

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. **UT0025968**

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

CITY OF BLUFFDALE

is hereby authorized to discharge from its facility

BLUFFDALE COOLING WATER

located at 14175 South Redwood Road, Bluffdale, Utah,

with the Outfall 001 located at latitude 40°26' and longitude 111°55'. to receiving waters named

JORDAN RIVER

And the Outfall 002 located at latitude 40°26' and longitude 111°55'. to receiving waters named

UTAH AND SALT LAKE CANAL

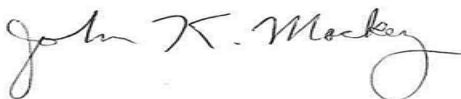
and to distribute effluent for reuse,

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

This permit shall become effective on March 01, 2023.

This permit expires at midnight on November 30, 2027.

Signed this seventh day of February, 2023.



John K. Mackey, P.E.
Director

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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 Numbers</u>	<u>Description and Location of Discharge Outfalls</u>
001	Located at latitude 40°26'35" and longitude 111°55'22". The discharge is through a 10" pipe to the Jordan River.
002	Located at latitude 40°26'35" and longitude 111°55'22". The discharge is through a 10" pipe to the Utah and Salt Lake Canal.
<u>Reuse Outfall Number</u>	<u>Location of Effluent Reuse Discharge Outfall and Description of Area for Use</u>
003R	Located at latitude 40°26'33" and longitude 111°55'58". The discharge is through a 16" pipe to the reservoir for the Bluffdale pressurized irrigation system.

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 Outfalls 001, 002 as defined in *Part VIII* of this permit.
2.
 - a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

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Effluent Limitations for Outfall 001 (Jordan River)					
Parameter	Effluent Limitations ^{1, 2, 3,}				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD					
Winter (Jan-Mar)	-	-	-	-	0.34 ⁴
Spring (Apr-Jun)	-	-	-	-	-
Summer (Jul-Sep)	-	-	-	-	-
Fall (Oct-Dec)	-	-	-	-	0.34 ⁴
Temperature, °F					
Winter (Jan-Mar)	-	-	-	-	65
Spring (Apr-Jun)	-	-	-	-	-
Summer (Jul-Sep)	-	-	-	-	-
Fall (Oct-Dec)	-	-	-	-	65
TRC, mg/L					
Winter (Jan-Mar)	-	-	-	-	0.16
Spring (Apr-Jun)	-	-	-	-	-
Summer (Jul-Sep)	-	-	-	-	-
Fall (Oct-Dec)	-	-	-	-	0.22
TSS, mg/L	25	35	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-
pH, Standard Units	-	-	-	6.5	9
TDS, mg/L	1200	-	-	-	-
1, See Definitions, Part VIII, for definition of terms					
2, There shall be no discharge of sanitary wastes					
3. There shall be no visible sheen or floating solids or visible foam in other than trace amounts					
4, There will be no discharge through Outfall 001 during the spring and summer (April through September).					
5, The total residual chlorine limit (TRC) is based on the acute TRC water quality standard at end-of-pipe, and is retained from the previous permit. This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved TRC methods. The Division has determined the current acceptable ML to be .06 mg/L and the method detection limit (MDL) to be 0.02 mg/L when using the DPD colorimetric Method #4500 – CL G. Measured values greater than or equal to the ML of .06 mg/l will be considered violations of the permit, and values less than the ML of .06 mg/l will be considered to be in compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:					
1) analytical values less than 0.02 mg/L shall be considered zero; and					
2) analytical values less than .06 mg/L and equal to or greater than .02 mg/L will be recorded as measured.					

Self-Monitoring and Reporting Requirements for Outfall 001 (Jordan River) ^{6,}			
Parameter	Frequency	Sample Type	Units
Total Flow ^{7, 8}	Continuous	Recorder	MGD
Temperature	Continuous	Recorder	°F
TRC, mg/L, *e, *g	Monthly	Grab	mg/L
DO	Monthly	Grab	mg/L
TDS, mg/L	Monthly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
pH	Monthly	Grab	SU
Metals, Effluent ⁹	Quarterly	Grab	mg/L
Oil & Grease	Quarterly	Grab	mg/L

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6, See Definitions, Part VIII, for definition of terms
7, Flow is not a pollutant; it is in the permit to help determine loading levels. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained
8, If the rate of discharge is controlled, the rate and duration of discharge shall be reported
9, A more sensitive analysis method must be used for analysis of mercury samples. The monitoring frequency shall be based on calendar quarters.

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

Effluent Limitations for Outfall 002 (Utah and Salt Lake Canal)					
Parameter	Effluent Limitations ^{1, 2, 3,}				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD	-	-	-	-	0.34
Temperature, °F	-	-	-	-	75
TSS, mg/L	25	35	-	-	-
pH, Standard Units	-	-	-	6.5	9
TDS, mg/L	1200	-	-	-	-
1, See Definitions, Part VIII, for definition of terms					
2, There shall be no discharge of sanitary wastes					
3. There shall be no visible sheen or floating solids or visible foam in other than trace amounts					

Self-Monitoring and Reporting Requirements for Outfall 002 (Utah and Salt Lake Canal) ⁶			
Parameter	Frequency	Sample Type	Units
Total Flow, ^{7, 8}	Continuous	Recorder	MGD
Temperature	Continuous	Recorder	°F
TRC, mg/L, *e, *g	Monthly	Grab	mg/L
DO	Monthly	Grab	mg/L
TDS, mg/L	Monthly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
pH	Monthly	Grab	SU
Metals, Effluent ¹⁰	Annual	Grab	mg/L
Oil & Grease	Annual	Grab	mg/L
6, See Definitions, Part VIII, for definition of terms			
7, Flow is not a pollutant; it is in the permit to help determine loading levels. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained			
8, If the rate of discharge is controlled, the rate and duration of discharge shall be reported			
10, A more sensitive analysis method should be used for analysis of mercury samples. The monitoring frequency shall be based on calendar year.			

- c. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 003R. Such discharges shall be limited and monitored by the permittee as specified below

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Effluent Limitations for Outfall 003R (Reuse)					
Parameter	Effluent Limitations ^{1, 2, 3,}				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
pH, Standard Units	-	-	-	6.0	9.0
1, See Definitions, Part VIII, for definition of terms					
2, There shall be no discharge of sanitary wastes					
3. There shall be no visible sheen or floating solids or visible foam in other than trace amounts					

Self-Monitoring and Reporting Requirements for Outfall 003R (Reuse) ^{6, 11}			
Parameter	Frequency	Sample Type	Units
Total Flow, ^{7, 8}	Continuous	Recorder	MGD
Temperature	Continuous	Recorder	°F
TRC, mg/L, *e, *g	Monthly	Grab	mg/L
DO	Monthly	Grab	mg/L
TDS, mg/L	Monthly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
pH	Monthly	Grab	SU
Metals, Effluent ¹⁰	Annual	Grab	mg/L
Oil & Grease	Annual	Grab	mg/L
6, See Definitions, Part VIII, for definition of terms			
7, Flow is not a pollutant; it is in the permit to help determine loading levels. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.			
8, If the rate of discharge is controlled, the rate and duration of discharge shall be reported			
10, A more sensitive analysis method should be used for analysis of mercury samples. The monitoring frequency shall be based on calendar year.			
11, Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, postmarked no later than the 28th day of the month following the completed reporting period.			

3. Compliance Schedule

- a. There is no Compliance Schedule included in this renewal permit.

4. Acute/Chronic Whole Effluent Toxicity (WET) Testing.

The permittee is a minor industrial facility that will be discharging an infrequent amount of effluent, in which toxicity is neither an existing concern, nor likely to be present. Based on these considerations, there is no reasonable potential for toxicity in the permittee's discharge (per State of Utah Permitting and Enforcement Guidance Document for WET Control). 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 should additional information indicate the presence of toxicity in the discharge.

D. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1) or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period.

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The first report is due on April 28, 2023. 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 VII.G)*, and submitted by NetDMR,

2. Reporting of Reuse Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period. The first report is due on April 28, 2023. If no reuse occurs during the reporting period, “no reuse” shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of Signatory Requirements (see Part VII.G), and submitted 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

PART II
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PRETREATMENT

II. INDUSTRIAL PRETREATMENT PROGRAM

A. Definitions:

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. *Local Limit* is defined as a limit designed to prevent pass through and/or interference. And is developed in accordance with 40 CFR 403.5(c).
4. *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).
5. *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.
6. *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

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- d. Has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.

7. *User or Industrial User (IU)* means a source of Indirect Discharge
- 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, which includes although not limited to leachate. 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, 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, wastestreams 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;

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- 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*.

III. BIOSOLIDS REQUIREMENTS

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility is an industrial discharge of cooling water, there is not any sludge production.

PART IV
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STORM WATER

IV. STORM WATER REQUIREMENTS.

- A. Industrial Storm Water Permit. Based on the type of industrial activities occurring at the facility and the corresponding SIC code(s), 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 required and the facility is not already covered, 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.

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10 and 40CFR Part 503*, utilizing sufficiently sensitive test methods unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- E. Additional Monitoring by the Permittee. If the permittee monitors any parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10 and 40 CFR Part* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- F. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,
 6. The results of such analyses.
- G. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location
- H. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality 24-hour answering service (801) 536-4123.

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2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4123 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.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, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,
5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

PART VI
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VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of *the Act* and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or *the Act* is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under *The Act Section 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.
- G. Bypass of Treatment Facilities.
1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.
 2. Prohibition of Bypass.
 - a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

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- (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *Part VI.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 VI.G.2.a (1), (2) and (3)*.
3. Notice.
- a. *Anticipated bypass*. Except as provided above in *Part VI.G.2* and below in *Part VI.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 VI.G.3.a.(1) through (6)* to the extent practicable.
 - c. *Unanticipated bypass*. The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part IV.H*, Twenty-Four Hour Reporting. The permittee shall also immediately notify the Director of the Department of Natural Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

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H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,
 - d. The permittee complied with any remedial measures required under *Part VI.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.

VII. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
 - 1. All permit applications shall be signed by either a principal executive officer or ranking elected official.
 - 2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

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3. Changes to authorization. If an authorization under *paragraph VII.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 VII.G.2* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

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

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

H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.

I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.

K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
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,

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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 *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state of federal regulations.
- Q. 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.

VIII. 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. "Annual Loading Cap" is the highest allowable phosphorus loading discharged over a calendar year, calculated as the sum of all the monthly loading discharges measured during a calendar year divided by the number of monthly discharges measured during that year.
6. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
7. "Chronic toxicity" occurs when the IC₂₅< XX% effluent. The XX% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.
8. "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.
9. "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;

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- b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every “X” gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
10. “CWA” means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
11. “Daily Maximum” (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
12. “EPA,” means the United States Environmental Protection Agency.
13. “Director,” means Director of the Division of Water Quality.
14. A “grab” sample, for monitoring requirements, is defined as a single “dip and take” sample collected at a representative point in the discharge stream.
15. An “instantaneous” measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
16. “Severe Property Damage,” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
17. “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.

**Bluffdale Cooling
Water 2022 Renewal
FSSOB**

**FACT SHEET AND STATEMENT OF BASIS
BUFFDALE COOLING WATER
RENEWAL PERMIT: DISCHARGE, & REUSE
UPDES PERMIT NUMBER: UT00025968 MINOR INDUSTRIAL**

FACILITY CONTACTS

Operator Name: City of Bluffdale
Person Name: Michael Fazio
Position: City Engineer
Phone Number: (801)858-0490

Person Name: Shane Paddock
Position: Public Works Director
Phone Number: (801) 254-2200 ext. 450

Facility Name: Bluffdale City
Mailing and Facility Address: 2222 West 14400 South
Bluffdale, Utah 84065
Telephone: (801) 254-2200
Actual Address: 16891 Camp Williams Road, Bluffdale, Utah

DESCRIPTION OF FACILITY

Bluffdale City is providing culinary water for use as non-contact cooling water in the climate control system of a data center located on property at Camp Williams. The culinary water is used in the cooling system, cycled through a holding tank, and then discharged. The primary outfall is to the Utah and Salt Lake Canal just below the Narrows Diversion Dam for canals in Salt Lake County. The secondary outfall is to the Jordan River at the same area as the primary point. A third outfall is to the pressurized irrigation system in Bluffdale.

The heat exchange process is by its nature a very clean process and does not impact the cooling water beyond the transfer of heat from the climate control system to the water. The result is a high-quality effluent. However, during the heat transfer process, water is evaporated and constituents in the source water may be concentrated. The concentration of these constituents in the cooling water is what makes them a pollutant and requires permitting to be discharged. The high quality of the effluent allows the cooling water to be used in a pressurized irrigation system as Reuse Water.

The option to discharge to a Publicly Owned Treatment Works (POTW) was evaluated and rejected based on two major concerns. The first is that it was desired that the facility be “Greener” and reduce the impact on the environment, so the option of discharging to a pressurized irrigation system was developed. While reuse is not a year-round solution it will reduce the amount of fresh water that is diverted to irrigation and reduce the impact of removing that water from the environment.

Secondly, the cooling water would be considered very clean when compared to what the POTW would normally receive and would be a dilution of the water in the POTW. This cooling water flow would also

have an adverse impact on the capacity of the sanitary system between the facility and POTW. Together these would result in a major increase in the construction costs, and ongoing operation cost for the facility.

Cooling System Bio-fouling

In cooling systems there is occasionally a need to treat the system for biological growth and/or deposits in the system. To accomplish this, a facility may need to do single time dosing of the system or start continuous treatment. The permittee must submit a plan for treatment and obtain DWQ approval prior to use of these types of chemicals in order to comply with provisions of the permit including Narrative Standards. DWQ will evaluate the plan and product information to determine the scope and likelihood of environmental impact and if a modification to the permit should be initiated to include any new sampling/monitoring that might be needed. The permittee is liable for any adverse water quality impacts from use of treatment chemicals.

E. coli Monitoring

Since the source water is culinary and no domestic sewage will be involved in the process, the permit does not require pathogen monitoring. If the source waters change and the likelihood of pathogen exposure in the system increases, the permit will need to be modified to include pathogen reduction and monitoring provisions.

Reuse

The rules governing Reuse are in Utah Administrative Code (UAC) R317-1-.4 and a permitting program for Reuse has been developed for municipal facilities. UAC R317-1-.4 provisions for a POTW do not apply directly to this industrial cooling water system since the system is not exposed to municipal sewage. UAC R317-1-.5 dictates the oversight of industrial Reuse. The option to reuse the cooling water will result in a reduction of parameters limits and monitoring requirements.

Monitoring

The sampling location is above the diversion point for the three different outfalls. In addition, the monitoring parameters, frequency and sampling location will be the same for all three outfalls. This simplified monitoring and sampling approach reduces possible confusion about how often and where to sample when the discharge is shifted from one outfall to the other during the year.

Temperature

The temperature limit developed in the WLA for Outfall 001 set the limit as 100°C (212°F) for water to enter the Jordan River. This is due to the difference in flows between the two waters. The discharge is significantly less than the river (only 1.8 % of river flows) such that the calculations come up with the default maximum value of the boiling point of water. This is not considered a safe or practical value for discharge. It is also very unlikely that the discharge effluent would reach that temperature. This means that if a temperature limit is to be included it must be developed using Best Professional Judgment (BPJ). In the materials supplied in the permit application it has been put forth that the system will operate in a rather steady state during normal operations, and the outfall temperature will be easily related to the outdoor air temperature. As the ambient air temperature increases, the outfall temperature will increase and above a certain temperature, the system will switch to a high number of cycles in the heat exchange process, and increase to another temperature range. To allow for a more consistent operation of the outfalls, the temperature limit for Outfall 001 will be set above the expected discharge temperature, but limited to protect

the health and safety of anyone or thing that might come in direct contact with the effluent. The limit will be set at 65°F (18.3°C), or the estimated process effluent temperature plus 10°F.

There is not a numeric temperature standard for canals with a 2B and 4 beneficial use classification. As a result, there is no temperature limit developed in the WLA for Outfall 002. There is also no requirement that a temperature limit be included. If there was a numeric standard when the canal is in operation, due to the difference in canal flows, and the discharge flow the limit would be the same as for outfall 001, 100°C (212°F). Just as with outfall 001, this is not considered a safe value for discharge, and it is also very unlikely that the discharge effluent would reach that temperature. If a temperature limit is to be included it also must be developed using BPJ. Setting the value 10°F higher than Outfall 001 is would be protective for health and safety. Therefore, the limit will be 75°F (23.9°C).

The sampling for parameters such as Metals, Oil and Grease can be reduced and/or eliminated after sufficient sampling results show a low enough reasonable potential for impairment of the receiving streams.

Bluffdale initially applied for a permit to discharge to the Jordan River (Outfall 001) during the winter, reuse (Outfall 003R) the water in the summer or discharge to the Utah and Salt Lake Canal (Outfall 002) as a backup during the portions of the year when they can't discharge to outfall 001 or 003R. However, Bluffdale has decided to use the Canal (Outfall 002) as a primary outfall and the Jordan River (Outfall 001) as a backup. The use of outfall 002 as the primary outfall did not change any permitting requirements.

The sampling point that was chosen prior to completion of the system and has been determined to be inadequate for the system. The flows have never reached the levels from the initial design. This has resulted in flows that are hard to detect, and small enough to prevent adequate sampling. Because of this another point will be used for sampling. This new point will be located in the blend tank near the reuse tank where the water flows out of a pipe and a sample can be obtained regardless of the flow conditions. This location is also outside the perimeter fence of Camp Williams, allowing samples to be collected regardless of the security conditions at the facility.

The blend tank consists of a three chambered 8ft by 12ft concrete basin. The first chamber is approximately 4ft by 4ft and works reduce the velocity of the flows as they come in from the pipe. This chamber is also where they will introduce culinary water to blend with the cooling water to reduce TDS Concentrations if it becomes elevated. The final chamber is also approximately 4ft by 4ft and is where the water flows out through one of two pipes. One goes to the reuse tank and the other goes down to the Canal/Jordan River outfalls. The two chambers and rest of the tank are configured to maximize travel time between them and allow for the blended flows to equalize. It is in this area that they would like to collect samples.

The blend tank is covered by metal grating. One section has been hinged to provide an access area with a ladder built into the wall. This access area allows Bluffdale to inspect and clean the tank as needed and also serves also the sampling location. No treatment of the water occurs between the original monitoring point and the blend tank. There is also no treatment after the blend tank and before the outfalls. Monitoring at this location is representative of the effluent and will be more reliable than at the previous location. This change was approved by letter in February 2018 and will continue during the life of this permit renewal.

The sampling frequency was set at weekly for the initial permit with the belief that the flows would increase to the permitted level and stay there. So far, the flows have not gone over 0.1 MGD over the last five years. As a result of this the required minimum monitoring frequency will be reduced to monthly for the renewal permit with the understanding that when the combined discharge flow increases to above 0.25 MGD for six months in a row, the permittee will increase the minimum monitoring frequency back to weekly without the need to modify the permit.

Water Quality adopted UAC R317-1-3.3, Technology-Based Phosphorus Effluent Limit (TBPEL) Rule in 2014. The TBPEL rule as it relates to "non-lagoon" wastewater treatment plants establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing. The Bluffdale facility and discharge is not considered a Wastewater Treatment Plant, and currently the rule does not apply to these outfalls. If conditions change in the future the permit may be reopened and modified to include TBPEL monitoring requirements and limits.

The total residual chlorine limit (TRC) is based on the acute TRC water quality standard at end-of-pipe, and is retained from the previous permit. This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved TRC methods. The Division has determined the current acceptable ML to be 0.06 mg/L and the method detection limit (MDL) to be 0.02 mg/L when using the DPD colorimetric Method #4500 – CL G. Measured values greater than or equal to the ML of 0.06 mg/L will be considered violations of the permit, and values less than the ML of .06 mg/l will be considered to be in compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:

- 1) analytical values less than 0.02 mg/L shall be considered zero; and
- 2) analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

1. Sampling

Due to the nature of the receiving waters (Canal and Reuse System) and the results of the RP Screening, the monitoring frequency for all metals, except those subject to further RP analysis, will be reduced from quarterly to annually and metals are to be collected at least once every calendar year during a time of high flows and reported at the end of each calendar year. The requirement for effluent metals monitoring for the Jordan River (Outfall 001) will remain the same, quarterly.

2. Reasonable Potential

The results of the RP screening indicated the following changes:

- Cyanide requires additional monitoring and analysis;
- Copper- no limit is necessary and the monitoring frequency for Outfall 002 and 003R has been reduced from quarterly to annually;
- Mercury- no limit is necessary and the monitoring frequency for Outfall 002 and 003R has been reduced from quarterly to annually. It was also determined that a more sensitive analysis method should be identified and used for Outfall 002 and 003R, and one must be identified and used for Outfall 001.

The results of the RP Analysis are included in Attachment 3 of the FSSOB.

3. WLA Model and WQBEL for Class 3B and Class 3E Waters.

There are no numeric standards for Reuse Water (Outfall 003R) or the Utah and Salt Lake Canal (Outfall 002), as a result, there are no WQBEL to run RP against. There are numeric standards for the Jordan River (Outfall 001), but there has never been a discharge to the Jordan River to sample. Since the same water could be discharged through Outfall 001 in the future, the RP analysis will be run using the WQBEL for Outfall 001, and the analytical results for Outfalls 002, and 003R. The results will be a good approximation, but won't be able to properly indicate the RP for outfall 001.

4. WLA Model and TRC

New flow data for the WLA model was used to determine instream flows for the Jordan River. As a result of the changing in stream conditions, some parameters may see a reduction in effluent limits. The effluent limit for total residual chlorine (TRC) is one of these parameters. The old and new TRC effluent limits are compared below.

TRC Limits, mg/L		
Season	Previous Limit	New Limit
Winter	0.6	0.16
Spring	-	-
Summer	-	-
Fall	0.7	0.22

DISCHARGE

DESCRIPTION OF DISCHARGE

The cooling system discharges non-contact cooling. It is this water that is discharged into the Jordan River and/or Salt Lake Utah Canal unless it is utilized as irrigation water under reuse provisions. During the months when the Bluffdale secondary irrigation system is in use, the water is piped into it as reuse water. The non-contact cooling water is discharged into the canal. During the winter months the water may be discharged to the Jordan River if needed, but has so far only been discharged to the canal. This allows the city to have several discharge options.

Bluffdale has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. Three years of data has been included in the FSSOB. Only one violation is recorded, but it did not result in enforcement action.

Outfall	Description of Discharge Point
001	Located at latitude 40°26'35" and longitude 111°55'22". The discharge is through a 10" pipe to the Jordan River.
002	Located at latitude 40°26'35" and longitude 111°55'23". The discharge is through a 10" pipe to the Utah and Salt Lake Canal.

Outfall	Description of Reuse Water Discharge Point
003R	Located at latitude 40°26'33" and longitude 111°55'58". The discharge is through a 16" pipe to the reservoir for the Bluffdale pressurized irrigation system.

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharge flows into the Jordan River and/or the Utah and Salt Lake Canal. The Jordan River segment is above Bluffdale Road, and below the Narrows diversion, and is classified 2B, 3B, and 4 at this location according to *Utah Administrative Code (UAC) R317-2-13.5*

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 3B -- Protected for warm water species of game fish and other warm 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.

The Utah and Salt Lake Canal is classified as 2B, 3E, and 4 according to *Utah Administrative Code (UAC) R317-2-13.9*

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 3E -- Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.

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

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

A QUAL2Kw model of the Jordan River was populated and calibrated as part of the TMDL study (Stantec Consulting 2010, UDWQ 2010). The model was subsequently validated to a synoptic survey conducted by UDWQ and the Jordan River/Farmington Bay Water Quality Council (JRFBWQC) during July 2014 (UDWQ 2015). The model validation identified areas for future improvement of the model; however, the model was considered suitable for application to the wasteload allocation for ammonia. Due to ongoing studies related to the TMDL, this wasteload allocation used for permit development does not address parameters related to dissolved oxygen, including biochemical oxygen demand (BOD), dissolved oxygen (DO), total nitrogen (TN), and total phosphorus (TP). The only parameter of concern in the discharge related to this TMDL is the DO. The permit includes an effluent limit for DO.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The oil and grease is based on best professional judgment (BPJ). Attached is a Wasteload Analysis for this discharge into the Jordan River and Utah and Salt Lake Canal. It has been determined that this discharge will not cause a violation of water quality standards. An Antidegradation Level II review is not required since the Level I review shows that water quality impacts are minimal. The permittee is expected to be able to comply with these 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). There are four outcomes defined in the RP Guidance: Outcome A, B, C, or D. These Outcomes provide a frame work for what routine monitoring or effluent limitations are required

A quantitative RP analysis was performed on cyanide and mercury to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, the RP analysis for mercury indicates improvements in monitoring are recommended/required. A copy of the RP analysis is included at the end of this Fact Sheet.

The permit limitations for Outfall 001 (Jordan River) are:

Parameter	Effluent Limitations ^{1, 2, 3,}				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow					
Winter (Jan-Mar)	-	-	-	-	0.34 ⁴
Spring (Apr-Jun)	-	-	-	-	-
Summer (Jul-Sep)	-	-	-	-	-
Fall (Oct-Dec)	-	-	-	-	0.34 ⁴
Temperature, °F					
Winter (Jan-Mar)	-	-	-	-	65
Spring (Apr-Jun)	-	-	-	-	-
Summer (Jul-Sep)	-	-	-	-	-
Fall (Oct-Dec)	-	-	-	-	65
TRC, mg/L					
Winter (Jan-Mar)	-	-	-	-	0.16
Spring (Apr-Jun)	-	-	-	-	-
Summer (Jul-Sep)	-	-	-	-	-
Fall (Oct-Dec)	-	-	-	-	0.22
TSS, mg/L	25	35	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-
pH, Standard Units	-	-	-	6.5	9
TDS, mg/L	1200	-	-	-	-
1, See Definitions, Part VIII, for definition of terms					
2, There shall be no discharge of sanitary wastes					
3. There shall be no visible sheen or floating solids or visible foam in other than trace amounts					
4, There will be no discharge through Outfall 001 during the spring and summer (April through September).					
5, The total residual chlorine limit (TRC) is based on the acute TRC water quality standard at end-of-pipe, and is retained from the previous permit. This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved TRC methods. The Division has determined the current acceptable ML to be .06 mg/L and the method detection limit (MDL) to be 0.02 mg/L when using the DPD colorimetric Method #4500 – CL G. Measured values greater than or equal to the ML of .06 mg/l will be considered violations of the permit, and values less than the ML of .06 mg/l will be considered to be in compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply: 1) analytical values less than 0.02 mg/L shall be considered zero; and 2) analytical values less than .06 mg/L and equal to or greater than .02 mg/L will be recorded as measured.					

The permit limitations for Outfall 002 (Utah and Salt Lake Canal) are:

Parameter	Effluent Limitations ^{1, 2, 3,}				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD	-	-	-	-	0.34
Temperature, °F	-	-	-	-	75
TSS, mg/L	25	35	-	-	-

Parameter	Effluent Limitations ^{1, 2, 3,}				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
pH, Standard Units	-	-	-	6.5	9
TDS, mg/L	1200	-	-	-	-
1, See Definitions, Part VIII, for definition of terms					
2, There shall be no discharge of sanitary wastes					
3. There shall be no visible sheen or floating solids or visible foam in other than trace amounts					

The permit limitations for Outfall 003R (Reuse) are:

Parameter	Effluent Limitations ^{1, 2, 3,}				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
pH, Standard Units	-	-	-	6.5	9
1, See Definitions, Part VIII, for definition of terms					
2, There shall be no discharge of sanitary wastes					
3. There shall be no visible sheen or floating solids or visible foam in other than trace amounts					

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are modified to better reflect the conditions and receiving streams. The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMRs.

Self-Monitoring and Reporting Requirements for Outfall 001 (Jordan River) ^{6,}			
Parameter	Frequency	Sample Type	Units
Total Flow ^{7, 8}	Continuous	Recorder	MGD
Temperature	Continuous	Recorder	°F
TRC, mg/L, *e, *g	Monthly	Grab	mg/L
DO	Monthly	Grab	mg/L
TDS, mg/L	Monthly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
pH	Monthly	Grab	SU
Metals, Effluent ⁹	Quarterly	Grab	mg/L
Oil & Grease	Quarterly	Grab	mg/L
6, See Definitions, Part VIII, for definition of terms			
7, Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained			
8, If the rate of discharge is controlled, the rate and duration of discharge shall be reported			
9, A more sensitive analysis method must be used for analysis of mercury samples. The monitoring frequency shall be based on calendar quarters.			

Self-Monitoring and Reporting Requirements for Outfall 002, and 003R (Utah and Salt Lake Canal, and Reuse) ⁶ ,			
Parameter	Frequency	Sample Type	Units
Total Flow, ^{7, 8}	Continuous	Recorder	MGD
Temperature	Continuous	Recorder	°F
TRC, mg/L, *e, *g	Monthly	Grab	mg/L
DO	Monthly	Grab	mg/L
TDS, mg/L	Monthly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
pH	Monthly	Grab	SU
Metals, Effluent ¹⁰	Annual	Grab	mg/L
Oil & Grease	Annual	Grab	mg/L
6, See Definitions, Part VIII, for definition of terms			
7, Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained			
8, If the rate of discharge is controlled, the rate and duration of discharge shall be reported			
10, A more sensitive analysis method should be used for analysis of mercury samples. The monitoring frequency shall be based on calendar year.			

BIOSOLIDS

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility is an industrial discharge of cooling water, there is not any sludge production.

STORM WATER

Separate storm water permits may be required based on the types of activities occurring on site.

Permit coverage under the Multi Sector General Permit (MSGP) for Storm Water Discharges from Industrial Activities may be required based on the Standard Industrial Classification (SIC) code(s) for the facility and the types of industrial activities occurring there. If required based on the SIC code(s) and the facility is not already covered, it has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

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

PRETREATMENT REQUIREMENTS

Any process wastewater the facility may discharge to the sanitary sewer, either as direct discharge or as a hauled waste, is subject to federal, state and local pretreatment regulations. Pursuant to Section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR section 403, the State Pretreatment Requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste.

In addition, in accordance with 40 CFR 403.12(p)(1), the permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities in writing if they discharge any substance into a POTW 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. 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 a minor industrial facility that will be discharging an infrequent amount of effluent, in which toxicity is neither an existing concern, nor likely to be present. Based on these considerations, and the absence of receiving stream water quality monitoring data, there is no reasonable potential for toxicity in the permittee's discharge (per State of Utah Permitting and Enforcement Guidance Document for WET Control). 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 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 and Reviewed by
Daniel Griffin, Discharge, Reasonable Potential Analysis
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Carl Adams, Storm Water
Sandy Wingert, TMDL/Watershed
Christopher L. Shope, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: November 17, 2022
Ended: December 20, 2022

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

The Public Notice of the draft permit and FSSOB were published for public comment on the Division of Water Quality Public Notice Webpage

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

ADDENDUM TO FSSOB

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.

No comments were received regarding this discharge permit.

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ATTACHMENT 1

Effluent Monitoring Data

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Effluent Monitoring Data.

Combined Summary of discharge monitoring data for Outfall 002 and 003							
Param	Flow	TSS	TDS	pH	Deg F	DO	O & G
Unit	MGD	mg/L	mg/L	SU	deg F	mg/L	mg/L
Stat	Max		Max		Max		Max
Limit	<0.34	25	1200	6.5<<9	<75		<10
Month							
Jun-20		<MDL	672	8.8	57.02	8	<MDL
Jul-20	<MDL	<MDL	748	8.8	57.2	7.9	
Aug-20	<MDL	<MDL	856	8.8	63.32	8.2	
Sep-20	<MDL	<MDL	180	7.9	55.76	6.3	<MDL
Oct-20	0						
Nov-20	<MDL	<MDL	796	8.8	55		
Dec-20	<MDL	<MDL	320	8.9	54		
Jan-21	<MDL	<MDL	824	9	55		
Feb-21	<MDL	<MDL	804	8.8	51		
Mar-21	<MDL	<MDL	840	8.9	51.44		<MDL
Apr-21	<MDL	<MDL	832	8.8	131.72	8.1	
May-21	<MDL	<MDL	696	9	56.3	8.1	
Jun-21	<MDL	<MDL	792	9	66.74	8	<MDL
Jul-21	<MDL	<MDL	732	8.8	64.4	8.2	
Aug-21	<MDL	4	792	8.8	63.32	7.7	
Sep-21	<MDL	4	792	8.8	63.32	7.4	<MDL
Oct-21	<MDL	9	660	8.8	60.44	8	
Nov-21	<MDL	<MDL	816	8.8	53.8		
Dec-21	0						
Jan-22	<MDL	<MDL	572	8.7	52		
Feb-22	<MDL	<MDL	804	9	60.3		
Mar-22	<MDL	<MDL	840	9	54.5		
Apr-22	<MDL	<MDL	692	8.6	48.02	9	
May-22	<MDL	<MDL	872	8.6	49.64	8.7	

Metals Results

Combined Summary of Metals discharge monitoring data for Outfall 002 and 003													
Quarter	Flow	Ag	AS	Cd	CN	Cr3	Cu	Hg	Mo	Ni	Pb	Se	Zn
Q3 2017													
Q4 2017	0												
Q1 2018	<MDL												
Q2 2018	<MDL												
Q3 2018	<MDL												
Q4 2018	0												
Q1 2019	<MDL												
Q2 2019	<MDL	<MDL	0.018	<MDL	<MDL	0.009	0.146		0.013	0.016	<MDL		<MDL
Q3 2019													
Q4 2019	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Q1 2020		<MDL	0.0024	<MDL	<MDL	0.006	0.447		0.005	0.0006	<MDL		<MDL
Q2 2020		<MDL	0.003	<MDL	0.002	0.002	0.418	<MDL	0.003	0.002	<MDL	0.015	<MDL
Q3 2020	<MDL	<MDL	0.006	<MDL	0.002	0.004	0.272	<MDL	0.011	0.001	<MDL	0.012	<MDL
Q4 2020	<MDL												
Q1 2021	<MDL	<MDL	0.008		<MDL	0.005	0.435	<MDL	0.074	0.002	<MDL	0.035	<MDL
Q2 2021	<MDL	<MDL	0.003	<MDL	<MDL	0.002	0.422	<MDL	0.096	0.001	<MDL	0.007	<MDL
Q3 2021	<MDL	<MDL	0.007	<MDL	0.004	0.002	0.002	<MDL	0.105	0.001	<MDL	0.007	<MDL
Q4 2021	0	<MDL	0.005	<MDL	0.002	0.0026	0.316	<MDL	0.329	0.001	<MDL	0.0072	<MDL
Q1 2022	<MDL												
Q2 2022	<MDL	<MDL	0.0037	<MDL	<MDL	0.004	0.356	<MDL	0.053	0.002	<MDL	0.006	0.02

ATTACHMENT 2

Wasteload Analysis

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ATTACHMENT 3

Reasonable Potential Analysis

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

Date: July 29, 2022

Prepared by: Christopher L. Shope
Standards and Technical Services

Facility: Bluffdale Cooling Water
Bluffdale, Utah
UPDES Permit No. UT-0025968

Receiving water: Jordan River (2B, 3A, 4) and Utah & Salt Lake Canal (2B, 3E, 4)

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

Discharge

Outfall 001: Cooling water discharge – Jordan River 0.34 MGD
Outfall 002: Cooling water discharge – Utah & Salt Lake Canal 0.34 MGD

Receiving Water

Cooling water from the Data Center may be discharged either to the Utah & Salt Lake Canal or to the Jordan River. The 2018 Wasteload Analysis indicated that discharge is predominately routed to the Utah & Salt Lake Canal.

Per UAC R317-2-13.4(a), the designated beneficial use of the assessment unit in the immediate downstream area is: *Jordan River from confluence with Little Cottonwood Creek to Narrows Diversion: 2B,3B,4.*

- *Class 2B -- Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.*

**Utah Division of Water Quality
Wasteload Analysis
Bluffdale Cooling Water, UPDES Permit No. UT-0025968**

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

As per R317-2-13.9, the designated beneficial uses of all irrigation canals and ditches statewide, except as otherwise designated are 2B, 3E, 4.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3E - Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow averaged over seven consecutive days with a ten-year return frequency (7Q10). Seasonal critical flow on the Jordan River was calculated using all available data from Salt Lake County gauge 150 – JORDAN RIVER @ 9000 SOUTH. This site is located downstream of the discharge but is the most proximal location to the discharge. Calculations used data prior to commencement of the discharge. The discharge is located immediately below multiple diversions at the Jordan Narrows, precluding use of upstream flow data. The monitoring location data has a fairly continuous flow record. DWQ used data from 2010 through 2021 and was used to evaluate the 7Q10 critical flow conditions to estimate the seasonal critical flow in the receiving water (Table 1). The average annual critical low flow condition is 10.7 ft³/s.

Flow values for the Utah and Salt Lake Canal were not provided and not readily available. For the 2018 wasteload analysis, an estimated low flow of 50 cfs during the irrigation season was provided and no flow was assumed during the non-irrigation seasons. However, without further information, the same critical flow conditions are used for both the Jordan River (Outfall 001) and the Utah & Salt Lake Canal (Outfall 002).

Table 1: Seasonal Critical Flow at the Jordan River and Utah & Salt Lake Canal locations.

Season	Outfall 001 (ft³/s) Jordan R at 9000 S	Outfall 002 (ft³/s) Utah & Salt Lake Canal
Summer	14.0	14.0
Fall	14.5	14.5
Winter	9.6	9.6
Spring	11.9	11.9
Annual Overall	10.7	10.7

Ambient, upstream, background receiving water quality was characterized for both Outfall 001 and Outfall 002 using data from monitoring location UDWQ 4994790: JORDAN R AT UTAH L OUTLET U121 XING. The 20th percentile seasonal value was calculated for each constituent with available monitoring and sampling data in the upstream receiving water.

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Wasteload Analysis
Bluffdale Cooling Water, UPDES Permit No. UT-0025968**

Effluent discharge parameters were not provided in the renewal application. The parameters were therefore, characterized using the limited data available from the Discharge Monitoring Report (DMR). Several analytes including biochemical oxygen demand, total ammonia, and hardness were not available.

Total Maximum Daily Load (TMDL)

According to the Utah's 2022 303(d) [Water Quality Assessment Report](#) "Final 2022 Integrated Report on Water Quality", the receiving water for the discharge, *Jordan River from Bluffdale at 14600 South to Narrows (AU UT16020204-007)* is listed as Not Supporting for total dissolved solids and Benthic Macroinvertebrates and Bioassessments. Additional impairments are present in downstream segments and are listed as not meeting total dissolved solids, Benthic Macroinvertebrates and Bioassessments, temperature, dissolved oxygen, E. coli, phosphorous, and copper criteria.

For Outfall 002, these constituents should be evaluated in the effluent against the end of pipe Water Quality Standards to determine whether or not they have reasonable potential to cause or contribute to the existing impairments.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and for chronic conditions is 2500 ft, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone. Individual mixing zones may be further limited or disallowed.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water are total dissolved solids, Benthic Macroinvertebrates and Bioassessments, temperature, dissolved oxygen, E. coli, phosphorous, and copper as determined by the impairment status of the receiving water. As the cooling water facility utilizes bromate, additional monitoring for bromide and bromide are warranted. Additional analytes used to effectively evaluate the influence of the discharge on receiving waters is hardness, biochemical oxygen demand, and total ammonia. These parameters of concern (POC) were determined in consultation with the UPDES Permit Writer and the Watershed Protection Specialist.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

IC₂₅ WET limits for Outfall 001 should be based on 4.4% effluent. IC₂₅ WET limits for Outfall 002 should be based on 4.4% effluent in the spring and summer and 100% in the fall and winter.

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Wasteload Analysis
Bluffdale Cooling Water, UPDES Permit No. UT-0025968

Wasteload Allocation Methods

Effluent limits were determined for all constituents using the Utah Rivers Model, a mass balance and mixing analysis (UDWQ, 2021). The analysis is summarized in the Wasteload Addendum.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. However, temperature, pH, and ammonia concentration of the effluent were not provided. Background temperature and pH values were used in the analysis. The analysis is summarized in the Wasteload Addendum.

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

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

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

Documents:

WLA Document: *Bluffdale_Cooling_WLA_2022.docx*

Wasteload Analysis and Addendums: *Bluffdale_Cooling_Jordan_WLA_2022.xlsm*
Bluffdale_Cooling_Canal_WLA_2022.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
Salt Lake City, Utah**

WASTELOAD ANALYSIS [WLA] [REDACTED] = not included in the WLA
Addendum: Statement of Basis

28-Jul-22
4:00 PM

Facilities: Bluffdale Cooling Water
Discharging to: Jordan River

UPDES No: UT-0025968

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

Jordan River:	2B,3B,4
Antidegradation Review:	Level I review completed. Level II review is not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.5 mg/l (30 Day Average) 6.0 mg/l (7Day Average) 3.0 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

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**	0.299 lbs/day	750.00	ug/l	2.576 lbs/day
Arsenic	150.00 ug/l	0.515 lbs/day	340.00	ug/l	1.168 lbs/day
Cadmium	2.50 ug/l	0.009 lbs/day	7.80	ug/l	0.027 lbs/day
Chromium III	280.74 ug/l	0.964 lbs/day	5873.53	ug/l	20.177 lbs/day
ChromiumVI	11.00 ug/l	0.038 lbs/day	16.00	ug/l	0.055 lbs/day
Copper	31.99 ug/l	0.110 lbs/day	54.47	ug/l	0.187 lbs/day
Iron			1000.00	ug/l	3.435 lbs/day
Lead	19.95 ug/l	0.069 lbs/day	511.84	ug/l	1.758 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.008 lbs/day
Nickel	176.67 ug/l	0.607 lbs/day	1589.04	ug/l	5.459 lbs/day
Selenium	4.60 ug/l	0.016 lbs/day	20.00	ug/l	0.069 lbs/day
Silver	N/A ug/l	N/A lbs/day	45.20	ug/l	0.155 lbs/day
Zinc	406.57 ug/l	1.397 lbs/day	406.57	ug/l	1.397 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

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

Metals Standards Based upon a Hardness of 422.91 mg/l as CaCO₃

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	0.02 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	2.06 tons/day

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

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day

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

Metals	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	337.05 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	17244.64 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	360.57 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.49 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

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QUAL2E (EPA, Athens, GA).

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

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

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

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

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

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

VIII. Modeling Information

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

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

Other Conditions

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

Model Inputs

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

Current Upstream Information

	Stream		Critical Low						
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	
Summer (Irrig. Season)	14.0	20.8	8.2	0.15	9.53	6.81	0.00	1004.3	
Fall	14.5	8.0	8.0	0.17	4.73	---	0.00	1111.4	
Winter	9.6	4.4	8.0	0.16	5.08	---	0.00	1111.4	
Spring	11.9	15.5	8.2	0.07	2.13	---	0.00	1111.4	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
All Seasons	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
	5.00	8.00	0.05	1.00	2.50	1.74	10.0	0.17	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
All Seasons	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
	0.0000	2.50	1.00	0.25	5.00	10.0		* 1/2 MDL	

Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
--------	-----------	-------	----------	--------------

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Summer	0.34300	16.0	808.85	1.15667
Fall	0.34300	15.8		
Winter	0.34300	7.2		
Spring	0.34300	17.6		

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	0.343 MGD	0.531 cfs
Fall	0.343 MGD	0.531 cfs
Winter	0.343 MGD	0.531 cfs
Spring	0.343 MGD	0.531 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.343 MGD. If the discharger is allowed to have a flow greater than 0.343 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 > IC25 >	15.2% Effluent 4.4% Effluent	[Acute] [Chronic]	Receiving		Chronic IC25 % Effluent	Acute LC50 % Effluent
				Water Flow (cfs)	Effluent Flow (MGD)		
Season							
Summer	14.01	0.3	0.5	14.5	NO	3.6%	0.2%
Fall	14.53	0.3	0.5	15.1	NO	3.5%	0.2%
Winter	9.60	0.3	0.5	10.1	NO	5.2%	0.3%
Spring	11.90	0.3	0.5	12.4	NO	4.3%	0.3%

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	71.5 lbs/day
Fall	25.0 mg/l as BOD5	71.5 lbs/day
Winter	25.0 mg/l as BOD5	71.5 lbs/day
Spring	25.0 mg/l as BOD5	71.5 lbs/day

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

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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	24.6 mg/l as N	70.4 lbs/day
	1 Hour Avg. - Acute	53.1 mg/l as N	151.8 lbs/day
Fall	4 Day Avg. - Chronic	30.3 mg/l as N	86.5 lbs/day
	1 Hour Avg. - Acute	61.3 mg/l as N	175.2 lbs/day
Winter	4 Day Avg. - Chronic	27.1 mg/l as N	77.4 lbs/day
	1 Hour Avg. - Acute	56.5 mg/l as N	161.6 lbs/day
Spring	4 Day Avg. - Chronic	36.4 mg/l as N	104.1 lbs/day
	1 Hour Avg. - Acute	73.1 mg/l as N	208.9 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 50.%.

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

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

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	0.231 mg/l	0.66 lbs/day
	1 Hour Avg. - Acute	0.217 mg/l	0.62 lbs/day
Fall	4 Day Avg. - Chronic	0.239 mg/l	0.68 lbs/day
	1 Hour Avg. - Acute	0.224 mg/l	0.64 lbs/day
Winter	4 Day Avg. - Chronic	0.162 mg/l	0.46 lbs/day
	1 Hour Avg. - Acute	0.155 mg/l	0.44 lbs/day
Spring	4 Day Avg. - Chronic	0.198 mg/l	0.00 lbs/day
	1 Hour Avg. - Acute	0.187 mg/l	0.00 lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration	Load
Summer	Maximum, Acute	6369.1 mg/l	9.11 tons/day
Fall	Maximum, Acute	3539.2 mg/l	5.06 tons/day
Winter	Maximum, Acute	4376.4 mg/l	6.26 tons/day
Spring	4 Day Avg. - Chronic	8872.9 mg/l	12.69 tons/day

Colorado Salinity Forum Limits Determined by Permitting Section

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

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In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 422.91 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum	N/A	N/A	10,586.5	ug/l	36.4 lbs/day
Arsenic	3,899.76 ug/l	7.2 lbs/day	4,723.5	ug/l	16.2 lbs/day
Cadmium	67.10 ug/l	0.1 lbs/day	110.1	ug/l	0.4 lbs/day
Chromium III	7,667.65 ug/l	14.2 lbs/day	83,410.8	ug/l	286.5 lbs/day
Chromium VI	235.46 ug/l	0.4 lbs/day	194.2	ug/l	0.7 lbs/day
Copper	830.62 ug/l	1.5 lbs/day	750.6	ug/l	2.6 lbs/day
Iron	N/A	N/A	14,071.4	ug/l	48.3 lbs/day
Lead	542.06 ug/l	1.0 lbs/day	7,267.6	ug/l	25.0 lbs/day
Mercury	0.33 ug/l	0.0 lbs/day	34.1	ug/l	0.1 lbs/day
Nickel	4,775.95 ug/l	8.8 lbs/day	22,536.7	ug/l	77.4 lbs/day
Selenium	99.66 ug/l	0.2 lbs/day	270.9	ug/l	0.9 lbs/day
Silver	N/A ug/l	N/A lbs/day	638.7	ug/l	2.2 lbs/day
Zinc	11,010.64 ug/l	20.4 lbs/day	5,708.6	ug/l	19.6 lbs/day
Cyanide (free)	142.52 ug/l	0.3 lbs/day	312.5	ug/l	1.1 lbs/day

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	68.8 Deg. C.	155.9 Deg. F
Fall	57.6 Deg. C.	135.6 Deg. F
Winter	38.5 Deg. C.	101.3 Deg. F
Spring	56.8 Deg. C.	134.3 Deg. F

Effluent Targets for Pollution Indicators Based upon Water Quality Standards

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

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	17.2 lbs/day
Nitrates as N	4.0 mg/l	13.7 lbs/day
Total Phosphorus as P	0.05 mg/l	0.2 lbs/day
Total Suspended Solids	90.0 mg/l	309.2 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

Metals	Maximum Concentration	
	Concentration	Load
Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		

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Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

**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		10586.5				10586.5	N/A
Antimony				117849.2		117849.2	
Arsenic	2740.7	4723.5			0.0	2740.7	3899.8
Asbestos						0.00E+00	
Barium						0.0	
Beryllium						0.0	
Cadmium	272.7	110.1			0.0	110.1	67.1
Chromium (III)		83410.8			0.0	83410.8	7667.7
Chromium (VI)	2714.3	194.2			0.0	194.25	235.46
Copper	5435.4	750.6				750.6	830.6
Cyanide		312.5	6029494.9			312.5	142.5
Iron		14071.4				14071.4	
Lead	2736.1	7267.6			0.0	2736.1	542.1
Mercury		34.09		4.11	0.0	4.11	0.329
Nickel		22536.7		126071.3		22536.7	4776.0
Selenium	1343.9	270.9			0.0	270.9	99.7
Silver		638.7			0.0	638.7	
Thallium				172.7		172.7	
Zinc		5708.6				5708.6	11010.6
Boron	14375.9					14375.9	

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	10586.5	N/A	
Antimony	117849.22		
Arsenic	2740.7	3899.8	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	110.1	67.1	
Chromium (III)	83410.8	7668	
Chromium (VI)	194.2	235.5	Acute Controls
Copper	750.6	830.6	Acute Controls
Cyanide	312.5	142.5	
Iron	14071.4		
Lead	2736.1	542.1	
Mercury	4.111	0.329	
Nickel	22536.7	4776	
Selenium	270.9	99.7	
Silver	638.7	N/A	
Thallium	172.7		
Zinc	5708.6	11010.6	Acute Controls

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Salt Lake City, Utah**

Boron 14375.91

Other Effluent Limitations are based upon R317-1.
E. coli 126.0 organisms per 100 ml

X. Antidegradation Considerations

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

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

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required.

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.

XIII. Notice of UPDES Requirement

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

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801-538-6052
File Name: Bluffdale_Cooling_Jordan_WLA_2022.xlsm

APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day 2.000	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 2.079	REAER. Coeff. (Ka)20 (Ka)/day 28.384	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 28.960	NBOD Coeff. (Kn)20 1/day 0.250	NBOD Coeff. (Kn)T 1/day 0.267
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Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 4.159	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(Cl)20 1/day 32.000	TRC K(Cl)(T) 1/day 33.621
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 1.055						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(Cl) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that a Level II antidegradation Review is not required.

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WASTELOAD ANALYSIS [WLA] [REDACTED] = not included in the WLA
Addendum: Statement of Basis

28-Jul-22
4:00 PM

Facilities: Bluffdale Cooling Water
Discharging to: Utah & Salt Lake Canal

UPDES No: UT-0025968

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

Utah & Salt Lake Canal:	2B,3E,4
Antidegradation Review:	Level I review completed. Level II review is 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)	N/A	5.0 mg/l (30 Day Average) mg/l (7Day Average) 3.0 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l	

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration	Concentration	Load*
Aluminum	87.00 ug/l**	0.299 lbs/day	750.00	ug/l	2.576 lbs/day
Arsenic	150.00 ug/l	0.515 lbs/day	340.00	ug/l	1.168 lbs/day
Cadmium	2.50 ug/l	0.009 lbs/day	7.80	ug/l	0.027 lbs/day
Chromium III	280.74 ug/l	0.964 lbs/day	5873.53	ug/l	20.177 lbs/day
ChromiumVI	11.00 ug/l	0.038 lbs/day	16.00	ug/l	0.055 lbs/day
Copper	31.99 ug/l	0.110 lbs/day	54.47	ug/l	0.187 lbs/day
Iron			1000.00	ug/l	3.435 lbs/day
Lead	19.95 ug/l	0.069 lbs/day	511.84	ug/l	1.758 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.008 lbs/day
Nickel	176.67 ug/l	0.607 lbs/day	1589.04	ug/l	5.459 lbs/day
Selenium	4.60 ug/l	0.016 lbs/day	20.00	ug/l	0.069 lbs/day
Silver	N/A ug/l	N/A lbs/day	45.20	ug/l	0.155 lbs/day
Zinc	406.57 ug/l	1.397 lbs/day	406.57	ug/l	1.397 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

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Metals Standards Based upon a Hardness of 422.91 mg/l as CaCO₃

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	0.02 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	2.06 tons/day

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

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day

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

Metals	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	337.05 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	17244.64 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	360.57 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.49 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.

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

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

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

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

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

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

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

VIII. Modeling Information

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

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

Other Conditions

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

Model Inputs

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

Current Upstream Information

	Stream								
	Critical Low								
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	
Summer (Irrig. Season)	14.0	20.8	8.2	0.15	9.53	6.81	0.00	1004.3	
Fall	14.5	8.0	8.0	0.17	4.73	---	0.00	1111.4	
Winter	9.6	4.4	8.0	0.16	5.08	---	0.00	1111.4	
Spring	11.9	15.5	8.2	0.07	2.13	---	0.00	1111.4	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
All Seasons	5.00	8.00	0.05	1.00	2.50	1.74	10.0	0.17	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
All Seasons	0.0000	2.50	1.00	0.25	5.00	10.0		* 1/2 MDL	

Projected Discharge Information

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Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	0.34300	16.0	808.85	1.15667
Fall	0.34300	15.8		
Winter	0.34300	7.2		
Spring	0.34300	17.6		

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	0.343 MGD	0.531 cfs
Fall	0.343 MGD	0.531 cfs
Winter	0.343 MGD	0.531 cfs
Spring	0.343 MGD	0.531 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.343 MGD. If the discharger is allowed to have a flow greater than 0.343 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 > IC25 >	15.2% Effluent 4.4% Effluent	[Acute] [Chronic]	Receiving		Chronic IC25 % Effluent	Acute LC50 % Effluent			
				Water Flow (cfs)	Effluent Flow (MGD)					
Season				Effluent Flow (cfs)	Combined Flow (cfs)	Totally Mixed				
Summer				14.01	0.3	0.5	14.5	NO	3.6%	0.2%
Fall				14.53	0.3	0.5	15.1	NO	3.5%	0.2%
Winter				9.60	0.3	0.5	10.1	NO	5.2%	0.3%
Spring				11.90	0.3	0.5	12.4	NO	4.3%	0.3%

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	71.5 lbs/day
Fall	25.0 mg/l as BOD5	71.5 lbs/day

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Winter	25.0 mg/l as BOD5	71.5 lbs/day
Spring	25.0 mg/l as BOD5	71.5 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	24.6 mg/l as N	70.4 lbs/day
	1 Hour Avg. - Acute	53.1 mg/l as N	151.8 lbs/day
Fall	4 Day Avg. - Chronic	30.3 mg/l as N	86.5 lbs/day
	1 Hour Avg. - Acute	61.3 mg/l as N	175.2 lbs/day
Winter	4 Day Avg. - Chronic	27.1 mg/l as N	77.4 lbs/day
	1 Hour Avg. - Acute	56.5 mg/l as N	161.6 lbs/day
Spring	4 Day Avg. - Chronic	36.4 mg/l as N	104.1 lbs/day
	1 Hour Avg. - Acute	73.1 mg/l as N	208.9 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 50.%.

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

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

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	0.231 mg/l	0.66 lbs/day
	1 Hour Avg. - Acute	0.217 mg/l	0.62 lbs/day
Fall	4 Day Avg. - Chronic	0.239 mg/l	0.68 lbs/day
	1 Hour Avg. - Acute	0.224 mg/l	0.64 lbs/day
Winter	4 Day Avg. - Chronic	0.162 mg/l	0.46 lbs/day
	1 Hour Avg. - Acute	0.155 mg/l	0.44 lbs/day
Spring	4 Day Avg. - Chronic	0.198 mg/l	0.00 lbs/day
	1 Hour Avg. - Acute	0.187 mg/l	0.00 lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration	Load
Summer	Maximum, Acute	6369.1 mg/l	9.11 tons/day
Fall	Maximum, Acute	3539.2 mg/l	5.06 tons/day
Winter	Maximum, Acute	4376.4 mg/l	6.26 tons/day
Spring	4 Day Avg. - Chronic	8872.9 mg/l	12.69 tons/day

Colorado Salinity Forum Limits Determined by Permitting Section

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**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 422.91 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum	N/A	N/A	10,586.5	ug/l	36.4 lbs/day
Arsenic	3,899.76 ug/l	7.2 lbs/day	4,723.5	ug/l	16.2 lbs/day
Cadmium	67.10 ug/l	0.1 lbs/day	110.1	ug/l	0.4 lbs/day
Chromium III	7,667.65 ug/l	14.2 lbs/day	83,410.8	ug/l	286.5 lbs/day
Chromium VI	235.46 ug/l	0.4 lbs/day	194.2	ug/l	0.7 lbs/day
Copper	830.62 ug/l	1.5 lbs/day	750.6	ug/l	2.6 lbs/day
Iron	N/A	N/A	14,071.4	ug/l	48.3 lbs/day
Lead	542.06 ug/l	1.0 lbs/day	7,267.6	ug/l	25.0 lbs/day
Mercury	0.33 ug/l	0.0 lbs/day	34.1	ug/l	0.1 lbs/day
Nickel	4,775.95 ug/l	8.8 lbs/day	22,536.7	ug/l	77.4 lbs/day
Selenium	99.66 ug/l	0.2 lbs/day	270.9	ug/l	0.9 lbs/day
Silver	N/A ug/l	N/A lbs/day	638.7	ug/l	2.2 lbs/day
Zinc	11,010.64 ug/l	20.4 lbs/day	5,708.6	ug/l	19.6 lbs/day
Cyanide (free)	142.52 ug/l	0.3 lbs/day	312.5	ug/l	1.1 lbs/day

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

Summer	68.8 Deg. C.	155.9 Deg. F
Fall	57.6 Deg. C.	135.6 Deg. F
Winter	38.5 Deg. C.	101.3 Deg. F
Spring	56.8 Deg. C.	134.3 Deg. F

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

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

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	17.2 lbs/day
Nitrates as N	4.0 mg/l	13.7 lbs/day
Total Phosphorus as P	0.05 mg/l	0.2 lbs/day
Total Suspended Solids	90.0 mg/l	309.2 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

Metals	Maximum Concentration	
	Concentration	Load
Antimony	ug/l	lbs/day

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

**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						0.0	N/A
Antimony				117849.2		117849.2	
Arsenic	2740.7				0.0	2740.7	
Asbestos						0.00E+00	
Barium						0.0	
Beryllium						0.0	
Cadmium	272.7				0.0	272.7	
Chromium (III)					0.0	0.0	
Chromium (VI)	2714.3				0.0	2714.27	
Copper	5435.4					5435.4	
Cyanide		312.5	6029494.9			6029494.9	142.5
Iron						0.0	
Lead	2736.1				0.0	2736.1	
Mercury				4.11	0.0	4.11	
Nickel				126071.3		126071.3	
Selenium	1343.9				0.0	1343.9	
Silver					0.0	0.0	
Thallium				172.7		172.7	
Zinc						0.0	
Boron	14375.9					14375.9	

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	0.0	N/A	
Antimony	117849.22		
Arsenic	2740.7		Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	272.7		Acute Controls
Chromium (III)	0.0		Acute Controls
Chromium (VI)	2714.3		Acute Controls
Copper	5435.4		Acute Controls
Cyanide	6029494.9	142.5	
Iron	0.0		

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Lead	2736.1		Acute Controls
Mercury	4.111		Acute Controls
Nickel	126071.3		Acute Controls
Selenium	1343.9		Acute Controls
Silver	0.0	N/A	
Thallium	172.7		
Zinc	0.0		Acute Controls
Boron	14375.91		

Other Effluent Limitations are based upon R317-1.

E. coli 126.0 organisms per 100 ml

X. Antidegradation Considerations

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

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

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required.

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 down-stream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

XIII. Notice of UPDES Requirement

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

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801-538-6052
File Name: Bluffdale_Cooling_Canal_WLA_2022.xlsm

APPENDIX - Coefficients and Other Model Information

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CBOD Coeff. (Kd)20 1/day 0.830	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 0.863	REAER. Coeff. (Ka)20 (Ka)/day 2.984	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 3.045	NBOD Coeff. (Kn)20 1/day 0.250	NBOD Coeff. (Kn)T 1/day 0.267
Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 4.159	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(Cl)20 1/day 32.000	TRC K(Cl)(T) 1/day 33.621
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 1.055						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(Cl) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that a Level II antidegradation Review is not required.

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REASONABLE POTENTIAL ANALYSIS

Water Quality has worked to improve our reasonable potential analysis (RP) for the inclusion of limits for parameters in the permit by using an EPA provided model. As a result of the model, more parameters may be included in the renewal permit. A Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at water Quality. There are four outcomes for the RP Analysis¹. They are;

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

Initial screening for metals values that were submitted through the discharge monitoring reports showed that a closer look at some of the metals is needed. A copy of the initial screening is included in the “Effluent Metals and RP Screening Results” table in this attachment. The initial screening check for metals showed that further investigation into copper and mercury are needed.

Due to the nature of the receiving waters (Canal and Reuse System), and the results of the RP Screening, the monitoring frequency for all metals, except those subject to further RP analysis, will be reduced from Quarterly to annually. To be collected at least once every calendar year during a time of high flows, and to be reported at the end of each calendar year. The requirement for effluent metals monitoring for the Jordan River, Outfall 001, will remain the same, quarterly.

The monitoring requirements are at quarterly, and they have not always had a discharge that could be quantified or properly collected. As a result, they have only 10 metals monitoring events to report data on. This means that the model will be set to “Default” for the statistical distribution. Also, mercury was reported as below the method detection limit (MDL) for the analysis run, so the model will be run twice as ND and twice replacing the ND with the MDL.

There are no numeric standards for Reuse Water (Outfall 003R) or the Utah and Salt Lake Canal (Outfall 002), as a result, there are no WQBEL to run RP against. There are numeric standards for the Jordan River (Outfall 001), but there has never been a discharge to the Jordan River to sample. Since the same water could be discharged through Outfall 001 in the future, the RP analysis will be run using the WQBEL for Outfall 001, and the analytical results for Outfalls 002, and 003R. The results will be a good approximation, but won't be able to properly indicate the RP for outfall 001.

Copper

The RP model for copper resulted in screening for copper indicates that at the 95% confidence level only an acute limit is warranted, but at the 99% confidence level, both acute and chronic limits are warranted. While this would normally result in the inclusion of WQBELs for copper in the permit, however the limits are for discharge to the Jordan River, and not the canal, or reuse system. Currently they have not discharged to the Jordan River, and there are no numeric standards for the canal or reuse.

Currently there is no requirement to add a copper effluent limit to Outfall 001, 002, or 003R. Future monitoring results could change that. The effluent copper monitoring frequency for Outfall 002 and Outfall 003R will be reduced to annual, to be consistent with the of effluent metals monitoring requirements.

shows that the results vary, and samples are inconsistent, and

Mercury

¹ See Reasonable Potential Analysis Guidance for definitions of terms

The RP model for mercury resulted in screening for copper indicates that a chronic effluent limit may be warranted, but not an acute limit. Evaluation of the data shows all the values are reported as below the MDL for the analysis method used. While this would normally result in the inclusion of WQBELs for mercury in the permit, having less than 10 data points and all as below the MDL dose not yield reliable results with the current model.

As a result, there will be no requirement to add a mercury effluent limit to Outfall 001, 002, or 003R. Future monitoring results could change that. The effluent mercury monitoring frequency for Outfall 002 and Outfall 003 will be reduced to annual, to be consistent with the of effluent metals monitoring requirements.

When the MDL and the WQBEL are very close, as they are in this case, the first thing to work on is to improve quality of the analysis results. It will be requested that the permittee use a more sensitive mercury analysis method in the future for effluent analysis from Outfall 002 and 003R, but it will be required for mercury analysis at outfall 001.

A Summary of the RP Model inputs and outputs are included in the table below.

The Metals Initial Screening Table is included in this attachment.

RP input/output summary

RP Procedure Output	Outfall Number:	All	Data Units	mg/L		
Parameter	Mercury					
Distribution	Default					
Reporting Limit	0.0002	Replace ND with MRL of 0.0002	Replace ND with ½ MRL of 0.0001			
Significant Figures	2					
Maximum Reported Effluent Conc.	ND	0.0002	0.0001			
Coefficient of Variation (CV)	0.6	0.6	0.6			
Acute Criterion	0.0341	0.0341	0.0341			
Chronic Criterion	0.00033	0.00033	0.00033			
Model Run	#1	#2	#3	#4	#5	#6
Confidence Interval	95	99	95	99	95	99
RP Multiplier	#N/A	#N/A	1.9	3.3	1.9	3.3
Projected Maximum Effluent Conc. (MEC)	#N/A	#N/A	0.00038	0.33367	0.00019	0.00033
RP for Acute?	#N/A	#N/A	No	No	No	No
RP for Chronic?	#N/A	#N/A	No	Yes	No	Yes
Outcome	#N/A	#N/A	D	D	D	D
Overall Recommended Outcome	B					

RP Procedure Output	Outfall Number:	All	Data Units	mg/L
Parameter	Copper			
Distribution	Default			
Reporting Limit	0.001			
Significant Figures	2			
Maximum Reported Effluent Conc.	0.447			
Coefficient of Variation (CV)	0.6			
Acute Criterion	0.75			
Chronic Criterion	0.831			
Confidence Interval	95	99		
Projected Maximum Effluent Conc. (MEC)	0.81	1.4		
RP Multiplier	1.8	3.2		
RP for Acute?	Yes	Yes		
RP for Chronic?	No	Yes		
Outcome	D			

Metals Monitoring and RP Check

Effluent Metals Reasonable Potential Screening													
Combined Summary of Metals discharge monitoring data for Outfall 002 and 003													
Month	Flow	Ag	AS	Cd	CN	Cr3	Cu	Hg	Mo	Ni	Pb	Se	Zn
Jun-19	<MDL	<MDL	0.018	<MDL	<MDL	0.009	0.146		0.013	0.016	<MDL		<MDL
Dec-19	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Mar-20		<MDL	0.0024	<MDL	<MDL	0.006	0.447		0.005	0.0006	<MDL		<MDL
Jun-20		<MDL	0.003	<MDL	0.002	0.002	0.418	<MDL	0.003	0.002	<MDL	0.015	<MDL
Sep-20	<MDL	<MDL	0.006	<MDL	0.002	0.004	0.272	<MDL	0.011	0.001	<MDL	0.012	<MDL
Mar-21	<MDL	<MDL	0.008		<MDL	0.005	0.435	<MDL	0.074	0.002	<MDL	0.035	<MDL
Jun-21	<MDL	<MDL	0.003	<MDL	<MDL	0.002	0.422	<MDL	0.096	0.001	<MDL	0.007	<MDL
Sep-21	<MDL	<MDL	0.007	<MDL	0.004	0.002	0.002	<MDL	0.105	0.001	<MDL	0.007	<MDL
Dec-21	0	<MDL	0.005	<MDL	0.002	0.0026	0.316	<MDL	0.329	0.001	<MDL	0.0072	<MDL
Jun-22	<MDL	<MDL	0.0037	<MDL	<MDL	0.004	0.356	<MDL	0.053	0.002	<MDL	0.006	0.02
MDL		0.0005	0.0005	0.0002	0.002	0.0005	0.001	0.0002		0.0005	0.0005	0.0005	0.01
Max		0.0005	0.018	0.0002	0.004	0.009	0.447	0.0002	0.329	0.016	0.0005	0.035	0.02
Metal		Ag	AS	Cd	CN	Cr3	Cu	Hg	Mo	Ni	Pb	Se	Zn
Chronic	mg/l	N/A	3.89976	0.0671	0.14252	0.23546	0.83062	0.00033	1	4.77595	0.54206	0.09966	11.01064
Acute	mg/l	0.6387	4.7235	0.1101	0.3125	0.2	0.8	0.0341	1.0	22.5367	7.3	0.2709	5.7086
Full Run	Chronic	No	No	No	No	No	No	Yes	No	No	No	No	No
	Acute	No	No	No	No	No	Yes	No	No	No	No	No	No