply with the following limitation instead of the otherwise applicable limitations contained in *Part I.C.*:

Effluent Characteristics	Daily Minimum	Daily Maximum
pH, SU	6.5	9.0

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.* Such analyses shall be conducted on either grab or composite samples.

5. 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.* The alternate limitations in *Part I.C.4* shall not apply to treatment systems that discharge only underground mine water (i.e. Outfall 002).
- D. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge

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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. PRETREATMENT REQUIREMENTS

This section is only applicable when the permittee discharges to a POTW.

A. Definitions. For this section, the following definitions shall apply:

1. *Indirect Discharge* means the introduction of pollutants into a publicly-owned treatment works (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 NPDES 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 the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.
3. *Pass Through means* a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or 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 operation of the POTW or violating any pretreatment standard or requirement.
6. *User or Industrial User (IU)* means a source of Indirect Discharge.

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PRETREATMENT

- B. Discharge to POTW. 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. At a minimum, the discharge into a POTW must meet the requirements of Part II. D. and E. of the permit.
- C. Hazardous Waste Notification. The permittee must notify the POTW, the EPA Regional Waste Management Director, the Director and the State hazardous waste authorities in writing if they discharge any substance into a POTW that, 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).
- D. General and Specific Prohibitions.
1. General Prohibitions. The permittee may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference. These general prohibitions and the specific prohibitions in paragraph 2. of this section apply to the introducing pollutants into a POTW whether or not the permittee is subject to other National Pretreatment Standards or any national, State, or local Pretreatment Requirements.
 2. Specific Prohibitions. The following pollutants shall not be introduced into a POTW:
 - a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, waste-streams with a closed cup flashpoint of less than 140°F (60°C);
 - b. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;
 - c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference;
 - d. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at such volume or strength as to cause Interference in the POTW;
 - e. Heat in amounts, which will inhibit biological activity in the POTW, resulting in Interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104°F (40°C));
 - f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through;
 - g. Pollutants, which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems;
 - h. Any trucked or hauled pollutants, except at discharge points designated by the POTW;
or
 - i. Any pollutant that causes Pass Through or Interference at the POTW.
 - j. Any specific pollutant which exceeds any Local Limitation established by the POTW.
- E. Categorical Standards. In addition to the general and specific limitations expressed in *Part II. D.* of this section, applicable National Categorical Pretreatment Standards must be met by all Industrial Users discharging into a POTW. These standards are published in the federal regulations at *40 CFR 405 through 471.*

PART III
STORM WATER PERMITS

III. STORM WATER REQUIREMENTS.

- A. Industrial Storm Water Permit. Based on the type of past industrial activities at the facility, the permittee may be required to maintain separate coverage or an appropriate exclusion under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility has not already determined if separate MSGP coverage is required, the permittee has 30 days from when this permit is issued 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 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*, *UAC R317-8-4.1(10)(d)*, and/or *40 CFR 503* utilizing sufficiently sensitive test methods unless other test procedures have been specified in this permit. Monitoring must be conducted according to the test procedures listed above unless another method is required under 40 CFR subchapters N or O. Sufficiently sensitive test method means: (1) The method minimum level (ML) is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or (2) The method has the lowest ML of the analytical methods approved under *40 CFR part 136* or required under *40 CFR chapter I, subchapter N or O* for the measured pollutant or pollutant parameter as per *40 CFR 122.44(i)(1)(iv)(A)*.
- 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 Permit Part IV.B., the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR form.
- 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, 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

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circumstances. The report shall be made to the Division of Water Quality (DWQ) via the 24-hour answering service (801) 536-4123.

2. The following occurrences of noncompliance shall initially be reported by telephone to the DWQ via the 24-hour answering service 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.*); or,
 - d. Violation of a daily discharge limitation for any of the pollutants listed in the permit. For other permit violations which will not endanger health or the environment, DWQ may otherwise be notified during business hours (801) 536-4300.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part IV.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but

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not limited to, 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; 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.

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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. Except as provided at *Part V.G, Bypass of Treatment Facilities* and *Part V.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.
- 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;

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- (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 *Parts 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.
 - 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 V.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.

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

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- b. One milligram per liter (1 mg/L) for antimony:
- c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(9)*; or,
- d. The level established by the Director in accordance with *UAC R317-8-4.2(6)*.

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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:
1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 122.29(b); or
 2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit nor to notification requirements under Subsection R317-8-4.1(15).
 3. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. 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. 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.
 - (1) For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - (a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or
 - (b) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - (2) For a partnership or sole proprietorship. By a general partner or the proprietor, respectively; or
 - (3) For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
 - (a) The chief executive officer of the agency, or
 - (b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
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.
 3. Changes to authorization. If an authorization under *paragraph 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 *paragraph 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

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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 the Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
 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 Sections 19-5-117 and 510 of the Clean Water Act or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.

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- 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.
- P. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include WET testing, a WET limitation, a compliance schedule, a compliance date, additional or modified numerical limitations, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit.

VII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
6. "Chronic toxicity" occurs when the IC₂₅ < 100% effluent. The 100% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.
7. "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.
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:
 - 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;

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- 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 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. “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.
16. “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.

**FACT SHEET AND STATEMENT OF BASIS
FOSSIL ROCK RESOURCES, LLC – FOSSIL ROCK MINE
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES)
DISCHARGE RENEWAL PERMIT
UPDES PERMIT NUMBER: UT0023728
MINOR INDUSTRIAL FACILITY**

FACILITY CONTACTS

Person Name: Ryan Wilson
Position: Manager of Land and Regulatory Affairs

Person Name: Vicky Miller
Position: Environmental Engineer & Signatory Authority

Phone Number: 970-852-0110

Permittee: Fossil Rock Resources, LLC
Facility Name: Fossil Rock Mine

Mailing Address: 9815 South Monroe Street
Sandy, Utah 84070

Facility Location: ~10 miles northwest of Orangeville, Utah

DESCRIPTION OF FACILITY

Fossil Rock Resources, LLC – Fossil Rock Mine (Mine) is an inactive underground coal mine facility with standard industrial classification (SIC) code 1222 for bituminous coal underground mining. The Mine ceased operations in 2001, with the Mine portals having since been sealed and with no active mining activity since that time. There are currently three permitted discharge outfalls, none of which have reported any discharges in many years while the Mine has remained inactive and idled. Any discharges from Outfall 001 would be from an onsite sedimentation pond for collecting surface water runoff from precipitation and snowmelt events at the Mine facility, while any discharges from Outfall 002 would be from active Mine dewatering operations. Discharges from Outfall 003 would be from a sedimentation pond that collects surface water runoff from precipitation and snowmelt events at the Mine’s nearby waste rock site. This permit renewal will once again authorize any potential future discharges from the Mine during the next five years as appropriate.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

There are three proposed changes with this permit renewal. The first change is regarding the Stormwater permit provisions, which have been removed as part of a Division of Water Quality (DWQ) programmatic separation of the previously combined UPDES permits. The Mine may 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 **STORMWATER** section of this Fact Sheet.

The second permit change is the additional field monitoring for temperature to be conducted and reported monthly, along with the existing monitoring requirements. Temperature monitoring is now included to

provide additional water quality data in support of any potential future Total Maximum Daily Load (TMDL) study to address an impairment for the receiving waters within the watershed. See the **TOTAL MAXIMUM DAILY LOAD REQUIREMENTS** section of this Fact Sheet for more information.

The third permit change is the addition of total metals monitoring to be conducted and reported quarterly along with the existing monitoring requirements. Total metals monitoring for arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver and zinc are now being included to provide additional and more current water quality data upon future startup of the Mine and dewatering discharges so that a Reasonable Potential analysis can be conducted to confirm the absence or presence of the metals parameters in the discharge as appropriate. See the **Reasonable Potential Analysis** section of this Fact Sheet for more information.

All other permit conditions remain unchanged.

DISCHARGE INFORMATION

DESCRIPTION OF DISCHARGE

The Mine site is inactive, with no reported discharges in many years. The Mine has been reporting self-monitoring results on Discharge Monitoring Reports through NetDMR on a monthly basis as appropriate. There have been no permit violations during the previous 5-year permit cycle.

<u>Outfall</u>	<u>Description of Discharge Points</u>
001	Located at latitude 39° 19' 00" and longitude 111° 11' 20". Outfall from sedimentation pond for surface water runoff from the mine site into Cottonwood Canyon Creek drainage.
002	Located at latitude 39° 19' 03" and longitude 111° 11' 25". Outfall for mine water discharges from mine portals into Cottonwood Canyon Creek drainage.
003	Located at latitude 39° 17' 43" and longitude 111° 7' 18". Outfall from sedimentation pond for surface water runoff from nearby waste rock pile site into Grimes Wash drainage.

RECEIVING WATERS AND STREAM CLASSIFICATION

Discharges through Outfalls 001 & 002 are to Cottonwood Canyon Creek Drainage, which then flows into Cottonwood Creek. Discharges through Outfall 003 are to Grimes Wash, which is an intermittent tributary of Cottonwood Creek. Cottonwood Creek is classified as follows according to Utah Administrative Code (UAC) R317-2-13:

- Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
- Class 2B -- Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily

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

Class 3A -- Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

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

TOTAL MAXIMUM DAILY LOAD REQUIREMENTS

According to the DWQ 2022 Integrated Report and 303(d) Assessment, Cottonwood Creek Upper (Cottonwood Creek and tributaries from USFS boundary to headwaters and Joes Valley Reservoir, UT14060009-007_00) is listed as impaired for pH (1C, 2B and 3A use classes), temperature (3A use class), and total dissolved solids (TDS) (4 use class). Since temperature monitoring has not been included in previous permits, it has now been added to provide additional water quality data in support of any future TMDL study to address the impairment. The parameters of concern remain the same as the previous permit with the addition of the temperature monitoring.

A TMDL study addressing the TDS impairment for the San Rafael River and tributaries was completed as part of the West Colorado River Watershed TMDL in 2004. As part of the TMDL study, site specific standards were developed for several stream segments in the watershed. A site-specific standard of 3,500 mg/l TDS was developed for Cottonwood Creek (and has since been incorporated into the Utah Water Quality Standards) from the confluence with Huntington Creek to Highway 57. The Fossil Rock Mine (formerly known as the 'Trail Mountain Mine') discharges to Cottonwood Canyon Creek approximately 8 miles above this stream segment. The TMDL included a TDS permit limit of 1,136 mg/l for the 'Trail Mountain Mine' in order to be protective of downstream uses. For more detailed information, the approved TMDL study 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 Title 40 of Code of Federal Regulations (40 CFR) Part 122.44 and in UAC R317-8-4.2, effluent limitations are derived from technology-based effluent limitation guidelines, Utah Secondary Treatment Standards (UAC R317-1-3.2) or Utah Water Quality Standards (UAC R317-2-14) as applicable. 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 or BPJ, refers to a discretionary, best professional decision made by the permit writer based upon 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 (WQS), including any applicable 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 existing discharge operations. 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 information are included as attachments to this Fact Sheet.

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

1. Effluent limitations for pH are derived from current Utah WQS found in UAC R317-2-14.
2. Total Suspended Solids (TSS) effluent limitations remain unchanged. The TSS daily maximum effluent limitation is carried over from the previous permit and is applicable to all Outfalls as derived from technology-based effluent limitations found in 40 CFR Part 434.45 for coal mine facilities defined with an alkaline mine drainage. The TSS monthly and weekly average effluent limitations for all Outfalls are also carried over from the previous permit requirements and are based upon both Utah Secondary Treatment Standards as well as a Level II ADR that was previously completed and approved by DWQ in 2013, which included the more restrictive TSS limitations for mine water discharges via Outfall 002 than from either the applicable 40 CFR requirements, or the effluent limitations previously derived from Utah Secondary Treatment Standards. Therefore, the more stringent TSS limitations as a result of the previous ADR will apply once again for Outfall 002 based upon BPJ of the permitting authority, especially since the Mine discharges to the same location and stream segment as the adjacent PacifiCorp Wilberg Mine (UPDES Permit No. UT0022896) in order to be consistent with mine water discharges in both permits and to be protective of the downstream water uses.

A 2020 rule change in UAC R317-1-3 clarified that Utah Secondary Treatment Standards for both TSS and biochemical oxygen demand are not applicable for Non-Publicly Owned Treatment Works (POTW) facilities. 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 automatically apply as in previous industrial permits. However, the TSS effluent limitations remain unchanged in this permit based upon BPJ of the permitting authority, as well as a request from the Mine to maintain the current TSS limitations, to be consistent with previous permits.

3. The total iron limitation is based upon the Utah WQS of 1.0 mg/L for dissolved iron (UAC R317-2 Table 2.14.2) and will once again be included in this renewal permit as 1.0 mg/L for total iron. Total iron includes the dissolved iron component and is therefore considered a more protective permit provision and is consistent with other coal mine permits in Utah.
4. The oil & grease limitation is based on BPJ of the permitting authority and is consistent with other industrial permits in Utah.
5. TDS limitations are based upon the existing TMDL for effluent concentration values as mentioned previously, and are also based the Colorado River Basin Salinity Control Forum (CRBSCF) for mass loading values as authorized in UAC R317-2-4 to further control salinity in the Utah portion of the Colorado River Basin. Regarding TDS loading, the CRBSCF Policy entitled "NPDES Permit Program Policy for Implementation of Colorado River Salinity Standards" (Policy), with the most current version dated October 2023, requires the TDS loading limitation of one-ton (or 2000 lbs) per day, or 366 tons per year as a sum from all discharge points, unless the average concentration of TDS is 500 mg/L or less. If the concentration of TDS at any Outfall is less than or equal to 500 mg/L as a thirty-day average, then no loading limit applies for that Outfall. The one-ton per day (or 366 tons per year) loading limit applies only to those Outfalls exceeding 500 mg/L as a thirty-day average. Those Outfalls exceeding 500 mg/L as a thirty-day average, collectively, need to meet the one-ton (2000 lbs) per day, or 366 tons per year limit. If one-ton (2000 lbs) per day, or 366 tons per year TDS cannot be achieved, then the permittee will be required to remove salinity/TDS in excess of one-ton (2000 lbs) per day, or 366 tons per year by developing a treatment process, participating in a salinity off-set program, or developing some type of

mechanism to remove the salinity/TDS. The selection of a salinity control program must be approved by the Director of DWQ.

6. The effluent flow limitation remains unchanged and is based upon the design flow of the discharging outfalls provided previously by the Mine as included in the permit application information.
7. There are other technology-based effluent limits included in the permit as well for Outfalls 001 & 003 as appropriate. 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. The mine has the burden of proof that the described runoff events occurred.

For runoff events (rainfall or snowmelt) less than or equal to a 10-year 24-hour precipitation event, settleable solids shall 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.

Any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) may comply with the existing pH limitations instead of the otherwise applicable limitations.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this Permit renewal was conducted following DWQ’s September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance) with outcomes as defined in the RP Guidance that provide a frame work for what routine monitoring or effluent limitations are required.

A formal RP analysis for this permit renewal was not conducted because there has been a lack of discharge data from the Mine, which currently remains inactive. Because the Mine has not discharged in over 20 years, as well as not having additional metals monitoring requirements in the permit previously, there is insufficient data to perform RP for this permit renewal. As a result, monitoring for the appropriate metals parameters will now be included in the permit renewal in addition to the existing monitoring requirements. Starting on the effective date of this permit, the following additional total metals analyses shall be monitored quarterly from all discharging outfalls; Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc. The additional metals monitoring will help establish a record of presence or absence of each parameter and will allow for RP to be conducted in the future once at least ten data points are collected. If the Mine begins operating and discharging regularly, a qualitative RP analysis can then be performed on subsequent permit renewals as appropriate.

The Mine is once again expected to be able to meet the permit limitations as follows:

Parameter, Units	Effluent Limitations *a			
	Maximum Monthly Avg	Maximum Weekly Avg	Daily Minimum	Daily Maximum
Total Flow, MGD *b, *c	0.5	--	--	--
TSS, mg/L (Outfalls 001 & 003)	25	35	--	70
TSS, mg/L (Outfall 002)	20	30	--	70
Total Iron, mg/L	--	--	--	1.0

TDS, mg/L	1136	--	--	Report
TDS, lbs/day *d	--	--	--	2000
pH, Standard Units	--	--	6.5	9.0
Oil & Grease, mg/L *e	--	--	--	10.0
Temperature, °F	--	--	--	Report
Total Metals, mg/L *f	--	--	--	Report

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the same as in the previous permit, with the addition of temperature and total metals monitoring, as mentioned previously. The sampling frequency is based on the Mine being a minor industrial permit with a maximum design effluent flow of <1 MGD and is consistent with other similar coal mine UPDES permits. The permit will once again require self-monitoring reports to be submitted monthly on Discharge Monitoring Report (DMR) forms via NetDMR 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.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Monthly	Measured	MGD
TSS	Monthly	Grab	mg/L
Total Iron	Monthly	Grab	mg/L
TDS	Monthly	Grab	mg/L
TDS *d	Monthly	Grab	lbs/day
pH	Monthly	Grab	SU
Oil & Grease *e	Monthly	Visual/Grab	mg/L
Temperature	Monthly	Grab	°F
Total Metals *f	Quarterly	Grab	mg/L

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

*b Flow measurements of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained.

*c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.

*d No lbs/tons per day loading limit will be applied at a specific Outfall if the concentration of TDS in the discharge is equal to or less than 500 mg/L as a thirty-day average. However, if the thirty-day average TDS concentration exceeds 500 mg/L at any Outfall, then the permittee cannot discharge more than 1 ton per day (or 366 tons per year) as a sum from all discharge points exceeding 500 mg/L as a thirty-day average. If the permittee cannot achieve one ton per day (or 366 tons per year) as a sum from all applicable Outfalls, the permittee will be required to account for the excess salinity/TDS tonnage by developing a treatment process, participating in a salinity off-set program, or other type of mechanism to remove or offset the excess salinity/TDS. The selection of a salinity control program, or

other type of treatment process, must be approved by the Director of the Division of Water Quality.

- *e Oil & Grease shall be sampled when sheen is present or observed. If no sheen is present or visible, then report NA. In addition to monthly monitoring for oil and grease, a visual inspection for floating solids, sanitary waste, and visible foam shall be performed monthly at all Outfalls. There shall be no sheen, floating solids, sanitary waste, or visible foam in other than trace amounts.
- *f Starting on the effective date of this permit, the following total metals analyses shall be monitored quarterly from all discharging outfalls; Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver and Zinc. The permittee is required to utilize the lowest detection limit possible using sufficiently sensitive standard test methods and certified laboratories.

STORMWATER

Previously, stormwater discharge requirements and coverage were combined in this individual permit. These have now been separated to provide consistency among permittees, electronic reporting for storm water discharge monitoring reports, and increased flexibility to changing site conditions. Permit coverage under the Multi Sector General Permit (MSGP) for Storm Water Discharges from Industrial Activities may still be required based on the Standard Industrial Classification (SIC) code for the facility and the types of industrial activities occurring, if any. If the facility has not already determined if separate MSGP coverage is required, it has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

Permit coverage under the Construction General Storm Water Permit (CGP) is required for any construction at the facility which disturb an acre or more, 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

The Mine does not discharge process wastewater to a Publicly Owned Treatment Works (POTW). Any process wastewater that the Mine may discharge to a POTW, 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 Mine shall comply with all applicable federal general pretreatment regulations promulgated, found in 40 CFR 403, the pretreatment requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the POTW accepting the waste.

In addition, in accordance with 40 CFR 403.12(p)(1), the Mine must notify the POTW, the EPA Regional Waste Management Director, the DWQ Director and the State hazardous waste authorities in writing if the Mine discharges any substance into a POTW that 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 (WET Policy). Authority to require effluent biomonitoring is provided in Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317 -2-7.2.

The permittee is categorized as a minor industrial facility that has not discharged in over 20 years. If discharges were to occur in the future, it would be to an intermittent stream that typically has no upstream flows for most of the year and in which discharge toxicity is neither an existing concern, nor likely to be present based on previous monitoring data that includes WET testing from when the Mine was active many years ago. Based on these considerations and following the WET Policy, there is no reasonable potential for toxicity in the permittee's discharge. As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the permit will contain a toxicity limitation re-opener provision that allows for modification of the permit at any time in the future should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

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

Drafted & Reviewed by
Jeff Studenka, Discharge Permit Writer & Colorado River Basin Salinity Control
Lonnie Shull, Biomonitoring
Jordan Bryant, Stormwater
Jen Robinson, Pretreatment
Amy Dickey, Watershed Protection/TMDL
Suzan Tahir, Wasteload Analysis & ADR
Utah Division of Water Quality (801) 536-4300
February 1, 2024

PUBLIC NOTICE INFORMATION (updated March 26, 2024)

Began: February 22, 2024
Ended: March 25, 2024

The Public Notice of the draft permit was published on the Division of Water Quality website for at least 30 days as required.

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

ADDENDUM TO FSSOB

During finalization of the Permit certain dates, spelling edits and minor language corrections were completed. Due to the nature of these changes they were not considered Major and the permit is not required to be re Public Noticed.

ATTACHMENTS (1): I. Wasteload Analysis and Antidegradation Review Information

DWQ-2023-200101

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ATTACHMENT 1

*Wasteload Analysis and
Antidegradation Review Information
(DWQ-2023-123764 & DWQ-2023-123775)*

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Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

4-Sep-23
4:00 PM

Facilities: Fossil Rock Mine
Discharging to: Cottonwood Canyon Creek

UPDES No: UT-0023728

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

Cottonwood Canyon Creek:	1C, 2B, 3A, 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)	6.50 mg/l (30 Day Average) 9.50 mg/l (7Day Average) 8.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

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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**	0.363 lbs/day	750.00	ug/l	3.133 lbs/day
Arsenic	190.00 ug/l	0.794 lbs/day	340.00	ug/l	1.420 lbs/day
Cadmium	0.76 ug/l	0.003 lbs/day	8.73	ug/l	0.036 lbs/day
Chromium III	268.15 ug/l	1.120 lbs/day	5610.19	ug/l	23.435 lbs/day
ChromiumVI	11.00 ug/l	0.046 lbs/day	16.00	ug/l	0.067 lbs/day
Copper	30.49 ug/l	0.127 lbs/day	51.67	ug/l	0.216 lbs/day
Iron			1000.00	ug/l	4.177 lbs/day
Lead	18.57 ug/l	0.078 lbs/day	476.62	ug/l	1.991 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.010 lbs/day
Nickel	168.49 ug/l	0.704 lbs/day	1515.50	ug/l	6.331 lbs/day
Selenium	4.60 ug/l	0.019 lbs/day	20.00	ug/l	0.084 lbs/day
Silver	N/A ug/l	N/A lbs/day	41.05	ug/l	0.171 lbs/day
Zinc	387.72 ug/l	1.620 lbs/day	387.72	ug/l	1.620 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 399.87 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	0.006 lbs/day
Chlordane	0.004 ug/l	0.018 lbs/day	1.200	ug/l	0.005 lbs/day
DDT, DDE	0.001 ug/l	0.004 lbs/day	0.550	ug/l	0.002 lbs/day
Dieldrin	0.002 ug/l	0.008 lbs/day	1.250	ug/l	0.005 lbs/day
Endosulfan	0.056 ug/l	0.234 lbs/day	0.110	ug/l	0.000 lbs/day
Endrin	0.002 ug/l	0.010 lbs/day	0.090	ug/l	0.000 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.016 lbs/day	0.260	ug/l	0.001 lbs/day
Lindane	0.080 ug/l	0.334 lbs/day	1.000	ug/l	0.004 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	0.058 lbs/day	2.000	ug/l	0.008 lbs/day
Pentachlorophenol	13.00 ug/l	54.269 lbs/day	20.000	ug/l	0.084 lbs/day
Toxephene	0.0002 ug/l	0.001 lbs/day	0.7300	ug/l	0.003 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	4.175 lbs/day
Cadmium			10.0 ug/l	0.02 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	2.51 tons/day

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

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Metals				
Arsenic			50.0 ug/l	0.209 lbs/day
Barium			1000.0 ug/l	4.175 lbs/day
Cadmium			10.0 ug/l	0.042 lbs/day
Chromium			50.0 ug/l	0.209 lbs/day
Lead			50.0 ug/l	0.209 lbs/day
Mercury			2.0 ug/l	0.008 lbs/day
Selenium			10.0 ug/l	0.042 lbs/day
Silver			50.0 ug/l	0.209 lbs/day
Fluoride (3)			1.4 ug/l	0.006 lbs/day
to			2.4 ug/l	0.010 lbs/day
Nitrates as N			10.0 ug/l	0.042 lbs/day
Chlorophenoxy Herbicides				
2,4-D			100.0 ug/l	0.417 lbs/day
2,4,5-TP			10.0 ug/l	0.042 lbs/day
Endrin			0.2 ug/l	0.001 lbs/day
clohexane (Lindane)			4.0 ug/l	0.017 lbs/day
Methoxychlor			100.0 ug/l	0.417 lbs/day
Toxaphene			5.0 ug/l	0.021 lbs/day

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

	Maximum Conc., ug/l - Acute Standards			
	Class 1C [2 Liters/Day for 70 Kg Person over 70 Yr.]		Class 3A, 3B [6.5 g for 70 Kg Person over 70 Yr.]	
Toxic Organics				
Acenaphthene	1200.00 ug/l	5.01 lbs/day	2700.0 ug/l	11.27 lbs/day
Acrolein	320.00 ug/l	1.34 lbs/day	780.0 ug/l	3.26 lbs/day
Acrylonitrile	0.06 ug/l	0.00 lbs/day	0.7 ug/l	0.00 lbs/day
Benzene	1.20 ug/l	0.01 lbs/day	71.0 ug/l	0.30 lbs/day
Benzidine	0.00012 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	0.25 ug/l	0.00 lbs/day	4.4 ug/l	0.02 lbs/day
Chlorobenzene	680.00 ug/l	2.84 lbs/day	21000.0 ug/l	87.67 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	0.00075 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	0.38 ug/l	0.00 lbs/day	99.0 ug/l	0.41 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	1.90 ug/l	0.01 lbs/day	8.9 ug/l	0.04 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethan	0.61 ug/l	0.00 lbs/day	42.0 ug/l	0.18 lbs/day
1,1,2,2-Tetrachloroe	0.17 ug/l	0.00 lbs/day	11.0 ug/l	0.05 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) etl	0.03 ug/l	0.00 lbs/day	1.4 ug/l	0.01 lbs/day
2-Chloroethyl vinyl e	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	1700.00 ug/l	7.10 lbs/day	4300.0 ug/l	17.95 lbs/day
2,4,6-Trichlorophenc	2.10 ug/l	0.01 lbs/day	6.5 ug/l	0.03 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	5.70 ug/l	0.02 lbs/day	470.0 ug/l	1.96 lbs/day
2-Chlorophenol	120.00 ug/l	0.50 lbs/day	400.0 ug/l	1.67 lbs/day
1,2-Dichlorobenzene	2700.00 ug/l	11.27 lbs/day	17000.0 ug/l	70.97 lbs/day
1,3-Dichlorobenzene	400.00 ug/l	1.67 lbs/day	2600.0 ug/l	10.85 lbs/day
1,4-Dichlorobenzene	400.00 ug/l	1.67 lbs/day	2600.0 ug/l	10.85 lbs/day
3,3'-Dichlorobenzidir	0.04 ug/l	0.00 lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	0.06 ug/l	0.00 lbs/day	3.2 ug/l	0.01 lbs/day
1,2-trans-Dichloroett	700.00 ug/l	2.92 lbs/day	0.0 ug/l	0.00 lbs/day

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2,4-Dichlorophenol	93.00 ug/l	0.39 lbs/day	790.0 ug/l	3.30 lbs/day
1,2-Dichloropropane	0.52 ug/l	0.00 lbs/day	39.0 ug/l	0.16 lbs/day
1,3-Dichloropropylar	10.00 ug/l	0.04 lbs/day	1700.0 ug/l	7.10 lbs/day
2,4-Dimethylphenol	540.00 ug/l	2.25 lbs/day	2300.0 ug/l	9.60 lbs/day
2,4-Dinitrotoluene	0.11 ug/l	0.00 lbs/day	9.1 ug/l	0.04 lbs/day
2,6-Dinitrotoluene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazir	0.04 ug/l	0.00 lbs/day	0.5 ug/l	0.00 lbs/day
Ethylbenzene	3100.00 ug/l	12.94 lbs/day	29000.0 ug/l	121.06 lbs/day
Fluoranthene	300.00 ug/l	1.25 lbs/day	370.0 ug/l	1.54 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropy	1400.00 ug/l	5.84 lbs/day	170000.0 ug/l	7.10E+02 lbs/day
Bis(2-chloroethoxy) r	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (4.70 ug/l	0.02 lbs/day	1600.0 ug/l	6.68 lbs/day
Methyl chloride (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	4.30 ug/l	0.02 lbs/day	360.0 ug/l	1.50 lbs/day
Dichlorobromometha	0.27 ug/l	0.00 lbs/day	22.0 ug/l	0.09 lbs/day
Chlorodibromometha	0.41 ug/l	0.00 lbs/day	34.0 ug/l	0.14 lbs/day
Hexachlorobutadieni	0.44 ug/l	0.00 lbs/day	50.0 ug/l	0.21 lbs/day
Hexachlorocyclopen	240.00 ug/l	1.00 lbs/day	17000.0 ug/l	70.97 lbs/day
Isophorone	8.40 ug/l	0.04 lbs/day	600.0 ug/l	2.50 lbs/day
Naphthalene				
Nitrobenzene	17.00 ug/l	0.07 lbs/day	1900.0 ug/l	7.93 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	70.00 ug/l	0.29 lbs/day	14000.0 ug/l	58.44 lbs/day
4,6-Dinitro-o-cresol	13.00 ug/l	0.05 lbs/day	765.0 ug/l	3.19 lbs/day
N-Nitrosodimethylarr	0.00069 ug/l	0.00 lbs/day	8.1 ug/l	0.03 lbs/day
N-Nitrosodiphenylarr	5.00 ug/l	0.02 lbs/day	16.0 ug/l	0.07 lbs/day
N-Nitrosodi-n-propyl:	0.01 ug/l	0.00 lbs/day	1.4 ug/l	0.01 lbs/day
Pentachlorophenol	0.28 ug/l	0.00 lbs/day	8.2 ug/l	0.03 lbs/day
Phenol	2.10E+04 ug/l	8.77E+01 lbs/day	4.6E+06 ug/l	1.92E+04 lbs/day
Bis(2-ethylhexyl)phth	1.80 ug/l	0.01 lbs/day	5.9 ug/l	0.02 lbs/day
Butyl benzyl phthala	3000.00 ug/l	12.52 lbs/day	5200.0 ug/l	21.71 lbs/day
Di-n-butyl phthalate	2700.00 ug/l	11.27 lbs/day	12000.0 ug/l	50.09 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	23000.00 ug/l	96.01 lbs/day	120000.0 ug/l	500.95 lbs/day
Dimethyl phthlate	3.13E+05 ug/l	1.31E+03 lbs/day	2.9E+06 ug/l	1.21E+04 lbs/day
Benzo(a)anthracene	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PA	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthen	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthen	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	9600.00 ug/l	40.08 lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthrac	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyre	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	960.00 ug/l	4.01 lbs/day	11000.0 ug/l	45.92 lbs/day
Tetrachloroethylene	0.80 ug/l	0.00 lbs/day	8.9 ug/l	0.04 lbs/day
Toluene	6800.00 ug/l	28.39 lbs/day	200000 ug/l	834.91 lbs/day
Trichloroethylene	2.70 ug/l	0.01 lbs/day	81.0 ug/l	0.34 lbs/day
Vinyl chloride	2.00 ug/l	0.01 lbs/day	525.0 ug/l	2.19 lbs/day
			0.0	0.00 lbs/day
			0.0	0.00 lbs/day
Pesticides				
Aldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	0.0008 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	0.9300 ug/l	0.00 lbs/day	2.0 ug/l	0.01 lbs/day
beta-Endosulfan	0.9300 ug/l	0.00 lbs/day	2.0 ug/l	0.01 lbs/day
Endosulfan sulfate	0.9300 ug/l	0.00 lbs/day	2.0 ug/l	0.01 lbs/day
Endrin	0.7600 ug/l	0.00 lbs/day	0.8 ug/l	0.00 lbs/day
Endrin aldehyde	0.7600 ug/l	0.00 lbs/day	0.8 ug/l	0.00 lbs/day
Heptachlor	0.0002 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				

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PCB's

PCB 1242 (Arochlor	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day

Pesticide

Toxaphene	0.000750 ug/l	0.00	0.0 ug/l	0.00 lbs/day
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Dioxin

Dioxin (2,3,7,8-TCDF)	1.30E-08 ug/l	0.00 lbs/day	1.40E-08	0.00
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Metals

Antimony	14.0 ug/l	0.06 lbs/day		
Arsenic	50.0 ug/l	0.21 lbs/day	4300.00 ug/l	17.95 lbs/day
Asbestos	7.00E+06 ug/l	2.92E+04 lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	1.30E+03 ug/l	5.43 lbs/day	2.2E+05 ug/l	918.40 lbs/day
Lead	700.0 ug/l	2.92 lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	19.20 lbs/day
Selenium	0.1 ug/l	0.00 lbs/day		
Silver	610.0 ug/l	2.55 lbs/day		
Thallium			6.30 ug/l	0.03 lbs/day
Zinc				

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

VII. Mathematical Modeling of Stream Quality

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

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

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

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

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

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

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

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

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

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VIII. Modeling Information

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

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

Other Conditions

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

Model Inputs

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

Current Upstream Information

	Stream Critical								
	Low Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	mg/l
Summer (Irrig. Season)	0.00	18.0	8.2	0.10	1.00	9.81	0.00	800.0	
Fall	0.00	12.0	8.0	0.10	1.00	---	0.00	800.0	
Winter	0.00	6.0	8.0	0.10	1.00	---	0.00	800.0	
Spring	0.00	12.0	8.1	0.10	1.00	---	0.00	800.0	
Dissolved Metals	Al ug/l	As ug/l	Cd ug/l	CrIII ug/l	CrVI ug/l	Copper ug/l	Fe ug/l	Pb ug/l	
All Seasons	2.385*	0.795*	0.0795*	0.795*	3.975*	0.8*	1.25*	0.795*	
Dissolved Metals	Hg ug/l	Ni ug/l	Se ug/l	Ag ug/l	Zn ug/l	Boron ug/l			
All Seasons	0.0000	0.795*	1.59*	0.15*	0.0795*	1.59*			* ~80% MDL

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Projected Discharge Information

Season	Flow, MGD	Temp.
Summer	0.50000	11.6
Fall	0.50000	11.6
Winter	0.50000	11.6
Spring	0.50000	11.6

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

IX. Effluent Limitations

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

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

Effluent Limitation for Flow based upon Water Quality Standards

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

Season	Daily Average	
Summer	0.500 MGD	0.774 cfs
Fall	0.500 MGD	0.774 cfs
Winter	0.500 MGD	0.774 cfs
Spring	0.500 MGD	0.774 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.5 MGD. If the discharger is allowed to have a flow greater than 0.5 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

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

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

WET Requirements	LC50 >	100.0% Effluent	[Acute]
	IC25 >	99.9% 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	104.2 lbs/day
Fall	25.0 mg/l as BOD5	104.2 lbs/day
Winter	25.0 mg/l as BOD5	104.2 lbs/day
Spring	25.0 mg/l as BOD5	104.2 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	5.00
Fall	5.00
Winter	5.00
Spring	5.00

Effluent Limitation for Total Ammonia based upon Water Quality Standards

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

Season		Concentration		Load
Summer	4 Day Avg. - Chronic	4.35 mg/l as N	18.1	lbs/day
	1 Hour Avg. - Acute	11.7 mg/l as N	48.9	lbs/day
Fall	4 Day Avg. - Chronic	4.4 mg/l as N	18.1	lbs/day
	1 Hour Avg. - Acute	11.7 mg/l as N	48.9	lbs/day
Winter	4 Day Avg. - Chronic	4.4 mg/l as N	18.1	lbs/day
	1 Hour Avg. - Acute	11.7 mg/l as N	48.9	lbs/day
Spring	4 Day Avg. - Chronic	4.4 mg/l as N	18.1	lbs/day
	1 Hour Avg. - Acute	11.7 mg/l as N	48.9	lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.%.

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Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	1200.5	mg/l	2.50	tons/day
Fall	Maximum, Acute	1200.5	mg/l	2.50	tons/day
Winter	Maximum, Acute	1200.5	mg/l	2.50	tons/day
Spring	Maximum, Acute	1200.5	mg/l	2.50	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 399.87 mg/l):

	4 Day Average		1 Hour Average		
	Concentration	Load	Concentration		Load
Aluminum*	N/A	N/A	751.0	ug/l	3.1 lbs/day
Arsenic*	190.24 ug/l	0.5 lbs/day	340.4	ug/l	1.4 lbs/day
Cadmium	0.76 ug/l	0.0 lbs/day	8.7	ug/l	0.0 lbs/day
Chromium III	268.49 ug/l	0.7 lbs/day	5,617.4	ug/l	23.5 lbs/day
Chromium VI*	11.01 ug/l	0.0 lbs/day	16.0	ug/l	0.1 lbs/day
Copper	30.53 ug/l	0.1 lbs/day	51.7	ug/l	0.2 lbs/day
Iron*	N/A	N/A	774.5	ug/l	3.2 lbs/day
Lead	18.60 ug/l	0.1 lbs/day	477.2	ug/l	2.0 lbs/day
Mercury*	0.01 ug/l	0.0 lbs/day	2.4	ug/l	0.0 lbs/day
Nickel	168.71 ug/l	0.5 lbs/day	1,517.5	ug/l	6.3 lbs/day
Selenium*	4.60 ug/l	0.0 lbs/day	20.0	ug/l	0.1 lbs/day
Silver	N/A ug/l	N/A lbs/day	41.1	ug/l	0.2 lbs/day
Zinc	388.22 ug/l	1.0 lbs/day	388.2	ug/l	1.6 lbs/day
Cyanide*	5.21 ug/l	0.0 lbs/day	22.0	ug/l	0.1 lbs/day

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

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	20.0 Deg. C.	68.0 Deg. F
Fall	14.0 Deg. C.	57.2 Deg. F
Winter	8.0 Deg. C.	46.4 Deg. F
Spring	14.0 Deg. C.	57.2 Deg. F

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**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	9.69E-03 lbs/day
Chlordane	4.30E-03 ug/l	1.79E-02 lbs/day	1.2E+00	ug/l	7.75E-03 lbs/day
DDT, DDE	1.00E-03 ug/l	4.17E-03 lbs/day	5.5E-01	ug/l	3.55E-03 lbs/day
Dieldrin	1.90E-03 ug/l	7.92E-03 lbs/day	1.3E+00	ug/l	8.08E-03 lbs/day
Endosulfan	5.60E-02 ug/l	2.33E-01 lbs/day	1.1E-01	ug/l	7.11E-04 lbs/day
Endrin	2.30E-03 ug/l	9.59E-03 lbs/day	9.0E-02	ug/l	5.82E-04 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.46E-05 lbs/day
Heptachlor	3.80E-03 ug/l	1.58E-02 lbs/day	2.6E-01	ug/l	1.68E-03 lbs/day
Lindane	8.00E-02 ug/l	3.34E-01 lbs/day	1.0E+00	ug/l	6.46E-03 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	1.94E-04 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.46E-05 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	2.58E-04 lbs/day
PCB's	1.40E-02 ug/l	5.84E-02 lbs/day	2.0E+00	ug/l	1.29E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	5.42E+01 lbs/day	2.0E+01	ug/l	1.29E-01 lbs/day
Toxephene	2.00E-04 ug/l	8.34E-04 lbs/day	7.3E-01	ug/l	4.72E-03 lbs/day

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**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:

	Concentration	Maximum Concentration Load
Toxic Organics		
Acenaphthene	1.20E+03 ug/l	5.01E+00 lbs/day
Acrolein	3.20E+02 ug/l	1.34E+00 lbs/day
Acrylonitrile	5.91E-02 ug/l	2.46E-04 lbs/day
Benzene	1.20E+00 ug/l	5.01E-03 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	2.50E-01 ug/l	1.04E-03 lbs/day
Chlorobenzene	6.81E+02 ug/l	2.84E+00 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	7.51E-04 ug/l	3.13E-06 lbs/day
1,2-Dichloroethane	3.80E-01 ug/l	1.59E-03 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	1.90E+00 ug/l	7.93E-03 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	6.11E-01 ug/l	2.55E-03 lbs/day
1,1,2,2-Tetrachloroethane	1.70E-01 ug/l	7.10E-04 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	3.10E-02 ug/l	1.29E-04 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	1.70E+03 ug/l	7.10E+00 lbs/day
2,4,6-Trichlorophenol	2.10E+00 ug/l	8.77E-03 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	5.71E+00 ug/l	2.38E-02 lbs/day
2-Chlorophenol	1.20E+02 ug/l	5.01E-01 lbs/day
1,2-Dichlorobenzene	2.70E+03 ug/l	1.13E+01 lbs/day
1,3-Dichlorobenzene	4.01E+02 ug/l	1.67E+00 lbs/day
1,4-Dichlorobenzene	4.01E+02 ug/l	1.67E+00 lbs/day
3,3'-Dichlorobenzidine	4.01E-02 ug/l	1.67E-04 lbs/day
1,1-Dichloroethylene	5.71E-02 ug/l	2.38E-04 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	9.31E+01 ug/l	3.88E-01 lbs/day
1,2-Dichloropropane	5.21E-01 ug/l	2.17E-03 lbs/day
1,3-Dichloropropylene	1.00E+01 ug/l	4.17E-02 lbs/day
2,4-Dimethylphenol	5.41E+02 ug/l	2.25E+00 lbs/day
2,4-Dinitrotoluene	1.10E-01 ug/l	4.59E-04 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	4.01E-02 ug/l	1.67E-04 lbs/day
Ethylbenzene	3.10E+03 ug/l	1.29E+01 lbs/day
Fluoranthene	3.00E+02 ug/l	1.25E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	1.40E+03 ug/l	5.84E+00 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	4.71E+00 ug/l	1.96E-02 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	4.31E+00 ug/l	1.80E-02 lbs/day
Dichlorobromomethane(HM)	2.70E-01 ug/l	1.13E-03 lbs/day
Chlorodibromomethane (HM)	4.11E-01 ug/l	1.71E-03 lbs/day
Hexachlorocyclopentadiene	2.40E+02 ug/l	1.00E+00 lbs/day
Isophorone	8.41E+00 ug/l	3.51E-02 lbs/day
Naphthalene		
Nitrobenzene	1.70E+01 ug/l	7.10E-02 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	7.01E+01 ug/l	2.92E-01 lbs/day
4,6-Dinitro-o-cresol	1.30E+01 ug/l	5.43E-02 lbs/day
N-Nitrosodimethylamine	6.91E-04 ug/l	2.88E-06 lbs/day
N-Nitrosodiphenylamine	5.01E+00 ug/l	2.09E-02 lbs/day
N-Nitrosodi-n-propylamine	5.01E-03 ug/l	2.09E-05 lbs/day
Pentachlorophenol	2.80E-01 ug/l	1.17E-03 lbs/day

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Phenol	2.10E+04 ug/l	8.77E+01 lbs/day
Bis(2-ethylhexyl)phthalate	1.80E+00 ug/l	7.51E-03 lbs/day
Butyl benzyl phthalate	3.00E+03 ug/l	1.25E+01 lbs/day
Di-n-butyl phthalate	2.70E+03 ug/l	1.13E+01 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	2.30E+04 ug/l	9.60E+01 lbs/day
Dimethyl phthlate	3.13E+05 ug/l	1.31E+03 lbs/day
Benzo(a)anthracene (PAH)	2.80E-03 ug/l	1.17E-05 lbs/day
Benzo(a)pyrene (PAH)	2.80E-03 ug/l	1.17E-05 lbs/day
Benzo(b)fluoranthene (PAH)	2.80E-03 ug/l	1.17E-05 lbs/day
Benzo(k)fluoranthene (PAH)	2.80E-03 ug/l	1.17E-05 lbs/day
Chrysene (PAH)	2.80E-03 ug/l	1.17E-05 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	2.80E-03 ug/l	1.17E-05 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	2.80E-03 ug/l	1.17E-05 lbs/day
Pyrene (PAH)	9.61E+02 ug/l	4.01E+00 lbs/day
Tetrachloroethylene	8.01E-01 ug/l	3.34E-03 lbs/day
Toluene	6.81E+03 ug/l	2.84E+01 lbs/day
Trichloroethylene	2.70E+00 ug/l	1.13E-02 lbs/day
Vinyl chloride	2.00E+00 ug/l	8.35E-03 lbs/day
Pesticides		
Aldrin	1.30E-04 ug/l	5.43E-07 lbs/day
Dieldrin	1.40E-04 ug/l	5.84E-07 lbs/day
Chlordane	5.71E-04 ug/l	2.38E-06 lbs/day
4,4'-DDT	5.91E-04 ug/l	2.46E-06 lbs/day
4,4'-DDE	5.91E-04 ug/l	2.46E-06 lbs/day
4,4'-DDD	8.31E-04 ug/l	3.46E-06 lbs/day
alpha-Endosulfan	9.31E-01 ug/l	3.88E-03 lbs/day
beta-Endosulfan	9.31E-01 ug/l	3.88E-03 lbs/day
Endosulfan sulfate	9.31E-01 ug/l	3.88E-03 lbs/day
Endrin	7.61E-01 ug/l	3.17E-03 lbs/day
Endrin aldehyde	7.61E-01 ug/l	3.17E-03 lbs/day
Heptachlor	2.10E-04 ug/l	8.77E-07 lbs/day
Heptachlor epoxide		
PCB's		
PCB 1242 (Arochlor 1242)	4.41E-05 ug/l	1.84E-07 lbs/day
PCB-1254 (Arochlor 1254)	4.41E-05 ug/l	1.84E-07 lbs/day
PCB-1221 (Arochlor 1221)	4.41E-05 ug/l	1.84E-07 lbs/day
PCB-1232 (Arochlor 1232)	4.41E-05 ug/l	1.84E-07 lbs/day
PCB-1248 (Arochlor 1248)	4.41E-05 ug/l	1.84E-07 lbs/day
PCB-1260 (Arochlor 1260)	4.41E-05 ug/l	1.84E-07 lbs/day
PCB-1016 (Arochlor 1016)	4.41E-05 ug/l	1.84E-07 lbs/day
Pesticide		
Toxaphene	7.31E-04 ug/l	3.05E-06 lbs/day

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Metals

Antimony	14.02 ug/l	0.06 lbs/day
Arsenic	50.06 ug/l	0.21 lbs/day
Asbestos	7.01E+06 ug/l	2.92E+04 lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	1301.68 ug/l	5.43 lbs/day
Cyanide	700.90 ug/l	2.92 lbs/day
Lead	0.00	0.00
Mercury	0.14 ug/l	0.00 lbs/day
Nickel	610.79 ug/l	2.55 lbs/day
Selenium	0.00	0.00
Silver	0.00	0.00
Thallium	1.70 ug/l	0.01 lbs/day
Zinc		

Dioxin

Dioxin (2,3,7,8-TCDD)	1.30E-08 ug/l	5.43E-11 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		751.0				751.0	N/A
Antimony			14.0	4305.6		14.0	
Arsenic	100.1	340.4	50.1			50.1	190.2
Barium					1001.3	1001.3	
Beryllium						0.0	
Cadmium	10.0	8.7				8.7	0.8
Chromium (III)		5617.4				5617.4	268.5
Chromium (VI)	100.1	16.0				16.02	11.01
Copper	200.3	51.7	1301.7			51.7	30.5
Cyanide			220284.4			22.0	5.2
Iron		774.5				774.5	
Lead	100.1	477.2				100.1	18.6
Mercury		2.40	0.1	0.15		0.14	0.012
Nickel		1517.5	610.8	4605.9		610.8	168.7
Selenium	50.1	20.0				20.0	4.6
Silver		41.1				41.1	
Thallium			1.7	6.3		1.7	
Zinc		388.2				388.2	388.2
Boron	751.0					751.0	
Sulfate	2002.1					2002.1	

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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	751.0	N/A	
Antimony	14.02		
Arsenic	50.1	190.2	Acute Controls
Asbestos	7.01E+06		
Barium			
Beryllium			
Cadmium	8.7	0.8	
Chromium (III)	5617.4	268	
Chromium (VI)	16.0	11.0	
Copper	51.7	30.5	
Cyanide	22.0	5.2	
Iron	774.5		
Lead	100.1	18.6	
Mercury	0.140	0.012	
Nickel	610.8	169	
Selenium	20.0	4.6	
Silver	41.1	N/A	
Thallium	1.7		
Zinc	388.2	388.2	
Boron	750.97		
Sulfate	2002.1		N/A at this Waterbody

Other Effluent Limitations are based upon R317-1.

E. coli	126.0 organisms per 100 ml
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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.

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. The proposed permit is a simple renewal with no increase in flow or concentrations.

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.

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Statement of Basis
ADDENDUM
Wasteload Analysis and Antidegradation Level I Review**

Date: September 21, 2023

Prepared by: Suzan Tahir
Standards and Technical Services Section

Facility: Fossil Rock Mine - Fossil Rock Resources, LLC
(Previously known as Trail Mountain Mine)
UPDES No. UT0023728

Receiving water: Cottonwood Canyon Creek (1C, 2B, 3A, 4)

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also considers 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

Outfall 001 Sedimentation Pond (on-site)
Outfall 002 Mine water discharge (on-site)
Outfall 003 Sedimentation Pond (off-site waste rock location)

Effluent Design Flow **0.5 MGD** (as provide by the permittee)

Receiving Water

The receiving water for Outfalls 001 and 002 is Cottonwood Canyon Creek, an intermittent tributary of Cottonwood Creek. The receiving water for outfall 003 is Grimes Wash, an intermittent tributary of Cottonwood Creek.

Per UAC R317-2-13.1(b), the designated beneficial uses for Cottonwood Creek and tributaries from Highway U-57 crossing to headwaters are:

- *Class 1C - Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water*
- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low*

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

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

Flow

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). Cottonwood Canyon Creek is an intermittent stream that has no flow for large parts of the year. As a result, the annual critical low flow was determined to be zero. As a result, water quality based effluent limits revert to end-of-pipe water quality standards.

Cottonwood Canyon Creek and Grimes Wash water quality inputs were estimated due to a lack of available data.

TMDL

According to DWQ's 2022 Integrated Report and 303(d) Assessment, Cottonwood Creek Upper (Cottonwood Creek and tributaries from USFS boundary to headwaters and Joes Valley Reservoir, UT14060009-007_00) is listed as impaired for pH (1C, 2B and 3A use classes), temperature (3A), and total dissolved solids (TDS) (4).

A Total Maximum Daily Load (TMDL) addressing the TDS impairment for the San Rafael River and tributaries was completed as part of the West Colorado River Watershed TMDL in August of 2004. As part of the TMDL, site specific standards were developed for several stream segments in the watershed. A site-specific standard of 3,500 mg/l TDS was developed for Cottonwood Creek (and has since been incorporated into the Utah Water Quality Standards) from the confluence with Huntington Creek to Highway 57.

The Fossil Rock Mine (formerly known as the 'Trail Mountain Mine'), as well as the Cottonwood-Wilberg reclaimed mine site (UPDES Permit No. UT0022896), discharge to Cottonwood Creek approximately 8 miles above this stream segment. The TMDL indicated a TDS permit limit of 1,136 mg/l for the 'Trail Mountain Mine' facility in order to be protective of downstream uses.

Protection of Downstream Uses

Per UAC R317-2-8, *all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.* For this discharge, 3A numeric aquatic life use criteria apply to the immediate receiving water (Huntington Creek).

Mixing Zone

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

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

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were TDS, pH, temperature and total iron based on review of the past permit and the impairment status of the receiving water. Additional parameters of concern may become apparent as a result of reasonable potential analysis, technology-based standards, or other factors as determined by the UPDES Permit Writer.

WET Limits

The percentage 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.

Because the critical low flow of the receiving water was determined to be zero, WET limits for Outfall 001 for IC₂₅ 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 Appendix A.

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).

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, with no increase in flow or concentration over that which was approved in the existing permit.

Documents:

WLA Document : FossilRockMine_WLADoc_9-2-23.docx
Wasteload Analysis: FossilRockMine_WLADoc_2023.xlsm

References:

Utah Division of Water Quality. 2022. *Final 2022 Integrated Report on Water Quality*

Utah Division of Water Quality. 2021. *Utah Wasteload Analysis Procedures Version 2.0.*

Utah Division of Water Quality. 2004. *Price River, San Rafael River, and Muddy Creek TMDLs for Total Dissolved Solids, West Colorado Management Unit.*

Lewis, B., J. Saunders, and M. Murphy. 2002. *Ammonia Toxicity Model (AMMTOX, Version2): A Tool for Determining Effluent Ammonia Limits.* University of Colorado, Center for Limnology.