Official Draft Public Notice Version **March 17th, 2026**
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FACT SHEET
SNYDERVILLE BASIN WATER RECLAMATION DISTRICT
EAST CANYON WATER RECLAMATION FACILITY
RENEWAL PERMIT: DISCHARGE & BIOSOLIDS
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES)
UPDES PERMIT NUMBER: UT0020001
UPDES BIOSOLIDS PERMIT NUMBER: UTL-020001
MAJOR MUNICIPAL FACILITY

FACILITY CONTACTS

Person Name:	Michael Luers	Person Name:	Dustin Walton
Position:	District Manager	Position:	Pretreatment Coordinator
Person Name:	Chad Burrell	Person Name:	Chad Burrell
Position:	Operations Manager	Position:	Biosolids Coordinator
Person Name:	Marlo Davis	Person Name:	Tiffini Adams
Position:	Superintendent	Position:	Laboratory Director

Permittee:	Snyderville Basin Water Reclamation District
Facility Name:	East Canyon Water Reclamation Facility
Mailing Address:	2800 Homestead Road Park City, UT 84098
Office Telephone:	(435) 649-7993
Facility Telephone:	(435) 214-5252
Actual Facility Address:	2909 Sackett Drive Park City, UT 84098

DESCRIPTION OF FACILITY

The East Canyon Water Reclamation Facility (ECWRF) is one of two water reclamation facilities owned and operated by the Snyderville Basin Water Reclamation District (SBWRD), with the nearby Silver Creek Water Reclamation Facility being the other. SBWRD maintains the ability to divert a portion of the influent flows to either facility when necessary for distribution and management purposes, as the uniqueness of highly variable inflows and loading from the ski season can result in operational challenges at either of the facilities. SBWRD serves all of Park City, Utah, and the adjoining unincorporated areas within the Silver Creek and East Canyon Creek watersheds, including the populated portions of Summit County, Utah.

The ECWRF, which was previously upgraded in 2004 to include phosphorus removal as part of the wastewater treatment operations, consists of influent step screens, followed by cyclone grit removal, an equalization basin, 2-bioreactors based on the modified Bardenpho Process, 3-covered secondary clarifiers, constant-backwash sand filters, ultraviolet disinfection, and a post-aerator. Upon final effluent treatment,

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the discharge flows through and from Outfall 001 either directly into East Canyon Creek, or into adjacent wetlands just prior to flowing into East Canyon Creek. The current treatment design capacity of ECWRF includes a monthly average flow of 4.0 million gallons per day (MGD).

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

There are a few proposed changes in the renewal Permit as compared to the previous Permit. The changes are as follows:

1. Storm water UPDES Permit provisions have been removed from the Permit as part of a Division of Water Quality (DWQ) programmatic separation of the previously combined UPDES Permits. ECWRF will now be required to apply for and obtain separate UPDES Industrial Storm Water Permit coverage under the UPDES MSGP No. UTR000000, or an applicable exemption, as described further in the **Storm Water** section of this Fact Sheet.

2. Temperature monitoring of the effluent has been increased from once monthly to twice weekly to be consistent with other instantaneous parameters, which will further support any future studies as discussed in the **Total Maximum Daily Load (TMDL) Requirements** section of this Fact Sheet.

3. Similarly, the Total Phosphorus effluent monitoring frequency has increased from once monthly to twice weekly as well. The previous frequency of once a month was specifically for the initial Technology-Based Phosphorus Effluent Limit rulemaking implementation, while this increased frequency matches other effluent water quality parameters and will further support the TMDL requirements.

4. Effluent monitoring for Cyanide, Copper, and Mercury has been increased from quarterly to monthly for the first year of the Permit, as discussed further in the **Reasonable Potential Analysis** section of this Fact Sheet.

5. Effluent concentration and loading seasonal limitations for Ammonia and Total Dissolved Solids (TDS) have been updated based upon the Wasteload Analysis (WLA) developed for this Permit renewal. SBWRD has once again requested that seasonal effluent loading limits, in lieu of the effluent design flow limit of 4.0 MGD, and in addition to the effluent concentration limits, be included in the Permit renewal where applicable. Thus, all values that are not technology-based rely on this design flow value for loading calculations. To accommodate this request, effluent loading limits have been applied for monitoring parameters that are not already limited by secondary standards or technology-based limits, which in this Permit includes both Ammonia and TDS.

6. The Whole Effluent Toxicity (WET) testing percent effluent criteria has also been updated based upon the WLA as specified in the Permit and this Fact Sheet.

7. Reporting the minimum monthly average concentration for dissolved oxygen (DO), in addition to the daily minimum concentration, has now been included in the Permit.

DISCHARGE INFORMATION

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DESCRIPTION OF DISCHARGE

ECWRF has been reporting self-monitoring results on Discharge Monitoring Report (DMR) forms on a monthly basis. There were no effluent violations during the last Permit cycle and a 5-year summary of the DMR data is presented as an attachment to this fact Sheet.

Outfall	Description of Discharge Point
001	Located at latitude 40° 45' 50" N and longitude 111° 33' 48" W. A portion of the discharge is directly to East Canyon Creek, approximately 3,000 feet upstream of where Sackett Drive crosses the creek. The remaining effluent flow is directed to a wetland that discharges to East Canyon Creek about 50 feet upstream of where Sackett Drive crosses the creek.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final effluent discharge flows into East Canyon Creek, which flows into East Canyon Reservoir and then to the Weber River. The Weber River and tributaries, from Stoddard Diversion to headwaters (including East Canyon Creek) are classified as Class 1C, 2B, 3A, and 4, according to UAC R317-2-13:

Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water

Class 2B -- Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

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

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

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

East Canyon Creek and tributaries from East Canyon Reservoir to Kimball Creek, except Murnin Creek and Toll Canyon (East Canyon Creek-2-1; UT16020102-026_01), have a TMDL in place for total phosphorus to attain DO standards (UDWQ 2000). A TMDL study addressing the total phosphorus loading into East Canyon Creek and East Canyon Reservoir was completed in 2010 (UDWQ 2010). The TMDL for the reservoir allocated an annual total phosphorus load limit of 895 kg (1,973 lbs) to ECWRF, including future growth up to 7.2 MGD, which was previously incorporated and remains in the permit. Additionally, East Canyon Creek is listed as impaired for temperature and the reservoir is listed as impaired for harmful algal blooms and E. coli on the 2024 303(d) list, requiring future TMDL studies. Increased monitoring and reporting of temperature and DO are included in the permit.

BASIS FOR EFFLUENT LIMITATIONS

In accordance with regulations promulgated in 40 Code of Federal Regulations (CFR) Part 122.44 and UAC R317-8-4.2, effluent limitations are derived from technology-based effluent limitations guidelines, Utah Secondary Treatment Standards (UAC R317-1-3.2) or Utah Water Quality Standards (UAC R317-2) as applicable. In cases where multiple limits have been developed, those that are more stringent apply. In cases where no limits or multiple limits have been developed, Best Professional Judgment (BPJ) of the permitting authority may be used where applicable. BPJ refers to a discretionary, best professional decision

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made by the permit writer based upon precedent, prevailing regulatory standards, or other relevant information.

Permit limits can also be derived from a WLA, which incorporates Secondary Treatment Standards, Water Quality Standards, including any applicable TMDL requirements to address water quality impairments as appropriate, Antidegradation Reviews (ADR), and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet State Water Quality Standards in the receiving waters. During this UPDES renewal permit development, a WLA and ADR were completed as appropriate to be protective of water quality in order to meet State water quality standards in the receiving waters. An ADR Level I review was performed and concluded that an ADR Level II review was not required as the design flows and pollutant loading are not increasing at this time. The current WLA and ADR information are attached to this Fact Sheet.

Limitations on total suspended solids (TSS), E. coli, pH, carbonaceous biological oxygen demand (CBOD), and TSS and CBOD percent removal limitations remain unchanged in the Permit and are based on Utah Secondary Treatment Standards found in UAC R317-1-3.2. Limitations on Ammonia, WET, and TDS are based on the current WLA, while the DO daily minimum limitation is maintained from the previous Permit and WLA, which is a more protective limitation when comparing it to the corresponding instantaneous daily instream DO criteria presented in the current WLA.

The current WLA evaluated the three DO criteria established to protect aquatic life across instantaneous minima (4.0 mg/L daily minimum) and two rolling average periods: 7-day (5.0 mg/L) and 30-day (6.5 mg/L) average minimums. The instantaneous minima protect against acute impacts, and the 7-day and 30-day averages protect against chronic impacts. Regarding the protection of aquatic wildlife where and when early life stages (ELS) of resident fish are expected to occur, the daily minimum and 7-day average criteria have additional values to apply. DWQ evaluated the application of ELS DO criteria in this permit and determined that it would be appropriate to first establish specific procedures to better define how these additional DO criteria are incorporated into future permits and permit renewals. Therefore, the additional DO criteria were withheld from the WLA until procedures are clarified.

The WLA includes DO and CBOD concentrations to address Class 3A numeric criteria for aquatic wildlife, including the existing DO daily minimum limitation of 5.0 mg/L, which is protective of the instantaneous instream minima of 4.0 mg/L, as well as the 5.0 mg/L 7-day average instream minimum as presented in the WLA. Because of the uncertainty associated with its simplified approach and a more robust QUAL2Kw model is under development, the Utah Rivers Model was not applied for compliance with the 30-day average DO criterion of 6.5 mg/L at this time. DWQ and SBWRD have agreed to collaborate on the development of a QUAL2Kw model to support more robust DO modeling in the next Permit cycle. In addition, SBWRD shall begin to report the 30-day monthly minimum average for DO in their effluent for evaluation of this criterion in the next Permit cycle. Additionally, an evaluation of the existing effluent data for CBOD, as detailed further in the next section of this Fact Sheet, was performed by the permitting authority, which has determined that the existing DO and CBOD limitations will remain unchanged for this Permit renewal period to be consistently protective of both the water quality and the beneficial uses in the receiving water.

Finally, the Oil & Grease limitation is based on BPJ and is consistent with other UPDES permits in the state, while the phosphorus limitation is based on the East Canyon Creek and Reservoir TMDL (UDWQ 2010), as described previously.

Reasonable Potential Analysis

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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 framework for what routine monitoring or effluent limitations are required.

RP was performed on metals and cyanide to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Effluent data from 2020-2024 were reviewed, and copper, cyanide, and mercury were determined to have a reasonable potential to exceed the applicable chronic water quality standard. As such, the monitoring frequency has been increased for copper, cyanide, and mercury. This increase will establish sufficient data for further evaluation during the next Permit cycle. Additionally, an initial RP screening was separately performed on CBOD to further support maintaining the existing effluent limitations as mentioned previously. A copy of the RP is included at the end of this Fact Sheet.

The Permit limitations are as follows:

Parameter, Units	Effluent Limitations *a						
	Maximum Monthly Average	Maximum Weekly Average	Minimum Monthly Average	Annual Load	Daily Minimum	Daily Maximum	Monthly Maximum Load
CBOD, mg/L CBOD Min. % Removal	20 85	30 --	-- --	-- --	-- --	-- --	-- --
TSS, mg/L TSS Min. % Removal	25 85	35 --	-- --	-- --	-- --	-- --	-- --
TDS, mg/L, tons Summer (Jul-Sep) Fall (Oct-Dec) Winter (Jan-Mar) Spring (Apr-Jun)	 -- -- -- --	 -- -- -- --	 -- -- -- --	 -- -- -- --	 -- -- -- --	 1,385 mg/L 1,521 mg/L 1,575 mg/L 2,076 mg/L	 693 tons 761 tons 788 tons 1,039 tons
Dissolved Oxygen, mg/L	--	--	Report	--	5.0	--	--
Total Ammonia (as N) Summer (Jul-Aug) Fall (Sept-Nov) Winter (Dec-Mar) Spring (Apr-Jun)	 4.4 mg/L 6.04 mg/L 7.33 mg/L 5.59 mg/L	 -- -- -- --	 -- -- -- --	 -- -- -- --	 -- -- -- --	 12.4 mg/L 7.91 mg/L 9.68 mg/L 8.11 mg/L	 4,410 lbs 6,060 lbs 7,332 lbs 5,592 lbs
E. coli, No./100mL	126	157	--	--	--	--	--
Total Phosphorus, mg/L, lbs/year *f	Report mg/L	--	--	1,973 lbs/yr	--	--	--
WET, Chronic Biomonitoring	--	--	--	--	--	IC_{25} > 77.7% effluent	--
Oil & Grease, mg/L *e	--	--	--	--	--	10.0	--
pH, Standard Units (SU)	--	--	--	--	6.5	9.0	--

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are similar to the previous permit with a few changes as noted above in the **Summary of Changes from Previous Permit** section of this Fact Sheet. The permit requires

reports to be submitted monthly, quarterly and annually, as applicable, on DMR forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results shall be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Lab sheets for biomonitoring, metals and toxic organics shall be attached to the DMRs.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
$CBOD_5$, Influent *d	2 x weekly	Composite	mg/L
Effluent	2 x weekly	Composite	mg/L
TSS, Influent *d	2 x weekly	Composite	mg/L
Effluent	2 x weekly	Composite	mg/L
E. coli	2 x weekly	Grab	No./100mL
pH	2 x weekly	Grab	SU
Total Ammonia (as N)	2 x weekly	Grab	mg/L, lbs
Dissolved Oxygen	2 x weekly	Grab	mg/L
WET – Biomonitoring *g			
Fathead Minnows - Chronic	1st & 3rd Quarter	Composite	Pass/Fail
Ceriodaphnia - Chronic	2nd & 4th Quarter	Composite	Pass/Fail
Oil & Grease *e	When Sheen Observed	Visual/Grab	mg/L
Orthophosphate (as P),			
Effluent	Monthly	Composite/Grab	mg/L
Total Phosphorus (as P) *f	Annual	Calculated	lbs/year
Total Phosphorus (as P)			
Influent	2 x weekly	Composite/Grab	mg/L
Effluent	2 x weekly	Composite/Grab	mg/L
Total Kjeldahl Nitrogen			
TKN (as N),			
Influent	Monthly	Composite/Grab	mg/L
Effluent	Monthly	Composite/Grab	mg/L
Nitrate, NO3	Monthly	Composite/Grab	mg/L
Nitrite, NO2	Monthly	Composite/Grab	mg/L
TDS	Monthly	Composite/Grab	mg/L, tons
Temperature	2 x weekly	Grab	°F
Copper *h	Monthly/Quarterly	Composite/Grab	mg/L
Cyanide *h	Monthly/Quarterly	Composite/Grab	mg/L
Mercury *h	Monthly/Quarterly	Composite/Grab	ng/L
Total Metals			
Influent	Quarterly	Composite/Grab	mg/L
Effluent *h	Quarterly	Composite/Grab	mg/L
Organic Toxics			
Influent	Annually	Grab	mg/L
Effluent	Annually	Grab	mg/L

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

*b 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.

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

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*d In addition to monitoring the final effluent discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.

*e Oil & Grease shall be sampled when sheen is present or visible. If no sheen is present or visible, report as NA by selecting code "9" from the "NODI" code dropdown list in NetDMR.

*f The Permittee shall calculate phosphorus load in accordance with the "Average annual discharge limit" definition found in Part VIII of the Permit.

*g The chronic Ceriodaphnia will be tested during the 2nd and 4th quarters, and the chronic fathead minnows will be tested during the 1st and 3rd quarters.

*h Effluent Metals results were reviewed for a previous five-year period. Cyanide, copper, and mercury had reasonable potential (RP) to exceed some of the corresponding effluent water quality standards, which resulted in increased monitoring for the first year of the Permit. See the table below for Metals to be monitored and the monitoring frequency as listed.

Metals Monitoring
Quarterly Total Arsenic
Quarterly Total Cadmium
Quarterly Total Chromium
Monthly for first year, then quarterly Total Copper
Monthly for first year, then quarterly Total/Free Cyanide
Monthly for first year, then quarterly Total Mercury
Quarterly Total Lead
Quarterly Total Molybdenum
Quarterly Total Nickel
Quarterly Total Selenium
Quarterly Total Silver
Quarterly Total Zinc

All Permit compliance monitoring occurs at the Outfall location listed in the **DESCRIPTION OF DISCHARGE** Section above.

BIOSOLIDS

For clarification purposes, sewage sludge is considered solids, until treatment or testing shows that the solids are safe, and meet beneficial use standards. After the solids are tested or treated, the solids are then known as biosolids. Class A biosolids, may be used for high public contact sites, such as home lawns and gardens, parks, or playing fields, etc. Class B biosolids may be used for low public contact sites, such as farms, rangeland, or reclamation sites, etc.

SUBSTANTIAL BIOSOLIDS TREATMENT CHANGES
There have been no substantial biosolids treatment changes since the last Permit cycle.

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DESCRIPTION OF TREATMENT AND DISPOSAL
The biosolids are stabilized with oxidation ditches with a mean cell residence time of about twenty days. The stabilized biosolids are dewatered with rotary fan presses before they are hauled offsite.

The Permittee submitted their last annual biosolids report (for 2024) on February 11, 2025. The report states the Permittee produced 598.1 dry metric tons (DMT) of solids. The biosolids were hauled to either Summit County 3 Mile Landfill, Wasatch Regional Landfill, and/or ET Technologies.

SELF-MONITORING REQUIREMENTS
Under 40 CFR 503.16(a)(1), the self-monitoring requirements are based upon the amount of biosolids disposed per year and shall be monitored according to the chart below.

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

ECWRF has produced disposed of on average 630 DMT per year of biosolids over the past 10 years, therefore they need to sample at least once per quarter, or four times per year.

Landfill Monitoring
Under 40 CFR 258, the landfill monitoring requirements include a paint filter test. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (40 CFR 258.28(c)(1)).

BIOSOLIDS LIMITATIONS

Heavy Metals

Class A Biosolids for Home Lawn and Garden Use
The intent of the heavy metals regulations of Table 3, 40 CFR 503.13 is to ensure the heavy metals do not build up in the soil in home lawn and gardens to the point where the heavy metals become phytotoxic to plants. The Permittee will be required to produce an information sheet (see Part III. C. of the Permit) to made available to all people who are receiving and land applying Class A biosolids to their lawns and gardens. If the instructions of the information sheet are followed to any reasonable degree, the Class A biosolids will be able to be land applied year after year, to the same lawns and garden plots without any deleterious effects to the environment. The information sheet must be provided to the public, because the Permittee is not required, nor able to track the quantity of Class A biosolids that are land applied to home lawns and gardens.

Class A Requirements with Regards to Heavy Metals
If the biosolids are to be applied to a lawn or home garden, the biosolids shall not exceed the maximum heavy metals in Table 3 below. If the biosolids do not meet these requirements, the biosolids cannot be sold or given away for applications to home lawns and gardens.

Class B Requirements for Agriculture and Reclamation Sites

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The intent of the heavy metals regulations of Tables 1, 2 and 3, of 40 CFR 503.13 is to ensure that heavy metals do not build up in the soil at farms, forest land, and land reclamation sites to the point where the heavy metals become phytotoxic to plants. The Permittee will be required to produce an information sheet (see Part III. C. of the Permit) to be handed out to all people who are receiving and land applying Class B biosolids to farms, ranches, and land reclamation sites (if biosolids are only applied to land owned by the Permittee, the information sheet requirements are waived). If the biosolids are land applied according to the regulations of 40 CFR 503.13, to any reasonable degree, the Class B biosolids will be able to be land applied year after year, to the same farms, ranches, and land reclamation sites without any deleterious effects to the environment.

Class B Requirements with Regards to Heavy Metals

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site it must meet at all times:

The maximum heavy metals listed in 40 CFR Part 503.13(b) Table 1 and the heavy metals loading rates in 40 CFR Part 503.13(b) Table 2; or

The maximum heavy metals in 40 CFR Part 503.13(b) Table 1 and the monthly heavy metals concentrations in 40 CFR Part 503.13(b) Table 3.

Tables 1, 2, and 3 of Heavy Metal Limitations

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits [1], (mg/kg)	CPLR [2], (mg/ha)	Pollutant Conc. Limits [3] (mg/kg)	APLR [4], (mg/ha-yr)
Total Arsenic	75	41	41	2.0
Total Cadmium	85	39	39	1.9
Total Copper	4300	1500	1500	75
Total Lead	840	300	300	15
Total Mercury	57	17	17	0.85
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5.0
Total Zinc	7500	2800	2800	140
1, If the concentration of any 1 (one) of these parameters exceeds the Table 1 limit, the biosolids cannot be land applied or beneficially used in any way.				
2, CPLR - Cumulative Pollutant Loading Rate - The maximum loading for any 1 (one) of the parameters listed that may be applied to land when biosolids are land applied or beneficially used on agricultural, forestry, or a reclamation site.				
3, If the concentration of any 1 (one) of these parameters exceeds the Table 3 limit, the biosolids cannot be land applied or beneficially used in on a lawn, home garden, or other high potential public contact site. If any 1 (one) of these parameters exceeds the Table 3 limit, the biosolids may be land applied or beneficially reused on an agricultural, forestry, reclamation site, or other high potential public contact site, as long as it meets the requirements of Table 1, Table 2, and Table 4.				

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Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits [1], (mg/kg)	CPLR [2], (mg/ha)	Pollutant Conc. Limits [3] (mg/kg)	APLR [4], (mg/ha-yr)
4, APLR - Annual Pollutant Loading Rate - The maximum annual loading for any 1 (one) of the parameters listed that may be applied to land when biosolids are land applied or beneficially reused on agricultural, forestry, or a reclamation site, when they do not meet Table 3, but do meet Table 1.				

Any violation of these limitations shall be reported in accordance with the requirements of Part III.F.1. of the Permit. If the biosolids do not meet these requirements they cannot be land applied.

Pathogens

The Pathogen Control class listed in the table below must be met;

Pathogen Control Class	
503.32 (a)(1) - (5), (7), (8), Class A	503.32 (b)(1) - (5), Class B
B Salmonella species –less than three (3) MPN[1] per four (4) grams total solids (DWB)[2] or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – less than 2,000,000 MPN or CFU[3] per gram total solids (DWB).
503.32 (a)(6) Class A—Alternative 4	
B Salmonella species –less than three (3) MPN per four (4) grams total solids (DWB) or less than 1,000 MPN Fecal Coliforms per gram total solids (DWB), And - Enteric viruses –less than one (1) plaque forming unit per four (4) grams total solids (DWB) And - Viable helminth ova –less than one (1) per four (4) grams total solids (DWB)	
1 - MPN – Most Probable Number	
2 - DWB – Dry Weight Basis	
3 - CFU – Colony Forming Units	

Class A Requirements for Home Lawn and Garden Use

If biosolids are land applied to home lawns and gardens, the biosolids need to be treated by a specific process to further reduce pathogens (PFRP), and meet a microbiological limit of less than less than 3 most probable number (MPN) of *Salmonella* per 4 grams of total solids (or less than 1,000 most probable number (MPN/g) of fecal coliform per gram of total solids) to be considered Class A biosolids

ECWRF does not intend to give away biosolids for lands application on home lawns or gardens, and will therefore not be required to meet PFRP. If the Permitee changes their intentions in the future, they will need to meet a specific PFRP, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

The practice of sale or giveaway to the public is an acceptable use of biosolids of this quality as long as

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the biosolids continue to meet Class A standards with respect to pathogens. If the biosolids do not meet Class A pathogen standards the biosolids cannot be sold or given away to the public, and the Permittee will need find another method of beneficial use or disposal.

Pathogens Class B

If biosolids are to be land applied for agriculture or land reclamation the solids need to be treated by a specific process to significantly reduce pathogens (PSRP). The ECWRF does not intend to land apply the biosolids and will therefore not be required to meet PSRP.

If the Permittee intents to land apply in the future, they will need to meet a specific PSRP, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

Vector Attraction Reduction (VAR)

If the biosolids are land applied ECWRF will be required to meet VAR through the use of a method of listed under 40 CFR 503.33. At this time ECWRF does not intend to distribute biosolids to the public for beneficial use, and will be disposing of them in a landfill. Under 40 CFR 503.33(b)(11).

If the Permittee intends to use another one of the listed alternatives in *40 CFR 503.33*, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

Landfill Monitoring

Under 40 CFR 258, the landfill monitoring requirements include a paint filter test to determine if the biosolids exhibit free liquid. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (40 CFR 258.28(c)(1)).

Record Keeping

The record keeping requirements from 40 CFR 503.17 are included under Part III.G. of the Permit. The amount of time the records must be maintained are dependent on the quality of the biosolids in regards to the metals concentrations. If the biosolids continue to meet the metals limits of Table 3 of 40 CFR 503.13, and are sold or given away the records must be retained for a minimum of five years. If the biosolids are disposed in a landfill the records must retained for a minimum of five years.

Reporting

ECWRF must report annually as required in 40 CFR 503.18. This report is to include the results of all monitoring performed in accordance with Part III.B of the Permit, information on management practices, biosolids treatment, and certifications. This report is due no later than February 19 of each year. Each report is for the previous calendar year.

MONITORING DATA

METALS MONITORING DATA

ECWRF was required to sample for metals at least four times in 2024. All biosolids land applied in 2024 met Table 3 of 40 CFR 503.13, therefore the ECWRF biosolids qualify as EQ with regards to metals. The monitoring data is below.

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ECWRF Metals Monitoring Data			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41.0	9.2	14
Cadmium	39.0	4.1	52.7
Copper	1,500.0	418.2	704
Lead	300.0	11.8	17.7
Mercury	17.0	0.35	3.76
Molybdenum	75.0	7.98	11
Nickel	400.0	7.1	16.7
Selenium	36.0	5.9	14.5
Zinc	2,800.0	904.8	3390

PATHOGEN MONITORING DATA
ECWRF was not required to monitor for pathogens. Therefore, there is not any monitoring data.

STORM WATER

Separate Storm Water UPDES 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 for the facility and the types of industrial activities occurring. MSGP coverage is required for Treatment Works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 million gallons per day (MGD) or more, or required to have an approved pretreatment program under 40 C.F.R. § Part 403. If 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. Previously storm water discharge requirements and coverage were combined in this individual Permit. These have been separated to provide consistency among permittees, electronic reporting for storm water discharge monitoring reports, and increase flexibility to changing site conditions.

Permit coverage under the Construction General Storm Water Permit (CGP) is required for any construction at the facility which disturb an acre or more, or is part of a common plan of development or sale that is an acre or greater. A Notice of Intent (NOI) is required to obtain a construction storm water permit prior to the period of construction. Information on storm water permit requirements can be found at http://stormwater.utah.gov

PRETREATMENT REQUIREMENTS

SBWRD owns, maintains and operates a portion of the Publicly Owned Treatment Works (POTW), which includes two water reclamation facilities. The water reclamation facilities have a design flow of greater than 5.0 MGD and Significant Industrial Users discharging to the POTW; therefore, SBWRD is required to implement an Approved POTW Pretreatment Program (Program). The authority to require a Program is provided in 19-5-108 UCA, 1953 ann. and UAC R317-8-8.

The pretreatment requirements for administering the Program remain the same in the Permit. SBWRD

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should review the Program and make changes as needed. Any substantial or non-substantial changes to the Program, as defined in 40 CFR 403.18, must be submitted to the Division of Water Quality for approval.

The pretreatment requirements remain essentially the same, with additional language changes to clarify requirements. The changes are consistent with the provisions in UAC R317-8-8 and 40 CFR 403. One requirement is to ensure that if the allowable headworks loading is above the value calculated for the local limit development, then notification must occur and additional monitoring may need to occur. The other change is a requirement to notify the Director of any new pollutants or increased pollutants by an Industrial User.

The Permit requires influent and effluent monitoring for metals and organic toxics. As stated in the Permit, the most sensitive method should be used for analyzing pollutants of concern as determined by the local limit development. Sampling of metals will be conducted quarterly, and sampling of organic toxins will be conducted yearly; see Part II of the UPDES Permit. This is consistent with the UPDES Pretreatment Guidance for Sampling of POTWs, which is based on the design flow of the wastewater treatment plant.

SBWRD will be required to annually evaluate the need to revise or develop technically based local limits to implement the general and specific prohibitions of 40 CFR, Part 403.5(a) and Part 403.5(b). This evaluation may indicate that present local limits are sufficiently protective or must be revised. The initial evaluation is due twelve months after the effective date of the Permit. The Permittee should utilize the EPA Local Limits Development Guidance when evaluating the local limits. Information is provided in Chapter 7 of the EPA Local Limits Development Guidance 2004 to assist with revising the local limits.

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.

Since the Permittee is a major municipal discharger with a pretreatment program, the renewal Permit will once again require WET testing for the discharging effluent as appropriate based upon the aforementioned biomonitoring guidance document. The Permittee has been conducting quarterly chronic WET testing of their effluent utilizing the test species, Ceriodaphnia dubia (water flea) and Pimephales promelas (fathead minnow) alternating quarterly as detailed in the permit. A review of past five-year Permit period reveals that the Permittee has had no chronic WET testing failures. Based upon past performances and WET testing results, no changes in the WET testing Permit requirements are being proposed at this time. The Permittee is required to conduct the quarterly WET testing using 77.7% effluent as derived from the WLA and detailed in the Permit. The Permit will contain the standard requirements for accelerated testing upon failure of a WET test, and a Preliminary Toxicity Investigation (PTI) and Toxicity Reduction Evaluation (TRE) as necessary.

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PERMIT DURATION

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

Drafted and Reviewed by
Jeff Studenka, Discharge Permit Writer
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Jordan Bryant, Storm Water
Christine Osborne, TMDL/Watershed
Suzan Tahir, Wasteload Analysis/ADR
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE INFORMATION (to be updated after)

Began: Month Day, Year
Ended: Month Day, Year

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

The Public Notice of the draft permit was published on State of Utah and/or DWQ's website for at least 30 days as required.

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

ADDENDUM TO FACT SHEET

During finalization of the Permit certain dates, spelling edits and minor language corrections were completed. Due to the nature of these changes, they are considered minor changes and the permit is not required to be re Public Noticed as provided in UAC R317-8-5.6(3)

Responsiveness Summary

(Explain any comments received and response sent. Actual letters can be referenced but not required to be included).

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ATTACHMENT 1

Effluent Monitoring Data

(DWQ-2024-000907)

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	Flow, in conduit or thru treatment plant (daily max)	Flow, in conduit or thru treatment plant (max monthly avg)	Oxygen, dissolved [DO]	pH (min)	pH (max)	Solids, total suspended (max weekly avg)	Solids, total dissolved (max monthly avg)	Solids, total suspended (% removal)	Nitrogen, ammonia total [as N] (max monthly avg, mg/L)	Nitrogen, ammonia total [as N] (daily max, mg/L)	Nitrogen, ammonia total [as N] (max monthly avg, lbs/mo)	Nitrogen, Kjeldahl, total [as N]	Nitrogen, nitrate total [as NO3]	Nitrogen, nitrite total [as NO2]	Phosphate, ortho [as P]	Phosphorus, total [as P]	Phosphorus, total [as P] (lbs/year)	Oil and grease visual	E. coli (max monthly avg)	E. coli (max weekly avg)	Solids, total dissolved [TDS]	BOD, carbonaceous [5 day, 5 C]	BOD, carbonaceous [max monthly avg]	Solids, suspended percent removal	Carbonaceous oxygen demand, % removal
Oct-19	2.368	2.134	6.6	6.9	7.7	6.6	5.8	96	0.25	0.25	137.96	1	0.1	3.85	0.05	0.07		0	1.3	1.7	1076	2	2	96	98
Nov-19	2.24	2.066	6.8	7	7.3	7.5	6.8	96	0.25	0.25	129.24	1	4.37	0.1	0.05	0.08		0	3	6	1295	2	2	96	98
Dec-19	3.308	2.482	6.8	7.1	7.3	10.3	8.6	96	0.74	2.27	476.29	1	0.1	2.93	0.05	0.09	947.1	0	2.8	6.3	1321	2.1	2	96	99
Jan-20	3.22	2.63	6.7	7.2	7.4	8.8	8.2	96	0.48	2.46	325.62	1.3	2.36	0.1	0.05	0.07		0	1.5	2.2	1269	2	2	96	99
Feb-20	3.024	2.75	7.1	7.1	7.2	11.2	9.6	95	0.32	1.82	223.98	1.3	0.11	3.1	0.05	0.11		0	2	2	1299	2	2	95	99
Mar-20	3.744	3.141	7	7.2	7.7	11.2	6.6	93	0.1	0.1	81.19	1.4	2.88	0.1	0.05	0.12		0	1.1	1.7	1415	2	2	93	98
Apr-20	3.201	2.748	7	7.1	7.7	7.2	4.1	94	0.1	0.1	71.04	2.5	3.8	0.1	0.05	0.06		0	1.2	1.4	1202	2	2	94	98
May-20	2.601	2.417	6.8	7	7.8	18.3	7.6	86	0.1	0.1	62.49	1.9	7.5	0.1	0.05	0.13		0	1.1	1.7	1163	3.4	2.4	86	97
Jun-20	2.962	2.57	6.5	7.5	8	3.4	2.5	98	0.1	0.1	66.43	1.3	5.22	0.1	0.05	0.13		0	1.3	1.7	1015	2.5	2.1	98	98
Jul-20	2.777	2.55	6.1	7.3	7.6	5.8	5	97	0.1	0.1	65.93	1.2	3.24	0.1	0.05	0.13		0	1	1	1006	2	2	97	99
Aug-20	2.682	2.451	6	6.7	7.8	4.7	4.2	98	0.1	0.1	63.37	1	3.18	0.01	0.05	0.1		0	1.4	1.7	1079	2	2	98	99
Sep-20	2.452	2.271	6.3	7.2	8.5	5.4	4.5	98	0.1	0.1	56.81	1	0.1	4	0.14	0.19		0	1.3	1.4	1131	2	2	98	99
Oct-20	2.422	2.147	6.4	7.3	7.9	5	3.2	97	0.1	0.1	55.52	1	4.96	0.1	0.05	0.08		0	2.4	3.5	1059	2.8	2.2	97	98
Nov-20	2.462	2.108	6.7	7.6	7.8	2	2	99	0.1	0.12	54.06	1	5.5	0.1	0.05	0.11		0	1	1	1118	2	2	99	98
Dec-20	3.205	2.526	6.3	7.3	7.7	2.8	2.2	99	1.34	3.75	875.87	1	5.2	0.1	0.05	0.16	104.5	0	1.1	1.4	1119	4	3	99	97
Jan-21	3.148	2.472	6.7	7.4	7.7	2	2	99	0.19	0.5	120.63	1.6	6.3	0.1	0.05	0.1		0	1	1	1046	2.5	2.1	99	99
Feb-21	2.909	2.606	6.3	7.4	7.5	2.2	2.1	99	0.8	2.37	535.64	2.4	3.5	0.1	0.05	0.12		0	1.2	2	1193	2	2	99	99
Mar-21	3.908	3.014	6.7	7.4	7.6	2.7	2.3	99	0.13	0.32	103.89	1.1	2.6	0.1	0.05	0.17		0	1.4	2	1188	3.25	2.5	99	98
Apr-21	3.085	2.855	6.9	7.4	7.6	3.2	2.3	97	0.1	0.1	73.82	1.6	3.5	0.01	0.05	0.15		0	1.4	2	1141	2.7	2.2	97	98
May-21	3.409	3.137	6.5	7.3	8.2	2	2	99	0.1	0.1	81.1	1	3.4	0.1	0.05	0.12		0	1.1	1.4	1163	2.5	2.2	99	97
Jun-21	3.329	3.152	5.8	6.9	7.9	11.6	6.3	92	0.1	0.1	81.5	1.1	3.8	0.01	0.05	0.16		0	1.4	3.2	1130	2	2	92	98
Jul-21	3.605	3.141	5.9	6.9	7.5	4.8	3.9	98	0.1	0.1	81.22	1.2	3.9	0.1	0.05	0.07		0	1.5	2.4	1037	2	2	98	99
Aug-21	4.248	3.114	5.8	7	7.6	3.4	2.5	98	0.1	0.1	80.51	1	3.6	0.1	0.05	0.07		0	2	3.6	1111	2	2	98	98
Sep-21	2.456	2.095	6.2	7.4	8.6	2	2	99	0.1	0.1	54.15	1.1	0.58	0.1	0.06	0.15		0	1.2	1.4	1096	2.1	2	99	98
Oct-21	3.041	2.313	6.3	7.1	7.6	6.4	4.5	95	0.1	0.1	59.79	1	6.7	0.1	0.05	0.17		0	1.2	1.4	1142	2.2	2.1	95	97
Nov-21	2.427	2.189	6.8	7.2	7.7	4.9	3	97	0.1	0.1	56.6	1.4	6.2	0.1	0.05	0.05		0	1	1	1077	2	2	97	98
Dec-21	3.833	2.572	6.2	7.1	7.6	2	2	99	1.52	4.4	1010.58	1.2	5.5	0.1	0.05	0.09	1000.4	0	1.9	4	1077	2.4	2.1	99	98
Jan-22	4.156	3.172	6.1	7	7.6	2.4	2.1	99	0.87	2.6	709.44	1	3.9	0.1	0.05	0.13		0	2.95	4.9	1167	2.2	2	99	99
Feb-22	2.925	2.479	6.7	7.4	7.6	2	2	99	0.21	0.8	132.67	1.4	4.8	0.1	0.05	0.11		0	1	1	970	2	2	99	99
Mar-22	3.448	2.834	7.1	7.4	7.7	2	2	99	0.1	0.1	73.28	1.6	3.5	0.1	0.05	0.1		0	1.7	11	997	2	2	99	98
Apr-22	3.318	2.832	7.5	7	7.7	2	2	98	0.1	0.1	73.22	1	3.9	0.1	0.05	0.05		0	1.2	1.4	1090	3.2	2.3	98	95
May-22	3.658	2.611	7	7.5	7.7	2.2	2	98	0.1	0.1	67.51	1	5.3	0.1	0.05	0.08		0	1.6	2.4	1122	4.1	2.3	98	96
Jun-22	3.215	2.423	6.1	7.4	7.8	2	2	99	0.57	2.54	359.18	2.5	5.1	0.1	0.05	0.08		0	1.2	2	982	2	2	99	98
Jul-22	3.018	2.748	6.1	7.2	7.8	2.4	2.2	99	0.1	0.1	71.05	3.4	5.4	0.1	0.05	0.14		0	1.3	2	1054	2.4	2.1	99	99
Aug-22	3.119	2.628	6.1	7.6	7.8	2	2	99	0.1	0.1	67.94	1	7.3	0.1	0.08	0.22		0	2.3	4.9	1056	2.3	2	99	99
Sep-22	2.215	1.979	6.3	7	8.5	7.8	5.3	98	0.1	0.1	51.17	1.4	8	0.1	0.12	0.21		0	1.4	2	1174	2	2	98	99
Oct-22	2.198	1.933	6.7	7.2	7.7	11	6.5	97	0.1	0.1	49.99	1.2	7.3	0.1	0.05	0.08		0	1	1	958	18.5	6.1	97	95
Nov-22	3.294	2.163	7.1	7.6	8.2	2	2	99	0.1	0.1	55.93	1	5	0.1	0.05	0.1		0	1.2	3	1246	2.2	2.1	99	99
Dec-22	3.637	2.542	5.9	7.4	7.8	3.8	2.6	98	0.43	1.87	284.74	1.7	6.5	0.1	0.05	0.12	922.3	0	1.7	3.5	1326	3	2.3	98	99
Jan-23	3.5	2.876	6.8	7.5	7.7	2.7	2.2	99	0.1	0.1	74.36	1.7	3.4	0.1	0.05	0.14		0	2.2	3.5	1260	2.5	2.2	99	99
Feb-23	3.057	2.852	6.6	7.1	7.9	3.1	2.6	99	0.4	1.33	296.79	2.2	4	0.1	0.05	0.16		0	3.9	5.3	1190	2.6	2.2	99	99
Mar-23	4.605	3.33	6.6	7.1	7.7	3.3	3.1	98	0.18	0.43	158.8	2.1	2.8	0.1	0.05	0.21		0	3.1	6	1362	2.3	2.2	98	98
Apr-23	9.475	5.99	6.9	7.5	7.9	11.9	5.6	92	0.1	0.1	154.85	2.2	3.3	0.1	0.05	0.15		0	8	13.4	1542	3.6	2.5	92	94
May-23	8.654	5.47	6.2	7.2	7.8	5.1	3.1	95	0.1	0.1	141.43	1	3.1	0.1	0.22	0.24		0	2.3	6.2	950	2	2	95	94
Jun-23	4.268	3.44	6.7	7.3	7.6	3.8	2.5	98	0.1	0.1	88.93	1.6	3.9	0.1	0.05	0.06		0	1.2	2	952	2	2	98	98
Jul-23	2.84	2.496	6.4	7.4	7.6	6.4	4.2	98	0.1	0.1	64.52	1	4	0.1	0.05	0.09		0	1.3	1.7	950	2	2	98	98
Aug-23	2.5	2.16	6.2	7.3	7.5	7.5	5.4	98	0.1	0.1	55.85	1.5	7.4	0.1	0.1	0.21		0	2.7	5.7	1170	2	2	98	98
Sep-23	2.312	1.847	6.8	7.1	7.7	9.2	7	97	0.12	0.24	56.1	3	7.5	0.01	0.05	0.12		0	1.1	1.7	1168	2	2	97	99
Oct-23	2.082	1.759	6.9	7.2	8	7.5	5.1	98	0.1	0.1	45.47	1.2	5.52	0.1	0.05	0.08		0	1	1	1092	2	2	98	99
Nov-23	2.122	1.74	7.3		7.9	2.2	2	99	0.1	0.1	44.98	1.7	7.1	0.1	0.05	0.1		0	1.4	2.4	1112	2	2	99	99
							2											0			1158				

	Arsenic	Cadmium	Chromium	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc
3/31/2020	0.0005	0.0002	0.0018	0.0027	0.002	0.0005	0.0000015	0.0008	0.002	0.0007	0.0005	0.04
6/30/2020	0.001	0.0002	0.0007	0.0236	0.003	0.0005	0.0000005	0.0006	0.0018	0.0006	0.0005	0.08
9/30/2020	0.0007	0.0002	0.0005	0.0137	0.002	0.0005	0.0000005	0.0011	0.0017	0.0006	0.0005	0.07
12/31/2020	0.0005	0.0002	0.0006	0.0102	0.002	0.0005	0.0000005	0.0023	0.0015	0.0005	0.0005	0.04
3/31/2021	0.0005	0.0002	0.0018	0.0106	0.004	0.0005	0.0000017	0.0014	0.0018	0.0006	0.0005	0.06
6/30/2021	0.001	0.0002	0.0006	0.0048	0.003	0.0005	0.0000006	0.0015	0.0013	0.0005	0.0005	0.05
9/30/2021	0.0007	0.0002	0.0005	0.0119	0.002	0.0005	0.0000016	0.0018	0.0025	0.0005	0.0005	0.06
12/31/2021	0.0006	0.0002	0.0012	0.0054	0.005	0.0005	0.0000005	0.0017	0.0019	0.0007	0.0005	0.03
3/31/2022	0.0005	0.0002	0.0006	0.0167	0.002	0.0005	0.0000014	0.0011	0.0014	0.0005	0.0005	0.06
6/30/2022	0.0005	0.0002	0.0005	0.0072	0.002	0.0005	0.000001	0.0022	0.0016	0.0006	0.0005	0.04
9/30/2022	0.0008	0.0002	0.0006	0.011	0.002	0.0005	0.0000015	0.002	0.0025	0.0006	0.0005	0.03
12/31/2022	0.001	0.0002	0.001	0.0121	0.011	0.0005	0.000001	0.0043	0.0034	0.001	0.0005	0.03
3/31/2023	0.0008	0.0002	0.0005	0.0067	0.007	0.0005	0.0000013	0.0015	0.0012	0.0005	0.0005	0.03
6/30/2023	0.0009	0.0002	0.0005	0.0209	0.0003	0.0005	0.0000021	0.003	0.0016	0.001	0.0005	0.04
9/30/2023	0.0008	0.0002	0.0005	0.0151	0.002	0.0005	0.0000019	0.0021	0.0016	0.0005	0.0005	0.04
12/31/2023	0.0006	0.0002	0.0008	0.0067	0.002	0.0005	0.000001	0.0008	0.0024	0.0007	0.0005	0.03
3/31/2024	0.0007	0.0002	0.0006	0.0077	0.008	0.0005	0.0000017	0.001	0.0015	0.0008	0.0005	0.05
6/30/2024	0.0007	0.0002	0.0019	0.0079	0.005	0.0005	0.000001	0.0005	0.0017	0.0007	0.0005	0.03
9/30/2024	0.0009	0.0002	0.0006	0.0064	0.005	0.0005	0.000001	0.0005	0.0013	0.0007	0.0005	0.02

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ATTACHMENT 2

Wasteload Analysis Information

(DWQ-2025-009899 & DWQ-2025-000459)

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

Date: **December 16, 2025**

Prepared by: **Suzan Tahir**
Standards and Technical Services

Facility: **East Canyon Water Reclamation Facility (ECWRF)**
UPDES No. UT0020001

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

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

Discharge

Outfall 001: East Canyon Creek

The maximum monthly design discharge flow is 4.0 million gallons per day (MGD).

Receiving Water

The receiving water for Outfall 001 is East Canyon Creek.

Per UAC R317-2-13.4, the designated beneficial uses for Weber River and tributaries, from Stoddard diversion to headwaters is 1C, 2B, 3A, and 4.

- *Class 1C - Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water*
- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3A - Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.*

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

Critical Flow

The critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten-year return frequency (7Q10). East Canyon flows were determined from USGS station 10133800 (East Canyon Creek near Jeremy Ranch) for the period 2010-2020. This station is located immediately downstream of the ECWRF discharge, so an estimate of upstream daily flow values was calculated by subtracting ECWRF daily average flows from average daily flow values reported by USGS. The calculated 7Q10 low flow values are listed in Table 1.

Table 1: Seasonal critical low flow (cfs)

Season	East Canyon Creek above ECWRF
Summer (July-Sept)	1.78
Fall (Oct –Dec)	4.09
Winter (Jan-Mar)	5.22
Spring (Apr –June)	7.46

Ambient Water Quality Characteristics

Ambient water quality (East Canyon Creek) was characterized for constituents such as pH, temperature, hardness, ammonia, total dissolved solids, and metals based on samples collected from the Division of Water Quality (DWQ) monitoring station 4925260, East Canyon Creek above ECWRF for the period 2010-2020.

Impaired Waters and TMDL

East Canyon Creek and tributaries from East Canyon Reservoir to Kimball Creek, except Murnin Creek and Toll Canyon (East Canyon Creek-2-1; UT16020102-026_01), have a TMDL in place for total phosphorus to attain DO standards (UDWQ 2000). A TMDL study addressing the total phosphorus loading into East Canyon Creek and East Canyon Reservoir was completed in 2010 (UDWQ 2010). The TMDL for the reservoir allocated an annual total phosphorus load limit of 895 kg (1,973 lbs) to ECWRF, including future growth up to 7.2 MGD, which was previously incorporated and remains in the permit. Additionally, East Canyon Creek is listed as impaired for temperature and the reservoir is listed as impaired for harmful algal blooms and E. coli on the 2024 303(d) list, requiring future TMDL studies.

Mixing Zone

Since the low flow for the receiving water body (1.78 cfs) is equal to or less than twice the flow of a point source discharge (2x9.90 cfs) or [1.78cfs <= 19.8 cfs], the combined flows are considered to be totally mixed. Per UAC R317-2-5 Mixing Zones: “Streams with a flow equal to or less than twice the flow of a point source, discharge may be considered to be totally mixed.” As

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with previous ECWRF permits, a dilution credit of the receiving water was calculated using the seasonal critical low flow.

Parameters of Concern

The parameters of concern considered in the WLA were the same as with previous ECWRF permits and include total ammonia, total dissolved solids (TDS), dissolved oxygen (DO), Carbonaceous Biochemical Oxygen Demand (CBOD), temperature, and total phosphorus based on review of the current permit and the impairment status of the receiving water. Additional parameters of concern may also be identified through a reasonable potential analysis, technology-based standards, or other factors as determined by the UPDES Permit Writer.

Whole Effluent Toxicity (WET) Limits

In this WLA, the system is fully mixed and the IC_{25} (inhibition concentration, 25%) percent effluent for chronic toxicity was calculated to be 77.7% effluent. The WET limit for LC_{50} is typically 100% effluent and does not need to be determined by the WLA.

Table 4: WET Limits for IC_{25}

Outfall	Percent Effluent (%)
Outfall 001	77.7

Wasteload Allocation Methods

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

Effluent limits for total phosphorus are based on the approved East Canyon Reservoir TMDL (UDWQ 2010).

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

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

The objective of 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.

Antidegradation Level II Review

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A Level II Antidegradation Review (ADR) is not required at this time for the current discharge, as this is a renewal of the existing permit with no changes in facility operations or increased flows.

Documents:

WLA Document*:*

- *EastCanyonWWTP_WLADoc_*Dec16th*2025.docx*

Wasteload Analysis and Addendum:

- *EastCanyonWWTP_WLA_Dec16th2025.xlsm*
- *EastCanyonWWTP_SOB_WLA-Dec16th2025.pdf*

References:

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

United States Environmental Protection Agency. 1986. Quality Criteria for Water. EPA 440/5-86-001. "EPA Gold Book"

Utah Division of Water Quality. 2000. East Canyon Creek and East Canyon Creek Reservoir TMDL for TP and Dissolved Oxygen.

Utah Division of Water Quality. 2010. East Canyon Creek and Reservoir TMDL. SWCA Environmental Consultants.

Utah Division of Water Quality. 2018. East Canyon Creek Delisting Document for TDS. Results of Investigation of TDS Impairments in East Canyon Creek, Park City area, Utah.

Utah Division of Water Quality. 2024. Final 2024 Integrated Report on Water Quality

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

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WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

3-Feb-26
10:00

Facilities: **East Canyon WRF** **UPDES No: UT-0020001**
Discharging to: **East Canyon Creek**

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 interms 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

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

III. Numeric In-Stream Criteria 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)

Dissolved Oxygen (DO): 6.50 mg/l (30 Day Average); 5.00 mg/l (7Day Average); 4.00 mg/l (instantaneous)

Maximum Total Dissolved Solids: 1200.0 mg/l

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard Concentration		Load*	1 Hour Average (Acute) Standard Concentration		Load*
Aluminum	87.00	ug/l**	2.902 lbs/day	750.00	ug/l	25.015 lbs/day
Arsenic	150.00	ug/l	5.003 lbs/day	340.00	ug/l	11.340 lbs/day
Cadmium	2.15	ug/l	0.072 lbs/day	6.48	ug/l	0.216 lbs/day
Chromium III	240.59	ug/l	8.024 lbs/day	5033.59	ug/l	167.887 lbs/day
ChromiumVI	11.00	ug/l	0.367 lbs/day	16.00	ug/l	0.534 lbs/day
Copper	27.23	ug/l	0.908 lbs/day	45.61	ug/l	1.521 lbs/day
Iron				1000.00	ug/l	33.353 lbs/day
Lead	15.69	ug/l	0.523 lbs/day	402.68	ug/l	13.431 lbs/day
Mercury	0.0120	ug/l	0.000 lbs/day	2.40	ug/l	0.080 lbs/day
Nickel	150.64	ug/l	5.024 lbs/day	1354.89	ug/l	45.190 lbs/day
Selenium	4.60	ug/l	0.153 lbs/day	18.40	ug/l	0.614 lbs/day
Silver	N/A	ug/l	N/A lbs/day	32.69	ug/l	1.090 lbs/day
Zinc	346.57	ug/l	11.559 lbs/day	346.57	ug/l	11.559 lbs/day

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

Metals Standards Based upon a Hardness of 350.27 mg/l as CaCO3

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Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard Concentration		Load*		1 Hour Average (Acute) Standard Concentration		Load*	
Aldrin					1.500	ug/l	0.050	lbs/day
Chlordane	0.004	ug/l	0.185	lbs/day	1.200	ug/l	0.040	lbs/day
DDT, DDE	0.001	ug/l	0.043	lbs/day	0.550	ug/l	0.018	lbs/day
Dieldrin	0.056	ug/l	2.405	lbs/day	0.240	ug/l	0.008	lbs/day
Endosulfan	0.056	ug/l	2.405	lbs/day	0.110	ug/l	0.004	lbs/day
Endrin	0.036	ug/l	1.546	lbs/day	0.086	ug/l	0.003	lbs/day
Guthion					0.010	ug/l	0.000	lbs/day
Heptachlor	0.004	ug/l	0.163	lbs/day	0.260	ug/l	0.009	lbs/day
Lindane	0.080	ug/l	3.436	lbs/day	1.000	ug/l	0.033	lbs/day
Methoxychlor					0.030	ug/l	0.001	lbs/day
Mirex					0.010	ug/l	0.000	lbs/day
Parathion					0.066	ug/l	0.002	lbs/day
PCB's	0.014	ug/l	0.601	lbs/day	N/A	ug/l	#VALUE!	lbs/day
entachlorophenol	15.00	ug/l	644.213	lbs/day	19.000	ug/l	0.634	lbs/day
Toxephene	0.0002	ug/l	0.009	lbs/day	0.7300	ug/l	0.024	lbs/day

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard Concentration	Load*	1 Hour Average (Acute) Standard Concentration		Load*	
Arsenic			100.0	ug/l		lbs/day
Boron			750.0	ug/l	12.51	lbs/day
Cadmium			10.0	ug/l	0.17	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	20.01	tons/day

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

Metals	4 Day Average (Chronic) Standard Concentration	Load*	1 Hour Average (Acute) Standard Concentration		Load*	
Arsenic			10.0	ug/l	0.429	lbs/day
Barium			1000.0	ug/l	42.948	lbs/day
Cadmium			10.0	ug/l	0.429	lbs/day
Chromium			50.0	ug/l	2.147	lbs/day
Lead			15.0	ug/l	0.644	lbs/day
Mercury			2.0	ug/l	0.086	lbs/day
Selenium			50.0	ug/l	2.147	lbs/day
Silver			50.0	ug/l	2.147	lbs/day
Fluoride (3)			4.0	ug/l	0.172	lbs/day
to			2.4	ug/l	0.103	lbs/day
Nitrates as N			10.0	ug/l	0.429	lbs/day
Chlorophenoxy Herbicides						
2,4-D			100.0	ug/l	4.295	lbs/day
2,4,5-TP			10.0	ug/l	0.429	lbs/day
Endrin			0.2	ug/l	0.009	lbs/day
hexane (Lindane)			4.0	ug/l	0.172	lbs/day
Methoxychlor			100.0	ug/l	4.295	lbs/day
Toxaphene			5.0	ug/l	0.215	lbs/day

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

	Maximum Conc., ug/l - Acute Standards			
	Class 1C		**Class 3A, 3B**	
Toxic Organics	[2 Liters/Day for 70 Kg Person over 70 Yr.]		[6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	70.00 ug/l	3.01 lbs/day	90.0 ug/l	3.87 lbs/day
Acrolein	3.00 ug/l	0.13 lbs/day	400.0 ug/l	17.18 lbs/day
Acrylonitrile	0.06 ug/l	0.00 lbs/day	7.0 ug/l	0.30 lbs/day
Benzene	2.10 ug/l	0.09 lbs/day	51.0 ug/l	2.19 lbs/day
Benzidine	0.00012 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachlor	0.40 ug/l	0.02 lbs/day	5.0 ug/l	0.21 lbs/day
Chlorobenzene	100.00 ug/l	4.29 lbs/day	800.0 ug/l	34.36 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenze	0.00008 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethan	9.90 ug/l	0.43 lbs/day	2000.0 ug/l	85.90 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	0.10 ug/l	0.00 lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroeth	0.55 ug/l	0.02 lbs/day	8.9 ug/l	0.38 lbs/day
1,1,2,2-Tetrachlo	0.17 ug/l	0.01 lbs/day	3.0 ug/l	0.13 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl)	0.03 ug/l	0.00 lbs/day	2.2 ug/l	0.09 lbs/day
2-Chloroethyl viny	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthal	800.00 ug/l	34.36 lbs/day	1000.0 ug/l	42.95 lbs/day
2,4,6-Trichlorophe	1.50 ug/l	0.06 lbs/day	2.8 ug/l	0.12 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	60.00 ug/l	2.58 lbs/day	2000.0 ug/l	85.90 lbs/day
2-Chlorophenol	30.00 ug/l	1.29 lbs/day	800.0 ug/l	34.36 lbs/day
1,2-Dichlorobenze	1000.00 ug/l	42.95 lbs/day	3000.0 ug/l	128.84 lbs/day
1,3-Dichlorobenze	7.00 ug/l	0.30 lbs/day	10.0 ug/l	0.43 lbs/day
1,4-Dichlorobenze	300.00 ug/l	12.88 lbs/day	900.0 ug/l	38.65 lbs/day
3,3'-Dichlorobenz	0.05 ug/l	0.00 lbs/day	0.2 ug/l	0.01 lbs/day
1,1-Dichloroethyle	300.00 ug/l	12.88 lbs/day	20000.0 ug/l	858.95 lbs/day
1,2-trans-Dichlorc	100.00 ug/l	4.29 lbs/day	4000.0 ug/l	171.79 lbs/day
2,4-Dichlorophen	10.00 ug/l	0.43 lbs/day	60.0 ug/l	2.58 lbs/day
1,2-Dichloropropa	0.90 ug/l	0.04 lbs/day	31.0 ug/l	1.33 lbs/day
1,3-Dichloropropy	10.00 ug/l	0.43 lbs/day	1700.0 ug/l	73.01 lbs/day
2,4-Dimethylphen	100.00 ug/l	4.29 lbs/day	3000.0 ug/l	128.84 lbs/day
2,4-Dinitrotoluene	0.05 ug/l	0.00 lbs/day	1.7 ug/l	0.07 lbs/day
2,6-Dinitrotoluene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydra	0.03 ug/l	0.00 lbs/day	0.2 ug/l	0.01 lbs/day
Ethylbenzene	68.00 ug/l	2.92 lbs/day	130.0 ug/l	5.58 lbs/day
Fluoranthene	20.00 ug/l	0.86 lbs/day	20.0 ug/l	0.86 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopro	1400.00 ug/l	60.13 lbs/day	65000.0 ug/l	2.79E+03 lbs/day
Bis(2-chloroethox	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chlorid	20.00 ug/l	0.86 lbs/day	1000.0 ug/l	42.95 lbs/day
Methyl chloride (H	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (H	100.00 ug/l	4.29 lbs/day	10000.0 ug/l	429.48 lbs/day
Bromoform (HM)	7.00 ug/l	0.30 lbs/day	120.0 ug/l	5.15 lbs/day
Dichlorobromome	0.95 ug/l	0.04 lbs/day	27.0 ug/l	1.16 lbs/day
Chlorodibromome	0.80 ug/l	0.03 lbs/day	21.0 ug/l	0.90 lbs/day
Hexachlorobutadi	0.01 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Hexachlorocyclop	4.00 ug/l	0.17 lbs/day	4.0 ug/l	0.17 lbs/day
Isophorone	34.00 ug/l	1.46 lbs/day	1800.0 ug/l	77.31 lbs/day
Naphthalene				
Nitrobenzene	10.00 ug/l	0.43 lbs/day	600.0 ug/l	25.77 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	70.00 ug/l	3.01 lbs/day	14000.0 ug/l	601.27 lbs/day
4,6-Dinitro-o-cres	13.00 ug/l	0.56 lbs/day	765.0 ug/l	32.85 lbs/day
N-Nitrosodimethy	0.00069 ug/l	0.00 lbs/day	3.0 ug/l	0.13 lbs/day
N-Nitrosodipheny	3.30 ug/l	0.14 lbs/day	6.0 ug/l	0.26 lbs/day
N-Nitrosodi-n-pro	0.01 ug/l	0.00 lbs/day	0.5 ug/l	0.02 lbs/day
Pentachlorophen	0.03 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Phenol	4.00E+03 ug/l	1.72E+02 lbs/day	3.0E+05 ug/l	1.29E+04 lbs/day
Bis(2-ethylhexyl)p	0.32 ug/l	0.01 lbs/day	0.4 ug/l	0.02 lbs/day
Butyl benzyl phth	0.10 ug/l	0.00 lbs/day	0.1 ug/l	0.00 lbs/day

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Di-n-butyl phthala	20.00	ug/l	0.86	lbs/day	30.0	ug/l	1.29 lbs/day
Di-n-octyl phthlate							
Diethyl phthalate	600.00	ug/l	25.77	lbs/day	600.0	ug/l	25.77 lbs/day
Dimethyl phthlate	2.00E+03	ug/l	8.59E+01	lbs/day	2.0E+03	ug/l	8.59E+01 lbs/day
Benzo(a)anthrace	0.0012	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Benzo(a)pyrene (	0.0001	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Benzo(b)fluoranth	0.0012	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Benzo(k)fluoranth	0.0120	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Chrysene (PAH)	0.1200	ug/l	0.01	lbs/day	0.1	ug/l	0.01 lbs/day
Acenaphthylene (PAH)							
Anthracene (PAH	300.00	ug/l	12.88	lbs/day	400.0	ug/l	17.18 lbs/day
Dibenzo(a,h)anth	0.0001	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Indeno(1,2,3-cd)p	0.0012	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Pyrene (PAH)	20.00	ug/l	0.86	lbs/day	30.0	ug/l	1.29 lbs/day
Tetrachloroethyle	10.00	ug/l	0.43	lbs/day	520.0	ug/l	22.33 lbs/day
Toluene	57.00	ug/l	2.45	lbs/day	520	ug/l	22.33 lbs/day
Trichloroethylene	0.60	ug/l	0.03	lbs/day	7.0	ug/l	0.30 lbs/day
Vinyl chloride	0.02	ug/l	0.00	lbs/day	1.6	ug/l	0.07 lbs/day
					0.0		0.00 lbs/day
Pesticides					0.0		0.00 lbs/day
Aldrin	0.0000	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Dieldrin	0.0000	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Chlordane	0.0003	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
4,4'-DDT	0.0000	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
4,4'-DDE	0.0000	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
4,4'-DDD	0.0001	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
alpha-Endosulfan	20.0000	ug/l	0.86	lbs/day	30.0	ug/l	1.29 lbs/day
beta-Endosulfan	20.0000	ug/l	0.86	lbs/day	40.0	ug/l	1.72 lbs/day
Endosulfan sulfat	20.0000	ug/l	0.86	lbs/day	40.0	ug/l	1.72 lbs/day
Endrin	0.0300	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Endrin aldehyde	1.0000	ug/l	0.04	lbs/day	1.0	ug/l	0.04 lbs/day
Heptachlor	0.0000	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Heptachlor epoxide							
PCB's							
PCB 1242 (Aroch	0.000044	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1254 (Aroch	0.000044	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1221 (Aroch	0.000044	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1232 (Aroch	0.000044	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1248 (Aroch	0.000044	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1260 (Aroch	0.000044	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1016 (Aroch	0.000044	ug/l	0.00	lbs/day	0.0	ug/l	0.00 lbs/day
Pesticide							
Toxaphene	0.000710	ug/l	0.00		0.0	ug/l	0.00 lbs/day
Dioxin							
Dioxin (2,3,7,8-TC	1.30E-08	ug/l	0.00	lbs/day	1.40E-08		0.00

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Metals				
Antimony	5.6 ug/l	0.24 lbs/day		
Arsenic	10.0 ug/l	0.43 lbs/day	640.00 ug/l	27.49 lbs/day
Asbestos	7.00E+06 ug/l	3.01E+05 lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	1.30E+03 ug/l	55.83 lbs/day	4.0E+02 ug/l	17.18 lbs/day
Lead	4.0 ug/l	0.17 lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	197.56 lbs/day
Selenium	2.0 ug/l	0.09 lbs/day		
Silver	610.0 ug/l	26.20 lbs/day		
Thallium			0.47 ug/l	0.02 lbs/day
Zinc				

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

VII. Mathematical Modeling of Stream Quality

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

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

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

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

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

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

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

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

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

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VIII. Modeling Information

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

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

Other Conditions

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

Model Inputs

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

Current Upstream Information

	Stream Critical Low Flow cfs	Temp. Deg. C	pH	T-NH3 mg/l as N	BOD5 mg/l	DO mg/l	TRC mg/l	TDS mg/l
Summer	1.78	17.3	8.4	0.03	1.00	6.93	0.01	557.7
Fall	4.09	4.1	8.3	0.02	1.00	---	0.01	714.0
Winter	5.22	2.6	8.2	0.03	1.00	---	0.01	755.7
Spring	7.46	11.8	8.4	0.03	1.00	---	0.01	473.3

Dissolved Metals	Al ug/l	As ug/l	Cd ug/l	CrIII ug/l	CrVI ug/l	Copper ug/l	Fe ug/l	Pb ug/l
All Seasons	5.00	4.66	0.05	1.00	3.975*	1.22	18.0	0.17

Dissolved Metals	Hg ug/l	Ni ug/l	Se ug/l	Ag ug/l	Zn ug/l	Boron ug/l		
All Seasons	0.0000	2.50	0.50	0.25	5.00	37.3		* ~80% MDL

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Projected Discharge Information

Season	Flow, MGD	Temp.
Summer	4.00000	18.6
Fall	4.00000	13.4
Winter	4.00000	10.9
Spring	4.00000	14.5

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	4.000 MGD	6.188 cfs
Fall	4.000 MGD	6.188 cfs
Winter	4.000 MGD	6.188 cfs
Spring	4.000 MGD	6.188 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 4 MGD. If the discharger is allowed to have a flow greater than 4 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occuring, the permit writers must include the discharge flow limititation 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 segements if the values below are met.

WET Requirements	LC50 >	100.0%	Effluent	[Acute]
	IC25 >	77.7%	Effluent	[Chronic]

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Effluent Limitation for Biological Oxygen Demand (30 Day Average BOD) based upon Water Quality Standards or Regulations

In-stream criteria of downstream segments for Dissolved Oxygen will be met with a 30 day average effluent BOD5 and CBOD5 limitation as follows:

Season	Concentration		
Summer	10.0 mg/l as BOD5	8.0 mg/L as CBOD5	333.5 lbs/day
Fall	10.0 mg/l as BOD5	8.0 mg/L as CBOD5	333.5 lbs/day
Winter	10.0 mg/l as BOD5	8.0 mg/L as CBOD5	333.5 lbs/day
Spring	10.0 mg/l as BOD5	8.0 mg/L as CBOD5	333.5 lbs/day

Effluent Limitation for Dissolved Oxygen (30 Day Average DO) based upon Water Quality Standards

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

	ELS Absent **Concentrations** 30-day Avg	ELS Absent **Concentrations** Instantaneous Previous Permit limit
Summer	5.9	5.0
Fall	5.9	5.0
Winter	5.9	5.0
Spring	5.9	5.0

Effluent Limitation for Total Ammonia based upon Water Quality Standards

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

Season		**Concentration**		**Load**	
Summer	4 Day Avg. - Chronic	4.40	mg/l as N	146.9	lbs/day
	1 Hour Avg. - Acute	12.40	mg/l as N	413.5	lbs/day
Fall	4 Day Avg. - Chronic	6.04	mg/l as N	201.5	lbs/day
	1 Hour Avg. - Acute	7.91	mg/l as N	263.9	lbs/day
Winter	4 Day Avg. - Chronic	7.33	mg/l as N	244.4	lbs/day
	1 Hour Avg. - Acute	9.68	mg/l as N	322.9	lbs/day
Spring	4 Day Avg. - Chronic	5.59	mg/l as N	186.4	lbs/day
	1 Hour Avg. - Acute	8.11	mg/l as N	270.5	lbs/day

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

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

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

Season		**Concentration**		**Load**	
Summer	4 Day Avg. - Chronic	0.011	mg/l	0.37	lbs/day
	1 Hour Avg. - Acute	0.021	mg/l	0.71	lbs/day
Fall	4 Day Avg. - Chronic	0.011	mg/l	0.37	lbs/day
	1 Hour Avg. - Acute	0.024	mg/l	0.81	lbs/day
Winter	4 Day Avg. - Chronic	0.011	mg/l	0.37	lbs/day
	1 Hour Avg. - Acute	0.026	mg/l	0.86	lbs/day
Spring	4 Day Avg. - Chronic	0.011	mg/l	0.37	lbs/day
	1 Hour Avg. - Acute	0.029	mg/l	0.96	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		**Concentration**		**Load**	
Summer	Maximum, Acute	1384.8	mg/l	23.09	tons/day
Fall	Maximum, Acute	1521.2	mg/l	25.37	tons/day
Winter	Maximum, Acute	1574.8	mg/l	26.26	tons/day
Spring	Maximum, Acute	2076.1	mg/l	34.62	tons/day

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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 350.27 mg/l):

	4 Day Average Concentration		Load		1 Hour Average Concentration		Load	
Aluminum*	N/A		N/A		857.2	ug/l	28.6	lbs/day
Arsenic*	191.81	ug/l	4.1	lbs/day	388.2	ug/l	12.9	lbs/day
Cadmium	2.75	ug/l	0.1	lbs/day	7.4	ug/l	0.2	lbs/day
Chromium III	309.51	ug/l	6.7	lbs/day	5,757.4	ug/l	192.0	lbs/day
Chromium VI*	13.02	ug/l	0.3	lbs/day	17.7	ug/l	0.6	lbs/day
Copper	34.71	ug/l	0.7	lbs/day	52.0	ug/l	1.7	lbs/day
Iron*	N/A		N/A		1,141.2	ug/l	38.1	lbs/day
Lead	20.16	ug/l	0.4	lbs/day	460.6	ug/l	15.4	lbs/day
Mercury*	0.02	ug/l	0.0	lbs/day	2.7	ug/l	0.1	lbs/day
Nickel	193.25	ug/l	4.2	lbs/day	1,549.4	ug/l	51.7	lbs/day
Selenium*	5.78	ug/l	0.1	lbs/day	21.0	ug/l	0.7	lbs/day
Silver	N/A	ug/l	N/A	lbs/day	37.4	ug/l	1.2	lbs/day
Zinc	444.83	ug/l	9.6	lbs/day	395.7	ug/l	13.2	lbs/day
Cyanide*	6.70	ug/l	0.1	lbs/day	25.2	ug/l	0.8	lbs/day

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

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	19.9	Deg. C.	67.8	Deg. F
Fall	7.4	Deg. C.	45.4	Deg. F
Winter	6.3	Deg. C.	43.3	Deg. F
Spring	16.2	Deg. C.	61.2	Deg. F

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

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

	4 Day Average Concentration		Load		1 Hour Average Concentration		Load	
Aldrin					1.5E+00	ug/l	7.74E-02	lbs/day
Chlordane	4.30E-03	ug/l	1.43E-01	lbs/day	1.2E+00	ug/l	6.19E-02	lbs/day
DDT, DDE	1.00E-03	ug/l	3.34E-02	lbs/day	5.5E-01	ug/l	2.84E-02	lbs/day
Dieldrin	5.60E-02	ug/l	1.87E+00	lbs/day	2.4E-01	ug/l	1.24E-02	lbs/day
Endosulfan	5.60E-02	ug/l	1.87E+00	lbs/day	1.1E-01	ug/l	5.68E-03	lbs/day
Endrin	3.60E-02	ug/l	1.20E+00	lbs/day	8.6E-02	ug/l	4.44E-03	lbs/day
Guthion	0.00E+00	ug/l	0.00E+00	lbs/day	1.0E-02	ug/l	5.16E-04	lbs/day
Heptachlor	3.80E-03	ug/l	1.27E-01	lbs/day	2.6E-01	ug/l	1.34E-02	lbs/day
Lindane	8.00E-02	ug/l	2.67E+00	lbs/day	1.0E+00	ug/l	5.16E-02	lbs/day
Methoxychlor	0.00E+00	ug/l	0.00E+00	lbs/day	3.0E-02	ug/l	1.55E-03	lbs/day
Mirex	0.00E+00	ug/l	0.00E+00	lbs/day	1.0E-02	ug/l	5.16E-04	lbs/day
Parathion	1.30E-02	ug/l	4.34E-01	lbs/day	6.6E-02	ug/l	3.41E-03	lbs/day
PCB's	1.40E-02	ug/l	4.67E-01	lbs/day	N/A	ug/l	#VALUE!	lbs/day
entachlorophenol	1.50E+01	ug/l	5.00E+02	lbs/day	1.9E+01	ug/l	9.80E-01	lbs/day
Toxephene	2.00E-04	ug/l	6.67E-03	lbs/day	7.3E-01	ug/l	3.77E-02	lbs/day

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	166.8	lbs/day
Nitrates as N	4.0	mg/l	133.4	lbs/day

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Total Phosphorus as P	0.05 mg/l	1.7 lbs/day
Total Suspended Solids	90.0 mg/l	3001.8 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

	Maximum Concentration			
	Concentration		**Load**	
Toxic Organics				
Acenaphthene	9.01E+01	ug/l	3.01E+00	lbs/day
Acrolein	3.86E+00	ug/l	1.29E-01	lbs/day
Acrylonitrile	7.85E-02	ug/l	2.62E-03	lbs/day
Benzene	2.70E+00	ug/l	9.02E-02	lbs/day
Benzidine		ug/l		lbs/day
Carbon tetrachloride	5.15E-01	ug/l	1.72E-02	lbs/day
Chlorobenzene	1.29E+02	ug/l	4.29E+00	lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	1.02E-04	ug/l	3.39E-06	lbs/day
1,2-Dichloroethane	1.27E+01	ug/l	4.25E-01	lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	1.29E-01	ug/l	4.29E-03	lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	7.08E-01	ug/l	2.36E-02	lbs/day
1,1,2,2-Tetrachloroethane	2.19E-01	ug/l	7.30E-03	lbs/day
Chloroethane				
Bis(2-chloroethyl) ether	3.86E-02	ug/l	1.29E-03	lbs/day
2-Chloroethyl vinyl ether				
2-Chloronaphthalene	1.03E+03	ug/l	3.44E+01	lbs/day
2,4,6-Trichlorophenol	1.93E+00	ug/l	6.44E-02	lbs/day
p-Chloro-m-cresol				
Chloroform (HM)	7.73E+01	ug/l	2.58E+00	lbs/day
2-Chlorophenol	3.86E+01	ug/l	1.29E+00	lbs/day
1,2-Dichlorobenzene	1.29E+03	ug/l	4.29E+01	lbs/day
1,3-Dichlorobenzene	9.01E+00	ug/l	3.01E-01	lbs/day
1,4-Dichlorobenzene	3.86E+02	ug/l	1.29E+01	lbs/day
3,3'-Dichlorobenzidine	6.31E-02	ug/l	2.10E-03	lbs/day
1,1-Dichloroethylene	3.86E+02	ug/l	1.29E+01	lbs/day
1,2-trans-Dichloroethylene1				
2,4-Dichlorophenol	1.29E+01	ug/l	4.29E-01	lbs/day
1,2-Dichloropropane	1.16E+00	ug/l	3.87E-02	lbs/day
1,3-Dichloropropylene	1.29E+01	ug/l	4.29E-01	lbs/day
2,4-Dimethylphenol	1.29E+02	ug/l	4.29E+00	lbs/day
2,4-Dinitrotoluene	6.31E-02	ug/l	2.10E-03	lbs/day
2,6-Dinitrotoluene				
1,2-Diphenylhydrazine	3.86E-02	ug/l	1.29E-03	lbs/day
Ethylbenzene	8.76E+01	ug/l	2.92E+00	lbs/day
Fluoranthene	2.58E+01	ug/l	8.59E-01	lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	1.80E+03	ug/l	6.01E+01	lbs/day
Bis(2-chloroethoxy) methane				
Methylene chloride (HM)	2.58E+01	ug/l	8.59E-01	lbs/day
Methyl chloride (HM)				
Methyl bromide (HM)				
Bromoform (HM)	9.01E+00	ug/l	3.01E-01	lbs/day
Dichlorobromomethane(HM)	1.22E+00	ug/l	4.08E-02	lbs/day
Chlorodibromomethane (HM)	1.03E+00	ug/l	3.44E-02	lbs/day
Hexachlorocyclopentadiene	5.15E+00	ug/l	1.72E-01	lbs/day
Isophorone	4.38E+01	ug/l	1.46E+00	lbs/day
Naphthalene				
Nitrobenzene	1.29E+01	ug/l	4.29E-01	lbs/day
2-Nitrophenol				
4-Nitrophenol				
2,4-Dinitrophenol	9.01E+01	ug/l	3.01E+00	lbs/day
4,6-Dinitro-o-cresol	1.67E+01	ug/l	5.58E-01	lbs/day
N-Nitrosodimethylamine	8.88E-04	ug/l	2.96E-05	lbs/day
N-Nitrosodiphenylamine	4.25E+00	ug/l	1.42E-01	lbs/day
N-Nitrosodi-n-propylamine	6.44E-03	ug/l	2.15E-04	lbs/day
Pentachlorophenol	3.86E-02	ug/l	1.29E-03	lbs/day
Phenol	5.15E+03	ug/l	1.72E+02	lbs/day
Bis(2-ethylhexyl)phthalate	4.12E-01	ug/l	1.37E-02	lbs/day
Butyl benzyl phthalate	1.29E-01	ug/l	4.29E-03	lbs/day
Di-n-butyl phthalate	2.58E+01	ug/l	8.59E-01	lbs/day

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Di-n-octyl phthlate				
Diethyl phthalate	7.73E+02	ug/l	2.58E+01	lbs/day
Dimethyl phthlate	2.58E+03	ug/l	8.59E+01	lbs/day
Benzo(a)anthracene (PAH)	1.55E-03	ug/l	5.15E-05	lbs/day
Benzo(a)pyrene (PAH)	1.55E-04	ug/l	5.15E-06	lbs/day
Benzo(b)fluoranthene (PAH)	1.55E-03	ug/l	5.15E-05	lbs/day
Benzo(k)fluoranthene (PAH)	1.55E-02	ug/l	5.15E-04	lbs/day
Chrysene (PAH)	1.55E-01	ug/l	5.15E-03	lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)				
Dibenzo(a,h)anthracene (PAH)	1.55E-04	ug/l	5.15E-06	lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	1.55E-03	ug/l	5.15E-05	lbs/day
Pyrene (PAH)	2.58E+01	ug/l	8.59E-01	lbs/day
Tetrachloroethylene	1.29E+01	ug/l	4.29E-01	lbs/day
Toluene	7.34E+01	ug/l	2.45E+00	lbs/day
Trichloroethylene	7.73E-01	ug/l	2.58E-02	lbs/day
Vinyl chloride	2.83E-02	ug/l	9.45E-04	lbs/day
Pesticides				
Aldrin	9.91E-07	ug/l	3.31E-08	lbs/day
Dieldrin	1.55E-06	ug/l	5.15E-08	lbs/day
Chlordane	3.99E-04	ug/l	1.33E-05	lbs/day
4,4'-DDT	3.86E-05	ug/l	1.29E-06	lbs/day
4,4'-DDE	2.32E-05	ug/l	7.73E-07	lbs/day
4,4'-DDD	1.55E-04	ug/l	5.15E-06	lbs/day
alpha-Endosulfan	2.58E+01	ug/l	8.59E-01	lbs/day
beta-Endosulfan	2.58E+01	ug/l	8.59E-01	lbs/day
Endosulfan sulfate	2.58E+01	ug/l	8.59E-01	lbs/day
Endrin	3.86E-02	ug/l	1.29E-03	lbs/day
Endrin aldehyde	1.29E+00	ug/l	4.29E-02	lbs/day
Heptachlor	7.60E-06	ug/l	2.53E-07	lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 1242)	5.67E-05	ug/l	1.89E-06	lbs/day
PCB-1254 (Arochlor 1254)	5.67E-05	ug/l	1.89E-06	lbs/day
PCB-1221 (Arochlor 1221)	5.67E-05	ug/l	1.89E-06	lbs/day
PCB-1232 (Arochlor 1232)	5.67E-05	ug/l	1.89E-06	lbs/day
PCB-1248 (Arochlor 1248)	5.67E-05	ug/l	1.89E-06	lbs/day
PCB-1260 (Arochlor 1260)	5.67E-05	ug/l	1.89E-06	lbs/day
PCB-1016 (Arochlor 1016)	5.67E-05	ug/l	1.89E-06	lbs/day
Pesticide				
Toxaphene	9.01E-04	ug/l	3.01E-05	lbs/day

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Metals				
Antimony	7.21	ug/l	0.24	lbs/day
Arsenic	11.54	ug/l	0.38	lbs/day
Asbestos	9.01E+06	ug/l	3.01E+05	lbs/day
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper	1673.95	ug/l	55.83	lbs/day
Cyanide	5.15	ug/l	0.17	lbs/day
Lead	0.00		0.00	
Mercury	2.58	ug/l	0.09	lbs/day
Nickel	785.47	ug/l	26.20	lbs/day
Selenium	0.00		0.00	
Silver	0.00		0.00	
Thallium	0.31	ug/l	0.01	lbs/day
Zinc				
Dioxin				
Dioxin (2,3,7,8-TCDD)	1.67E-08	ug/l	5.58E-10	lbs/day

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

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		857.2				857.2	N/A
Antimony			7.2	824.1		7.2	
Arsenic	128.8	388.2	11.5			11.5	191.8
Asbestos			9.01E+06			9.01E+06	
Barium					1287.7	1287.7	
Beryllium						0.0	
Cadmium	12.9	7.4				7.4	2.8
Chromium (III)		5757.4				5757.4	309.5
Chromium (VI)	128.5	17.7				17.73	13.02
Copper	257.2	52.0	1673.9			52.0	34.7
Cyanide		25.2	515.1			5.2	6.7
Iron		1141.2				1141.2	
Lead	128.7	460.6				128.7	20.2
Mercury		2.75	2.6	0.19		0.19	0.015
Nickel		1549.4	785.5	5923.2		785.5	193.2
Selenium	64.2	21.0				21.0	5.8
Silver		37.4				37.4	
Thallium			0.3	0.6		0.3	
Zinc		395.7				395.7	444.8
Boron	955.0					955.0	
Sulfate	2575.3					2575.3	

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Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]
[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	857.2	N/A	
Antimony	7.21		
Arsenic	11.5	191.8	Acute Controls
Asbestos	9.01E+06		
Barium			
Beryllium			
Cadmium	7.4	2.8	
Chromium (III)	5757.4	310	
Chromium (VI)	17.7	13.0	
Copper	52.0	34.7	
Cyanide	5.2	6.7	Acute Controls
Iron	1141.2		
Lead	128.7	20.2	
Mercury	0.193	0.015	
Nickel	785.5	193	
Selenium	21.0	5.8	
Silver	37.4	N/A	
Thallium	0.3		
Zinc	395.7	444.8	Acute Controls
Boron	955.02		
Sulfate	2575.3		N/A at this Waterbody

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

X. Antidegradation Considerations

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

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required. The proposed permit is a simple renewal with no increase in flow or concentration over that which was approved in the previous permit.

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.

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ATTACHMENT 3

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

DWQ 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 or monitoring may be included in the renewal Permit. A Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at DWQ. There are four outcomes for the RP Analysis[1] as follows;

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 DMRs showed that a closer look at some of the metals is needed. The initial screening check for metals showed that the full model needed to be run on copper, cyanide, and mercury.

The RP model was run on copper using the most recent data back through 2020. This resulted in 19 data points. The results of the model are that there is reasonable potential to cause chronic toxicity at 99% confidence. This result indicates that increased monitoring for copper is appropriate at this time (Outcome B from Reasonable Potential Guide).

The RP model was run on cyanide using the most recent data back through 2020. This resulted in 19 data points. The results of the model are that there is reasonable potential to cause chronic toxicity at 95% and both acute and chronic toxicity at 99% confidence. This result indicates that increased monitoring for cyanide is appropriate at this time (Outcome B from Reasonable Potential Guide).

The RP model was run on mercury using the most recent data back through 2020. This resulted in 19 data points. The results of the model are that there is reasonable potential to cause chronic toxicity at both 95% and 99% confidence. This result indicates that increased monitoring for mercury is appropriate at this time (Outcome B from Reasonable Potential Guide).

Summary: Monitoring frequency for copper, cyanide, and mercury will be increased to monthly during the first year of the Permit, after which a subsequent RP can be performed for further evaluation.

RP Output Tables:

RP Procedure Output	Outfall Number: 001
Parameter	Copper
Distribution	Lognormal
Reporting Limit	.001
Significant Figures	2
Maximum Reported Effluent Conc.	0.0209 mg/L
Coefficient of Variation (CV)	0.53
Acute Criterion	0.049 mg/L
Chronic Criterion	0.032 mg/L

[1] See Reasonable Potential Analysis Guidance for definitions of terms

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Confidence Interval	95	99
Projected Maximum Effluent Conc. (MEC)	0.029 mg/L	0.046 mg/L
RP Multiplier	1.4	2.2
RP for Acute?	NO	NO
RP for Chronic?	NO	YES
Outcome	B	

RP Procedure Output	Outfall Number: 001	
Parameter	Cyanide	
Distribution	Modified Delta-Lognormal	
Reporting Limit	.002	
Significant Figures	2	
Maximum Reported Effluent Conc.	0.011 mg/L	
Coefficient of Variation (CV)	0.83	
Acute Criterion	0.024 mg/L	
Chronic Criterion	0.00613 mg/L	
Confidence Interval	95	99
Projected Maximum Effluent Conc. (MEC)	0.013 mg/L	0.026 mg/L
RP Multiplier	1.2	2.4
RP for Acute?	NO	YES
RP for Chronic?	YES	YES
Outcome	B	

RP Procedure Output	Outfall Number: 001	
Parameter	Mercury	
Distribution	Modified Delta-Lognormal	
Reporting Limit	0.0000005	
Significant Figures	2	
Maximum Reported Effluent Conc.	0.0000021	
Coefficient of Variation (CV)	0.48	
Acute Criterion	0.0026	
Chronic Criterion	0.000001	
Confidence Interval	95	99
Projected Maximum Effluent Conc. (MEC)	0.0000024	0.0000036
RP Multiplier	1.1	1.7
RP for Acute?	NO	NO
RP for Chronic?	YES	YES
Outcome	B	

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Initial screening for CBOD values that were submitted through the DMRs showed that a closer look was not needed and that the full RP model did not need to be run. The initial screening resulted in the following RP outcome and determination:

RP Initial Screening Table for East Canyon
2020-2025 Data Summary (UT0020001)

Parameter	No. of Sample Months	MEC *a Maximum Monthly Avg, mg/L	Water Quality Standards, MAC *b Secondary Treatment UAC-R317-1-3		WLA, MAC *b	Outcome/Result
			7-day Avg mg/L	30-day Avg mg/L	30-day Avg mg/L	
CBOD	>60	6.1	20.0	30.0	8.0	MEC < MAC *c

Notes/Legend

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

*b – MAC: Maximum allowable concentration from water quality standards and/or Wasteload Analysis.

*c – MEC < (less than) MAC: No additional limits required.

Summary: The RP screening of the effluent discharge data for CBOD resulted in no additional limits being required at this time in the Permit, which equates to RP Outcome C: No new effluent limitation. Routine monitoring requirements will be maintained as they are in the Permit.

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